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New Jersey Supreme Court

Acquackanonk Water Company, East Jersey Water Company, Kearney Water Company, Montclair Water Company and Passaic Water Company, Prosecutors,	
vs.	
Board of Public Utility Commissioners, Defendant.	

Notice of Appeal and Grounds of Appeal.

Sirs:

Take notice that Acquackanonk Water Company, East Jersey Water Company, Kearney Water Company, Montclair Water Company and Passaic Water Company, appeal to the Court of Errors and Appeals in the last resort in all causes in New Jersey from the whole of the judgment entered in this cause, on the following grounds:

1. Because the Supreme Court erred in giving judgment for the defendant in that it failed to give effect to any and all of the reasons filed by the prosecutors in said cause.

2. Because the Supreme Court erred as a matter of law in holding that the Federal Income

taxes which the Companies are required to pay should be excluded from operating expenses in ascertaining the justice and reasonableness of the rates.

3. Because the judgment of the Supreme Court will operate to take the property of the prosecutor without due process of law in that the Board of Public Utility Commissioners in fixing the value of the property omitted the going value of the property.

4. Because the judgment of the Supreme Court will operate to take the property of the prosecutor without due process of law in that the Board of Public Utility Commissioners in fixing the value of the property omitted cash working capital.

5. Because the judgment of the Supreme Court will operate to take the property of the prosecutor without due process of law in that the Board of Public Utility Commissioners omitted the appreciation in value due to the increase in the level of all values since 1914.

6. Because the Supreme Court erred in giving judgment for the respondent instead of for the prosecutor.

Dated, December 27, 1923.

L. Edward Herrmann,
Attorney for and of Counsel with Acquackanonk Water Company, East Jersey Water Company, Kearney Water Company, Montclair Water Company and Passaic Water Company, Prosecutors-Appellants.

III.

Notice of Appeal and Grounds of Appeal.

To:

THOMAS BROWN, ESQ.,
Attorney for the Board of
Public Utility Commissioners.

AARON A. MELNIKER, EUGENE
T. SHARKEY and TREACY & MILTON,
Attorneys for Bayonne.

WALTER E. MARSDEN and
THEODORE J. BADGLEY,
Attorneys for Montclair.

Service of a copy of the within notice acknowledged this 31st day of December, 1923.

EUGENE SHARKEY,
Atty. for City of Bayonne.

Service of a copy of the within notice is hereby acknowledged this 2nd day of Jany., 1924.

THOMAS BROWN,
Atty. of and of Counsel with Deft. Board.

Service of a copy of the within notice is hereby acknowledged this 4th day of January, 1924.

THEODORE J. BADGLEY,
Counsel for the Town of Montclair.

IV.

Notice of Appeal and Grounds of Appeal.

NEW JERSEY SUPREME COURT.

City of Bayonne,
Prosecutor,

vs.

Board of Public Utility Commissioners,
Defendant.

Sirs:

Take notice that the City of Bayonne appeals to the Court of Errors and Appeals in the last resort in all causes in New Jersey from the holding of the judgment entered in this cause upon the following grounds:

1. Because the Supreme Court erred in giving judgment for the defendant in that it failed to give effect to any and all of the reasons filed by the prosecutors in said cause.

2. Because the Supreme Court erred in giving judgment for the respondent instead of the prosecutor.

Dated: January 21st, 1924.

Treacy & Milton,
Attys. for and of Counsel with the City of Bayonne, Prosecutor Appellant.

V.

Notice of Appeal and Grounds of Appeal.

To:

THOS. BROWN,
Atty. for Bd. of Pub. Util. Commrs.

L. EDWARD HERRMANN,
Atty. for Acquackanonk Water Company, East Jersey Water Company, Kearney Water Company, Montclair Water Company and Passaic Water Company.

Service of within is hereby acknowledged Jan. 21, 1924.

L. EDWARD HERRMANN,
Atty. of Acquackanonk Water Co., *et al.*

THOMAS BROWN,
1/24/1924.
Atty. of Respondent Board.

VI.

Opinion of Supreme Court.

NEW JERSEY SUPREME COURT,

JUNE TERM 1923.

ACQUACKANONK WATER COMPANY,
EAST JERSEY WATER COMPANY,
KEARNEY WATER COMPANY,
MONTCLAIR WATER COMPANY and
PASSAIC WATER COMPANY,
Prosecutors,

VS.

BOARD OF PUBLIC UTILITY COMMISSIONERS,
Defendant.

CITY OF BAYONNE,
Prosecutor,

VS.

BOARD OF PUBLIC UTILITY COMMISSIONERS,
Defendant.

TOWN OF MONTCLAIR,
Prosecutor,

VS.

BOARD OF PUBLIC UTILITY COMMISSIONERS,
Defendant.

Argued June 7, 1923. Decided November 15, 1923.

On Writs of Certiorari.

Before Justices Trenchard and Parker.

JOHN B. HUMPHREYS, WILLIAM M. WHERRY (of the New York Bar) and L. EDWARD HERR-

MANN, for Acquackanonk Water Company, East Jersey Water Company, Kearney Water Company, Montclair Water Company and Passaic Water Company.

AARON A. MELNIKER, EUGENE T. SHARKEY and TREACY & MILTON, for Bayonne.

WALTER E. MARSDEN and THEODORE J. BADGLEY, Montclair.

THOMAS BROWN, for Board of Public Utility Commissioners.

PER CURIAM:

These are three writs of certiorari allowed, one to the several water company prosecutors, one to the City of Bayonne and one to the Town of Montclair, for the purpose of reviewing water rates fixed by the order of the Board of Public Utility Commissioners of March 27, 1923.

It appears that the water companies posted a new schedule of rates in February, 1922. The Board enjoined their putting it into effect and ordered a hearing. At the hearing the Board decided that the East Jersey Water Company was not a public utility and excluded it from the proofs. On certiorari it was decided that it was a public utility within the meaning of the statute, and the order refusing to consider the application was set aside. *Acquackanonk Water Co.* v. *Board of Public Utility Comm'rs,* 118 Atl. 535, affd. 119 Atl. 679, under another name. The companies then filed an amended schedule. It

was apparently based on the proposition, and was heard, considered and decided upon the theory that the whole group of water companies was so intertwined by ownership and operation that it would be considered in substance as one concern supplying all the municipalities, and the valuation of the property determined in the aggregate and the rates determined upon the basis of cost of supplying the various municipalities served.

We do not see how the matter could reasonably have been handled in any other way.

Treating the matter in this way the question turns upon the gross valuation of the entire system.

The Board fixed the gross valuation at $11,500,000. The municipalities contend that such valuation is too high, the companies, that it is too low.

The first point made by the water companies is that the Board erroneously reduced the value of the property by excluding one-half of the value of the Kikeout reservoir. But the evidence shows that such reservoir property is a mere site, not useful or used at all in supplying water at present, and possibly never may be. The complaint which the companies make is that only one-half the value of this reservoir was taken in consideration. Under the circumstances as disclosed by the evidence the allowance of one-half its value was all the prosecutor is entitled to, and is, we think, unobjectionable from any point of view.

IX.

Opinion of Supreme Court.

The next point is that the value of water rights was not considered in determining the value upon which the rates were predicated. But the Board reported that they had considered the fair value of the property upon which the rates should be predicated, including all physical and intangible elements, working capital, cost of organization, going concern, etc. And under the headings "Water Power Rights" and "Water Diversion Rights" the Board said: "These rights are undoubtedly, of great value, and while it is true that the same parties interested in these water companies are also interested in the water power rights, water power developments were in operation for many years before the organization of the water companies, and the contracts for the diversion of the water appear to have been originally made in good faith, and have never been questioned. In view of all the facts, the Board concludes that the valuation of these water rights on the basis of their purchase price is proper for present value." This we think sufficiently shows that they were included. It is argued that since the costs of water rights are not specifically enumerated, they are therefore excluded. But we do not think that follows: The Board has certified in effect that it considered all physical and intangible elements and that the total value was $11,500,000.

The next point made by the companies is that the Board considered matters not of evidential character in determining the value of the property. This is directed against the statements of

valuation made by three of the expert witnesses, and particularly against that of Dr. Bemis. It seems to us that they were evidential, the Board by the express language of the statute, not being limited by strict rules of evidence. It was endeavoring to find out the value of these properties and had a right to take into account the statements of value submitted by the witnesses in connection with their testimony. It would be almost impossible to carry in mind all these different figures without some sort of tabulation.

It is next urged that the statements of Dr. Bemis were not of present value. But the character of the evidence was before the Board. And moreover, apparently, considering its findings, it did not accept the values of Dr. Bemis.

The next point made is that it was improper for the Board to *consider* the price at which the owners had offered to sell the property. We think this was proper evidence because it indicated the value placed upon the property by its owners, but which, however, the Board did not adopt, because it placed upon the property a value of about one million dollars above what the owners offered to sell it for.

The next point made is that the Board did not make specific findings. We think it did so sufficiently in view of the fact that there was a combination of these companies and it was apparently impossible to separate them.

The next point is that the Board refused to consider federal income taxes paid as an operating deduction. But the Supreme Court of the

United States in *Galveston Electric Co.* v. *Galveston,* 258 U. S. 388, disposed of this point contrary to the claim of the companies. In that case the master allowed the Federal Income Tax as a cost of operation, and the District Court disallowed it, and the later action was sustained by the Supreme Court saying: "But the fact that it is the federal corporate income tax for which deduction is made must be taken into consideration in determining what rate of return shall be deemed fair. For under section 216 the stockholder does not include in the income on which the normal federal tax is payable dividends received from the corporation. This tax exemption is therefore, in effect, part of the return on the investment."

The next point made is that the report does not take into consideration the increase in taxes which concern the companies. But what the Board did was to take into account the taxes for 1922, the time of the hearing before the Board. To go beyond that the Board would have to speculate, and that we think it certainly was not obliged to do.

The next point is that the Board was in error in not taking into account the deficiency in earnings caused by the action of the Board in preventing the companies from obtaining adequate rates during the litigation through its order suspending the posted rates. But the companies were collecting all the rates they were entitled to by law to collect, and the Board would not have been justified in undertaking to make up

any such deficiencies. Moreover, no claim of this sort was made at the hearing, so far as we can find.

We, therefore, find no reason in the points of the companies for setting aside the order.

Nor do we find any of the points made by the municipalities sufficient to disturb the order.

The City of Bayonne contends that the rates fixed for that city are excessive, and that the value put upon the property was excessive, and refers to a lower appraisal made by the State in 1912. But there has been, we think, an increase in the value (as with most properties) since that date, and certainly there is nothing in the evidence which justifies a present value on the basis of the appraisal of 1912. Upon the whole evidence we cannot say that the valuation was too high.

The next point Bayonne makes is that it was error to make an allowance for going concern value. But the decisions are to the contrary. *Public Service Co.* v. *Public Utility Board,* 84 N. J. L. 463, affd. 87 N. J. L. 581. There seems to be no substantial dispute concerning the amount allowed for going concern value, but the contention seems to be that it ought to have been excluded. In any event we find no reason in this point for setting aside the order.

The next point Bayonne makes is that the allowance by the Board of $900,000 per annum yielding approximately 8 per cent. is excessive. From what we have said we have sufficiently indicated that we do not think it excessive.

Opinion of Supreme Court.

Bayonne contends that the Washington and Beall contract with the city is invulnerable and the city cannot be compelled to pay more than that contract provides. But contracts between cities and water companies cannot prevail against an order of the Board. *Hackensack Water Co.* v. *Board,* 115 Atl. 531.

Upon the whole, we see nothing in the points made by Bayonne that justifies any interference with the order of the Board.

The Town of Montclair contends that it is required to pay returns upon property not used by it.

It first argues that at one time the water companies through the mains of Montclair, served West Orange, Bloomfield and Glen Ridge, and that these towns are no longer supplied, and therefore the Board had no right to take into consideration the value of the increased size of the Montclair mains. But it is not denied that these mains are now used to supply water to Montclair.

Another point Montclair makes is that the meter charges made by the Board are excessive. In other words, it says that certain meters are valued at $9.75 and that because the Board fixed the rate at $6.00 a year, which is 33 per cent. of the cost of the meter, the charge is excessive. But there is something besides the cost of the meter to be considered; it requires labor to put it in, keep it in order, and to have it read monthly.

The next point is that the fire hydrant charges for the town are too high. But the rate is based

on what is called the inch foot basis, to which the town has no objection, but contends that the increase will be 75 per cent. and that it is exorbitant. We cannot say that it is. The matter of fire hydrants is entirely distinct from house service, and of course, requires more water in case of fire, and service to take care of them. The matter is not without its difficulties, but we cannot say that Board was wrong in this.

The order will be affirmed.

XV.

Rule for Affirmance.

NEW JERSEY SUPREME COURT.

Acquackanonk Water Company, East Jersey Water Company, Kearney Water Company, Montclair Water Company and Passaic Water Company, Prosecutors, vs. Board of Public Utility Commissioners, Defendant.	10

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The court having inspected the transcript and proceedings, together with the report and order of the Board of Public Utility Commissioners returned with the certiorari in this matter, and the reasons filed by the prosecutor, and having heard the argument of counsel thereon and maturely considered the same.

Do order that the report and order of said Board of Public Utility Commissioners be in all things affirmed. 30

Rule entered this 18th day of December, 1923.

On motion of,

Thomas Brown,
Attorney for Defendant, Board of Public Utility Commissioners.

40

XVI.

Rule for Affirmance.

NEW JERSEY SUPREME COURT.

City of Bayonne,
Prosecutor,

vs.

Board of Public Utility Commissioners,
Defendant.

The court having inspected the transcript and proceedings, together with the report and order of the Board of Public Utility Commissioners returned with the certiorari in this matter, and the reasons filed by the prosecutor, and having heard the argument of counsel thereon and maturely considered the same,

Do order that the report and order of said Board of Public Utility Commissioners be in all things affirmed.

Rule entered this 18th day of December, 1923.

On motion of,

Thomas Brown,
Attorney for Defendant, Board of Public Utility Commissioners.

XVII.

Rule for Affirmance.

NEW JERSEY SUPREME COURT.

TOWN OF MONTCLAIR,
Prosecutor,

vs.

BOARD OF PUBLIC UTILITY COMMISSIONERS,
Defendant.

The court having inspected the transcript and proceedings, together with the report and order of the Board of Public Utility Commissioners returned with the certiorari in this matter, and the reasons filed by the prosecutor, and having heard the argument of counsel thereon and maturely considered the same,

DO ORDER that the report and order of said Board of Public Utility Commissioners be in all things affirmed.

Rule entered this 18th day of December, 1923.
On motion of,

THOMAS BROWN,
Attorney for Defendant, Board of Public Utility Commissioners.

Writ of Certiorari.

Acquackanonk Water Co. and others Prosecutors.

(Issued, April 17, 1923.)

NEW JERSEY SUPREME COURT,

ACQUACKANONK WATER COMPANY, EAST JERSEY WATER COMPANY, KEARNEY WATER COMPANY, MONTCLAIR WATER COMPANY, and PASSAIC WATER COMPANY,

Prosecutors,

against

BOARD OF PUBLIC UTILITY COMMISSIONERS,

Defendant.

Issued April 17, 1923.

State of New Jersey, ss:

[SEAL]

THE STATE OF NEW JERSEY TO BOARD OF PUBLIC UTILITY COMMISSIONERS, GREETING:

We being willing for certain reasons to be certified of the proceedings upon the schedules of rates filed with the Board of Public Utility Commissioners by the

Acquackanonk Water Company, East Jersey Water Company, Kearney Water Company, Montclair Water Company and Passaic Water Company, dated February 1, 1922, including evidence presented to the Board, together with the findings, report and order issued thereon dated March 27, 1923, Do COMMAND YOU that the said proceedings and the evidence presented to the Board, together with the findings, report and order issued thereon, together with all proceedings and matters touching and concerning the same, as fully as the same remain before you, or under your control, you do certify and send to the Justices of our Supreme Court, at Trenton, on the 26th day of April, 1923, together with this writ, that we may cause to be done thereupon what of right and according to law should be done.

WITNESS, William S. Gummere, Chief Justice of the said Supreme Court, at Trenton, this 17th day of April, 1923.

ENOCH L. JOHNSON,
Clerk.

L. Edward Herrmann,
Attorney of Prosecutors.

I allow this writ. Let it be sealed.
Dated, April 17, 1923.

FRANCIS J. SWAYZE,
J. S. C.

Writ of Certiorari.

City Bayonne, Posecutor.

Issued April 17, 1923.

NEW JERSEY SUPREME COURT.

In the Matter of the Application of the CITY OF BAYONNE, for a writ of certiorari to review the report and order of the Board of Public Utility Commissioners, dated March 27, 1923, in the matter entitled "*Re* Amendment of Rate Schedules dated February 1, 1922."

Writ, issued April 17, 1923.

(Similar in form to above)

John J. Treacy,
Attorney for the City of Bayonne,
1 Exchange Place,
Jersey City, N. J.

I allow this writ. Let this writ be sealed.
April 17, 1923.

F. J. SWAYZE,
J. S. C.

Writ of Certiorari.

TOWN OF MONTCLAIR, PROSECUTOR.

Issued April 18, 1923.

NEW JERSEY SUPREME COURT.

In the Matter of the Application of the TOWN OF MONTCLAIR, for a writ of certiorari to review the report and order of the Board of Public Utility Commissioners, dated March 27, 1923, in the matter entitled "*Re* Amendment of Rate Schedules dated February 1, 1922."

(Similar in form to above)

Theodore J. Badgley,
Counsel for Town of Montclair,
Lawyers Building,
Newark, N. J.
Walter E. Marsden,
Town Attorney,
Municipal Building,
Montclair, N. J.

This writ is allowed. Let it be sealed.
April 18, 1923.

F. J. SWAYZE,
J. S. C.

CONSOLIDATION OF PROCEEDINGS.

The proceedings in the above matters were consolidated by rules filed May 9th and 10th, 1923, respectively.

Companies' Reasons.

NEW JERSEY SUPREME COURT.

ACQUACKANONK WATER COMPANY, EAST JERSEY WATER COMPANY, KEARNEY WATER COMPANY, MONTCLAIR WATER COMPANY and PASSAIC WATER COMPANY, Prosecutors, against BOARD OF PUBLIC UTILITY COMMISSIONERS, Defendant.	On Certiorari.

The Prosecutors file the following reasons upon which they will rely for a reversal of the proceedings under review in this case:

1. The conclusion of the Board of Public Utility Commissioners disapproving the rates filed on February 1, 1922, by the Prosecutors is invalid, because there was no evidence reasonably to support said conclusion. The said conclusion is arbitrary in that there was no evidence to support the same and no reasonable grounds for said conclusion.

2. The finding and determination of the Board that the rate schedules filed by the Prosecutors dated February 1, 1922, were not just and reasonable, was without evidence reasonably to support it, and is arbitrary in that there was no evidence to support the same and no reasonable grounds for said conclusion.

3. The determination of the Board limiting the value of the properties of the Prosecutors upon which

they are entitled to earn a fair return, was not reasonably supported by the evidence, and was arbitrary in that there was no evidence to support the same and no reasonable grounds for said conclusion.

4. The determination of the Board limiting the value of the properties of the Prosecutors upon which they are entitled to earn a rate of return reduced the value of the property arbitrarily, by excluding the values of property used and useful in the service.

5. The determination of the Board limiting the value of the properties of the Prosecutors upon which they are entitled to earn a rate of return reduced the value of the property arbitrarily, by excluding elements of value established by the evidence, and said determination was without evidence or other grounds reasonably to support it.

6. The determination of the Board limiting the valuation of the properties of the Prosecutors upon which they are entitled to earn a net return is arbitrary, in that it ignored the evidence which established that the present plane of values is higher than that existing before 1915.

7. The determination of the Board fixing the rate of return which the Prosecutors are entitled to earn through their rates is invalid, because there is no evidence reasonably to support the Board's determination. The same is unreasonable and arbitrary in that there was no evidence to support the same and no reasonable grounds for said conclusion.

8. The determination of the Board that the Prosecutors, said schedules of rates were not fair and reasonable, was arbitrary in that the Board did not take into consideration prior deficiencies in earnings.

Companies' Reasons

9. The determination of the Board that the Prosecutors are not entitled to treat their Federal taxes as operating deductions is invalid in law and was not supported by the evidence.

10. The report, finding and determination of the Board deprived the Prosecutors of their property without due process of law, in the following respects:

(a) Said report, finding and determination does not allow a fair return on the reasonable present value of the Prosecutors' property.

(b) The Board underestimated the rate of return which the Prosecutors are entitled to earn and rejected the evidence thereon.

(c) The Board rejected substantial elements in fixing the value of the property upon which the Prosecutors are entitled to earn a return.

(d) The Board rejected substantial items of property in fixing the value upon which the Prosecutors are entitled to earn a return.

(e) In determining the rate of return which the Prosecutors are entitled to earn, the Board ignored the fact that the present plane of values is higher than that existing before 1915, and will continue for an indefinite period, and the fact that interest rates have increased and investors are receiving higher yields than they did before 1915.

(f) In determining the gross revenue which the Prosecutors are entitled to the Board arbitrarily deducted from the operating expenses of the Prosecutors items which the evidence showed which the Prosecutors would have to earn.

11. The report and order of the Board deprived the Prosecutors of their property without due process of law in the following respects:

(a) In determining the gross revenues and the values of the properties of the Prosecutors, the Board considered matters not of evidentiary character.

(b) In the failure of the Board to make specific findings so that the courts may test whether the said findings are supported by the evidence or by any reasonable grounds.

12. For the foregoing reasons, and all of said reasons, the said report, finding and determination of the Board deprived the Prosecutors of their property without due process of law, in violation of Article XIV, in addition to and amendment of the Constitution of the United States.

13. For the foregoing reasons, and all of said reasons, the said report, finding tnd determination of the Board takes private property of the Prosecutors for public use without just compensation, in violation of Article I, Section 16, of the Constitution of the State of New Jersey.

14. The said proceedings are in divers other respects erroneous and contrary to law.

L. EDWARD HERRMANN,
Attorney of the Prosecutors.

William M. Wherry, Jr.,
Of Counsel.

Bayonne's Reasons.

NEW JERSEY SUPREME COURT.

CITY OF BAYONNE,
Prosecutor,
vs.
BOARD OF PUBLIC UTILITY COMMISSIONERS,
Defendant.

The Prosecutor files the following reasons, upon which it will rely for a reversal of the proceedings under review in this case.

1. The determination of the Board of Public Utility Commissioners fixing the rate of $78.00 per million gallons, to be paid by the City of Bayonne to the East Jersey Water Company is invalid because there was no evidence reasonably to support said determination. Said rate is excessive, and the finding of the Board in that respect is arbitrary and without evidence to support the same.

2. The determination of the Board fixing the value of the properties of the Acquackanonk Water Company, East Jersey Water Company, Kearny Water Company, Montclair Water Company and Passaic Water Company at $11,500,000 was not reasonably supported by the evidence. Said valuation is excessive. The finding of the Board in that respect was arbitrary, and there was no evidence to support the same.

3. The determination of the Board that approximately $1,000,000 should be allowed for going value upon the properties of the five companies mentioned in

paragraph 2, was not reasonably supported by the evidence. There was no evidence to support said determination.

4. The Board's determination that the value of the properties of the five companies above mentioned was $11,500,000 included appreciation upon the entire properties on the basis of present prices, and was without evidence reasonably to support it. The evidence showed that forty per cent of the property of the companies had been acquired at prevailing prices during the last five years and therefore should not have been appreciated. The Board's finding in this respect was without evidence to support it.

5. The Board's determination that the value of the properties of the said five companies was $11,500,000 did not make allowance for the depreciation shown by the evidence to have taken place in said properties. The Board's finding in this respect was not reasonably supported by the evidence.

6. The determination of the Board fixing the value of the properties of the said five companies upon which they were entitled to earn a rate of return included elements of value, which should have been excluded from the evidence. There was no evidence reasonably to support the Board's finding in this respect.

7. The determination of the Board that eight per cent was a reasonable rate of return upon the value of the properties of the five companies mentioned above was without evidence to reasonably support the same. The evidence showed that the rate of return should be less than eight per cent, and said rate is excessive.

Bayonne's Reasons

8. The determination of the Board that the Municipalities served by the East Jersey Water Company, including the City of Bayonne, should pay rates which would yield a rate of return upon the property not owned by said East Jersey Water Company is invalid and without warrant in law. There was not evidence reasonably to support said determination, and the same is arbitrary and without any evidence to support it.

9. The Board's determination ignores the right of the City of Bayonne to an equitable adjustment as against the East Jersey Water Company, by virtue of the purchase by said City for a valuable consideration of the contract between the East Jersey Water Company and Washington and Beall to supply said City with water, at the rates specified in said contract. The Board's determination in that respect is contrary to law and invalid, and without evidence to reasonably support the same.

AARON A. MELINKER,
JOHN J. TREACY,
Attorneys of City of Bayonne.

Montclair's Reasons.

NEW JERSEY SUPREME COURT.

TOWN OF MONTCLAIR,
Prosecutor,
vs.
BOARD OF PUBLIC UTILITY COMMISSIONERS,
Defendant.

The Prosecutor of the Town of Montclair files the following reasons, upon which it will rely for a reversal of the proceedings under review in this case.

1. The determination of the Board fixing the value of the properties of the Acquackanonk Water Company, East Jersey Water Company, Kearny Water Company, Montclair Water Company and Passaic Water Company at $11,500,000 was not reasonably supported by the evidence. Said valuation is excessive. The finding of the Board in that respect was arbitrary, and there was no evidence to support the same.

2. The determination of the Board that approximately $1,000,000 should be allowed for going value upon the properties of the five companies mentioned in paragraph 1, was not reasonably supported by the evidence. There was no evidence to support said determination.

3. The Board's determination that the value of the properties of the five companies above mentioned was $11,500,000 included appreciation upon the entire properties on the basis of present prices, and was without evidence reasonably to support it. The evidence showed that forty per cent of the property of the companies had been acquired at prevailing prices during the last five years and therefore should not have

been appreciated. The Board's finding in this respect was without evidence to support it.

4. The Board's determination that the value of the properties of the said five companies was $11,500,000 did not make allowance for the depreciation shown by the evidence to have taken place in said properties. The Board's finding in this respect was not reasonably supported by the evidence.

5. The determination of the Board fixing the value of the properties of the said five companies upon which they were entitled to earn a rate of return included elements of value, which should have been excluded from the evidence. There was no evidence reasonably to support the Board's finding in this respect.

6. The determination of the Board that eight per cent was a reasonable rate of return upon the value of the properties o fthe five companies mentioned above was without evidence to reasonably support the same. The evidence showed that the rate of return should be less than eight per cent, and said rate is excessive.

7. The determination of the Board as to the rates for fire service in the Town of Montclair was without evidence to reasonably support it. The said rates are excessive and the Board's determination in that respect was arbitrary and had no evidence to support it.

8. The determination of the Board as to the rates for general service in the Town of Montclair was without evidence reasonably to support it. The said rates are excessive, and the Board's determination in that respect was arbitrary and had no evidence to support it.

WALTER E. MARSDEN,
Attorney for Town of Montclair.
THEODORE J. BADGLEY,
Counsel for Town of Montclair.

Decision.

(March 27, 1923)

STATE OF NEW JERSEY,

BOARD OF PUBLIC UTILITY COMMISSIONERS.

ACQUACKANONK WATER COMPANY, EAST JERSEY WATER COMPANY, KEARNEY WATER COMPANY, MONTCLAIR WATER COMPANY, PASSAIC WATER COMPANY,

Re AMENDMENT OF RATE SCHEDULES DATED FEBRUARY 1ST, 1922.

W. M. Wherry and L. Edward Hermann, for the petitioners.

John J. Treacy for various municipalities, affected.

Edward F. Merry for City of Paterson.

George L. Record and A. O. Miller for City of Passaic.

W. B. Gourley for City of Clifton.

Randolph C. Barrett for Town of Bloomfield.

H. C. Barrett for Town of Harrison.

William J. Davis for Borough of East Newark.

On February 25, 1922, the Acquackanonk Water Company, East Jersey Water Company, Kearney Water Company, Montclair Water Company and Passaic Water Company filed with the Board a proposed amendment providing for increases in the rates then being charged. On April 20th, 1922, the Board decided that it had no jurisdiction over the East Jersey Water Company, as in the opinion of the Board, that company was not a public utility within the mean-

ing of "An Act concerning public utilities, etc." (Chap. 195, Laws of 1911). The remaining companies filed further amendments to the existing schedules. The decision as to the East Jersey Water Company was followed by an order dated May 3rd, 1922, discontinuing the hearing on the increase in rates of the East Jersey Water Company and continuing an order previously entered suspending the proposed increase in rates by the other companies.

On May 31st, 1922, the Board issued a further order suspending the rates for an additional three months or until the first day of September, 1922. Since that time, by agreement with the Board, no attempt has been made by the companies to put the proposed rates into effect pending final hearing and decision.

On July 15th, 1922, the Supreme Court, reversing the Board, decided that the East Jersey Water Company was a public utility and the companies have since proceeded upon the theory that all five companies were to be treated as an interlocked group operating the aggregate property for the joint benefit of all the municipalities and all the customers served by each and all of them.

The Court of Errors and Appeals subsequently affirmed the decision of the Supreme Court.

SOCIETY FOR ESTABLISHING USEFUL MANUFACTURES:

An organization known as the Society for Establishing Useful Manufactures, a few years after the Revolutionary War, acquired certain water rights from the State at the Passaic Falls at Paterson and built and furnished water power to a large number

of factories under certain perpetual contracts. When it became necessary to utilize the water of the river for potable purposes, agreements had to be made with the Society for Establishing Useful Manufactures allowing its diversion, while it, in turn, had to repurchase many of the factories and industries which it had originally established, in order to enable it to cancel the perpetual contracts for the supply of water power.

PASSAIC WATER COMPANY:

The Passaic Water Company is the oldest of the associated water companies above referred to, having been incorporated on February 13th, 1849, by special act of the New Jersey Legislature.

The company was organized for the purpose of supplying water to the Town of Paterson and the Township of Manchester.

The first supply of water was taken about 1857, from the Passaic River at a point below the Great Falls in Paterson, opposite Gun Mill. It was pumped by means of a water wheel located a short distance below a low dam across the river at that point. In the year 1867 the intake was moved to a point above Great Falls, and there remained until December 7th, 1899, when it was again moved, this time to Little Falls, the water being delivered to Paterson through a 42-inch steel conduit laid in the year 1897, along the Little Falls Turnpike.

In the year 1890 the Passaic Water Company began to furnish water to the Acquackanonk Water Company, from Great Falls, in Paterson, through the Paterson distribution pipe system, and thence through meters located at Crooks Avenue and Main

Street, into a 20-inch cast-iron main running to Passaic through Acquackanonk Township, a part of which is served, as well as the City of Passaic.

The company has supplied water for many years to a part of Manchester Township, including the territory now known as the Borough of Prospect Park. The Passaic Water Company also supplies water to a few of the citizens of Totowa.

The company's contract for furnishing the City of Paterson with water for public uses expired August 1st, 1910, but it has continued to furnish water to the city and to its consumers under the terms and conditions of the last contract.

DYERS' PIPE LINE OF THE PASSAIC WATER COMPANY:

As the waters of the Passaic River below the Great Falls in Paterson became more and more polluted, owing to increase in the population of the city and in the number of dye houses and factories which discharge their waste into the stream, the Passaic Water Company in 1905 laid a 48-inch to 42-inch steel conduit from the dam of the Society for Establishing Useful Manufactures, just above Great Falls, to a point at the Weidmann's Silk Dyeing Plant, about two miles down stream, for the purpose of furnishing them with a supply of clean water, and since the year 1906, the water has been supplied by gravity to varioue dye houses and factories located along this pipe line.

ACQUACKANONK WATER COMPANY:

The Acquackanonk Water Company was incorporated by special Act of the Legislature of New Jer-

sey approved April 9th, 1867. It supplies water to the City of Passaic and certain parts of Acquackanonk Township.

The water supplied by this company was obtained from the canal of the Dundee Water Power and Land Company from 1871 to the year 1885, when an intake was obtained from Vreeland's Pond on Weasel Brook, Passaic. In 1890 the Vreeland Pond intake was abandoned, and the company took its water from the Passaic River above Great Falls in Paterson, the water being pumped by the Passaic Water Company through the distribution system of the City of Paterson. The supply has since been the same as that to Paterson.

From the year 1890 to 1908 water was furnished to the Acquackanonk Water Company exclusively through the Paterson distribution system, this supply being known as the "Low Pressure Supply."

In the year 1908 a 30-inch steel branch pipe was laid from the 51-inch high pressure conduit, which had been laid by the East Jersey Water Company from Little Falls to Belleville, supplementing the low pressure supply from Paterson.

Although the contract with the City of Passaic expired in the year 1909 the company has continued to furnish water to the city and its consumers at the old contract rates.

MONTCLAIR WATER COMPANY:

The Montclair Water Company was incorporated January 15th, 1887, under Act of the New Jersey Legislature, approved April 21st, 1876, for the purpose of constructing, maintaining and operating waterworks in the Township of Montclair (now the

Town of Montclair) and supplying said township and its inhabitants with water.

The water first supplied to the town was obtained from wells located upon the property of the company on Watchung Avenue, Montclair. This supply continued until 1892, when the company began to receive water from the pipe lines of the East Jersey Water Company, running from Macopin Intake on the Pequannock River to the City of Newark. The Pequannock supply continued until 1904, since which time the supply has been taken from the Passaic River at Little Falls.

Water from the East Jersey Water Company's 51-inch high pressure conduit is supplied to the Montclair Water Company's distribution pipe system through two connections, one a 20-inch cast-iron pipe located at Grove Street, the other a 16-inch cast-iron pipe at Brookdale. These two pipes join at the corner of Grove Street and Watchung Avenue, where the 20-inch pipe runs along the latter to the Montclair Pumping Station.

Up to 1921 the lower portions of the Town of Montclair, together with the Town of Bloomfield, the Borough of Glen Ridge and a small part of West Orange, were supplied with water under direct pressure from the East Jersey Water Company's 51-inch steel conduit; while the remaining high portion of the Town of Montclair is served with water pumped from the Watchung Avenue pipe line to the standpipe located upon the top of Watchung Mountain, about a mile above the pumping station. An emergency connection is still maintained with West Orange and also with Glen Ridge, but both of these places now obtain their supply from other sources.

The Montclair pumping station built at Watchung Avenue about the year 1887 is in daily use and repumps a large part of all the water supplied to Montclair.

On March 7th, 1887, the Montclair Water Company entered into a contract with the Township of Montclair, and since that time has supplied water to Montclair from the various sources cited. Upon the expiration of this contract in March, 1898, a new contract was entered into with the Town of Montclair, which expired in 1912, since which time the company has continued to furnish water service under the terms and conditions contained in the expired contract.

The Montclair Water Company furnishes water to the Board of Chosen Freeholders of Essex County, for use in the County Institutions at Overbrook. This supply is pumped at the Watchung Avenue station into a pipe line owned by the Freeholders, through a meter located about three-quarters of a mile from the pumping station.

The Town of Nutley is also supplied from the East Jersey Water Company's 51-inch high pressure conduit.

The Montclair Water Company also supplies the Little Falls Water Company with water, which the latter distributes in part of Little Falls Township.

EAST JERSEY WATER COMPANY:

The East Jersey Water Company was incorporated August 1st, 1889, under an Act of the Legislature entitled "An Act Concerning Corporations," approved April 7th, 1875, for the storage, sale and delivery of water and the construction and maintenance

of the necessary reservoirs, pipe lines, and other works.

On September 24th, 1889, the company entered into contract with the City of Newark, to build a water supply system consisting of certain reservoirs lying within the Pequannock watershed and a pipe line of 50,000,000 gallons guaranteed capacity, connecting them with the City of Newark. These works were completed and the water has been furnished from them to the City of Newark since January 12th, 1892.

Under this contract, the City of Newark was permitted to draw but 27,500,000 gallons per day from the Pequannock works. This left the balance of the available flow for the service of the East Jersey Water Company, which contracted to furnish a temporary supply of water from the Pequannock Works to Jersey City.

To this end the East Jersey Water Company in 1895 built what is known as the Kearney Extension, connecting at the corner of Kearney Avenue and Belleville Turnpike, in Kearney, with three large pipes owned by Jersey City, through which water was pumped to Jersey City, at the old Jersey City Pumping Station located upon the Passaic River at Belleville.

As it was found that the works built by the company for the City of Newark were not capable of delivering the estimated quantity of 50,000,000 gallons per day, the East Jersey Water Company laid an additional 48-inch to 42-inch steel pipe from the Macopin Intake to Belleville, and an additional reservoir known as the Canistear Reservoir was built upon the Pequannock drainage area to supplement the Jersey City Supply, which continued from

the Pequannock Works or from the Passaic River at Little Falls, until 1904, when the service ceased. Since this time Jersey City has obtained its own supply from the Boonton Reservoir on the Rockaway River. For a short time ending April 1st, 1922, a supplemental supply was furnished at Belleville from the East Jersey's 51-inch line.

By agreement of July 12th, 1895, the East Jersey Water Company contracted to furnish water to the New York and New Jersey Water Company for the supply of the City of Bayonne. This service has continued to the present time, the present source of supply being from Little Falls, the water being delivered to the city at the corner of Belleville and Kearney Avenues, in Kearney. The property of the New York & New Jersey Water Company has been taken over by the City of Bayonne together with the contract under which the East Jersey Water Company supplied the water to the New York & New Jersey Water Company.

The East Jersey Water Company supplies water to the City of Bayonne and to the New Jersey Suburban Water Company, which in turn supplies the Towns of Kearney, Harrison and East Newark, from their connection with the 42-inch Kearney Extension of the East Jersey Water Company at the corner of Kearney Avenue and Belleville Turnpike.

The East Jersey Water Company had obligated itself to furnish water for the supply of Jersey City, Bayonne, Kearney, Nutley and the Montclair Water Company, its principal source of supply originally being from the Macopin Intake upon the Pequannock River. In fulfilment of its contract with the City of Newark, however, the company was required to turn

over to the latter the Pequannock works. The company had prior to 1899, acquired necessary land, power and water rights at Little Falls for the further development of that supply, and in December, 1899, a low pressure pump and one high pressure pump were put into active service, two other high pressure pumps being completed shortly thereafter. In 1901 and 1902 the filtration plant located in proximity to the pumping station at Little Falls was constructed, and since then all water taken from this source by the affiliated companies has been filtered at this plant.

KEARNEY WATER COMPANY:

Under act of the New Jersey Legislature, approved April 21st, 1876, the Kearney Water Company was incorporated on October 18th, 1886, for the purpose of constructing, maintaining and operating waterworks. The company built no works, but on June 28th, 1900, acquired by deed from the East Jersey Water Company the ownership of that portion of the 51-inch conduit which lies within the limits of Joralemon Avenue, and of the 42-inch Kearney Extension pipe from Joralemon Avenue in Belleville to the corner of Kearney Avenue and the Belleville Turnpike, in Kearney, including the river crossings.

Through this extension the Kearney Water Company transports water from the East Jersey Water Company's 51-inch steel high service conduit in Belleville, through Belleville, under the Passaic River, and thence to the intersection of Kearney Avenue and the Belleville Turnpike, where it delivers the water through Venturi meters, owned by the East Jersey Water Company, into the pipe lines of the City of Bayonne and of the New Jersey Suburban Water

Company, for the supply of Bayonne, Kearney, Harrison and East Newark, and for possible emergency supply of Jersey City.

From the above statement it is clear that the relative corporation ownership in the jointly used facilities cannot govern in the determination of the rates which should be charged the various consumers that are ultimately supplied with water by these various companies. The valuation of the property will therefore be determined in the aggregate and it will then be allocated in proportion to the service supplied to each municipality. The rates will then be determined upon the basis of cost of supplying the various municipalities served. The intercorporate charges and their adjustment will be left to the companies, unless and until it appears that misleading and erroneous information is being supplied through the annual reports of the respective companies.

Valuation.

As to the value of this property, we have:

I. Certain references in the testimony to an inventory and appraisal as of December 31st, 1912, made for the company by Metcalf & Eddy.

II. Certain references in the testimony to a report made December 29th, 1913, by a Board of Appraisers representing the State of New Jersey, consisting of Clemens Herschel, Nicholas S. Hill, Jr., and Dabney H. Maury.

III. A valuation submitted by Leonard Metcalf as of December 31st, 1921.

IV. A valuation made by Nicholas S. Hill, Jr., as of December 31st, 1921.

V. A valuation by Edward W. Bemis, based upon a study of book costs, reinforced by information obtained from I and II above.

It is in evidence that the gross reproduction cost of the physical property, including rights of diversion for fifty million gallons daily was fixed by the Board of Appraisers above mentioned at $9,214,684. Going value was fixed by said Board at $1,200,000, and. after making certain deductions and adjustments, the final present value of these properties, excluding rights of diversion against the S. U. M. and the Dundee Company, but including the value of the water power was fixed at $8,728,300.

Mr. Metcalf's final testimony brought his valuation to the sum of $14,323,000 (see appendix "A").

After adjustment by the Board for property now used and useful, Melcalf's final value is	$14,110,460
Mr. Nicholas S. Hill, Jr., made various estimates as to value of the property, the details of which are given in Appendix "B," and arrived at the final conclusion that the property is worth	13,000,000
The Board has made certain adjustments and deductions from Hill's valuation for items not now used and useful which gives Hill's final value as	12,927,000

COMPARISON OF METCALF'S AND HILL'S VALUATIONS:

A comparison has been made of the appraisals sub-

mitted by the engineers for the company, by classes of property.

On structural items Hill's valuation is 98.2 per cent of Metcalf's.

Both Hill and Metcalf have taken the same amount for water rights purchased in 1922, namely, $1,120,000. Hill has added $300,000 for working capital and materials and supplies, and $150,000 for preliminary and organization expenses. Metcalf has added $175,000 for materials and supplies, and $160,000 for preliminary and organization expenses. Going value has been included by Hill in the amount of $1,510,000 and by Metcalf in the amount of $2,062,000, the widest divergence being shown in this last item.

VALUATION SUBMITTED BY DR. BEMIS:

The exhibits put in by Dr. Bemis, representing the cities, were summarized as follows (Brief for the cities, page A):

"1. An historical cost of the presently used and useful property of the company taken from the books and records of the company except as to 7%, which was estimated."

"2. What may be called a reproduction cost which took as its starting point the 1912 reproduction cost made for the State Board of Water Conservation and agreed to by Messrs. Hill and Metcalf in this case as being the fair reproduction cost to which has been added in actual prices the cost of all additions to date."

Decision

1. In preparing this historical cost study Dr. Bemis testified that he made an investigation of the books of account of the associated companies and determined the items and costs of the property in place December 31st, 1921, so far as the same could be determined, and made estimates of the value of such items of property, the cost of which he did not find on the books. He claims that the items so estimated constitute but 7 or 8 per cent of the total amount as estimated by him, or, in other words, that 93% of his total consists of items actually identified by him on the books of account. The results of this investigation are set forth principally in Exhibits R-1, R-2 and R-3. Counsel for the cities has set up in tabular form in their brief (page 13-A) an analysis of this historical cost separating the structural items into two parts, namely, (*a*) property installed and priced at costs prevailing before January 1st, 1916, and (*b*) property installed and priced at costs prevailing since January 1st, 1916. Dr. Bemis testified that his analysis indicated that the original cost new of the property as of December 31st, 1922, was $9,572,977 and the original cost new less accrued depreciation was $7,544,658. Counsel for the municipalities assumes the latter figure to be a fair rate base to be taken in this proceeding.

To the totals as found by Dr. Bemis the Board adds for land and structures which Dr. Bemis considered not used and useful, but which the Board includes, the sum of $192,595 cost new, or $181,145 cost new less accrued depreciation. This will bring the totals for original cost as found by Dr. Bemis, adjusted as indicated, to the amount of $9,765,572 cost new or $7,725,804 cost new less accrued depreciation (Appendix "C").

2. The second set of exhibits submitted by Dr. Bemis constitutes essentially a continuation, following Dr. Bemis' theory, of the original appraisal of 1912 brought down to December 31st, 1921, by eliminating certain items and by the inclusion of net additions since December 31st, 1912, an allowance for increased diversion water rights of 25 million gallons daily, and the correction of an error in certain items retired on the books but not included in the original appraisal. A summary of this appraisal, showing the items as adjusted by Dr. Bemis, will be given in Appendix "D."

The total as shown by Dr. Bemis on this basis is $9,641,306. He deducted, however, for structures and land not now used the sum of $506,382. In Appendices "A" and "B" the Board has indicated the items which it includes and about which there was some disagreement of opinion as to whether they were used and useful or not. With respect to the items deducted by Dr. Bemis in the amount of $506,382, the Board make a deduction for the items excluded by it of $418,735, a difference of $87,647 to be added to Dr. Bemis' figure above mentioned. In order that the figures in Appendix "D" may be comparable with those in Appendix "C," however, it is necessary to make the water rights $1,320,000 in each appendix and to include working capital of $150,277 in each appendix. With these additions to Appendix "D" the amount of $9,641,306 shown by Dr. Bemis, with the changes as suggested, is brought up to $10,249,230, which is comparable with $9,765,572 which would be his adjusted original cost new. The difference between the two figures is $483,668.

It will be noted that Dr. Bemis placed great reli-

ance on original cost so far as he was able to ascertain the same, and that he eliminated any consideration of going concern value or appreciation due to prevailing higher prices. He submitted no appraisal of the property with a view to ascertaining present value based on reproduction cost new at unit prices now pervailing or prevalent in the immediate past.

COMMENTS ON INDIVIDUAL ITEMS:

Water Power Rights. The payments for diversion rights at Little Falls, purchased from the Beattie Manufacturing Company, are to compensate that company for depletion in water power caused by the diversion to the East Jersey and associated companies. These rights were appraised by the State Board in 1912 at $413,822. The basis of the appraisal was the cost to obtain an equivalent steam power. In the later appraisal by Hill these rights have been appraised at $615,300, using the same basis for appraisal, but taking into account the increases in cost of fuel since 1912. Both figures include overhead charges which have been disallowed in reaching the final conclusion in this decision.

Water *Diversion* Rights, purchased in 1922, $1,120,000. Below the intake at Little Falls there are two water power developments on the Passaic River, one at Paterson owned for a century or more by the Society for Establishing Useful Manufactures, commonly called the S. U. M., the other owned by the Dundee Water Power & Land Company, just above Passaic. For many years the East Jersey and associated companies have paid to the S. U. M. the sum of $5 for each million gallons of water diverted and have also paid to the Dundee Company $2 for each

million gallons of water diverted. The prices paid for the right to divert water were based upon the same method as that used in estimating the value of water power.

In 1922 the water companies paid to the S. U. M. and Dundee the sum of $1,120,000 for the perpetual right to divert 70 million gallons per day. In the year 1920 the annual payment was approximately $130,000; in the year 1921 $113,755. Capitalizing the 1920 payment on a basis of 8 per cent (as claimed by the company) would give an equivalent value of $1,625,000. The average for 1918 and 1919 was $105,000. Capitalizing this amount on an 8 per cent basis would give an equivalent value of $1,312,500. Capitalizing the 1921 payment at 8 per cent would give an equivalent value of $1,422,000. Under all the circumstances the purchase of these rights for the sum of $1,120,000 is equivalent to a reduction of the annual charge formerly paid for the same diversion rights. This purchase price allows the diversion of 75 million gallons of water daily although the quantity actually diverted has not yet reached that amount.

The price at which these rights were transferred to the water companies was based upon calculations made for the company by Mr. Leonard Metcalf. The data underlying his conclusions was submitted in Exhibit P-27*a*. An independent calculation has been made with a view to determining the reasonableness of this price by a study of the value, for power purposes, of the water diverted.

These rights are, undoubtedly, of great value and while it is true that the same parties interested in these water companies are also interested in the water power rights, the water power developments were in

operation for many years before the organization of the water companies and the contracts for the diversion of the water appear to have been originally made in good faith and have never been questioned. In view of all the facts, the Board concludes that the valuation of these water rights on the basis of their purchase price is proper for present value.

With regard to going value, working capital and cost of organization, allowances have been made for these items which, in the opinion of the Board, are fair and equitable. Going value depends not only on costs of developments but on the permanency of the present sources of water. Testimony was submitted both for and against the permanency of the present supply and we have given full consideration to these matters in arriving at a final conclusion as to value.

In addititon to the testimony with regard to values, there is in evidence the offer of the company in 1922 (Exhibit R-7) to sell the property, inclusive of the diversion rights, for the sum of $10,594,538. This offer corresponds very closely to the figures for Dr. Bemis' historical cost with adjustments as made by the Board. The testimony indicated that this offer was made for prompt acceptance, and without prejudice to the right to prove different value in condemnation proceedings.

CONCLUSIONS AS TO VALUE:

We have then before us the following bases for determining value:

Metcalf's Valuations (as adjusted)		$14,110,460
Hill's Valuations	" "	12,927,000
Offer of sale	" "	10,594,538

Bemis' historical cost (new)	9,765,572
Bemis' valuation based upon 1912 appraisal with additions to date and subsequent adjustment by the Board—Appendix D (new)	10,249,230

In order to ascertain the present fair value of the property used and useful in the service of the public, the Board has given consideration to all of the evidence introduced, as well as the original cost of construction as far as testimony discloses it, the amount expended in permanent improvements, and the present as compared with the original cost of construction. In the determination of this matter we have taken it as established and given due consideration to the fact that what the company is entitled to ask is a sufficient sum to meet operating expenses, and a fair return upon the value of the property which is employed for the public convenience. Counsel for certain municipalities contended that the rates should be based upon the values assigned to the respective corporate properties making up the system as a whole. With this we do not agree but have allocated the values upon the basis of respective use in the various classes of service and service districts.

We find the present fair value, inclusive of all elements of physical property, working capital, cost of organization, going concern and all other intangible elements, to be $11,500,000.

RETURN ON CAPITAL:

The rate of return must be such that the company will be able to finance the extensions needed from year to year to keep pace with the growth in popula-

tion and changes in the character of the demand for service. Analysis of the earnings and expenses during the past few years shows a wide variation and on this account the actual conditions of no one year can be taken as fully indicative of the basis upon which this company's rights to earn should be determined. The Federal income tax has been excluded from operating expenses but has, however, been included in determining the net return. As a return, inclusive of Federal income taxes to the extent of approximately $52,000, the Board allows the sum of $900,000.

BASE FOR RATES:

In determining the costs of serving customers in each service district the jointly used property, with its associated fixed charges and the operating expenses, has been allocated in accordance with the following schedule:

1. *Production:*

   This includes water rights, intakes and yard connections, land at Little Falls except that under the pumps and boiler house, buildings except pumping plant buildings, filters, sedimentation tanks, all accessories, buildings, etc., no working capital, no going value and all cost of organization.

The total fixed and operating charges for production have been divided by the total amount of water delivered to obtain a unit price per million gallons, exclusive of pumping costs.

2. *Pumping:*

This includes boiler house land, boiler house, boilers and connections, all pumps, water power rights, power flume, pump house, pump house land, a portion of the working capital, and a portion of going value.

The aggregate fixed and operating charges for pumping have been divided into two classes in proportion to the foot-gallons or foot-pounds involved in pumping water to the two different classes of service, Class A being the high pressure, Class B being the low pressure.

The total charges against Class A service have been divided by the number of gallons of water pumped at high pressure in order to determine a cost for pumping per million gallons for high pressure water.

The total charges against Class B service have been divided by the number of gallons of water pumped at low pressure in order to determine a cost for pumping per million gallons for low pressure water.

3. *Transmission:*

Under Class A service the total fixed and operating charges on the following items of property have been included: 51-inch (high pressure) line from Little Falls to Richfield. Great Notch Reservoir with its lands and all associated pipe connections. Land and rights of way in connection with the 51-inch line.

The aggregate of these costs has been divided by the total amount of water passing through the line to Richfield. In this calculation it has been assumed, in order not to unnecessarily complicate the matter, that the branches to Montclair, Passaic and into Bloom-

field were located at a central point which point has been taken, for purposes of calculation, at the branch to Passaic.

The fixed and operating charges in connection with the balance of the 51-inch line, its two connections with the New Jersey Suburban Water Company and the line now belonging to the City of Bayonne, the 16-inch line to Bloomfield, together with associated rights of way, are used as the basis for determining the cost per million gallons of water supplied by the East Jersey to Bloomfield, Nutley, the New Jersey Suburban Water Company and the City of Bayonne.

Under Class B service (low pressure to Paterson) the entire fixed and operating charges in connection with the 42-inch transmission line to Paterson have been included with all other fixed and operating charges applicable to the combined Acquackanonk-Passaic District, which includes Paterson, Clifton, Passaic, and portions of municipalities contiguous to Paterson.

4. *Distribution:*

Passaic-Acquackanonk District.

The cost of distribution in this district includes the fixed and operating charges in connection with the following: All distribution mains located in Paterson, Clifton, Passaic and the municipalities contiguous to Paterson; all reservoirs excepting the Great Notch reservoir; all land and rights of way associated with the above; service connections; meters; materials and supplies; a portion of the working capital; a portion of the going value; all incidentals and accessories; the 42-inch transmission line from Little Falls to Paterson; and the 30-inch trans-

mission line from Richfield into the south side of Passaic, including also the 16-inch line on Van Houten Avenue, as well as the main trunk line between Paterson and Passaic.

To the fixed and operating charges for distribution is added the cost of production and the cost of pumping water at low pressure, and including also the cost of high pressure water obtained through the 20-inch line entering Passaic from the south. Adjustment has also been made to account for the additional cost due to a partial reinforcement of the 42-inch line by the regulated connection with the 51-inch line.

MONTCLAIR DISTRICT:

The cost of distribution in this district includes the fixed and operating charges on the Grove Street transmission line, the distribution mains in Montclair, the service, meters, office building and shops, and all incidental and accessory property. It includes also a portion of working capital and a portion of going value.

After determining the cost of service in the lower level area in Montclair, the cost of supplying the upper levels of Montclair is found by adding the cost of additional pumping in Montclair.

Having determined upon a figure representing the aggregate value of these properties, it becomes necessary, in accordance with the method described above, to allocate the values to the various service areas and classes of service.

This is shown in Table I following, first line.

The amounts which the Board considers as proper allowances for return on capital, depreciation, local taxes, capital stock tax, operating expenses, and franchise taxes, are also shown in Table I.

TABLE I.

Ref.	Item	Total	General Costs: Production Little Falls	General Costs: Pumping Little Falls	Local Costs: 51″ Conduit and Great Notch Res	Local Costs: Passaic & Acquackanonk	Local Costs: East Jersey and Kearney	Local Costs: Montclair General	Local Costs: Montclair High Service	Local Costs: Dyers' Line
37a	Capital	11,500,000	2,406,000	2,280,000	1,082,000	3,845,000	684,000	941,000	106,000	156,000
	per cent	100	20.9	19.8	9.4	33.4	6.0	8.2	0.9	1.4
	Depreciable Prop.	9,151,000	1,075,000	1,765,000	900,000	3,660,000	584,000	940,000	77,000	150,000
	Return	900,000	188,100	178,200	84,600	300,600	54,000	73,800	8,100	12,600
	Depreciation	130,000	15,300	25,100	12,800	52,000	8,300	13,300	1,100	2,100
	Local Taxes	194,060	40,600	38,400	18,200	64,800	11,600	16,000	1,760	2,700
	Capital Stock Tax	1,940	406	384	182	648	116	160	17	27
	Diversion to Dyers' Line	5,076	-------	-------	-------	-------	-------	-------	-------	5,076
	Operating Expenses	579,462	96,400	225,334	7,200	164,990	14,576	42,068	25,894	3,000
	Purchased Water	5,990	-------	-------	-------	-------	5,990	-------	-------	-------
	Sub Total	1,816,528	340,806	467,418	122,982	583,038	94,582	145,328	36,871	25,503
	Franchise Tax	58,416	-------	-------	-------	44,063	1,315	9,896	1,900	1,242
	Grand Total	1,874,944	340,806	467,418	122,982	627,101	95,897	155,224	38,771	26,745

40 30 20 10

Decision

As heretofore indicated, certain Federal income taxes to the extent of $52,000 are considered as included under the head of return and are not included under other allowances for taxes. Local taxes have been allocated, as nearly as possible, to the classes of property and localities where these taxes are imposed. Capital stock tax has been included, as nearly as practicable, on a basis of the capital stock outstanding. The operating expenses have been determined by an analysis of all the exhibits in the case and a study of the operating results as shown by the annual reports for several years back. Franchise taxes, based as they are, upon a relation to gross revenues, have been determined after the determination of gross revenue, exclusive of franchise taxes.

Table II gives the calculations of cost as we have computed them. Column (10) gives the gross revenue which should be collected by the companies in the aggregate. Column (12) gives the actual gross revenue collected in the year 1922 from the respective municipalities. Comparison of columns (10) and (12) directly indicates the extent to which existing schedules must be modified, not merely for the purpose of bringing to the company a fair return on the value of the property devoted to the public use, but in order that localities, classes of service, and individuals may not be unduly and unjustly either favored or discriminated against.

The East Jersey Water Sompany, in selling water to the Little Falls Water Company and to the municipalities of Totowa, Bloomfield, Nutley and Bayonne, for distribution through municipally owned distribution systems, and the New Jersey Suburban Water Company, charges various prices per million gallons. A bulk price is also charged for service through

the Dyers Pipe Line. On this account it has been necessary to determine the proper price to be charged per million gallons for these services and this is found in Column (11) of Table II.

The service in Paterson, Clifton, Passaic and Montclair is a direct service to the consumers through the companies' distribution system, with the exception of fire protection.

Table II follows:

TABLE II.

Consumer or District (1)	1922 Sales Million Gallons (2)	Collecting L. F. (3)	Pumping L. F. (4)	Trans-mission to Brookdale (5)	Distribution and Gen'l Exp. (6)	Other Expenses (7)	Total (8)	Add Franchise Tax (9)	Total Amount (10)	Per M. Gal. (11)	Actual Revenue 1922 (12)
East Jersey										$77.61	$333,016
Wholesale	$8,308.34	$174,799	$282,691	$91,237	$88,692	$5,990	$643,409	$1,400	$644,809	163.02	1,079,442
Passaic and Acquackanonk	5,909.50	151,386	161,069	24,007	582,938	.....	919,400	43,978	963,378		
Montclair										400.46	46,285
Low Service	138.88	4,041	6,539	2,139	40,166	.....	52,885	2,732	55,617	507.11	122,885
High Service	363.62	10,580	17,119	5,599	105,162	36,871	175,331	9,064	184,395		
	502.50	14,621	23,658	7,738	145,328	36,871	228,216	11,796	240,012	477.64	169,170
										18.00	26,535
Dyers' Line	1,486.40	.....	.....	.....	20,427	5,076	25,503	1,242	26,745		
										Revenue	
Grand Total		$340,806	$467,418	$122,982	$837,385	$47,937	$1,816,528	$58,416	$1,847,944	.....	$1.608.163

SERVICE DISTRICTS:

The Passaic Water Company serves the City of Paterson and some small contiguous areas. The Acquackanonk Water Company supplies the City of Passaic, the City of Clifton and possible some small areas not actually included in those municipalities. The City of Paterson is a city of considerable size with a large number of industries of all kinds. Although the City of Passaic is smaller than Paterson there are a great many factories located there also. Clifton, on the other hand, has a large area distinctly suburban in character. Without any detailed analysis, all the exhibits and calculations based thereon indicate that the cost of serving Passaic would lead to rates somewhat higher than those which might have to be charged Paterson. The difference, however, is not sufficient, in the opinion of the Board, to warrant a separation of the Paterson-Clifton-Passaic area into different service districts. The territory is changing in character, many new factories have been located in parts of Passaic and Clifton and the tendency will be for the different parts of this area to become more nearly similar in character, in this way gradually eliminating the differences in cost of service. We find one schedule to be just and reasonable for this district.

With regard to Montclair, the company has filed one set of schedules for the low level and a separate set of schedules for the high level, which involves a second pumping. The testimony and exhibits in this case show that the difference in cost of serving the low and the high levels is so considerable that the failure to recognize this difference in cost in the development of the rate schedules would result in an

undue and unjust discrimination against those served from the low level service and in favor of those located on higher ground where the water has to be pumped a second time. Separate rate schedules are therefore provided for the two different service levels in Montclair.

FIRE PROTECTION:

A separation has been made to the fixed and operating charges with a view to the adoption of charges for fire protection as distinguished from charges for ordinary consumption of water.

We have adopted 12.5 per cent as a fair percentage of the gross revenue which should be collected through the medium of charges for fire protection.

The aggregate charge for fire protection will be divided into two parts:

(1) A charge per hydrant. This provides for the fixed and maintenance costs in connection with the hydrant, valve, branch and connections with the main. It is made uniform throughout the entire territory served directly by these companies, namely, the Passaic Water Company, Acquackanonk Water Company and Montclair Water Company.

(2) The balance of the charge is to be levied on the so-called inch-foot basis, that is, the aggregate amount of money to be collected through this charge is divided by the total number of inch-feet to obtain the unit price per inch-foot. Inch-feet is the number of units found by multiplying for each sized main the number of inches in diameter by the number of feet in its length and by the use of such a unit the total charges for fire protection automatically keep pace with the growth of the distribution system.

Decision

Table III shows the gross revenue from the territory served by the Passaic and Acquackanonk Water Companies, divided between fire protection on the one hand and industrial and domestic service on the other.

TABLE III.

Passaic and Acquackanonk, 1922:

Gross revenue (required see Table II)		$963,378
Miscellaneous revenue		30,555
		$932,823

Fire Service Revenue, approximately 12.5% allocated, as follows:

2,356 hydrants at $10	$23,560		
10,999,730 inch feet at 0.84 cent	92,398	$115,958	

Metered Service.

Fixed Service Charges:

5/8" meters,	28,198	at	$6.00	per annum	$169,188		
3/4" "	559	"	10.00	" "	5,590		
1" "	166	"	22.00	" "	3,652		
1½" "	63	"	54.00	" "	3,402		
2" "	56	"	72.00	" "	4,032		
3" "	22	"	175.00	" "	3,850		
4" "	17	"	250.00	" "	4,250		
6" "	5	"	480.00	" "	2,400	$196,364	

Proportional Metered Service Revenue (791,253 M cu. ft.) 620,501
Average rate 78.5 cents.

Schedule of Proportional Metered Service Rates:

For the first	10 M cu. ft. during the quarter	$1.00	per M
" " next	90 " " " " " "	.90	" "
" " next	900 " " " " " "	.70	" "
" " excess over	1,000 " " " " " "	.50	" "

Decision

Table IV shows the gross revenue from Montclair, divided between fire protection and industrial and domestic service.

TABLE IV.

Montclair Water Company:

Gross revenue required (see Table II)		$240,012
Miscellaneous revenue		6,267
		$233,745

Fire Service Revenue, approximately 12.5% allocated, as follows:

657 hydrants at $10	$6,570	
2,934,300 inch feet at 0.76 cent	22,301	$28,871

Metered Service

Fixed Service Charges:

5/8" meters,	5,984	at	$6.00	per	annum	$35,904	
3/4" "	25	"	10.00	"	"	250	
1" "	20	"	22.00	"	"	440	
1½" "	3	"	54.00	"	"	162	
2" "	11	"	72.00	"	"	792	
3" "	1	"	175.00	"	"	175	
4" "	6	"	250.00	"	"	1,500	
6" "	3	"	480.00	"	"	1,440	40,663

Proportional Metered Service Revenue (69,093 M cu. ft.) 164,211
Average rate $2.37.

Schedule of proportional Metered service Rates:

		Low Service	High Service
For the first	10 M cu. ft. during the quarter	$2.10 " "	2.45 " "
" " next	90 M " " " " "	1.75 " "	1.90 " "
" " "	900 M " " " " "	1.40 " "	1.45 " "
" " excess over	1,000 M " " " " "	1.05 per M	$2.90 per M

It will be noted that the unit charge for fire protection in Montclair is the same throughout the town, as in computing this charge no allowances were made

for cost of pumping or any other operating charge other than maintenance.

INDUSTRIAL AND DOMESTIC RATES:

The rate schedules for industrial and domestic water service are also divided into two parts:

(1) A service charge covering the fixed charges, which is intended to partly cover the customer and readiness-to-serve costs.

(2) A consumption charge based upon costs of operation, proportional to water used.

Conclusions.

After full consideration of all matters presented in this case, the Board finds and determines that:

(1) The fair value of this property upon which rates should be predicated, including all physical and intangible elements, working capital, going concern value, etc., is $11,500,000.

(2) The net return on this property, inclusive of the Federal income tax, should be fixed at approximately $900,000.

(3) The companies as a group are entitled to an increase in gross revenue.

(4) The rates heretofore charged by the various companies now taking part in this proceeding do not properly reflect the respective costs of service in the different parts of the territory and to the different

classes of service and are therefore unjust and unreasonable and unduly discriminatory.

(5) The schedules filed and proposed for adoption by the companies are likewise unjust and unreasonable.

(6) The petitioners may therefore file schedules as given below, to become effective January 1st, 1923, in accordance with the stipulation entered into by the companies before this Board.*

SCHEDULE OF RATES.

EAST JERSEY WATER COMPANY:

Wholesale service to municipalities of Totowa, Bloomfield, Nutley and Bayonne and to the Little Falls Water Company and to the New Jersey Suburban Water Company and any other comparable wholesale customers, $78 per million gallons.

PATTERSON-PASSAIC-CLIFTON DISTRICTS:

Fire Service Charges.

For each fire hydrant, $2.50 per quarter.

Inch-foot charge of 0.21 cent per quarter per inch diameter per foot of main, applicable to all distribution mains now in place, 4 inches diameter and larger and to mains installed in the future 6 inches diameter and larger, and to the proportion of transmission mains utilized in serving the particular community, determined as follows:

(*a*) Separate the piping system into transmission

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*See p. 120.

and distribution mains, by treating all mains 16 inches and larger as transmission mains and all mains 12 inches and smaller as distribution mains. The 42-inch low pressure conduit outside of Paterson, all of the 51-inch high pressure conduit, that part of the 30-inch line from Richfield to Claverack Road, and the Dyers Pipe Line are not to be included in this apportionment.

(*b*) Apportion the number of inch-feet in a given transmission main supplying more than one service district in proportion to the population served in each district according to the latest Federal census.

(*c*) Charge all transmission mains supplying but one service district to the districts which they supply.

(*d*) Charge all distribution mains to the service districts which they serve.

(*e*) Apportion the inch-feet charged to a given service district among the taxing districts contained therein in proportion to the population served, as determined by the latest Federal Census.

Rates for General Service.

Metered Service:

Fixed service charges based upon the size of the meter:

½" or ⅝" meter,	$1.50	per quarter.	
¾" "	2.50	"	"
1" "	5.50	"	"
1½" "	13.50	"	"
2" "	18.00	"	"

New Jersey State Library

3″	"	45.00*	"	"
4″	"	60.00*	"	"
6″	"	120.00	"	"
8″	"	190.00	"	"

Proportional service charges: (based on metered use.)

For the first	10,000	cubic feet	per	quarter,	$1.00	per	M.	Cubic	feet.
" " next	90,000	"	"	"	.90	"	"	"	"
" " "	900,000	"	"	"	.70	"	"	"	"
" all over	1,000,000	"	"	"	.50	"	"	"	"

Flat or Fixture Rates:

The fixture and other flat rates now in force shall be continued unchanged until all premises supplied at such rates shall have been metered. No water shall be supplied at flat or fixture rates after December 31, 1923.

Dyers Pipe Line:

Service to consumers supplied with unfiltered water from Great Falls through the Dyers Pipe Line $0.135 per 1000 cubic feet.

TOWN OF MONTCLAIR:

Fire Service Charges:

For each fire hydrant, $2.50 per quarter.

Inch-foot charge of 0.19 cent per quarter per inch diameter per foot of transmission and distribution mains now in place 4 inches diameter and larger and to mains installed in the future 6 inches diameter and larger located within the Town of Mont-

*Rounded figures.

clair with the exception of the 20-inch transmission main on Grove Street from Watchung Avenue northward to the Clifton boundary line and the transmission main on Watchung Avenue eastward from Grove Street.

Rates for General Service.

Fixed service charges based on the size of the meter:

½" or ⅝"	meter,	$1.50	per	quarter.
¾"	"	2.50	"	"
1"	"	5.50	"	"
1½"	"	13.50	"	"
2"	"	18.00	"	"
3"	"	45.00*	"	"
4"	"	60.00*	"	"
6"	"	120.00	"	"
8"	"	190.00	"	"

Proportional service charges:

Low Service District, including that portion of Montclair supplied without repumping at the Watchung Avenue Pumping Station:

For the first	10	M.	Cu.	ft.	in	the	quarter,	$2.10	per	M.	cu.	ft.
" " next	90	"	"	"	"	"	"	1.75	"	"	"	"
" " "	900	"	"	"	"	"	"	1.40	"	"	"	"
" excess over	1000	"	"	"	"	"	"	1.05	"	"	"	"

High Service District, including that portion of Montclair supplied by repumping at the Watchung Avenue Pumping Station:

For the first	10	M.	cu.	Ft.	in	the	quarter,	$2.90	per	M.	cu.	Ft.
" " next	90	"	"	"	"	"	"	2.45	"	"	"	"
" " "	900	"	"	"	"	"	"	1.90	"	"	"	"
" excess over	1000	"	"	"	"	"	"	1.45	"	"	"	"

*Rounded figures.

Decision

Each of the petitioners affording fire service under the schedules shall file quarterly with the Board, beginning July 1st, 1923, for each fire district, a schedule of mains to which the inch-foot charge shall apply together with the number of hydrants to which the quarterly fire hydrant charge shall apply.

Dated, March 27th, 1923.

BOARD OF PUBLIC UTILITY COMMISSIONERS,

(Seal) By (Signed) H. V. Osborne
President.

Attest:
(Signed) ALFRED N. BARBER,
Secretary.

I Hereby Certify the foregoing to be a true copy of a decision rendered by the Board of Public Utility Commissioners and ordered filed by said Board.

(Signed) ALFRED N. BARBER
Secretary.

(Seal)

Appendix "A."

In arriving at his conclusion, Mr. Metcalf took five bases which he referred to as "criteria of value," these being as follows (Exs. P3, P3*a*, 1-2-3):

(1) Book costs.

(2) Value of property on a prewar basis.

(3) Value of property on the basis of present (1920) prices.

(4) Value of property on the basis of a ten year average prices prior to the date of the valuation.

Decision

(5) Value of property on the basis of the depreciated or net reproduction cost at fair normal prices.

The original cost could not be determined because of the burning of the early records of the company in the Paterson fire of 1902.

(1) Book cost is given as $11,382,000

It is unreliable, however, due to the fact that the basic figure for most of the property was a figure found in some constructive balance sheets shortly after the Paterson Fire.

(2) Prewar value 8,771,000

(3) Present (1920) value 18,173,000

The 1920 value is found by multiplying prewar prices by Dun's and Bradstreet's index figure of 2.07.

(4) Ten year average value 13,332,000

(5) Fair normal value 14,007,000

The above figures exclude depreciation and include organization, lands, Beattie water power rights and going value on a 12.5 per cent basis, but exclude water rights purchased in 1921.

Mr. Metcalf then adopted the round figure of $13,500,000 as the fair value as of December 31st, 1920.

To this he adds (Ex. P24):		
Water rights		$1,120,000
Additions and betterments, 1921		175,000
making a total of		$14,795,000
Deduct depreciation, 1921		194,000
		$14,601,000
Deduct unused poperty		278,000
Resulting value as of December 31st, 1921		$14,323,000

In cross-examination (testimony, pp. 616-627), Mr. Metcalf agreed that certain further deductions should be made for property not now used, namely:

Stony Road Reservoir and Site	$150,010	
Totowa Reservoir, Structures and part land	26,200	
Possibly the Kikeout Reservoir Site, $72,662. From the testimony it would appear that, while the reservoir itself is not needed at the present time, the purchase of the land for the reservoir site appears to have been based upon ordinary business judgment and therefore one-half of the value of this site will be excluded	36,330	212,540

Mr. Metcalf was doubtful at first with regard to the propriety of including the 24-inch lock bar pipe located in Mont-

clair and originally installed to aid in the service of West Orange. On later examination Mr. Metcalf stated that the entire value should be included, as this main was needed to reinforce the system in Montclair for fire purposes.

Deducting the amount which Mr. Metcalf agreed should be excluded, we have $14,110,460

Appendix "B."

Items IV, valuations by Nicholas S. Hill, Jr., are as follows:

Historical Cost.

(*a*) Capitalization.

(*b*) Book Cost.

(*c*) Cost of Reproduction on Basis of 1912 Appraisal plus actual cost of additions since that date.

(*d*) Cost of Reproduction on Basis of Prewar Prices.

(*e*) Cost of Reproduction on Basis of Average Prices, 1911 to 1920.

(*f*) Cost of Reproduction at Current Prices.

(*g*) Cost of Reproduction at 1920 Peak Prices.

Historical Cost was ignored on account of lack of records.

Decision

(*a*) Capitalization:

Aggregate of bonds	$7,392,000
Aggregate of stock	1,550,000
Approximate aggregate of other obligations	761,573
Water rights, 1921	1,120,000
Approximate total capitalization, all 5 companies	$10,823,573

(b) Book Cost (Fixed Capital, Materials and Supplies and Cash):

This is given by Hill for the first three companies in the following list and for the last two the figures are approximate, taken from the annual reports of these companies (Fixed Capital, Materials and Supplies and Cash).

Acquackanonk Water Company	$2,147,810
Montclair Water Company	1,478,655
Passaic Water Company	6,732,363
East Jersey Water Company	1,950,470
Kearny Water Company	103,461
Total, December 31st, 1920	$11,841,559
Water Rights acquired in 1921	1,120,000
	$12,961,559

(*c*) Cost of Reproduction on Basis of 1912 Appraisal plus actual cost of additions since that date, depreciated.

Acquackanonk Water Company	$2,250,917
Montclair Water Company	1,753,627
Passaic Water Company	4,177,815
East Jersey Water Company (by proportion)	1,906,294
Kearney Water Company (by proportion)	152,131
	$10,240,784

(*d*) Cost of reproduction on basis of prewar prices.

Acquackanonk Water Company	$2,030,494
Montclair Water Company	1,672,741
Passaic Water Company	3,849,560
East Jersey Water Company (by proportion)	1,756,515
Kearny Water Company (by proportion)	140,178
	$9,449,488

(*e*) Cost of reproduction on basis of average prices, 1911 to 1920.

Acquackanonk Water Company	$3,086,298
Montclair Water Company	2,069,635
Passaic Water Company	5,654,311
East Jersey Water Company	2,579,492
Kearny Water Company	205,896
	$13,595,632

(*f*) Cost of reproduction at current prices.

Acquackanonk Water Company	$3,735,708
Montclair Water Company	2,536,133
Passaic Water Company	6,833,233
East Jersey Water Company (by proportion)	3,117,936
Kearny Water Company (by proportion)	248,826
	$16,471,836

(*g*) Cost of reproduction at 1920 Peak Prices.

Acquackanonk Water Company	$4,775,697
Montclair Water Company	3,312,997
Passaic Water Company	8,800,709
East Jersey Water Company (by proportion)	4,014,876
Kearny Water Company (by proportion)	320,469
	$21,224,748

After Mr. Hill has made the above valuations he adopts a schedule of values for the companies as follows:

Acquackanonk Water Company (pp. 93-97)	$2,940,000
Montclair Water Company (pp. 121-126)	2,010,000
Passaic Water Company (pp. 149-153)	5,430,000
East Jersey Water Company	2,580,000
Kearny Water Company	206,000
	$13,166,000

In the company's Exhibit P23, Table D, the final values have been re-allocated by Hill as follows:

Acquackanonk Water Company	$2,940,000
Montclair Water Company	2,010,000
Passaic Water Company	5,430,000
East Jersey Water Company	2,420,000
Kearny Water Company	200,000
	$13,000,000

Counsel for the municipalities (Exhibit R3) contended that Mr. Hill had included in his valuation certain elements which were not now usually allowed and also certain property, the use of which had been discontinued. The contention with regard to the inclusion of items not now allowed is based upon Mr. Hill's original explanation of how he had gone about the process of determining a fair value for the properties. Mr. Hill stated (Exhibit P6*a*) that he had started with the appraisal made in 1912 by the Board of Engineers representing the State and had added to that expenditures since that time and had deducted items discarded and depreciation which had accrued since 1912. An examination of Exhibit P6*a* in connection with the testimony referring to it shows that this was merely a line of reasoning and represented only one of several methods of getting at value. It has been contended by the engineer for the municipalities that Mr. Hill started with the concluding figure of the 1912 State Board's appraisal, namely, $8,728,300, and that that figure included bond discount, paving over mains not paid for by the company, and overhead charges on land and rights of way. These items have been set out in Dr. Bemis' Exhibit R3 (pp. 4 to 7) as follows:

Bond Discount	$475,990
Overhead charges on land and diversion rights	319,993
Paving over mains	259,667
Land and structures not now in use	506,382
	$1,562,032

Mr. Hill's valuation (*e*), average prices, 1911 to 1920, is an entirely new appraisal and includes no elements not now allowed, although it may include some items of property not fully in use. Dr. Bemis has deducted from Mr. Hill's totals for land and structures not now in use the sum of $506,382. As a matter of fact, Mr. Hill had originally included for corresponding items the amount of $404,286 (P35) so that Dr. Bemis' deducts from Mr. Hill's total $102,096 too much. An examination of Mr. Hill's deductions shows that certain items in dispute, namely, the Middle, Totowa and Stony Road Reservoirs, were appraised by Mr. Hill in his last appraisal at $303,044. This has been depreciated to the extent of $150,000 so that these items remain in Mr. Hill's appraisal at the value of $153,044. Testimony indicates that the site of the Totowa Reservoir, the Totowa Reservoir itself and the Stony Road Reservoir appraised by Mr. Hill at $165,400, should be excluded in toto. Adjusting this by appropriate deductions leaves an amount to be retained of $138,044, calling for a further reduction of $28,000. There are certain other items which Dr. Bemis has stated should be deducted from Mr. Hill's appraisal, namely:

Stony Road Structures	$17,500
Land along Pequannock River	18,245
Split Rock Reservoir Site	187,179
	$220,924

These had already been eliminated by Mr. Hill and are not found in Hill's latest adjusted figures at all. Mr. Hill had also deducted an amount of $25,682 representing lands and rights of way along the Newark Pipe Line.

Similar deductions should also be made from the Hill appraisal as have been made above from the Metcalf appraisal of one-half of the cost of the Kikeout Reservoir Site, namely, $44,705. In arriving at the figure of $13,000,000, Mr. Hill has made a reduction of $598,496. The total deductions to be made from Mr. Hill's final figure as representing items not as present in use in the service of the public will be taken at $73,000, leaving the total adjusted value of $12,927,000.

Appendix "C."

DR. BEMIS' HISTORICAL COST OF THE PRESENTLY USED AND USEFUL PROPERTY OF THE COMPANIES WHICH HE TESTIFIED WAS TAKEN FROM THEIR BOOKS, EXCEPT AS TO ABOUT SEVEN PER CENT WHICH WAS ESTIMATED AT COST OF SIMILAR INSTALLATION OF THE COMPANIES.

	(1) Original Cost new except land taken at present day values	(2) Same as (1) less Accrued Depreciation
Real Estate	$445.842	$445,842
Depreciable property priced at costs before 1916	6,290,894	4,340,397
Depreciable property priced at costs since 1916	1,365,964	1,288,143
Water Rights—Power and Diversion (75 M.G.D. bought 1922)	1,320,000	1,320,000
Tangible Fixed Capital Dec. 31, 1921 ($1,120,000 Jan. 1922)	$9,422,700	$7,394,382
Intangible Fixed Capital	0	0
Working Capital	150,277	150,277
Rate Base claimed by the Cities	$9,572,977	$7,544,659
Add land and structures which Dr. Bemis considered not used and useful but which the Board includes	192,595	181,145
Original Cost of Dr. Bemis adjusted as above	$9,765,572	$7,725,804

Decision

Appendix "D."

ADJUSTMENT AND CONTINUATION OF THE 1912 VALUATION OF THE BOARD OF APPRAISAL AS MADE BY DR. BEMIS (EXCLUDES INTANGIBLES, BOND DISCOUNT, PAVING OVER MAINS, OVERHEADS ON LAND AND WATER RIGHTS AND PROPERTY HE DEEMS NOT USED OR USEFUL. (Adjusted to be on basis comparable with Appendix "C".)

	Adjustment Appraisal Value new as of December 31, 1921, plus Diversion Rights $1,120,000
Land and Rights of Way	$610,582
Structures	7,942,458
Water Rights—Power and Diversion	950,000
Tangible Fixed Capital, as adjusted by Dr. Bemis	$9,503,040
Preliminary and Organization, net	138,266
Fixed Capital, Ex. P-3, page 8	$9,641,306
Add Working Capital shown in R-1	150,277
Add back property excluded by Dr. Bemis but included by the Board, $506,382, R-3, page 7, less $418,735	87,647
	$9,879,230
If water rights be taken at $1,320,000, as in Appendix "C," instead of $950,000, as above, this would add	370,000
Total as adjusted by Board	$10,249,230
Reconciliation between Appendices "C" and "D."	
Appendix "D"—amount above	$10,249,230
Appendix "C"	9,765,572
Difference	$483,658

Return of Writs.

Filed April 26, 1923.

NEW JERSEY SUPREME COURT.

ACQUACKANONK WATER COMPANY, EAST JERSEY WATER COMPANY, KEARNEY WATER COMPANY, MONTCLAIR WATER COMPANY and PASSAIC WATER COMPANY, Prosecutors, against BOARD OF PUBLIC UTILITY COMMISSIONERS, Defendant.	On certiorari Return of writ.

To the Honorable the Justices of the Supreme Court of Judicature of New Jersey:

The Board of Public Utility Commissioners herewith sends to the Supreme Court of Judicature of the State of New Jersey to a certain Report and Order made by said Board the twenty-seventh day of March, Nineteen Hundred and Twenty-three, together with all things touching and concerning the same, as fully and entirely as before said Board they remain, as is within commanded.

IN WITNESS WHEREOF the seal of said Board is hereto affixed and certified by the subscriber.

ALFRED N. BARBER,
Secretary of the Board of Public Utility Commissioners of New Jersey.

Amendments to Rate Schedules, Dated Feb. 1, 1922.

STATE OF NEW JERSEY

BOARD OF PUBLIC UTILITY COMMISSIONERS

ACQUACKANONK WATER COMPANY,
Amendment to Rate Schedule.

Pursuant to the Statutes of the State of New Jersey, Acquackanonk Water Company hereby amends its schedule of rates to read as follows:

PATERSON-ACQUACKANONK SERVICE DISTRICT.

This district includes the territory within the municipal limits of the City of Passaic and the City of Clifton.

EAST JERSEY SERVICE DISTRICT.

The East Jersey Service District includes the territory within the municipal limits of the Boroughs of Totowa and West Paterson, the Township of Little Falls, the Town of Bloomfield, the Town of Nutley, and the municipalities east of the Passaic River now supplied through the Kearney pipe line, including the Cities of Bayonne and Jersey City, the Towns of Harrison and Kearney, and the Borough of East Newark.

Rates for Fire Service.

Rates for fire protection service consists of:

(1) A charge per inch-foot of main, and

(2) A charge for each hydrant.

They are uniform throughout the entire territory served by the Company.

Inch-Foot Charge.

The inch-foot charge shall be one and one-third (1 1/3) cents per annum per inch diameter per foot of main, applicable to all distribution mains 6″ and larger and to the proportion of the transmission mains utilized in serving the particular community, determined as follows:

(a) Separate the piping system into transmission and distribution mains by treating all mains 24″ and larger as transmission mains, and all mains 20″ and smaller as distribution mains.

(b) Apportion the number of inch-feet in a given transmission main supplying more than one service district in proportion to the population in each district served according to the latest Federal Census.

(c) Charge all transmission mains supplying but one service district to the districts which they supply.

(d) Charge all distributing mains to the service districts which they serve.

(e) Apportion the inch-feet charged to a given service district among the taxing districts contained therein in proportion to the population determined by the latest Federal Census.

Hydrant Charge.

The hydrant charge shall be Ten Dollars ($10) per annum for each hydrant.

Amendments to Rate Schedules, Feb. 1, 1922.

Rates for General Water Service.

Rates for metered water for domestic, commercial, manufacturing, and public purposes consist of two elements:

(1) A fixed service charge, and

(2) A proportional service charge.

Fixed Service Charges.

The fixed service charges are based upon the size of meter required to furnish the service for a given property. They are uniform throughout the entire territory served by the companies and do not include any charge for water consumed.

They shall be as follows:

½″ or ⅝″	Meter	.....	$ 1.50	per	quarter
¾″	"	.....	2.50	"	"
1″	"	.....	5.50	"	"
1½″	"	.....	13.50	"	"
2″	"	.....	18.00	"	"
3″	"	.....	45.00	"	"
4″	"	.....	60.00	"	"
6″	"	.....	120.00	"	"
8″	"	.....	190.00	"	"
10″	"	.....	220.00	"	"
12″	"	.....	310.00	"	"
16″	"	.....	460.00	"	"
20″	"	.....	620.00	"	"
24″	"	.....	800.00	"	"
30″	"	.....	1,050.00	"	"

Rates for connections of other sizes in proportion to capacity.

Amendments to Rate Schedules, Feb. 1, 1922.

Proportional Service Charges.

For filtered water supplied from Little Falls, the proportional services charges shall be as follows:

1. Paterson-Acquackanonk Service District, including Paterson, Passaic, Clifton and Prospect Park Borough.

For the first 10,000 cubic feet in the quarter	$1.30 per 1,000 cu. ft.
For the excess over 10,000 cubic feet and up to and inclusive of 100,000 cubic feet in the quarter	1.10 per 1,000 cu. ft.
For the excess over 100,000 cubic feet and up to and inclusive of 1,000,000 cubic feet in the quarter	0.85 per 1,000 cu. ft.
For the excess over 1,000,000 cubic feet in the quarter	0.65 per 1,000 cu. ft.

2. East Jersey Service District (wholesale service to various communities, including the New Jersey Suburban Water Company, Town of Nutley, City of Jersey City, Town of Bloomfield, Little Falls Water Company, Borough of Totowa and City of Bayonne).

For water	$0.75 per 1,000 cu. ft.

Miscellaneous Charges.

Rates for unmetered water for domestic, commercial, manufacturing, public and miscellaneous uses shall be uniform throughout the entire territory served by the companies and shall be as given in Table No. 1 following:

TABLE NO. 1
FIXTURE RATES

The rate for the following private houses includes one set of fixtures, consisting of two draw cocks, one range and boiler, one bath tub, one water closet, one wash basin, one set of stationary tubs.

Rates for sprinkling $6.00 per annum for each 25 feet front.

Extra water closets $6.00 per annum.

Extra bath tubs $3.00 per annum.

Urinals $3.00 per annum.

Rates based on 25 feet or under; over 25 feet 33⅓%.

Item (1)	1 Family (2)	2 Family (3)	3 Family (4)	4 Family (5)	5 Family (6)	2 Closets* 2 Baths (7)	3 Closets* 3 Baths (8)	4 Closets* 4 Baths (9)	5 Closets* 5 Baths (10)
2 Story house	$18.00	$22.50	$27.50	$....	$....	$36.00	$....	$....	$....
2½ " "	21.00	27.00	33.00	....	....	36.00	54.00	....	....
3 " " } ..									
2 " and basement } ..	24.00	30.00	36.00	....	....	36.00	54.00	....	....
2 " and French roof }									
4 " house }	30.00	36.00	42.00	48.00	....	36.00	54.00	72.00	....
5 " house	36.00	42.00	48.00	54.00	60.00	36.00	54.00	72.00	90.00
Rear Houses:									
1 Story house	9.00	....	....	....	....	....	....	....	....
2 " "	15.00	18.00	....	....	....	....	....	....	....
3 " "	18.00	21.00	24.00	....	....	....	....	....	....

Three, four, etc., story houses occupied by a business on the first floor, rated for the business, shall be rated for the occupancy above the first floor, independently of the first floor.

	Per Annum
Tenement property—Special or yearly rate	$ 60.00 to $240.00
Hotel property—Special or yearly rate	112.50 to 225.00

Boarding Houses—Special or yearly rate	30.00	to	120.00	
Wholesale liquor houses	30.00	to	60.00	
Restaurants	30.00	to	120.00	
Saloons—Includes 1 water closet, 1 urinal, 1 draw cock back bar	30.00			
Water pressure beer pumps	30.00	to	60.00	Ex.
Barber shops—First chair	12.00			
Each additional chair	6.00			
Building purposes—For each barrel lime or cement used, 21 cents.				
Private stables—One horse	12.00			
Each additional horse	6.00			
Livery stables—Special rates	48.00	to	300.00	
Private garage—One automobile	6.00			
Additional ones, each	3.00			
Stores—Butcher shop	12.00	to	18.00	
Fish market	24.00	to	60.00	
Grocery store	6.00	to	18.00	
Fruit and vegetable stands	12.00	to	36.00	
Bakery	18.00	to	60.00	
Offices	6.00			
Printing offices	108.00	to	150.00	
Laundries	24.00	to	225.00	

* Flats with full set of fixtures, $18.00 per annum each.

This rate is to be effective March 1, 1922.
Dated, Paterson, N. J., February 1, 1922.

ACQUACKANONK WATER COMPANY,
By JOHN H. COOK, Vice President.
ALBERT P. FISHER, Secretary.

Amendments to Rate Schedules, Feb. 1, 1922.

STATE OF NEW JERSEY,

BOARD OF PUBLIC UTILITY COMMISSIONERS.

MONTCLAIR WATER COMPANY,
Amendment to Rate Schedule.

Pursuant to the Statutes of the State of New Jerseey, Montclair Water Company hereby amends its schedule of rates to read as follows:

Montclair Service District.

This district includes the territory within the municipal limits of the Town of Montclair and customers in outside, but contiguous, territory, and now supplied through mains located in the Town of Montclair. This district is divided into the Montclair Low Service District and the Montclair High Service District by the following described lines, the Low Service District being east of said line, and the High Service District west thereof:

BEGINNING in the Town of Montclair at the intersection of Grove Street, with the north boundary line of the Town of Montclair, thence southwesterly along the west side of Grove Street to the south side of the intersection of Grove Street and Mount Hebron Road; thence southerly along the west side of Grove Street to the south side of Watchung Avenue; thence southwesterly in a straight line to the northeast corner of the intersection of Christopher Street with Columbus Avenue; thence southwesterly in a straight line to the southwest corner of the intersection of Montclair Avenue with Chestnut Street; thence northwesterly

along the south side of Chestnut Street to the east side of Forest Street, thence southwesterly in a straight line to a point on the east side of Fullerton Avenue and opposite the north side of Walnut Place; thence southwesterly along the east side of Fullerton Avenue to the north side of Claremont Avenue; thence southwesterly in a straight line to a point in the middle of Cottage Place on the north side of Munn Place; thence northwesterly along the north side of Munn Place two hundred (200) feet more or less; thence southerly in a straight line to the north corner of the intersection of Fullerton Avenue with Bloomfield Avenue; thence southeasterly along the north side of Bloomfield Avenue to a point in the middle of Grove Street; thence northwesterly along the middle of Elm Street to the east side of Orange Road; thence southerly along the east side of Orange Road to the southwest corner of the intersection of Orange Road with Irving Street; thence southwesterly in a straight line to the south corner of the intersection of High Street with Cedar Street; thence southwesterly along the east side of High Street to the north side of Virginia Avenue; thence southwesterly in a straight line to the intersection of the south boundary line of the Town of Montclair with the south side of Amelia Street.

East Jersey Service District.

The East Jersey Service District includes the territory within the municipal limits of the Boroughs of Totowa and West Paterson, the Township of Little Falls, the Town of Bloomfield, the Town of Nutley, and the municipalities east of the Passaic River now supplied through the Kearney pipe line, including the

Cities of Bayonne and Jersey City, the Town of Harrison and Kearny, and the Borough of East Newark.

Rates for Fire Service.

Rates for fire protection service consists of:

(1) A charge per inch-foot of main, and

(2) A charge for each hydrant.

They are uniform throughout the entire territory served by the company.

Inch-Foot Charge.

The inch-foot charge shall be one and one-third (1 1/3) cents per annum per inch diameter per foot of main, applicable to all distribution mains 6″ and larger and to the proportion of the transmission mains utilized in serving the particular community, determined as follows:

(a) Separate the piping system into transmission and distribution mains by treating all mains 24″ and larger as transmission mains, and all mains 20″ and smaller as distribution mains.

(b) Apportion the number of inch-feet in a given transmission main supplying more than one service district in proportion to the population in each district served according to the latest Federal Census.

(c) Charge all transmission mains supplying but one service district to the districts which they supply.

(d) Charge all distributing mains to the service districts which they serve.

(e) Apportion the inch-feet charged to a given service district among the taxing districts contained therein in proportion to the population determined by the latest Federal Census.

Hydrant Charge.

The hydrant charge shall be Ten Dollars ($10) per annum for each hydrant.

Rates for General Water Service.

Rates for metered water for domestic, commercial, manufacturing, and public purposes consist of two elements:

(1) A fixed service charge, and

(2) A proportional service charge.

Fixed Service Charges.

The fixed service charges are based upon the size of meter required to furnish the service for a given property. They are uniform throughout the entire territory served the companies and do not include any charge for water consumed. They shall be as follows:

½" or ⅝"	Meter	$	1.50	per	quarter
¾"	"		2.50	"	"
1"	"		5.50	"	"
1½"	"		13.50	"	"
2"	"		18.00	"	"
3"	"		45.00	"	"
4"	"		60.00	"	"
6"	"		120.00	"	"
8"	"		190.00	"	"

10″	“	.....	220.00	“	“
12″	“	.....	310.00	“	“
16″	“	.....	460.00	“	“
20″	“	.....	620.00	“	“
24″	“	.....	800.00	“	“
30″	“	.....	1,050.00	“	“

Rates for connections of other sizes in proportion to capacity.

Proportional Service Charges.

For filtered water supplied from Little Falls, the proportional service charges shall be as follows:

1. Montclair Low Service District, including that portion of Montclair supplied without repumping at the Montclair Pumping Station.

For the first 10,000 cubic feet in the quarter ..... $2.40 per 1,000 cu. ft.
For the excess over 10,000 cubic feet and up to and inclusive of 100,000 cubic feet in the quarter ..... 2.00 per 1,000 cu. ft.
For the excess over 100,000 cubic feet and up to and inclusive of 1,000,000 cubic feet in the quarter ..... 1.60 per 1,000 cu. ft.
For the excess on 1,000,000 cubic feet in the quarter .... 1.20 per 1,000 cu. ft.

2. Montclair High Service District, including that portion of Montclair supplied by repumping at the Montclair Pumping Station.

For the first 10,000 cubic feet in the quarter ..... $3.50 per 1,000 cu. ft.

For the excess over 10,000 cubic feet and up to and inclusive of 100,000 cubic feet in the quarter	2.90 per 1,000 cu. ft.
For the excess over 100,000 cubic feet and up to and inclusive of 1,000,000 cubic feet in the quarter	2.30 per 1,000 cu. ft.
For the excess over 1,000,000 cubic feet in the quarter	1.75 per 1,000 cu. ft.

3. East Jersey Service District (wholesale service to various communities, including the New Jersey Suburban Water Company, Town of Nutley, City of Jersey City, Town of Bloomfield, Little Falls Water Company, Borough of Totowa and City of Bayonne).

For water ..... $0.75 per 1,000 cu. ft.

This rate is to be effective March 1, 1922.

Dated, Paterson, N. J., February 1, 1922.

MONTCLAIR WATER COMPANY,

By

JOHN H. COOK, Vice President.

ALBERT P. FISHER, Secretary.

Amendments to Rate Schedules, Feb. 1, 1922.

STATE OF NEW JERSEY,

BOARD OF PUBLIC UTILITY COMMISSIONERS.

PASSAIC WATER COMPANY,
Amendment to Rate Schedule.

Pursuant to the Statutes of the State of New Jersey, Passaic Water Company hereby amends its schedule of rates to read as follows:

Paterson-Acquackanonk Service District.

The district includes the territory within the municipal limits of the City of Paterson, and the Borough of Prospect Park.

East Jersey Service District.

The East Jersey Service District includes the territory within the municipal limits of the Boroughs of Totowa and West Paterson, the Township of Little Falls, the Town of Bloomfield, the Town of Nutley, and the municipalities east of the Passaic River now supplied through the Kearny pipe line, including the Cities of Bayonne and Jersey City, the Town of Harrison and Kearny, and the Borough of East Newark.

East Jersey Service District.
Rates for Fire Service.

Rates for fire protection service consists of:

(1) A charge per inch-foot of main, and

(2) A charge for each hydrant.

They are uniform throughout the entire territory served by the company.

Inch-Foot Charge.

The inch-foot charge shall be one and one-third (1 1/3) cents per annum per inch diameter per foot of main, applicable to all distribution mains 6″ and larger and to the proportion of the transmission mains utilized in serving the particular community, determined as follows:

(a) Separate the piping system into transmission and distribution mains by treating all mains 24″ and larger as transmission mains, and all mains 20″ and smaller as distribution mains.

(b) Apportion the number of inch-feet in a given transmission main supplying more than one service district in proportion to the population in each district served according to the latest Federal Census.

(c) Charge all transmission mains supplying but one service district to the districts which they supply.

(d) Charge all distributing mains to the service districts which they serve.

(e) Apportion the inch-feet charged to a given service district among the taxing districts contained therein in proportion to the population determined by the latest Federal Census.

Hydrant Charge.

The hydrant charge shall be Ten Dollars ($10) per annum for each hydrant.

Rates for General Water Service.

Rates for metered water for domestic, commercial, manufacturing, and public purposes consist of two elements:

(1) A fixed service charge, and

(2) A proportional service charge.

Fixed Service Charges.

The fixed service charges are based upon the size of meter required to furnish the service for a given property. They are uniform throughout the entire territory served by the companies and do not include any charge for water consumed. They shall be as follows:

½" or ⅝"	Meter	$	1.50	per	quarter
¾"	"		2.50	"	"
1"	"		5.50	"	"
1½"	"		13.50	"	"
2"	"		18.00	"	"
3"	"		45.00	"	"
4"	"		60.00	"	"
6"	"		120.00	"	"
8"	"		190.00	"	"
10"	"		220.00	"	"
12"	"		310.00	"	"
16"	"		460.00	"	"
20"	"		620.00	"	"
24"	"		800.00	"	"
30"	"		1,050.00	"	"

Rates for connections of other sizes in proportion to capacity.

Proportional Service Charges.

For filtered water supplied from Little Falls, the proportional service charges shall be as follows:

1. Paterson-Aquackanonk Service District includ-

ing Paterson, Passaic, Clifton and Prospect Park Borough.

For the first 10,000 cubic feet in the quarter	$1.30 per 1,000 cu. ft.
For the excess over 10,000 cubic feet and up to and inclusive of 100,000 cubic feet in the quarter	1.10 per 1,000 cu. ft.
For the excess over 100,000 cubic feet and up to and inclusive of 1,000,000 cubic feet in the quarter	0.85 per 1,000 cu. ft.
For the excess over 1,000,000 cubic feet in the quarter ...	0.65 per 1,000 cu. ft.

2. East Jersey Service District (wholesale service to various communities, including the New Jersey Suburban Water Company, Town of Nutley, City of Jersey City, Town of Bloomfield, Little Falls Water Company, Borough of Totowa and City of Bayonne).

For Water	$0.75 per 1,000 cu. ft.

Miscellaneous Charges.

Rates for unmetered water for domestic, commercial, manufacturing, public and miscellaneous uses shall be uniform throughout the entire territory served by the companies and shall be as given in Table No. 1 following:

Table No. 1

FIXTURE RATES

The rate for the following private houses includes one set of fixtures, consisting of two draw cocks, one range and boiler, one bath tub, one water closet, one wash basin, one set of stationary tubs.
Rates for sprinkling $6.00 per annum for each 25 feet front.
Extra water closets $6.00 per annum.
Extra bath tubs $3.00 per annum.
Urinals $3.00 per annum.
Rates based on 25 feet or under; over 25 feet 33⅓%.

Item (1)	1 Family (2)	2 Family (3)	3 Family (4)	4 Family (5)	5 Family (6)	2 Closets* 2 Baths (7)	3 Closets* 3 Baths (8)	4 Closets* 4 Baths (9)	5 Closets* 5 Baths (10)
2 Story house	$18.00	$22.50	$27.50	$....	$....	$36.00	$....	$....	$....
2½ " "	21.00	27.00	33.00	....	....	36.00	54.00	....	....
3 " "									
2 " and basement	24.00	30.00	36.00	....	....	36.00	54.00	....	....
2 " and French roof									
4 " house	30.00	36.00	42.00	48.00	....	36.00	54.00	72.00	....
5 " house	36.00	42.00	48.00	54.00	60.00	36.00	54.00	72.00	90.00
Rear Houses:									
1 Story house	9.00	....	....	....	....	....	....	....	....
2 " "	15.00	18.00	....	....	....	....	....	....	....
3 " "	18.00	21.00	24.00	....	....	....	....	....	....

Three, four, etc., story houses occupied by a business on the first floor, rated for the business, shall be rated for the occupancy above the first floor, independently of the first floor.

	Per Annum			
Tenement property—Special or yearly rate	$ 60.00	to	$240.00	
Hotel property—Special or yearly rate	112.50	to	225.00	
Boarding Houses—Special or yearly rate	30.00	to	120.00	
Wholesale liquor houses	30.00	to	60.00	
Restaurants	30.00	to	120.00	
Saloons—Includes 1 water closet, 1 urinal, 1 draw cock back bar	30.00			
Water pressure beer pumps	30.00	to	60.00	Ex.
Barber shops—First chair	12.00			
Each additional chair	6.00			
Building purposes—For each barrel lime or cement used, 21 cents.				
Private stables—One horse	12.00			
Each additional horse	6.00			
Livery stables—Special rates	48.00	to	300.00	
Private garage—One automobile	6.00			
Additional ones, each	3.00			
Stores—Butcher shop	12.00	to	18.00	
Fish market	24.00	to	60.00	
Grocery store	6.00	to	18.00	
Fruit and vegetable stands	12.00	to	36.00	
Bakery	18.00	to	60.00	
Offices	6.00			
Printing offices	108.00	to	150.00	
Laundries	24.00	to	225.00	

* Flats with full set of fixtures, $18.00 per annum each.

Amendments to Rate Schedules, Feb. 1, 1922.

Dyers' Pipe Line.

Fixed service charge same as for "General Water Service."

For unfiltered water supplied from Great Falls, $0.085 per 1,000 cu. ft.

This rate is to be effective March 1, 1922.

Dated, Paterson, N. J., February 1, 1922.

PASSAIC WATER COMPANY,
By
JOHN H. COOK, Vice President.
ALBERT P. FISHER, Secretary.

STATE OF NEW JERSEY,

BOARD OF PUBLIC UTILITY COMMISSIONERS.

EAST JERSEY WATER COMPANY,
Amendment to Rate Schedule.

Pursuant to the Statutes of the State of New Jersey, East River Water Company hereby amends its schedule of rates to read as follows:

East Jersey Service District.

The East Jersey Service District includes the territory within the municipal limits of the Boroughs of Totowa and West Paterson, the Township of Little Falls, the Town of Bloomfield, the Town of Nutley, and the municipalities east of the Passaic River now supplied through the Kearny pipe line, including the Cities of Bayonne and Jersey City, the Town of Harrison and Kearny, and the Borough of East Newark.

Amendments to Rate Schedules, Feb. 1, 1922.

Rates for General Water Service.

Rates for metered water for domestic, commercial, manufacturing, and public purposes consist of two elements:

(1) A fixed service charge, and

(2) A proportional service charge.

Fixed Service Charges.

The fixed service charges are based upon the size of meter required to furnish the service for a given property. They are uniform throughout the entire territory served by the companies and do not include any charge for water consumed. They shall be as follows:

½" or ⅝"	Meter	.....	$	1.50	per quarter
¾"	"	.....		2.50	" "
1"	"	.....		5.50	" "
1½"	"	.....		13.50	" "
2"	"	.....		18.00	" "
3"	"	.....		45.00	" "
4"	"	.....		60.00	" "
6"	"	.....		120.00	" "
8"	"	.....		190.00	" "
10"	"	.....		220.00	" "
12"	"	.....		310.00	" "
16"	"	.....		460.00	" "
20"	"	.....		620.00	" "
24"	"	.....		800.00	" "
30"	"	.....		1,050.00	" "

Rates for connections of other sizes in proportion to capacity.

Amendments to Rate Schedules, Feb. 1, 1922.

Proportional Service Charges.

2. East Jersey Service District (wholesale service to various communities, including the New Jersey Suburban Water Company, Town of Nutley, City of Jersey City, Town of Bloomfield, Little Falls Water Company, Borough of Totowa and City of Bayonne).

For water ..... $0.75 per 1,000 cu. ft.

This rate is to be effective March 1, 1922.

Dated, Paterson, N. J., February 1, 1922.

EAST JERSEY WATER COMPANY,

By

JOHN H. COOK, Vice President.

ALBERT P. FISHER, Secretary.

STATE OF NEW JERSEY

BOARD OF PUBLIC UTILITY COMMISSIONERS

ACQUACKANONK WATER COMPANY,
EAST JERSEY WATER COMPANY,
KEARNEY WATER COMPANY,
MONTCLAIR WATER COMPANY and
PASSAIC WATER COMPANY,
Re Amendment of Rate Schedules
dated February 1, 1922.

Statement Supporting Amendments to Rate Schedules.

TO THE BOARD OF PUBLIC UTILITY COMMISSIONERS,
STATE OF NEW JERSEY:

Please Take Notice that in pursuance of the Statutes of the State of New Jersey, the above named companies have filed herewith amendments to their rate schedules to take effect March 1, 1922.

The following statement is made in connection with the said amendments:

1. The names of the public utilities are Acquackanonk Water Company, East Jersey Water Company, Kearney Water Company, Montclair Water Company and Passaic Water Company, comprising one system. Said Companies own undivided interests in the pumping station and filter plant at Little Falls, New Jersey, and the service reservoir, pipe lines and necessary transmission mains leading from the joint property independently owned. The expenses of the joint operation are divided in proportion to the draft taken by the constituent companies.

2. These Companies serve the following municipalities:

Bayonne	East Jersey Water Company
Bloomfield	East Jersey Water Company
Clifton	Acquackanonk Water Company
East Newark	East Jersey Water Company
Essex County	Montclair Water Company
Glen Ridge	Montclair Water Company
Harrison	East Jersey Water Company
Jersey City	East Jersey Water Company
Kearney	East Jersey Water Company
Little Falls	East Jersey Water Company
Montclair	Montclair Water Company
Nutley	East Jersey Water Company
Passaic	Acquackanonk Water Company
Paterson	Passaic Water Company
Prospect Park Borough	Passaic Water Company
Totowa	Passaic Water Company
West Orange	Montclair Water Company
West Paterson	East Jersey Water Company

Kearney Water Company is a transportation company, and has no consumers outside of the system. Its rates are inter-company and have been so treated.

3. The rates charged by each of the above companies, except perhaps the Kearney Water Company, affect the joint enterprise and the rates charged by each of the others. Each of the constituent companies, therefore, is amending its respective rate schedules, treating them as if they were all those of a single company, and apportioning the rates equitably among the different consumers of the system.

4. Notices of said amendments in the form annexed, marked Exhibits A1, A3 and A4, will be published in two newspapers of general circulation in the territory served, and will be served on the officials of the respective municipalities.

5. The statement of the change in the schedules of rates is as follows: Submitted herewith is the said amendment, the effect of which is an increase in the rates at present charged by the companies, as shown by comparison of the amendment with the existing schedules, and also a change in the incidence of the rates, to eliminate discriminations, and more equitably to distribute the costs of rendering the service.

The territory is divided into districts, according to the costs of the service. These districts are (1) the Paterson-Acquackanonk District, in which rates are uniform; (2) the Montclair District, divided into (a) the Low Service District, and (b) the High Service District (the latter with a higher rate due to added costs of pumping); and (3) the East Jersey District, where the rates are all wholesale, as the distribution of the water to the ultimate consumers is done by the customers of this system.

The rates for fire protection are laid out on plan prescribed by this Board for water companies, and consist of a hydrant charge of $10 a hydrant, and an inch-foot charge based on the length and capacity of the mains. These charges are uniform throughout the whole territory.

The rates for other service are divided into uniform fixed rates and proportional rates, to cover fixed and proportional costs of the service, and where the distribution system is owned by the consumer a wholesale rate is fixed.

Amendments to Rate Schedules, Feb. 1, 1922.

The schedule as amended change substantially all existing rates of the Companies, whether fixed by contract, agreement or otherwise, so as to eliminate discriminations and equitably apportion the charges with reference to cost of the service.

6. The reasons why the change or alteration is made is that no change in the rates of these companies has been made since the general increases in costs occurred, and in the meanwhile operating expenses and taxes have grown so out of proportion to the revenues that it is imperative that these companies should secure additional income in order to obtain a fair return on the fair value of their property and to maintain their service. Further, these increases have resulted in unbalancing the rates of the several companies, treating them as a common enterprise and taking into consideration their jointly owned property. In order to eliminate the discrepancies and the discriminations which have thereby become unjust and unreasonable, it is necessary to make an amendment in the rates.

7. Attached hereto are tables (Exhibit B) showing the additional revenue required by the system as a whole, and by each company as a part of said system; the appraised value of the properties; their operating expenses and taxes for the past four years; their revenues, interest payments and dividends for a corresponding period; and a balance sheet for each

company and the combined balance sheet as of the date of the appraisal.

Dated, Paterson, N. J.

ACQUACKANONK WATER COMPANY,
By
JOHN H. COOK, Vice President.
ALBERT P. FISHER, Secretary.

EAST JERSEY WATER COMPANY,
By
JOHN H. COOK, Vice President.
ALBERT P. FISHER, Secretary.

KEARNEY WATER COMPANY,
By
JOHN H. COOK, Vice President.
ALBERT P. FISHER, Secretary.

MONTCLAIR WATER COMPANY,
By
JOHN H. COOK, Vice President.
ALBERT P. FISHER, Secretary.

PASSAIC WATER COMPANY,
By
JOHN H. COOK, Vice President.
ALBERT P. FISHER, Secretary.

(Copies of Notices dated Feb. 1, 1922, omitted.)

Joint Schedule Feb. 1, 1922.

DESCRIPTION OF SERVICE DISTRICTS

Paterson-Acquackanonk Service District.

The Paterson-Acquackanonk Service District includes the territory within the municipal limits of the Cities of Paterson, Clifton and Passaic and of the Borough of Prospect Park.

Montclair Service District.

The Montclair Service District includes the territory within the municipal limits of the Town of Montclair and customers in outside but contiguous territory and now supplied through the mains located in the town of Montclair. It is divided into the Montclair Low Service District and the Montclair High Service District by the following described line, the Low Service District being east of the line and the High Service District being west of the line.

THE EAST JERSEY

DESCRIPTION OF BOUNDARY LINE BETWEEN LOW AND HIGH SERVICE DISTRICTS OF THE MONTCLAIR SERVICE DISTRICT

Beginning in the Town of Montclair at the intersection of Grove Street with the north boundary line of the Town of Montclair, thence southwesterly along the west side of Grove Street to the south side of the intersection of Grove Street and Mount Hebron Road; thence southerly along the west side of Grove Street to the south side of Watchung Avenue; thence southwesterly in a straight line to the northeast cornor of the intersection of Christopher Street with

Columbus Avenue; thence southwesterly in a straight line to the southwest corner of the intersection of Montclair Avenue with Chestnut Street; thence northwesterly along the south side of Chestnut Street to the west side of Forest Street; thence southwesterly in a straight line to a point on the east side of Fullerton Avenue opposite the north side of Walnut Place; thence southwesterly along the east side of Fullerton Avenue to the north side of Claremont Avenue; thence southwesterly in a straight line to a point in the middle of Cottage Place on the north side of Munn Place; thence northwesterly along the north side of Munn Place 200′ more or less; thence southerly in a straight line to the north corner of the intersection of Fullerton Avenue with Bloomfield Avenue; thence southeasterly along the north side of Bloomfield Avenue to a point in the middle of Grove Street; thence southwesterly along the middle of Elm Street to the east side of Orange Road; thence southerly along the east side of Orange Road to the southeast corner of the intersection of Orange Road with Irving Street; thence southwesterly in a straight line to the south corner of the intersection of High Street with Cedar Street; thence southwesterly along the east side of High Street to the north side of Virginia Avenue; thence southwesterly in a straight line to the intersection of the south boundary line of the Town of Montclair with the south side of Amelia Street.

MAP.

(This map, Exhibit P-1, will be found at p. hereof in the volume of exhibits.)

Amendments to Rate Schedules, Feb. 1, 1922.

East Jersey Service District.

The East Jersey Service District includes the territory within the municipal limits of the Boroughs of Totowa and West Paterson, the Township of Little Falls, the Town of Bloomfield, the Town of Nutley, and the municipalities east of the Passaic River now supplied through the Kearney pipe line including the Cities of Bayonne and Jersey City, the Town of Harrison and Kearney, and the Borough of East Newark.

SCHEDULE OF RATES

EAST JERSEY AND AFFILIATED COMPANIES

Rates for Fire Service.

Rates for fire protection service consists of:

(1) A charge per inch-foot of main, and

(2) A charge for each hydrant.

They are uniform throughout the entire territory served by the Company.

Inch-Foot Charge.

The inch-foot charge shall be one and one-third (1 1/3) cents per annum per inch diameter per foot of main, applicable to all distribution mains 6″ and larger and to the proportion of the transmission mains utilized in serving the particular community, determined as follows:

(a) Separate the piping system into transmission

and distribution mains by treating all mains 24″ and larger as transmission mains, and all mains 20″ and smaller as distribution mains.

(b) Apportion the number of inch-feet in a given transmission main supplying more than one service district in proportion to the population in each district served according to the latest Federal Census.

(c) Charge all transmission mains supplying but one service district to the districts which they supply.

(d) Charge all distributing mains to the service districts which they serve.

(e) Apportion the inch-feet charged to a given service district among the taxing districts contained therein in proportion to the population determined by the latest Federal Census.

Hydrant Charge.

The hydrant charge shall be Ten Dollars ($10) per annum for each hydrant.

Rates for General Water Service.

Rates for metered water for domestic, commercial, manufacturing, and public purposes consist of two elements:

(1) A fixed service charge, and

(2) A proportional service charge.

Fixed Service Charges.

The fixed service charges are based upon the size of meter required to furnish the service for a given

property. They are uniform throughout the entire territory served by the companies and do not include any charge for water consumed. They shall be as follows:

½″ or ⅝″	Meter	$	1.50	per	quarter
¾″	"		2.50	"	"
1″	"		5.50	"	"
1½″	"		13.50	"	"
2″	"		18.00	"	"
3″	"		45.00	"	"
4″	"		60.00	"	"
6″	"		120.00	"	"
8″	"		190.00	"	"
10″	"		220.00	"	"
12″	"		310.00	"	"
16″	"		460.00	"	"
20″	"		620.00	"	"
24″	"		800.00	"	"
30″	"		1,050.00	"	"

Rates for connections of other sizes in proportion to capacity.

Proportional Service Charge.

In addition to the fixed service charge, all water supplied shall be charged for in accordance with a sliding schedule of rates which will vary in the different districts.

For filtered water supplied from Little Falls, the proportional service charges shall be as follows:

1. Paterson-Acquackanonk Service District, including Paterson, Passaic, Clifton and Prospect Park Borough.

For the first 10,000 cubic feet in the quarter	$1.30 per 1,000 cu. ft.
For the excess over 10,000 cubic feet and up to and inclusive of 100,000 cubic feet in the quarter	1.10 per 1,000 cu. ft.
For the excess over 100,000 cubic feet and up to and inclusive of 1,000,000 cubic feet in the quarter	0.85 per 1,000 cu. ft.
For the excess over 1,000,000 cubic feet in the quarter ..	0.65 per 1,000 cu. ft.

2. Montclair Low Service District, including that portion of Montclair supplied without repumping at the Montclair Pumping Station.

For the first 10,000 cubic feet in the quarter	2.40 per 1,000 cu. ft.
For the excess over 10,000 cubic feet and up to and inclusive of 100,000 cubic feet in the quarter	2.00 per 1,000 cu. ft.
For the excess over 100,000 cubic feet and up to and inclusive of 1,000,000 cubic feet in the quarter	1.60 per 1,000 cu. ft.
For the excess over 1,000,000 cubic feet in the quarter ...	1.20 per 1,000 cu. ft.

3. Montclair High Service District, including that portion of Montclair supplied by repumping at the Montclair Pumping Station.

For the first 10,000 cubic feet in the quarter	$3.50 per 1,000 cu. ft.

Amendments to Rate Schedules, Feb. 1, 1922.

For the excess over 10,000 cubic feet and up to and inclusive of 100,000 cubic feet in the quarter	2.90 per 1,000 cu. ft.
For the excess over 100,000 cubic feet and up to and inclusive of 1,000,000 cubic feet in the quarter	2.30 per 1,000 cu. ft.
For the excess over 1,000,000 cubic feet in the quarter ..	1.75 per 1,000 cu. ft.

4. East Jersey Service District (Wholesale Service to various communities).

For Water ..... $0.75 per 1,000 cu. ft.

Rates for Special Water Service.

Dyers' Pipe Line.

Fixed service charge same as for "General Water Service."

For unfiltered water supplied from Great Falls .....$0.085 per 1,000 cu. ft.

Miscellaneous Charges.

Rates for unmetered water for domestic, commercial, manufacturing, public and miscellaneous uses shall be uniform throughout the entire territory served by the Companies and shall be as given in Table No. 1 following:

The rate for the following private houses includes one set of fixtures, consisting of two draw cocks, one range and boiler, one bath tub, one water closet, one wash basin, one set of stationary tubs.

Rates for sprinkling $6.00 per annum for each 25 feet front.

Extra water closets $6.00 per annum.

Extra bath tubs $3.00 per annum.

Urinals $3.00 per annum.

Rates based on 25 feet or under; over 25 feet 33⅓%.

Item (1)	1 Family (2)	2 Family (3)	3 Family (4)	4 Family (5)	5 Family (6)	2 Closets* 2 Baths (7)	3 Closets* 3 Baths (8)	4 Closets* 4 Baths (9)	5 Closets* 5 Baths (10)
2 Story house	$18.00	$22.50	$27.50	$	$	$36.00	$	$	$ ....
2½ " "	21.00	27.00	33.00	....	....	36.00	54.00	....	....
3 " " } ..									
2 " and basement } ..	24.00	30.00	36.00	....	....	36.00	54.00	....	....
2 " and French roof }									
4 " house }	30.00	36.00	42.00	48.00	....	36.00	54.00	72.00	....
5 " house	36.00	42.00	48.00	54.00	60.00	36.00	54.00	72.00	90.00
Rear Houses:									
1 Story house	9.00	....	....	....	....	....	....	....	....
2 " "	15.00	18.00	....	....	....	....	....	....	....
3 " "	18.00	21.00	24.00	....	....	....	....	....	....

Three, four, etc., story houses occupied by a business on the first floor, rated for the business, shall be rated for the occupancy above the first floor, independently of the first floor.

	Per Annum			
Tenement property—Special or yearly rate	$ 60.00	to	$240.00	
Hotel property—Special or yearly rate	112.50	to	225.00	
Boarding Houses—Special or yearly rate	30.00	to	120.00	
Wholesale liquor houses	30.00	to	60.00	
Restaurants	30.00	to	120.00	
Saloons—Includes 1 water closet, 1 urinal, 1 draw cock back bar	30.00			
Water pressure beer pumps	30.00	to	60.00	Ex.
Barber shops—First chair	12.00			
Each additional chair	6.00			
Building purposes—For each barrel lime or cement used, 21 cents.				
Private stables—One horse	12.00			
Each additional horse	6.00			
Livery stables—Special rates	48.00	to	300.00	
Private garage—One automobile	6.00			
Additional ones, each	3.00			
Stores—Butcher shop	12.00	to	18.00	
Fish market	24.00	to	60.00	
Grocery store	6.00	to	18.00	
Fruit and vegetable stands	12.00	to	36.00	
Bakery	18.00	to	60.00	
Offices	6.00			
Printing offices	108.00	to	150.00	
Laundries	24.00	to	225.00	

* Flats with full set of fixtures, $18.00 per annum each.

Order (Feb. 15, 1922).

BOARD OF PUBLIC UTILITY COMMISSIONERS.

IN THE MATTER of Proposed Increases in Rates by the EAST JERSEY WATER COMPANY, PASSAIC WATER COMPANY, ACQUACKANONK WATER COMPANY and the MONTCLAIR WATER COMPANY.	Suspending Increases. Order.

The Passaic Water Company, the Acquackanonk Water Company, the East Jersey Water Company and the Montclair Water Company having submitted to the Board of Public Utility Commissioners amendments to their schedules of rates to be effective March first, one thousand nine hundred and twenty-two, and it appearing that the said amendments will increase existing rates, charges and schedules thereof, the Board hereby calls, on its own motion, a hearing for the purpose of determining whether the increases, changes or alterations by the said Passaic Water Company, Aquackanonk Water Company, East Jersey Water Company and Montclair Water Company in their rate schedules are just and reasonable, and hereby fixes Wednesday, the twenty-ninth day of March, one thousand nine hundred and twenty-two, at 10:45 A. M., as the time and the Board's room, 790 Broad Street, Newark, as the place of the hearing hereby called, and the Board, pending hearing and determination,

Order

Hereby orders the increases, changes or alterations by the said Passaic Water Company, Acquackanonk Water Company, East Jersey Water Company and Montclair Water Company suspended until the first day of June, one thousand nine hundred and twenty-two, unless the Board prior to that date shall be satisfied that the said increases, changes or alterations are just and reasonable and shall approve the same.

Dated, February 15th, 1922.

BOARD OF PUBLIC UTILITY COMMISSIONERS,
By (Signed) John J. Treacy,
President.

(Seal.)
Attest:
Signed) Alfred N. Barber,
Secretary.

Hearing of March 29, 1922.

Board of Public Utility Commissioners,
Newark, N. J., Wednesday, March 29, 1922.

Before the following Commissioners:

Harry V. Osborne, Esq.
Harry Bacharach, Esq.
Joseph F. Autenrieth, Esq.
Thomas Brown, Esq., counsel.
P. Betts, Esq., chief inspector.

For the companies appear: William M. Wherry, Esq., and L. Edward Herrmann, Esq.

For Bayonne, Bloomfield, Harrison, Jersey City, Kearney, Montclair, Nutley, Paterson and Passaic, appear: John J. Treacy, Esq., of Treacy & Milton.

For City of Paterson appears: Edward F. Merrey, Esq., specially.

For City of Passaic appears: A. O. Miller, Esq., and George L. Record, Esq., specially.

For City of Clifton appears: W. B. Gourley, Esq., by M. Force, Esq.

For Town of Bloomfield appears: Randolph C. Barrett, Esq., specially.

For Town of Harrison appears: H. C. Barrett, Esq.

For Borough of East Newark appears: William J. Davis, Esq.

Objection was made by counsel appearing specially for the municipalities above named to the jurisdiction of the Commission over the contracts of the East Jersey Water Company, on the ground that the East Jersey Water Company was not a public utility.

After full argument and briefs, the Board made the following order:

Order (May 3, 1922).

(Striking out Schedules.)

BOARD OF PUBLIC UTILITY COMMISSIONERS.

IN THE MATTER of Proposed Increases in Rates by the EAST JERSEY WATER COMPANY.	Order.

The East Jersey Water Company, claiming to be a public utility as defined by "An act concerning public utilities; to create a Board of Public Utility Commissioners and to prescribe its duties and powers," being Chapter 195, N. J. P. L. 1911, and the Passaic Water Company, Acquackanonk Water Company and Montclair Water Company having submitted to the Board of Public Utility Commissioners amendments to their schedules of rates which amendments increased existing rates, and the said Board by its order dated February 15th, 1922, entitled: "In the Matter of proposed increases in rates by the East Jersey Water Company, Passaic Water Company, Acquackanonk Water Company and the Montclair Water Company," having suspended pending hearing and investigation the said increases; and question having been raised as to whether the East Jersey Water Company, aforesaid, is a public utility as defined by the law hereinbefore referred to, and the Board, on the twentieth day of April, 1922, having concluded that the East Jersey Water Company is not a public utility as

so defined and having on said day made and filed a decision entitled: "Acquackanonk Water Company, East Jersey Water Company, Kearney Water Company, Montclair Water Company and Passaic Water Company *re* Amendment of Rate Schedules dated February 1st, 1922," stating its finding of fact and conclusions thereon, which decision by reference thereto herein is hereby made part hereof, the said Board of Public Utility Commissioners on this third day of May, 1922, hereby orders discontinued its hearing on the increase in rates of the East Jersey Water Company which hearing was called by the Board on its own motion in connection with the hearing of the rates of the Passaic Water Company, Acquackanonk Water Company and Montclair Water Company, and the schedule of rates of the East Jersey Water Company stricken from the Board's files, the order of suspension of the increases in rates of the Passaic Water Company, Acquackanonk Water Company and Montclair Water Company to remain in full force and effect.

This order shall become effective May 25th, 1922.

Dated, May 3rd, 1922.

BOARD OF PUBLIC UTILITY COMMISSIONERS

By (Signed) H. V. Osborne,
President.

(Seal.)

Attest:

(Signed) Alfred N. Barber,
Secretary.

Amendments to Rate Schedules, Dated June 7, 1922.

STATE OF NEW JERSEY,

BOARD OF PUBLIC UTILITY COMMISSIONERS.

ACQUACKANONK WATER COMPANY,
Amendment to Rate Schedule
Dated June 7, 1922

Pursuant to the Statutes of the State of New Jersey, Acquackanonk Water Company, without prejudice to its rights, hereby amends its schedule of rates as follows:

1. The joint rates for the East Jersey Service District and the description of the said district contained in the amendment to the schedule of rates of this Company filed as part of the joint schedule for the system, of which this Company is a part, dated February 1, 1922, are eliminated.

2. *Miscellaneous Service.* The charges for miscellaneous services rendered by this Company are unchanged.

3. *Annual Public Charges.* The fixed charge for each hydrant to cover leakage, maintenance and inspection shall be $10 per annum.

In addition to the charge per hydrant, there will be a charge covering the interest, depreciation, taxes, maintainence and net return on that portion of the system of this Company required for fire protection purposes, of $.0139 per inch diameter per foot of main, applicable to all distribution mains 6 inches and larger, and to that portion of the transmission mains owned by this Company utilized in serving the particular community.

Amendments to Rate Schedules, June 7, 1922.

The inch foot charges for the different municipalities served by this Company are as follows:

Clifton	Passaic
57,280 x 29.3%=$16,783	57,280 x 70.7%=$40,497

Rates for General Water Service. Rates for metered water for domestic, commercial, manufacturing and public purposes consist of a fixed service charge which does not include any charge for water consumed, and a proportional service charge. These rates are as follows:

General Water Service:

Fixed Service Charges:

½" or ⅝" meter	$ 1.50	per quarter
¾" "	2.50	" "
1" "	5.50	" "
1½" "	13.50	" "
2" "	18.00	" "
3" "	43.75	" "
4" "	62.50	" "
6" "	120.00	" "

Proportional Service Charges or Meter Rates:

First 10,000 cubic feet per quarter	$1.90 per M. cu. ft.
Next 90,000 cubic feet per quarter	1.70 " " " "
Next 900,000 cubic feet per quarter	1.35 " " " "
Over 1,000,000 cu. ft. per quarter	0.80 " " " "

Unmetered Water. Rates for unmetered water shall be as follows:

Fixtures Rates:

The rates for the following private houses include

one set of fixtures, consisting of two draw cocks, one range and boiler, one bathtub, one water closet, one wash basin, one set of stationary tubs.

Rates for sprinkling $6.00 per annum for each 25 ft. front.

Extra Water Closet $6.00 per annum.

Extra bathtubs $3.00 per annum.

Urinals $3.00 per annum.

Rates based on 25 feet or under; over 25 feet 33 1/3 per cent.

Item	1 Family	2 Family	3 Family	4 Family	5 Family	2 Closets* 2 Baths	3 Closets* 3 Baths	4 Closets* 4 Baths	5 Closets* 5 Baths
2 Story House	$19.00	$24.00	$28.00	$	$	$38.00	$57.00	$	$
2½ " "	22.00	28.00	35.00			38.00	57.00		
3 " ")									
2 " & basement)	25.00	32.00	38.00			38.00			
2 " & French roof)									
4 " House)	32.00	38.00	44.00	50.00		38.00	57.00	76.00	
5 " "	38.00	44.00	50.00	57.00	63.00	38.00	57.00	76.00	95.00
Rear Houses:									
1 Story House	9.00								
2 " "	16.00	19.00							
3 " "	19.00	22.00	25.00						

Three, four, etc., story houses occupied by a business on the first floor, rated for the business, shall be rated for the occupancy above the first floor, independently of the first floor.

Tenement property—special or yearly rate	$ 63 — $250 per annum
Hotel property—special or yearly rate	120 — 235 " "
Boarding houses—special or yearly rate	32 — 125 " "
Wholesale liquor houses	32 — 63 " "
Restaurants	32 — 125 " "
Saloon,s includes 1 water closet, 1 urinal, 1 draw cock back of bar	32 — " "
	32 — " "

Water pressure beer pumps	32 —	63	" "
Barber shops, 1st chair	13 —		" "
Each additional chair	6 —		" "
Building purposes—For each barrel lime or Cement used, 22 cents.			
Private stables, one horse	13 —		" "
Each additional horse	6 —		" "
Livery stables—special rates	50 —	315	" "
Private garage, one automobile	6 —		" "
Each additional automobile	3 —		" "
Stores—Butcher shop	13 —	19	" "
Fish market	25 —	63	" "
Grocery store	6 —	19	" "
Fruit and vegetable stands	13 —	38	" "
Bakery	19 —	63	" "
Offices	6 —		" "
Printing Offices	115 —	160	" "
Laundries	25 —	285	" "

*Flats with full set of fixtures—$19.00 per annum each.

10 20 30 40

The above rates are to be applied to each customer, as defined in the Board's Rules, Regulations and Recommendations for Public Utilities.

The dates upon which bills will become payable for services remain unchanged.

The above schedule of rates will be effective June 15, 1922.

Dated, Paterson, N. J., June 7, 1922.

ACQUACKANONK WATER COMPANY
By JOHN H. COOK
Vice Prest.

(Seal)

Albert P. Fisher
Secretary

STATE OF NEW JERSEY,

BOARD OF PUBLIC UTILITY COMMISSIONERS.

MONTCLAIR WATER COMPANY,
Amendment to Rate Schedule
dated June 7, 1922.

Pursuant to the Statutes of the State of New Jersey, Montclair Water Company, without prejudice to its rights, hereby amends its schedule of rates as follows:

1. The joint rates for the East Jersey Service District and the description of the said district contained in the amendment to the schedule of rates of this Company filed as part of the joint schedule for the system, of which this Company is a part, dated February 1, 1922, are eliminated.

Amendments to Rate Schedules, June 7, 1922.

The territory served by this Company shall be divided into a Low Service District and a High Service District, by the following described lines, the Low Service District being east of said line and the High Service District west thereof:

BEGINNING in the Town of Montclair at the intersection of Grove Street, with the north boundary line of the Town of Montclair, thence southwesterly along the west side of Grove Street to the south side of the intersection of Grove Street and Mount Hebron Road; thence southerly along the west side of Grove Street to the south side of Watchung Avenue; thence southwesterly in a straight line to the northeast corner of the intersection of Christopher Street with Columbus Avenue; thence southwesterly in a straight line to the southwest corner of the intersection of Montclair Avenue with Chestnut Street thence northwesterly along the south side of Chestnut Street to the east side of Forest Street; thence southwesterly in a straight line to a point on the east side of Fullerton Avenue and opposite the north side of Walnut Place; thence southwesterly along the east side of Fullerton Avenue to the north side of Claremont Avenue; thence southwesterly in a straight line to a point in the middle of Cottage Place on the north side of Munn Place; thence northwesterly along the north side of Munn Place two hundred (200) feet more or less; thence southerly in a straight line to the north corner of the intersection of Fullerton Avenue with Bloomfield Avenue; thence southeasterly along the north side of Bloomfield Avenue to a point in the middle of Grove Street; thence northwesterly along the middle of Elm Street to the east side of Orange Road; thence southerly along the east side of Orange

Road to the southwest corner of the intersection of Orange Road with Irving Street; thence southwesterly in a straight line to the south corner of the intersection of High Street with Cedar Street; thence southwesterly along the east side of High Street to the north side of Virginia Avenue; thence southwesterly in a straight line to the intersection of the south side of Amelia Street.

2. Miscellaneous Services. The charges for miscellaneous services rendered (including charges for standby service) by this Company are unchanged.

3. Annual Public Charges. The fixed charge for each hydrant to cover leakage, maintenance and inspection shall be $10 per annum.

In addition to the charge per hydrant there will be a charge covering the interest, depreciation, taxes, maintenance and net return on that portion of the system of this Company required for fire protection purposes, of $.0139 per inch diameter per foot of main, applicable to all distribution mains 6 inches and larger, and to that portion of the transmission mains own by this Company utilized in serving the particular community

The inch foot charges for the different municipalities served by this Company are as follows:

Montclair—Inch foot revenue—$48,270

Rates for General Water Service. Rates for metered water for domestic, commercial, manufacturing and public purposes consist of a fixed service charge which does not include any charge for water consumed, uniform for both service districts, and a proportional service charge. These rates are as follows:

Amendments to Rate Schedules, June 7, 1922.

Fixed Service Charges:

½" or ⅝" meter	.....	$ 1.50	per quarter
¾" "	.....	2.50	" "
1" "	.....	5.50	" "
1½" "	.....	13.50	" "
2" "	.....	18.00	" "
3" "	.....	43.75	" "
4" "	.....	62.50	" "
6" "	.....	120.00	" "

Proportional Service Charges or Meter Rates:

Low Service District:

First	10,000 cubic feet per quarter	3.70	per M. cubic feet
Next	90,000 " " " "	3.05	" " " "
Next	900,000 " " " "	2.45	" " " "
Over	1,000,000 " " " "	1.85	" " " "

High Service District:

First	10,000 cubic feet per quarter	4.90	per M. cubic feet
Next	90,000 " " " "	4.10	" " " "
Next	900,000 " " " "	3.25	" " " "
Over	1,000,000 " " " "	2.45	" " " "

The above rates are to be applied to each customer, as defined in the Board's Rules, Regulations and Recommendations for Public Utilities.

The dates upon which bills will become payable for services remain unchanged.

The above schedule of rates will be effective June 15, 1922.

Dated Paterson, N. J., June 7, 1922.

MONTCLAIR WATER COMPANY,
By
JOHN H. COOK, Vice Prest.
ALBERT P. FISHER, Secretary.

(Seal.)

Amendment to Rate Schedules June 7, 1922

STATE OF NEW JERSEY,

BOARD OF PUBLIC UTILITY COMMISSIONERS.

PASSAIC WATER COMPANY,
Amendment to Rate Schedule,
dated June 7, 1922.

Pursuant to the Statutes of the State of New Jersey, Passaic Water Company, without prejudice to its rights, hereby amends its schedule of rates as follows:

1. The joint rates for the East Jersey Service District and the description of the said district contained in the amendment to the schedule of rates of this Company filed as part of the joint schedule for the system, of which this Company is a part, dated February 1, 1922, are eliminated.

2. *Miscellaneous Services.* The charges for miscellaneous services rendered by this Company are unchanged.

3. *Annual Public Charges.* The fixed charge for each hydrant to cover leakage, maintenance and inspection shall be $10 per annum.

In addition to the charge per hydrant, there will be a charge covering the interest, depreciation, taxes, maintenance and net return on that portion of the system of this Company required for fire protection purposes, of $.0139 per inch diameter per foot of main, applicable to all distribution mains 6 inches and larger, and to that portion of the transmission mains

owned by this Company utilized in serving the particular community.

The Dyers' pipe line is excluded.

The inch foot charges for the different municipalities served by this Company are as follows:

City of Paterson	Borough of Prospect Park
111,170 x 96.9% = $107,724	111,170 x 3.1% = $3,446

Rates for General Water Service. Rates for metered water for domestic, commercial, manufacturing and public purposes consist of a fixed service charge which does not include any charge for water consumed, and a proportional service charge. These rates are as follows:

General Water Service:

Fixed Service Charges:

½" or ⅝"	meter	$ 1.50	per	quarter
¾"	"	2.50	"	"
1"	"	5.50	"	"
1½"	"	13.50	"	"
2"	"	18.00	"	"
3"	"	43.75	"	"
4"	"	62.50	"	"
6"	"	120.00	"	"
12"	"	312.50	"	"
16"	"	462.50	"	"
30"	"	1,050.00	"	"

Amendment, June 7, 1922

Proportional Service Charges or Meter Rates:

On Dyers' Pipe Line:

For all water furnished $30 per million gallons or 0.225 per M cubic feet.

Customers in the City of Paterson (Outside of Dyers' Pipe Line):

First	10,000 cubic feet per quarter	$1.60 per M. cu. ft.
Next	90,000 " " " "	1.55 " " " "
Next	900,000 " " " "	1.25 " " " "
Over	1,000,000 " " " "	.75 " " " "

Unmetered Water. Rates for unmetered water shall be as follows:

Fixture Rates:

The rates for the following private houses include one set of fixtures, consisting of two draw cocks, one range and boiler, one bathtub, one water closet, one washbasin, one set of stationary tubs.

Rates for sprinkling $7.00 per annum for each 25 ft. front.

Extra water closet $7.00 per annum.

Extra bathtubs $3.00 per annum.

Urinals $3.00 per annum.

Rates based on 25 feet or under; over 25 feet 33 1/3 per cent.

Item	1 Family	2 Family	3 Family	4 Family	5 Family	2 Closets* 2 Baths	3 Closets* 3 Baths	4 Closets* 4 Baths	5 Closets* 5 Baths
2 Story House	$21.00	$26.00	$31.00	$	$	$41.00	$	$	$
2½ " "	24.00	31.00	38.00	....	....	41.00	62.00	....	....
3 " "									
2 " & basement	28.00	34.00	41.00	....	....	41.00	62.00	....	....
2 " & French roof ..									
4 " House ..	34.00	41.00	48.00	55.00	....	41.00	62.00	82.00	....
5 " "	41.00	48.00	55.00	62.00	69.00	41.00	62.00	82.00	103.00
Rear Houses:									
1 Story House	10.00			....	....	....	....	....	....
2 " "	17.00	21.00		....	....	....	....	....	....
3 " "	21.00	24.00	28.00	....	....	....	....	....	....

Three, four, etc., story houses occupied by a business on the first floor, rated for the business, shall be rated for the occupancy above the first floor, independently of the first floor.

* Flats with full set of fixtures $21.00 per annum each.

Tenement property—special or yearly rate	$ 70 - $275 per annum
Hotel property—special or yearly rate	130 - 260 " "
Boarding houses—special or yearly rate	34 - 140 " "
Wholesale liquor houses	34 - 70 " "
Restaurants	34 - 140 " "

40 30 20 10

Saloons, includes 1 water closet, 1 urinal, 1 draw cock back of bar	34		"	"	
Water pressure beer pumps	34 -	70	"	"	Ex.
Barber shops, 1st chair	14		"	"	
Each additional chair	7		"	"	
Building purposes—For each barrel lime or cement used 24 cents.					
Private stables, one horse	14		"	"	
Each additional horse	7		"	"	
Livery stables—special rates	56 -	345	"	"	
Private garage, one automobile	7		"	"	
Each additional automobile	3		"	"	
Stores—Butcher shop	14 -	21	"	"	
Fish market	28 -	70	"	"	
Grocery store	7 -	21	"	"	
Fruit and vegetable stands	14 -	41	"	"	
Bakery	21 -	70	"	"	
Offices	7		"	"	
Printing Offices	125 -	170	"	"	
Laundries	28 -	260	"	"	

Amendment, June 7, 1922

The above rates are to be applied to each customer, as defined in the Board's Rules, Regulations and Recommendations for Public Utilities.

The dates upon which bills will become payable for services remain unchanged.

The above schedule of rates will be effective June 15, 1922.

Dated, Paterson, N. J., June 7, 1922.

PASSAIC WATER COMPANY,
By JOHN H. COOK,
Vice Prest.

(Seal)

ALBERT P. FISHER,
Secretary.

Rule for Judgment.

NEW JERSEY SUPREME COURT.

ACQUACKANONK WATER COMPANY, EAST JERSEY WATER COMPANY, KEARNEY WATER COMPANY, MONTCLAIR WATER COMPANY and PASSAIC WATER COMPANY, Prosecutors, against BOARD OF PUBLIC UTILITY COMMISSIONERS. Respondents.	On Certiorari. Rule for Judgment.

This cause coming on to be heard upon return of the writ of certiorari heretofore allowed herein, in the presence of L. Edward Herrmann and William M. Wherry, Jr., counsel for the Prosecutors, Thomas Brown, Esq., counsel for the Board of Public Utility Commissioners, and John T. Treacy, Esq., counsel for the City of Bayonne, and the court having inspected the writ, the return and the reasons, and having heard the arguments of counsel thereon, it is

Ordered that that part of the report and order of the Board of Public Utility Commissioners, dated April 20, 1922, in the matter of the schedule of rates for the above named companies, which holds that the East Jersey Water Company is not a public utility subject to the jurisdiction of the Board with respect to its rates, be set aside; that part of the said report and order which holds that the schedule of rates of the Prosecutors shall not be treated as a whole, be set aside; that part of the said report and order

and that part of the order of said Board dated May 3, 1922, which strikes from the files of the Board the schedule of rates filed by the East Jersey Water Company dated February 1, 1922, be set aside, and that part of the said order of May 3, 1922, which discontinues the hearing on the increase in rates of the East Jersey Water Company, be set aside:

I allow this rule this 21st day of July, 1922.

Let it be entered.

Rule Entered this 24th day of July, 1922.

FRANCIS J. SWAYZE,
Justice Supreme Court.

On motion of L. Edward Herrmann, Attorney of Prosecutors.

Statement.

On appeal to the Court of Errors and Appeals, from the judgment ordered by the Supreme Court July 21st, 1922, was taken by Bayonne, Bloomfield, Montclair, Nutley, Passaic, Paterson and the Board of Public Utility Commissioners. The matter came on for argument and the judgment ordered by the Supreme Court was affirmed December 7, 1922.

Stipulation as to Suspension of Rates, Made February 28, 1923.

Mr. Wherry stated that if all parties would stipulate that any rates fixed by the Board in substitution of the rates filed by the Company should become effective as of January 1, 1923, no change in the old rates would be made until after April 1, 1923.

The stipulation was entered into without prejudice to the legal remedies or rights of any of the parties, each to remain free to take any action in law or in equity, to apply for a stay or to appeal, with respect to any decision of the Board on these hearings.

Hearing, June 29, 1922.

BOARD OF PUBLIC UTILITY COMMISSIONERS.

Newark, N. J., Thursday, June 29th, 1922.

In *re:* proposed increase in rates Montclair Water Company, Aquackanonk Water Company and Passaic Water Company.

Before the following Commissioners; Harry V. Osborne, Esq., President, J. F. Autenreith, Esq., Thomas Brown, Counsel.

For the Petitioners, appears, W. M. Wherry, Esq., and L. Edward Herrmann, Esq.

For various municipalities, appears John J. Treacy, Esq.

For City of Passaic, appears, George L. Record, Esq.

For City of Paterson, appears E. F. Merrey, Esq., and Charles H. Roemer, Esq.

LEONARD METCALF, sworn on behalf of petitioners.

Direct-examination by Mr. Wherry:

Q. Mr. Metcalf, will you state what your firm is and what the business you are engaged in consists of? A. I am a partner in Metcalf & Eddy, 14 Beacon Street, Boston. We do a general engineering business in the water works and sanitary field, and in the valuation and administration of these plants.

Q. In general, Mr. Metcalf, how long have you been engaged in this business of consulting engineer? A.

My practice began in 1888. I came to Boston to begin engineering practice under my own name in 1897.

Q. Where were you educated? A. I was trained at the Massachusetts Institute of Technology, graduating in the class of 1892.

Q. Have you specialized in problems of water works, or have you had any particular speciality? A. Yes, most of my practice has been in that field and the sanitary field. My work was begun in the office of Wheeler & Cox, Boston, who were waterworks builders and operators. I was with them for five years, after graduating, in different parts of the country.

Q. You participated in the activities of the American Water Works Association, the New England Water Works Association and similar societies? A. Yes, I have served on the Boards of Direction or Government of a number of those societies; President of the American Water Works Association and the New England Water Works Association. Some of the other engineering societies I have also been active in.

Q. Have you made any appraisals of waterworks properties for any purpose? A. I have, yes.

Q. Will you name some of those, Mr. Metcalf, when they were made and what the purpose of it was? A. Well, some of these appraisals have been made for bankers and other individuals who were interested in or examining the properties, some of them were made in connection with the administration of the properties, and in rating and valuation studies. I had charge of the preparation of the engineering evidence in the valuation of the property of the Spring Valley Water Company in San Francisco, of the Denver Union Water Company in Denver, the Indianapolis Water Company, Indianapolis; I valued the properties about Wilkes-Barre

and Scranton, Pennsylvania, serving an aggregate population of something over a half milion people; and various other works, perhaps forty or fifty of them, in the country.

Q. The Spring Valley Company, how long ago was that valuation? A. That began in 1913 and extended over a period of about three years. That was before the Federal Court of the Northern District of California.

Q. Did you testify in that case before the Master? A. I did, sir.

Q. How large a proposition was involved there? A. There was property of about thirty-five or thirty-six million dollars.

Q. Thirty-five or thirty-six million dollars? A. About thirty-six million dollars, yes, sir.

Q. Have you made any valuations for the purpose of rate making, in particular, in addition to that Spring Valley case? That was a rate case, wasn't it? A. Yes, sir, that was a rate case.

Q. Was the Denver Union a rate case? A. The Denver Union was a rate case also.

Q. Is that the one that went to the Supreme Court of the United States? A. It is.

Q. About how large a proposition was that? A. That was about fourteen million dollars.

Q. Have you had any experience in the actual operation of waterworks utilities? A. Yes. In the first place, through the Wheeler & Cox office; they were operating some fifteen or sixteen works. Subsequently, for a period of about nine years, beginning with 1904, I had administrative charge of the operation of six or seven different waterworks and electric light plants for the bondholders, in the Middle West. And I have had occasion to advise many water com-

panies with respect to operating and administrative problems, as well as construction problems.

Q. That Indianapolis case you spoke of, was that a reorganization of the Indianapolis Company? A. Well, in the first instance it was a valuation of the property of the company for its own information; subsequently it was a rate proceeding before the Indiana Public Service Commission, and then I was also responsible for the sale of the plant from one client to another client.

Q. Did you have anything to do with the operation of the plant? A. Only in an advisory way from time to time.

Q. That was how large a water plant? A. That property originally was about eight million dollars; something more than that under the recent valuations, about eleven million dollars, as I remember it.

Q. Mr. Metcalf, you are familiar, are you, with the properties of the Aquackanonk Water Company? A. Yes, sir. I was first called by the New Jersey General Securities Company to value its properties ten years ago, and at that time co-operated with the Water Supply Commission of New Jersey, of which Mr. Morris Sherrerd of this city was chief engineer, in the preparation of an inventory of the several water companies in this district owned by it, five water companies, the Aquackanonk, the Passaic, the Montclair, the East Jersey and the Kearny Water Companies. Subsequently, I was asked to revalue the property as of December 31, 1919, and before that valuation was completed it was brought down to the date of December 31, 1920, which laid the foundation for the work which I have done in connection with the proceedings now pending.

Q. You have been familiar with the property for about ten years, have you? A. I have, sir.

Q. Will you describe briefly what the property comprises, and the relation of the property of the Aquackanonk Company to the Passaic and Montclair and these other companies that you mentioned? A. In general, the property consists of a water supply which is taken from the river at Little Falls and there filtered and pumped to the Great Notch Reservoir and distributed through a supply pipe system to the district covered by these works, by these five works. Certain of the properties, amounting in all to 44 per cent of the entire property, are jointly owned in different proportions by four of these companies; more specifically, the water rights at Little Falls, the Little Falls pumping station and filtration plant, the Great Notch Reservoir and the 51-inch conduit leading to the East Jersey supply. The five companies supply the district extending from Little Falls through Paterson, Passaic, Aquackanonk Township now known as Clifton, Bloomfield, Montclair, Glen Ridge, the region about there, and then supplies water wholesale to the East Jersey and Kearny district. The works at Little Falls are operated through the Montclair Company as an operating company, but at the joint expense of the four owners, to wit, the Aquackanonk, the Passaic, the Montclair and the East Jersey Water Companies.

Q. Have you a map that shows that? A. I have, sir. I think it is the same map that was presented to this tribunal a short time ago.

Q. Is that in your general report? A. No, it is not, sir. It is in Mr. Hill's report, and I think he said it was submitted to the Court.

Q. Mr. Metcalf, was this map prepared under your direction (indicating)? A. Yes, sir, I believe it was. It was from one of the maps of the company.

Q. Does it show in general the distribution system of the company and its location? A. It does, sir. It bears the title: Outline map showing main supply and larger distribution pipe lines of East Jersey, Aquackanonk, Montclair, Passaic and Kearny Water Companies, and is dated January 1, 1913.

Q. It has been brought up to date, has it? A. It has, yes, sir; I think, sir.

Mr. Wherry: I offer the map in evidence.

Map received and marked Exhibit P1.

Q. Will you just indicate on the map the location of the property? Before you come to that, Mr. Metcalf, as I understand it, the property of the Aquackanonk Company consists of two parts, part of which is jointly owned and the other part is owned separately and solely by the Aquackanonk Company, is that correct? A. That is the fact, sir.

Q. Is that also true of the Passaic Water Works Company property? A. It is true of the Passaic, the Montclair and the East Jersey.

Q. Then, will you indicate first on the map, generally how the system lies and what it supplies, so as to give a general description of it, and then indicate what the jointly owned property is? A. I call your attention first to the supply which is derived from the Passaic River at the bend in the river, at the northwest corner of the map, at which the water is taken into a canal which leads down to the basins, and from there passes through the filter plant where the water is filtered. Back again into the pumping station where it is lifted by the high and low service

pumps and is discharged into the mains which lead, the larger one of them, 51 inches in diameter, southeasterly.

By Commissioner Osborne:

Q. How is that indicated on the map? A. That is indicated by the full line.

By Mr. Wherry:

Q. Not that staggered line? A. No, sir, not the staggered line. The staggered line is the Newark Water Works pipe line. It parallels the Newark line. You see, leading off to the northeast, the reservoir, with two dotted lines representing the 48-inch pipe lines, which is the Great Notch main reservoir. Then a pipe leads in a southeasterly direction, coming way down to the river near the end of the map and there connecting with the Kearny and East Jersey lines. Montclair, Glen Ridge and Bloomfield are supplied by the pipe lines, the several pipe lines shown, the 20-inch and the 16-inch leading off to the southwest and being cross connected by a 20-inch and 16-inch main, reinforcing that system. Going to the northwesterly corner of the map you see a 42-inch steel conduit leading to Paterson and then southeasterly to Passaic, with a large pipe system between and cross connected from Passaic, or just northwesterly from Passaic, by a 30-inch reinforcing main back to the 51-inch main. In each of these several communities are the distribution pipes which are not shown in this plan, which has to do with the large supply mains.

Q. In order to give us some idea of the distance there, Mr. Metcalf, what is approximately the length

of this 51-inch steel conduit that runs southeasterly? A. That is given by Station 1117, is it—

Commissioner Osborne: 1112.

A. (Continued.) —plus 73, at the southeasterly end of the Belleville region. The scale of the map, as you see, is 2,000 feet to the inch, a little less than a half mile to the inch. Now, certain of these companies are wholesole distributing companies and in those cases do not deliver the water to the consumer, but deliver it wholesale to the distribution pipe system of the municipality. In other cases, they own, the companies own their own distributing pipe system. The Aquackanonk Company is a complete operating company and supplies the cities of Passaic and Clifton.

Q. Will you go back to the Aquackanonk Company itself and state what property, what portion of the jointly owned property the Aquackanonk Company owns and what portion of the property it owns by itself, and what communities it serves? A. The Aquackanonk Company owns one-fourth of the joint property, so-called, and nineteen one-hundredths of the diversion rights bought in 1921.

Q. These water diversion rights are where? A. The water diversion rights as against the S. U. M., the Society for establishing Useful Manufactures, and the Dundee Company, Water Supply and Land Company.

Q. Where is that? A. Located in Paterson, at Great Falls.

Q. At Great Falls? A. At Great Falls, yes, sir.

Q. That is the right to divert water at Great Falls? A. They divert water from those plants, which have

water power developments at Great Falls and at the Dundee privilege which lies below it.

Q. The Aquackanonk Company owns nineteen one-hundredths of that? A. Nineteen one-hundredths of that. In the jointly owned property are, however, included water rights owned at the so-called Beattie privilege at Little Falls, which were acquired first by the East Jersey Company in 1898, if I remember rightly, and subsequently sold by the East Jersey Company to the four companies, one of which was the East Jersey itself.

Q. What part of that does the Aquackanonk own? A. It owns one-fourth, as it does of the rest of the jointly owned property.

Q. In your assumption that the company owned certain interests in this jointly owned property, you based that on an examination of the records, did you, Mr. Metcalf? A. I did, except with respect to this last water diversion purchase.

Q. As to that you were informed? A. That I was informed of by the chief engineer. I have not actually seen that document.

Q. Part of this property, jointly owned property, consists of steel conduit; was the ownership by the Aquackanonk Company in that assumed by you the same proportion as in the filter plant and the Beattie diversion rights? A. For a certain portion of the conduit it was, that is, from Station 682 plus 53 to Station 822 plus 46; from Station 822 plus 46 to 911 plus 05, the ownership is two-fifths and not one-fourth. It has no ownership below 911 plus 05.

Q. That is the point where the 30-inch steel conduit goes off in another direction? A. It is, sir. It goes to the east.

By Commissioner Osborne:

Q. Those figures are all shown on the map in red, are they not? A. They are, sir.

By Mr. Wherry:

Q. Those are the assumptions you made as to the ownership, as indicated by those figures? A. They are, sir.

Q. What is the territory supplied by the Aquackanonk Water Company? A. In general it is the City of Passaic and that region which lies to the northwest of it, which is known as Clifton or the old Aquackanonk Township.

By Commissioner Osborne:

Q. Where does the Aquackanonk get its water to supply that territory? A. It gets its water from the Passaic River at Little Falls.

By Mr. Wherry:

Q. Through what line? A. It flows through the 42-inch steel pipe and also through the 30-inch Clifton conduit, the main portion of it going through the 42-inch on the north.

Q. Does it run all the way around, that is, does part of the water go easterly through the 42-inch steel conduit? A. It does, sir.

Q. And thence down to Passaic? A. It does, sir.

Q. And then does another portion of it go down this 51-inch steel conduit running southeasterly? A. It does, sir.

Q. And at Station 911 plus 05 it goes past the 30-inch steel conduit in an easterly direction to Passaic? A. It does.

Q. So you have a circulation there that is complete? A. A loop system, with two mains leading southerly from it, one being 16 inches on Van Houten Avenue and the other 20 inches on Main Street, leading southeasterly to the heart of the City of Passaic.

Q. Where does Clifton lie, in what direction from Passaic? A. It lies northwesterly, in this region (indicating), it is about the center of the map which you have before you.

Commissioner Osborne: It is not marked on the map.

The Witness: It is Aquackanonk Township.

Commissioner Osborne: Aquackanonk Water District.

The Witness: Aquackanonk Water District, it used to be known as Aquackanonk Township.

Q. What portion of those transmission and distribution lines is owned by the Aquackanonk Company alone? A. It owns its own distribution system and transmission lines.

Q. Doesn't it own the whole of that 30-inch steel conduit? A. Yes, it is my recollection that it does.

Q. You assumed it did. How about the 42-inch steel conduit? A. The 42-inch steel conduit—I will have to go back to the original records. My impression is that is the Passaic Water Company, but I am not sure there is some division there.

Q. And the distribution system of the Aquackanonk Company— A. That lies within the City of Passaic and the Clifton region, the Paterson region belonging to the Passaic Water Company.

Q. Did you make a careful inventory of the properties of the Aquackanonk Water Company? A. I

did, sir. We made a very careful study of the records of the company, the maps and the records, even went back to the old note books, and the various districts measured up on the plans, and then checked on the ground in conjunction with the representative of the Water Supply Commission, of which I have spoken, so that the inventory as of the date 1912 was a joint inventory prepared with a representative of the State Water Supply Commission. That has formed the foundation of the later work, the additions and betterments from year to year being added and the abandonments being subtracted from it in order to get the schedule as it now stands.

Q. In order to form an opinion as to the fair value of the property of the Aquackanonk Water Company, did you study any data in regard to the population served and matters of that sort? A. Yes, sir. I investigated the population served and found the population, and we looked up the assessed valuations too, and made a forecast of the population. With reference to the population of the district served, although a portion of it is wholesale service, excluding Jersey City, the population has increased from 90,493 in the year 1880 to 442,575 in the year 1920, and has been forecasted by me to 554,000 in the year 1930. The increase by decades, up to 1890 was 58,000 (I give this in round numbers), the next decade to 1900 was 85,000, and next decade, 113,000, the last decade, $96,000, and I have forecasted the next decade at 111,000, in other words, at an increase of approximately 25 per cent.

By Mr. Treacy:

Q. What district does that include? A. That includes the cities served by these various works, in-

cludes also the East Jersey. I can give separate for you, if you like, the cities and towns, but they are contained in a table which I will submit later in evidence, which will, perhaps, be a little easier to follow than an offhand statement.

Q. What proportion does the East Jersey serve of all this district? A. Of this district the East Jersey serves Bloomfield, Bayonne, Little Falls, West Paterson, Kearny, Harrison, East Newark and Nutley.

By Mr. Wherry:

Q. What proportions? A. Of water?

Q. He asked the proportion; can you give that? A. Of water, yes, sir, I can.

Q. The proportion of population served? A. I can add that up for you in a few moments, if you wish, or I will add that later, as you prefer.

Q. I understand you took this data into consideration in forming an opinion of the value of the jointly owned property? A. I did, yes.

Q. In the method of making your valuation, did you first value the property, the jointly owned property as a whole? A. I did, sir.

Q. And then what was your method? A. In the first place, I made a valuation of the entire property as a unit, that is, all five companies. Subsequently I made a valuation of the jointly owned properties and then of the properties of the Paterson, Passaic, and Montclair Water Companies.

Q. The Aquackanonk? A. The Aquackanonk, yes, sir.

Q. A separate valuation? A. A separate valuation.

Q. Getting at the valuation of the Aquackanonk Company, you started with the jointly owned property and took the value of that you had arrived at as a whole, and how did you find out what the value for Aquackanonk's portion of it was? A. I took the proportion according to the ownership in that joint property, in other words, one-fourth of the joint property.

Q. The ownership you assumed? A. The legal ownership as I assumed it, sir.

Q. Then the property which the Aquackanonk Company—the physical property that it owns by itself you inventoried that separately and appraised that separately? A. That was the fact, sir.

Q. Now then, in working up your valuation you made an inventory first, and then you applied prices to it, did you? A. I did, sir. We speak of the inventory as a schedule of property without the prices, and as an inventory when the prices are included.

Q. Then, you had to make certain assumptions or certain opinions in regard to other elements of value that came into it? A. I did, sir. I made a study of the value of these properties on five different bases, and then summed the matter up as a matter of judgment as to what was the fair value of each property.

Q. You had an estimate of overhead costs in the properties in forming the value of the tangible property? A. I did, yes. In other words, to the basic structural costs, in other words, such costs as might be realized on competitive bidding, I added an overhead allowance of twelve and one-half per cent and

an interest during construction allowance of nine per cent.

Q. Did you make an inspection of the property of the company to ascertain the condition it was in, and make any estimate in regard to depreciation that has accrued on the property? A. I did, sir. I made as careful an investigation as I could of the actual condition of the property. I entered some of the steel mains to examine those, and, of course, examined the pumping stations, filter plant, and so on, so as to modify the estimate of depreciation according to the actual condition of the property so far as it could be determined by inspection, and in the case of the pipe system, also by the carrying capacities of the pipes.

Q. By the what? A. By the carrying capacities of the pipes.

Q. Did you make a separate valuation of the water rights of the companies? A. I did. I made an independent valuation of the water rights.

Q. And of the intangible elements of the property? A. I did, sir.

Q. These physical units without the prices that were attached, you prepared some copies of that for me, didn't you? A. I did, yes.

Q. Were those copies furnished to me in March of this year? A. I think that was about the time; it was several months ago, sir.

Mr. Wherry: I furnished you with a copy of that, Mr. Treacy, and Mr. Betts, I sent him a copy of that. I also furnished Colonel Betts with three copies of the unpriced inventories of all five companies, in March, 1922. I have other copies of that if any counsel desire it.

Q. Is that a list of the physical units of these companies (indicating)? A. It appears to be, sir.

Q. Does that include all of the companies?

Mr. Treacy: Is this different from the appraisal that was furnished in the joint case?

Mr. Wherry: No, this is just the list of the property, the unpriced inventory.

Unpriced inventory received and marked Exhibit P2.

The Witness: We shall later submit a schedule with prices attached.

Q. As of what date is that? A. That is as of December 31, 1920.

Q. Then, there would have to be added to it? A. To bring it down to date, yes.

Q. And, perhaps, if you were going to estimate depreciation you would have to take something from it, is that correct? A. I have done so, yes, sir.

Q. In that exhibit, does it give the age in years of the different equipment? A. It does, sir.

Q. Did you ascertain that? A. We ascertained that after a very careful search of the records of construction, going back to the old note books, and I believe it is as accurate as can well be.

Q. Mr. Metcalf, did you embody your opinion as to the value of the Aquackanonk Water Company in the form of a report? A. I did, sir.

Q. And also as to the Montclair Water Company and the Passaic Water Company? A. I did, sir.

Q. Mr. Metcalf, did you prepare certain general data that you used in valuing the property of the Aquackanonk Company and that afterwards you used in valuing the property of the Passaic Water Com-

pany and then after that used to value the property of the Montclair Water Company? A. I did. To be a little more specific, Mr. Wherry, in this Volume A I have made general comments on the basis of valuation of the properties, which applied to all of the properties. Then in Volume A1 I have discussed the value of the Aquackanonk Water Company solely; in Volume A2 the Passaic Water Company and in Volume A3 the Montclair Water Company; then having in an independent report the detailed schedules and items applied, grouped first under the jointly owned properties and then under the several water companies.

Q. That is Volume 2? A. Volume 2, sir, on which the summarized statements contained in Volume A1, Volume A2 and Volume A3 are based. Thinking that the Commission perhaps would like to have a statement of the general subject and the yard sticks of valuation used by me, before I went into a detailed itemized schedule on which those figures were based.

Q. I ask you the value, in your opinion, of the property of the Aquackanonk Water Company, the present value of the property as of July 1st, 1922. A. I am a little embarrassed by the exact wording of that question, for this reason—

Q. I will say the present value of the property of the Aquackanonk Water Company, and you can state what you mean by "present." A. The valuation which I have made of these properties was first made as of December 31, 1920. The records of additional betterments and of abandonments up to December 31, 1921, are available to me; the record for the last six months, to July 1st, is not yet available, so that the exact figures I have not. I can give you the statement subject to a very small variation, however, as of July, or if you prefer, as of January 1st, 1922.

Q. What I want is, in your opinion, the fair present value of this property. Now, if you base it as of December 31, 1921, then we know what you mean by "present." A. Very well, sir. I find the fair value of the property of the Aquackanonk Water Company approximately $3,305,000.

Q. In your opinion that is the fair value of the property of the Aquackanonk Water Company? A. It is.

Q. As of December 31, 1921. A. And practically as of July 1st, 1922, except there may be a variation of a few thousand dollars one way or the other.

Q. How would you bring it up to July 1st? A. By getting the actual record of construction during that six months' period of time and making allowance for the depreciation.

Q. It would be substantially the same then, in your opinion, as of July 1st, 1922. A. Substantially the same, it would, sir.

Q. That opinion was formed on this inventory by this method which you have outlined, is that correct? A. I have not outlined yet the criteria of value used by me.

Q. Mr. Metcalf, will you please state on what you based this opinion of the value of the Aquackanonk Water Company? A. I made a study—

Q. In the first place, if you have any definitions that you want to make, in order that we may understand your testimony, please make those definitions. A. I might perhaps, make a statement, Mr. Wherry, in regard to my view of the valuation of such properties and what I assume to be the end sought and then state the yard sticks I used in arriving at my result.

Q. What is this value you say you put upon the property? A. I have sought to put upon these prop-

erties such a value as we might, in the light of subsequent knowledge, put upon them in retrospect. In other words, in making my valuation I have tried to take into consideration not only prewar conditions, the book costs of the property, the change in prices, the loss in the purchasing power of money, the fact that we have passed the peak of price conditions, that prices have been declining and are momentarily arrested, but I have tried to look forward for a short period of years into the future, in the light of the past and of the present, to see what value might be put upon the property on the basis of what you might call fair, normal prices for this period of time. In other words, it is such a value as in the future, looking back in retrospect, we would admit as a fair value for this property. Of course, the valuation of such properties at this time is exceedingly difficult. Prices were fairly stabilized under prewar conditions, and during the period from 1912 to 1915 prices fluctuated very little. Then we began to feel the influences of the war and costs ran up abnormally high, the purchasing power of money declined, the peak being reached in the middle of the year 1920, when commodity prices were in general over double the normal prewar prices. Then the recession came and the decrease was from upwards of double to about thirty to forty per cent in excess of prewar prices, which point it reached in the early part of this year. Prices have remained fairly stable, a slight upward tendency being observed during the last six months. It is my personal view that we shall see no recession on ten year averages, looking forward and that broadly speaking with respect to property of this sort the advance will prove to have been forty per cent more or less over prewar prices. The indications point clearly to the fact that if we

were to reach prewar prices in the year 1924, the prices now being from thirty to forty per cent in excess of that and higher in some commodities, the average for the decades terminating with each of the years 1922, 1923 and 1924 would be something over forty per cent in excess of prewar prices as indicated by the commodity prices submitted and the index figures of Dun, the Dun and Bradstreet agencies, the Department of Agriculture and various other agencies which are carrying those studies along.

Q. You speak of average prices, what do you mean "average prewar prices"? A. By average prewar prices I mean such prices as were current upon the materials of construction which go into works of this sort.

Q. Average for what length of years? A. On the prewar prices, as I have stated, the average for the years 1912, 1913, 1914 and 1915 were approximately the same. I have given in my report the variation, which is a very nominal one. In other words, prices had been increasing slightly from decade to decade prior to that time and were pretty nearly on a level line in that period of years.

Q. You spoke of five criteria of value, what are they? A. The five criteria of value which I have used are these: First, the book cost, which seems to me of relatively little probative value. The second is the value of this property as measured by prewar costs. Do you wish me to describe those as I go along?

Q. Yes. A. In determining prewar costs I have made use of the finding of the Water Supply Commission of New Jersey as of December 31, 1912, which was seven-eighths of my own valuation as of that data, thinking that the finding made in 1912 in advance of war conditions, by men appointed by public

authority, fair-minded men, as I believe, could not be open to any influences resulting from the war. In other words, the judgment was then untrammeled. In determining this basis of value, I have taken the book costs of the property added from 1912 to 1920, year by year, and have reduced those costs by the ratio between the prewar basis and the average price basis of the year in question.

By Commissioner Osborne:

Q. 1912 to 1920 you say? A. 1912 to 1920, sir. So that I should finally have, and believe that I have gotten a fair statement, a fair statement of the value of these properties, on the basis of prewar costs. It seems to me that that criterion is a very helpful one, not because of it, in my judgment, can be applied directly, but because it furnishes a base upon which to estimate the probable present value of the works by consideration of the percentage increase in costs and the decline of the purchasing power of money.

By Mr. Treacy:

Q. What criterion is that, the prewar value? A. The prewar, the prewar prices. I have then made an approximate estimate of the value of the property on the prices prevailing in 1920, by simply applying factors showing the ratio of prices in 1920 to the prices prevailing under prewar conditions. I have then made an estimate of the value of the property on the basis of ten year average prices, using again this prewar base which I established, applying to it the average scale of prices prevailing in the decade prior to 1912, and in the decade prior to 1920, so that I might have a criterion of the value of the property on decade averages. And finally and most import-

ant, it seems to me, is the detailed valuation which I have made as of December 31, 1920, based on the schedules of property, and upon prices which I should call fair or normal for this period of time. The prices which I have taken in making this valuation or this reproduction cost estimate of the property on the basis of normal prices, have been substantially lower than the prices prevailing at the present time, and more substantially lower, that is, lower yet than the prices which prevailed at the peak in the year 1920.

For example, let me cite cast-iron pipe which is the largest property element entering into these plants. I have assumed a cost of $35 a ton f. o. b. railroad or $37 per ton average delivered on the trench. Now, the record with regard to cast-iron pipe is, roughly speaking, this: On ten year averages, going back for a period of approximately 50 years back of prewar, that is, back of the war, in other words, from 1915 backwards for a period of 50 years, the average price of cast-iron pipe has been $26 more or less, in this region, the fluctuations, the extreme fluctuations being from, let us say, $15 or thereabouts up to $35 or $37, but in general within the twenties, that is $20 to $30. Prior to the war pipe prices had been falling and were below the average of $26, perhaps more nearly approaching $20 in this region, $20 to $22, but the ten year average was still at about that figure. Then came the war and prices shot up progressively to $80 and even $100. I know of sales of $95 to $100. The price was stabilized by the Government at various points, at $55 and $72, as I remember, and then at lower figures, and the price fell so that last fall the most advantageous sales that I heard of were in the neighborhood of $38 to $40 early in the season to perhaps $48 to $50 at the present time. So that in

taking the price of $35 as the fair price on cast-iron pipe for the valuation of this property, it seemed to me that I was taking a price which was as low as I believe will later prove to be or to have been the average price by decade for cast-iron pipe. I think probably that we shall see pipe slightly lower than it is today next spring, but I do not look for any marked change during next summer. I have been told by the pipe makers that my hope of lower pipe this fall will probably not be realized.

In a similar manner I have considered steel pipe and fittings, and have taken an advance on the basic cost of the steel mains laid in the trench and riveted, by excluding the earth work, from four and a half cents to seven cents, which I think is an increase of about 40 per cent. With respect to the small wrought iron piping, about 50 per cent, although the present advance is substantially in excess of that. On the fittings I have assumed four cents a pound whereas the prewar price was two and three-quarters cents. The present price is slightly over that assumed by me. On the meters the advance assumed by me is somewhat less, if I remember rightly, about 18 per cent in the case of the smaller meters.

Mr. Treacy: Is it all stated in your book?

The Witness: It is, yes, sir.

Mr. Treacy: Then by reading that book we will get all of this.

The Witness: Not all of it. I have made more of a statement in regard to this cast-iron pipe situation than I have here.

In the meters 18 per cent for 2 inch and under and 12 per cent for over.

I misstated the fact with regard to the steel pipe.

The increase I used was to five and a half cents per pound from four and a half cents per pound, or an advance of about one-fifth.

On the valves and hydrants I have used an advance of 50 per cent over prewar conditions.

On the boilers, set, approximately 40 per cent, and in the case of the mechanical filters approximately two-thirds.

With respect to the labor, the unskilled labor at Paterson had commanded seventeen and a half cents per hour, and twenty-two cents per hour at Montclair in 1912. The Passaic Water Company actually paid forty-three cents in 1919 and fifty-five and a half cents in 1920, which amounts were substantially less than the going contract rate, as was the case in the majority of waterworks. In other words, the wag of the operating force and maintaining force were not increased in proportion to the increase in wages paid contract labor. The increase assumed by me then has been in Paterson from 18 cents to 30 cents, that is, I have used a basis of 30, or about two-thirds, and in Montclair an increase from 23 cents to 35 cents, or about one-half.

By Mr. Wherry:

Q. Mr. Metcalf, you stated, as I understand it, you were developing the five criteria of value. Have you named all these five criteria of value? A. I have, sir.

Q. Was one of these criteria of value the future prices? A. No, it was not.

Q. What was the bearing of future prices on your criteria of value? A. As an incident in determining what fair or normal prices for this period would be, I wished to consider whether prices were fairly stabilized or whether they were likely to be much lower or

much higher in the future, and I reached the conclusion which I have stated.

Q. What did you base that on, what sort of a study did you make? A. That was based on a very careful study of index prices of various agencies, such as the London Economist, Dun, Bradstreet, and the history following the Civil War down to the present time.

Q. Did you prepare any curves showing the trend of prices? A. I have, sir.

Q. Have you any here that you have used? A. I have carried those curves simply to the year 1923 to indicate what the effect would be. In other words, I have attempted to limit myself to present conditions, but not simply momentary conditions, but looking forward to the next few years during which the rates which will now be established will presumably apply.

By Mr. Brown:

Q. You testified you get your information and laid your foundation primarily from the historic study as well as the indices of Dun and Bradstreet and the Department at Washington, and you also testified to the local wage rate condition that you found existing around Paterson? A. Yes, sir.

By Mr. Wherry:

Q. As I take it, your estimate of costs, both present and future, to a degree is controlled by the indices you have referred to. A. No, not primarily. The estimate of costs on the basis of figures prevailing in 1920, or the ten year average, was determined on that basis, applying the relative index figures to the 1912 cost basis as determined by the Commission. But with respect to the yard stick of the depreciated repro-

duction cost on fair prices for this period the figures were not at all based on the index figures of the agencies. Those were a background to be sure, furnished a background, but the specific figures, such for instance as cast-iron pipe, are based upon my knowledge of what has been paid for cast-iron pipe from year to year from San Francisco to the eastern seaboard, what has been paid by plants about here for pipe, the City of New York, Boston, and so on. In the same way, for other materials which enter into the construction of such waterworks properties my estimates are based on what waterworks have had to pay, not on what Dun says the index figure is.

Q. What do you say about the future then; isn't that the background of the future prognosis or prophecy you make? A. No, not solely. That is a fact, sir.

Q. Here is what I want to know; how far the local condition entered into your judgment of the future in regard to the labor costs which you were testifying to when those objections were raised. A. I had before me records of the actual wage schedules locally and in different parts of the country. I have made, from year to year, beginning in 1918, a record of price conditions which have been experienced in some fifty odd waterworks in differenet parts of the country, some municipally and some privately owned, with respect to the important elements entering into their construction, such as labor and materials. Those have been reported to the American Waterworks Association, for which organization I got them up. They were based on works supplying perhaps something like ten million population, widely scattered, so they seemed to me fairly characteristic. Those records I had before me. There are certain of these water-

works plants, the operating records of which I have had, the price schedules paid by them, which I have had from year to year. Those all were available to me, as well as the local records of those works, and as a result of the study which I have made of the general subject and these specific records and general trends, I drew my conclusions. What I was trying to get, as I have stated, was, what was a fair normal price for this period of time, not the momentary price, but a fair normal price, a stabilized price, if you will. That, as I have stated to you, I have fixed at a point substantially below the present prevailing price; in general it is approximately forty per cent in excess of prewar prices.

By Mr. Wherry:

Q. Did you make a study of price trends and did you make up your mind as to whether they were likely to continue at the present level or not?

The Witness: The conditions as to the immediate present, yes. The conditions as to ten years hence, no, as I previously stated.

Commissioner Osborne: We are dealing with the immediate present and we are not dealing with ten years hence.

Q. Mr. Metcalf, to go back, you stated you have five criteria of value and you enumerated them. What did you determine as the book cost of the property, and in ascertaining it, what did you use? A. With respect to this particular property?

Q. This particular property. A. I find the book cost of the Aquackanonk Water Company as of December 31, 1920, $2,118,000.

Q. Were all the book records available to you? A. They were, sir.

Q. Were any of the books of this company destroyed at a fire? A. I have not the original costs; those are not available, cannot be made up. These are the cost records as they stand on the books at the present time.

Q. What became of the original records? A. They were destroyed in the Passaic fire in 1902, was it? The Paterson fire, I should say, not Passaic.

By Mr. Brown:

Q. Would you please repeat that figure again? A. $2,118,000, and that excludes the construction work in progress and the materials and supplies and cash items.

By Mr. Wherry:

Q. The second criterion of value was the value on the prewar price basis. What was your value as determined on that basis? A. $1,925,000.

Q. And that, as I understood it, took the capital additions and reduced them back to the prewar prices, is that right? A. That is right, sir.

Q. Do either of those two last figures include anything for intangibles, water diversion rights or similar elements of value? A. They do not include intangibles, except to the extent that the cost of preliminary investigations and so on was included, but nothing in the way of going value or franchise value or such a value. They do include in the book costs and in the property value on the prewar price basis, a portion of the Beattie rights at Little Falls.

By Mr. Treacy:

Q. The what? A. The Beattie Manufacturing Company water rights as against the S. U. M. and the Dundee Company, which were not purchased until about a year subsequent to this date of valuation.

By Mr. Wherry:

Q. What was the third criterion of value, based on 1920 prices? A. $4,058,000.

Q. Did that exclude the same elements and include the same elements? A. Yes, sir. Yes, it did, sir. Wait a moment. The going value allowance was included.

Q. In that? A. In that estimate, yes.

Q. But not included in the other two? A. Pardon me, I am wrong. The going value allowance was included in the prewar price basis, but was not included in the book cost.

Mr. Record: Might I ask a question to clarify the situation? Mr. Wherry asked if in his book costs he included intangibles and so forth, and I understood him to say he did include the Beattie rights, but did not include the rights at Little Falls that were purchased afterwards.

The Witness: That is right, sir.

Mr. Record: Can we not have the amount of that purchase right in here so we have it altogether?

The Witness: $212,800 was the purchase price, so far as the Aquackanonk Water Company is concerned, for the water rights purchased from the S. U. M. and the Dundee Company.

By Mr. Brown:

Q. You testified, as I understand it, to the first and

second criteria, and that you did not include the going value. A. I did in the second criteria, but not in the first, the book cost.

Q. That is the correction you want to make? A. Yes, sir, that was the correction I wanted to make.

By Mr. Record:

Q. Will you make a further statement there as to what that $212,000 purchased, what water rights were purchased for that amount? A. That purchased the right to divert 75,000,000 gallons of water daily.

Q. As against those two concerns? A. As against those two concerns.

By Mr. Wherry:

Q. Your fourth criterion of value was based on ten year average prices prior to what date? A. Prior to the date December 31, 1920.

Mr. Merrey: Pardon me. I want to ask a question, which would really come in place before yours.

By Mr. Merrey:

Q. These water rights which you have referred to, or diversion rights were purchased from the Dundee Company and the S. U. M., were purchased from corporations which were owned by the same stockholders as own the Passaic Water Company, the Aquackanonk Water Company and the Montclair Water Company, were they not? A. I cannot tell you exactly, because I never have seen—that is not true. I have not seen the stock books for a long time. I think that probably is true in a general way.

By Mr. Wherry:

Q. They are all owned by the New Jersey Securities Company, or some such corporation. A. The New Jersey General Security Company is a holding company which has ownership in the S. U. M. and the Dundee and also in these companies; that is true.

Q. So this price which you have fixed as having been paid was one which was controlled by the same parties either one or two parties to it, really separate corporations, but not seperate ownership. A. I think that is true in a measure, probably.

By Commissioner Osborne:

Q. Did you reach any conclusion or attempt to reach any conclusion in your own mind as to the correctness of that price? A. I did, sir.

Q. As a criterion of value? A. I did, sir. I believe it is a fair one.

Mr. Wherry: I am coming to that later on. It is excluded from these criteria.

Commissioner Osborne: Excluded?

Mr. Wherry: Yes, excluded. I have not gotten to that point yet. I also call attention to the fact that prior to the purchase the company paid annually in its operating expenses for the privilege. It simply was changing it from the operating expenses to capital.

By Mr. Wherry:

Q. The fourth criterion was what? A. The fourth criterion on the ten year average prices was $2,926,000.

Q. Then your fifth criterion, which was what in your judgment were fair, present, normal prices, was

since that time? A. And deducted the annual depreciation allowance.

Q. What did you add? A. I will give you those figures, sir. To the sum here stated, $3,066,000, I added water rights, $212,800, and the betterments in 1921, amounting to $65,000 and deducted depreciation of $39,000, the actual amount set aside having been $31,500, getting a final figure of $3,305,000, which was the value which I stated at the beginning of my testimony.

By Commissioner Osborne:

Q. Why does that differ? That is the $3,066,000 with these other additions and deductions? A. That is right, sir.

Adjourned until Friday, June 30th, Kinney Building, Newark, at 10:45.

Newark, N. J., Friday, June 29th, 1922.

LEONARD METCALF resumes the stand on behalf of petitioners.

Commissioner Osborne: You may proceed.

Further direct-examination by Mr. Wherry:

Q. Mr. Metcalf, in the total valuation of the Aquackanonk Company did you include the value for the land? A. I did, yes, sir.

Q. Was that value of the land made by you? A. No, sir, it was not. I am not familiar with land values in New Jersey.

Q. It was furnished you by the company? A. No. I asked the company—

what? A. That is depreciated or net reproduction cost at fair, normal prices.

By Mr. Treacey:

Q. Is this the fourth? A. This is the fifth.

Q. What was the fourth? A. $2,926,000, ten year averages.

By Mr. Brown:

Q. That does not include going value? A. It does, sir. Then the fifth yard stick, the depreciated or net reproduction cost at fair, normal prices as of December 31, 1920, $3,181,000.

By Mr. Wherry:

Q. Then, to form a judgment as a whole, you took those five criteria into consideration and arrived at a figure which you thought was the fair, present value of the property. A. I did, sir.

Q. What was that figure? A. That figure was $3,066,000.

Q. Did that include the water rights which were purchased from the Dundee Company and the S. U. M.? A. It did not, sir.

Q. To that you would have to add the fair value of those water rights purchased? A. I would, sir.

Q. How much would that be? A. $212,800.

Q. Did this $3,066,000 include the value of the property as a going concern? A. It did, sir.

Q. And the Beattie water rights? A. It did, sir.

Q. It included the betterments and improvements up to what date? A. Up to December 31, 1920.

Q. Then, when you gave me the value as of the present you added the betterments and improvements

Q. Do you know as of what date it was made? A. As of December 31st, 1920.

Q. In your classification of the value have you put the land under the different accounts as prescribed by the Commisson, or have you put them in separately? A. We put them in the accounts in the form of the classification used by the Commission.

Q. Does that appear in your detail? A. They do, sir. We have also exhibits showing the land segregated for the convenience of the Commission.

Q. Is that in volume two? A. Yes.

Q. How did you treat paving over mains? A. I have included in the report under the head of paving only paving which we know definitely was cut in the laying of the pipe, following the instructions of counsel in regard to that. The remainder of the paving which lies over pipe but which was not actually cut was not included. As a matter of fact, I am confident a considerable amount of paving, additional paving was cut which is not included in the report, but the difficulty of obtaining that is great and the expense involved is substantial, so the matter was left this way, under instruction of counsel.

Q. You only included such pavement as you could discover actually had been cut? A. Yes; with a limited search.

Q. How did you treat railroad crossings? A. The same general course was followed there.

Q. Did you include structural overheads in your unit prices or did you treat them separately? A. I treated them separately by the addition of a percentage in the basic figures, which basic figures were in effect the contract cost of doing the work.

Q. What do your construction overheads include, without defining them? A. I made an additional al-

lowance of twelve and a half per cent in the case of structures, and four per cent in the case of land for the overhead costs, administrative costs, legal costs, engineering costs, for such omissions as might occur—

Commissioner Osborne: Four and a half per cent?

The Witness: Twelve and a half per cent for structures and four per cent on the land.

Q. Did you include those overheads in each of these criteria or only in the reproduction? A. That was only in the reproduction cost estimate, which constituted the yard stick.

Q. Which of these criteria of value do you consider most significant in making up your final figure? A. The fifth I mentioned which is the depreciated reproduction cost of the property under what I call fair prices for this period of time, which I discussed yesterday.

Q. I understood one of your criteria was the book cost. Have you made a distinction between the book cost and the actual cost of the period? A. I did. The actual cost could not be obtained; the records were not available.

Q. The original cost? A. The original cost.

Q. The records were destroyed? A. The records were destroyed in the Passaic fire, as was stated.

Q. The book costs are simply the items as they appear on the books of the company today, in the capital accounts? A. That is true.

Q. In addition to the structural items and the structural overheads, did you separately value the water right which this company has? A. I did, sir. May I call attention to the fact; in separating, because it seems to be connected with such overhead costs, I

also made an allowance for interest during construction.

Q. Wasn't that interest during construction, was that figured on the tangible items or overheads? A. Yes; on the overheads.

Q. You make a distinction between the structural overheads and the interest during construction? A. I do.

Q. What is the distinction? A. The item of interest during construction is the allowance which I have included upon the money put into the property items up to the time when the property actually goes into service on an income producing basis. That I estimated in two different ways: one, under the broad consideration of the subject, that it was reasonable to allow somewhere between a year and a year and a half; I actually allowed nine per cent, which would be a seven per cent rate one and two-sevenths of a year.

I also figured it on the basis of the actual method of building up the plant, as was necessary in working out going value, property element, putting into service the various portions of the plant on an income producing basis as rapidly as possible, and on that basis I got about the same result, substantially the same result as by the other consideration. I adopted nine per cent interest during construction allowance on the property items to cover this element or item.

Q. You have already stated in estimating the value of the tangible property you took into account the depreciation which you worked out on the sinking fund basis after inspection of the property, is that correct? A. Yes, I did.

Q. Did you deduct that depreciation before you made the structural overheads or afterwards? A.

Afterwards, so that the same allowances are made on the overhead items for depreciation that is made in the other items.

Q. You depreciated overheads as well as— A. I did, sir.

Q. Treating the overheads just as the cost of the physical property, of the brick and mortar, whatever goes into the structures? A. Yes, sir.

Q. What is the distinction between interest during construction and going concern value? You speak of the value of a going concern.

Mr. Record: What was that question?

Mr. Wherry: The difference between interest during construction and going concern value.

A. Under interest during construction I have included only the interest element on the property items from the time that the money is put into the construction up to the time when the property goes into service. Under the going value would be included the interest allowance and other items entering into it from the period of time when the various groups of structures go into service up to the time when the property becomes a going concern. Do you wish me to discuss going value?

Q. I am going to take that going concern value and the rights up in a moment. But you did add separately, you did separately value the tangible element of the property which is known as going concern, is that right? A. I did, sir.

Q. You made a separate— A. I made a separate analysis of that.

Q. You also separately valued the water diversion rights this company owns? A. I did.

Q. Does this company own any separate water diversion rights or are they jointly owned? A. The Aquackanonk?

Q. Yes. A. I don't at the moment remember. No independent rights other than those which they get from the jointly owned property, except those purchased last December from the S. U. M.

Q. That item you got separately? A. Got separately, yes.

Q. Those water diversion rights you have included in that figure of three million odd you gave as the present value? A. Yes.

Q. What do they consist of? A. There are two sets of water rights, as previously explained; one of them the right at Little Falls as against the Beattie Manufacturing Company by purchase in 1898 by the East Jersey Water Company and subsequently sold in part to the three other companies mentioned and the second set of rights as against the riparian owners at or below Great Falls which are owned chiefly by the S. U. M. and the Dundee Water Power & Land Company.

Q. Did you embody the result of your value in the form of an exhibit in respect to the Aquackanonk Company? A. I did.

Q. Is that a copy of it (handing witness paper)? A. It is, Volume A1.

Mr. Wherry: I might facilitate the matter if I mark these three as one exhibit.

Commissioner Osborne: The witness has already testified to these exhibits being prepared in this form, Volumes A, A1, A2 and A3, and then a further volume which epitomizes the whole.

Mr. Wherry: I would like to offer Volume A, which is handed in as one exhibit, consisting of four parts; the first volume is A, the second A1; the next A2, and the next A3. So far I have only covered A1 and the general part under A. I have not taken up the Montclair or the Passaic.

Volume A received and marked Exhibit P3A.

Volume A1 of Aquackanonk Water Company received and marked Exhibit P3A1.

Volume A2 of Passaic Water Company received and marked Exhibit P3A2.

Volume A3 of Montclair Water Company received and marked Exhibit P3A3.

Mr. Wherry: The first one is a general discussion of the method which was used in each company and then A1 summarizes the Aquackanonk, A2 the Passaic and A3 the Montclair. The detail of the valuation which covers all of these is volume two and that gives all the detail of the inventory with the prices.

Q. Will you turn to table three in Exhibit P3A1. A. Page seven. Table 3, Aquackanonk Water Company, gross reproduction cost and net depreciated reproduction cost as of December 31st, 1920, on the basis of the fair, normal prices.

Mr. Wherry: Before I take up that table, I call attention to the column marked in that table joint ownership, which is the third column.

Q. Now, Mr. Metcalf, in that column what do those figures correspond to? A. They correspond to the portion of the joint property owned by the Aquackanonk Water Company, which as I stated yesterday, amounted to one-quarter of the—

Q. When you appraised the property of the Aquackanonk, which is owned jointly with others, did you first appraise the joint property as a whole, and then divide that whole appraisal by the proportion which you assumed the Aquackanonk Water Company owned? A. I did, sir; that will appear in volume two.

Commissioner Osborne: In other words, if you took the property as a whole and appraised it at one hundred, and there were three parties in interest who owned equal parts, you allocated one-third of that to each company?

The Witness: Exactly so.

Commissioner Osborne: And as the Aquackanonk Company was one of them, its value was thirty-three and a third.

Mr. Wherry: On the assumption of ownership.

Commissioner Osborne: Merely his method of appraising the whole thing, then dividing it according to the percentage of interest of each; that is the method he said he pursued.

Q. Is the legal ownership you assumed set out in Exhibit P3a on page three of the table there? A. Yes.

Mr. Wherry: Now, may it please the Commission, at the time of the certiorari in this

proceeding, depositions were taken and abstracts of the deeds were put in evidence. Those deeds show that the East Jersey Water Company purchased from a great number of grantors property which it afterwards conveyed by three separate deeds to the Aquackanonk Water Company, the Passaic Company and the Montclair Company in the proportionate interest shown in this table; that is the basis of that assumption. It also purchased the Beattie water rights and conveyed those by those deeds. I have here the exhibits which were checked and offered at that hearing.

Mr. Wherry: I have only this one now, but Judge Treacy has one and I will furnish the Board with copies and I will furnish Mr. Record with copies.

I want to offer that in evidence.

Abstract of deeds marked Exhibit P4.

Q. Now, Mr. Metcalf, turn to this table three. As I understand it, that table is the one which you relied upon in forming your opinion more than any other criteria, is that correct? A. That is true, sir.

Q. Practically the one you adopted? A. No, I don't want to say it is the one I adopted because I showed you yesterday the final figures adopted are somewhat different from these, although they are closer to these than to any other, I believe.

Q. Will you just explain that exhibit. What does this first column "account number" mean? A. That is the account number according to the method adopted by this board, by this Commission. And in the second column we have a description of the account which accompanies it. In the following column, following

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three columns, we have the gross reproduction cost; in the first column the joint ownership property, in the second the property owned other than in joint ownership, that is the property owned directly by the Aquackanonk Water Company, and under the column headed "Total," we have the gross reproduction cost of the total property in the Aquackanonk Water Company; the items appearing in that column being made up of the sum of the joint ownership property and the property other than joint ownership.

Similarly in the last three columns we have the net or the depreciated reproduction cost on this property segregated in the same way between the joint ownership property and the property other than that held in joint ownership.

Q. After the number 152, materials and supplies, appears engineering and contingencies; is that the overhead which you stated? A. That is the overhead item which I have already referred to.

Q. You divided that into two parts? A. I did, sir.

Q. Why was that? A. Because the overhead costs on structures are less—are greater than the overhead costs on real estate in the assembling of the lands.

Q. Where in this table does the water diversion right appear? A. They do not appear except with respect to the Beattie Company rights, which are included in the joint ownership property.

Q. Under which item? A. That is under the first column, joint ownership property.

Q. Which of the sub-columns, which of those sub-items; which account number do they appear on? A. 123 hydraulic power equipment; that is right.

Q. The water rights are included in that? A. Yes, I understand that to be the case. That is the way in which the Commission carries it.

Q. That is the way they are carried on the books. What have you done in regard to working capital? Is that included here? A. The working capital is not included here. That concerns the base to be used in determining the rates, but I have referred in this report to the fact that a reasonable allowance should be added on account of working capital.

Q. Did you make what was a reasonable allowance for working capital? A. I did. I gave consideration to that subject. I am of the opinion that the allowance of $300,000 on the property as a whole is a reasonable allowance in excess of the items of materials and supplies which are included herein.

Q. You haven't separately estimated that for Aquackanonk? A. No, I haven't that here, Mr. Wherry; I didn't go into the rate question in preparing this.

By Mr. Treacy:

Q. Do I understand you made an estimate of the working capital cash of $300,000 excluding materials and supplies? A. Yes.

Q. You did not include materials and supplies in working capital? A. I did not, sir. I included that in this estimate here. The $300,000, Judge Treacy, was not with respect to the Aquackanonk Company but all these water companies as operated jointly.

Mr. Wherry: What I want to bring out here is it wasn't included in this value. It should be added to get the rate base; you have to add the working capital. It isn't included as part of the value of the property, according to Mr. Metcalf's theory.

By Mr. Wherry:

Q. Did you make a similar valuation to the one you have discussed for the property of the Passaic Water Company? A. I did, sir.

Q. Is that embodied in Exhibit P3, volume 2A? A. Volume 2A, page seven, table three.

Q. Does Volume P3A2 discuss that value and summarize it? A. It does. The general principle underlying the values are set forth, as previously stated in Exhibit P3, volume A, and the details—the summarized statement of the values resulting from the application of the various yard sticks are set forth in Exhibit P3A2.

Q. What, in your opinion, was the fair value of the property of the Passaic Water Company used and useful as of the present? A. If you will turn to page two of volume A2, you will find a summarized statement of the criteria of value of the property of the Passaic Water Company as of December 31st, 1921. Do you wish me to read that into the record?

Q. No, I wish you to tell me the present fair value of it first? A. Yes, sir.

Q. The first estimate was in regard to the Aquackanonk. I understand you used this same method? A. I did.

Q. But I would like to get your opinion of what is the fair present value of the property? A. I find the fair present value of the Passaic Water Company to be $6,327,000.

Q. You have used the same criteria of value in arriving at that conclusion that you used in the case of the Aquackanonk Company, is that right? A. I did, sir.

Mr. Record: What page?

The Witness: Not fully.

Mr. Wherry: Page two.

The Witness: The criteria used as of December 31st, 1920; are set out on page two as stated.

Q. To this value of $5,837,000 which was the value in your opinion as of December 31st, 1920, you had to make some additions and deductions? A. That is right; it brings it down to date.

Q. What additions and what deductions? A. I added water rights purchased from the S. U. M. and the Dundee Water & Land Company at a cost of $280,000 shown in item "B" at the foot of that table, and the criteria of value, page 2, and the betterments made in the year 1921, amounting to $296,000 and deducted an allowance for depreciation of $86,000; the net sum thus resulting being $6,327,000.

Q. That would be substantially the same figure as of July 1, 1922? A. I believe it would be, yes, sir, because the amount of construction during the past six months has not been large.

Mr. Record: Where is this total he now speaks of? I don't find it.

Mr. Wherry: It doesn't appear in this exhibit.

The Witness: This exhibit, sir, was made up as of December 31st, 1920, and then counsel asked me to bring it down to date.

Q. Have you excluded from the inventory of the Passaic Water Company any property that is not being used and useful? A. I think not, sir.

Q. In your opinion all this property you valued is used and useful? A. I shall have to give you a list

subsequently of certain properties, aggregating approximately $275,000 in the three companies, which I considered as not used and useful.

Q. That was excluded in all these values? A. No, sir; that is included in all these values.

Q. Then you will have to deduct that? A. Have to deduct that subsequently.

Q. You have not done that? A. I have not done that.

Q. Have you an exhibit which shows that? A. Yes; I can give you an exhibit—I can state the facts. Under the unused properties I have for the Passaic Water Company a total of $52,000.

The Acquackanonk Water Company substantially no deductions; $100. The Montclair Water Company, in round numbers, $198,000.

Q. Before we come to the Montclair; how much should be deducted from the figure you have given as the fair present value of the property of the Passaic Water Company for property that isn't used and useful? Your valuation was how much; your final figure? Just give me the gross, please, the gross deductions? A. $52,100.

Q. Now, then, from that fair value of the entire property which you stated as being six million odd dollars, there should be deducted this amount in order to determine the fair value of the property used and useful, is that right? A. That is right.

Q. How much was the value upon which you are to deduct this amount, six million odd? A. $6,327,000.

Mr. Merrey: Deducting the overheads at the same time?

Q. Is the ovehead on those structures included in that $52,000. A. It is, yes.

Q. From that you deduct the $52,000. A. Yes.

Q. Leaving this two hundred and seventy-five— A. $6,275,000.

Commissioner Bacharach: $274,900, isn't it?

The Witness: I would not carry it to hundreds of dollars. I don't think the estimate justifies that.

Q. As the fair net value of the property used and useful? A. Yes.

Q. Will you state what property you excluded as not used and useful, and why? There are not many items. A. No. The item of real estate incident to the—involved by the Stony Road Pumping station and the pumping station itself, those two items, which are about alike in amounts, practically made up the entire amount of $52,000.

Q. Those are not used at all, now? A. I think the pumping station has been leased for foundry purposes, for some uses outside the waterworks business at the present time.

Mr. Treacy: May I ask here, in order to get it clear on the record—

Mr. Wherry: Certainly.

By Mr. Treacy:

Q. Do you charge off as obsolescent property any of the old machinery, plant or equipment at the Great Falls plant, which is now no longer used? A. In the case of abandoned property, property not used, I have eliminated it from the schedules.

By Mr. Wherry:

Q. It don't appear at all. A. If the property is still held in reserve for use, as for instance, the Little Falls pumping station.

By Mr. Treacy:

Q. Can you answer that question: If the Great Falls pumping plant, which was formerly the entire system, was that eliminated from this or is it in this value? A. No. The Great Falls buildings and the pumping station are included in this because we have depreciated structures.

Q. They are in? A. They are in.

Q. As part of this value? A. Yes. What we have there is principally a meter house, as I remember it. Isn't it? A meter testing station and so on; remodelled building.

By Mr. Wherry:

Q. Power abandoned machinery don't appear at all in the inventory? A. It does not. Abandonments do not appear in the schedule of property.

Q. This Exhibit P3A2, have you a table for the Passaic Water Company similar to the table three for the Aquackanonk Company? A. I have, sir.

Q. What is that table? A. That is table, page seven of volume A2, similar in form to table three of volume A1, relating to the Aquackanonk Company.

Q. That includes the value of the water rights acquired by this company in 1921? A. It does. In 1921 and prior thereto.

Q. But not for 1921? A. Not in 1921.

Q. That would have to be added? A. That would have to be added.

Q. That was included in the unused property of $52,000 which you just spoke of? A. That is right, sir.

Q. That would have to be deducted? A. That is right, sir.

Q. The method of pricing used in regard to Passaic, isn't that the same in preparing this table as in regard to the Aquackanonk? A. It was, sir.

Q. The overheads? A. The same.

Q. The estimates of value of the water rights, have they any different water rights here than the jointly owned water rights? A. The ownership is different.

Q. In different proportions? A. In different proportions, that is all, but the basic method of valuation is the same because it was determined once for all the water rights and then the proportion owned by this company was taken out and—

Q. This company don't own any separate water rights other than the joint ones? A. No, sir.

Q. Did you use the same method of forming an opinion of the going concern value of this company that you used in regard to the Aquackanonk A. I did, sir. I made an independent computation.

Q. I will take up the details of that. Turn to the Montclair Water Company, and I will ask you if you made a similar valuation in respect to the Montclair Water Company property? A. I did, sir.

Q. And is that summarized in Exhibit P3A3? A. It is, sir, the arrangement being indentical.

Q. Have you used the same method? A. I did.

Q. In this respect? A. Yes.

Q. Did you form an opinion of the fair present value of this property as a whole A. I did, sir.

Q. What was the value, in your opinion? A. The property as a whole, $2,507,000, without deduction for the unused property.

Q. What would you deduct from that for unused property? A. $199,000.

Q. Making a net of what? A. Making a net of $2,308,000.

Q. What property did you deduct as not used and useful? A. There are real estate items amounting to —it is all in the real estate.

Q. Where is it located? A. It is all in real estate and it covers what has been known as the Split Rock Reservoir site. There is a small item of buildings at Split Rock but it is practically all real estate.

Q. In forming your opinion of the value, the present value of this property, did you use the same criteria of value that you used in reference to the other company? A. I did, sir.

Q. Are they set out in page two of this Exhibit P3-A3? A. They are, except as to the betterments in the year 1921, which amounts to $19,000 and the depreciation allowance of $38,000 and the water rights which are there stated amounting to $56,000.

By Mr. Treacy:

Q. Could you explain more fully the deduction of the $199,000? I would like to know what was deducted for the Split Rock pond. A. I can't give you that in a moment. I deducted that entire property which had been valued by the real estate appraisers, which had been submitted to me in a round sum. $198,000; it is practically made up of Split Rock.

Q. You said most of it was Split Rock? A. Practically all of it. There are some buildings up there which constitute a part of it.

By Mr. Wherry:

Q. In connection with the valuation of all three of these properties, did you prepare a detailed inventory and reproduction cost at fair normal prices of the

property, which are summarized in Exhibit P3, which we have just been considering? A. I did, sir.

Q. Was the basis of that the inventory which we have submitted unpriced to the board, Exhibit P2? A. I understand so, sir. The exhibit which you submitted was not prepared in my office, but I think it was identical with this and taken from this, a copy of it, without the figures, without the items.

Q. The same basis? A. It was.

Q. Does this exhibit contain the details of the inventory made by you with the prices opposite the different items arranged according to the uniform classification of accounts made by the board? A. It does. It bears the title, "Volume 2, Metcalf, Detailed Inventory and Reproduction Cost at Fair Normal Prices as of December 31st, 1920."

Mr. Wherry: I offer that in evidence.

Volume 2, Metcalf, Detailed Inventory and Reproduction Cost at Fair Normal Prices as of December 31st, 1920, received and marked Exhibit P5.

Q. Can you find in that Exhibit P5, the value of the Split Rock property deducted by you? A. If you turn to page 215, Judge Treacy; in that you will find the summation at the foot of that page, $187,179. So much for real estate. If you turn to page 193 you will find three items aggregating $6,500. The sum of these two is $193,679, and with the overhead added to that, gives the sum which I have mentioned.

Q. What did you say it was without overhead? A. What?

Q. How much did you say the Split Rock property was without overheads? A. $187,179, the real estate and the structures, $6,500.

Q. With the overheads, it brings it to $199,000? A. That is right, sir.

Q. That is the amount you have deducted for Split Rock? A. That is right, sir.

Q. That is the amount you have included in the inventory for Split Rock? A. Yes.

Q. The reason you deducted it is the company sold it? A. Yes. I might say the items on structures on page 193 are undepreciated and you have to depreciate those and add the overheads, and then you get the figure of which I stated, $199,000.

Q. What you deducted was the sum included in your inventory regardless of what the company sold it for? A. Quite so, sir. It went in and then out again.

Q. Mr. Metcalf, have you any table in this exhibit which shows the trend of prices that you took into consideration in arriving at what, in your opinion, was a fair unit price? A. If you turn to Exhibit P3, Volume A.

By Mr. Treacy:

Q. Before you take up that; I would like to know if the basis of the valuation, the property apportioned to each of these companies by you, Mr. Metcalf, is that just set forth in the agreement entered into between the East Jersey Water Company and these companies? A. It is, sir.

Q. And you have allocated to the territory served by each company such proportion of the joint property as has been conveyed or transferred to each of these three companies by the East Jersey? A. That is right, sir.

Q. And you have made that territory the territory

which must pay the rate upon that allocation? A. I haven't approached the rating problem, sir. I have been asked simply to find the value of the property.

Q. The value is based on the proportional interest as set forth in the agreement? A. That is right.

Q. Not based on the question of service? A. No, sir; if you mean by that, the respective use.

Q. Yes. A. It is not; has not been. It has been based on the legal ownership, as I understand it to be.

Mr. Treacy: All right.

By Mr. Wherry:

Q. You simply valued the property that each of these companies owned? A. That is right, sir.

Q. If you will come back to the question in regard to the trend of prices. I want to know what facts you have considered in making up your mind as to the fair normal prices you have used in this Exhibit P5, summarized in the table in Exhibit P3. A. I have shown in Exhibit P3, Volume A, on pages ten to fourteen inclusive, the basic facts with regard to index numbers as price indices of which I have made use, and a little further on in the report I have discussed the unit prices used. The basic facts with regard to index prices are practically summarized in figure one, which appears on page thirteen in diagrammatic form. There are two curves which show the percentage increase in commodity prices over prewar prices, as exemplified by the advance over average prices of the years 1912, 1913 and 1914, calling those the prewar prices.

My diagram, you see, covers the period from 1914 to 1923 inclusive, the forecast being shown in dotted lines instead of full lines.

I have shown in the lower curve the change which has taken place as considered by decades instead of individual years. And in forecasting the conditions for 1923, I assumed arbitrarily that prices would reach the prewar basis in that year. The effect, as you see, upon the ten-year average price, is very slight and indicates what I stated yesterday, that the conditions on ten-year averages for the years 1920, 1921, 1922 and 1923, are likely to be very much the same. In other words, indicating a stabilized condition on ten-year averages.

Q. What do you mean by "yearly averages"? A. By "yearly averages," I have taken the index figure as given for the year by the various agencies. They make monthly records, and in the case of one agency they average those; in the case of another they take arbitrarily, I believe, the July first record.

Q. You assumed in this first column that the price level prior to the war would be restored by 1923; you assumed that, you say, arbitrarily. What was the purpose of that? A. I wanted to show what the effect would be on the ten-year average prices if prices were to fall to prewar conditions.

By Mr. Merrey:

Q. The last ten, you mean? A. The last ten.

Q. In other words, you found out what the average for the last ten was, is that it? A. In each case, the previous decade.

Q. That is the decade preceding 1923? A. That is right.

Q. And then you are basing your prices of the future on what happened in the last ten? A. No. I am discussing my valuation from the point of view of present conditions.

Q. Yes. A. I wanted to see whether the prices on decade averages would be materially influenced during these last three or four years by having the unit prices reach the prewar level in 1923.

Q. But for some purpose or other you have been getting the average of the prices for the ten years preceding 1923, assuming that the prices would reach the prewar level in 1923? A. I have obtained in this lower diagram the ten year average prices for each of the decades ending 1914, 1915, 1916 and so on down to 1923, using in getting that average the prices of the ten-year periods prior to the date as of which I am averaging it. You were right in your statement that the last decade brings it up to the year 1923 inclusive. I have the specific record of the average figures up to and including the year 1921. I have had to forecast them for the years 1922 and 1923.

Q. What did you do with these averages when you got them for the last ten years, or for the ten years preceding 1923? You get an average of all those prices; what did you use that for? A. When I finally get the figure I find that as of this period the index figures of our agencies, like the Dun's, and the Bradstreet's, and others indicate that during that period the prices are approximately forty per cent, a little over forty per cent in excess of the pre-war prices. That is the only purpose.

By Mr. Wherry:

Q. Pre-war ten year average prices? A. Pre-war ten year average prices.

By Mr. Merrey:

Q. In that calculation then you used the abnormally high figure of the war period and that shows you

you have got an average forty per cent higher tha previous to the war? A. And I used the abnormally low period before the war in the previous decade.

Q. Yes. A. That is true, sir.

Commissioner Bacharach: When was that abnormally low period?

The Witness: I am going back to the year 1904. My first average is as of 1905 to 1914, 1906 to 1915, inclusive, and so on, decade by decade.

Commissioner Osborne: Why do you say any particular period, which was presumably the result of the conditions existing at that time, is an abnormally low period?

The Witness: I didn't mean to imply that.

Commissioner Osborne: A period of depression which reflects conditions as they exist certainly isn't abnormal; it is normal. If you compare any low period with any peak period, can you say any one of them is abnormal?

The Witness: That is true, your Honor. I have simply averaged, as I stated, the record of the decade up to, ending on each of these years from 1914, which of course was all pre-war, up to 1923.

Q. As I understand the thing, you found, with an assumption of what is going to happen within the next couple of years, that the average prices for ten years, say, preceding 1923, will be about forty per cent higher than they were before the war? A. That is right.

Q. Then with that assumption you have made your value; that is one of the elements that enters into it; figuring that the prices in the future will be along that line. A. That has been a factor in judgment.

By Mr. Wherry:

Q. As a matter of fact what has been the course of prices from 1921 up to this point in 1922? Have they been going down as shown in this curve? A. Very slightly. The prices are, at the present time, the monthly records are showing some increase over the depression early in the year.

Q. But you simply, to see how it would work out, assumed they would come down to the pre-war level by 1923? A. I wanted to assume an extreme condition which I do not believe will be realized.

Q. But with that assumption it showed that the prices were about stable as of the present? A. That is true, sir.

Commissioner Bacharach: That would make but a slight difference.

The Witness: Make but a slight difference.

Commissioner Bacharach: In your average value.

The Witness: It might not make a difference of two or three per cent.

Commissioner Bacharach: It would have to be in possibly the next five years to go down to the pre-war level to make the average very noticeable.

The Witness: That is true.

Mr. Treacy: What would?

The Witness: If, instead of receding to pre-war prices the prices were to remain as they are today, approximately thirty-five to forty per cent in excess of the pre-war prices, the effect of the ten year average would be very small. I said it might make a difference of two or three per cent, which would be higher.

Commissioner Osborne: Because of the height of the war peak.

The Witness: Because of the long peak over which they were averaged. If you had used two or three years, the difference would be greater, but when you divide it by ten years—

Commissioner Osborne: The war peak is in that period?

The Witness: It is in that period.

Commissioner Osborne: It is so high the valuation would be greater? That is what keeps the percentage so small?

The Witness: No. It is the period of years that has the biggest effect, sir. If you will look at the diagram, I think that will be clear.

Q. Valuations made prior to 1915 were on ten-year average prices? A. That was a very common practice except with respect to those articles which were showing a steady increase in cost, in which case we took the prices prevailing at the time of the valuation rather than over a ten-year period. But with respect to articles such as cast-iron pipe, which fluctuates in value up and down, it was a common practice to use a ten-year period.

Q. Is that the reason why you took the decade in showing this curve on this exhibit? A. It was, sir.

Q. Do you know why the ten-year periods were taken? A. I beg pardon?

Q. Why were ten-year periods taken as fair prior to the war? A. Because they more nearly represented stabilized conditions, fair conditions to use, than a three-year period or a five-year period, under the conditions which prevailed prior to the war.

Commissioner Bacharach: What happens to a valuation if the conditions prevail, as you anticipate, in 1923, and those conditions continue for five years;

that would make five years from then, and taking a ten-year period would make approximately, about, a ten per cent increase over what we might call normal times.

The Witness: Pre-war times?

Commissioner Bacharach: Yes.

The Witness: No, sir. If I understand your question right, you ask me to assume that the forty per cent excess prices will prevail in the next five years?

Commissioner Bacharach: No. In the next five years prices come down to pre-war prices as you anticipate in 1923?

The Witness: I do not anticipate that.

Commissioner Bacharach: As you used in this basis?

The Witness: That is right, yes.

Commissioner Osborne: Then in five years you were taking the value of this same property?

The Witness: Yes.

Commissioner Bacharach: You wouldn't take it for those five years when the prices were at the pre-war level, but you would take it for the previous five years or make it for ten years?

The Witness: Yes.

Commissioner Osborne: So at best this property would be possibly ten or fifteen per cent above what might be called normal or pre-war prices?

The Witness: No. I think it would be nearer twenty-five.

Commissioner Bacharach: Twenty-five?

The Witness: Yes.

Commissioner Bacharach: Then the valuation of this property dropped fifteen per cent?

The Witness: Yes; that would be true under those circumstances. Assuming that the pre-war price basis

prevailed, as you say, for a five-year period, and that the general trend indicates we wouldn't expect a material change in the future.

Commissioner Bacharach: No. Possibly in that five years it would go still further down.

The Witness: That is true.

Commissioner Bacharach: Then what happens to the stocks and bonds issued upon the basis of the valuation of average times? Would they increase the stocks and bonds on a basis of that kind? What I am trying to get at: Is forty per cent too large a sum at the present time to consider above the pre-war basis?

The Witness: I think not.

Commissioner Bacharach: Looking towards the future?

The Witness: I think not. In other words, there is no direct and immediate connection between stocks and bonds and this valuation. They are constantly fluctuating. What is reasonably constant is the rate of return; in other words, the income from the property, assuming that the cost of operation remains the same. You are, of course, constantly putting new capital into the company, which is also changing the factors somewhat. In other words, what I mean to say, whatever the valuation is that is put upon the property, the stocks and bonds outstanding are not affected by that valuation. The sale price of those securities in the open market will be, undoubtedly.

Commissioner Bacharach: What I wanted to get at: You don't think the fair value is the historical cost, as it is called, plus all the additions at actual costs in these high times?

The Witness: I do not, sir. I understand that to be contrary to the rulings of the Supreme Court.

By Mr. Treacy:

Q. Did you read the case of Galveston? A. I have read that.

Q. The Galveston Electric Company. Wasn't it held there, wasn't it held there the historical cost, which was known as the "prudent investment" was the proper method of valuation? A. No, sir; it was distinctly not held that, according to our understanding.

Q. Then you and I don't read the case in the same light.

Mr. Wherry: Which added thirty-five per cent to the pre-war valuation?

Q. The investment cost was taken, by the Court below, as the basis upon which the property was valued? A. I think not, sir.

Mr. Wherry: Adding thirty-five per cent to that for the permanent increase.

The Witness: It was added to that in that case, an allowance of something like one-third for the development cost of the property.

Q. Development cost was ruled out in the sense— A. In the sense of development cost but not in the sense of going value. With respect to going value, the Judge, in effect, held there wasn't evidence in the case from which the Court could find going value. The fact of the matter is, in trying the case the company had rested its case upon a determination of the development cost according to the Wisconsin method, on the actual cost, and the Court ruled that those facts of decades ago were not significant as measures of going value; the company had not put in any evidence on the cost of reproducing the business—

Q. It doesn't make any difference what the company put in or didn't. The Court ruled out development cost; it ruled out also the claim for going concern value put in, and in the opinion of Judge Brandeis of the United States Supreme Court— A. May I interrupt? My interpretation of that is any opinion is based on the evidence submitted.

Q. You are construing the opinion of the Court in the light of what you know about what happened in the case? A. In the light of the evidence before the Court. I presume we all interpret it in that way.

Commissioner Bacharach: Speaking not from a legal standpoint: Don't you believe that is the sound, fundamental way for utilities to be valued, so that they wouldn't fluctuate today when prices are going up, and then in a year or two when prices go down they have to be depreciated to such a large extent?

The Witness: No, sir; I do not. I think that is an unworkable scheme.

Commissioner Bacharach: Then you don't think that is a fair, business-like way to handle it?

The Witness: I do not.

Commissioner Bacharach: Cost plus any actual additions?

The Witness: Yes. In other words, it would make this situation, this difference; whatever they might have charged that you now attempt to cover in your value, under the practice of the Court you would have to take care of in your rate of return.

Commissioner Bacharach: What do you suppose would happen in five years from now if, instead of the tremendous increase in prices, as happened in 1920, they went the other way to just the same amount, and the property, as a matter of fact, wasn't even worth

what it actually cost? Do you think that utility would then ask for a value based upon those times? Would you, as an expert, think that was a proper value?

The Witness: That is exactly what I am doing today.

Commissioner Bacharach: Yes; this is a different time.

The Witness: I beg pardon, it is not. In this way (if I may explain): I am not asking for present prices; I am asking for prices which are very substantially below that. In other words, I am trying to get, as near as I can, to what I believe the true value.

By Mr. Record:

Q. If the prices went way down below the cost, would you stand for a rate fixed on that depreciation? A. I certainly should because all other prices must have gone likewise and the purchasing power of your money is relatively the same and the man is just as well off under the low value with a higher purchasing power of money as he would be under a higher value with a low purchasing power of money.

By Mr. Treacy:

Q. I don't think you answered the question Commissioner Bacharach first asked you; assume you allowed a valuation today forty per cent in excess of the normal of pre-war value of the property, wouldn't you have the right to come to this Commission and demand an issuance of bonds and securities on that valuation; and then assume in a year or two or three years from now the property depreciated below normal; what would become of the bonds issued on that basis of valuation? A. I don't really know what your practice is in regard to bond issues in this state. As

far as the value is concerned, yes; if it is the practice of the Commission to permit, with substantial increases in value, the issuance of bonds against those values, then I would say, yes, that would take place.

It is not my understanding, however, in properties of this sort, that we get any such extreme range of values. Practically, it doesn't happen, and any shrinkage such as you allude to as coming in the future following the falling prices, as you have outlined in your question, would practically be taken out by the failure to issue additional securities against current extensions. That is practically what it would mean. Corporate affairs—

Q. That would mean a stoppage of all improvements? A. No, sir; because in all corporate affairs it rarely happens that the securities outstanding measure constantly the fair value of the property, and as far as extensions go, to which you are referring, they are earning a depreciation allowance which pretty nearly balances the extensions of minor character; not the major character.

Commissioner Bacharach: You stated you were not taking the present increase of prices. What, in your opinion, is the increase at the present time, if you were taking that?

The Witness: Probably ten or twenty per cent higher than the figure which I have taken.

Commissioner Bacharach: You have taken approximately forty per cent?

The Witness: Approximately forty per cent.

Commissioner Bacharach: In your opinion then, it would run from fifty to sixty?

The Witness: Yes, because so large an amount of it is in cast-iron pipe, which you see, is at the present

time nearly double, nearly one hundred per cent; ninety per cent perhaps; the pre-war prices having been about twenty-six dollars; pipe is now selling about fifty dollars. I have taken thirty-five dollars for my cast-iron pipe. That is a very big factor in these works, in this valuation.

Mr. Wherry: Any more questions on that? (No response.)

By Mr. Wherry:

Q. Mr. Metcalf, you spoke about the purchasing power of the dollar. The basis you have taken is expressed in the general commodities, is it not? A. It is, yes.

Q. General price of commodities? A. Yes.

Q. You haven't attempted to find what the purchasing power of the dollar is in those particular commodities which enter into this class of property? A. I have not done that. In the analysis to which you refer, in Volume A. In applying the factors to determine the reproduction cost as of 1920, I had to take what was the advance at that time in the individual commodities. In other words, I used a different factor on the pumps from that which I used on the pipe, and in that I attempted to measure it by the actual conditions then prevailing.

Commissioner Osborne: Is there any unusual condition which makes cast-iron pipe so much above the rest of the market? Is there some artificial condition which will disappear shortly?

The Witness: In my judgment, your Honor, it is an artificial condition. I am not quite sure about its disappearance. I have been watching it. I believe we shall see some recession in prices this winter. The pipe men tell me we won't.

Commissioner Osborne: What is the trouble? Why should cast-iron pipe be so much above all other commodities?

The Witness: You are getting into trade relations, sir. I can't give you the details. My principal reason for making the statement I do is because the spread between pig iron and cast-iron pipe is greater than we would expect it to be, considering the general advance of conditions. Whether that is because the conditions are peculiar and peculiarly disadvantageous to the pipe foundry or not, I am not in a position to judge.

Commissioner Osborne: You say you think it is an artificial condition and therefore presumably more or less temporary. Did you take it into consideration?

The Witness: I have, sir.

Commissioner Osborne: In fixing your price of thirty-five dollars a ton?

The Witness: Yes. In other words—

Commissioner Osborne: You say the price now is fifty dollars, but you have fixed it at thirty-five dollars. You don't think that it is going to remain at fifty dollars very long?

The Witness: No; I do not.

Commissioner Osborne: Notwithstanding that you still maintain thirty-five dollars is a sufficient deduction?

The Witness: Yes; I think so. In other words, as I stated yesterday—this is peculiarly a matter of opinion—but in my opinion I think within the next decade, within ten years, the average price will be somewhere in the neighborhood of thirty-five dollars. That is speculative; but that is my judgment.

By Mr. Treacy:

Q. Isn't the real reason for the excessive price of

cast-iron pipe today due to the fact for the four years of the war period no municipality in the country made any extensions of its water system, or its gas system, where municipal systems existed? A. I think that is a factor, sir, but, of course, that then becomes a question of restraint of trade. I have no way of proving it.

Commissioner Osborne: In other words, it is competition brought about by economic conditions?

The Witness: That is a fact, sir.

Q. Maybe they can't manufacture pipe fast enough for the cities to catch up? A. The mills have not all been working at the present time.

Commissioner Osborne: I don't know that we should carry this discussion too far into the realm of economics. What I really wanted to find out was whether if you thought fifty dolars standard, you took that factor into consideration in fixing thirty-five dollars, and you say you did?

The Witness: I did, sir.

By Mr. Wherry:

Q. What are the other large items that enter into the unit cost besides cast-iron pipe? A. The steel pipe, of course.

Q. What is the condition in regard to steel pipe? A. The conditions are very much more normal than the cast-iron pipe. The percentage of advance over pre-war conditions is much less.

Q. So there is a percentage of advance over the pre-war conditions? A. About thirty per cent.

Q. Thirty per cent? A. Yes; as I remember it.

Q. Do you know what the course of the market

is in steel? Is that going up or down since the first of January? A. It is going up again.

Q. It has been going up for how long? A. I don't think I can answer that; my impression is, something like eight months; but I don't know; I haven't got the exact figures here.

Q. What is the next item?

Commissioner Bacharach: Is there much steel pipe?

The Witness: It is a considerable item in this property on account of the fifty-one inch pipe line which runs from the pumping station down to the river.

Commissioner Bacharach: What depreciation did you allow on steel pipe as compared with cast iron?

The Witness: I made its life about one-third.

Commissioner Bacharach: On the steel?

The Witness: Yes.

Commissioner Bacharach: In comparison with the cast iron.

The Witness: I took thirty-five years as the normal life on cast-iron pipe. It varies according to the size. The larger sizes have a life of about a hundred years; seventy-five to one hundred.

Commissioner Bacharach: What size is the steel pipe?

The Witness: Fifty-one inch is the bulk of it; some of it is thirty, forty-two, forty-eight.

Commissioner Bacharach: How long has it been there, approximately?

The Witness: Some laid last year, some of it.

Commissioner Bacharach: Isn't thirty-five years a long life for steel pipe?

The Witness: No, sir; I think not.

Commissioner Bacharach: It isn't?

The Witness: No, sir. The evidence clearly points in that direction.

Q. Do you know when the Newark pipe was laid, the steel pipe? A. I would have to look up the record, something like thirty years ago.

Commissioner Bacharach: Why do they use steel pipe?

The Witness: It is cheaper.

Commissioner Bacharach: Notwithstanding its shorter life, it is cheaper.

The Witness: Yes; it is cheaper. The division line comes about thirty-inch pipe or less.

Q. That Newark pipe was thirty-two years? A. I remembered it as being about thirty years. It is thirty-two, is it?

Q. How about labor costs; have they receded or are they receding? A. No. Labor costs have advanced and they are advancing today. For instance, two or three months ago the company was getting labor at thirty cents, common labor, unskilled labor, for which they are now paying forty cents up.

Q. How much is labor at thirty cents above pre-war prices? A. At Paterson it was eighteen cents, I think.

Q. Pre-war? A. Yes.

Q. How about boilers? A. Boilers, the advance has been about fifty per cent.

Q. Why is that? A. On account of labor, largely.

Q. What have you taken the boilers at? A. I think I will have to verify the figures. I think the horizontal return tubular were twenty—about twenty-four dollars as against sixteen.

Q. You mean today twenty-four dollars as against sixteen dollars? A. Yes, sir.

Q. What have you figured them at, what value? A. At that higher value.

Q. Twenty-four dollars? A. Yes.

Q. Would you consider that stable? A. I do. In other words, the recent prices are somewhat higher than the valuation I have used, but approximate it.

Q. Is there anywhere in Exhibit P5 a table which gives the depreciation data that you have used here? Exhibit P5? A. The depreciation.

Q. Yes. A. Yes, sir.

Q. I want to know the assumption you made in figuring the depreciation. If you have it summarized in there, why, call attention to it. A. You will find in Exhibit P5, that is, in my Volume 2, a summarized sheet on page five, constituting Table 3, in which I give for the joint property and also for the property owned by each of the companies, the gross reproduction cost and the depreciated reproduction cost. Those summarized figures contained in Volume 2, Table Three, just referred to are shown in the detailed tabulations, Table Five and following: Table Five being on page seven of Exhibit P5, Volume 2. In the detailed sheets are given the item or groups of items, the date of construction, the estimated life in years, the annual depreciation allowance and the accrued depreciation allowance corresponding to that annual allowance and to the assumed length of life, useful life.

Q. How did you arrive at the length of life? A. As a matter of experience, sir.

Q. Did you make an inspection of the different articles? A. I did, just as far as possible. As I stated yesterday, I went over the property and ex-

amined the pipe. I have examined from time to time the cast-iron pipe which has been taken out and cut out, and the steel pipe in the same way.

Q. How did you get the age? A. The age was obtained from the actual records of the company.

Q. You say you assumed an annual depreciation; was that based on some sinking fund method? A. That was based on the sinking fund treatment with a four per cent rate.

Q. Four per cent for each item? A. A four per cent compounding rate, the rate of interest is in the sinking fund.

Q. Is that a method that you use generally? A. That is a method I have used as an aid to judgment.

Q. And you have used the same method in all these values? A. I have, sir.

Q. In making your estimate of the value of these properties as a going concern, did you take into consideration the question of what would be a fair rate of return? A. I did, sir.

Q. Did I understand you to say in answer to a question of Commissioner Bacharach's, that those two things would have to be taken into consideration jointly? A. You mean, the rate base and the fair rate of return?

Q. Yes. A. In my opinion they must be.

Q. You set out your views in this Exhibit P5? A. I have in a general way, yes.

Commissioner Bacharach: Where?

The Witness: The end of Volume A.

Q. What do you understand as a fair rate of return? A. I have assumed under pre-war conditions a rate of seven and a half per cent, more or less, was

a fair rate of return, that is seven to eight per cent; and that as of present day conditions the corresponding rate would be something like eight and a half per cent. In other words, I think there is a difference of one to one and a half per cent in conditions today as compared with previous conditions.

By Mr. Treacy:

Q. If your estimate is eight and a half per cent today, what would it have been in 1920? A. I should think practically the same. Of course, the momentary rate was higher. Corporations were paying upwards of ten per cent for money; but I am discussing now a longer period of time than the momentary condition.

Recess from one to two o'clock.

After recess.

LEONARD METCALF, resumes the stand on behalf of petitioners.

By Commissioner Bacharach:

Q. Mr. Metcalf, Judge Treacy asked you, in 1920, what rate of return would you figure on, and you said about the same as the present time. What would you figure then last October, 1921, as the rate of return? A. Approximately the same, if I were dealing with the state of facts as they were then, anticipating future conditions as I believe they would be. be.

Q. Anticipating future conditions. Haven't fu-

ture conditions changed considerably since last October, from what almost anyone anticipated? A. Yes, sir, I think the companies are today probably borrowing money one per cent, more or less, more advantageously.

Q. Than they did last October? A. Than they did then, yes, sir.

Q. And last October was much better than 1920, wasn't it? A. Somewhat better, I think, sir, yes, it was. All that I wanted to make clear was, when I discussed these fair rates of return, they are not momentary rates, but rates which would apply for a period of time.

Q. Don't conditions today look very favorable for rates being lower than they have been any time in the last three years? A. In one sense, yes; in another sense, no. The change to lower rates is more immediate today than it was then. But a year ago, I think, everybody anticipated that in the year 1922 the rates would fall.

Q. Yes, but nothing like they have? A. Well, that may be; of course, I cannot say as to that.

Q. Isn't it a matter of fact that today people are hunting for good, safe, six per cent investments that they would not consider last October? A. I think that is true, but it is not true per contra that money could have been commanded to build these works today—

Q. Last October? A. Could not be today on a six per cent basis. You could borrow money today in limited amount at a six per cent rate. You could not build these works on a six per cent rate.

Q. Well, these works cost approximately, on your figures, eleven million dollars. Suppose today a company, showing that they were going in a proper ter-

ritory, presumably as these are, this company is, with proper management and proper people at the head of it, what do you suppose they could go out and borrow eleven million dollars for? A. If the eleven million dollars corresponded to the full value of the works and if they were going out to borrow money to build a plant which was going to cost eleven million dollars, I do not believe they could borrow it on less than an eight and a half per cent basis.

Q. Of course, if they were going to build a plant of eleven million dollars they would have to put in some money of their own. It is presumed they would not need over, at the outside, seven or eight million dollars for an eleven million dollar plant? A. Very well.

Q. If it was to be honestly conducted and give the people true value, isn't that true? A. Yes, sir, about two-thirds.

Q. They ought to invest that much of their own money? A. Yes, sir.

Q. For that seven million dollars don't you think they could go out and borrow that at six and one-half per cent? A. Yes, sir, I think they could.

Q. Where do you figure the eight and one-half per cent rate of return if they could borrow money at six and a half per cent? A. Because you are only borrowing part of the money. My fair rate of return applies to the value of the entire property, not to a portion of it which has a less element of hazard about it than the entire amount has. In other words, if I understand your question, you are in effect asking me what is a current rate of interest on a secured loan with junior securities behind it. That is not the fair rate of return.

Q. I am willing to allow you a reasonable amount

above the six and one-half per cent, for that cushion, as I think one of our high financiers in northern New Jersey calls it, but I surely do not think you need two per cent for a cushion. A. I should say just about that. In other words, under pre-war conditions when a seven per cent rate of return was a current, fair rate of return on properties of this character or seven and one-half per cent, I think, just about two per cent, two to two and one-half per cent represented the difference between the interest rate on the secured loans representing a portion of the property—

Q. On part of it, but not on the entire proposition. A. Not on the entire amount. In other words, those corporations were issuing five per cent bonds at about par, a little one way or the other, where they issued bonds to, let us say, two-thirds more or less, one-half to something over two-thirds of the entire value of the property, but they could not have commanded money for the entire property for anything like five or five and one-half per cent.

By Commissioner Osborne:

Q. Will you answer the question then that occurs to me? If they can borrow in the market today three-fourths of the amount necessary to reproduce this plant at six and one-half per cent, and you allow on one-fourth, being capital which they have to put in themselves, eight and one-half per cent; why should you say that they are entitled to earn eight and one-half per cent on the whole; why not six and one-half per cent on three-fourths and eight and one-half on the other quarter? A. Because they cannot possibly borrow the money. Because in my judgment you could not begin to borrow money at eight and one-half per cent on the remaining quarter; no man would put it in.

Q. You are not supposed to borrow everything you put in. A. It does not make any difference whether you borrow or whether you—

Q. That would be operating a ten million dollar proposition on a shoe string. A. Let me put it this way: You would not find capital which would go into the remaining quarter or one-third necessary to build the plant, at eight and one-half per cent.

Q. At eight and one-half per cent? A. No, sir; I am quite sure of that.

By Commissioner Bacharach:

Q. Can you tell me of any commission within the last six months that has allowed eight and one-half per cent return on any utility? A. I cannot answer your question, because I have not run over the records of the last six months to find that out, sir. I am very confident, however, that you could not borrow money to build the entire property on that basis.

Q. You do not borrow eleven million dollars. A. Certainly you do if you build the property.

Q. No; you do not. I go in, I am going in as a speculation; that is all that is. A. I understand that.

Q. And I put in one hundred thousand or two hundred thousand or five hundred thousand dollars for stock. Whether they give me one million dollars' worth of stock or only five hundred thousand dollars, it matters not. A. It matters not, but you would not put that money in, that one hundred thousand dollars in, if it constituted the remaining quarter, for any such return as eight per cent or nine per cent or ten per cent.

Q. Why wouldn't I do that? A. Because men do not do it. I do not believe you are doing it yourself.

Q. All the utilities are more than satisfied, ap-

parently in Jersey if they can get eight per cent return. A. No, sir, not on that remaining quarter. You are talking now about eight per cent return on the entire property, which is a very different thing.

Q. That is what you were talking about, eight and one-half per cent on the entire property. A. I am talking about eight and one half per cent on the entire property. I say you cannot borrow money on that remaining quarter or one-third you are talking about for anything like ten per cent. You can borrow on a portion of it on preferred stock on which you will command—

Q. Six per cent? A. No; you could not borrow on six per cent, if you issued three-fourths—if you took two-thirds you might do it, two-thirds for bonds. Then you might put out some preferred stock which would be sold on a seven per cent basis. But you could not get your remaining common stock or the rest of the funds necessary to make up the whole amount on anything like ten per cent, on such a basis. I am concerned, when I talk about the fair rate of return, with the average rate of return on the entire amount of money.

By Commissioner Osborne:

Q. Taking into consideration that some of that capital is borrowed at a less rate. A. I do, sir, certainly, sir.

Q. It is practically an average you are figuring. A. It is an average.

Q. For the use of all the capital, whether put in as an investment or borrowed? A. Yes, sir.

By Mr. Wherry:

Q. The rate of interest varies with the risk, doesn't it? A. Yes, sir; it does.

Q. And the reason why you cannot command the money for the unsecured capital is because the risk is greater? A. Exactly, sir.

By Commissioner Bacharach:

Q. As a matter of fact, aren't water companies considered a very good risk? A. No, sir; I should say not, as compared with others, from the point of marketability. From the point of assurance, yes. But from the point of view of the return, the average return—

Q. I am speaking of utilities now. A. I am speaking about utilities. I think that they have commanded a somewhat lower rate than gas and light plants, if that is what you mean, yes, a difference usually of one per cent or less, one-half per cent to one per cent. But on the average rate paid for money, including the whole of the money necessary, I think you could not today command money for less than eight and one-half per cent, maybe eight per cent, maybe nine per cent.

Q. Of course, we were discussing theories just then. Now, we are talking real practicalities here. As a matter of fact, this company did not cost eleven million dollars. It has not required over six million, maybe seven million—I don't know what your figures of actual historical cost plus additions were—so a lower rate of return than eight and one-half per cent would naturally be proper for them, wouldn't it? A. No; I do not think so. In other words, that is saying that the man who puts his money in in the early stages should be content to get no return on his money or to get an inadequate return on his money—I mean all of the money now, sir—for a period of years

before he gets an interest rate. You could not command money on that basis.

Q. Certainly, but that never has occurred here. A. I think that has been the history of waterworks the country over.

Q. This actual investment was probably seven million dollars, isn't that proper, roughly speaking? A. No; I cannot answer that question directly. I should guess perhaps a little more than that, including the failure to earn a fair return or the going value element or development expense, whatever you want to call it. If you ignore that, if you wish me to assume that the man who puts his money in should be content to have it in—

Q. Take an ordinary business risk like any other business. A. Yes—and have it lie idle or get a return of two, three, four or five per cent, then I think it may be that the cost of the works has not been over seven million dollars.

Q. And if you gave a return of eight per cent on eleven million dollars, presuming your figures were right and the actual investment was seven million dollars— A. But, your investment is much more, sir.

Q. It is not; they have not put up a dollar more of it to make it that. It is only the theoretical value today that might go down in five years from now or two years from now. A. Not by a good deal, sir. Any money they have failed to earn a return upon is a loss. In other words, no man is going to put his money into a project on the theory he has got to carry it for ten or fifteen years with inadequate return.

Q. Surely he does not. A. That is what you are asking me to assume now, that he should not receive a return which will recoup him for those early losses.

Mr. Record: Where is there any evidence of any early losses in this water company? It has been a gold mine from the day it started.

The Witness: I think not, sir. I think that has been the very general experience, sir, and I do not think this is any exception.

By Mr. Merrey:

Q. Mr. Metcalf, do you know anything about the history of the company as to its earnings? A. Yes, sir; I have known about them. I have not got a complete record, because that was burned up.

Q. Have you any knowledge as to whether or not a considerable issue of their bonds was given for nothing, I mean without any return? A. No; I have not.

Q. You do not know whether that is so or not? A. No; I do not. I do not believe it is so. In other words, I think you will find that if you take what you must take, which is a fair return on the value of the property from the time they put their money in, and you figure the failure to earn that return, then, I think you will find that the cost has been much greater than you anticipate when you ask your question.

Q. The point I am getting at is this: That so far as you are concerned, any testimony that you give as to the historical development of this company or the historical investment is pure assumption and you have no facts to base it on. A. I have stated to you that the historical investment of this company, can, in my judgment, not be determined by any man. The records do not exist.

By Mr. Brown:

Q. Mr. Metcalf, you have answered Commissioner Bacharach that three-fourths of the investment in the plant might be expected to yield a return of six per cent, or whatever it was you said, and that for the other one-fourth you could not attract capital unless your percentage was much higher, the rate of return. What rate of return on the last quarter would you think you would have to get in order to attract capital? A. Such in general that the average rate of return on the entire property would be about eight and one-half per cent.

Q. If you will just answer it in everyday language; what per cent, if you can directly, in your opinion, should you get; would you say ten per cent was enough? A. Oh, no; I should not. Figure it backwards, you have the figures, all that is necessary to figure it out.

Q. You would not say ten per cent then? A. No; I should not.

Q. If it was ten per cent, the general rate would be about seven? A. Yes, sir; I think so.

Q. So, allowing your return of ten per cent on one-fourth of the value of the plant and six per cent on the other, you would have about seven per cent average? A. You would not be able to command capital on that basis in advance of the building of the project. I am absolutely certain of that.

By Mr. Treacy:

Q. Following out Commissioner Bacharach's suggestion—if I may interrupt for just a second—if this property is worth eleven million dollars, assuming for the sake of argument that to be the valuation

you place upon it. If you borrow seven hundred and fifty thousand of that on bonds, that leaves you a balance of three hundred and fifty thousand dollars of stock— A. Three million five hundred thousand.

Q. Three million five hundred thousand against seven million five hundred thousand of bonds. If you pay six and one-half per cent on your bonds you pay about four hundred and eighty thousand dollars in a year in interest? A. Yes, sir.

Q. That will leave you an additional four hundred and eighty thousand dollars a year for your three million five hundred dollars of stock. In other words, it will give you thirteen or fourteen per cent on your stock. A. I think quite likely. I should not have been surprised if it had been more. Of course, if the amount of your bond issue is only fifty per cent instead of seventy-five per cent of the total amount, then the rate which you would have to pay on the remaining fifty per cent would be somewhat less, because the hazard is somewhat less. In other words, you have got to consider the hazard as one of the factors in your problem.

By Mr. Wherry:

Q. You have valued this property as a going concern, have you? A. I have, sir.

Q. I understood that you had included a separate item for the intangible value of the property. What did you include in the intangible value? A. The only other element I have added is the going value of the property.

Q. Going concern value? A. Going concern value.

Q. How do you define going concern value? A. I define the going concern value of the property as the difference in value of the property with its established

connections, business and income as compared with the same property without such connections, business and income.

Q. What methods have you used in forming an opinion as to the value of this property as a going concern? A. I have considered it first, tried to consider it first from the point of view of the development cost. That cannot be determined because the records are not available; they were destroyed in the Paterson fire. I then estimated the cost of reproducing the business of the company in exactly the same way that I estimated the cost of reproducing the structures, dealing in this case with the finances instead of the structural property. I then gave consideration to the difference in the rate which would have to be paid on money borrowed upon the property before the property was built and established and after the property was built and established, and finally I tested these results by consideration of the experience in these matters, that is, what had been paid for going values in other works, awards of commissions and courts, and the rule of thumb methods which have sprung up, which involve the determination of going value by a consideration of the gross annual revenue of the property.

Q. The gross annual revenue, is that one of the methods used in the Spring Valley case? A. Yes, sir. All of these criteria were used in the Spring Valley case, the Denver Union case and many other cases as an aid to judgment in determining what a fair allowance would be for the going value or the going concern element of value of the property.

Q. What, in your opinion, was the fair value of the going concern element of the Aquackanonk Company? A. As a result of consideration of these

various yard sticks, I have placed the following going values on these different properties: On the Aquackanonk, $468,000.

Q. What on the Passaic? A. On the Passaic, $892,000.

Q. And on the Montclair? A. $377,000.

Q. You used the same method of ascertaining this in forming your judgment in each case, did you? A. I have, sir.

By Commissioner Bacharach:

Q. What percentage would you allow for that, or don't you have any? A. I do. In general it will lie, as expressed in term of the gross annual revenue, from one to one and a quarter times the fair gross annual revenue. As expressed in percentage of the physical plant it will generally lie between ten and fifteen per cent of those values, sometimes somewhat higher, in some cases somewhat lower.

Q. Then to fifteen per cent of your total going value? A. Of the tangible value of the property.

Q. You refer now only to this one item of value? A. Just one item.

Q. Ten to fifteen per cent of the tangible value? A. Yes, sir, that is right. That is, with respect to water companies. With respect to electric companies somewhat more, and much more for telephone companies.

Q. What percentage is that of your total going value, would you say, that item? A. I add, you see, about one-seventh to one-eighth of the property so that the difference between the two would be as seven to eight, roundly speaking.

Q. That is only one item of going value. A. That is all.

Q. That is all of going value? A. That is all.

Q. I thought you enumerated three or four items. A. Three or four different criteria.

By Mr. Wherry:

Q. What is the distinction between going value and goodwill? A. The going value is made up not only of items of cost, entering into the acquisition of the business, but in a larger measure the deficits in fair return in the building up of the business.

Mr. Treacy: Early losses.

The Witness: Early losses in development expense where you are discussing original cost; going value where you are discussing reproduction. In other words, it is the cost of reproducing under present day conditions and not the original conditions. When we discuss original cost, then we deal with development expense, what it actually did cost, what the deficits were originally, that is, the historic record. In the reproduction cost estimate we have nothing to do with what it actually did cost; we are dealing with the cost of reproducing and the business, in the same way that the reproduction cost of the structures has nothing to do with the original cost when built years before.

By Mr. Treacy:

Q. Nevertheless, you do include in your going value something for losses? A. Certainly.

Q. On your reproduction cost? A. Certainly. In other words, your project when you build it and begin to operate it does not earn a fair rate of return.

By Mr. Wherry:

Q. Mr. Metcalf, what did you say the distinction between goodwill and going concern value was? What is goodwill? A. I have defined the going value. The goodwill grows out of the fact that the business has been managed in such a way that people come to you voluntarily, that the costs of doing your business, once you have acquired that, are less, and the property is therefore more valuable. That is not a condition you meet in a public service corporation. It is the condition you meet in a dry goods store, for instance.

By Commissioner Bacharach:

Q. That goodwill means that where a business is successful it is worth a certain amount; in a utility where the business is unsuccessful the going value is more? A. No, sir. The development expense—

Q. Eliminate the development expense. You also take in the loss below what you consider a fair return. A. I do, sir, in the early stages.

Q. As going value. If they have made what is considered a fair return during these years, a certain percentage is not added to going value, is it? A. That would be the case.

Q. So the less successful they are, the more valuable their going value becomes, and that is the difference between that and a mercantile business. A. No; that is not literally true.

Q. But it is practically true, from the practical standpoint that is true? A. No, not from the point of view—

Q. An unsuccessful business, you could not give it away; goodwill is not worth a nickel if a man is not successful. A. That is true.

Q. But in a utility, if he fails to make what is considered a fair return, his going value becomes more valuable? A. Let me answer in this way: To a limited extent that is true. Any property which has an established income, whether it is earning a fair return or not is more valuable than that property would be if it had not that income, therefore, it has added going value. If the property, on the other hand, has no income it has not any going value. It may be that the sum of your going value and your structural costs, your fair structural costs are greater than the fair value of that property. There is no reason for your saying under those circumstances that the total amount, the total difference between the sum of those items and the actual value should be deducted from going value. It may not be worth its structures.

Q. I fail to see why you should consider in going value what is considered a loss below a fair return. That may be due to poor management, inefficiency in numerous ways, and I cannot see why that item should be taken in as part of going value. A. We have not taken that in.

Q. I can understand readily, of course, the difference between a business going and one that is not in operation. A. All of our assumptions are made on the basis of a fair and judicious investment in structures and a fair and judicious management.

Q. This company has been in existence over thirty years? A. Yes, sir.

Q. How can you today judge whether their investments were judicious thirty years ago? A. I am not dealing with what their investments were thirty years ago when I am discussing reproduction cost; I am reproducing that property as if it did not exist,

and what they actually did has nothing to do with it when you make the reproduction cost estimated of the structures.

Q. Then, you should eliminate anything for going value from the losses below a fair return, if you eliminate the past? A. No, sir. Pardon me. For this reason: I am building up this property with the business attached; I am reproducing this property with the business attached. I am not simply reproducing the structures. I am reproducing the income which this property has, and I am assuming that income can be reproduced in a certain limited period of years. That computation has nothing to do with the historic course of events. If I was dealing with the history of the plant, then I would deal with the investment cost and the deficits which would then become the development expense, that is the historic development expense. I am dealing, however, with an entirely different yard stick, which is the yard stick of today, the reproduction cost and the determination of going value by that method, in principle, is no different from the determination of the structural reproduction cost of the property; it is exactly the same in principle.

By Commissioner Osborne:

Q. Isn't the difficulty that arises between yourself and Commissioner Bacharach due to the insistence on the part of utilities that they are entitled to have added to their value the moneys which they have not earned and which they think they ought to have earned in he past, in other words, to capitalize their past losses? A. My answer to that is this, sir—

Q. They frequently come forward with that claim

and try to put it over. A. You are quite right in your statement.

Q. We do not allow it. A. Very well, sir.

Q. We do not allow that claim. A. I think we are talking at cross purposes a little. If you do not recognize the greater value of the property with an established business—

By Commissioner Bacharach:

Q. He has not said that. We do that. A. Then, you are allowing a going value element. In other words, if you start with the mental assumption that the owners of a public utility must supply the necessary money to run that a suffer losses on their investment during the early period of years, you won't command the capital.

Q. Why shouldn't they do that? When they had no regulation they had no complaint whatever of utility commissions regulating them, they could make their own rates and do as they pleased. A. Because it is not financially possible with one-third of your takers and the investment for all of your takers, to earn a return at any rates you can collect which will pay a return on the entire property. It is financially impossible.

Q. In twenty years, thirty, fifteen? A. Twenty, thirty, fifteen or one hundred or five years, or today. In other words, when you begin to operate these works and you have ten per cent of the takers you have today, you cannot earn a return which will pay a fair return or any return on your entire investment, and when you get to thirty per cent or fifty per cent of your takers you still are not earning a return, you are still carrying a loss and have to carry a loss;

there is no escape. The man who puts his money in knows that perfecaly well. Our own Public Commissions, the Metropolitan Water Board, for instance, in Boston, when it built its last works at Clinton, running into tens of millions of dollars, made an actual allowance for that deficit which it would suffer for the period of time until the works—

By Commissioner Osborne:

Q. During the development of the business? A. During the development of the business. And they were allowed a return on that deficit.

By Mr. Wherry:

Q. As I understand it, you make a distinction between the development cost of the business which is due to the normal length of time it takes to attach the business, and the operating losses that the business may have suffered during its whole history. Is that correct? A. Yes and no. The distinction that I draw between development expense and going value is that development expense relates solely to the historic record and is predicated on it; going value is predicated solely on the reproduction cost theory.

Q. As to development expense you were not able to ascertain it in this case, were you? A. I cannot, no.

Q. You have not used it as a yard stick in this case? A. I have not. It cannot be determined.

By Mr. Treacy:

Q. You have used something else to take its place? A. I have, sir.

By Mr. Wherry:

Q. As I understand it, you used three or four different methods to ascertain the fair value of this property with the business attached over what it would be without the business attached? A. I did, sir.

Q. One of those was going value by the comparative method? A. Yes, sir.

Q. Another was the rule of thumb method which was a percentage of the gross income? A. Yes, sir.

Q. Another was the relative cost of capital to the undeveloped business? A. Yes, sir.

Q. And the other was the comparison of going value found in other properties from experience? A. Yes, sir.

Q. Taking the first one, the going value determined by the comparative method; there it costs something to attach the business to the plant. A. It has a cost.

Q. What is that cost measured by? A. It is measured by the rate at which you would acquire business after the construction of the plant. I considered it first with respect to the entire property as a whole, that is, the five companies.

Q. That is, it takes you a certain length of time to get your business attached to the property; you start without any customers and do not get them all in in one year, is that right? A. Yes, sir.

Q. How many years do you assume it would take to attach the business to the property so it would not be costing you something to attach further business? A. I assume, with respect to the entire property, that a five-year period of construction would be required, that it would require six years to acquire the business, three years of which overlap on the construction

period. In other words, I began to operate the property just as soon as I had a nucleus together which I could put to revenue production. So I have assumed in effect that at the end of eight years after beginning the operation the plant would be a going concern. I have then made independent computations with respect to each one of these companies, making assumptions which would be in line with the cost of that particular property, similar in nature. I can give you the periods assumed, if you like.

Q. What was the period assumed for the Aquackanonk Company? A. In the Aquackanonk Company I assumed a construction period of three years and a development period of four years, one year of which overlapped on the construction, so that the total time required to build and acquire the business was six years. With respect to the Passaic Water Company I assumed a four-year construction period and a development period of five years, a total period of seven years, two years of the development period overlapping the four-year construction period. With respect to the Montclair Company, I assumed a three-year construction period and a four-year development period, one year of which overlapped the construction period, making the total period required to develop the business six years.

Q. Now, then, as I understand it, during the first period of construction of the physical property of the plant you do not assume any customers at all? A. No customers at all.

Q. And no revenue? A. No revenue.

Q. And you do not include that period in your estimate of going concern value, is that right? A. Certainly, when I compare the plant.

Q. During that period you have a charge for interest during construction, haven't you? A. I have an interest during construction, yes, and that takes care of that during that period. I subsequently deduct it.

Q. On the books there is no revenue? A. Yes.

Q. From that time on you begin to get some revenue? A. Yes.

Q. That revenue is not sufficient to pay for the interest or the return which the captial invested in there would demand in the market, is that true? A. That is it exactly.

Q. The difference is the cost of attaching the business for that period? A. It is the reproduction cost of it.

Q. And that diminishes as the period elapses from the time you begin to attach a customer up to the time you figure the customers are attached, namely, six years? A. Yes, sir. In other words, the difference when you have three-fourths or seven-eights of your customers attached is much less when you have but one eighth or one fourth of your customers attached.

Q. If you had no customers attached for four years then there would be an interest during construction which would be allowed during that period. A. That is right.

Q. If you have some customers during that period, your interest during construction is diminished, but the cost of attaching those customers is taken as part of the cost of developing a going concern, is that correct? A. That is true. They are interchangeable. The greater the allowance for interest during construction, the less the going value.

Q. What, under these computations, did your going value come to by that comparative method for the Aquackanonk Company, the Passaic Company and the Montclair Company? A. I have already stated that, $468,000 for the Aquackanonk Water Company, $892,000 for the Passaic, and $377,000 for the Montclair. That was determined when I considered the property as a whole. When I analyzed the properties as independent units I get somewhat higher going values. Thus, for instance, in the case of the Aquackanonk Company my going value became $515,000 instead of $468,000.

Q. I asked you the computation for Aquackanonk separately, not your conclusion as to what its value was, but what the computation produced.

Commissioner Bacharach: Which did you use?

The Witness: I used the smaller amount, sir, on the theory you were dealing with a large group of works and in doing that it is more certain, it is easier to forecast the construction conditions. The danger is that when you consider the individual companies, you do not allow for the fact that where you have a number of these going on at the same time, regardless of the others, you are apt to get into difficulty with your unit costs, your labor market; in other words, costs go up because you are bidding in the same labor market.

Q. What I want is the computation for each of those companies so as to compare it with what your allowance was. You have said for the Aquackanonk it was $518,000. What was it for Passaic? A. For Passaic it was $943,000.

Q. As against what you told us? A. $892,000.

Q. And for Montclair? A. $378,000, as against $377,000.

By Mr. Treacy:

Q. You think it will take six or seven years to educate people to take water from an established water system? A. That has been the experience in New Orleans, for instance, where it had 60,000 services at the end of a few years, and it has not been able to get over twelve or thirteen thousand a year in spite of every effort.

By Mr. Wherry:

Q. How about the Boston experience? A. Boston has been the same way. It has been the general experience.

Q. That was one method. You took the relative cost of capital to an undeveloped and an established business into consideration; what bearing did that have on it? A. Will you ask the question again?

Q. What bearing did that have on it? A. The question I did not get.

Q. You said you took the relative cost of capital in an undeveloped and an established business into consideration in forming your judgment as to the going concern of this plant? A. I considered this: That if this company was borrowing money to build these works, take the hazard and build these works and get them onto a revenue producing basis, all of the money that was necessary to do that before the works were up, and a like sum after the works were up, obviously the rate at which it could borrow that money after the business was established would be substantially less and the amount by which it is less measures the going value element. In other words,

I conceived the difference might be from one and a half to two per cent, more or less. If, for instance, you could borrow the money in advance of the work of building the plant and establishing the business, at an average rate on the entire sum, for nine per cent, I think you could probably borrow it after the business was established for seven per cent, or something like it. The difference then between those two rates gives you another measure practically of this property element.

Q. You capitalize that difference? A. I capitalize that difference.

Q. Now, then, you have stated what your rule of thumb methods were. A. I think I stated one of them —yes, sir; I guess I did, both of them; one in percentage of the structural values and one in terms of the equitable gross annual income.

Q. You took all of these elements into consideration and finally arrived at a figure which you thought was reasonable in view of all of the results? A. I did, sir.

Q. How did that compare with the value of similar properties that you mention here as your fourth test? A. It was in line with them, sir.

Q. Your final figure is given on Table III in each of these exhibits following P3, A1, 2 and 3? A. It is, sir. As a matter of fact, sir, in the final valuation of the property I have taken a value slightly less than the reproduction cost. You may consider then that the various elements are scaled in like proportion. In other words, the final allowance for going value was probably a little less in the final valuation than in the reproduction cost estimate.

Q. Mr. Metcalf, I want to take up the question of

the value of the water rights. You made a separate valuation of these water rights? A. I did, sir.

Q. Will you please state what method you used? Which water rights did you include in this value, that is the Beattie water rights, the Little Falls and the Dundee? A. The Beattie water rights alone sir, because as of the date of this report, Volume A, that is Exhibit P3, Volume A, December 31, 1920, the rights at Great Falls, that is, as against the S. U. M. and the Dundee Water Power and Land Company had not been acquired.

Q. How did you treat them in your original report? A. I left them out and assumed that there would be included in the operating expense the amount paid for the water; that I did.

Q. You made an estimate to determine whether that amount paid for the water was fair and reasonable? A. Subsequently, sir. I made an estimate, tested the fairness of the amount paid for the water rights to the S. U. M. and the Dundee Water Power and Land Company, which were purchased in December, 1921.

Q. So you took them at cost? A. I took them at cost after making that analysis of which I speak.

Q. Then, the water rights you valued or included in your report are those at Little Falls acquired from the Beattie Manufacturing Company? A. They are, sir.

Q. Will you describe briefly what they consist of? A. These rights, which were purchased at 1898 by the East Jersey Company from the Beattie Manufacturing Company, cover the right to divert for a certain period of years all except 225 cubic feet per second of water, and thereafter all but 2,000,000 a day of water. When the Beattie Manufacturing Com-

pany put into operation its steam plant, which it had to purchase in order to make good this loss in water power, which was about 1911 and thereafter, the diversion of the water company became complete, the physical diversion. I have considered several yard sticks in fixing that value; first, the original cost which was $530,000.

Q. Just a moment, Mr. Metcalf, you valued these water rights as a whole, did you, first? A. I valued the water rights as a whole.

Q. And then allotted to each company its proportionate share of that whole value, in proportion to its legal ownership? A. That is it exactly.

Q. And that legal ownership is stated on table, page 3 of Exhibit P3 A? A. Page 3, of Exhibit P3, Volume A.

Mr. Wherry: In connection with that, those abstracts of title I put in this morning support that.

Commissioner Bacharach: That is on the same basis as the other?

The Witness: Yes, sir; it is the joint property.

Mr. Wherry: I only wanted to clear that up so we could go on with the discussion.

Q. Mr. Metcalf, there are, in addition to these rights acquired from the Beattie Company, certain claims or rights of riparian owners on the Passaic River below Little Falls? A. Yes, sir.

Q. Which the companies had to acquire? A. Yes, sir.

Q. Are they included in this valuation? A. They are not, sir.

Q. Or discussed? A. They are not, sir.

Q. You did include them in your valuation, did you? A. Yes, sir; I gave consideration to them in the other valuation which included the diversion at Great Falls and from the Dundee Company.

Q. They are not included in the value which you put on the Beattie rights? A. They are not.

Q. This is simply what was gotten from the Beattie Manufacturing Company? A. That is it exactly.

By Commissioner Bacharach:

Q. In these valuations you gave us $6,000,000, $3,000,000, $2,000,000 are any water rights included in those valuations, or all? A. The Beattie rights are included.

Q. The which? A. The Beattie Manufacturing Company rights at Little Falls.

Q. At Little Falls? A. Yes, sir.

Mr. Wherry: They were valued, and the other water rights they acquired in 1921 are put in at cost.

Q. You have included them in the valuation, too? A. Yes, sir.

Q. So this water right you are talking about is not any additional valuation on this property? A. No, sir.

Q. You are merely analyzing it? A. That is it.

By Mr. Wherry:

Q. What were the different criteria of value which you took into consideration in forming an opinion as to the value of these water rights? A. First, the original cost, which was $530,000, which included certain lands and rights of way. On that basis I have said that the original cost of the water rights,

exclusive of the lands and rights of way, was probably about $515,000. In other words, that is giving to the lands and rights of way a value as of that time of approximately $15,000. Next I have considered the yard sticks used by the Board of Appraisers appointed by the Water Supply Commission of the State of New Jersey, as of December 31, 1912, which you will find in their report, page 66, which, without allowance for appreciation amounted to $413,822.

By Commissioner Osborne:

Q. That is the Board of— A. The Board of Appraisers of the Water Supply Commission.

Q. 1912? A. They were appointed I think by Mr. Morris Sherrerd, chief engineer, or perhaps by the board—by him with the authority of the board. On an advance in water rights that sum would become $620,000, on an advance of fifty per cent. If the advance is only thirty-three per cent or one-third, it would be $550,000.

By Mr. Wherry:

Q. You mean to say that water rights are growing more valuable? A. Water rights have appreciated in value substantially during the period since 1896 or 1898, when these rights were purchased, up to pre-war times, and have appreciated very markedly since that time, by reason of the great increase in the cost of substitute power, which is but another way of saying the increase in cost of labor and of coal.

Q. What was the next calculation? A. If the advance be but one-third, the total amount would be $550,000; if two-thirds, it would be $690,000. This appears on page 31 of Exhibit P3, Volume A.

Q. What, in your opinion, has been the advance?

A. In my opinion, the advance has been somewhat in excess of fifty per cent; I should say somewhere between one-half and two thirds.

Q. What was the third criterion? A. The third criterion was that based upon the actual saving in cost to this plant by operating its joint water and steam plant, as compared with the cost of operating on all steam plant, I have made a detailed analysis of that which shows that under the average conditions prevailing in the ten years prior to December 31, 1920, the saving was about $40,000 a year, but the greater part of that saving occurred during the war period.

Commissioner Osborne: I do not quite understand, Mr. Metcalf, just what the relation is between the value of this water to the Beattie Company and to this case.

The Witness: They bought it from the Beattie Company.

Commissioner Osborne: Suppose they did; are you going to measure its value by saying what it is worth and figuring what it is worth to some special interest?

The Witness: No; we are figuring what it is worth to this company.

Commissioner Osborne: The question is what its value is on the market. Suppose the Beattie Company was not there.

The Witness: Yes, sir; I am doing just that, sir.

Commissioner Osborne: What has the Beattie Company, what have all these figures and testimony about what it would cost the Beattie Company or has cost it with or without steam, to do with it?

The Witness: I have given no testimony with regard to the Beattie Company. The only testimony

with regard to the Beattie Company is that it was bought from the Beattie Company at a cost of $530,000 in the year 1896 or 1898.

Commissioner Osborne: I thought you were testifying to what it would cost the Beattie Company to operate the plant with or without steam.

The Witness: No, sir.

Commissioner Osborne: This company?

The Witness: This company, yes, sir.

Q. Does this company use these water rights in connection with the operation of its plant? A. Yes, sir. This company diverts water above the dam, which was known as the Beattie Dam and which was purchased from the Beattie Manufacturing Company, for two purposes; first, for the supply of these communities, taking the water through its pipes to the filter plant, there filtering it and putting it through the pumps and so into the reservoirs and to the consumer, and it also uses the water which it diverts—and this constitutes the greater part of the water diverted—for pumping, or for generating power to pump the water which is served to the consumers. The water available in the stream is not quite sufficient to furnish power to do all of the pumping, therefore the company has to supplement its water power generated from this water, on a fall of about thirty-four feet, by the use of steam pumping engines, and the company maintains both a water power and a steam power pumping plant. It seemed to me then that it would be of interest, as a measure of the value of this water power to determine what the cost of operating this plant would have been had it had to pump all of the water by steam power instead of by water and steam power, which it is able to do now because of the ownership of these water rights.

By Commisioner Osborne:

Q. Then you add a saving to the value of the water rights? A. I beg your pardon?

Q. You add a saving to the value of the water rights? A. I ascribe the saving to the water rights.

Q. And therefore say they are that much more valuable to the company. A. Say they have been that much more valuable during the past years. Then you have got to weigh that to determine how far that constitutes a fair measure of the value of the water rights.

Q. Don't you suppose when they purchased these water rights that that was considered in the price they paid for the rights? A. You mean the power was the consideration?

Q. Yes. A. I do, sir.

Q. Don't you suppose they possibly paid more at that time than they would have if there had not been any power there? A. No, sir, I do not.

Q. For instance, if that did not have any power there for the purpose for which they are using it—they no doubt purchased it with that in mind—that possibly would have been worth one hundred thousand or two hundred thousand less, wouldn't it? A. If I understand your question to be—

Q. Isn't the power as well as the potable value of the water considered or reflected in the original purchase price? A. There is reflected in the original purchase price two things; first, the power which you have taken away, and second the water which could be used in manufacturing processes. Those are two factors affecting the Beattie Company.

Q. Then it was considered? A. I beg your pardon?

Q. It was considered, reflected in the original purchase price and therefore should not be capitalized now.

Mr. Wherry: He has first taken the original cost as one of the elements to measure the value today.

The Witness: I am taking that as one of the yard sticks. I am now discussing another yard stick which is quite different.

Q. You are not joining the two together, superimposing one on the other? A. No, not at all. It is not cumulative.

Commissioner Osborne: This testimony relates, as I understand, merely to the right to use water, the value of the right to use the water, not the value to divert it, not the right to divert and sell.

The Witness: That is right, except a certain portion of it is abstracted in sending it on to town. I am dealing with the power consideration only.

Mr. Treacy: It is only the right of the riparian owner to use the water, and that means he can only use the water for whatever his immediate purpose may be, and return it to the stream. That is the value you are trying to fix now.

The Witness: That is true.

By Mr. Wherry:

Q. Now then, you have taken the annual saving of the operation by water power as a measure of the value of that water power. A. I have, sir.

Q. What did those figures of annual saving work out to? A. The average saving during the past decade has amounted to approximately $40,000.

Q. A year? A. A year. If that were capitalized a six per cent rate, that would amount to $391,000. The actual saving in the year 1918, I estimate at an approximate sum of $63,000, which capitalized in like manner would amount to $676,000. The actual saving in 1920, $79,000, which would be $939,000. The saving in 1921, $106,000, which would be $1,395,000. As based upon an average future annual saving of $60,000 the capitalized value will be $619,000.

Q. What, in your opinion is the fair value of these rights, the present value, with all these things taken into consideration? A. The sum of $600,000, giving consideration also to the amounts which have been paid or assessed for water power rights in the past, of which we have record.

Mr. Wherry: That $600,000 is compared with the cost of $515,000 in 1896.

Commisioner Osborne: And $413,000, by the State Appraisers.

The Witness: As of 1912, sir, that is correct.

Commissioner Osborne: The original cost was $515,000 and you make your fair value $600,000.

The Witness: $600,000.

Mr. Treacy: The original cost was four hundred and some thousand.

The Witness: $515,000.

Mr. Treacy: I understood you to say $400,000.

Mr. Wherry: That was the valuation in 1912.

The Witness: That was the Commission's valuation at a time when the saving, you see, was very much less.

Q. They based that on the savings, capitalized savings, didn't they? A. Yes, that was one of the yard sticks used by them.

Q. Because the savings were less they got a low value that year. A. The savings were much less at that time; $25,000, at that time instead of $40,000.

Q. In other words, you could not take your value from the savings as the sole criterion, because that fluctuates from year to year. A. No, sir.

By Mr. Brown:

Q. May I ask this question, please? Did I understand Mr. Metcalf to say that this increase in the value of water rights was due to the increase in the cost of labor and coal? A. It is due to the fact that water rights have gone up in value. They have gone up in value because of the fact that power can be produced more cheaply, relatively by water power than before, because of the fact that in producing power by steam you pay much more for your coal and much more for your labor, so they are much more in demand.

By Mr. Wherry:

Q. Mr. Metcalf, isn't there a very general rule or a yard stick of value of water power that you have not mentioned; the foot mile measure? A. I referred to it a moment ago, sir.

Q. What is that rule? A. Some ten years ago or so, the New England Water Works Association appointed a committee, of which I chanced to be secretary, to get the records of water power sales and condemnation proceedings. We got together the records of as I remember it, something like 185 different cases, awards of Courts and of commissions and of actual sales of power up to that time. When we came to discuss them we found the most significant basis for discussion was the square mile per foot of fall.

That has come to be a method used by engineers in testing water power values, sales, costs, for the purpose of an estimate of any kind. I have applied that yard stick here, as you will see on page 31.

Q. What is the usual cost or allowance per foot mile on the basis of the average fall, such as you find here. A. The allowance averaged at that time, 1912, or thereabouts on all the records, as I remember them, something like $69 per square mile per foot of fall. In the highly developed privileges, such for instance as exist on this stream further down, and as these companies here have in their jointly owned properties, the amounts ran from $100 to $150 per square mile per foot of all. In the case of the undeveloped privileges, on the other hand, the range was something like $7 to $30, if I remember rightly. Here we have a case in the Beattie Manufacturing Company of not a highly developed privilege, but a partially developed privilege in which the water was used also for manufacturing purposes, and I find, testing it by this yard stick, that the value of $600,000 is equivalent to $32.30 per foot mile. Does that cover your question?

Q. That covers the question. The division of that Beattie right among these three companies; have you got that so you can give it to me? How much of this $600,000 have you included in the Acquackanonk Company? A. The Aquackanonk Company has, according to page 3, one-fourth.

Q. I did not know but what you had it in dollars and cents. I wanted to know which one of these schedules it was in. You stated which schedule it was in, haven't you? A. Yes, sir. It is in Schedule 123, hydraulic power pump equipment, I think.

Q. It can be obtained by taking the percentage of

$600,000, which is placed opposite the names of the respective companies on page 3 of Exhibit P3A? A. Yes.

Q. What have you done with respect to the other water rights below Little Falls, other than the Beattie? A. There are a second set of water rights which have been purchased within the last year, as of December, 1921.

Q. Did you value them the same way? A. Those were valued on the same general basis. The criteria which I had directly bearing upon that was this criterion of the past awards and purchase prices, the analysis which I had made here, the sale of 70,000,000 gallons daily on the Rockaway River in 1898, would seem to have pretty close analogy so far as conditions and proximity were concerned, although they were purchased more than twenty years ago, and the methods used by the Board of Appraisers in connection with the Beattie rights, which we also discussed. By those different criteria I got the following results: first, by an advance of twenty-five per cent over the actual purchase price for the 70,000,000 gallons per day on the Rockaway River by one, Patrick H. Flynn in 1898, $1,120,000, prorating that on the relative areas and water falls; second, on the basis of the past awards of Courts, with a diversion here of fourteen and one-half per cent of the daily usable flow of the year, with their wheel installation, at $125 per foot mile, $1,010,000; at $150 per foot mile, $1,210,000 and at $138.50, the purchase price of $1,120,000. Next I have the criterion of the board of appraisers in 1912, on an assumed purchase of 75,000,000 gallons per day, which is the amount actually purchased here from the S. U. M. and the Dundee Land and Water Power Company; with a thirty-three per cent increase

over the values of 1912, $1,020,000; with a fifty per cent increase, $1,150,000; with a sixty per cent increase, $1,226,000.

By Mr. Treacy:

Q. Did you testify to the cost? Was that one of your criteria, the cost of these water rights? I did not hear you say what the cost of it was. A. The cost to the company, as I testified yesterday, as reported to me by the engineer of the company was $1,120,000, segregated as shown in Exhibit P3, Volume A.

Q. Exclusive of the Beattie? A. Exclusive of the Beattie. I am simply discussing the lower rights as against the S. U. M. and the Dundee Company. I have also the second method used by the board of appraisers, which was on the basis of mill power privilege, estimating the saving again, applied to the 75,000,000 gallon daily purchased right of diversion, with an increase as of the present day over 1912, of fifty per cent because $1,072,000, and of sixty per cent, $1,165,000. The third method used by them was on the basis of the boiler horse power, which I have applied in the same way they did apply it as of 1912, and again increased it for the change in conditions by fifty per cent, giving $955,000, and sixty per cent increase being, $1,015,000. I then discussed the ratio afforded between the conditions of fall and quantity at Great Falls as compared with fall and quantity at Little Falls and the conclusion which I had reached at Little Falls of $600,000, for the rights there, and correcting for the diversion I get a result which would be between $1,175,000 and $940,000. I then considered, gave weight also to the fact of what the companies have actually paid for power to the S. U. M.

and the Dundee Water Power and Land Company during the past decade which had ranged from $68,000 to $14,000 a year, the average being $82,000 a year, and that would correspond at a fair rate of capitalization to this same sum of $1,120,000. Having applied those various tests, it seemed to me that the conclusion might fairly be drawn that the price paid for that water was not unreasonable, or was a reasonable one. The amount segregated to each of the companies was then in proportion to the ownership, to the legal ownership of the companies as established by the terms of that sale and those percentages of ownership vary from the other percentages of ownership in the jointly owned property, as stated yesterday and as appears on page 3, of Exhibit P3, Volume A.

Mr. Wherry: I tender this witness for cross-examination.

REAL ESTATE

The real estate (exclusive of structures thereon) owned by the respective companies individually and jointly, as shown in the Exhibits P7a, P8a, P9a, P10a, P11a, P12a, P13a, P20 and P22, was appraised by Richard Rossiter and E. Harvey Lambert, whose appraisals are given in Exhibits P7, P8, P9, P10, P11, P12, P13, P19 and P21.

The values stated in these Exhibits were testified to by Richard Rossiter, whose qualifications were conceded. A summary of these values is as follows:

Petitioner's Case, Real Estate Evidence

ACQUACKANONK WATER COMPANY

Exhibit P7			
Real estate owned individuallly	$19,087.46		
Exhibit P10			
2/8ths share of real estate owned jointly	44,148.35		
Exhibit P11			
2/5ths share of real estate owned jointly	18,239.40		
Exhibit P13			
1/3rd share of real estate owned jointly	140.00		
Total			$81,615.21

PASSAIC WATER COMPANY

Exhibit P8			
Real Estate owned individually			
Stony Road Reservoir and site	$87,570.00		
Totowa Reservoir and Middle Reservoir tracts	58,500.00		
Kikeout Reservoir site	70,449.60		
Other lands	46,010.00	$262,529.60	
Exhibit P10			
3/8ths share of real estate owned jointly		66,222.53	
Exhibit P13			
2/3rds share of real estate owned jointly		280.00	
Total			329,032.13

MONTCLAIR WATER COMPANY

Exhibit P9 Real estate owned individually	$ 32,683.00	
Exhibit P10 1/8th share of real estate owned jointly	22,074.17	
Exhibit P11 1/5th share of real estate owned jointly	9,119.70	
Exhibit P12 1/3rd share of real estate owned jointly	9,268.90	
Total		73,145.77

EAST JERSEY WATER COMPANY

ExhibitP19 Real estate owned individually	$106,976.31	
Exhibit P10 2/8ths share of real estate owned jointly	44,148.35	
Exhibit P11 2/5ths share of real estate owned jointly	18,239.40	
Exhibit P12 2/3rds share of real estate owned jointly	18,537.80	
Total		187,901.86

KEARNEY WATER COMPANY

Exhibit P21 Real estate owned individually	11,034.00	
Total		$682,728.97

Petitioners' Witness, Nicholas S. Hill, Jr., Direct

DEEDS SHOWING OWNERSHIP OF REAL ESTATE

Exhibits P14, P15, P16, and P17 contain abstracts of the deeds of the real property owned by the respective companies individually and jointly.

The correctness of these abstracts was testified to by Andrew M. Bardner, and production of the original deeds for examination was offered and declined.

NICHOLAS S. HILL, JR., sworn on behalf of petitioners.

Direct-examination by Mr. Wherry:

Q. Will you please state for the record your qualifications and general experience? A. I am a graduate of Stevens Institute of Technology of the class of 1892. I was formerly Chief Engineer of the Water Department of Baltimore, Maryland, and also of the Water Department of the City of New York.

Q. Your firm is Hill & Ferguson, consulting engineers? A. I am a member of the firm of Hill & Ferguson, consulting engineers and have been in practice as a consulting engineer for hydraulic sanitary work for the last twenty odd years.

Q. What companies are you connected with in actual operation today? A. I am at the present time president of the Consolidated Water Company, Suburban, New York, and I am acting as supervisor for a number of water companies in municipal water departments. I have also had practical operating experience as president of the East Orange, New Jer-

sey, Water Board, which position I held for eight or nine years.

Q. In connection with this Consolidated Water Company of New York, did you take the presidency of that in connectionwith your previous employment? A. I did. I was for many years consulting engineer of that company and took the presidency for the purpose of reorganizing and rehabilitating the property, and increasing the efficiency of the service and establishing proper relations between the company and communities which it served.

Q. Where does that company operate? A. It serves North Tarrytown, Dobbs Ferry, Hastings, Ardsley, Scarborough.

Q. Have you made appraisements of water companies during the last few years? A. Yes, I have made appraisals of more than fifty waterworks, appraisals in various parts of the United States.

Q. What were they done for, for what purpose? A. In the first place, I have served as representative both of the municipalities and of the water company.

Q. On appraisal boards? A. On appraisal boards, and as expert in rate cases.

Q. Can you state some of the cases in which you have done that? A. In purchase and sale cases I have represented the New Jersey State Water Supply Commission in the appraisal of the properties now under appraisal, in 1912. I have represented the City of Birmingham, Alabama, in the purchase and sale cases. I represented the City of Baltimore in the appraisal of its water properties operated in the vicinity of Baltimore, which the county proposed to take over because of the extension of the city limits, taking these properties into the city, and the city wanting to secure the service for the entire area of the new

city limits. I now represent the City of Tampa, Florida in a purchase and sale case.

Q. Mr. Metcalf is on the other side? A. Mr. Metcalf is on the other side. I could mention others. I have recently represented the City of Asbury Park, advising them in connection with rate cases before this board.

Q. What other rates? A. I have represented the Hackensack Water Company before this Commission, the Commonwealth Water Company, the Elizabethtown Water Company. I was employed by Maryland Public Utility Commission as their expert to advise them in connection with the establishment of rates for the Baltimore County Water & Electric Company. I have represented the Ansonia Water Company before the Connecticut Public Utility Commission.

Q. Have you had any experience in the actual practical financing of waterworks? A. Yes, sir.

Q. Recently? A. Yes.

Q. What experience have you had of that kind? A. I have had experience in connection with the financing of the Consolidated Water Company.

Q. A bond issue? A. A bond issue.

Q. A stock issue? A. Selling of portions of the property and converting the funds sold in refinancing; and in connection with the Charleston Railway, Gas & Electric Company of Charleston, South Carolina; in connection with the East Orange Water Department and in other places.

Q. How long have you been acquainted or familiar with the property belonging to the Acquackanonk Water Company, the Montclair Water Company, and the Passaic Water Company? A. My first knowledge of these companies were acquired in 1912, when I acted as one of the board of appraisal of three ap-

pointed by the New Jersey State Water Supply Commission to advise them of the fair price to pay for the acquirement of these properties, which was considered by them at that time.

Q. You made an independent appraisal of the properties of the Acquackanonk Water Company, the Montclair Water Company and the Passaic Water Company? A. Yes, I made an independent appraisal based on the inventory of the property made by Mr. Metcalf.

Q. When did you first make an appraisal of these properties? A. In 1912.

Q. Have you made an appraisal as of July, 1922? A. My appraisal is as of December 31st, 1920, but I have obtained from the books of the company the additions to plant since that date.

Q. Have you formed an opinion of the value of the property of these companies as of July 1st, 1922? A. Yes, I can give you that.

Q. Before you give me that. I want you to state whether, in making the valuation and in forming an opinion as to the values of the properties of these companies, you used the same method with respect to each company? A. I did.

Q. And the same basic data? A. Yes.

Q. After you formed an opinion as to the value of the properties, did you work out the data necessary to work out a fair rate structure? A. Yes.

Q. In connection with that, what did you have to ascertain for each company? A. For the preparation of the rate structure?

Q. Yes. A. First and foremost, of course, was the value of the property. Second, what would be the fair rate of return on the fair value of the property. Third, the operating expenses including all costs of

operation and maintenance, taxes and the like; and lastly, the proper annual reserve for depreciation.

Q. Then when you had those factors assembled, you had the gross revenue? A. The gross revenue required to allow a fair return upon the value which I had obtained.

Q. Did you make any estimate as to what would be a proper subdivision to work out a fair and equitable rate among the various classes of consumers of the companies? A. Yes.

Q. Did you use the same method in arriving at the division of the total cost of the service for each division? A. Yes. I might say, that method is substantially the same as the method which has been adopted by this board in the case of the Hackensack Water Company and other water companies.

Q. Will you please take up the Aquackanonk Water Company and first give me a description of the properties appraised of the Aquackanonk Company. A. I might say that all the three companies under appraisal have their properties in what might be termed two divisions; first, the property which is owned jointly, not only by these three but in connection with the East Jersey and which include the diversion right, power rights in the Passaic River, the dam, canal, intake, pumping station, filter plant, pipe line, transmission lines, and that property appraised as a whole and allocated to the three properties that I appraised in proportion to their ownership in the joint ownership property. Then each of the three properties has its individual property—each of the three companies has is individual properties which include supply mains, distribution mains and, in the case of the Montclair Water Company, a local pumping station and booster plant and other similar properties.

Taking the Acquackanonk Water Company, in addition to their joint ownership property, the property consists largely of supply and distribution mains used in the supply of Passaic and Clifton.

Q. What was the ratio of the ownership in the joint ownership property that you assumed? A. The ratio of ownership in the joint ownership property of the Aquackanonk Water Company was as follows: Little Falls Improvement, twenty-five per cent; Little Falls Filtration plant, twenty-five per cent; water diversion rights at Little Falls, nineteen per cent; Great Notch Reservoir, twenty-five per cent; Great Notch steel pipe connection, twenty-five per cent, and the fifty-one inch steel conduit which leads from Little Falls Joralemon Street in Belleville, forty per cent—for a certain section twenty-five per cent and for the other section forty per cent.

Q. A section that was only twenty-five per cent, is that up to station 682? A. Station 682 plus 685, to Station 802 plus 46; the remainder being allotted on the basis of forty per cent ownership.

Q. How about the diversion rights from Beattie Manufacturing Company; did you value them separately? A. I took the diversion rights of the Beattie Manufacturing Company at substantially the figure that the company paid for them.

Q. And you took this same proportion you have given us? A. Yes, sir.

Q. Nine-hundredths of a cent, in that table? A. Yes.

Q. What other diversion rights did you appraise and include in your appraisal? A. The other diversion rights were the rights recently acquired at Great Falls to divert 75,000,000 gallons per day from the Society For Useful Manufactures, which has water

power rights at Paterson and the Dundee Water Power & Land Company which had water power rights at Passaic; that figure I included at the price for which these rights were acquired, $1,120,000.

Q. What, in your opinion, was the fair value of the property of the Aquackanonk Water Company as of July 1st, 1922? A. I placed a value of $2,940,000.

Q. What does that cover, what does that include? A. That covers first, the physical property of every kind. Second, it covers the working capital and the intangibles.

Q. That includes the proportion of undivided jointly owned property which is legally owned by the Aquackanonk? A. That is correct.

Q. Does it include capital additions at cost since 1920? A. Well, the capital adidtions at cost since 1920, for the Aquackanonk Water Company have been in the neighborhood of seventy-five or eighty thousand dollars. The figure which I gave is really my estimate of the value of the property as of December 31st, 1920, but if depreciation which has accrued since that date was deducted and the capital additions which have been made were added, the difference would be so slight that I don't feel I could estimate that closely, so I think $2,240,000, is a fair estimate of the value of the property as of this date.

Commissioner Bacharach: As of when?

The Witness: As of this date.

Commissioner Bacharach: July 1st.

Q. What was the basis of this valuation? A. The basis of this valuation was, first, a consideration of the actual capitalization of the properties outstanding.

Q. Did you attempt to ascertain the historical cost?
A. The historical cost I did not attempt to ascertain because of the burning of the records in the Paterson fire; but I did ascertain the costs of all the elements of plant that were ascertainable for use in connection with my estimate of the cost of reproduction on different basis. I have also taken into consideration the book values of the properties. I have made estimates of the cost of reproduction on the basis of the average cost of labor and materials prior to 1912, plus the actual cost of additions since that date, on the basis of the cost of pre-war prices, the cost to reproduce on pre-war price, which I ascertained by taking the appraisal of the old appraisal board as of 1912, and reducing the cost of additions to the plant since that date to the pre-war basis, by applying a factor to the price ranges since that date to bring them back to the pre-war price basis.

Then I made an estimate of the cost of reproduction on ten year average price basis including the years 1911 to 1920. In addition to that and as a check against the reproduction estimates, the actual cost and the capitalization, I made a study of price trends from a period prior to the Civil War up to the present time.

And having ascertained the pre-war value as representing the investment worth at that time, have converted the pre-war investment worth into the present investment worth on the basis of the change in the value of the dollar for the period assumed.

I may say, in making these various estimates, I had in mind this: First, I used the estimate on the pre-war basis for the purpose of securing the base on which to apply my factor for the conversion value on a pre-war basis to a fair present basis. I used the cost

of reproduction on pre-war plus the cost of additions since 1912, as a check against the book values and capitalization to see how close an estimate of that kind (which more closely than any other estimate represents the true investment of the plant), coincides with the capital investment as shown by the books, or the book value and the capitalization of the company.

I used my ten year reproduction average as a sort of guide because the use of the reproduction estimate on averages has been one recognized method of appraising properties of this kind.

I have also estimated what it would cost to reproduce the property at the peak prices of 1920, and the current prices, simply for the purpose of comparing the level, I have placed; the level of value which I have placed on the property with the price trends from prior to the war down to the present time. And I have expressed that diagramatically in the exhibit so you can see at a glance where this appraisal falls with relation to the prices as they have ranged from before the war to the present time.

Q. Before you come to that, I want to ask you: What have you done in the way of getting an inventory? A. Under instructions, I took the inventory as prepared by Mr. Metcalf and priced that separately and individually in making my reproduction estimate.

Q. Did you check his inventory? A. His inventory was checked in this way: I had before me the inventory of the property and the plant of the company installed up to 1912, and including 1912, from the old appraisal which I made. I also had taken from the books of the company, the items or accounts which had been added to or deducted from the plant, from

1912 to date, and with that information I checked the inventory as submitted to me by Mr. Metcalf.

Q. Did you classify it in accordance with the uniform system of account? A. Yes. The inventory of each company is classified in accordance with the uniform system of accounting adopted by the Board of Public Utility Commissioners of this state, and the inventories have been set up in the same form as they are prescribed by the Board.

Q. What have you done with the real estate and rights of way? A. The real estate and rights of way, they have been placed on the various accounts. I was confused for a minute; I have done it both ways.

Q. How about the buildings and structures? A. The buildings and structures have all been allocated to the proper accounts to which they belong and classified.

Q. Upon your real estate value, did you make a separate valuation? A. I made no valuation of the real estate but took the value placed upon the real estate by the real estate expert employed by the water company.

Q. In regard to these water diversion rights, how did you appraise the water diversion rights derived from the Beattie Manufacturing Company? A. The water diversion rights of the Beattie Company were purchased, as I recall it, for $520,000, and that is the base cost at which I took the rights, or substantially that. I also took the water diversion rights against the Society of Useful Manufacturers and the Dundee Water Power & Land Company at the price at which they were obtained, $1,120,000.

Q. Did you check those to see whether, in your opinion, that was a fair and reasonable price? A. I have made no definite estimate at this time. I did

as an engineer of the old appraisal board make an estimate of the Beattie rights, and I believe $520,000. is a fair figure. I haven't made a definite estimate of the diversion rights from the Society of Useful Manufacturers and the Dundee Water Power & Land Company.

Q. That was worked out by Mr. Metcalf? A. Yes.

Q. That has already been testified to. In the construction, how have you divided the elements of cost in each item of construction? Where have you included your overheads? A. In making the appraisal, I took first the actual cost of labor and materials entering into all structural items and the cost of handling, hauling materials and bringing them to the site of the works. To these items of cost I added contractors' profit and the expense of the equivalent—

Commissioner Osborne: Added what?

The Witness: Contractors' profit or expense, or the equivalent where the work is done on force account by the company.

Commissioner Osborne: On what?

The Witness: Or the equivalent if the work was done by force account by the company.

Q. Will you explain what you mean by "force account"? A. I mean employ their own foreman and their own men and buy their own materials and furnish all the supervision and that kind of thing, instead of doing it by contract.

Commissioner Osborne: Why did you add a profit there?

The Witness: What I mean to say, the equivalent. I didn't mean I added the profit, but I mean to say

I added the overheads, what was equivalent to a contractors' overhead expense.

Commissioner Osborne: What contractors overhead expense did you allow? The profit to the contractor?

The Witness: I have allowed no definite amount in each individual case. I mean, for all cases.

Q. A uniform amount? A. A uniform amount. I didn't—the schedule shows the allowances—

Commissioner Osborne: A certain allowance in each case?

The Witness: Yes.

Commissioner Osborne: You also added that same amount where the company did that themselves?

The Witness: I have added the equivalent, assuming the company did it themselves.

Q. You mean, the equivalent profit or the equivalent overheads? A. The equivalent overheads. What I mean to say is this: My experience has demonstrated for years, that where a company does work on force account their overhead expense and other expenses in connection with doing the work on force account is about equivalent to the contractors overhead and profit. There is very little to be gained on the force account plan, so assuming—

Commissioner Osborne: I can't understand why the overheads should equal the combined overheads of the contractor and his profit.

The Witness: Because you cannot do work on force account for the same amount you can do on contract.

Commissioner Osborne: You mean to say you can do it cheaper by contract?

The Witness: Yes, in ninety-nine cases out of a hundred.

Commissioner Osborne: Why shouldn't you content yourself with cost plus an allowance for overheads?

The Witness: Yes.

Commissioner Osborne: Why add any profit? You are just piling up into that value a fictitious amount when you say you add profit, which you are asking the public to pay a return on.

The Witness: No. I am not doing that. You can assume—

Commissioner Osborne: You do it in this way: You do it by assuming that the overheads of a company doing its own work will equal the overhead plus the profit if the work is done by a contractor.

The Witness: If you will pardon me just a minute.

Commissioner Osborne: That is what I understood you to testify.

The Witness: There are two assumptions that can be made in the reproduction of these properties. One is that the properties were built as an entirety by contract or that the properties were built in their entirety by force account. What I mean to say, when you add up the overheads and the cost of doing it on force account, as compared with doing it by contract. your total cost is substantially the same. So I have considered it makes very little difference in your reproduction estimate whether you assume the work was done by contract or done by force account.

Commissioner Osborne: Which assumption did you follow when you made your estimate of the reproduction cost?

The Witness: I assumed the work to be done by contract.

Commissioner Bacharach: Is that true, as a matter of fact, as to all work done by contract?

The Witness: No, not all of it.

Commissioner Bacharach: What do you figure as the contractor's profit, when you say the overheads and his profit equals that of a force account?

The Witness: I should say that a contractor's overhead and profit will run, as a rule, from twenty-five to thirty-five per cent.

Commissioner Bacharach: How much of that is profit?

The Witness: Probably ten to fifteen per cent.

Commissioner Bacharach: Do you know of any contractor who will take a contract on a ten or fifteen per cent profit, unless it is a contract that says cost plus ten or fifteen per cent?

The Witness: Why, yes, I—

Commissioner Bacharach: Not on bidding or in competition, they wouldn't take it on that.

The Witness: A contractor will take work at this time, I think on a basis of an allowance of twenty-five or thirty-five per cent for profit and overheads.

Commissioner Bacharach: That is only ten per cent profit.

The Witness: Ten to fifteen per cent.

Commissioner Bacharach: You don't mean to say they will do that in competition?

The Witness: He will do that in competition, yes.

Commissioner Bacharach: You say he will do it now? Would he have done it during the war, when you are reproducing this plant?

The Witness: I won't say he would do it during the war.

Commissioner Bacharach: You make your average prices for ten years so you ought to make the average

profit for ten years. Do you think any contractor would go in competition on a ten-year average at fifteen per cent profit?

The Witness: During the war I don't think you could get a contractor to contract to take the work at all on a lump sum bid, where he took the risk. There was a period there where the only way you could get work done by contract was on a cost plus basis or cost plus a lump sum basis.

Commissioner Bacharach: Then a force job would be cheaper?

The Witness: Not necessarily. It is a question of balancing the risk by doing it, and also the question of never being able to get, on force account, the same amount of work per man you do under a contract job, because the incentive to a contractor on a cost plus job to keep down the labor cost is not as great as it is on a lump sum basis. The reason you can get a bid on a lump sum basis is, the market is stabilized and the contractors can make their commitments without assuming the risk they assumed a few years ago.

But I haven't made an assumption in making my estimates of mid-war conditions or any unusual conditions, but I have made my estimates on the basis of what could be done under normal conditions.

Commissioner Bacharach: Why do you figure the cost plus represents it under normal conditions and not during a period of abnormal times?

The Witness: My idea was not to take abnormal times in the reproduction I made on a ten-year basis. It was to determine what would be fair estimate. The most difficult thing in these appraisals today, Mr. Commissioner, is what is a fair present basis. You can't take the pre-war basis; you can't take the peak

of the 1920 activities. If I was appraising the property here before you in 1920, I would not have used peak war prices because I would have recognized those prices wouldn't hold and it would be unfair to do it. And the ten year average prices, which took in say, six years of pre-war prices and four years of high prices and where you know the tendency of the ten year average is higher and higher and will probably go higher and higher for some years to come until you get a swing on the post-war side of it; you are using these ten year averages for the purpose of getting to a normal. But I don't see that that has any bearing on the question of how a contractor would bid at that time. I am trying to get the normal by doing that but if I assumed the other thing it will be getting a normal on a contract basis.

Q. What, as a matter of fact, did you allow as a percentage for this construction overhead? A. That of course is separate for the contractors' profit.

Q. Yes, I understand that. A. But I have allowed for the overhead expenses, miscellaneous construction expenses, about fifteen per cent.

Q. What would that cover? A. That covers engineering and superintendence, taxes and insurance during construction, interest during construction and all of the expenses that go toward the creation of the property at this time.

Commissioner Osborne: There is one thing I don't get through my mind clearly and I don't want to leave it because I may forget to come back to it. You are now giving us the details, the elements that you considered in reaching your appraised value of $2,940,000?

The Witness: What I am really doing is giving you what were included in the unit prices which I used in making my reproduction estimate, which was one of the elements considered in reaching my appraisal of $2,920,000.

Commissioner Osborne: You considered, among other things, what it would cost if the company constructed this plant by such method?

The Witness: I didn't consider that specifically.

Commissioner Osborne: Among other things.

The Witness: Among other things.

Commissioner Osborne: You didn't consider anything specifically; you threw them all in the pot and stirred them up and drew out a conclusion?

The Witness: Yes.

Commissioner Osborne: Among other things you considered the fact that this company, as a matter of fact, had done some of the work by the force method and some by contract?

The Witness: Yes, I assume that is true.

Commissioner Osborne: What I don't understand is why you didn't consider that the rate payer would have the benefit of whatever economies were produced by such operations as the company itself conducted by the so-called force method and why you should add the equivalent of a contractor's profit in your consideration of the cost of this property, of the value of this property, a contractor's profit under the so-called force method. That is something that I suppose the people ought to have the benefit of, if, by economical management, by economical construction, by judicious handling of the property they are able to save something, why shouldn't they be given the benefit of it? Why should that difference be made up by adding

what somebody else might have made if somebody had done the work?

The Witness: As actually built, this company was built piece-meal. A man would come in and ask for an extension of three hundred feet of six-inch pipe or 300 feet of eight-inch pipe, or 500 feet of ten-inch pipe. A great many of these water companies find on those short extensions they cannot contract to advantage because the contractors' overheads and plant expenses on that kind of work make it cheaper to do it on force account. Doing that work piece-meal is more costly than to consider the plant was reproduced as a whole at one time. What I have done in making my reproduction estimate is to figure what it would cost to reproduce this property as it actually exists today, starting out *de novo,* no plant there, building it by contract, if you please, and developing it up to the point at which it is at the present time.

Commissioner Osborne: Doing it all in one whole?

The Witness: Doing it all for a continuous and consecutive operation. That is one yardstick I have used in arriving at my conclusion of the value. So I don't think the two things are comparable.

Commissioner Bacharach: You included your extensions as all in one job?

The Witness: Yes.

Q. You couldn't get the historical cost? A. I couldn't get the historical cost.

Commissioner Bacharach: I understand that. But suppose the company made an extension of three hundred feet, as you stated before, wouldn't you allow more for those extensions than you would have if they had been made in a continuous five-mile run?

The Witness: I didn't consider there would be any extension of three hundred feet. I took the property as it existed at the time of the appraisal and estimated what it would cost to go into a market, a fair market, a normal market, and reproduce this plant as it was at those prices.

Commissioner Bacharach: You must consider extensions. You knew it had extensions and extensions must be considered.

The Witness: They were all laid as a whole, whereas your distribution system has been built up piecemeal; in certain little lengths here and there. I assumed they let a contract for the whole distribution system just as it exists today.

Commissioner Osborne: The total length of pipe now existing of a certain size.

The Witness: All sizes.

Commissioner Osborne: Various sizes.

The Witness: Yes.

Commissioner Osborne: Of course it costs more to lay larger pipe than smaller?

The Witness: Yes.

Commissioner Osborne: So you took so many feet for one type of pipe and so many for the other?

The Witness: Yes.

Commissioner Osborne: As it now exists?

The Witness: Yes.

Commissioner Osborne: And fixed a price for laying each size and multiplied it and added it up?

The Witness: Yes.

Commissioner Osborne: To give you your distribution system?

The Witness: That is true.

Commissioner Osborne: If it were the other method, the historical method, it would have been to

perhaps lay one section and then lay the other, piecemeal?

The Witness: Yes.

Commissioner Osborne: Over a period of years?

The Witness: Yes.

Commissioner Osborne: You say that would be more expensive than the method you used?

The Witness: I believe it would. As a check against my reproduction method, however, as I testified, I take the investment in the plant as one element of consideration. That investment ought to show, if it is fair—the book value ought to show, if it is fair, reflect the cost of the property and I have used some checks to determine that; that book value ought to reflect what it has cost to build the plant as it actually developed.

Commissioner Bacharach: What do you mean by "book value"?

The Witness: I mean the value of the property carried on the books of the company.

Commissioner Osborne: The amount actually paid?

The Witness: The amount they put into capital account since the beginning of the company.

Q. Those capital account overheads were in early times generally omitted? A. Overheads were not included. In my experience in all companies where I have appraised them, before the advent of public utility regulation they failed in a great many cases to charge off property discarded; they did not charge all miscellaneous construction expenses, superintendence and engineering and interest during construction.

By Mr. Treacy:

Q. I understood you to say, Mr. Hill, you didn't get the historical cost? A. No.

Q. You couldn't get the historical cost? A. No, I could not.

Q. Could you ascertain what was the life of the various units that go to make up this plant and the age at the time you made your appraisal? A. Yes, in a great percentage of the cases I could.

Q. In most of the cases. And could you have ascertained what were the unit prices of these various items of property as of the time when they were installed? A. I presume that I could have approximated it, yes.

Q. That would have given you what would have been practically equivalent to a historical cost? A. I am not prepared to say that; it is a pretty difficult thing.

Q. You didn't do that at any rate? A. I did not. It is a difficult thing to reproduce the historical cost by taking the price ranges for years and years back.

By Mr. Wherry:

Q. One thing, Mr. Hill, is you would have to have weighted averages, wouldn't you? A. Yes.

Q. They may not buy all their quantities at the same price in a given year? A. No. It frequently happens that a company, exercising its best judgment, will buy pipe and the market will go against it or there will be other special cost in connection with the work that would not show in an estimate of this kind.

Q. You would have to take the quantity taken at the previous price, have to know both the quantity and the price at any given time? A. Yes.

Q. Whereas you can get only the approximate date? A. Yes; that is correct.

Q. What have you done in regard to accrued depreciation? A. I have deducted what I consider a fair allowance for the accrued depreciation from all of the reproduction estimates made for the purpose of determining the present value on the reproduction estimate basis.

Q. What method did you use in obtaining your depreciation? A. I have used no arbitrary formula for the determination of the proper deduction for depreciation. I have divided my depreciation, total depreciation, in to first, the loss of value due to decretion or loss of service life. To obtain this there were obtained the lives of each element of the plant, the probable life of each element of the plant and its present age, and I estimated the loss of service life on the sinking fund basis; using three per cent. So that the only place in which there has been any arbitrary allowance for depreciation is for the loss of service life due to decretion.

Mr. Treacy: Will you explain what you mean by that word "decretion"?

The Witness: What I mean is this. An item of this plant will have a certain value new. If it has a life of forty years and twenty years of its service has been absorbed, it is not as valuable today as it was new.

We have tables of averages showing how long a pump engine will last, what the probable normal life of a meter is and so on, and taking the actual age, I get the normal life expectancy and I have made a reduction for the loss of service life on decretion. That is, over the property as a whole.

In addition to that I have made a study of the condition of the plant and the probable amount which would be required to make up the deferred maintenance and place the property in substantially as good a condition as when new. I have also made specific allowance for special depreciation where the life expectancy of any element was restricted, due to its being liable to greater obsolescence or to be discarded in the near future.

I have also taken out all property now owned which is not used and useful for water works purposes, and I have segregated that and placed it in the proper account under the Public Utility classification of fixed capital in other departments, account 150.

Q. That is not included in your valuation? A. That is not included in my valuation.

Q. You have included in your figures you have given me, working capital. Working capital; did you include that in the value? A. Yes.

Q. How much did you fix for the working capital? A. I fixed the working capital at substantially two and a quarter per cent of the depreciated value of the property, which is about the same as allowed by the Public Utility Commission in the Hackensack Water Company, which was 2.1 per cent; the Commonwealth case 2.3 per cent, and the Elizabethtown case 2.15 per cent.

Q. How did you make it up? A. How do you mean; how did I make it up.

Q. What items go into it? A. That includes cash on hand in bank and tools and equipment which the company has to carry on hand to take care of its operation.

Commissioner Osborne: Just a moment. This $2,940,000 is net, isn't it; that is the depreciated value?

The Witness: That is the value as of today.

Q. You valued this property as a going concern. Did you add a separate item for the value as a going concern? A. I did.

Q. In addition to the physical value? A. I did.

Q. Did you put that in the form of a percentage or— A. I put that in the form of a percentage. Owing to the lack of the early records, there was no way of ascertaining the actual development cost and I made no specific estimates of the going cost; but have used rather my experience in the development of properties, what it has cost to attach the business to the property and the ruling of courts and commissions in a number of cases where going value has been added, and from that reached the conclusion that eleven and a fraction—11.3 per cent would be a fair allowance for going value in the case of these companies.

I may say in that connection, the old Board of Appraisal which represented the New York State Water Supply Commission—

Q. You mean New Jersey? A. New Jersey State Water Supply Commission, allowed 13.7 per cent for going value in their estimate.

Commissioner Osborne: 11.3 per cent on what?

The Witness: Cost of reproduction of the physical property, tangible property.

Commissioner Osborne: Of the physical property.

The Witness: Physical, tangible property.

Commissioner Osborne: And the reproduction of

the physical property as of what date? You have given us one date. I mean, the average.

The Witness: No; this is the cost—

Commissioner Osborne: That is this physical property, the fair value, is that what you mean?

The Witness: Yes.

Mr. Wherry: July 1st.

The Witness: The tangible property, this $2,940,000 includes an 11.3 per cent allowance, but if you will deduct this from—

Q. Now, can you give us the valuation in classes? How much do you put as the value of the tangible property and how much for the intangible; how is that $2,940,000 divided? A. Mr. Wherry, I can't do that for the reason that the $2,940,000 value which I have given is the result of a comparison of several values arrived at by different means. I can give you what was the allowance of the tangible property and for working capital and for intangible value on the ten-year average cost basis, or on the pre-war basis; but this value of $2,940,000 is the judgment value after taking all of the different elements into consideration and is not necessarily any one.

Commissioner Osborne: It is composite?

The Witness: It is a composite value.

Q. What I would like to get in the record: One of those reproduction estimates you made seemed to you to be more nearly normal than the others? A. Yes.

Q. Which was that? A. The ten year average.

Q. What was the tangible value, working capital and intangible value on that basis? A. The total base cost of the used and useful property on a ten year— first, I will say the total cost of the reproduction of the

physical, tangible property on a ten-year average basis is $2,556,191, and the present depreciated base cost—

Commissioner Bacharach: That is the physical, tangible property?

The Witness: Yes; that is the base cost. And adding the miscellaneous overhead construction expenses makes the gross cost of the physical property $2,939,620.

Q. Please state what you added for the overheads. A. Fifteen per cent, $383,429.

Q. What was your depreciation? A. The depreciated value is $2,646,515. To that I added $35,000 for preliminary and organization expenses, and an allowance of $335,000 for going value.

Q. Anything for working capital?

Commissioner Bacharach: $335,000?

The Witness: $335,000 and $70,000 for working capital which is on the basis of 2.25 per cent.

Commissioner Bacharach: $70,000 for working capital?

The Witness: Yes. If you would like to have a statement of that—

Commissioner Bacharach: Yes.

The Witness: That would make the land, rights of way, release from damages and water diversion rights, $482,254, and the structural items, $2,456,503, working capital, $70,000, preliminary and organization expenses, $35,000, going cost, $335,000, total cost of reproduction, $3,378,756.

Q. You haven't any depreciation? A. I deduct depreciation in getting the present value of $3,086,298.

Q. Your depreciated value is what? A. $3,086,298.

Q. That is the reproduction cost on the ten-year

average? A. The reproduction cost on the ten-year average.

Q. How does that compare with the value you placed upon the property? A. $2,920,000.

Commissioner Osborne: $2,920,000?

The Witness: Yes.

Commissioner Osborne: What is this $2,940,000?

The Witness: $2,940,000, is it? Yes; $2,940,000.

Commissioner Osborne: I understand this three million dollar plus is merely to back up your $2,940,000 estimate?

The Witness: As I explained, yes.

Commissioner Osborne: Not used in this—

The Witness: Used as one yardstick, the $3,086,298.

Commissioner Osborne: That was the only one that was a longer yardstick than your conclusion, wasn't it?

The Witness: Yes. I have taken into consideration price trends and other things. I placed a value on the property somewhat less than the value you get out of the ten-year average prices.

Commissioner Osborne: Somewhat more than the value you get by any other method?

The Witness: Somewhat more than what—

Commissioner Osborne: Than the value you get by any other method?

The Witness: No; it would be very much less than the cost to reproduce on current prices. It would be a very much smaller amount in comparison with the current prices. It compares, I think, pretty favorably with the investment of the total property today; that is, taking the conversion factor for the pre-war dollar and converting it into the present dollars. Those things I had largely in mind.

Commissioner Bacharach: How much increase did you allow for that?

The Witness: It actually works out about—

Commissioner Bacharach: What you are trying to find is what value to place upon the property of today as a pre-war structure?

The Witness: Yes, about thirty-six per cent above the pre-war dollar, as I remember that value, $2,940,000.

Commissioner Osborne: You mean to say the dollar today is worth thirty-six per cent more?

Mr. Wherry: No, less.

Commissioner Osborne: You said "above."

The Witness: I say the value I place on the property is about thirty-six per cent above the cost of reproduction on pre-war prices.

Q. What do you mean by pre-war, Mr. Hill? A. I mean the price range from, say, 1910 to 1917, or 1918, inclusive. There was very little variation during that period.

Q. 1910 to 1917? A. Yes, 1916. I should say 1916. That is right, August, 1916 prices commenced to go up.

Q. After you ascertained the fair value of the property, how did you ascertain the gross revenue required? What did you do? For each company? A. First I took the fair value which I had determined and obtained the fair return on the fair value.

Q. What did you assume? A. I assumed eight per cent was a fair return.

Q. Before coming to your reasons for assuming that, what did you take the taxes? A. In the first place, I took into consideration the amount of taxes

which were paid by the Aquackanonk Water Company and I also took into consideration, in conjunction with this the increase in taxation which would result from a probable increase in a valuation. I also ascertained the average tax rate for 1920 in the territory in which the Aquackanonk property is located, and found it was $2.97 per hundred of value, and I then separated from the total value assumed the value of the tangible property, and taking the tax rate ascertained, determined by the amount of taxes which the company would be required to pay, that is, $67,952 per annum.

Q. That is real and personal property? A. Real and personal property tax. Then the franchise tax was figured at the rate of five per cent of the estimated gross revenue to be derived from the property in public highways. Ninety-nine per cent of this property, of the revenue of the Aquackanonk Water Company is derived from property in the public highways, and the gross revenue under the new rate estimated, under the rate which I estimated would allow a fair return on my fair value of $487,810; and on that basis I estimated that the franchise tax would be $24,147 a year.

Commissioner Bacharach: What was the $487,000?

The Witness: That was my estimate of the gross revenue which would be required under the rate which would produce a net return of eight per cent on the fair value of this property, on the fair value of $2,940,000.

Q. Take the federal income tax; what would be your allowance for that? A. The federal income tax is figured according to the 1922 tax law and it

is figured on the basis of a joint return of the five affiliated companies.

Q. Is that the way they make their return? A. That is the way they are required to make their return. It will amount on that basis for the five companies to $67,500 and this proportioned between the companies under appraisment in proportion to their net revenue, and that would make the proportion of the tax for the Aquackanonk Water Company, $17,348. Then there is a capital stock tax, calculated on the basis of one dollar per thousand of capital stock, which amounts to $531 a year.

Q. What is the total taxes? A. Summing up, that makes the total tax estimate $109,978 per annum, in round figures $110,000.

Q. That same method could be applied; if the rate of return was less, you would have a less tax for the state franchise tax? A. Yes.

Q. By applying five per cent to the net? A. Yes.

Q. How about your annual reserve for depreciation; what did you allow for that? A. The annual reserve for depreciation I figured on the basis of an allowance of one and a half per cent per annum as a proper depreciation reserve.

Q. On what? A. On the depreciable property, I should have said, one and a half per cent. That is very close to the allowances that have been made in a number of cases before this Commission.

Q. Then, in your opinion, that is a fair allowance? A. I think it is fair. I think it is low, one and a half per cent on the depreciable property.

Q. You think it is low? A. Yes, sir; I do.

Commissioner Bacharach: That is the tnagible property?

The Witness: Depreciable property. Not all tangible. I didn't include land; that don't depreciate. That is the depreciable property, one and a half per cent on the depreciable property. That would make the allowance for depreciation $35,100 on my figures.

Q. How did you arrive at the operating expenses? A. For the operating expenses I had the books of the company gone over by an expert accountant, who, at that time was in my employ, and who has for a number of years been so, and he has examined the books of a number of companies. I had him verify the books for the years 1915 to 1921 inclusive and determine what the actual operating expenses were.

Q. What did you take for the operating expenses? A. Then I took the actual 1920 operating expenses as the basis of my estimate, because I found that the 1921 operating expenses were slightly higher than the 1920 and there was not a great deal of difference between 1920 and 1919; in fact, the tendency has been to go up.

Q. With the gross revenue ascertained, how did you work out a rate structure? Give the total operating expenses. A. I took the operating expenses—I think I ought to explain, that might cause some confusion—I took the operating expenses as shown by the books and I made certain modifications in those operating expenses to suit the conditions as they exist today. For example, some of these companies have had contracts under which they were supplying water and they had expenses for coal and coagulate in furnishing water. For instance, the Montclair Water Company—

Q. We are talking about the Aquackanonk. A. At Glen Ridge. I was explaining a type, that is all.

They will make a saving in coal and coagulate as a result of those contracts being shut off. While that will affect the revenue, it will also affect the operating expenses. But all items of that kind which will change or modify the operating expenses as shown by the books, I have made the proper deduction for. I have made a modification of the operating expenses which I think represents fairly what the operating expenses will be in the future.

Commissioner Osborne: Is that less than the operating expenses found on the books?

The Witness: Yes; it is more in some cases than others.

Q. Do you know how much you took off from the Aquackanonk? A. Let me see if I can get that figure for you; yes, the books show an operating expense of $129,103, and I have used $108,201 for the Aquackanonk.

Commissioner Bacharach: $108,000?

The Witness: Yes.

Commissioner Osborne: The books show what?

The Witness: $129,103.

Q. Now, if you will come to the rate structure. A. Do you want me to give the gross revenue?

Q. You can give the gross revenue confining it to the Aquackanonk. A. On the basis of a fair return of eight per cent on this figure of $2,940,000, taxes, reserve for depreciation and operating expenses, I estimate the total gross income required would be $488,500.

Commissioner Bacharach: What is that other figure of $487,810? I thought you gave me that before.

Mr. Wherry: That $487,000 is the gross revenue under the new rate subject to the franchise tax.

The Witness: Only ninety-nine per cent subject to the state franchise tax.

Mr. Wherry: One per cent isn't subject to the franchise tax. That accounts for the difference there.

Mr. Treacy: I want to know what the company actually pays and who fixes it; what board or is it the company's own officers who fix the amount that is paid to the state?

The Witness: Yes, sir. Of course, in any state the State Board—

By Mr. Treacy:

Q. What is the fact here? What is the fact in this case? You say ninety-nine per cent. Who fixes the ninety-nine per cent? Is it yourself or is it a state agency, or who? The ninety-nine per cent upon which you pay? A. The law states that the property in the public highways is subject to the franchise tax.

Q. I know that. A. We found that.

Q. Who assessed the tax that fixed it at ninety-nine per cent? A. We determined how much of this property was in the public highways. We fixed it and the state assesses us upon that.

Q. They take your word for it? A. Yes.

By Mr. Wherry:

Q. It is subject to any complaint? A. Subject to any complaint.

Q. Now, Mr. Hill, when you got through with your gross revenue how did you subdivide that, in working out your rates? A. Now, having ascertained

the gross revenue required in the case of each company—

Q. I will take that table up a little later. A. I was just going to do that.

Q. I will take up the table a little later. What, in general, is the way in which you divided the rates? A. First, having ascertained the gross revenue, I divided the rate between the total water service revenue required and miscellaneous revenue. In other words, I took for the total revenue required the miscellaneous revenue derived from turning off and turning on charges, meter charge charges, and other miscellaneous revenue. That left me the total water service revenue that would be required. I then ascertained what would be the proportion to the total water service which should be derived from fire service charges, and I deducted the fire service revenue from the total water service revenue and that left me the revenue to be derived from general water service, that is, from wholesale and domestic consumers, and for water used for municipal purposes, other than fire protection. Having gotten the general water service revenue, I divided that by the fixed service revenue and proportional service revenue. I then ascertained what would be the fair proportion for the fixed service revenue and deducting that from the general water service revenue obtained the amount which would be secured from the proportional service charge. Now, the fixed service revenue I assumed would be obtained from a fixed water charge, depending on the size of the water connection with the main and the proportional service revenue would be in proportion to the quantity of water consumed. And having obtained the proportional service revenue I established a sliding scale, distributing as accurately as possible, in my

judgment, the cost between the large and small consumers, on the principle that it does not cost as much to sell water at wholesale as it does in small quantities. Does that cover your question?

Q. Yes. You worked out an entire schedule for the Aquacknonk Company, didn't you? A. Yes.

Q. Did you do the same thing for the Passaic Water Company? A. Using the same methods? Yes.

Q. That is, first to ascertain the fair value of the property? A. Yes.

Q. And then the gross revenue that would be required? A. Yes.

Q. To give a fair return on that property? A. Yes.

Q. And then you divided it into that, classifying your costs, is that correct? A. That is correct.

Q. Fixed, proportional, general and fire? A. Yes.

Q. And you worked out a schedule for the Passaic Company? A. Yes.

Q. Did you do the same thing for the Montclair Company? A. I did.

Q. Are the results, the general results of it embodied in a report by you? A. Yes.

Q. How is that report made up? A. That report was—

Q. I mean, how is it divided? It is in how many volumes? A. The result is in three volumes. Volume one is the outline of the methods of appraisal—Section One, Volume One, is an outline of the methods of appraisal and the principle and theory upon which the appraisal was made. Section Two contains the data relating to the actual appraisal of the Aquackanonk Water Company. Section Three to the Montclair Water Company and Section Four to the Passaic

Water Company. Volume Two is the inventory of the Aquackanonk Water Company obtaining the base cost and the price on the ten-year average reproduction basis and Volume Three is an inventory of the property of the Montclair Water Company, and Volume Four is an inventory of the property of the Passaic Water Company.

Mr. Wherry: I offer those in evidence.

Volume No. 1: "Report upon valuation of the property of and fair rate structure for the Aquackanonk Water Company, Montclair Water Company, Passaic Water Company by Nicholas S. Hill, Jr.," received and marked Exhibit P6-A.

Volume No. 2: "Inventory of property of Aquackanonk Water Company," received and marked Exhibit P6-A1.

Volume No. 3: "Inventory of property of Montclair Water Company," received and marked Exhibit P6-A2.

Volume No. 4: "Inventory of property of Passaic Water Company," received and marked Exhibit P6-A3.

Recess from one to two o'clock.

After recess.

NICHOLAS S. HILL, resumes the stand on behalf of petitioners.

Direct-examination continued by Mr. Wherry:

Q. Mr. Hill, will you turn to this exhibit. First tell me where Section I ends, what page? A. It ends at page 84.

Q. And up to that point the discussion is in common to all three companies, is that correct? A. That is correct.

Q. Where does Section I end? It begins at 85. A. You mean Section II?

Q. Section II? A. Section II begins at page 85 and ends at page 100.

Q. It goes further than that, I think. A. Yes, sir, I beg your pardon. It ends at page 110.

Q. Wait a minute, doesn't it go further? The proposed rate schedule follows page 110.

Commissioner Osborne: That is all shown in the table of contents.

Mr. Wherry: Yes.

Commissioner Osborne: The table of contents indicates the end of Section I and the beginning of Section II.

Mr. Wherry: Yes, here is the table of contents. Then I will not have to go through that because it is plain enough from the table of contents exactly how that is.

Q. Will you turn to the map? There is a map here that shows the general system, isn't there? A. Yes.

Q. The basis of that map, where did you get that?

is that the big blue map prepared by the company? A. The basis of that map?

Q. Exhibit P1? A. You mean the map hanging up?

Q. Is this map that you have used here the basis of it? You have put the colors in yourself, haven't you? A. Yes.

Q. But you used a map and had it reduced? A. Yes.

Q. And that map is Exhibit P1 that we put in evidence? A. I don't know what Exhibit P1 is. Yes, I presume it is.

Q. It is the one we put in the other day.

Commissioner Osborne: Look at P1 and see whether the map—

The Witness: Yes; that is correct.

Commissioner Osborne: The first part of Volume 1, Exhibit P6-A is similar in part.

Mr. Wherry: A reproduction.

Commissioner Osborne: A reproduction of P1?

The Witness: Yes; this is the basis of the map.

Q. You just reduced it? A. Yes.

Q. Will you please explain what the lines you put on there are and what they indicate? A. Well, beginning with the joint ownership property I have indicated the Little Falls pumping station and filtration plant as red squares shown on the lower left-hand corner of the colored portion of the map, and indicated there on the Little Falls pumping station, the red line leading from the Little Falls plant and running parallel with the Passaic River and then crossing at right angles to the south, past the Great Notch reservoir, which is shown in blue, and on to

Belleville is the 51-inch steel pipe line which supplies water for the various communities along it, and through the 42-inch steel conduit line from Belleville to a point near the Jersey City reservoir in Kearny, which belongs to the Kearny Water Company, supplies water with connections to Jersey City, Bayonne and to Kearny and communities in that vicinity. The green line starting at the Little Falls pumping station is the 42-inch steel conduit which supplies the Passaic Water Company or Paterson and is the property of the Passaic Water Company. That line runs nearly parallel to the Passaic River and is to the left-hand side of the map, and as seen runs to about the center of distribution in Paterson. The 30-inch steel conduit located in the Borough of Clifton, which connects with the 51-inch steel conduit at a point near Brookdale, is the line which supplies water through a reducing valve to the distribution system in Passaic, and ran through the 20-inch line running approximately north and south supply water into Paterson, giving circulation around through the 42-inch, through Paterson and the 24-inch and 20-inch connecting with the 30-inch back to Brookdale on the 51-inch conduit.

Q. That 30-inch conduit is colored green, is it? A. Yes, colored green.

Q. What company does it belong to? A. That belongs to the Aquackanonk Water Company. The connections for Montclair are shown in red.

Q. With the 51-inch line? A. With the 51-inch line, are shown in red, one is the 20-inch line at Grove Street and another the 16-inch line at a point south of Brookdale. These two lines as shown both connect with the distribution system in Montclair, and water

is also served to Bloomfield through this 16-inch line. I think I mentioned the Great Notch reservoir.

Q. Yes, you did. A. The reservoirs connected with the Passaic Water Company, the Stony Road reservoir, the Totowa reservoir, the Middle reservoir and the Lower reservoir are all indicated as blue squares, and up adjacent to the Passaic River, and at the left-hand side of the map other small items in connection with the plant are also shown, such as the Paterson office building in red, the Monroe Street yard in Passaic, the Passaic office, the Montclair pumping station, the Montclair office, and the Montclair standpipe is indicated by a blue circle at the eastern boundary line of Monclair.

Q. Is that east? A. The western boundary line I should say, the western boundary line of Montclair.

Q. What does the purple line indicate? A. The what?

Q. The purple line, or lavender. A. The Dyers pipe line, which takes water, raw water from the river at Great Falls and supplies a number of manufacturing concerns by gravity, located adjacent to the Passaic River, is shown in yellow and is marked "Dyers' pipe line," the legend being in the bend of the Passaic River at the upper left-hand corner of the map.

Q. Which company supplies that? A. That is the Passaic Water Company that ownes the Dyers pipe line.

Q. You have the Montclair Water Company divided into high service and low service district? A. Yes.

Q. How have you indicated that on the map? A. The low service district is enclosed in a blue margin and the upper district is enclosed in a grey margin.

Q. How have you indicated the district served by the Passaic Water Company? A. The district served by the Passaic Water Company is enclosed by a lilac or purple margin.

Q. You mean the Aquackanonk? A. The Aquackanonk. The Passaic Water Company a green margin, and the yellow areas enclosed in the yellow margin are the areas which are served through the East Jersey Water Company.

Q. The territories indicated on that map, which are involved in the appraisals which you have testified to this morning. A. The territory served by the Aquackanonk Water Company, including Passaic and Clifton, are included in the area embraced by purple; the area served by the Montclair Water Company, both high service and low service are included in the areas embraced by the blue and gray margin and the area served by the Passaic Water Company is included in the area embraced by the green margin.

By Commissioner Osborne:

Q. That is shown by the legend? A. Yes, sir.

By Mr. Wherry:

Q. The yellow is excluded? A. Excluded.

By Commissioner Osborne:

Q. What do you call that high service district, dark yellow or brown? A. That is grey or dark brown; it is rather an indefinite color.

Q. Where is that on the map? A. If you will look for the title, Montclair.

Q. Yes, Montclair. A. That is the high service, Montclair, that is served by passing the water through the Montclair pumping station.

Q. As I understand it, all of the property located within the several sections enclosed in colors, that you have indicated, and which are shown in the legend, is owned by the companies respectively set forth in the legend with those colors opposite their names, is that right? A. That is true, with one exception. The 51-inch pipe line and the Great Notch reservoir, which lies outside of the territory served by these three companies is jointly owned by the Passaic, the Aquackanonk, the Montclair and the East Jersey Water Companies, and the portion of that property which is owned by these three companies was included in the appraisal.

By Mr. Treacy:

Q. How about the pumping plant? A. The pumping plant is in the green area. That is the reason I did not accept that, but I have testified that the water diversion rights, the riparian rights on the Passaic River, the Little Falls pumping station and filtration plant, and the diversion rights against the S. U. M. and the Dundee Water Power & Land Company, that all the joint ownership property that is owned by these three companies is included in the appraisal.

Q. Owned by the four companies? A. I mean the proportion of ownership is included.

Q. And the same applies to the Great Notch reservoir and the 51-inch pipe line? A. Yes, and the 51-inch pipe line.

By Mr. Wherry:

Q. These ownerships that you have assumed are set out on page 3 of Table Number One? A. That is correct.

Mr. Wherry: That corresponds to that exhibit that we put in yesterday showing the abstracts of deeds.

Q. Now, Mr. Hill, in arriving at your unit prices for your reproduction cost, did you make any attempt to ascertain what the trend of prices is at present? A. Yes; I studied the price trends from before the Civil War up to the present time.

Q. Is there any table here that shows those price trends?

Mr. Treacy: May I ask, did you include any property of the Kearny Water Company?

The Witness: No.

Mr. Treacy: Any property of the Kearny Company included in this?

The Witness: No.

Mr. Treacy: The Montclair standpipe, is that a joint ownership property?

The Witness: No; that is Montclair Water Company.

Q. What does Table Number Six show, page 37? A. Table Number Six, page 37, shows the range in index numbers as recorded by Bradstreets, Duns and the Bureau of Labor from 1913, in 1913, in 1920, the month indicated in the first column, 1921 and 1922, and the figures as given in Table Number Six have been plotted in a diagram, Number Two, on page 38, as shown by the solid line on that diagram.

Q. Is that correct? A. That is correct. The intervening years are given on the diagram, but the source of information is substantially the same.

Q. What does the diagram show? A. That dia-

gram shows the price ranges from 1915 to about April or May, 1922, and it shows the index numbers for those price ranges at the left-hand side of the table, the index being based on the pre-war price as one.

Q. The pre-war price being 1914, December, 1914? A. 1914, substantially, or 1915.

By Commissioner Osborne:

Q. The end of 1914, beginning with January 1st, 1915. A. Yes.

Q. And taking 100 as your starting point. A. Yes, as the starting point. The dotted curve shows the disparity range between different types of commodities for the same period.

Q. What do you mean by that? A. I mean to say, for example steel products are today, certain steel products are today but 15 per cent above pre-war, whereas furniture and some other items are 113 per cent above pre-war even today and that makes a range from 15 to 113, the disparity being uneven in different commodities.

Q. You take the average of that which is about 125? A. No, I take the maximum and the minimum and get the range between the two. In that case at the present time it is 98. At one time the range between the lowest and highest was over 200.

Commissioner Osborne: Tell us what you did when you began. I think that will follow.

The Witness: If you will look at the right-hand side—

Mr. Wherry: Tell us what the solid black line is first.

Commissioner Osborne: That is the index for all commodities. He has told us what that was.

The Witness: If you take the scale on the right-hand side, the disparity in points and take the dotted line in 1915, you will see that the disparity between the highest and lowest of the commodities listed in the general commodity index was 20 points, whereas if you take at the beginning of the year, 1921, the disparity between the highest and the lowest was over 200. You see that disparity curve in dropping down.

By Commissioner Osborne:

Q. That is the average disparity? A. Yes—it is not the average disparity. I have just explained that certain steel products today are but 13 per cent above pre-war whereas furniture is 115—15 and 113, I believe. That makes a disparity of 100 points between the greatest range and the lowest range at the present time. At one time there was a disparity of over 200 points. The two curves combined, one of the actual range in prices, average prices, and the other of the disparity, shows that not only have prices reduced since the peak, but also the disparity in prices, in other words, that all commodities are getting more and more to a pre-war equal basis.

By Mr. Wherry:

Q. In other words, the prices are becoming stable. A. Becoming stable.

By Commissioner Osborne:

Q. The fluctuations are less violent? A. The fluctuations are less violent.

By Mr. Wherry:

Q. As the disparity between the lowest price and the highest price— A. Approaches zero.

Q. —approaches zero, you get a stabilization. A. A stabilization; that is the idea.

Q. How do the prices of those commodities that enter into water works plants compare in stabilization with the index for all commodities? A. I have made three comparisons; the first is general commodities as shown in Table Six, the second is what is termed the construction cost index numbers as given on Table Seven, page 41.

Q. Plotted on diagram Number 3? A. Plotted on diagram Number 3.

By Commissioner Osborne:

Q. Page 42. A. Page 41 and the diagram on page 42. That shows that whereas commodities are at the present time, general commodities, taking the average of Bradstreet, Dun and the Bureau of Labor index, are but 36 or 38 per cent above pre-war, that structural items are at the present time about nearly 70 per cent or 68 per cent above the pre-war basis, indicating that disparity that I speak of. The general commodities not only include structural items, but shoes and cottons and various other things, and while the average of all of them is but 36 or 38 per cent higher at this time, the structural items in the structural cost index are nearly 70 per cent higher at the present time. All these curves show the same stabilization, flattening out since the latter part of 1921. The next diagram is on page 44, diagram Number 4, which shows the cost of water works material and labor, which was plotted in my office from records of cost there, and includes those elements which go to make up the large proportion of a water works plant, including cast-iron pipe, cement, stone, brick, and like items. This shows that the materials that enter into

water works construction—it shows that whereas the general commodities are but 36 per cent higher and general structural items, structural cost index 70 per cent and the present time the water works index is about 200, or 100 per cent higher than pre-war.

By Mr. Treacy:

Q. 100 per cent higher? A. Than pre-war, yes.

By Mr. Wherry:

Q. What does diagram Number 5 show, page 46? A. Diagram Number 5, shows the price trend of general commodities from 1860 substantially to date as indicated by a broken line and marked Duns index for commodities. The legend is at the left-hand side just above the years 1867 and 1866. You will see Duns index for commodities, a broken line.

By Commissioner Osborne:

Q. That is the line at the top, on the left-hand side? A. Yes. The line indicated by a dash and dot shows the range of common labor for the same period. The dotted line or line composed of small dots shows the building trades for the same period. The solid line at the bottom of the left-hand corner shows the average of all occupations, the average pay of all occupations for the same period.

By Mr. Wherry:

Q. What are the inferences you draw from these tables and what use did you make of them? A. My object in preparing these tables was first, taking into consideration the present stabilization and the disparity in the price range of different items, to determine about what the investment in a plant of the

water works type would be today as compared with a similar investment in terms of the pre-war dollar. I used the diagram Number 5, the trend of commodity prices and wages, for the purpose of comparing the trend of commodity prices and labor prices before and after the civil war, compared with the trend of commodity prices and labor prices before and subsequent to the present war. Diagram Number 5, shows two or three rather interesting things. It shows first a rise in commodity prices during the civil war, with a gradual falling off until about thirteen years subsequent to the civil war commodity prices were about where they were prior to the war, and I have figured out that for that thirteen years the average excess of prices subsequent to the civil war was about 36 per cent above the price range prior to the civil war.

Q. You mean there was a permanent increase in the general level of prices after the civil war? A. And there was a general increase in prices subsequent to 1879, when the price level for commodities dropped substantially to where it was before the war. The diagram also shows that labor during the civil war increased comparatively little as compared with commodities. It also shows that labor never reached the pre-civil war level.

Q. It is going up all the time? A. It shows that at no time was it less than 26 per cent above the pre-war level, subsequent to the civil war, and that the lowest point reached was about 1879, or 1880, and since that time there has been a constant upward trend in the price of labor, and material has followed that upward trend until the peak of 1920, was reached. Now, subsequent to this war you see the same tendency to recession in prices that there was subsequent to the civil war and all of these diagrams show a tendency

toward stabilization, that has occurred substantially during the past year.

By Commissioner Osborne:

Q. Labor, apparently has never been so high since 1860, with relation to other commodities as it is today? A. No. There is another interesting feature of this. I made a comparison of the conditions subsequent to the war to try to—

By Mr. Wherry:

Q. Is that correct? I did not quite get that. Labor has never been so high compared to commodities as it is today?

Commissioner Osborne: Yes.

Mr. Wherry: I see what you mean. I did not get it.

Commissioner Osborne: We are paying labor more relatively now than it has ever been paid before.

The Witness: In fact, not only that, Mr. Commissioner, but owing to improvements in processes and reduction of the percentage of labor in the cost of output, labor is today, even notwithstanding that, a much larger proportion than at any other time in the history of manufacture.

I made a study of the conditions subsequent to the war, in connection with this diagram, for the purpose of forming some judgment, if possible, of price trends. And I would like to call attention particularly to the fact that labor did not receive the same increase proportionately during the civil war that it did during this recent war. Commodity prices went up, but labor did not receive their share of the increase as they have during the present war. I attri-

bute this largely to the fact that during the civil war this country was largely argicultural and labor was separated and unorganized and now it is organized, and that labor organized in large manufacturing centers is more resistent to price decreases and more insistent upon wage increases than the disorganized segregated agricultural labor. Since that period this country has been converted from an agricultural country into the greatest manufacturing country in the world, with labor organized and highly organized and not only resistent to price decreases but insistent upon wage increases.

By Mr. Treacy:

Q. Hasn't the cost of living something to do with that as well as unionism? A. It is a question whether the cost of living has brought about labor's organization or whether labor's organization and insistence upon increases in wages has brought about the increased cost of living.

(Judge Treacy asks to cross-examine as to qualifications on price trends.)

CROSS-EXAMINATION by Mr. Treacy:

Q. Have you ever had any experience and financial training in connection with any banking institutions? You have never had any experience in financial institutions of any kind which would cast upon you the duty of studying these prices or price trends, have you? A. I have never been connected with a financial institution directly.

Q. Have you ever made a study of these price except in one of these rate cases? A. I have made—I do not exactly follow that question.

Q. Have you ever made a study of these prices trends in any connection, except in one of these rate cases? A. Yes, sir, I have made studies of price trends in connection with the costs of materials for various purposes, for purchase and for construction and for other purposes, besides purely rate cases.

Q. In what case did you make a study of cost trends for purchase, and did you give advice upon that basis? A. Yes, sir, I have. I have given advice as to whether it was better to build this year or next year or two years hence, taking the market into consideration and the probable trend of the market.

Q. In your course at Stevens Institute when you received your degree what was it, the degree of civil engineer? A. M. E., mechanical engineer.

Q. Did you have to study the trend of prices? A. Not at all.

Q. That is something you have taken up afterwards? A. Yes.

Q. It was not a part of your professional training as an engineer? A. Not at all.

Q. There are persons who make this a profession or business, the study of trend prices, who pass under the name of economists or editors of financial papers, are there not, who do this special work? A. Well, I presume there are statisticians who devote themselves to the compilation of price ranges for the purpose of enabling others to form their judgments from their compilations, and who make their forecasts as anyone else would.

Q. How many years in the the future did you take for this computation? A. I have not really tried to

carry this into any definite future period. I am frank to state I would not attempt to carry it into any definite future period. I am not here on the stand as a prophet of what the prices will be in 1935 or some other year. I would like to explain very definitely that that is not the object of what I have done here, but the object of my work is to form a judgment as to what represents a fair level of today.

Mr. Treacy: If you form that judgment as to what represents a fair level of today as indicated by what has taken place up to today, I am satisfied. What I thought you were going to do was to form a judgment as to what was going to happen three, five or ten years from now.

Commissioner Osborne: I understood all this discussion and controversy arose over the question as to whether he was not going to indicate his view as to the probable trend of prices for some time in the future. Is that right?

The Witness: In this particular only, sir; I have made a study of the conditions prior to and subsequent to the Civil War; I have made a study of the conditions prior to and subsequent to this war; I have made a study of the conditions existing at the time of the Civil War and the conditions today. I have done this for the purpose of saying this, and this only: that I believe that if under conditions subsequent to the Civil War the average increase in the price level for thirteen year subsequent to the Civil War was 36 per cent, that it is fair to assume that the increase in price levels subsequent to this war, with labor organized as it is today, labor forming the large element in the cost of manufacture that it does form today,

that a reduction in price levels is not going to be more rapid than subsequent to the Civil War, and I am doing that only for the purpose of trying to fix something which is reasonable for a short future time, without trying to predicate or predict.

By Mr. Wherry:

Q. Will you please turn and give us the several bases of value which you took into consideration for the Aquackanonk Company? They are summarized on page 97. A. Yes, page 97.

Q. What have you got on that page? A. I testified this morning that I had considered, compared the capitalization, the book value, the cost of reproduction on a prewar basis for a plant installed in 1912, plus the cost of additions since that date, for the purpose of determining the probable fair investment in the property and that is the first figure given here, $2,300,000, which compares with the book value of $2,360,610 as shown by the books of the company. I also showed that it requires $1.36 at the current value of the dollar to purchase the same amount of general commodities that a dollar would have purchased on the prewar basis, and it would require $1.85 at the current value of the dollar to build and install the equivalent structural elements of a water works plant. I also showed that the present investment worth based on average commodity values of this dollar to date was $2,761,000, which is taking the prewar investment worth of $2,300,000, and applying the factor of 136 to get the present investment worth, and based on the ratio of water works structures the investment would be $3,426,880.

Q. This first, $2,761,000 is expressed in the general purchasing power of the dollar. A. Commodities.

Q. The next is because of the disparity factor you explained— A. The disparity factor.

Q. —the dollar's worth in water works structures. A. That is right, expressed as water works dollars. Next I have assumed that 40 per cent represents the fair, average set in price levels, which is 45 per cent below the present set of water works materials and structures, and on that basis the investment worth would be $2,842,000.

Commissioner Osborne: 40 per cent average set in price levels; what do you mean by that?

The Witness: I mean that at the present time water works structures and materials are 85 per cent above prewar, and simply as one measure I have assumed that possibly for eight or ten years it may be six—there would be a permanent set of 40 per cent, averaged through that period; maybe at the end of ten years it might be zero, but if it is 85 now and zero at the end of ten years, 40 would represent a fair average.

Commissioner Osborne: Then this is one of the elements that entered into your determination of the value of the property.

The Witness: Well, indirectly yes, but not directly.

Commissioner Osborne: You have it under the head of fair value determined.

The Witness: Yes.

Mr. Wherry: It is one of the elements you took into consideration and gave a certain amount of weight to.

The Witness: A certain amount of weight.

Mr. Wherry: I want to show where that summary is. It is already in the exhibit summed up, summed upon this page for the Aquackanonk, the various elements, the various criteria of value and his conclusion,

which was $2,940,000, as compared with those different values you would get by those different methods. Is that right, Mr. Hill?

The Witness: Yes.

Mr. Wherry: The reproduction, ten years average is $3,000,000.

The Witness: $3,086,298. The reproduction value at current price would be $3,735,000. With those figures before me, taking into consideration what I believe to be the actual true investment, the investment worth on the prewar basis converted into terms of present general commodity prices, the cost to reproduce on average prices, the cost to reproduce on current prices, and taking into consideration the price trends, I have arrived at the conclusion that $2,940,000 is the fair value to place on this property.

By Mr. Wherry:

Q. That would be a fair present value of the property? A. That is the fair present value.

Q. Did you make a similar summary in connection with the Montclair Company and, if so, on what page is that?

Mr. Treacy: May I ask, before you leave that: On page 97 on the top of the page you have placed the acual investment of this in use for water works at $2,300,000 as compared with the book value of $2,360,610.

The Witness: Yes.

Mr. Treacy: How do you account for the difference between those two items, $60,000?

The Witness Well, as I have explained before, I am never governed entirely by the book values as shown by accounts which have run for a long period of

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years, because I have found as a rule that such accounts frequently include items so in order to satisfy myself that the book value was correct I compared that with an estimate based on the cost of the plant installed prior to 1912, plus the actual cost of additions since that date.

Mr. Treacy: By the words "actual investment" as you use it there in that first sentence, you do not mean the money that was actually invested by this company.

The Witness: I mean to say that I believe this company has actually invested $2,300,000 in this property. I believe that is a safe, conservative statement.

Commissioner Osborne: You say that because you reproduced the property at prices of a certain date which approximated the date when the works were installed.

The Witness: I took it at prices that were covered by the same period that the book value covered, and I also compared those two items with the capitalization. Now, in view of the fact that the capitalization, the book value and the cost of reproduction on pre-war prices, plus the cost of additions since checked reasonably well—not exactly—I have concluded that it is fair to say to you gentlemen that they have invested $2,300,000 in this property.

Commissioner Osborne: In the absence of your ability to produce the actual books, they having been destroyed in the fire?

The Witness: Yes.

Mr. Treacy: That is what I wanted to get, whether this was a figure taken from actual records.

Commissioner Osborne: It is as near as

he can determine it by some checking method, in the absence of the books.

By Mr. Wherry:

Q. Is Montclair summarized on page 125? A. Yes.

Q. And Passaic on 153, isn't it? A. Passaic on page 153.

Q. The Montclair value is how much? A. The Montclair value I have placed at $2,010,000.

By Mr. Treacy:

Q. What page did you say? A. Page 126.

Mr. Wherry: 125, and it runs over to the next page.

By Mr. Wherry:

Q. As compared with an investment of what, as determined by you? A. As compared with an investment of $1,750,000.

Q. And the cost of reproduction at average prices? A. The cost of reproduction at average prices, $2,069,635.

Q. Mr. Hill, I note that your book value here as determined by you is higher than the book value as shown on the actual books? A. Yes.

Q. Whereas in the case of the Aquackanonk it was somewhat lower. A. If you will turn to Passaic, on page 153, you will see that I have placed the actual investment at $4,500,000, as compared with the book value of $7,012,000.

Q. That is because when you checked it you found certain items were on the books that had not been written off, is that it? A. Yes; I cannot state all the

reasons, but the comparison indicated to me that the book values varied somewhat up and down and I have exercised my best judgment in reaching what was the fair investment in the property.

Q. What is the fair value of the Passaic Company as determined by you, of their property? A. $5,430,000.

Q. As compared with the investment determined by you of— A. $4,500,000.

Q. And reproduction on a ten-year average? A. Reproduction on a ten-year average basis, $5,654,311.

By Commissioner Osborne:

Q. Have you ever taken all these various methods, added them together and divided them by the number— A. No.

Q. (Continuing.) —to see what result you would reach? A. No, sir; I never did.

Q. You did not use that as an additional check? A. I don't think that would be just fair, Mr. Commissioner.

Commissioner Osborne: I did not say it would be; I just wondered what would happen.

Q. Why wouldn't that be fair, assuming that all of the checks you used were fair checks? A. Well, I do not think—

Q. If your various yardsticks approximate a yard, why wouldn't the average of the various yardsticks be approximately a fair determination of what constituted a yard? A. I do not think in every case you can place the same value upon each yardstick as a criterion of value.

Mr. Wherry: Take the Passaic book value; it is

$7,000,000, as against his determination of $4,500,000. That would immediately throw it way up.

The Witness: I think you have got to take into consideration besides—those figures I have arrived at, are arrived at after sitting down and weighing the various elements in each case. Pardon me just a minute. May I call the Commission's attention to one thing? Following each of these tables—

Mr. Wherry: Have you got a graph in each case, 153 in the case of Passaic?

The Witness: Take the Aquackanonk, I would like to call the Commission's attention to page 98. In each case I have shown a graph. In the first place the scale on the left shows the ratio of the pre-war value of the various elements which I have considered and the line GH shows the scale of the different elements considered. For instance, the capitalization is less than the pre-war value in the case of the Aquackanonk Water Company; the valuation on the pre-war basis of course is the same; the pre-war basis of 1912 with subsequent additions at actual cost is about 120; the book value is about 125; the ten-year average falls up about 155; current prices approximately 170, and on the 1920 price basis about 240. That is shown by the line GH. The ten-year average level of 152 per cent I have shown as a straight line, a straight horizontal line across the diagram EF, and the line CD represents the value which I have placed upon the property and shows its relation to pre-war, capitalization, the ten-year average, current prices and the peak.

By Commissioner Osborne:

Q. You have valued it at a greater sum than the

capitalization and the pre-war basis? A. And its book value.

Q. But it is less than the ten-year average? A. It is less than the ten-year average and current prices.

Q. Or 1920? A. Or the peak.

Q. That is shown in each case. Do you see that defective spot on the map there, on the graph, pre-war basis; is that the pre-war basis? A. Pre-war.

Q. What is the figure in front of 030? A. I can give you that in a moment.

Q. Is that a 2? I suppose it is. A. That is $2,030,494. I have placed a graph of that kind for each company, so as to give you a graphical illustration of where my appraisal falls on the different price bases.

Mr. Treacy: That is the pre-war basis, is it, $2,030,000?

The Witness: $2,030,000.

Commissioner Osborne: $2,030,494.

Mr. Wherry: You can check it by page 88, the figures are given on page 88.

By Mr. Wherry:

Q. Mr. Hill, in fixing your fair rate of return you have considered the rate which the company would have to pay to capitalize the entire fair value of the property, regardless of whether it would be in stocks or bonds, have you? A. Yes, sir.

Q. In your going value, there is a table in here in your report, summarizing the allowances of courts and commissions that you said you took into account. A. Yes, it commences at page 22, table Number 4, commencing at page 22.

Q. The case is given in the first column and the nature of the case in the second. A. Yes.

Q. And the date in the third? A. Yes, by whom decided and the jurisdiction in the fourth column, the value of the plant and the amount of the allowance in columns 5 and 6, and the going value expressed as a percentage in Column 7.

Q. Your allowance for going value was more a matter of your judgment than of a calculation as to development cost. A. That is correct.

Mr. Treacy: It seems to me that is a question for your Honors as to what these cases decide. The meaning of the cases is more for your Honors to decide than it is for this witness to present as a matter of evidence.

Commissioner Osborne: What is that?

Mr. Treacy: I say this; what these commissions have decided, what the cases have held is really a matter of law for your Honors to decide, it seems to me; that ought to be presented by Mr. Wherry in his argument.

Commissioner Osborne: Is the witness attempting to give us the citations?

Mr. Wherry: Yes, he gives the citations. He said he relied in forming his opinion as to going value, largely on the examination of cases he made, and he gives the list of cases. Whether he has erred or not in his inference, of course, goes to the weight of his testimony.

Commissioner Osborne: What page is it on?
The Witness: Page 22, Table Number 4.

Mr. Treacy: He states that certain cases hold certain things. That is a question of law for the Court to decide, for the lawyers to argue.

Commissioner Osborne: I do not think it is necessary for him to go into that now.

Mr. Treacy: Those cases can be submitted on Mr. Wherry's belief. That ought not to be put in here as a matter of fact in the evidence.

Commissioner Osborne: Let us assume they are put in here merely for reference purposes.

Mr. Wherry: That is all they are put in for.

Commissioner Osborne: If that is not so, you can show how unreliable the witness's testimony is by pointing out errors in it on your cross-examination. That ought to be very helpful.

Mr. Treacy: I think the legal construction of any case is something for the Board.

Commissioner Osborne: You are quite right in that. I do not think we need pull this thing apart for the purpose of physically taking it out of this case.

Mr. Wherry: I concede that, but when a witness says I have taken cases into consideration and what they hold, you have a right to know what the cases were and get the reference to them.

Commissioner Osborne: The case will speak for itself.

Mr. Wherry: The case will speak for itself. I am not trying to bind the Board by what he says the case holds. I could not if I wanted to.

By Mr. Wherry:

Q. Diagram Number 7, will you please explain that? A. Diagram Number 7 is an outline of the manner in which I have subdivided the revenues or

charges for the purpose of establishing the rate. At the top of the diagram, total revenue required, I have taken the total revenue required to yield a fair return on the fair value of the used and useful property, to pay operating expenses and maintenance expenses and taxes, as well as to provide a reasonable annual reserve for depreciation. I have subdivided that first between water service revenue, which is to be derived from charges for public fire protection and from domestic, industrial and commercial use of water as well as public uses other than for public fire protection, and miscellaneous revenue, which is derived from various small operations of the company, such as turn-off and turn-on charges, meter change charges, meter repair charges, et cetera.

Q. From the total revenue you deduct the miscellaneous revenue? A. So that from the total revenue I deduct the miscellaneous revenue to get the water service revenue.

Q. How is that divided? A. I divide that between fire service revenue which is to be derived from charges for public fire protection, secured through taxes levied upon assessable property or charges made on the basis of hydrant rentals or so much per foot of main or so much per inch foot or a combination of either of the latter two with hydrant rentals, or the charge may be made on the basis of an annual lump sum payment, and I subdivide that, the total water service revenue, and get the general water service revenue provided from water rates fixed and proportional for domestic, industial and commercial uses as well as public uses other than for public fire protection. This general water service revenue is divided into fixed service revenue derived from the fixed quarterly charge for each service connection for which no

water is furnished and the proportion service revenue derived from the charge per one thousand gallons or one thousand cubic feet used per quarter in proportion to the water consumed.

Q. The fixed service revenue is designed to cover the fixed charges? A. Yes, sir, the fixed charges.

Q. Chargeable to the general water service? A. Yes. The fixed service charge is in turn divided into the capacity or demand charges which cover interest, depreciation, taxes and maintenance of surplus or unused plant not apportioned to public fire protection, and these charges are assessed on a capacity unit basis and are an integral part of the total fixed service charge, and the service or customer charges, which cover interest, depreciation, taxes and maintenance of service connections, meters and the appurtenances installed at the expense of the water purveyor, and also the cost of inspecting, reading and billing meters, et cetera.

Q. That diagram is a guide to the way in which you divided the rates, the gross sum produced by these rates in these schedules? A. That is correct, and that is supplemented in the case of each company by a table which gives the figures.

Mr. Wherry: That shows the reference to the deed of each of these parcels, conveying it to these respective companies, doesn't it?

The Witness: Yes, sir.

Mr. Wherry: You have those deeds in your custody?

The Witness: They are in the Paterson office.

Mr. Wherry: If you want any of those deeds we will produce them.

The Witness: I have most of them here in court.

Mr. Wherry: You don't want them now, do you, Judge?

Mr. Treacy: No.

Adjourned until Wednesday, August 2nd, Kinney Building, Newark, 10:45 A. M.

The Supreme Court rule was entered on July 21, 1922.

Newark, N. J., Thursday, October 5, 1922.

Proof of notice of hearing admitted Exhibit P18.

NICHOLAS S. HILL continued:

Direct-examination by Mr. Wherry:

Q. Mr. Hill, you have already qualified and stated your qualifications in this case? A. Yes.

Q. When you made an appraisal of the Aquackanonk Water Company and the Montclair Water Company properties you also appraised the jointly owned property of this company with the East Jersey and Kearney, did you not? A. Yes.

Q. Will you lease state what the position of the Kearney Water Company is in the whole system? A. The Kearny Water Company is a transporting company only; they sell or distribute no water.

Commissioner Osborne: Who is that?

The Witness: The Kearney Water Company They own the pipe line from a point in Belleville to a point in Kearny and the interest or return, depreciation, taxes and the maintenance of this pipe line is paid to the Kearny Water Company through the reve-

nues of the East Jersey Water Company which sells the water that the Kearny Water Company transported, and they pay them so much a year to cover the fixed charges and operating expenses of the Kearny pipe line.

Q. Can you indicate where that pipe line is located on this map (handing witness map)? I show you a map which has been marked in evidence; I don't know what its number is. A. Well, the connection between the East Jersey and the Kearny pipe line is about at Joroleman Street in Belleville. It is at a point near the reservoir as indicated—that reservoir is not shown on this map.

Q. It shows on here (handing witness another map). A. Is at a point on this map near the legion "Newark Reservoir" and it runs from that point to a point in Belleville which is near the intersection of Belleville Avenue and Kearny Avenue and is marked in that exhibit "Jersey City Reservoir."

Q. Now, you say that is directly connected with the East Jersey Water Company's pipe line? A. Yes; they transport the water.

Q. Does the East Jersey own any property that is not jointly owned? A. Yes, it owns a small amount of property not jointly owned, I think the total is around $20,000.

Q. The East Jersey or Kearny? A. The Kearny. The East Jersey I spoke of, that owns about 20,000.

Q. That is not owned and part of the jointly owned property? A. Yes.

Q. What does that property consist of? A. That property consists of some rights of way and a few lots of land, Venturi meters, meter houses and vaults; that about covers the property.

Q. Does it own some land or real estate in addition? A. I said some land; three parcels of land.

Q. What is the total amount of the property owned by the Kearny Company? How large is that pipe line? A. How large is the pipe line?

Q. Yes. A. It is a 42-inch line, as I recall.

Q. How long is it, about? A. It is a little less than two miles.

Q. The Kearny pipe line? A. Yes.

Q. Then from the Kearny pipe line connection to the East Jersey pipe line is there a part of that East Jersey pipe line which is owned by the East Jersey Company alone and not jointly owned? A. You mean part of the 51-inch pipe line?

Q. Yes. Where they connect? A. No, I think not.

Q. Have you got a map, Mr. Hill, which has indicated on it the pipe lines and ownership, divided by ownership (hands witness map)? A. I have never seen this map before.

(Map, Exhibit P1, is hung on rack.)

Q. I call your attention to Exhibit P1 which shows the owners of the property, and is the part that was owned by East Jersey that you have referred to the part indicated on that map? A. I see by the map the East Jersey Water Company is the owner of all interest in the pipe line from Station 964 plus 59 to Station 1012 plus 73, which is opposite the Newark reservoir where it joins the Kearny line.

Q. Yes. A. But I have not that ownership so distributed in my inventory.

Q. In addition to the property which the East Jersey owns jointly with the other companies is owned that pipe line and Venturi meters you have described.

Does it own any other property that isn't jointly owned? A. A few parcels of land.

Q. You made an appraisal of the East Jersey Water Company's property and of the Kearny Water Company's property, did you not? A. Yes.

Q. Did you appraise the real estate or did you do what you did in the other two cases with respect to that? A. I appraised only the structural element and took the appraisal of the real estate as given to me by the appraisers, the real estate appraisers selected by the company.

Q. In appraising the other property, the Venturi meters and the pipe line of the Kearny and East Jersely Companies did you use the same method in forming your judgment of the fair values that you did in respect to the property of the Acquackanonk Company and the Montclair Company and the Passaic Company? A. I did.

Q. You have already testified to the values of the jointly owned property. A. Yes.

Q. What, in your opinion, was the value of the Kearny Water Company's property, the plant owned by the Kearny Water Company as of the date you made your original appraisal, December, 1920? A. On the basis of legal ownership, $200,000.

Q. The Kearny Company? A. Yes.

Q. That is practically just the pipe line? A. Yes.

Q. You took a certain unit value of pipe, did you? A. Yes.

Q. And the cost of installing it? A. Yes.

Q. And used the same method as you did with the Aquackanonk? A. Absolutely the same.

Q. Used the same units? A. The same units.

Q. With the East Jersey Water Company what value of the property according to legal ownership—

A. I might answer that, the previous question, a little more accurately. I think I testified in the Aquackanonk case that I had considered the book value, the capitalization, the cost on the basis of ten year average prices, current prices and the investment worth as based on the relative value of the dollar today with the prewar dollar, and I have formed a judgment of the entire property on that basis. That is all on the constituent property.

Q. Including the Kearny Company? A. Including the Kearny and East Jersey and that I place at $13,000,000 and distribute in proportion to the ownership to get the value of the respective properties.

Q. What was the value of each of the companies forming the system as of that date and on that basis? A. As I have already testified, the Aquackanonk Company $2,940,000.

Commissioner Osborne: Is this in the form of an exhibit somewhere?

The Witness: That is as of, as I remember, July 1st, 1922—January 1st, 1922, as I recall.

Commissioner Osborne: January 1st. You are giving us the values you placed on all these companies.

The Witness: Yes.

Commissioner Osborne: The Aquackanonk first.

The Witness: The Aquackanonk I have already testified, $2,940,000; the Montclair Water Company, $2,010,000; the Passaic, as I have already testified, $5,430,000; the Kearny Water Company $200,000; the East Jersey Water Company $2,420,000; all on the basis of legal ownership.

Q. In appraising the land you took the value which the real estate men gave you? A. Yes.

Commissioner Osborne: What is that?

Mr. Wherry: In appraising the land he took the value the real estate men gave him. He didn't attempt to appraise the land.

Commissioner Osborne: The values that are in evidence in this case.

Mr. Wherry: Yes, except I am going to supplement in regard to the Kearny and East Jersey, which haven't yet been put in.

Q. Mr. Hill, in the case of the Aquackanonk you have given the actual cost of capital additions since that date, haven't you? A. What I testified in that case was that the value which I gave of $2,940,000 was the value as of December 31st, 1920; that I had ascertained the capital additions since that date up to and including January 1st, 1922, and also ascertained the depreciation that would have to be deducted for that period and it would not appreciably change my opinion of the value of that date. I think I have gone into that in my testimony.

Q. That same thing is true with respect to the value of the East Jersey and the Kearny Companies? A. Yes.

Commissioner Osborne: What you say is if you added new property since January 1st, 1922, and then deducted depreciation you would get substantially the same amount.

The Witness: I can't say about that, because I haven't looked into the improvements.

Commissioner Osborne: I thought that is what you said.

The Witness: No. I said between December 31st, 1920, and January 1st, 1922.

Mr. Wherry: He doesn't know what has been done since January 1st, 1922.

Commissioner Osborne: I find your total is $12,980,000 for all these companies.

The Witness: $13,000,000.

Commissioner Osborne: $13,000,000?

The Witness: Yes.

Commissioner Osborne: I may not have heard your figures correctly.

The Witness: $2,940,000, $2,420,000, $200,000—

Commissioner Osborne: $2,420,000?

The Witness: Yes.

Commissioner Osborne: I thought the Montclair Company was $2,010,000.

The Witness: $2,010,000. Passaic $5,430,000 and Kearny $200,000 and East Jersey $2,420,000.

Q. Mr. Hill, in order to determine a fair return for the East Jersey Water Company what would you have to have, what would you have to include in a rate base upon which to calculate your net return? A. You would have to include not only the property which is owned individually by the East Jersey Water Company, but also the East Jersey's proportion of ownership of the joint ownership property.

Q. You would have to include the Kearny property? A. That wouldn't enter into the rate base, but in ascertaining the fair return for the East Jersey Water Company I have included an annual allowance or an annual sum of approximately $28,000 as the payment from the East Jersey Company to the Kearny Company for transporting the water between the points just mentioned.

Commissioner Osborne: Mr. Hill, do these figures include any depreciation?

The Witness: That is my estimate of the fair present value as the term goes.

Commissioner Osborne: You did depreciate the property?

The Witness: Yes. In all cases where reproduction estimates were made, proper allowance for depreciation was also made.

Commissioner Osborne: Does this $2,420,000 the value placed upon the East Jersey Company, include not only the property it owns outright, but its interest—

The Witness: In the joint ownership property, yes.

Q. Mr. Hill, did you—

The Witness: May I continue?

Q. About the Kearny Company? A. I included, as I said, an annual rental or annual charge of $28,000, approximately, which the East Jersey would pay to the Kearny Company to cover interest, depreciation, taxes and operating and maintenance expenses of the pipe line from the point where the Kearny Company connects with the East Jersey to Newark and Belleville Avenues in Kearny.

Commissioner Osborne: You made that part of the capital?

The Witness: No, I included that as part of the operating expenses of the East Jersey Water Company.

Q. That is equivalent though to adding in the capital base the value of the Kearny property. A. That is true. It makes the return of the East Jersey Water Company include the amount necessary to pay a fair

return on the property of the Kearny Water Company.

Q. Now, then, the East Jersey Water Company, in order to determine what a fair return for it to charge from the customers taking from the East Jersey Water Company would be, did you treat the plant as a whole or treat it in accordance with legal ownership, actually owned by the East Jersey Water Company? A. I treated it according to a whole and not according to legal ownership.

Q. What does that involve in the way of a division of the plant to the different districts served? A. That involves a distribution of the capital investment or the physical property between the companies in accordance with the use made of the properties rather than the legal ownership. As an example, the 42-inch line, which runs from Little Falls to Paterson under legal ownership is the property of the Passaic Water Company which supplies Paterson. But that pipe line supplies a considerable quantity of water to the Acquackanonk Water Company for distribution in Passaic and in order to get an adjustment between the territory served by the Passaic and the Aquackanonk Water Companies, it would be necessary to distribute that pipe line in accordance with the use made of it and not according to the legal ownership in that pipe line.

Q. Will you please confine your answers to the East Jersey Water Company? A. I just used that as an example.

Q. Take the East Jersey Water Company as a specific company. They are part of jointly owned pipe line which the East Jersey Water Company owns and the other companies own in common. A. Yes.

Q. In order to determine what proportion of the fair return on that pipe line the different customers ought to pay, you would have to apportion the pipe line, the value of it among those customers in accordance with use. A. Yes.

Q. That is the way you did it? A. Yes.

Q. Did you make a calculation to determine upon what capital base the customers of the East Jersey Water Company ought to pay a fair return? A. Yes.

Q. If the system was treated as a whole. A. Yes.

Q. Can you give me that figure? A. On the basis of use the capital base of the East Jersey Water Company would be $4,700,000.

Q. The East Jersey? A. Yes. That is compared to a distribution on the basis of ownership of $2,420,000.

Q. That is taking the value of the property of all companies as a whole at $13,000,000. A. Yes.

Q. What effect would that have upon the rate structure of the other companies if they were treated in the same way? A. The rate structure of the other companies on the basis of use is lower than on the basis of ownership.

Q. Can you give me those proportions? Take Passaic. A. The Passaic Water Company value as I have given it on the basis of ownership is $5,430,000. On the basis of use it would be $4,020,000. The Aquackanonk Water Company on the basis of ownership is $2,940,000 and on the basis of use $2,580,000. The Montclair Water Company on the basis of ownership is $2,010,000 and on the basis of use $1,510,000. The East Jersey Water Company on the basis of ownership is $2,240,000 and on the basis of use $4,700,000. The Kearny Water Company on the basis of ownership

$200,000 and on the basis of use $190,000, or substantially the same.

Q. The total in both cases is $13,000,000. A. The total in both cases would be $13,000,000.

Q. Then in order to work out the fair return for the customers of the East Jersey Water Company you take a rate base of $4,700,000? A. Yes.

Q. What rate of return did you assume as a fair net return? A. Eight per cent.

Q. You worked it all out in your allocation of 1920? A. December 31st, 1920.

Q. Did you take the construction figures in determining the use as of that date? A. Yes.

Q. Have you got any table that shows that use? A. I took the construction as of that date with certain modifications as the basis of the rate.

Q. Tell us just how you got that use. A. The modification of which I spoke was due to the fact that formerly the East Jersey Water Company supplied a large amount of water to Jersey City, for example, and of course Jersey City in developing its own source of supply will not consume that water in the future and that was one of the corrections, for example, that was made in the allocation of the rates.

Q. What percentage of the property, of the total property is used by the East Jersey Water Company on the basis of use? A. On the basis of use, did you say, Mr. Wherry?

Q. Yes. A. On the basis of use 36 per cent.

Q. That is more than one-third of the total water supply, supplied through the East Jersey Water Company, is that it?

Commissioner Osborne: How much; 36 per cent?
The Witness: 36 per cent.

A. I should say that was substantially true, but there are other factors that enter into that, of course.

Q. What other factors? A. Well, for example, in apportioning the joint ownership property between the companies there are other factors than the quantity of water supplied which enter in. For example, the pumping engines, we have distributed the cost of the pumping engines at Little Falls pumping station, we have distributed it in proportion not alone to the water pumped but the water pumped times the head pumped against. In other words, there are two factors that enter there that would apportion the cost, the amount pumped and the head pumped against.

Commissioner Osborne: That is the amount pumped for each company?

The Witness: Yes.

Commissioner Osborne: And the head pumped against?

The Witness: Yes.

Commissioner Osborne: The reason for that statement being, if I understand you correctly, assuming that a given pump pumped for company A 100 or 100,000 or 1,000,000 gallons and for company B the same amount, that wouldn't necessarily mean the cost should be equally distributed.

The Witness: That is true.

Commissioner Osborne: Company A might be pumped to a very high level and company B to a low level, therefore, the cost in pumping for company A would be more than water going to company B.

The Witness: Yes.

Commissioner Osborne: How do you relate those two elements?

The Witness: It is really apportioning the pumping

pumping station equipment on the basis of horse power required to give the service, because the horse power is proportionally the quantity of water times the head pumped against.

Commissioner Osborne: In other words, both elements are reflected in the horse power required.

The Witness: Yes, so it really resolves itself into an apportionment of the cost of horse power, to distribute properly the specific boilers of one company or another or the engines of one company or another where the quantity alone would not do it. Similarly the transmission mains we have taken into consideration not only the quantity of water transmitted, but the distance it is transmitted.

Q. What? A. The distance transmitted, so you have a mere volume basis there for the distribution of the interest in the pipe line.

Q. In building up your rate structure in order to get the gross amount of revenue which the rate should produce for the East Jersey Water Company you would have to have what other elements besides the net return which you have given, what factors? A. A fair and proper allowance for depreciation; the proper allowance for taxes and the proper allowance for operating expenses.

Commissioner Osborne: You included Federal Income taxes?

The Witness: Yes.

Commissioner Osborne: Do you think it is proper to include those?

The Witness: I do, sir.

Commissioner Osborne: In view of the decision in the Galveston case?

The Witness: I may be wrong in my interpretation of it, but I have felt that Judge Brandeis ruled in that case that the Federal Income tax was a proper charge. I think he left it rather up in the air how it was to be distributed. I think the decision clearly indicates it is proper to include Federal Income taxes as a tax.

Mr. Wherry: As I interpret that decision it has to be charged in rate of return where it is an operating expense—

Commissioner Osborne: The only question was whether it could be paid out of operating expenses or paid out of rate of return and my interpretation of it was he held it should be paid out of rate of return.

Mr. Wherry: But he divided it into two parts and got it so mixed up you couldn't tell how much was operating expenses and how much rate of return.

Commissioner Osborne: In order to clarify Judge Brandeis' opinion you have to turn to the Circuit Court of Appeals case in which he evolved that case and you will find a much more lucid explanation of it and I think you will have no difficulty in reaching the conclusion it was not properly operating expenses.

Q. In this particular case you have included it in operating? A. Yes.

Q. Mr. Hill, taking these different elements you have given us, have you testified yet what the total gross operating expenses of this plant as a whole system, as a whole would be? A. No.

Q. You have given the operating expenses of the Aquackanonk Company and the Montclair Company. A. Yes; and Passaic.

Q. I would like to have the total for the whole system. In order to ascertain— A. Yes. In some respects.

Q. Not the whole? A. Not the whole.

Q. To ascertain the operating expenses for the East Jersey Water Company you have to have the expenses of the property as a whole, do you not? A. Yes.

Q. Can you tell me what you estimate, what operating expenses as of December, 1920, you used as a basis? A. As a whole?

Q. Yes. A. Give a complete statement or estimate of the gross annual income required?

Q. Yes. A. I estimate on $13,000,000 base, a fair return of $1,040,000, taxes $466,000—

Commissioner Osborne: What per cent?

The Witness: Eight per cent on $13,000,000. Taxes $466,000; depreciation reserve $156,000.

Commissioner Osborne: What percentage is that?

The Witness: About 1 1/2 per cent.

Commissioner Osborne: What is the amount?

The Witness: That is $156,000.

Q. One and one-half per cent of the depreciable property? A. One and one-half per cent of the depreciable property, yes, I should have added that; less than one and one-half per cent of the $13,000,000 and operating expenses $579,670. Total gross income required $2,241,670.

Q. Can you give us the detail of the taxes so as to show what proportion of that is federal income tax? A. Yes.

Q. Of the $466,000, $216,000—I may say at the beginning of this, that the $466,000 may not total precisely to the cent with the detailed figures I will give you; it is a rounded figure. The personal and

property taxes, real and property taxes are $306,000; the state franchise tax $70,000; income tax $86,500; capital stock tax $3,500.

Commissioner Osborne: Is that all?

The Witness: That was all.

Commissioner Osborne: What was the figure of $216,000 you started to state?

The Witness: I made a mistake.

Q. To ascertain the fair share of the operating expenses which the East Jersey Water Company ought to bear, how did you allocate them? A. Take the total taxes, I allocated to the Aquackanonk Water Company 21.6% on $100,800; the East Jersey Water Company 30 1/2% or $142,000; the Kearney Water Company, 1.3% or $6,100; the Montclair Water Company 12.8% or $59,800 and the Passaic Water Company 33.8% or $157,300.

Q. What was that basis? A. That is on the basis of use. Did you want the basis of ownership?

Q. You say the East Jersey had use of 36% of the total plant? A. Yes. The taxes vary. There are other things besides real and personal property taxes; there are other factors that enter in there.

Q. That is the total taxes? A. The total taxes.

Q. The real property tax, did you divide that, the value of the property allotted on the basis of the use? A. Yes.

Commissioner Osborne: You allotted all these taxes on a different basis.

The Witness: Yes.

Commissioner Osborne: In other words, the real property was actual property.

The Witness: The real and personal property taxes were based on the—

Commissioner Osborne: Ownership?

The Witness: The proportion of the property—

Commissioner Osborne: Used?

The Witness: Used. The state franchise tax, which is based on the revenue derived from mains in public highways, except water derived from sale of water wholesale direct to municipalities, was proportioned between those companies who had mains in the public streets and sold water retail. So the East Jersey has got a small state franchise tax.

Q. That would explain the difference? A. Yes, in percentage.

Commissioner Osborne: The income tax was—

The Witness: The income tax was apportioned on the basis of the revenue which the company received under this allocation and the capital stock tax was based on the capitalization, proportion of the capital stock—

Commissioner Osborne: The income tax in each case was the same because you figured 8 per cent return applicable to all companies?

The Witness: Yes.

Q. Now then, how did you divide the total depreciation? A. The total depreciation was divided up on the basis of the gross cost of the depreciable property allocated to each company on the basis of the use and—

Q. That is, the East Jersey would pay 36.1 per cent? A. No. On the basis of the depreciable property the Aquackanonk Water Company would pay 20.7 per cent of the total depreciation; the East Jersey 31.6 per cent; the Kearny 2.1 per cent; the Montclair Water Company 13 per cent and the Passaic Water Company 32.6 per cent.

Q. A larger proportion of land, that does not increase that; that is just those percentages? A. Yes.

Q. The other operating expenses of this system, how did you divide them? A. The operating expenses were apportioned as follows—

Q. You got the total gross operating expenses, did you? A. Yes.

Q. What did you use as your total gross operating expenses? A. I gave that as $579,670.

Q. Yes, but is that the operating expenses for an average period or for a particular year or an estimate— A. That is substantially the operating expenses for a full year's— Well, I will put it this way: That is not the operating expenses necessarily, for an individual year, but an adjusted operating expenses made by the operating expenses of the company for the period of several years prior to this estimate.

Commissioner Osborne: Does that take in the peak?

The Witness: Taking in the peak.

Commissioner Osborne: The normal water peak.

The Witness: But makes allowance also—there have been deductions made to correct the quantity and also to correct for other items in operation which probably will not be involved in the future. In other words, the company shows by their books, by their statement, operating expenses of $821,473.

Q. For the year 1920? A. For the year 1920 and my allowance was $579,670.

Q. How did you arrive at that modification? A. That modification was due first to the saving in chemicals and the operating expense cost at the filter plant by reason of the elimination of service formerly given to West Orange and a reduction in chemicals and operating expenses at the filter plant due to the reduction

in consumption of Jersey City when the Jersey City supply was developed; it was due to a deduction of $35,000 extraordinary repairs to the filter plant in 1920 and to deductions for unusual repairs to the Kearny Water Company; it was due to a reduction in the amount allowed as the proper payment for the services of the Kearny Water Company by the East Jersey Water Company, the company formally paying the Kearny Water Company $48,000, which was reduced to $28,000; it was due to the elimination of intercompany payment and it was due to a deduction of the annual payment which the company which the companies made to the Society of Useful Manufactures and the Dundee Water Power & Land Company for diversion rights which they subsequently purchased and that about covers the item.

Q. Well you took the actual operating expenses for this system, the combined statements for six years, did you, Mr. Hill? A. Yes.

Q. 1915 to 1920? A. Yes.

Q. And then you took the operating expenses for the year 1920? A. Yes.

Q. And modified those operating expenses by deducting those items you thought the company wouldn't have to meet in the future? A. Yes.

Q. The difference gives you this figure? A. That is correct.

Q. How did you divide that total among these companies and what proportion did you allot to each company? A. On the basis of use the Aquackanonk Water Company $113,413 or 19.6 per cent; the East Jersey Water Company $224,362 or 38.7 per cent; the Kearny Water Company $2,500, or four-tenths of a per cent; the Montclair Water Company $78,984

or 13.6 per cent; the Passaic Water Company $160,411 or 27.7 per cent.

Q. How were those percentages derived? A. Those percentages were arrived at by taking the apportionment of the total operating expenses as allocated in proportion to the total of the entire operating expenses of the affiliated companies.

Q. Did those vary with the quantity? A. It varies somewhat with it, but there are other elements that enter into it as well.

Q. What were those other elements? A. The operating expenses? I can give some examples: The operating expenses at the pumping station at Little Falls were apportioned in the proportion of the horsepower used by the different companies.

Q. For the reason you have just explained? A. Yes, sir. And the maintenance operating expenses on the transmission line in proportion to the length as well as the volume of water. In other words, it doesn't accord strictly with the volumetric basis.

Q. Mr. Hill, will you give me the total gross revenue which the rate of the East Jersey Water Company should produce as derived from this method.

Commissioner Osborne: Just a moment before you proceed with that line of inquiry. Have you a tabulation which will show the substance of the testimony which you have just given?

The Witness: I could have an exhibit, yes.

Commissioner Osborne: That would clarify the situation without reading and piecing together a lot of this testimony, if you could put it in the form of an exhibit.

Mr. Wherry: I will put these tables in the form of an exhibit and put them in evidence at the beginning of the next hearing.

Commissioner Osborne: That would simplify it for everybody.*

Q. What I asked you for was the total gross revenue which should be derived from the rate of the East Jersey Water Company.

Commissioner Osborne: Have you that in the form of an exhibit?

The Witness: I can have it prepared.

Commissioner Osborne: You haven't it now?

The Witness: I haven't it here.

Commissioner Osborne: What have you?

The Witness: Just my notes.

Commissioner Osborne: That haven't been offered yet?

The Witness: No.

Commissioner Osborne: Go on.

The Witness: Divided by companies?

Q. No. I just want the East Jersey Water Company? A. The East Jersey, $791,662.

Q. Gross operating expenses? A. That is the gross total revenue required.

Q. That is made up— A. That is made up of returns of 8 per cent, $376,000; taxes $142,000; depreciation $49,300, and operating expenses $224,362.

Q. The service which the East Jersey Water Company renders is a wholesale service, is it? A. Altogether.

Q. In order to determine what rate should be charged to each customer there did you consider whether it was fair or equitable to charge a uniform rate or whether it was better to classify the customers, fairer to classify them with respect to

*Exhibit p. 23, post.

some— A. I felt a uniform wholesale rate would be an equitable method of charging for the water.

Q. There is no large discrepancy in regard to pumping and that sort of thing as to the customers of the East Jersey Water district as a class? A. The principal difference is the distance to which the water has to be transmitted.

Q. Are the variations great there? A. I didn't think it was sufficiently great to justify a special rate for each of the wholesale consumers.

Q. Then what unit did you use as a fair unit on which to base the charge for this service? A. The average rate resulting—I will put it this way: The average rate required to produce the revenue of $791,662 is about $108 a million gallons.

Commissioner Osborne: May I ask, are these municipalities who have their own street systems considered wholesale customers in your statement?

The Witness: Yes.

Q. Practically all the customers here have their own distribution system, haven't they, Mr. Hill? A. Yes.

Q. All the customers have their own distribution system.

Commissioner Osborne: $108 you figure as the wholesale—

The Witness: As the rate at the meter for the wholesale consumers.

Q. What does that amount to per 100 cubic feet? A. That is roughly about $76 per thousand cubic feet.

Q. Seventy-six cents you mean? A. $76 per thousand cubic feet.

Commissioner Osborne: What is Bayonne's consumption now?

The Witness: I think the average rate—they have a sliding scale rate, depending on the quantity of water consumed. My recollection is the average paid per million gallons is about a little less than $30, as I recall; approximately $30.

Q. The total number of million gallons of water that you take was derived from the readings of six years prior to 1920, or based on 1920? A. It was based substantially on 1920 consumption.

Q. Did you check it the way you did the operating expenses? A. Yes.

Q. To determine whether that was normal? A. Yes, by taking the readings of the meters of different customers on the East Jersey line.

Q. Did you make any attempt to check that as against the classified schedule? That is, sometimes it is customary to make a sliding scale according to the number of million gallons, is it not? A. Yes.

Q. You didn't attempt to work out any such schedule? You simply took the average for any class of customer regardless of whether he took 20,000,000 or 500,000? A. Yes. Of course, a sliding scale could be developed on an average basis of $108 per million gallons.

Q. Do you know approximately how many million gallons Bayonne takes, for instance? A. I don't think I have that data with me, Mr. Wherry, as to the consumption.

Q. Does the East Jersey furnish water to the Dyer pipe line? A. No, that is the Passaic Water Company.

Q. That would not enter into this? A. No.

Q. Mr. Hill, what territory of the system as a whole do you consider as belonging to the East Jersey district; what territory were you working on there?

A. The East Jersey district or the district apportioned to the East Jersey included the territory within the municipal limits of the Borough of Totowa and West Paterson, the Township of Little Falls, the Towns of Bloomfield and Nutley and the municipalities east of the Passaic River now supplied through the Kearny pipe line, including the Cities of Bayonne and Jersey City, the Towns of Harrison and Kearny and the Borough of East Newark or, in other words, all of the service now rendered by the East Jersey and Kearny water companies, with the service to the Borough of Totowa added.

Q. This method of working out a schedule of rates assumes the system being treated as a whole, does it not? A. Yes.

Q. But you make no distinction between property as far as legal ownership goes, but simply apportion it in accordance with the cost so that will fall upon that part of the customers who are demanding the service. A. That is correct.

Q. Is that correct? A. Yes.

Q. What is the distinction between treating the system as a whole and treating each company as a separate company? If you treat them as separate companies how do you work out those rates, what basis do you use? A. Then I was forced, of course, to use the legal ownership as the basis for the rates.

Q. Because the company was entitled to a return on property used and useful in the business? A. That is correct.

Q. If the companies were treated as a whole so that the actual legal ownership would be disregarded there would be a modification of the rates so that these other companies that comprise the system in order to con-

form to this schedule, to divide with the East Jersey, would there not? A. That is correct.

Q. The East Jersey Water Company is joint owner of the property? A. Yes.

Q. And has the right to use that property? A. Yes.

Q. It doesn't pay any rental for the use? A. No.

Q. Can you give me in percentages what the gross operating revenues, what the gross revenue to be derived for each of these companies would be on a system of jointly owned companies, a single system rather than separately owned companies? A. I didn't get the distinction you made there.

Q. Assuming that these companies were all treated as different divisions of one company? A. Yes.

Q. The whole system as a whole, what would be the proportion of the gross income as allotted between those companies? You have given the percentage, I think, as you went along, but I want to get them together in order to put that in the form of a table and submit it. A. Yes. I can submit this in the form of a table.

Mr. Wherry: Then I will do that. That is all I want to put in with this witness at this time.

Newark, N. J. Wed. Nov. 1, 1922.

NICHOLAS S. HILL, Jr., resumes the stand on behalf of petitioners:

Further direct-examination by Mr. Wherry:

Q. At the last hearing you were asked by the Commissioner to prepare in the form of tables, a synopsis

of the testimony you gave. Did you prepare those tables? A. I did.

Q. Have you got them there? A. Yes (producing tables).

Mr. Wherry: I will ask to have this marked in evidence and Mr. Hill can state what those tables are.

Tables of synopsis of Mr. Hill's testimony marked Exhibit P23.

Q. How many sheets have you furnished the Board? A. Three to the Commission.

Q. Will you state briefly what this Exhibit P23 is, what those tables are, please? A. The first table is a combined statement of the operating expenses of the East Jersey and the associated water companies for the years 1915 to 1920, inclusive.

Q. Including 1921, too? A. No, not the first table. The second table is a table of reconciliation of the operating expenses for 1920 as shown on the annual report to the Board of Public Utility Commissioners with 1920 modified operating expenses which I used in computing the revenue necessary to give a fair return on the fair value of the porperty. This table has following it, an explanation of the deductions which have been made in the operating expenses to 1920 as shown on the table of reconciliation. Attached to this table are the reconciliations stated at the last hearing and explaining the items.

The third table gives a distribution of the modified operating expenses to the various companies as used in working out the rate of individual companies.

The fourth table is a summary of the allocation of the service costs between the different companies

on the basis of the use of the property and is the basis on which the value is distributed between the different properties.

The next table is a subdivision of the total taxes between the companies which is used in establishing the rate on the basis of use.

The next table gives a subdivision of the depreciable properties between the companies on the basis of use and as well as the annual depreciation reserve which would be set aside by the respective companies on the basis of the use of the property and is the table.

The next is a statement of the modified gross revenue for 1920 and is followed by an explanation of the modifications which were made by me in order to ascertain the fair gross revenue which would be required by the companies.

The next table is a table of the operating revenues, operating deductions, depreciation and net non-operating revenues for the year ending December 31st, 1921, simply bringing the operating expenses and the other data up to date, as the first table only gives the operating expenses up to and including the year 1920.

This is followed by a supporting detail giving the operating expenses in a greater detail than is shown on the general table for 1921.

Then follows a table giving the same information for the first six months of 1920 on up to June 30th, 1922. That is as far as we can carry the information forward at this time in regard to revenues and operating expenses of the company for this year.

The next table gives the additions to the various companies, the capital additions to the various companies for the year 1921, and following that for the

six months of 1922. That gives the total capital additions, also the deductions from capital account during the same period.

Q. What were the total capital additions? A. The total capital additions were approximately four hundred and twenty-eight thousand dollars.

Q. And the deductions? A. Two hundred and forty thousand dollars, making the net additions to plant $188,389 as of June 30th, 1922.

Q. Did you use substantially the same value, the present value that you gave? A. Yes. My value of the property as of January 1st, 1921, was thirteen million dollars and adding the capital additions and deducting the capital deductions the value would be $13,188,389, as of June 30th, 1922. So that, as testified to the other day, the difference was not one that I could make any particular point of.

Q. Those are all the tables? A. Those are all the tables.

Mr. Wherry: Now, may it please the Board, Mr. Hill was put on out of the regular course. I put him on a little out of his turn; I understood they wanted to complete Mr. Metcalf's cross-examination. I will put Mr. Metcalf on now and tender him for cross-examination.

Commissioner Osborne: You are through with Mr. Hill's direct?

Mr. Wherry: Yes.

Commissioner Osborne: And when you are through with Mr. Metcalf you want to offer both for cross-examination?

Mr. Wherry: Yes.

Petitioners' Witness, Leonard Metcalf, Direct

LEONARD METCALF, resumes the stand on behalf of petitioners.

FURTHER DIRECT-EXAMINATION by Mr. Wherry:

Q. Mr. Metcalf, when you valued the properties, to which you have testified, the Aquackanonk, the Montclair and the Passaic Company, you also valued the Kearny and the East Jersey Companies' property, did you not? A. I did, sir.

Q. Does this Volume 2 contain the inventories of the properties of the Kearny and East Jersey Companies as to the prices that you considered the most accurate criterion of value? A. It does.

Q. What were those prices? What prices did you use in that Volume 2? A. The prices that I considered fair for the reproduction cost estimate.

Q. After considering all the different criteria that you mentioned? A. Yes.

Q. Did you make the same study of the Kearny and East Jersey Companies you did of the other properties? A. I did, sir.

Q. Have you prepared a table which would show in summary form the value of the property of all of these companies as a whole without attributing to each company the value of the particular property of that company? A. I have, sir.

Q. That includes the Kearny Company? A. That includes Kearny. Shall I give two of them to the Commission?

Q. Yes. Just let me see it.

Mr. Wherry: I will offer that in evidence.

Volume of inventories of Kearny and East Jersey Companies marked Exhibit P24.

Q. Now, Mr. Metcalf, will you state briefly what this exhibit shows? A. This exhibit connects up the results of my value as of December 31st, 1920, with the present date. I have taken the fair value as fixed by me as of December 31st, 1920, and have shown the additional value of the water rights which were not included in that, the water rights purchased from the S. U. M., and the betterments and have deducted the depreciation allowance covering the period of 1921.

Q. The betterments are from December 31st, 1920, to what date? A. To December 31st, 1921, for the period of one year. Since this date was obtained I have also examined the additional construction and betterments on the property and that substantially offsets the depreciation allowance which would be made in the corresponding period of time.

Q. It didn't change it? A. So that my basic figure would not be changed. I want to call your attention to one figure in that which is different from the earlier exhibit I gave.

Q. The one marked as an exhibit under the Passaic Water Company? A. That is right, sir, under the Passaic Water Company. I found when I came to review those figures, there was included in the betterments of 1921 the 30-inch pipe line which had been included in the reproduction estimate as of December 31st, 1920; so that there was a duplication there.

You mean that the property was embraced in the reproduction cost estimate, but hadn't been entered so the books show it as of the later date? A. That is it exactly, therefore, I have made that deduction from the actual betterments here, of that amount. I also call attention to the fact—

Q. In other words, this seventy-nine thousand dollars wouldn't correspond with the books of the Passaic Water Company for that period, is that correct? A. That is right. The total amount is $295,560.

Q. On the books? A. On the books, being due to—

Q. Of that $216,715 you already include in the $5,837,000; that appears in the first line there under Passaic Water Company? A. Property covered by that item, yes.

Q. The property covered, you valued that? A. That is right, sir.

Q. Is there any other matter which you want to call attention to in regard to the Exhibit P24? A. I don't know of any other; otherwise it is in accord with my earlier figure.

Q. When you valued the property as a whole, of all these companies, what, in your opinion, was the fair value of the properties, as of July 31st, 1922, the whole system? A. In round figures, $14,300,000.

Q. This is regardless of which particular company has the actual legal title of any of the real estate of the company? A. That is taking the property as a whole.

Q. Have you made any examination of the prices today to see whether you would change your idea of what the fair price would be if made as of today? A. I have, sir. I have followed the trend of prices during the months which have elapsed since I testified.

Q. Are they higher or lower than when you formed that opinion? A. Somewhat higher; perhaps three to five per cent higher than at the earlier date. The

increase during the year has been perhaps five to ten, eight to ten per cent, waterworks property.

Q. You have taken into consideration there might be such fluctuations? A. Yes, sir; I have. I don't care to make any change in my value.

Mr. Wherry: Judge Treacy, I tender the witness to you for cross-examination.

CROSS-EXAMINATION by Mr. Treacy:

Q. Mr. Metcalf, you examined and appraised the same properties as are involved in this proceeding on behalf of the companies in or about the year 1912? A. I did, sir.

Q. What was that appraisal made for? What was the purpose of that appraisal; do you recall? A. Well, I think the primary cause at that time there was pending the possibility of their making a metropolitan water district in this section of the state and the taking over of that property as a nucleus for such a district; and, therefore, we co-operated, as I have stated in my report, with the state authorities in making an inventory and I made a valuation of the property.

Q. In other words, at that time, it was expected that the state would take over the properties, is that correct? A. Well, it was in the air.

Q. You made the values for the companies for the purpose of selling to the state at prices which you thought the company could sell to the state or what you thought the company should get from the state or for any other purpose. A. Or for any other purpose; I didn't make it primarily for that. I was asked to value the properties. I did value the properties.

Q. But the value you found then was the fair sale value? A. I was asked to find the fair value of the property.

Q. Which you expected your client ought to get for those properties if it desired to sell? A. Well, I thought that was the fair worth of the property; if that is what you mean?

Q. Now, do you recall what you valued those properties at in 1912? A. My value was about one-eighth higher than the value of the Public Utility Board.

Commissioner Osborne: Was higher?

The Witness: About one-eighth higher, yes; but I have used in this report, as you remember, Mr. Osborne, their figures.

Q. You don't mean the Public Utility Board? A. No, sir.

Q. You mean the State Water Supply Board? A. If that is the exact title. I always forget their name.

Q. The State Water Supply Commission? A. The State Water Supply Commission, that is it.

Q. In making the value in this present proceeding did you use the valuation which you made in 1912? A. I used the valuation found by that Board as a starting point in finding the value as of that date, in bringing forward—

Q. Have you got that valuation in your notes? A. I think so.

Q. Will you please state what the valuations found at that time for these properties of these several companies were? A. The value of the entire property fixed by the Board of Appraisal as of December 31st, 1912, was I believe, $8,721,300, excluding the rights

of diversion against the S. U. M., and the Dundee Company, and that is to a "willing purchaser possessed of the power of eminent domain." I quote those last words; I find that note on page 17 of Volume A.

Q. You haven't the values of the separate properties there? A. I haven't them right here. I can get them.

Q. Who found that value? A. That was—

Q. Is that your value or the Board's value? A. That is the Board's value; the Board consisting of Mr. Clemens Herschel, Mr. Dabney H. Maury and Nicholas S. Hill, Junior.

Q. Mr. Hill was on that valuation, was he? A. He was on that Board, yes, sir.

Q. You thought that was an approximately fair value at that time? A. Yes.

Q. In that value I notice you exclude the water rights, the S. U. M. water rights and the Dundee water rights. You just read it? A. Yes.

Q. If you exclude them in that valuation why were they included in this? A. They had been treated the same way in the first instance. They were not excluded in that valuation because—

Q. The statement you read shows they were. A. That price excludes them, but in their valuation of course attention was called to the fact they were paying for the water as purchased wholesale.

Q. I understood you to say that price was a fair price at that time for the State to pay for the properties of these four companies. A. Excluding the rights of diversion from the S. U. M. In other words, it would have carried with it the necessity for going on and paying for water at the schedule rates taken from them in order to compensate them for the use of those rights. That is perfectly clear in their report.

Q. In that valuation you had a going value in a large sum for the right to divert water, hadn't you? A. I had only the right to divert water as against the Beattie Manufacturing Company, not at all against the S. U. M. or the other riparian owners on the stream below.

Q. In order to make up that value at that time you had to place a value on these water rights of the S. U. M. and the Dundee, did you not? A. No; I did not. I think I am right in stating that. I have no recollection of having done that.

Q. Did not the Board? A. The Board, yes; but you asked me if I did not, personally.

Q. You haven't that data among your notes, have you? A. What they placed on it?

Q. Yes. A. I can give it to you.

Have you found that, Wentworth? That is clearly set forth in their report. I will take your figures on it, if you have it before you.

Q. Would that be a fair value, that the Board set upon those rights at that time, as of your judgment? A. As of that date?

Q. Yes. A. For the S. U. M. water rights?

Q. Yes. A. No. My impression was the value was somewhat higher than theirs.

Q. You didn't make any value? A. I did not, no.

Q. Did you investigate to determine what that was? A. In a sense, yes. In another sense, no. I didn't make a detailed value of it. I concluded to base my valuation rather on the theory that the existing relationship would continue and they would pay for water purchased wholesale as they had theretofore.

Q. Mr. Metcalf, I understand you to say you have the values that were placed on all these properties in

1912. Can you please look at them and let us have them? A. You mean the Board's report?

Q. Your own and the Board's your own particularly. A. I haven't my own volume. I dare say the Board has one here. What can I give you?

Q. The values you placed upon each of these five constituent companies of this system in 1912. A. I placed a value on the entire property of nine million nine hundred thousand dollars excluding—

Commissioner Autenreith: What is that figure?

The Witness: Nine million nine hundred thousand dollars excluding the water rights as against the S. U. M. and the Dundee companies.

Q. And how was that made up as between the separate companies?

Commissioner Osborne: Is that all the companies?

The Witness: That is all the companies, yes.

Q. How was that split up? A. I can't answer that. My gross reproduction cost estimate of all of the companies was $10,099,000. Now I can split that up for you, if you like.

Q. All right. A. That is divided as between the Passaic Water Company—

Q. That is excluding diversion rights? A. Excluding diversion rights referred to, in all cases. Let us be clear on that point. $4,590,000.

Q. That is Passaic? A. Passaic. Acquackanonk, $2,165,000. Montclair, $1,832,000. East Jersey, $1,293,000. Kearny, $219,000. Total, $10,099,000. That was the reproduction cost estimate and I found the fair value of the entire property as comparable to that sum $10,099,000, or $9,900,000, excluding the water rights referred to.

Q. Did that include the Beattie water rights? A. It did include the Beattie water rights.

Q. In the present inventory and appraisal that you have presented I understood you to say you adopted this method of finding a valuation which would be based upon the average of prices for the decade, 1910, to 1920; is that approximately correct? A. I used the 1912 report of the Board as evidence of the fair value under pre-war conditions as of the date of December 31st, 1912; I did, sir. I ought perhaps to add, treating as I had before the S. U. M. water rights independent of the rest of the property.

Q. And what you produced was the reproduction new cost or value of the property? A. From that?

Q. Yes. A. Not at all, sir.

Q. What was it? A. That was the estimate on a pre-war basis of the value.

Q. Well, it was pre-war reproduction, wasn't it? A. Pre-war prices; reproduction on the basis of pre-war prices.

Q. Plus what? A. Plus nothing. I used it as a basis for determining the several yardsticks I used; first as to the pre-war price yardstick, then I brought it forward by factors to determine the 1920 price yardstick; if that is what you want.

Q. That is what I want to get. Why did you adopt this particular method? A. I thought it might be helpful to the Board and it was free from any influence of the effect of war conditions. This estimate was made before the war, so that I was confident that no other consideration had any influence on the estimate.

Q. But the value that was found by you under war conditions include war conditions. A. Which value are you talking about? Are you talking about the fair value or the different yardsticks?

Q. The final value. A. Certainly, yes, it does. Of course, in my judgment it should.

Q. Then you did not use the yardstick you say you set up? A. That was one yardstick I used in arriving at judgment, yes.

Q. Can you tell to what extent you used that yardstick? A. Why, specifically, no. I don't think any man can tell the extent to which he used any yardstick, if he has a series of values and then after studying them he finally finds the value as a matter of judgment.

Q. So I think, to quote the question of the president of the Board, apparently what was done was you threw the whole thing into a pot and then brought out a valuation based upon what you consider the property would be worth in 1920. A. Well, if the pot is the brain of man, I suppose that is true.

Commissioner Osborne: What you do is to evolve a number of yardsticks of different kinds.

The Witness: Yes, sir.

Commissioner Osborne: And use your judgment as to what constitutes a yard.

The Witness: Yes, that is right.

Commissioner Osborne: As applied to this proposition.

The Witness: As applied to this proposition. I don't know how otherwise to define it here. It is a matter of judgment finally, as all financial matters are.

Q. Did you make any effort to find a value based on the prudent investment in the property? A. If you mean by "investment" value, what the property—what the value of the structural items might have

cost at the time of their construction or purchase; I did not.

Q. No; I don't mean that. I mean what a prudent investor would have invested in the property. A. What do you mean? In the securities of the property?

Q. No; in this property; a prudent investment value as defined by the Court. A. Well, if I understand you, Judge Treacy, correctly and the interpretation of the Court, the investment value in the property is synonymous with the original prudent cost of the property.

Q. Precisely. A. That is what I first stated; I did not do that.

Q. Nor did you make any attempt to ascertain what was the historical cost of the property? A. Yes; we did. That couldn't be determined.

Q. Why? A. The records were not available.

Q. Were not available? A. Were not available.

Q. By the way, did you see any of the records which I referred to today, amongst which were reports of earnings and expenses for years prior to the year, 1902, and construction expenses? A. I haven't seen them—

Q. Those weren't shown to you? A. Recently. Whether they were shown to me originally or not I couldn't tell. We were given free access to everything the company had.

Q. Probably you were, but you didn't see those. A. You assert that. I don't know whether that is true.

Q. You don't know whether you saw them or not? A. I can't answer; I don't know. I do know my men were in and out of the office with the records of the company. It might well be they did see them; I don't know; but I was convinced at the time and I still be-

lieve it to be the fact that historical cost cannot be determined. These records are not available. I shouldn't attach any particular importance to them if they were. At that time they would have more significance than they would today.

Q. If you could have found the historical cost you would have used it. A. I would have presented it with the other yardsticks of value. I would not have assumed it to be the value of the property.

Q. You would not have presented it as your value of the property? A. It would not be my final value. It would have been one of the yardsticks which I would have presented.

Q. Like all other yardsticks, you would have thrown it aside and used your own final determination of the value, based on your judgment. A. I don't throw them aside. I make use of them in arriving at an end.

Q. In making up your values of the properties of the East Jersey Water Company, including the real estate, you have included $106,644.81, for real estate and rights of way for the Passaic Water Company; $106,000 for the East Jersey and twenty-six thousand dollars, in round figures, for the Passaic Water Company. Do you know whether all the items included in that amount are used and useful to the respective companies? A. Well, I gave you the other day the items which I had in mind as covering the unused properties.

Q. P8 and P18 are real estate schedules. I ask you if you know, whether all the items included in that item of one hundred and six thousand dollars in P19 for the East Jersey Water Company and twenty-six thousand dollars in P8 for the Passaic Water Company are used and useful? A. Will you show me the

exhibits so I may make sure we don't talk at cross purposes?

Q. (Counsel hands witness exhibits.) I don't care so much about P8? A. What figure on the last sheets that were put in today have you in mind? I was looking at the figures you state and I didn't seem to find them on there.

Mr. Treacy: There is a duplication here, apparently.

The Witness: If you will help me to identify the items you have in mind.

Q. Did you include the Kikeout reservoir or the reservoir site? A. I will have to go back and refresh my memory; I can't tell offhand.

Q. Will you look that up during recess? A. What is the Kikeout reservoir?

Q. You can't tell whether the—

The Witness: What is the Kikeout reservoir? I don't seem to identify it by that name.

Mr. Wherry: It belongs to the Passaic Water Company and is the reservoir site back of Butler.

The Witness: Then I shall have to go back to my records to make certain that I am right in my statement.

Q. Then if you did include it you would say it was used and useful in the company's service of the public? A. I shall have to refresh my recollection with regard to that, Judge Treacy. I shall do so this noon. I know it by another name; Stoney Brook reservoir.

Q. No; that is not the same? A. Is that what you refer to?

Q. Would your assistant know that? If so, let him answer it.

The Witness: Can you identify that, Wentworth? If you are referring to the Stoney Brook—

Q. No. Kikeout is up above Butler and the Stoney Brook is in Paterson two different reservoirs? A. That is included, Judge Treacy, I find on page 213 of my Exhibit 1, Volume 2, that it is included in the reservoirs which have been held by the company. It is included in what? A. It is included in the property which is owned and held by the company.

Q. Now, was that property ever used by the company? A. No. To my recollection that has been held for future development by the company; it has not been developed and is not in active use as a water works structure.

Q. It is not used and useful at the present time for the service of the public? A. It is not in use for the service of the public at the present time.

Q. Yet you include it in the value of the property? A. Yes. I think that was included, yes.

Q. How can you fit it into this present system so as to justify your finding it is entitled to a return? A. I shall have to refresh my recollection in regard to that reservoir in order to answer that question. It is a long time since I touched that matter, Judge Treacy, and I can't answer your question.

Q. If it isn't used and useful and there isn't any prospective use, it shouldn't be included? A. I think that is true. I agree to that.

Q. And the value you put upon that reservoir, if that is the case? A. Yes, if that is the case.

Q. You can show it is used and useful? A. No. I said I would look that up during lunch hour.

Q. You admit it isn't used and never was used? A. That doesn't necessarily follow.

Q. You admit it never has been used? A. That is my present recollection, sir.

Commissioner Osborne: How much is that?

The Witness: Seventy-two thousand dollars, the real estate item.

Commissioner Osborne: Why did you put it in?

The Witness: On the theory that certain properties very frequently are purchased and held for the future by companies and that that was within that class, for the future use of the public, that the ultimate cost to the public would be less on that basis.

Q. The same would be true of the Stoney Brook reservoir? A. I don't think the same is true. If my recollection serves me right the Stoney Road reservoir was not used at the time this valuation was made in 1920. Since that time the middle reservoir has been put into service and the Stoney Road reservoir is out of service today.

Q. Yes; that is practically abandoned? A. I think that is probably true; except in the case of an emergency they are not planning to go back to it.

Q. What emergency could you conceive of that would make it necessary to use the Stoney Brook reservoir? A. In case of local breaks that would make it advantageous to use it.

Q. Wasn't the Stoney Road reservoir abandoned because of the fact that sufficient fire service could not be rendered from it to the cities of Paterson and Passaic? A. Yes, because the elevation was not as high as was desirable for good fire protection service.

Q. It is of no use to any other part of the system? A. No; that is true. I think today it is somewhat different from what it was in 1920 when the value was made.

Commissioner Osborne: Is there water in it?
The Witness: Yes.

Mr. Treacy: This is a reservoir included in his valuation which is not used by the company.

Commissioner Osborne: I understand this Stoney Brook reservoir is made use of in case of breaks. Now I was trying to inquire in case they wished to use it in an emergency if it was in condition to be used?

The Witness: Mr. Cuddebach tells me, your Honor, the reservoir is empty today. That was not the case in 1920.

Commissioner Osborne: It wouldn't be of much use in case of a break.

The Witness: Not unless it was filled.

Q. You included it as used and useful in your valuation? A. I did. At the time that valuation was made in 1920 it was in use; the lower pressure was in service.

Commissioner Osborne: How much was that?

Q. You bring it in this last exhibit you presented today which you have brought down to date, this value is of 1921 or 1922? A. I think it should be excluded from the reproduction cost estimate, that is right.

Mr. Brown: What is the value?

The Witness: Can you give me the reference to the item, if you have it before you, so I can tell the Commission what the valuation I placed on it was? I don't remember offhand

Commissioner Osborne: It is there.

The Witness: Yes. Wentworth, will you look up the residual value on that reservoir? The Commissioner asked what value I have in my reproduction estimate as the fair price.

Commissioner Osborne: When you brought that item and the preceding item down to date, did you add appreciation?

The Witness: Yes. The same factors were applied with respect to this structure as they were to the other structures. With respect to the real estate, the real estate was revalued.

Commissioner Osborne: So that in this Exhibit P24, which purports to bring your value down to date, from that must be deducted not only the amount at which you appraised these two reservoirs, but the amount of appreciation which you added.

The Witness: No, sir, that would not be true; there should be deducted from the reproduction cost estimate of those structures and from the other yardsticks which were used, whatever allowance there was for the value of the reservoir according to those other yardsticks. You will recall, however, I have taken a value which was somewhat less than the reproduction cost estimate; in that case, anyhow. In dealing with the amount involved, you are dealing with hundredths of per cent of my entire value of the property, which, of course, is getting down to a degree of precision—

Q. Well, an item of eighty-seven thousand dollars for the land value alone, for the Stoney Road reservoir isn't such an insignificant item? A. That is true. It would be excluding—let us see what the percentage would be—one per cent of my value would be a hundred and forty-six thousand dollars; I guess that is close—it is, one-tenth of the value—

Q. No matter whether it is tenths or hundreds, it is an element to be considered; you can't brush them aside? A. No.

Q. A hundred and forty-six thousand dollars? A. Those two items together?

Q. That is, including Kikeout and Stoney Road. A. I don't know whether you have to add them together or not.

Q. That is just Stoney Road; that is just the Stoney Road reservoir; you have reference to that? A. If you will refer me, Judge Treacy, to the figure, I will answer your question.

Q. Don't you know your own figures? Who made this appraisal and inventory? A. You haven't submitted the figures to me or asked me to look them up in the inventory.

Q. Please produce those figures for the Stoney Road reservoir?

The Witness: Wentworth, please produce the figures from—

Q. These are your figures and your book; you ought to know where those figures are? A. When you value a property a couple of years ago with thousands of items you don't readily place your finger on what you want at a moment's notice.

Q. Page 74? A. We have that. The summaries of the land and the reservoir amount to $235,882.

Mr. Wherry: Stoney Brook or Kikeout?
The Witness: All together.
Mr. Wherry: Both of them?
The Witness: Both of them together.

Mr. Wherry: May it please the Commission, we don't raise any issue in regard to

Stoney Brook; that hasn't been included in the rate base. But we do raise an issue as to Kikeout, which is included in the rate base, which is held for future use and development. You have to carry certain properties for development. Those figures should be separate. We make no issue of Stoney Brook; we haven't included it.

Mr. Treacy: You have included it.

Commissioner Osborne: This witness says—

Mr. Wherry: He counted it in his value, but we haven't included it in the rate base.

Mr. Treacy: We propose to show Kikeout isn't used or useful either.

Mr. Wherry: Separate those?

The Witness: Stoney Road, the real estate and the gross reproduction cost of the property was $163,219. I am trying to look up the depreciated value of the property now. $150,010, if I am not in error.

Mr. Wherry: That is the depreciated value of Stoney Brook, isn't it?

The Witness: Yes.

Mr. Wherry: What is the value in regard to Kikeout?

The Witness: $72,662.

Mr. Wherry: Is that depreciated?

The Witness: That is the land values alone.

Q. Please state how that is made up, that one hundred and fifty-two thousand dollars. A. It is made up of depreciable structural value of Stoney Road, $60,200 and of the land $89,810, making a total of $150,010.

Q. Do you happen to have the figures as to Kikeout? A. The land is $72,662.

Q. And any improvements? A. I think not, sir.

Q. Any easements from there down valued by you? A. I don't recall now. I shall have to go back to the records to find out.

Q. An casement for a pipe line? A. I will have to look that up.

Q. Will Mr. Wentworth know? A. Yes. He is going to turn to the records and see. There are four different—five there, I believe, four of which were excluded. There is, if I am right in my statement, one item of two hundred dollars—

Q. What page? A. 213 of Volume 2.

Q. Did you include the standpipe and the pipe line in West Orange Township in that value? A. I think I did; no, they were omitted.

Q. They were omitted? A. They were omitted Mr. Wentworth tells me. They were probably omitted.

Q. Did you include the pipe line that goes up from Montclair to West Orange and the standpipe? A. I am not sure about that. Can you state offhand?

Mr. Treacy: Do you know, Mr. Wentworth?

Mr. Wentworth: I think they were included.

ed.

Commissioner Osborne: Do you know?

The Witness: Let us look up the records and answer specifically. It must be in this mass of data somewhere. I will have to look that up for you, Judge Treacy. You are getting back now to the 1912 appraisal. It is too long ago to remember that.

Q. I am talking about your appraisal. Did you include in your appraisal the pipe line between Montclair and West Orange leading to the standpipe? A. As I say, I shall have to look it up for you. We think not, but we will have to look it up at luncheon.

Commissioner Osborne: You better make a note, Judge, of the questions which you ask and which are deferred for the purpose of examining the record and then ask the questions again after lunch. You haven't had an answer and of course, he naturally wouldn't remember after a long time just what he did or didn't do.

Q. Do you know whether you included the 24-inch lock bar pipe line running through Montclair? A. No; I can't answer you offhand. Will you identify just what you want? In Montclair from where to where and in what street or connecting—

Q. Mr. Potts will point it out to you. A. All right. So the question will be perfectly specific and then we can answer you.

Q. The 24-inch lock bar pipe line running through Montclair used in connection with the West Orange service. A. I shall have to look it up for you.

Q. Did you include in the property valued by you in this proceeding the Upper Totowa reservoir? A. I think I did, sir. Let me see. I have the Totowa reservoir, the middle reservoir with the residual value of forty-five hundred dollars and the Totowa reservoir $16,200.

Q. That includes real estate? A. That is the reservoir itself without the real estate.

Q. What did you include for the real estate? Does that include the real estate? A. No, sir; I think not.

Q. That is the reservoir without the real estate? A. That is the structure.

Q. How about the real estate? A. I find on page 212, Judge Treacy, that the lands including the reservoir lands, which cannot be separated readily from the

others about them, aggregate $67,824 and that item as you see by the footnote, was segregated into the two accounts, the reservoir land ♯128 amounting to $42,984 and the structures account ♯134 amounting to $24,840, aggregating the sums, I mentioned.

Q. Aggregating what? A. Aggregating the sum of $67,824; that includes the lands upon which other buildings about there are located.

Q. Is that reservoir used in the service of the company at the present time? A. Well, it is used. I shall have to ask Mr. Cuddebach that question, whether it is used today or not. I think it was at the time the value—

Mr. Cuddeback: This is Totowa?

Mr. Treacy: The Upper Totowa reservoir.

Mr. Cuddeback: Not used, not being used today.

The Witness: It is not, then.

Q. Was it used at the time you made your appraisal? A. I think it was, sir. Yes; Mr. Cuddebach says it was.

Q. As of December 31st, 1920; was that in use December 31, 1920?

Mr. Cuddeback: No. 1912.

A. Yes, 1912.

Q. Not as of the date of this appraisal presented by this witness. A. Then I am in error in that, Judge Treacy. It was in. My recollection is not right.

Q. Is there any reason why that should be included in your valuation of this property? A. I don't at the moment know that there is, sir. If that is of use—I shall have to discuss that with Mr.—

Q. Did you go and examine these properties yourself and value them? A. I did. I examined them several times, but a long time ago.

Q. Did you examine them in 1920? A. In 1920 I went over, I think, most of these properties.

Q. How did you happen to have included here items which admittedly are not used in the service of this company? A. Well, it was still the property of the company and might have been included on that account.

Q. You included any property that the company had whether used or not? A. I haven't tried to account for all property owned by the company at the time. I have tried to make a list of the unused property. Apparently there are some items I overlooked in regard to unused property.

Q. Did you state in your list of unused property the Stoney Road reservoir, the Upper Totowa reservoir and the Kikeout reservoir? A. No; I think not. I think not. I think they were overlooked at those points.

Mr. Brown: Have you the value you claim should be excluded at this time?

Mr. Treacy: He has given it. The reservoir land, $67,824, he has given the structures at about $20,700; they are to be added together.

The Witness: No. One was a portion of the other. I gave you the two items aggregating sixty-seven thousand dollars.

Q. You said you couldn't tell whether you had the lock bar main running through Montclair included in your valuation. A. Yes.

Q. Will you refer to your Volume 2? A. Yes.

Q. Exhibit P3, page 166, and refer to the item designated there as Item No. 4 and tell us what that is. A. That appears to be that lock bar, 17,334 lineal feet.

Q. So you did include that 24-inch lock bar running through Montclair? A. I think so, sir.

Q. Although the company is not supplying any more water to West Orange? A. That is true.

Q. That is what that lock bar pipe line was used for? A. I can't say offhand the company isn't making any use of that lock bar today.

Q. These companies are not supplying water to West Orange now? A. No; I understand not.

Q. So this item of $34,086 which you set forth in this appraisal for that lock bar, 166, Volume 2 of P3, should come out, ought it not, if the property isn't used and useful? A. I think the pipe line still is in use and it is the property of the company. If I am wrong in that statement, that the property is abandoned and is not of service and cannot be used—

Q. It is abandoned to a large extent if they are not supplying West Orange through it? A. The use may not be so active, that is true.

Q. You have included the whole thing? A. Included the whole thing.

Q. Did you include power at West Orange? Well, if you don't know, you might ask your assistant if he knows; if not, look it up.

The Witness: Do you remember, Wentworth, if the tower at West Orange was included?

A. That is not included.

Q. Not included. The item of thirty-four thousand

dollars for the lock bar main doesn't include the cost of trenching? A. No; I believe not.

Q. Or the back filling or repairing of the pavement? A. No; that is true.

Q. Have you any idea how much that would run into, in dollars and cents? A. I can't tell offhand: I will have to look it up.

Q. Will you figure it up during lunch? A. We will, sir.

Q. I show you Exhibit P8A, and call your attention to the map attached to that exhibit and ask you does the long irregular strip marked in red indicate properties which you considered as belonging to these companies? A. My impression is that it is included in these lands. Wentworth, will you look at this and verify that?

Q. Will you find out whether or not you have included that in your valuation? A. I think we shall have to identify that at lunch. We will save time in doing that. Mr. Wentworth is in doubt about it.

Q. You don't know whether that was included as lands of the companies? A. I can't tell offhand, no.

Q. Do you know that an application has been made to this Board within the last few days for permission to transfer or convey that property to the Butler Water Company because it is of no use to these companies? A. No, sir; I do not.

Q. That is the Pequonnock water river bed.

Mr. Treacy: Do you know, Mr. Cuddeback? I will ask you do you know whether that is included? I will let you help the witness on this occasion.

Mr. Cuddeback: I am pretty sure; I don't know absolutely; I am pretty sure there is a value included.

Mr. Treacy: You are pretty sure it is included in the value.

Commissioner Osborne: If he is pretty sure it is included, you are satisfied to take that assurance and go on?

Mr. Treacy: Yes. I will go on.

The Witness: I will look it up, your Honor.

Q. I suppose you can't tell what value you put on it. If that property is property, the Pequonnock river bed, which was of no value except insofar as the supply of Newark with water is concerned and only to be used in connection with the Pequonnock river supply of the City of Newark, with which none of these petitioners have any connection whatsoever; that property ought to be thrown out of the value if it is included. A. It should be excluded from the rate base perhaps.

Q. And whatever value you may have placed upon it, if you have included it, should be deducted from the total of these values you have found. A. If your statement is a fair one I should think so.

Q. You say you went over these properties and yet you can't tell whether that was included or not? A. I went over these properties in detail in 1912, and spent a lot of time over them.

Q. 1912? A. If you will permit me to finish my statement I will state the facts. And in 1920, I made another examination of the property as a whole. It was not made with the same detail that the original examination was. I tried to get in touch with the changes that had come about, and of course, Mr. Wentworth went through the records with the greatest detail, checking up the records and the books of the company to make clear the changes in the property that had occurred within this period of time. I don't

think I did go up to the Pequonnock River, to the Vanaque River in 1920.

Q. Do these companies or any of them supply Glen Ridge any more?

Mr. Wherry: It is in evidence we have a standby service for Glen Ridge and also for West Orange.

Mr. Treacy: You have a standby service for Glen Ridge?

Mr. Wherry: Yes.

Mr. Treacy: But Glen Ridge is not taking water.

Mr. Wherry: We forfeit a sum of money if we don't supply them in an emergency.

Mr. Treacy: Have you a contract with Glen Ridge?

Mr. Wherry: Yes; it has been in evidence in this case, Exhibit P1; it was originally put in.

Mr. Treacy: All right. Is there a standby contract with West Orange?

Mr. Wherry: Yes, with both of those places.

Mr. Treacy: That is in that Exhibit P1?

Mr. Wherry: Yes. I am not sure whether those contracts have been changed since, I mean, as far as the terms. They have been extended by lease or something of that kind.

Q. These companies formerly supplied West Orange with water? A. Yes.

Q. And there was a main running through Montclair for the supply of West Orange? A. Yes.

Q. Did you make any allowance for the fact that that main is no longer used for that purpose? A. No, sir, I have not done so.

Q. It isn't fair that the people should be charged

for service through a main which is no longer used for the purpose for which it was originally included. A. I think it may be, yes.

Q. You think the main may be used some time? A. No. I mean this: There are many conditions you would have to take into consideration. I don't think you can scale down quite in such a way as that. If the service had been a special service, a special property had been created and it was amortized in the life of the property and that was taken care of, that would be one condition. If, on the other hand, you simply enlarged your pipe distribution and supply system in order to take care of the business, that supply and distribution pipe system would continue to have value when the community changed the service. I think from the basis—considering it from the point of view of rating, that a fairer proceeding is to include the property in the rating base; but there are various considerations that ought to be reviewed in answering that question specifically.

After recess.

Mr. Wherry: May it please the Board, during the adjournment I had a little conference with Judge Treacy in regard to the use to be made of those papers that Professor Bemis asked for, referred to earlier in this hearing, and I pointed out to Judge Treacy the distinction between the books of record of the company and such carbon copies of papers that are found in the offices of the company, the records being admissions which can be used

against the company and being also facts which the company can put in evidence. He has agreed that if any inferences are drawn from these papers which we are going to turn over, his expert will indicate that he is using those papers, the source of it, so I will not have to develop that by cross-examination.

Commissioner Osborne: That will go to the weight of the testimony.

Mr. Wherry: It goes to the weight of the testimony and they can be used for what they are worth.

LEONARD METCALF, resumes the stand.

Further direct-examination by Mr. Wherry:

Q. You were asked in regard to the Kikeout reservoir. Was the Kikeout reservoir included? Should it be included or not? A. It was included and I think should be included.

Q. Why? A. For the reason that the property controls a very good reservoir site where water can be advantageously developed at very reasonable cost up to amount, let us say, of approximately five million gallons a day. I guess that is all in regard to that question.

Q. The Stony Road reservoir—

Mr. Record: Will you just wait a second? Is it a fact that they have no right to use that without the consent of the State Board?

Mr. Wherry: That is a fact, Mr. Record. We can't use it at this time. We put it in dependent on the assent of the State Board.

CROSS-EXAMINATION by Mr. Record:

Q. Is it any more than a site; you haven't actually constructed a reservoir. A. It is not. It is just a site.

Q. It is a piece of land which might be used. A. Yes.

Q. Never has been used. A. No; it has not been used.

Q. What would you do with it? How would you use it? A. Use it by building a dam, creating a storage.

Q. And let the water into the stream. A. Yes.

Q. Into what stream would it flow? A. Flow to Little Falls where the use—

Q. It couldn't flow to the Pequonnock? A. Yes.

Q. You don't take it into the Newark water supply? A. Yes, we draw their supply from it, too.

Q. If you put this dam in the stream up on the reservoir site, it would simply be enlarging the Newark water supply, wouldn't it? How would you get down here to supply us with water? It would be just as if Newark developed it.

Mr. Wherry: This is below the Newark intake.

Mr. Record: It is below the Newark intake?

Mr. Wherry: Yes.

FURTHER DIRECT-EXAMINATION by Mr. Wherry:

Q. The Stony Road reservoir, Mr. Metcalf, is that included in your value? A. It was included in the value.

Q. You think it should be? A. I think probably not at the present time. I might say, however, that that view is expressed on the theory that probably within the reasonably near future additional reservoir capacity will be created in that section of the city. These reservoirs have—certain reservoirs, like the middle reservoir, have been out of service for a period of time and gone back in service again. That is the case with the middle reservoir. I am inclined to think that property may fairly be considered excluded at the present time.

Q. This 24-inch pipe running through Montclair, used for the Orange service: In your opinion should that be included? A. It should. I think Judge Treacy labored under a misapprehension. The pipe line was not built for the West Orange service. It is absolutely essential, as I see it, to the proper fire protection service for the City of Montclair; water is furnished through it to all three levels at the present time and the existing pipe line distribution system in the City of Montclair would not, without that, in my judgment, be adequate to furnish good service to Montclair. The 24-inch pipe wouldn't have been built to furnish the water that was required by West Orange.

CROSS-EXAMINATION by Mr. Record:

Q. If West Orange had not been included in the company's business at that time would a pipe line of this size and capacity have been built? A. I think so. In other words, I believe it was built primarily for Montclair service and not for West Orange.

Q. You don't know about that? A. No.

Q. You were not there at the time. A. No. The company acted; but I think that is the fact, Mr. Record.

FURTHER DIRECT-EXAMINATION by Mr. Wherry:

Q. Take up the Totowa reservoir, is that included; should that be included in the property used and useful? A. I think the statement which I made with regard to the Stony Road reservoir might also apply to the Totowa reservoir; that that might fairly be excluded, there being some doubt about it at the present time.

Q. Were there any other pieces of property that you were asked to look into during the recess? A. What Judge Treacy designated as the pink strip of lands on the Pequonnock River were not included by me.

Q. They were not? A. They were not. They are included in the inventory and then deducted subsequently under item 150 of this Commission.

Mr. Wherry: That is all.

FURTHER CROSS-EXAMINATION by Mr. Record:

Q. One more question in regard to the Kikeout reservoir site. The company has had that for many years, haven't they? A. Yes, it has.

Q. It hasn't needed it in order to supply these towns that are in litigation here? A. If by "needed" you mean has not the company been able to supply the towns without it?

Q. Yes. A. That is the fact. It is my impression, indeed I know, that the company considered using it some years ago, I think something like four or five years ago within the limit of valuation.

Q. Hasn't the company taken the position in this litigation, and in public statements, repeatedly, that the flow of water at Little Falls was today sufficient and likely to remain sufficient for an indeterminate number of years, treated as they treated it, for the water supply for which it is now devoted? A. Yes. I think it is sufficient, but I think it is a fact that the company had in mind a few years ago the development of that reservoir.

Q. You know, I suppose you know, that the City of Passaic and the City of Paterson, Montclair and Clifton are in negotiation with these companies for the purchase of these existing water companies; I suppose you know that. A. I understand that to be the case.

Q. You know that they represent to the city in those negotiations that this is an entirely adequate water supply without any additions for the indefinite future. A. Yes.

Q. You know they do that? A. Yes.

Q. Do you agree with them on that? A. Yes, I think they have good capacity.

Q. You think for the indefinite future they can supply these towns they now supply out of the flow of the stream, as it now is, treating the water as they now do. A. Yes.

Q. So you see no immediate reasonable necessity for the construction of the reservoir at Kikeout, do you, in order to enable this company to discharge its obligation. A. I think that is true, putting it in that language.

By Mr. Brown:

Q. Just before recess you made notes of several things that you were going to look up and Mr. Wherry has referred to this strip of land along the river bed. You have answered that. Have you answered the other two or three inquiries? A. I have answered all of them; at least I think I have; I have tried to; all of which I have made notes here.

You do remind me of one thing which I didn't think to cover in my notes. I think the question was asked with reference to the 24-inch lock bar pipe at Montclair; what the cost of laying was. That item 4 didn't cover the cost of laying. That was covered by item 17, the amount being forty-five hundred dollars, and the depreciated amount forty-two hundred dollars.

Q. And that item you have already stated should be included in the rate base or base value. A. Yes, sir, because, as I stated a moment ago, this pipe is necessary in the water supply service of the City of Montclair.

Q. In view of the last answer to Mr. Record's last question about Kikeout; you testified both ways on that; that that should be included and then you said should be excluded. A. We are dealing with the question of margin and what is desirable to do, which is a matter of opinion. I put the thing on the question of the necessities of the case and I answered him on the basis of his question, that they have supplied without that and in the indefinite future, I think were the words I used, they would be able to do so. I think that is the fact. It is always a question of how far you want to whittle down your margin in the year of extreme drought, the very short period of the worst

of the drought, how far it is prudent to go, whether you will really at such a time take care of the situation with a curtailment of consumption or whether you will be perfectly certain to have an ample margin even under the very worst peak conditions.

Q. All of those computations of value that have been mentioned, Stony Brook, Kikeout, Totowa and the lock bar pipe, were all considered by you in Exhibit P24, the last exhibit. A. I think so, yes.

Mr. Brown: That is all.

Mr. Wherry: I will put in a little more in regard to Kikeout with another witness. There are other features in regard to that site I want to bring out. I don't know whether Mr. Metcalf knows about that.

Commissioner Osborne: You mean you want to take Mr. Metcalf off the stand?

Mr. Wherry: No. I want to call attention to that fact.

Commissioner Osborne: That will come in your rebuttal.

Mr. Wherry: Yes.

By Mr. Record:

Q. In reference to page 238 of your testimony you spoke of the different criteria you used and you were asked the question which of these criteria of value do you consider most significant in making up your final figure, to which you replied "the fifth I mentioned, which is the depreciated reproduction cost of the property under what I call fair prices for this period of time." A. Are you reading from page 238?

Q. 238, 239, the bottom of 238 and the top of

239. Now, you say that is the most significant of the criteria. What do you mean by "most significant"? Did you follow that to the exclusion of the others? A. Did I what?

Q. Did you mean when you say it was the most signifiant, in your mind that that was the yard stick you took as distinguished from the other criteria? A. Yes. I think it is the most important and the most helpful yard stick of all,

Q. If that is the yard stick the others disappear; that is the one that convinces you and the others are not; is that what you mean? A. No. I don't think you can say that.

Q. What did you mean by saying that was the most significant unless you gave it precedent and go by it; you test up your value by it. A. You give it greater weight.

Q. How much greater weight? A. If you will make a comparison of the valuation as I finally make it with the various yard sticks, your question is answered.

Q. There can't be varying yard sticks. A yard stick is an accurate thing. I am trying to get at which is the one you consider accurate as a yard stick. There is no variation in yard sticks. There can be only one yard stick, that is 36 inches. A. Certainly there can be varying yard sticks.

Q. There can be various yard sticks? A. Without wishing to be discourteous, you don't quibble with my use of the word "yard stick"?

Q. I want to bring out—it seems to me you have used the word inaccurately and improperly—I am trying to get you away, if I can, from the use of loose terms. Which is the criteria upon which you rely? A. As I stated, I regard the reproduction cost at

fair, normal prices, as I call them here, of fair prices, if you choose as the consideration, as the most persuasive consideration, the consideration which is entitled to greater weight than any of the other bases of valuation. Now, if you wish to limit the yard stick, as you say, substitute then the measure of value, if you like, for the word "yard stick." I have used it because it has been very commonly used where valuations have been made.

Q. It is a very improper use, in my judgment, of the word. A. I am sorry I have used it, if that is the case. I had perhaps better have used the term "measure of value."

Q. In other words, if your other criteria ran contrary or gave a substantially different result from this, you would use this as distinguished from the others. A. You would give greater weight in forming your judgment finally to that standard of value, yes, you would.

Q. That means, of course, if they conflicted, one was higher than the other substantially or lower substantially, you would go by this one. A. What do you mean by "go by it"?

Q. I mean, adopt it as your measure. A. No; I never adopt it as a measure. I haven't adopted it as a measure here.

Q. Then you say you don't adopt it as the measure. A. I say my final value is a matter of judgment which is arrived at having before me the results of the applications of different measures of the value of the property and consideration of the property and the character of service which it renders.

Q. And not giving one of the criteria, the position of being conclusive. A. That is true, sir, but—

Q. But it is giving it the position of the most significant and the most important of them all. A. It is, sir.

Q. You don't mean to say how much more weight you give to that than the others? There is no way you can put a percentage on that? A. No.

Q. Distinguish it any more. A. No. I didn't reduce it to percentages.

Q. When you appraised this property in 1912 did you use the same method that you now used in obtaining your most significant criteria of value. A. I think so. I am not conscious there was any material difference.

Q. On page 240 you say that you in figuring up the value of this plaint, you estimated two different ways, you say, "I also figured it on the basis of the actual methods of building up the plant as necessary in working out going value, the going value of the property only putting into service the various portions of the plant on an income producing basis as rapidly as possible. Will you give us the figures you obtained on the basis of the actual method of the building up the plant?

The Witness: Wentworth, do you remember in what volume the independent computation of going values are contained, so I can use those? Both bases are cited in that. He wants both bases. The original as determined for the entire property and as determined for the individual properties.

Q. I ask only for the latter one, built up the way you conceive this company was built up? A. Yes.

Q. If you can get those figures we would like to have them.

Mr. Wherry: You don't object to Mr. Wentworth finding the place for him?

Mr. Record. No. I am not captious about that.

A. If I understand your question, when I made a valuation of the going value element of the property as a whole, my result was $2,062,000 on the reproduction cost basis. When I segregated those amounts approximately on a percentage basis I fixed the Aquackanonk as $468,000; Passaic $892,000; Montclair $377,000; the other two, the East Jersey, being $293,000 and the Kearny $32,000.

Q. To make myself clear—

The Witness: I am going on to point out how I made the independent computation. Then I found Aquackanonk had $515,000; Passaic, $943,000; Montclair $377,000. Now, those are the only independent ones I made and those three—

Q. Those are the ones you made by building up by degrees. A. I did. Those three aggregate $1,835,000 as against $1,737,000 which was what I adopted, which was the original computation.

Q. What I think our people wanted was, how did you arrive at the figures, not the amount, what was the basis of that method of computation, so we can judge something about it. A. The basis of that method of computation is the so-called comparative method of computation based upon the comparison between the earnings of the existing property as compared with a new property which is assumed to be built and to acquire the business of the community as rapidly as it can be up to the stage of the existing property. It is a method that I am sure Mr. Bemis—

Q. How did you do it; what were the figures you used? You must have gotten your total somewhere, by adding up something. A. Certainly we had to. Do you wish the computation for that, on which they were based?

Q. What were the figures you used? How did you get at those figures? A. I can give you those. I have one set, but I haven't a duplication of them. Wentworth, have you an extra set of those here?

Mr. Wentworth: Yes.

The Witness: All right; let me have them, please.

Mr. Wherry: I will offer in evidence my copies of them, if you want.

Mr. Record: I understand the totals appear. You don't have the computation.

Mr. Wherry: Here is the computation. I will have it marked in evidence and give you a copy of it.

Mr. Record: I don't care what you do about that. I want to see it, that is all.

Mr. Wherry: Here it is. I will mark it in evidence.

Computations of going value marked Exhibit P25.

Q. When you say, in your language that you used as the basis the actual method of building up this plant, you don't mean that exactly. You mean you built up a theoretical set of figures based on your theory of how the plant would be built up. A. Yes.

Q. Not on how it was built up? A. No.

Q. You don't use that word actually in the sense of going back and getting the cost of how it was built up actually. A. Not at all.

Q. The word "actually" is subject to a fair meaning. I want to get your understanding of it. A. Your understanding is right.

Q. Take your different criteria, let me ask you this question and see if I can get a definite answer: In using the different criteria if the actual cost of the property was found by you to be ten million dollars you have that information and the reproduction cost figured up fifteen million dollars, if you had no other yard stick or criteria, those were all you had; how would you proceed to make up your judgment between those two? A. Under what conditions do you mean? Under conditions of an old property such as this; extending over the life of this company?

Q. You take this property. A. Taking this property?

Q. Yes. A. Assuming then that this property did in fact cost ten million dollars?

Q. Ten million dollars, yes. A. And that the reproduction cost estimate of the property on the basis of fair prices to be used as of the date of the valuation.

Q. Yes. A. Came to fifteen million dollars. My valuation undoubtedly would approach fifteen million dollars rather than ten million dollars. The variation which might come, would come from consideration of the character of the property, the adequacy, the provision for the future, the character of the service which it rendered and considerations of that sort. In other words, I think that today under postwar conditions that the original cost of the property has very little significance. It had more significance under prewar conditions, but even then it was inadequate; it would of necessity be inadequate.

Take the real estate, for instance; the original cost is not determinative of its value when the real estate has appreciated in value materially, as real estate generally in this country has done in so long a period of time. So, too, with structures, labor costs, within the life history of this plant have gone up very consistently. We will never get back.

Q. If you found—I think that covers the answer to that question—but if you found that the reverse was true and the cost of constructing the property was fifteen million dollars, but that there had been a great reduction in prices over a long series of years and the reproduction cost on your basis of fair prices applied to this property showed ten million dollars; what would you do then? A. I think my value would lie nearer ten million dollars and not fifteen million dollars.

Q. Notwithstanding the fact that the company had invested fifteen million dollars? A. Notwithstanding that. In other words, you have to take into consideration the purchasing power of money. Relatively they would stand in the same position as they did before.

Q. How do you mean "relatively"? A. I mean to say that a certain proportion of the holdings would be as valuable relatively to other property holdings under the new conditions as it was originally.

Q. But they would have a loss of earnings on five million dollars they had actually invested, wouldn't they? From that time they could never earn on five million dollars which they actually put in. Wouldn't that be an injustice to them? A. No, sir; it would not; for this reason: No such transition as that comes about immediately. The transition is a very gradual one and the earnings on their property as a whole would purchase as many goods under the new condi-

tions as the old were the value at substantially ten million dollars instead of fifteen million dollars.

Q. So you figure that they would have the same income in purchasing power. A. Yes, you would; under your statement of the premises.

Q. If it was mortgaged for fifteen million dollars they would have to go and get fifteen million dollars of new money, wouldn't they? A. Now, you are introducing the time element. Probably within the period of time that such a great change as that would take place those conditions would have been equalized. In other words, mortgages don't run indefinitely. To the extent there was a mortgage outstanding it would be a factor, undoubtedly. But on the entire property value ordinarily about one-half to two-thirds, in some cases as much as three-quarters of the value is under mortgage. But your mortgage securities are maturing. I guess they are maturing on this particular property. I don't remember at the moment just what the date of the amortizing of the various bond issues is.

Q. I think we have got your answer to that. A. That, of course, is the way in which the real estate is treated today under the law and I believe the structures follow that same general line of treatment.

Q. Will you turn to page 258 of your testimony? A. Yes.

Q. You say there, these are all proper allowances, three hundred thousand dollars on the property as a whole is a reasonable allowance in excess of the item of materials and supplies, which are included in your working capital. How did you arrive at the three hundred thousand dollars in addition to the materials and supplies? A. There are several reasons and moving consideration. One is the gross income of the

property. I have in certain cases—I didn't do that in this particular case, in this valuation—actually considered how the income was received and how the bill—

Q. If you didn't do that here, I am trying to get at this particular three hundred thousand dollars; what figuring did you go through with and how did you come out with three hundred thousand dollars? Tell us the details of that. A. That figure was a general figure resulting from a consideration of the financial statement of the company, the income and the expenditures and the earnings from the various classes of service. That was set down purely as a matter of judgment in the light of those figures. I didn't in this case make such a detailed—

Q. This didn't come out as the result of a lot of figures you added up, to three hundred thousand dollars? A. No, sir, it did not. I have sometimes done that. I did that in the Spring Valley case, but it is a very laborious calculation.

Q. I don't think it fair to bring in what you did in some other case. A. No, except, Mr. Record, when you have done that sort of thing a few times you come to have a background of judgment perhaps.

Q. You see the unfairness of it, Mr. Metcalf. You give the impression to this Court that you used some other thing as a basis which you haven't here. You have not the records here; we can't cross-examine about them; we can't ask you to state the figures in the Spring Valley case; they aren't here. A. I don't mean to do that.

Q. I don't think it is fair to use that. A. It didn't occur to me the Court would view it in that way.

Q. That is the way I view it and we submit to your sense of fairness you should not use something we can't

check up. I don't question your honesty about it, but we are helpless about that. Mr. Potts has given me some questions about Kikeout; let us go back to it. Do you put yourself behind the statement you can make that reservoir yield five million gallons a day water supply? You know that? A. I don't want to be too positive about quantities. I am speaking from recollection. It is my impression that the drainage area there was something like five square miles, which was the reason for putting it—

Q. You admit the drainage area is the basis of the fair computation of what the area will yield. You used that, all you engineers? A. We do, sir. That is the only thing, the rainfall and the runoff record of the area is also involved; but that is primarily one of the fundamental factors.

Q. You say if it was five square miles it would produce, you could build up a five million gallon reser voir. A. That is my recollection; five to six square miles. In other words, yield three-quarters of a million to eight or nine hundred thousand per square mile of drainage area can be realized, depending on the amount of storage per square mile of drainage area which you have. I don't wish you to take my statement as a precise statement. It was to give a relative idea that it wasn't ten or twenty million gallons nor yet one or two million, I made the statement; I don't attach precision to it; it isn't a precise statement.

Q. Did you take into account in putting the value on Kikeout how you were to handle the Butler Water Company? A. No. I don't think there was any question of handling it. At the time this valuation was made I don't think the Butler Water Company which has transpired since, was on the horizon, as far as I know.

Q. On your theory or method of the use of it you have the water dammed into the stream which would go by their place? A. Yes.

Q. That is your method of the use at Kikeout? A. Yes.

Q. Will you look at page 262 of your testimony? A. Yes.

Q. You have there $275,000 of property in the three companies which you consider is not used and useful. Will you tell the details of those pieces of property which foot up to $275,000? A. Aren't they contained in my records here? I think that was all gone into before, Mr. Record.

Q. We didn't find them so we thought— A. I will have to ask Mr. Wentworth to look those up. He will know where to put his finger on them better than I. I thought they were all in the record.

Q. You say Passaic two fifty-two; Montclair one ninety-nine and Aquackanonk—we can't find those sums. Those are not in detail; those are total sums. A. Yes. They are largely made up of real estate, if I remember rightly.

Q. You can't turn to it? A. I can't turn to it. I will try to look it up for you.

Q. That is all right. A. It is all in the record.

Mr. Wherry: In the exhibits?

The Witness: In the exhibits; my exhibits, yes, sir; the details are contained in my exhibits.

Q. It would save us some little time if you could spot it for us. Page 299, if you will look at that; you testified upon the sinking fund method of computing a reserve. Why do you say that a four per cent sinking fund method of computing a reserve is a better aid to your judgment than a two per cent

sinking fund method or no per cent sinking fund method or any other sinking fund method? A. Primarily, because it comports more nearly to the actual facts of experience and what we do with a sinking fund.

Q. Give us an illustration. A. It is a question of what you can in fact realize. If I made any change I should have been inclined to increase the rate to five per cent rather than a four per cent rate on the theory under present day conditions the company could earn that, the sinking fund could safely be invested on that basis; four per cent in general is a rate which I think most men consider a fair one, one which you can realize on securities which might be taken by a sinking fund. The application of that theory is, from a large number of cases which I have studied, some ten or twelve plants with respect to which I have had the actual records of abandoned property, abandoned structures I mean, as well as a good record with regard to the existing depreciation on the existing structures, seem to line up well with that theory. So that I have used it as an aid to judgment in determining depreciation all through my professional life whether the valuation—

Q. What you mean is that is the expression of your judgment. You don't use it as an aid to your judgment; that is your judgment. A. No. That is not true, Mr. Record, for the reason I have never yet made a depreciation estimate on the basis of assuming reasonable lengths of life for the structure without comparing the results which I get on the application of that theory to the actual condition of the structure. I have again and again in my estimate modified the result of a strict interpretation of that sort to accord with the facts as I saw them. It isn't

fair to say it is an arbitrary application of the sinking fund theory. It isn't. It is used primarily as an aid to judgment.

Q. Have you any definite illustration in this case where you modified the findings by checking up that way? A. There were a number in this case; I don't know whether I can point them out to you. I should have to go back and look them over. I have always been in the habit of figuring them up by setting up the use, the normal useful life and then after the table was set up in that form, going over the individual groups of property to see if modifications should be made to accord with the facts.

Q. We are only talking about the sinking fund method; it isn't the life. We are talking about how you fixed four per cent as a better method than two per cent. A. Your question, sir, was broader than that. The question was in regard to the sinking fund method. If you will address—if you wish me to address myself to the rate, I say the two per cent rate is too low; it leads to unfair results.

Q. Will you turn to page 16 of the second volume of your report; look under account 131. State how you arrived at the different figures contained under the Item 1a venturi meters. How did you arrive at the figures contained there? A. Just a moment. I haven't the figures before me. I don't know where Volume 2 is. Here it is. Page 16?

Q. 16; the second volume of your report; under Account 131. A. Roman 16?

Q. Yes. 131. A. Where did those items come from?

Q. 1a venturi meters. A. 8,280 gross.

Q. Forty-one years life, is it? A. Yes.

Q. $80 for the depreciation? A. Annual amount allowance.

Q. How did you get a $170 at the end of that line; how did you get at those figures? A. A $170 represents the annual sum which would have to be set aside in order to amortize within the remaining life of the property the amount of undepreciated property as figured today. In other words, it is dealing with the future. It is showing you how much would have to be set aside in the sinking fund taking four per cent interest to amortize the—

Q. You used $80 before; why did you use a $170 at the end? A. For this reason, sir: In one case you are dealing with a rate which applied accumulatively from the beginning to the end of the property would amortize that value. In the other case you are stating the sum which applied accumulatively for the reminder of the life of that property would amortize the present value or the difference between the original amount and the depreciation of that same item of property. To put it another way, Mr. Record: Those two figures are on exactly the same basis and the $170 is equivalent to the $80 rate plus four per cent return on the accrued depreciation of $2,100 which is $82 which is—that is it—which would be approximately, you see, $82 plus $80 or a $162; I have gotten a $170. Mathematically it is the same thing.

Q. Isn't it a fact that if the company had put that money one side and actually had a sinking fund it wouldn't be necessary to use the $170 as a figure now. A. That is true, sir, but if they did that it would have done what the Supreme Court of the United States said they couldn't do, lay aside a sinking fund.

Q. I am not talking about that. That brings in another question. In other words, because they didn't put aside a sinking fund you are now increasing it up

to a $170 for the remaining life. A. No. That is not true, because the company is entitled in the remainder of the life of the structure to amortize its present value.

Q. Why any more than from the beginning? A. I am in exactly that same position.

Q. Why are they entitled to amortize that from the beginning? A. They were not.

Q. Why not? A. Legally they were not as the Courts have decided in regard to depreciation.

Q. You mean to say there is an era and time when amortization is legal when it wasn't legal before? A. Exactly, sir. If you will read from the California decision you will see I am exactly right. I will have to send you that. That is the fact.

Q. Mr. Metcalf, you don't pretend to say to these Commissioners that if these people had undertaken to set aside this $40 from the beginning and invest it in Government bonds or any other standard security that anybody on earth would have interfered with them in doing it, do you? A. If I read the decisions aright and if I may say so, as they were read by the lawyers in the Spring Valley case, the Judge of the Court, they did not at that time, and it is my recollection it was in the late 90's that this decision was rendered, recognized the propriety of earning and setting aside through the agency of the rate such an allowance. I do mean that.

Q. You don't mean to say that in the case of these associated water companies in the State of New Jersey as they have been existing under state laws and state decisions that anybody would have interfered with the setting aside of that depreciation account, do you? A. I think it might have been.

Q. Who would have done it? A. If the Court had

followed the same rulings that were followed in those earlier California cases that is exactly what would have been done.

Q. But if— A. (Continuing.) Excuse me; if you will let me finish. As a matter of fact, in the early days the rate problem was not followed as close as it is today. It may well be if companies had been in the habit of doing that at that time, it would not have been; but within my professional lifetime, Mr. Record, the attitude of operators, of bankers of the Court itself in the treatment of depreciation allowances has changed radically. It is totally different today than what it was thirty years ago.

Q. I am not talking about that; I am trying to get at your illustration, as to who in New Jersey, any Court or anyone who would have stopped them from doing it. A. The only way I can answer your question specifically, as I understand it, the only way which it could be done would be under a suit testing the fairness of the rate. Then if the Court had taken the position, which I believe was the position of the Courts of this country in the 90's, the allowances such as you speak of would not have been allowed in the rate.

Q. This California decision is your sole authority for that notion? A. Yes. I will be glad to look that up for you, sir. I know that the treatment of it, of the depreciation allowance in other cases has changed.

Q. You don't understand that this Commission can't order these people to put aside a depreciation fund, do you? A. Cannot?

Q. Yes. A. Cannot order them to do so?

Q. Do you understand they can or cannot? A. I understand the provision must be made in the rate for

taking care of structures that have to be amortized today.

Q. Then how do you get around the California decision? A. The attitude of the Courts have changed completely.

Q. Then that has been reversed? A. That is correct.

Q. When was that reversed? A. The practice was reversed late in the 90's.

Q. You said that was going on in the late 90's; you said that decision was in force; when was it reversed? A. Something like three or four years later and then finally the present practice was established by the Knoxville case, which was in 1901, nineteen hundred—

Q. Then you say the only reason why they couldn't have put the $80 in the East Jersey and the Aquackanonk and these other companies was that for a period of three years there was a California decision, which was knocked out a little while afterwards by the Superior Court; do you take that position here? A. No; I do not.

Q. What is your position? A. I have stated it quite clearly, Mr. Record. Up to that time which was twenty to twenty-five years ago, as near as I remember, it was not the practice—

Q. I am not talking about the practice twenty-five years ago or forty-one years ago. Why couldn't they have put $80 in the sinking fund and bought a little bond with it? A. It was not the practice, as far as I am informed. It was not a practice which was recognized by the Courts and this decision to which I referred took an adverse view as to the allowance of such a fund.

Q. All right. You are putting up here not decisions but theories. You say no such thing was set aside; it was neither a $170 set aside nor $80 set aside. A. There was not.

Q. Then why, when you are dealing with imaginary testimony can't you use your imagination and put down the figures of $80? What is to prevent that? A. You can, if you want to.

Q. If you do then you come to a different result than you have come to? A. Why, yes. You come to a very unfair result, as I have stated.

Q. That may be for this. A. You can do anything you please.

Q. There isn't anything in the California decision preventing you from figuring $81 for forty years? A. I think so, yes.

Q. Oh, you do? A. I do, sir.

Q. What is there in the California decision that prevents us from figuring any way we want? A. Because that is the only indication, as far as I know of what the attitude of the Court was.

Q. You just said it was reversed in three years. A. What of it? It was in practice for many years before, I presume.

Q. You said there was no practice of putting aside a depreciation fund? A. That was the practice, not doing it.

Q. Not doing it? A. Exactly so.

Q. What is to prevent us from putting down these figures $80? You say that a Court decision— A. I say that isn't in accord with the methods of operation; it isn't in accordance with the practice, it isn't in accord with the dictates of the Court.

Q. Why couldn't it have been done since 1900 when

the case was reversed? A. It could have, I suppose; it could have, assuming they could have earned it.

Q. You don't know anything about whether they could have earned it or not? A. I presume.

Q. You actually don't know whether they could have earned it or not? A. Given the opportunity unquestionably they could have earned it. Whether they would have been prevented from doing it by appeal to the Court I don't know, of course. I presume not under those later day conditions.

Q. Will you turn to page 317? A. Yes, sir.

Q. You have got a computation showing that you have assumed a value for going concern value as lying between one and one and a quarter times the gross annual revenue. Will you give us a concrete illustration that shows that? A. My client paid one million dollars for that in the Indianapolis Water Company—

Q. Who was the client? A. The original owner of the Indianapolis Water Company, C. H. Geist of Philadelphia.

Q. They bought the Indianapolis Water Company? A. Bought the Indianapolis Water Company on my recommendation.

Q. They paid a sum total for it? A. They did.

Q. They made that offer in writing to the owners, or made the offer, of course? A. I don't remember any correspondence. The principals got together in conference.

Q. One made the offer and the other accepted? A. That is right, yes.

Q. When they made the offer it was an offer for the whole thing? A. It was, sir.

Q. Do you mean to say that the men who made the offer for purchase said to the other fellow, "I

will give you so much for the property and a sum computed by one and a half times the gross revenue capitalized, as an additional figure? A. I do not.

Q. Do you pretend to say they went through those motions in arriving at that figure? A. He went through those motions?

Q. Yes. A. I do not.

Q. What year was that? Approximately? A long while ago? A. About ten years ago, more or less.

Q. Isn't it a fact what he did was to ascertain the earnings of that company? The condition of the real estate and the equipment and the supply and the pipes, as far as he could learn them, the probable amount to rehabilitate it if it was run down and the probability of those rates being increased or the probability of a Commission decreasing them, and that taking all those factors together he fixed the price; isn't that a fact? A. Undoubtedly he went through some such process. What happened was, he asked me to make a valuation of the property, just as I have done here, and in that valuation was included an allowance for going value of one million dollars and the price was paid.

Q. He asked you to make a valuation? A. Yes.

Q. You don't know what impression any particular item of your valuation made on his mind other than the fact this total value would be there? A. I do know he attached very great importance to this element of value, to the additional value of the property as a going concern over and above the structural value.

Q. Wasn't that determined by the earnings of the company? A. And vice versa, the earnings were determined by what the fair value of the property was.

Q. Not so. A. Why, yes; that is the fact.

Q. Isn't it a fact that a company always tries to get the greatest amount of earnings it can without injuring the business? A. Yes, I think that is so, yes, it wants fair earnings.

Q. If that man brought that property the big thing in his mind would be the present earnings the probability of their continuing or increasing or decreasing, wasn't that it? A. Yes, sir; and the latter fact, which as you say, raises the question of the Public Utility Commission, what it would do, what in the long run the value of the property would be found to be.

Q. Wasn't there such a Commission there then? A. At that moment, no. Indianapolis was fixing the water district then. The law was under preparation at that time.

Q. You advised him as to what the Commission would probably do when it came into the calculation? A. I advised him what I thought the fair value of the property was and what could be established before the Court.

Q. Have you got any other illustration? A. Oh, I know of various properties within my experience where consideration has been given to this element of property. I can't separate the amount, separate the awards on certain boards on which I have sat. What finally, the individual amounts fixed by different men of course, I can't determine. All I could judge by was what consideration—

Q. What that comes down to is, you assumed that in a report to a man. Do you know of another instance in which you assumed that in a report to somebody else? A. Many instances in which substantially that amount has been included in the valuation which

was finally substantially in accord with the value of the property.

Q. Did you arrive at the figure by using that method or did the figure that you arrived at by some other method figure out this way? A. No. I figured it by whatever method I could. That was the most important method by which it was figured out. That was the case, for instance in the Denville case and the Spring Valley case, both of which cases were before the Federal Court.

Q. Did the Federal Court in those cases endorse that rule or say that was a rule? A. No; not that, sir. They did endorse the elements of value and they have attached substantial value to the property which would be covered—

Q. Not that method? A. No, the Court as far as I know, has not discussed the matter of value, not in detail.

Q. You assume that going concern value lies between ten and fifteen per cent of the value of the plant. Can you give us any concrete illustrations of that? A. That also comports with findings, with values of properties, the price at which properties had changed hands.

Q. That is a case of a purchase by a purchaser in the open market? A. Yes. A willing purchaser buying from a willing seller, yes.

Q. The purchaser on the open market is influenced by considerations that don't apply when a Commission approaches the subject, isn't that so? A. I don't think it ought to be so. Generally speaking there are some differences.

Q. Isn't that so, as a matter of fact? A. Fundamentally it isn't so. There may be some variation here and there.

Q. The Commission don't ask people what they could sell this property for if it was in the market; the Commission don't admit any such testimony; it tries to arrive at the value apart from a sale, doesn't it, on the theory there is no sale and there is not to be any sale? A. I think that is the reason—I don't think it is they would reject it; I think they would consider, if properties were changing hands constantly they probably would consider that the best yard stick they could get.

Q. The changing of hands among people depends largely upon the earnings, don't it? A. Very largely, sir.

Q. Whereas this company has to proceed upon the other theory, upon what the earnings ought to be, not what they are; the Commission has to approach the subject from the other standpoint? A. That is true and it isn't true; your implication isn't true. In other words, the purchaser of a property must consider the question of the continuance of the rate. That immediately raises the question of the fair value of the property.

Q. The fair value has been ascertained without reference to the rate, hasn't it? A. Broadly speaking, yes; although I think that the past rate is of consideration in fixing the terms of the future. I think it is helpful to know that.

Q. You think that the rate is an element that should be considered in fixing a rate? A. Yes. I think you can't say you don't consider it at all. You do. It isn't—

Q. Do you consider it as an evidence of value? A. Rather as a fact than as a measure.

Q. Will you give the detailed computation by means of which you arrived at the going value of the three

companies, Passaic, $892,000— A. I have given you that.

Mr. Record: I beg pardon; strike that out.

The Witness: May I say also, with reference to the bearing of that item, as bearing on the method of computation; it has been tested also by the experience of certain communities. For instance, we have a very good example in the experience of the City of New Orleans, in the actual building up not only of its works but of its business. It came into a field which was not occupied by any water company, the existing water company supplied a very small number of customers. We have there an opportunity then of seeing what the going value element of developing the business was. I tested it also recently in the experience of Los Angeles with its new aqueduct supply.

Q. I can't stop you from talking if you want to talk. I am trying to get at the specific operation of those figures. When you speak about New Orleans and some other city, you are talking generalities. If you want to put it on the record I think you have the right to do it after we are through, but I don't think you have the right to do it in answer to my question; then we have to have all that in regard to New Orleans put down on paper, have to have these figures and the earnings and I have to find out the population from you or what population lives in that zone and what their habits were and all sorts of things. I asked you a specific question which don't call for your going into New Orleans. A. I beg pardon. I think you asked me a question whether the method of computation, what had led to it or by what method we had been able to test it. Those are significant and some of those cases have been of importance in

giving a background. Of course, I can give you the detailed figures, if you want them, in regard—

Q. Of course, it is of no value in answer to my question for a concrete illustration unless you give me the figures. A. Yes.

Q. I have to know the facts. New Orleans is a place on the map. A. I am sorry I haven't that here. I have a volume in regard to the thing, for it has been very carefully studied by engineers.

Q. Have you had any personal experience in developing a new water company, starting from the beginning? A. You mean in a city where there was no waterworks at all?

Q. Anywhere; no waterworks at all. You started in with a water plant that didn't exist; not an extension of an old one; brand new; initiating it under your management, or where you had the personal knowledge.

Mr. Brown: At that point: Going value was computed somewhere in one of those exhibits?

The Witness: Yes.

Mr. Brown: That is in P25?

The Witness: Yes. If your question, Mr. Record, is limited to a community in which there was no works of any kind, I don't at the moment remember that I have.

Q. That is my question. A. I was in an office, as a young man, in which they did build, as many of these works as were built in the 80's or early 90's, new works. I have, of course, had to do with very substantial betterments which constituted practically the entire building of the plant.

Q. Mr. Metcalf, I was specific about my question. A. I didn't like, Mr. Record, the implication in the question.

Q. Your counsel can take care of you on that. He can bring out these betterments and all these things. A. I don't know about that. I do know the implication of the question—

Commissioner Autenreith: Let us not quarrel about it.

The Witness: It was not fair.

Q. What do you think the rate of return should be for a fully developed property such as this? A. I should think eight per cent, more or less.

Q. Eight per cent more or less. If it was undeveloped property, what do you think the rate of return ought to be? A. I don't know what you mean by "undeveloped property"; you mean the property didn't exist?

Q. You spoke of arriving at a method of this going concern value by assuming that a developed company that had a going business could go out and borrow money cheaper than the company that had to be built new with the risk of whether it would be a success or not and I have just used your illustration there to see if you could put a rate on each of those two; that is what I had in mind. If it isn't clear, then I won't press it. A. You would have to define the conditions more closely, Mr. Record. If you were going into a brand new venture under hazardous conditions you might say fifteen to twenty-five per cent. If the conditions were more stable I should say from ten to fifteen per cent.

Mr. Brown: In normal times?

The Witness: The difference is very slight between normal times and the present day conditions. I think we are not far from normal times now, sir.

Mr. Brown: As I understand, Mr. Record's question was directed to that very point. That is, a new plant in the course of development during a period it is in hazardous position, what the rate of return would be.

The Witness: Broadly speaking, if you were basing your construction instead of using it by hindsight; that is, if you were getting your money before construction rather than after, under those conditions it might make a difference I should think of two per cent more or less.

Mr. Brown: Eight per cent more or less in one case?

The Witness: Eight per cent more or less.

Mr. Brown: And ten.

The Witness: Or seven or nine; you have to define your conditions more closely than that to enable me to answer your question.

Q. On page 31 of Volume 1, of your report you estimate $391,000 as the capitalization at six per cent of the annual saving which has been affected during the past ten years at Little Falls by the use of hydraulic power and steam as against the use of steam alone. Will you give us the details of how you arrived at that figure? A. The saving?

Q. You figured that up. How did you figure it up? How did you get the $391,000? What figures did you use to get that total? Give us the details. A. I divided 39,700 by six per cent—wait a moment. No; that answer isn't right. Wentworth, can you help me by referring—

Mr. Wentworth: Page 45, Volume 4.

The Witness: I arrived at that figure in this way: I have first the gross normal reproduction cost as

of December 31st, 1920, of the revised amount of Account 123 covering hydraulic power pumping equipment $225,200.

Second, the estimated additional annual cost involved by repairs and maintenance, depreciation and interest at six per cent on above amount $22,833.

Third, the estimated actual average annual saving in operation expenses during the period of 1912 to 1921, $39,700.

Fourth, the net annual saving resulting from the water power plant, that is, resulting from the use of water power rights, being the difference between those two last stated sums and amounting to $16,900.

Fifth, the value of water power rights based upon six per cent capitalization of the net annual saving during the past decade would then amount to $281,000.

Adding the increase in net annual saving of one-sixth of the average saving during the past decade from 1912 to 1921, I have fixed the saving during the past decade $39,700. Item 3 already above referred to.

Adding one-sixth or $6,600, I get a total of $46,300; deducting Item 2 above, that is, the $22,800 and that leaves me a net amount of $23,500.

The value of the diversion and power rights then at six per cent capitalization of these savings would be $391,000. In getting the savings I figured the difference between the cost of operating by steam and operating by water as actually developed by the company in the months of use of steam and the water by the particular plant.

Q. Can we have those details? A. Yes, you can.

Q. You haven't them there, have you? A. Yes;

I have them here. I haven't any duplicate of this. I shall have to send that to you.

Q. If you will do that; we would like to have all those figures.

Mr. Wherry: Have you pages you could mark in evidence and then substitute copies of them?

The Witness: I will do it.

Mr. Wherry: Have you sheets you could put in?

The Witness: I haven't sir. I can go back and get that if you wish me to do so.

Mr. Record: We would like to get that just as quick as we can. Can't we make some arrangement by which you can get at that calculation so we can take off what we want of that?

The Witness: I think so, sir.

The Witness: I haven't any objection to your having the whole thing. It is a complete study; it is a mass of details and our counsel, Mr. Wherry, didn't think the Commission would want it.

Mr. Wherry: I am perfectly willing to have marked this Volume 4 in evidence.

Commissioner Autenreith: Does that have the details of it?

The Witness: About forty-eight pages of statistics.

Mr. Wherry: All the Little Falls water rights.

Mr. Record: Then we can have it if you mark it.

Mr. Wherry: Yes.

Volume 4, Little Falls water rights, marked Exhibit P26.

Q. Will you turn to your report, Volume 1, page

20, and tell us as to what is included in the price per ton for pipe paid by the six cities which you there mention; what items are included in those prices? A. Page what of my report?

Q. Page 20, Volume 1. A. To which figures are you referring now?

Q. You used the figures from six cities? A. Yes.

Q. And you give a price per ton for pipe paid by the six cities. Don't you give a figure there? A. Yes, sir; I do, I think I do. Yes. The average figure is there.

Q. Yes, I think you do. You mention different prices for different cities. A. Yes, sir.

Q. What is included in that price per ton? Is that f. o. b. factory or point of shipment? A. No, f. o. b. cars point of delivery. Wait a moment now.

Q. What else is included? A. Wait a moment. Let me go back to the record before I answer that.

The Witness: Wentworth, will you help me in this sustaining evidence? That is the iron pipe they want.

Q. Have you prices by years and quantities by years as applied to each company and city so we can go over those figures? A. Everything is contained in those tables here, only the prices paid by years. I have those prices by years.

Q. But not by quantities. A. I haven't got these in this tabulation. I have in my office in Boston, of course, a lot of those statistics. I don't think I have those here.

The Witness: Wentworth, have I the quantities and tons?

Q. How did you arrive at the figures? Did you take the prices and average them or did you take

the prices and the tons and the different years? A. It is the weighted average, the tons bought. Answering your question specifically: I have for some years received from different companies and men, for instance, Mr. Berry of the New York Water Supply, the prices paid, the total amount paid and the total tons bought of pipe, from which I got the average prices. The Indianapolis Water Company is another one of them, and so on. I think that these other figures, Hackensack and Bridgeport and so on, I had a quotation, too. That came from Mr. Hill because he has had occasion to look up those records of those particular companies. The Consolidated Water Company at Utica was one of my clients and I had the figures there, in regard to those quantities; so that these figures are, with respect to the cities cited, are the weighted average of tons bought.

Q. Did you have the Passaic Company's figures for all those years? A. That wouldn't—yes, I think so. Yes; I have them.

Q. Do you know how those figured out? A. Yes.

Q. The weighted average? A. Yes.

Q. How does that figure out? A. The weighted average; in one year they didn't buy any pipe and during the war period they bought ahead so that affects their results and I am not able to give you a weighted average which would cover the entire period. I could give you the weighted average of what they paid, I think.

Q. Have you got the weighted average of what they paid during the whole ten year period? A. Well, as I say, they didn't buy during the whole ten year period.

Q. I know, it don't make any difference whether they bought or didn't buy; the weighted average is

what they bought in ten years? A. Yes; I will see if I have that, Mr. Record. I think I may have that in here. I shall have to work it up for you; I can do that.

Q. Have you got that list of those six cities with those quantities and all that? Are you going to get that? A. I don't feel at liberty to give you the details of all those, because they come to me confidentially at the end of the year and I send to the individual that furnished the information.

Q. You can't put in here in support of your value a lot of figures we can't cross-examine about, confidential figures that we can't cross-examine you about. Nobody can get away with that. A. I don't know why not. I can put in here the records of the results of the ten years as I have averaged them, as the records have come to me, can't I? I don't mind doing that.

Q. Everyone of those companies are under state regulation and their books are open to the public everywhere? A. No.

Q. The Consolidated Water Company is? A. Of Utica?

Q. Yes. A. No.

Q. Isn't that under the state? A. It is not. That is one of the embarrassments. I dare say they might not object. If they don't I have no objection to doing it. It is merely because I don't want to be unfair.

Q. I don't see how we can allow that testimony to stand. We can't cross-examine. He says that is the average. On that he is very modest, he takes the lower average and we can't check the figures. A. I can give the bulk of these figures if you want them.

I shall have to read them off; I haven't any tabulation.

Mr. Wherry: Give him what you can give.

The Witness: Now, beginning with the year 1911 to and including the year 1920, the ten year period, you want them year by year or do you want the average for the ten year period?

Q. Year by year, please? A. New York City, 1911, 21.50; 22.62; 23 dollars; 20.45; 22.22; 31.13; 57.93; 58.80; 56.66; 79.98; average 39.43.

Hackensack Water Company, 1911, 25.44; 24.29; 26.44; 22.78; 22.77; 28.22; 35.19; 50.10; 50.25; 57.26; weighted average 34.27.

Lest there be a mistake, let me explain what I mean there by the weighted average. I mean taking for each of the years the weighted average of the purchases of those years and then taking for the ten year period the average of the sum of those rates.

Q. The average of the sum of those weighted averages? A. Yes, that is right. It seemed to me that was a superior criterion than adding together the sum of the payments by each, the sum of all the payments for pipe during the ten year period by individual companies and then averaging them on the basis of the total pipe bought, because what I was after was a correct measure for the average prices year by year for pipe. When I have got that year by year then I have averaged that. It is not a straight average, sir. It is a weighted average for the year.

Q. All I want to know is how you did it; I am not debating whether it is fair or unfair at the moment. What did you do and how did you arrive at the figure? A. I have stated what I did.

Summit, New Jersey, 1911; that is the Common-

wealth Water Company: 22.65; 22.99; 26.13; 21.68; 20.81; 21.84; 39.24; 46.12; 50.00; 52.00; average 32.35.

Bridgeport Hydraulic Company. Mr. Hill, is there any objection to my giving those records?

Mr. Hill: No.

The Witness: Very well. 1911, 21.51; 21.16; 21.65; 20.99; 20.17; 24.69; 33.61; 49.23; 51.54; 57.87; average 32.24.

Consolidated Water Company of Utica: 22.81; 22.17; 25.07; 22.23; 21.92; 27.60; 33.58. I am in doubt about the next figure; I think it is fifty dollars; I had it marked the first number and then it is written in fifty dollars. For the year 1919 fifty dollars. There is no doubt about that. The year 1920 I am also in doubt about; the amount is probably very small; fifty-five dollars. The average of approximately on account of the doubt as to those that is thirty-three dollars, approximately. I say two years.

The Metropolitan Water Board Works in Boston, 1911, 22.60; 23.50; 23.00; 19.93; 37.50. There is some doubt about the next figure; it is about twenty-nine dollars; very little bought, I think. The next year, 1917, 58.50; 57.40; 46.60. The year 1920, I am in doubt about that, seventy-five dollars, I think; very little bought is my impression. The total is $39.20, approximately. You see, we have the exact records with regard to eight years and two years are somewhat in doubt.

The Boston Water Department, however, we have an unbroken record. 1911, 20.70; 20.95; 21.20; 21.10; 17.05; 29.15; 45.18; 51.17; 50.00; 75.00; bear in mind that much of that was water-born pipe.

Passaic Water Company in 1911—

Mr. Wherry: What was the average?

The Witness: Pardon me. $35.15.

The Passaic Water Company 21.60, that is, the year 1911; 21.60; 21.90; 24.26; 20.70; 19.75; 27.90; 36.10; 94.90; none; 61.40; the average 36.50.

The Engineering News Record on 6 inch pipe, is the only other one I have in that list: 1911, 21.70; 22.80; 24.10; 21.50; 24.80; 31.20; 54.80; 60.00; 57.40; 37.80, average 39.01; that is the New York price.

Those are the specific ones for which I think you ask. Of course, I have a large number of other records on cast iron purchases.

Q. Those are the ones you mentioned in there? A. I think so. I don't remember mentioning others. I don't want to be too sure about that.

Q. Will you give the details behind your price of twenty-five thousand dollars per million gallons of rated filter capacity; that is on page 22 of that Volume 1. How did you get that figure? A. That comes primarily from knowledge of what a considerable number of filter plants have cost, which ran from fourteen thousand to fifteen thousand per million gallons of rated capacity under pre-war conditions, and what they have cost since that time. During the more recent period those costs have run from something over twenty-five thousand dollars, about twenty-six thousand dollars to upwards of thirty thousand dollars. We built the plant within this period at East Chicago, and Indianapolis; I had occasion to work it up at in connection with Nashville, I had the Hackensack figures at the time we worked Nashville up; I had I think the figures at Whiting, Indiana. I

have had occasion to ask the company in connection with work I was doing at Indianapolis—

Q. This isn't helping us any. I asked you a question as to the details, how you arrived at that as a matter of detail, not as a matter of cities or what-not. How did you get that work out? If you say I did it according to my judgment, a lot of things, that answers it. I want what I want. I just want the details? A. I tell you I did it from a knowledge of the cost of complete filter plants.

Q. My dear sir, I didn't ask for that. I asked you for the details of this particular estimate. The knowledge of utility plants isn't an answer to that question? A. You asked me how I got my twenty-five thousand dollars.

Q. I didn't. I asked you the details of it. I beg pardon. You told us how you got it before. I don't want that; I want the details, that don't help us? A. What do you mean by "the details"?

Q. I want to know what figures, how you made the twenty-five thousand dollars; how you get at it. Did you pull it out of your mind and put it down without any figures? Didn't you do something? You had to have some figures from which to get the twenty-five thousand dollars? A. Yes, we had been in the habit in the office of figuring up unit costs on the finished cost of work of engineering structures of different kinds, filter plants, amongst them. Those we work up as they come along. For instance, we had the detailed figures—

Q. Did you take a statement of the number of cubic yards or any other details and multiply it by something and subtract and get a figure of twenty-five thousand dollars? A. I did.

Q. That is what I am trying to ask you? A. That

isn't what you asked. You asked me in effect the basis of my judgment.

Q. I didn't ask you the basis of your judgment? A. Very well, if you are satisfied.

Q. I don't say I am satisfied. I understand you now to say you didn't arrive at the twenty-five thousand dollars by making any detailed figures as to the particular plant, as to the dimensions or anything else; you didn't arrive at that as the sum of some figures you made on a piece of paper? A. I will have to ask Mr. Wentworth if we didn't make some such figures separately. I think we did. The final figure was fixed as a matter or judgment in the light of experience and knowledge which I had of other plants and in the light of—

Q. You have said that over and over again? A. Very well.

Q. If you have got any figures or Mr. Wentworth has for this particular thing give them to us, if not, I will pass along? A. I think I haven't, probably, such figures as you have in mind. Have I, Mr. Wentworth?

Mr. Wentworth: No.

The Witness: No, I have not.

Q. In your report you deal only with three companies, the Passaic, Aquackanonk and Montclair, but on page 47 you refer to a prospective loss in revenue from Jersey City. What connection is there between the revenue from Jersey City which may be a loss and the operation of the three companies under consideration in your report, which have nothing to do with Jersey City? A. I don't know—it isn't quite clear to me what your question is. If I understand you, however, the bearing it might have would be

through the jointly owned property and the general financial condition of the companies. Of course, I have, as a matter of fact, valued all five properties, Mr. Record. You have before you my individual valuations of the individual companies on different bases as well as of the entire company.

Q. Is there any connection to be taken by this Commission in fixing the value of these three water companies, is there any value to be deducted or added by virtue of a relationship of Jersey City with another company, in your judgment? A. In respect to the five companies, yes.

Q. I am talking about the three companies? A. I don't at the moment remember such a relationship. It might have a bearing on the operations of those three companies and their share of the operation, but if I understand your question, I think the bearing is on the earning of the property as a whole. We are dealing today, as I understand, with the property of the five companies as a whole.

Q. We don't know whether we are or not? A. Oh.

Q. We are taking it both ways and, perhaps, neither. We don't know. We have to guard against everything? A. I see.

Q. You take a position if the Commission undertakes to fix a rate by appraising the properties of these three companies that it has got to take into consideration the prospective loss of revenue of another company, like Jersey City—a municipality like Jersey City? A. I think it might—I can conceive of conditions under which it might have some significance. In other words, as I see it, we are dealing with the holding company which holds several properties. I don't include the property of the Jersey City

Company in the property of those other companies; that has been segregated. Whatever bearing the relationship of the Jersey City Company with these other companies has, is a matter for consideration by the Commission.

Adjourned until Wednesday November 8th, at the Kinney Building, Newark, N. J., at 10:45 A. M.

BOARD OF PUBLIC UTILITY COMMISSIONERS.

Newark, N. J., Wednesday, November 8, 1922.

Letter dated November 6, 1922, to John J. Treacy from W. M. Wherry, received and marked Exhibit P27.

NICHOLAS S. HILL, JR., resumes the stand on behalf of petitioners.

Cross-examination by Mr. Treacy:

Q. Mr. Hill, did you ever build a waterworks system yourself? A. Yes.

Q. Where? A. Where?

Q. Yes. A. Well, I have built a waterworks system at Garnerville, New York.

Q. How big a city is that? A. About fifteen or sixteen hundred.

Q. About fifteen or sixteen hundred. Did you take the contract for it? A. Oh, no. I never do any contracting.

Q. What did you do? A. I was the designing and supervising engineer.

Q. All right. What other waterworks did you build yourself as the designing and supervising engineer? A. Well, I was supervising engineer on the a waterworks system at Hyattsville, Maryland.

Q. Camp Merritt, New Jersey? A. Yes, sir.

Q. That was just a system of wells principally, wasn't it? A. Camp Merritt?

Q. Largely. A. No.

Q. Where did you get water from? A. From the Hackensack Water Company.

Q. From the Hackensack Water Company? A. Yes.

By Commissioner Osborne:

Q. A distribution system? A. Yes.

By Mr. Treacy:

Q. That was just merely a distribution system in that camp? A. A distribution system, yes. I built a waterworks system at Hyattsville, Maryland.

Q. Hyattsville? A. Hyattsville.

Q. How big a place is that? A. I do not know how large Hyattsville is. I suppose at that time it was possibly twelve hundred people.

Q. What else? A. Well, I have built various parts of waterworks systems in various parts of the country, not the entire systems at one time.

Q. Those are the only three instances in which you have actually had the entire supervision in the construction of three waterworks systems. A. Complete waterworks.

Q. And of those three one of them was merely a connection with an existing water company, the Hack-

ensack Water Company, that is the Camp Merritt case. A. A distribution system.

Q. You say in your testimony that you had experience in financing water companies. Will you please state what experience you have had and what water companies you have financed? A. Well, I have had experience in connection with the financing of the Alabama Water Company.

Q. Will you please state what your experience in that connection was? Did you do the financing? A. No.

Q. What did you have to do with? A. I did not do the financing personally. I was employed to make an appraisal, a valuation of the property or the properties which compose the Alabama Water Company, and advise with regard to the amount of the securities and the return which those securities would earn.

Q. In other words, it was just an appraisal the same as this is? A. No, it was not the same as this.

Q. What is the difference? A. It is a very different proposition.

Q. State it. A. These parties who employed me wanted to know how they could capitalize those properties conservatively and safely and what the revenues, operating expenses and income would be from the properties and how they could be financed in that way.

Q. You simply made an engineer's report to those people? A. No, I made more than an engineering report.

Q. What I want to know is, did you do the financing, what did you do about the financing? A. I did not go out and secure the capital necessary, but I was with the parties who did, all through their operations.

Q. Is there any company that you can name that you actually did do the financing for? A. You mean, go out and secure the bonds?

Q. Yes. A. No. But I have been associated with people in a good many cases where they have.

Q. I am not asking you that. You said you had experience in the financing of these water companies. A. I have had.

Q. I want to know what financing you actually did that you can say is a part of your experience in connection with the financing of any water company. A. I am endeavoring to tell you what I did.

Q. All you did was to make your engineer's report to various companies that employed you. A. No, that is not what I did.

Q. That is all you testified to thus far. A. No, it is not what I testified to.

Q. Will you tell us? A. I have testified to the fact that I investigated the properties and advised with the financial institutions who were financing the properties as to the proper capitalization, the probable earnings, and was with them during the time that the financing was done. I did not actually go out and secure the capital.

Q. Nothing any ordinary engineer could not do? A. I did not say it was anything that any engineer could not do.

Q. In other words it is nothing in the field of financing— A. Yes.

Q. —that an ordinary engineer would not do. A. No. I think it is very distinctly in the field of financing, rather than engineering.

Q. But whatever securities were issued, and all those matters were determined by the financiers, weren't they, and the bank? A. No. The amount of

securities issued was determined by me and the financiers financed the properties in accordance with the recommendations that I made. The only thing I did not do was to actually secure the cash.

Q. In other words, you made a report that upon your valuation you thought that the company could stand a certain amount of security? A. Yes, and pay a certain return on those securities and that the securities could be issued on that basis.

Q. The question as to on what basis those securities should be issued, that is, the interest or dividends upon those securities, the discount and such matters, were matters determined by the banks or financiers who put up the money. A. When the bonds were issued they naturally—

Q. Will you please answer that? A. What?

Q. Can't you answer that yes or no? A. I do not think I can answer that yes or no.

Q. All right. I do not want a dissertation on it. Why can't you answer yes or no? Those terms were either fixed by the bankers or fixed by you, weren't they? A. No, they were fixed in conference.

Q. Who decided it in the end, you or the bankers, as to what the rates of discount and what the rates of interest on the bonds would be? A. That is a very difficult thing to say. As the result of conference they decided to do certain things.

Q. You made a valuation of this property in 1912? A. Yes.

Q. Have you got that valuation? A. Yes.

Q. Will you please state what the amount of it was? A. We appraised the properties—when I speak of we, I mean the Board of Appraisers, consisting of Mr. Herschel, Mr. Morey and myself, appraised the properties, including water rights at $9,201,240,

that is the cost of reproduction less depreciation, and included the right to divert fifty million gallons of water per day at Great Falls. Deducting the diversion rights we appraised the property at $8,728,300.

Q. What intangibles did you include in that valuation of $8,728,300? A. We included going value of $1,200,000.

Q. And what was included in the going value? A. The going value was substantially what we appraised the cost of attaching the business to the property, or the difference in value between a property without the business attached and with the business attached.

Q. It was a reproduction valuation? A. Yes.

Q. You included, I suppose, what was ordinarily included in those days by engineers in going value? A. Yes.

Q. Past deficits? A. No, we did not ascertain the past deficits of the property.

Q. You did not ascertain them? But did you not include something that took the place of past deficits in development cost? A. It is the equivalent expressed in another way, of development cost.

Q. Did you include anything for franchise value? A. No.

Q. Did you include anything for brokerage fees? A. For what?

Q. Brokerage fees? A. Yes, we included the discount on bonds.

Q. Was that in the going value, that interest on bonds? A. No.

Q. That was separate? A. Part of the overhead.

Q. You found the value of that property to be $8,728,000, less the diversion rights, in 1912? A. Yes.

Q. Can you refer handily to the amount of additions that have been made since that time to the property? I just want the total, I do not want any of the items, just the total. A. The structural items added to the property since 1912, that is, in the years 1913 to 1920, inclusive, amounted to $1,372,307.

Q. That would be practically a total of ten million dollars in round figures. A. There was added real estate—no, there was no real estate added; a small batch of real estate, but it did not amount to anything.

Q. That is about ten million one hundred thousand dollars. A. That is exclusive of—you will have to add to that to get the figure—that includes the Beattie rights.

By Commissioner Bacharach:

Q. Includes what? A. The Beattie rights, but not the diversion rights at Great Falls.

By Mr. Treacy:

Q. I understand that. Is that the same real estate, do you know, that you included in your 1912 valuation, that Sheriff Rossiter put in in this case? A. Is that what?

Q. The same real estate that Sheriff Rossiter included in this case. A. No. I do not think it was precisely the same. I have not compared the valuation of the present case with the valuation in 1912 for the realty.

Q. The same items, the same parcels? A. Substantially the same items, except that between 1912 and 1920 there were some transfers of real estate, the company sold some and also purchased some.

Q. Do you know that the Legislature in 1913

passed a law repudiating this valuation? A. No, I did not.

Q. And declining to accept the purchase of the property with the good will included by the engineers? A. No, I do not.

Q. Or the diversion rights? A. No, I did not.

Q. You did not know that? A. No.

Q. Do you know of a recent offer of sale of this property by these combined companies? A. A company's offer of sale?

Q. Yes. A. No, I do not.

Q. What do you know about it, about the negotiations for sale between the companies and the Cities of Paterson and Passaic? A. Substantially nothing, except what I have seen at very long intervals in the New Jersey papers.

Q. You do not know that the company has offered this property within the last three months, the entire property owned by all these companies to the Cities of Paterson and Passaic for ten and a half million dollars? A. Yes, sir, I think I did know that.

Q. And you find the present value, you find the valuation of these companies, I understand, to be approximately thirteen million dollars. A. Yes. I would like to modify that statement in regard to the ten and one-half million dollars by saying I saw something of that in the papers. When I say I have knowledge of it—

Q. You were not consulted? A. —I haven't any official knowledge of it.

Q. You were not consulted by anybody in reference to it? A. No, I was not.

Q. You said that the basis of your valuation was first a consideration of the actual capitalization of the company? A. Yes.

Q. Will you please state just what weight the actual capitalization of the company formed in the valuation which you made? A. The actual capitalization in conjunction with the book value of the property and the reproduction estimate on the prewar basis was helpful to me in fixing upon what was the probable true investment in the property.

Q. How was it helpful; just what part did it play in the formation of your conclusion? A. Just precisely as I stated it was helpful.

Q. You did not state anything except it was helpful. A. I said it was helpful to me, in conjunction with the book values as carried on the books and the reproduction estimate on the prewar basis, in forming an estimate of the probable true investment in this plant.

Q. I would like to know in what sense it was helpful to you, if you can tell me. A. I have just told you.

Q. Only that it was helpful. A. That is the way it was helpful.

Q. Is capitalization a true criterion of value? A. Not at all, not necessarily.

Q. Is book value a true criterion of value? A. Not necessarily.

Q. Is reproduction cost, either prewar or postwar, a true criterion of value? A. Not necessarily. It is helpful.

Q. Now, then, I understand what you did was to take, to examine all these different factors and then arrive at a conclusion of your own? A. Yes.

Q. That conclusion was based upon what, eventually; upon your ten year averages? A. No, I cannot say it was based upon any one of the particular items. I had before me the probable investment, actual in-

vestment in this property. I had what it would cost to reproduce on ten year average prices, I had what it would cost to reproduce at current prices, and I made a study of price trends—

Q. You told us all about that. A. —and fixed upon what I thought was the fair value, all things considered.

Q. What I want to know is—in other words, as Commissioner Osborne asked you, when you were testifying, you put all these things into a pot and stirred them up and pulled out your own valuation. A. No.

Q. You say you took what you thought was the investment value as one of the factors? A. Yes.

Q. What do you mean by "investment value"? A. I mean by that the amount in dollars and cents which the owners of this property had actually put into the property.

Q. Do you include in that an allowance for development cost as an actual fact, as an actual cost? A. There probably is an allowance there although in taking the book value—

Q. Do you know? A. If you will pardon me just a minute, sir. In taking the book value it included only so much as was actually on the books, which was practically none at all, and in taking capitalization as a measure of investment, of course that took comparatively small account of the development cost. In making the reproduction cost on the prewar basis an allowance was made—

Q. I do not want a dissertation. I just want to know, did you include in your item of investment cost anything for development cost of the property? A. Well, I cannot answer that question directly.

Q. All right. I do not want a speech on it. What

did the investment cost actually include, as you use the term, the factor that you use in making up your final valuation? A. I used three things. I compared capitalization, book value—

Q. I am talking about investment costs now. A. That is what I am talking about.

Q. All right. A. I used the capitalization, I used the book value as carried on the books—

Q. You used your prewar? A. And a comparison of prices in the reproduction estimate.

Q. You told us that several times. A. Those three things coming very close together, checking one another closely, was the basis upon which I formed my judgment of the probable true investment in this property.

Q. Now, take the first item, capitalization. A. Yes.

Q. Did you make any examination of the capitalization to ascertain whether or not that represented the true investment in the property? A. By checking it against the book value and the reproduction cost on a prewar basis.

Q. Did you satisfy yourself that the proceeds of the capitalization went into property? A. No, I made no study to see—I found that the total capitalization was so many dollars and cents, I found that to reproduce that property on the basis of prices that existed during the time that capital was issued brought me to very near the same point that the capitalization did, and comparing that with the book value I found the three agreed closely.

Q. Did you know that some of the bonds issued against this property were issued as dividends upon the property? A. No.

Q. You did not ascertain that? A. No.

Q. Did you make any examination to ascertain whether or not the capitalization represented obsolescent and superseded property? A. Yes, by making a cost of reproduction on the prewar basis, in which all superseded and obsolescent property had been thrown out.

Q. You did not make any examination of the books or records to ascertain that? A. I did not go into the books for the purpose of securing every item that had been discarded.

Q. What obsolescent or superseded property did you throw out in your prewar reproduction, approximately, in approximate figures? A. Well, I threw out, at that time that I made this appraisal I threw out the Split Rock Pond property. I threw out certain lands along the Pequonnock River and certain easements along the Newark conduit line. I deducted one hundred and fifty thousand dollars, I think it was, from the value of the Stoney Road, Middle and Totowa Reservoirs. I threw out the Stoney Road pumping station.

Q. I wanted to know if you could give me in round figures what you threw out. A. I think I could probably figure that up for you.

Q. We will not take time for that. Ought not all those items be also excluded from the capitalization if they were obsolescent and superseded? A. No, I do not think so.

Q. If you are going to use capitalization as a criterion or a factor to determine what the valuation of this property is, shouldn't it? A. No, I think not.

Q. Shouldn't you exclude it? How can capitalization be any criterion or factor that will be of any help to you to determine the value of the property if that capitalization includes obsolescent and superseded

property which you admit should be excluded? A. If the capitalization compared with the reproduction estimate, after throwing out all those items, is not in excess of the reproduction estimate, it is fairly evident that the capitalization or the structures and plant taken out of capital have not been in excess.

Q. In other words, capitalization really plays no part; it is your reproduction that plays the important part? A. No, I should not say that.

Q. That is the best answer you can give to that question? A. Well, if I had time I might think up a better one.

Q. The second item that you took or the second factor which you say you used was the book value that you found? A. Yes.

Q. You found certain values upon the books? A. Yes.

Q. You used those as an aid, or as you call it, a factor in determining what the valuation should be. A. Yes.

Q. Did you analyze those book values to ascertain what they consisted of in any way? A. I did not go into the details, because I could not follow the book values back beyond a certain time.

Q. Do you know whether they included obsolescent and superseded property? A. I presume they did.

Q. You presume they did? A. I presume they did. I also presume they omitted the charges that were properly chargeable to capital account. That is usually the case.

Q. Also what? A. I also presume the omitted charges which were properly chargeable to capital account. That is usually the case in all these companies.

Q. I am not asking that. Will you please answer

my question. Mr. Wherry will bring out anything you may need to bring out on your side. The book values probably included property that was abandoned and superseded. A. It may have done so, yes.

Q. You did not investigate to determine whether they did include those values or not. A. I did not go back over every detail.

Q. Yet you assumed the book values were a factor which would aid you in the determination of your valuation. A. Unquestionably, unquestionably.

Q. Without regard to how much may have been included there for obsolescent and superseded property. A. No, I will not say without regard to it, because I very carefully compared the book cost with the reproduction estimate so as to see whether those book costs were inflated.

Q. But you do not know what property has been superseded or abandoned in the past by this company. A. I know that the book value carried on the books is not in excess of the fair reproduction estimate on the prewar basis.

Q. Did you ascertain what superseded, obsolescent properties or abandoned properties there were in the history of these companies? A. No.

Q. Therefore, you have no idea of what the amount or value of the obsolescent and superseded and abandoned properties were? A. Yes, I have.

Q. What was the amount? A. I cannot give you the amount.

Q. How can you give it if you do not know what the properties were? A. Because I compared my book cost with the reproduction estimate of the property that is used and useful at this time and the book value did not exceed that by any appreciable amount.

Q. That is the best answer you can give to that

question? A. If a large amount of superseded and discarded property had been included in the book values and not marked off, the book values would have exceeded the prewar reproduction estimate by a large amount.

Q. If the early history was at a cheaper price would it? A. Well, there is not a great deal of difference.

Q. Wasn't there a great deal of difference? A. No, there was not.

Q. In the early history weren't the prices of labor and material much different? A. Not in my experience.

Q. Another factor or method that you used was the reproduction on prewar prices? A. Yes.

Q. What did you find the valuation to be, the reproduction on prewar prices? A. I found that the total of the present depreciated value on the prewar basis was $9,255,260.

Q. What do you superimpose upon that in order to reach your present valuation of thirteen million dollars? A. What did I superimpose?

Q. Yes. A. The difference is due to the exchange value of the dollar, of the prewar dollar and the present dollar, chiefly.

Q. What was that, some thirty-six or forty per cent, something like that? A. Something in the neighborhood of forty per cent.

Q. So that in your judgment a property today ought to be valued at forty per cent over prewar prices? A. I think that is a very reasonable allowance.

Q. Your answer is "yes"? A. Yes.

Q. Turning again to the 1912 valuation, did that include the Split Rock Pond property? A. I will have to look that up.

Q. It was a matter of fact included, was it not, in the 1912 valuation, and the price you put upon it was $187,179 plus overheads, whatever they might amount to. A. Yes, that is correct.

Q. Split Rock Pond does not belong to this company today, does it? A. It does not belong to this company today.

Q. It does not; it has been sold? A. Yes.

Q. The valuation you placed upon it, therefore, of $187,179 plus overheads, in 1912, ought to be excluded from that valuation of 1912, if you are going to use that valuation as a basis for the valuation today. A. Well, I have made deductions from the valuation of today for the Split Rock Pond, and not included it in the inventory.

Q. Not from that figure? A. Not from that precise figure, no.

Q. You started out with the 1912 valuation? A. Yes.

Q. Your 1912 valuation was $9,728,000? A. Yes.

Q. Why didn't you start out deducting the one hundred and eighty-seven thousand dollars plus overhead from that valuation? A. Because at the time this appraisal was made the Split Rock Pond property was a part of the property of the company. I simply took the appraisal of the Board of Appraisers as the best evidence of the value of that property at that time and started with that as a basis. Now, in all subsequent appraisals that were made, the Split Rock Pond property, as I have testified, was thrown out.

Q. You included the Wanaque River farm property, too, didn't you, in the 1912 valuation? A. Yes, sir.

Q. You included it at $15,880 plus overheads? A. Yes.

Q. Have you included it also in this valuation? A. In this appraisal of costs, I think not, in fact I think neither of those properties have been included. The allowance of the Board of Appraisers in 1913 for land was $1,188,063. I deducted all lands that were sold from December 31, 1912, up to January 1st, 1921, in getting my prewar valuation.

Q. I understand that you started with two prewar valuations, as a matter of fact, one was the valuation which you arrived at in the year 1912, at the time the state was appraising the property? A. Yes.

Q. Now, I am paying particular attention to that valuation in these questions. You do not know whether you excluded from that valuation the Wanaque River farms? A. In the valuation of 1912?

Q. 1912. A. It was included.

Q. It was included? A. $10,643.

Q. $15,880, wasn't it, plus overheads? A. Maybe I am reading across the line wrong.

Q. At any rate, it was included in that valuation? A. That is correct, $15,880.

Q. Do you know whether you have excluded it from this valuation or not? A. I will have to go back to more detailed notes. I told you I deducted $155,302 for the value of land sold.

Q. The Split Rock Pond was $187,000 alone in 1912, without overhead? A. I am telling you what I did.

Q. All you deducted was $155,000? A. Yes.

Q. You did not even deduct the valuation you put in in 1912 for Split Rock Pond. A. I deducted the value received for the property that was sold.

Q. The value what? A. Received for the property that was sold.

Q. So you started out with a valuation of $187,000, plus overheads, whatever they may be for Split Rock Pond as a part of the valuation base, and you used that in order to arrive at your valuation today and only excluded one hundred and fifty-five thousand dollars? A. No. At the time I made the appraisal I stated, the company owned Split Rock Pond.

Q. That is not the question, that is not what I want. A. It had not been sold, so that one hundred and fifty-five thousand dollars does not include Split Rock Pond.

Q. It does not include Split Rock Pond, so Split Rock Pond ought to come out. A. Split Rock Pond has subsequently gone out and is excluded in my appraisal of this property.

Q. Is it excluded? A. Yes.

Q. Did you exclude it? A. Yes.

Q. But you only exclude what the company received for it? A. No, I excluded the full amount.

Q. I understood you to say just now you excluded the amount received. A. I said $155,000 represented the amount which the company received from the sale of the property between 1912 and 1920.

Q. What is the amount that you excluded for the sale of the Split Rock Pond property? A. I excluded a base cost of $187,179.

Q. That was from your prewar reproduction cost? A. That was from my valuation.

Q. From your valuation? A. Yes.

Q. But you did not start out excluding those from your base, the 1912 valuation? A. No, I think not.

Q. You did not exclude the Pequonnock River rights of way either, from your 1912 valuation? A. No.

Q. They were not used or useful in connection

with the service of the communities served by these companies. A. Well, at the time that appraisal was made they apparently thought they were. I have thrown them out subsequently.

Q. So they should not have been included in the 1912 valuation. A. I will not say that.

Q. How about the Newark line in the Pequonnock River, the rights of way there; were they included in the 1912 valuation? A. I will have to look. I would like to be allowed to check that up. I cannot make that statement definitely.

Q. Now, then, the Upper Totowa Reservoir of course, was included in the 1912 valuation, because at that time it was the property of the company and used for the service of the company. A. No, we took account in a general way of the Middle, Totowa and Stoney Road Reservoirs being only partly useful.

Q. You gave a value to them in this valuation? A. Well, I would like to look and see what value we gave. I want to answer your question as truthfully as I can.

Q. All right. If you did give a value to them in the valuation you did not deduct it for the purpose of this valuation before using that 1912 valuation as a base. A. Yes, sir. I think I did.

Q. All right, give us the detail of it. A. I have a very distinct recollection that we made a lump sum deduction to cover those items, and I am trying to lay my finger on the exact amount.

Q. Well, you have it in your report, I suppose, if you did it. A. That is what I am looking for.

Q. So we will substitute the report for your recollection, if you can point it out. Well, so as to save time, will you try to work that out for us during the lunch hour? A. Yes.

Q. Will you please give us a detailed statement of what the one hundred and fifty-five thousand dollars, which you say you have allowed for superseded property, consists of, obsolescent and superseded property. A. Well, I will have to prepare that for you.

Q. Will you prepare that during lunch? A. What?

Q. Will you prepare that? A. I don't know whether I can do that in that space of time.

Q. We want it. Can you recall the items that were included in it? A. No. I might be able to get them from some of the detailed papers, if you would like to wait for it.

Q. Mr. Hill, on page 143 of your report, Table 45, Volume 1, you say you have a statement of the value of lands sold since December 31, 1912, $151,540. A. Yes, that is for the Passaic Water Company.

Q. Will you give us the details of that? A. I will have to go through my detail sheets.

Q. On page 115 you have a similar item for the Montclair Water Company. Will you give us the details of that? A. Pardon me just a minute. Maybe I can give those items right here. No, I will have to go through my detailed notes.

Q. The same with reference to the other? A. Both the Passaic and the Montclair.

Q. The upper Totowa Reservoir and the Stoney Road Reservoir and the Kikeout property, they were all included in the 1912 valuation also? A. Yes, except as I say an allowance was made, which I told you I would look up in the lunch hour—rather a deduction was made for the service value of the Totowa, Middle and Stoney Road Reservoirs.

Q. Now, you say in your testimony on page 356 that book values and capitalization more nearly represent the true investment than any other? A. Yes.

Q. Well, wouldn't historical cost come pretty near representing the true investment also? A. Yes, that probably would accord very closely with book value.

Q. I understand you to say that you did not make any effort to get the historical cost of the property because you did not get records antedating the Paterson fire? A. That is correct. I got various items, the cost of various elements of the plant, but not the complete historical cost of the plant. I used those items, on which I obtained the cost as a guide in making my reproduction estimate on the pre-war basis.

Q. You did not make any inventory of this property yourself? A. No.

Q. You took the inventory made in 1912 by Mr. Metcalf? A. Yes. Not in 1912—he made an inventory in 1912 and brought it up to date.

Q. He did not make any for this hearing? A. As I understand, in fact as I know, he had his forces on the company's property bringing the inventory of 1912 up to date.

Q. Oh, yes, but he made the inventory in 1912 and all that he did was to add to it whatever had been added since 1912, and that was the inventory that you took? A. I took his figures.

Q. That is the basis of your estimate? A. I took the revised inventory as of today—rather, as of December 31, 1920, as the basis of my estimate.

Q. You made no valuation of the real estate yourself; you took Mr. Rossiter's valuation? A. Yes.

Q. You made no valuation of the S. U. M. diversion rights; you took Mr. Metcalf's valuation of those? A. I took the figures at which they were transferred from the S. U. M. and the Dundee to the affiliated water companies.

Q. That figure was one million one hundred and

thirty thousand dollars? A. One million one hundred and twenty thousands dollars.

Q. And that figure was based, as I understand you to say, upon the rentals that were paid for these diversion rights by the water companies to the S. U. M.? A. I did not say that.

Q. So you merely took the value that was paid? A. Yes.

Q. Did you know that the rentals paid to the S. U. M. were increased almost one hundred per cent within two years before they were sold, those rights were sold to these water companies? A. No, I think not.

Q. You did not make any examination to determine whether the price paid was a fair price, based upon the rentals that the water companies had been paying for the property? A. I did not make any effort to determine whether the price was fair as compared with the rentals paid, no.

Q. You say, in making your appraisal on the prewar reproduction theory, you took the actual cost of labor and materials, handling, hauling to the site, and added contractors' profits in cases in which contracts were let out and also added contractors' profits in cases in which the work was done by force account? A. Well, I did not say I added contractors' profits. I added the equivalent overhead.

Q. You added the equivalent of contractors' profits? A. Yes.

Q. It seems to me that is a distinction without a difference. To repeat a question which was asked you by the chairman; why should you add the equivalent of the contractors' profits for work done by the companies themselves and charge the public with rates upon that capitalization of contractors' profits? A.

Because where work is done on force account, the company must include all of what would be the contractors' overhead, which costs them substantially the same, and on force accounts always more, in ninety cases out of one hundred more than it does under contract. I have only used these figures in the reproduction cost.

Q. What do you mean by "force account"? A. I mean where the work is done by the company's own forces and not by contract.

Q. By the company's own forces. Do you know what was the purpose of the organization of the East Jersey Water Company? A. Well, I know the East Jersey Water Company is both in the contracting and water supply business.

Q. And as the president of the company stated in his testimony on the certiorari proceedings recently in this same case, that it was organized primarily for the purpose of building the Pequonnock water supply system for the City of Newark? A. I presume that is correct.

Q. Therefore, the East Jersey Water Company was a contracting company? A. I know they took contracts for work.

Q. If it was a contracting company organized for the purpose of doing this sort of work and if it did this work for itself and its affiliated companies by force account, why shouldn't it do the work at the same price as a contractor could do it at, without the necessity of adding something for contractor's profits? A. I do not presume the East Jersey Water Company would have gone into the business of contracting for the love of doing it. I presume they were formed for the purpose of making the same profits that other contractors would make for like work.

Q. But it professes to be a water company also and asks for rates here as a water company, doesn't it? A. Well, that is a question, a legal question that I am not competent to discuss.

Q. So what you are giving it is a valuation in which you include contractor's profits for work which the East Jersey Water Company, a contractor, may do? A. No, I do not think that is a fair statement.

Q. And did do? A. I did not.

Q. You what? A. I say I did not.

Q. You did not what? A. Do what you say.

Q. You are including contractor's profits for force account, for all work done by the East Jersey Water Company, one of these petitioners? A. No, I am not.

Q. You stated that in your testimony; do you take it back? A. No, I do not take it back.

Q. Then you did not say it and do not take it back? A. No, I did not say it.

Q. What did you say? A. I said that I used the cost of reproduction new as one of the measures of value and in taking the cost of reproduction new I included contractor's profits and overhead.

Q. You included it, the equivalent of it in force account work? A. I assumed this work in the reproduction would be done by a contractor.

Q. You included it; can you answer that yes or no? You included it in work done by force account? A. I did not.

Q. You said to me a minute ago you included the equivalent of it? A. It is very difficult to answer a question if I am not allowed to say what I really meant to do. I am interrupted about as soon as I get started in an endeavor to tell you.

Q. I know, but Mr. Hill, we all want to get through and every time I ask a question you want to enter into a long explanation? A. No.

Q. It seems to me we will get through more quickly if we can get our questions answered. Can you answer the question? A. I say no.

Q. Who built the pumping plant, do you know? A. I really do not know who built it.

Q. Do you know how much of this work was done by force account? A. No.

Q. So therefore, you do not know how much should be deducted from your valuation, assuming that the allowance that you have made, which is the equivalent of contractor's profits on force account should be deducted; you do not know what amount that would be? A. None should be deducted.

Q. You did not study the books to get the pre-war units and to determine how much of the work was done by force account? A. I have the book cost on all the major elements of the plant, and the allowance that was made on the pre-war valuation, so that I know they are about the equivalent of what it actually cost according to the books, and those figures, what they include are only the actual overheads that the company expended.

Q. I did not ask for another speech on it, Mr. Hill. I understand you to say you added ten to fifteen per cent for contractor's profits? A. Yes, in the reproduction estimate.

Q. Did you itemize that in the various items making up your reproduction estimate so that we can ascertain it in percentages? A. No.

Q. How did you arrive at the ten to fifteen per cent? A. That is a fair allowance for contractor's profits.

Q. That is just your idea of what a fair allowance is? A. No, it is not. It is what contractors get right along. You know it and I know it.

Q. I don't know it, and I know a good many contractors do not get it? A. When they lose money they have a minus profit.

Q. I think Commissioner Bacharach asked you if you knew who was making fifteen per cent on the last examination; what contractor was making fifteen per cent today on his contracts in competition, and you did not know of any? A. I think it is pretty generally known that contractors estimate on from ten to fifteen per cent.

Q. Do you know of any instance where a contractor today is being awarded a contract in competition with others for any job of any size in which he gets fifteen per cent profit? A. I think I could bring you a number, if you want them; I would be very glad to do so.

Q. Do you know what they got at Camp Merritt in the job you say you helped to supervise or supervised? A. That was not on the basis of a commercial job at all. They gave a lump sum fee to the contractor there and paid all of his overhead for him; he had nothing, no expense whatsoever on the job; they even paid for his clerks, automobiles and everything else.

Q. The percentage was six per cent, wasn't it? A. What?

Q. The percentage of profit was six per cent in that case? A. I do not remember what it was. He got a lump sum on top of every expense he had. It cost the Government a good deal more than if they let it out on a ten per cent basis.

Q. Four and a quarter per cent Colonel Betts says

is what they got for contractor's profits? A. It may have been. It was a very expensive proposition for the Government; I know that.

Q. You say you selected the ten year average which included the ten years between 1910 and 1920 in order to fix your valuation upon that theory? A. Yes.

Q. Those ten years, of course, included the war years? A. Yes, some of them.

Q. Didn't they include all the war years? A. I mean some of the years were war years.

Q. Some of those years, particularly the years 1918, 1919 and 1920 included the highest prices known in the history of the country? A. Yes.

Q. In selecting a ten year average, why wouldn't it be fairer if you were to exclude the three years in which these exceedingly high prices caused by the war existed, and take the years prior to that, prior to the year 1918 and the years 1921 and 1922 as the basis for your valuation? A. When this appraisal was made I did not have the advantage of the years 1921 and 1922.

Q. You have it now and you figure your valuation down to date, don't you, down to July 1st? A. Yes, by taking the actual cost of additions since.

Q. So you are making your valuation as of July 1st. Why is it fair to use amongst your ten years upon which you base your estimate on the average price table, three years, 1918, 1919 and 1920, in which there was a great cataclysm affecting the whole world and disrupting business and prices, bringing about what could be called cataclysmic prices; why was it fair to use those three years as part of any ten years upon which average prices should be estimated? A. I had in my ten years, three years of what you call cataclysmic prices and seven years of the old pre-

war base, so that seven tenths of the average was on the pre-war basis. Therefore the effect of the cataclysmic prices is only partial and in the ratio of seven to three and it brings the base up—

Q. 1916 and 1917 were high, weren't they? A. It was done for the purpose of securing as reasonably as could be the higher average which maintained at the present time, so as to take into consideration the exchange value of the pre-war dollar and the present dollar.

Q. It was done for the purpose of getting a high valuation on this property, which you never could get unless you included those three cataclysmic years? A. No, not at all.

Q. What other purpose could it be for? A. It was done for the purpose of getting the fair value of this property, taking into consideration conditions as they are today.

Q. Why wouldn't the fair value of the property based upon a ten year average be a value based upon the eight years preceding 1918 and the two years 1921 and 1922? A. Because that would not properly allow for the deflation of the present dollar or the inflation of commodity prices. That would virtually be going back to the pre-war basis, taking eight years of pre-war and two years of present prices.

Q. That would give you what would be a normal condition unaffected by the abnormal conditions of the three war years? A. I think not.

Q. You do not expect that the prices of 1918, 1919 and 1920 will ever occur again within our time? A. I do not know about that.

Q. You do not expect that there will be any world war that will bring about those prices within the next ten years at any rate for which you base your estimate? A. I am not prepared to say.

Q. You said that you could not get the historical cost because there were not any books, but in your examination and inspection of this property you could have ascertained fairly well the ages of the various units, couldn't you? A. We did ascertain the ages as far as we could.

Q. You could have ascertained the unit prices that existed at the time that these various units were installed? A. I presume we ascertained the unit prices on the great bulk of the property, yes.

Q. Did you attempt to build up a historical cost based upon the prices of the various units at the time that they were installed? A. I think I have testified that I obtained the book costs of quite a number of the large items.

Q. No, I am asking, did you attempt, yourself, to form a historical cost valuation based upon what would be the unit prices upon the various dates at which these units were installed? A. No, I did not make an estimate of every element, of the year in which it was installed.

Q. You do not know what property, as I understand it, has been discarded or replaced since the inception of these companies? A. Not all of it, no.

Q. You say you used the sinking fund basis for your depreciation, the sinking fund method? A. Yes.

Q. And that method means that the amount that you deduct from the valuation of this property upon that sinking fund theory is less than would be deducted for depreciation on the straight line theory; that is how it figures out? A. Yes.

Q. You say you made a reduction for the loss of service life on account of decretion; in order to do so you had to ascertain the ages, I suppose, of the property? A. Yes.

Q. How did you ascertain the ages? A. By a personal investigation of the property and securing the age of every element of which the age could be secured.

Q. You say you made a study of the plant and the probable amount required for deferred maintenance? A. Yes.

Q. What study did you make for that purpose? A. I visited the property personally and it was also visited by members of my staff and the condition of the property at the time of the inspection was studied and noted.

Q. You valued this property as a going concern? A. Yes.

Q. What did you include in the items making up your going concern value?

By Mr. Treacy:

Q. Can you answer the question? A. No, I cannot.

Q. As a matter of fact, you have no items going to make up the going concern value in your list of valuations? A. They include items of cost, of attaching the business to the property.

Q. How much did you place for each item? A. I placed the item as a whole.

Q. You did not itemize it, you just took a lump sum? A. There is no way to itemize it.

Q. In the allowances that you made for taxes, did you take the tax bills of the company as the amounts to be allowed? A. No.

Q. What did you take? You took the amount, as I understand it, that you thought the company would be taxed? A. Well, I would not say that precisely.

Q. You said, I understood you to say—what did

you say? You did not take the bills? A. Do you want me to answer the question or not?

Q. Surely? A. I first took the taxes paid by the affiliated water companies in 1920, $216,351. I distributed those taxes between the companies.

Q. You took that item of two hundred and sixteen thousand dollars? A. Yes.

Q. They actually paid those? A. This is the tax they paid in 1920.

Q. Have you got what they paid in 1921? A. I think I have. They paid in 1921, $238,966.15.

Q. What do you assume they are going to pay in 1922? A. I added to that an allowance for increase of taxes due to this property having been valued and the value being a public record before this Commission.

Q. So that in the taxes which you want this Board to allow as part of your operating expenses, you want an additional sum because it may be that the taxing district will impose higher taxes because of the valuation you are now engaged in? A. No, because of the valuation which the Board would place upon it.

Q. What valuation did you assume the Board would place upon it? A. I did not assume any valuation. I am basing my estimate of increased taxes upon the experience of other water properties in this State which have been appraised by the Commission.

Q. But you say you are basing your estimate of increased taxes upon the valuation that the Board will place upon this. What valuation was that? A. I mean to say that the valuation of this property will be of record before this Board.

Q. I understand what you mean. I want to get it in dollars and cents? A. I can give you the amount of taxes I requested as compared with the taxes actually paid.

Q. I understand it is about three hundred and six thousand dollars, isn't it? A. The taxes, four hundred and sixty-six thousand dollars.

By Commissioner Autenreith:

Q. Based on what valuation? A. That was based on a valuation of thirteen million dollars and a gross income of $2,241,000.

By Mr. Treacy:

Q. So that you are assuming in that item of four hundred and sixty-six thousand dollars, that increase between two hundred and thirty thousand dollars and four hundred and sixty-six thousand dollars, you are assuming the Board is going to take your estimate of thirteen million dollars as the value of this property? A. No. I assumed that if the Board found that my valuation was fair that this would be correct, or if they modified it the taxes would be modified accordingly.

By Commissioner Bacharach:

Q. How near one hundred per cent are they taxed at the present time? A. I do not know precisely, Commissioner.

Q. You based that on one hundred per cent valuation, don't you or assessments? A. Yes.

Mr. Wherry: Paterson has raised the assessed valuation eight hundred thousand dollars this year to get it to one hundred per cent valuation.

Commissioner Bacharach: The assessors have, you say?

Mr. Wherry: Yes, while this case is pending.

The Witness: I may say, Mr. Commissioner, for your information, that the way the tax rate was fixed was by getting the actual taxes paid and expressing it as a percentage of the value of the property as we found it and then applying that rate.

By Mr. Treacy:

Q. I understood you, Mr. Hill, to say that you took the tax rate, the actual tax paid and you ascertained from that what the percentage of taxes would be that would be chargeable against this property and used that same percentage as against your valuation or the thirteen million dollar valuation, is that correct? A. I do not think that was precisely it.

Q. How did you get at it? A. I took the assessed valuation of the property and the corresponding tax rate as of 1920, I mean the gross taxes paid as of that year, and obtained the tax rate and applied that to the appraised valuation of the property as appraised by me.

Q. Now, then, you took the assessed valuation as of 1920? A. Yes.

Q. What was the assessed valuation as of 1920? A. I would have to go back to detailed notes. If you want that information I can get it for you.

Q. What was the rate? A. The rate? Well, on the joint ownership property the rate paid was, on real and personal property tax, was $2.90.

Q. $2.90 per thousand? A. Yes, $2.90.

Q. $2.90 per thousand? A. Per hundred of the value.

Q. $2.90 per hundred? A. Yes, that is per hundred of assessed value. In the Aquackanonk Water Company $3.04. The East Jersey Water Company $3.98. The Kearney Water Water Company $3.71.

The Montclair Water Company $3.34, the Passaic Water Company $2.94.

Q. Have you the amounts paid? A. Making the weighted average tax rate approximately $2.99 or $3.00.

Q. Have you the amount paid in taxes? A. I can give you—what year?

Q. In that year you just referred to? A. 1920?

Q. Two hundred and thirty thousand dollars, I guess it was? A. That was 1921.

Q. Then it was two hundred and six thousand dollars? A. The figures I am giving now relate to the real and personal property tax. The two hundred and some odd thousand dollars represents the total tax.

Q. Represented all taxes? A. Yes.

Q. The two hundred and thirty thousand dollars represented all taxes? A. Yes.

Q. Including franchise tax and real and personal tax? A. Yes.

Q. And income tax? A. Yes.

Q. Which you now say will be increased twofold to four hundred and sixty-six thousand dollars? A. Yes. It will be increased in two ways; I estimate it will be increased in two ways; first, the increase in the valuation of the real and personal property and two, due to increased income the income tax will be increased proportionately.

By Commissioner Bacharach:

Q. What rate did you take for your new one? A. Three per cent.

Q. What basic rate did you take? A. Three dollars, the weighted average of the districts.

Q. So you used three dollars in this new figure four hundred and sixty-six thousand dollars? A.

On the depreciated present value of the taxable property, which I estimated was about ten million dollars, as I recall.

By Mr. Treacy:

Q. Do you know whether that assessment was made on a one hundred per cent basis or on a lower basis? A. No. I was not interested in that.

Q. How did you apply it if you did not know whether it was one hundred per cent? A. I took the actual assessed valuation of the property for the purpose of getting the rate to apply to the full value of the property. My reason for doing that being that the experience of other water companies, as I say—the Hackensack increased taxes from ninety-six thousand dollars in 1917 to five hundred and some odd thousand dollars at the present time.

By Commissioner Bacharach:

Q. Mr. Hill, didn't I understand you in fixing the amount of taxes you valued the property for the purpose of putting down the amount of taxes, at ten million dollars? A. Yes, that is the taxable property. Some of the property is not taxable.

Q. The taxable property is ten million dollars? A. Yes.

Q. And at a rate of three dollars? A. Yes.

Q. How did you get the four hundred thousand and some dollars? A. That is real and personal.

Mr. Treacy: That is real and personal, that does not include franchise and income tax.

Commissioner Bacharach: That is additional?

Mr. Treacy: Yes.

The Witness: Yes.

Commissioner Bacharach: So that would be about one hundred and sixty thousand dollars more.

Mr. Wherry: Exhibit P21 shows the details, in Table E.

By Mr. Treacy:

Q. Have you amongst your notes the assessed valuation of this property as of 1920? A. I haven't it with me, sir. I can get it for you.

Q. Is it here? A. No.

Q. You haven't got it here? A. No.

Q. What were the real and personal taxes for the year 1920? A. For the year 1920? I think I can give you that. I will have to make an addition for you.

Q. All right? A. You want the real and personal?

Q. Yes, for the year 1920, and we want the assessed valuations? A. I cannot give you the assessed valuations today.

Q. You can get it for us? A. What?

Q. You can do that for us? A. Yes.

Q. Have you been able to get the information that we asked for, Mr. Hill, before lunch? A. Some of it, yes. First, with regard to the items which go to make up the $155,302, deductions for real estate sold since 1912 appraisal, the following are the items: $260 deducted from the joint ownership property, the Beattie Manufacturing Company, a small parcel. The East Jersey Water Company $1,100, Joseph A. Seaver property. Montclair Water Company, Leonard Bishop, West Orange tank lot, $2,500. Passaic Water Company, John A. Ryerson property, $15,880.

That is the Wanaque; it is listed in the property and reference was made to it this morning, the old appraisal, that is the Wanaque River farm; Thomas D. Hoxey property $6,400. John Ryle, $8,050; John Ryle again $6,800, Thomas D. Hoxey $5,400, John Ryle again $8,000, John Ryle $8,000, John Ryle $3,600, John Rueben and William Ryle property $89,312. Those are items that were withdrawn at the price allowed for them in the valuation as of December 31, 1912.

In response to the other question, with regard to the assessed valuation of the property, I find that I have it for 1921 here with me. The joint ownership property was assessed at $1,459,317, the Passaic Water Company property at $1,695,840, the Aquackanonk Water Company property at $792,575, the Montclair Water Company $793,250, the East Jersey $173,033, the Kearney $65,400; total $4,979,415. I do not imagine that there is very much difference between that assessment and the 1920 assessment. That is real and personal property.

Q. Or 1922? A. What?

Q. Probably not much difference between that and 1922? A. I do not know about 1922.

Q. Mr. Hill, in your report, turn to page 121, Volume 2, the item of cast-iron pipe specials and various items under it, under the laying of cast-iron pipe; in column 8, headed "Age in Years," you have in each case there— A. Pardon me just a minute, I haven't gotten it. Did you say page 121?

Q. Page 121, Volume 2? A. Which company is that?

Q. It is the Aquackanonk Company, we will use that as the basis for all of them? A. May I get that volume?

Q. Before I ask that question, Mr. Potts calls my attention to another matter. Did you get up any statement of the property acquired since 1912 that you have put in; have you got that? A. It is a very small amount of property acquired since 1922.

Q. No, 1912? A. I mean 1912. I think it amounts to a little over two thousand dollars. I can give that in a moment.

Q. What was the item that you testified to today? A. What?

Q. You testified today to considerable additions since 1912? A. That was in structural items.

Q. When you say "property" you are referring to real property? A. Land, real estate.

Q. All right, it is a small item of two thousand dollars. Column 8, page 121, entitled "Age in Years"; you have fifteen years for the age of the cast-iron pipe specials and fifteen years as the age of cast-iron pipe laid. Will you please explain how you arrived at that age? A. That age was attained by taking the amount of pipe bought in each year, obtaining the weighted average of the weight of the pipe and the life of the pipe, each item of pipe, and getting the weighted average age in that way, that is, we obtained the weight of the pipe purchased in each year.

Q. How did you know the age of the pipe to begin with? A. By taking the pipe purchased in each year.

Q. Where did you get the record of that? A. We obtained all of the records that were available from the company.

Q. How do you weight your average? A. You sum up the total weight of pipe purchased and the total life of the pipe and divide the life into the total weight, giving you the average age.

Q. Turning to your volume 1 of your report, pages 22 and the following pages, you cite a number of cases there, giving Court opinions and Commission opinions. All those cases are prior to 1913, aren't they, all the Court opinions are prior to 1913, 1914? A. On page 22?

Q. Yes? A. Yes.

Q. Why didn't you cite any Court opinions since 1913? A. I have cited some since 1913.

Q. Court opinions? A. Court opinions?

Q. Yes? A. I have not looked to see.

Q. Why didn't you cite the Galveston Electric Light case where no going value was allowed? A. I do not remember that that was the case, but I did not have that case before me at the time this table was prepared.

Q. That is a very important recent case, isn't it? A. Yes, but this table was prepared before that decision was handed down.

Q. Your testimony was given long after it was handed down. Why didn't you include the case in the United States Supreme Court of Houston against Southwestern Bell Telephone Company decided May 29, 1922? A. Well, I don't know unless I happened not to run into it.

Q. Do you know that in that case the opinion says, "Whether going concern value should be considered and allowed at all in determining the basis for rate making, and if allowed, what the amount of it should be, depends upon the financial history of the company"? A. No, I do not know that decision.

Q. And as a matter of fact, in that case nothing was allowed for going concern value? A. I don't know that.

Q. Isn't it the effect of both the Galveston case

and that case that of the financial history of the company does not show what was expended in financing and developing the company that going concern value is not allowable? A. I do not think so, in the Galveston case.

Q. You have cited the case in the United States District Court of Des Moines Gas Company against the City of Des Moines as upholding your contention as to going value in 1919 Federal Reporter 204? A. Yes.

Q. Where the United States District Court allowed three hundred thousand dollars for going value? A. Yes.

Q. You did not cite the same case on appeal in 238 United States 172, which threw out the three hundred thousand dollars going value? A. No.

Q. Do you know of any case within the last three years in the State of New York or the State of Massachusetts where going value has been allowed in cases in court, court cases? A. I would not like to answer that question offhand.

Q. Do you know of any Commission case within the last three years? A. In the State of New York?

Q. Yes? A. I would not like to answer that question offhand.

Q. Why did you omit all the decisions of Commissions and Courts in which no going value was allowed? A. I was preparing the table showing the going value allowed in different cases.

Q. But if you want—in order that it might be fair—why wouldn't it be fair to make tables showing where it was not allowed also? A. I do not think that would be pertinent to the object of this table.

Q. That was not part of your job? A. I do not think you should say that, Judge. I simply presented

this table for what it was worth. I do not think it is necessary to make it a personal matter.

Q. You say that the going value that you think should be allowed on the basis of the cases which you do cite is 11.3 per cent? A. Yes.

Q. Are you aware that in the ten Commission cases since 1915 which you cite, that the average going value was only 8.7 per cent? A. No.

Q. You did not figure that out? Are all the water rights purchased from Beattie in 1896 still owned by these companies? A. Yes.

Q. Weren't certain of those rights sold to Patrick H. Flynn in 1898 and didn't the companies receive three hundred thousand dollars for them? A. Not the Beattie rights, that I know of.

Q. Where did Flynn get the right to divert water as against Beattie for his water supply to Jersey City? A. I do not think that Flynn got any right to divert water against Beattie. He got the right to divert water against the—well, you may call them the affiliated companies, against the joint ownership property.

Q. For which he paid three hundred thousand dollars to those companies in 1898? A. I do not know what the amount was.

Q. It is on the books of the company at that price? A. Well, that may be.

Q. Did you examine the books? A. I have not been entirely through the books, no.

Q. Do you deny that Flynn purchased part of the Beattie rights? A. Yes.

Q. You deny that the Jersey City Water Supply Company bought part of the Beattie rights from the East Jersey? A. The Jersey City Water Supply Company paid to the East Jersey—the East Jersey

and associated water companies, a sum of money to compensate them for the diversion of water above their dam at Little Falls. Beattie had passed out of existence at the time that happened.

Q. But that included the rights they had acquired from Beattie? A. No, I do not think so.

Q. What other rights did they have than the Beattie rights at that time at Little Falls? A. The East Jersey Water Company and the associated companies received compensation for the diversion of water above the Beattie dam. What that was I do not know.

Q. Did they have any other rights except the Beattie rights? A. No.

Q. Therefore, if they had no other rights, except the Beattie rights, wasn't the compensation that they received for the Beattie rights? A. No, I should not say that.

Q. It was for what they obtained against Beattie? A. No. The East Jersey Water Company paid Beattie—

Q. Five hundred and twenty thousand dollars? A. —five hundred and twenty thousand dollars.

Q. For the right to divert water? A. For the right to divert water, for the right to the whole flow of the stream at the Beattie mill with the exception of two million gallons a day.

Q. And that is the only right they had? A. That they purchased and paid $520,000 for.

Q. Subsequently they sold to Jersey City Water Supply Company the right to divert water for the supply in Jersey City, for $300,000? A. I do not know what the amount was. I know they received compensation.

Q. And they had no other rights except the Beattie rights at that time? A. No.

Q. So far as Little Falls was concerned? A. No, none other that I know of.

Q. How about Newark, the right to divert water so far as Newark was concerned; did they receive compensation? A. I do not know what they received.

Q. Can you give us details as to how you determined the annual rate of depreciation of one and one-half per cent? A. That is my judgment of a fair allowance for depreciation on this property.

Q. How did you build it up? A. That is the way it was built up.

Q. Just a guess at it; your judgment? A. No, I did not guess at it.

Q. It is your judgment? A. My judgment, based on long experience.

Q. You have not figured it out in any way so you cannot produce any details? A. Not in detail, no.

By Commissioner Osborne:

Q. Is your judgment based on your experience? A. Yes.

By Mr. Treacy:

Q. How long has the theory of valuation upon a ten year average of prices been used by engineers for the purpose of obtaining a valuation? A. I am sure I do not know.

Q. Was it used prior to the last two years? A. Yes.

Q. Did you use it? A. Yes.

Q. What engineers do you know of—what cases have you used the ten year average prior to the last two or three years? A. Well, my recollection is that

I used ten year average prices in the Hackensack case in 1915. I know I used it prior to that case on several occasions.

Q. Do you know of any other engineers that used it prior to the last three years? A. Well, if you would like me to I think I can give you a list of place where it has been used, either five years or ten years.

Q. Do you know of any Commission cases or Court cases in which the ten year average of prices was used? A. Yes, I think I can refer you to those; would be very glad to.

Q. You cannot recall any? A. The five or ten year basis of pricing on reproduction is one of the oldest, so far as I know; I think those cases go back for many years.

Q. On page 15 of your report you refer to the substantial price paid for the Beattie rights; what do you mean by "substantial price"? A. Page what?

Q. Page 15 of your report. A. The substantial price of what?

Q. Paid for the Beattie water rights? A. Well, I mean that I put those rights into my base at $500,000 and I think the price paid was $520,000.

Q. What you mean was it was the same, practically, as the purchase price? A. Yes.

Q. I just wanted to find out what you meant by substantial price. Page 16 of your report you refer to—you give certain items of cost; what period of time do these costs refer to? A. Those are the average costs between 1911 and 1920, inclusive, average.

Q. You gave us this morning the allowance that you made for contractor's profits. Can you give us a statement of what you allowed for contingencies? A. Yes, I allowed 3.08 per cent.

Q. Administrative expenses? A. Administrative, legal and general expense, 1.40 per cent.

Q. Errors and omissions? A. That is included in contingencies, errors and omissions, 3.08.

Q. Engineering and superintendence? A. 3.48 per cent.

Q. Taxes? A. 0.96 per cent.

Q. Interest during construction. A. 6.12 per cent, total 15.04.

Q. Can you tell us what Commissions or Courts use the sinking fund basis of computation for getting accrued depreciation? A. I cannot name all the cases offhand. I can simply say that a great many cases have been decided in which the sinking fund method has been accepted as the means of determining.

Q. As one element of the valuation? A. Yes.

Q. Can you give us any specific illustration of your statement that the work of developing a paying business often requires more time than the building of the plant itself? A. Well, I think the New Orleans case is one in question.

Q. In the New Orleans case about fifty per cent of the population were poor negroes. A. I do not recall just what percentage of population there is negro population.

Q. You would compare a territory of that kind with a territory like that supplied by these companies? A. Well, I don't know that I should make that exact comparison. I think you have got to take each situation as it is.

Q. Yet you use that as the basis for your estimate as to the length of time it would take to develop a business in a territory of this kind? A. I did not say so.

Q. Do you know of any case in the north? A. Any case what?

Q. Any case in the north where it has taken a period of three or more years to develop the business after the plant was constructed? A. I do not know of any specific case where the plant was built new in the larger cities of the north, but there are a great many cases where public utilities have been installed, where the period during which the revenues were insufficient to pay operating expenses, taxes and reserve for depreciation and interest, was much longer than three years, four years.

Q. Can you tell us of any specific case in the north? A. I would be very glad, if you would like me to, to file a list of places in my own experience where the cost of development has extended over a period of three years.

Q. When you say "cost of development," what do you mean, of extensions? A. No.

Q. Or do you mean cost of development of a newly constructed plant for a city, such as was put in in New Orleans? A. I mean the cost of developing the income to pay operating expenses, taxes, to set aside a proper reserve for depreciation.

Q. On what? A. What?

Q. On what? A. To pay operating expenses, I say, taxes, set aside a proper reserve for depreciation, and pay the fixed charges on a plant, a public utility plant.

Q. On a water plant? A. On a water plant.

Q. That amounts to early losses, doesn't it? A. It amounts to early losses, the cost of attaching the business to the property.

By Commissioner Osborne:

Q. Then the development cost is another term for the recoupment of early losses? A. Yes.

By Mr. Treacy:

Q. You did build a waterworks yourself, you told us, somewhere in Garnerville, or somewhere? A. Yes.

Q. What was the actual fact in that case, after you had built your waterworks, as to the length of time? A. The actual facts in that case were that this was a factory town in which all of the houses are owned by the factory and rented to the employees and the factory, the owners of the property, decided to put in sanitary conditions, and I was retained for the purpose of developing a water supply, including a filtration plant, putting plumbing into all the houses, setting meters and connecting up the mains with the plumbing, putting in sewers and a sewerage disposal plant, so the whole property was connected up from the source of supply to the discharge of sewerage into the stream after the water was there.

Q. There wasn't any length of time for development there? A. Not there.

Q. It paid from the start? A. It did not pay from the start and never has paid.

Q. It was designed to pay, wasn't it? A. The company does not collect what it costs them to supply the service.

Q. That is the company's own fault? A. I am not saying what the reason was. I simply made the statement.

Q. What is the next case; you built another one somewhere? A. Hyattsville.

Q. Yes. How long did it take there? A. I don't know.

Q. You don't know? Didn't you follow up your work to ascertain how long it took to develop the business? A. No. I was employed there to design and install a plant. That wound me up.

Q. Your third case that you gave us, how long did it take? A. That was Camp Merritt.

Q. There was no need of any development there? A. There were no water rates collected.

Q. How about the Alabama Water Company that you say you helped to finance? A. That was composed of plants which had been in existence for a number of years.

Q. So that in your actual experience in connection with any of the companies that you supervised the construction of and that were built from the ground up, you have nothing to show that it took anywhere around three years to develop the company after the plant was built? A. On plants that I built from the ground up, the three that I mentioned, Garnerville, Camp Merritt and Hyattsville, two of them were special conditions and the third I did not follow up.

Q. Now, you say you built a lot of extensions for existing concerns? A. Yes.

Q. Can you give us the history of the development costs in connection with the extensions that were constructed, on any of those plants that you were acting as engineer for? A. There are two things, one is construction work and another is following the economical development of the property. It does not always follow that on those plants where I have built, I have had to do with the financial side of the property.

Q. You did not follow the thing up to ascertain whether it took— A. I do not spend my time following up a plant to see whether it is earning, because I built a reservoir or filter plant or standpipe or something of that kind.

Q. Are you assuming in your valuation that the cities supplied by these companies that you have appraised were without any water supply prior to your companies reproducing their plants? A. Necessarily so.

Q. And are you assuming the existence of a sewerage system in those cities at the time you reproduce your plants? A. I made no assumption of that kind. I have testified that my going value on this property is based on past experience and not upon an estimate of the going value of this particular plant. I have not used the comparative method.

Q. How did you assume that these communities obtained water prior to your reproduction plant, your reproduced plant? A. I made no assumption.

Q. Paterson got water from Great Falls, didn't it; would it not naturally get it from that source? A. I do not know where they would get water from.

Q. Did you assume that the four hundred thousand odd people served by these water companies were in ignorance of the use of water? A. No.

Q. You assumed that they had learned by travel or reading of the use of pure water supply in pipes under pressure? A. No.

Q. You assumed you had to educate them to use water? A. No.

Q. Then how did you assume that it would take three years to develop the business of the company, if you did not make any of these assumptions? A.

I did not specifically assume it would take three years to develop the business of the company.

Q. What period did you take? A. I did not take any period.

Q. How did you reach your development cost? A. I have in a great many cases made studies of the early losses of waterworks properties where I have had records that were available to do so, the period of time required to earn an income sufficient to pay the company a fair return. I have also made estimates of the going value by what is called the comparative method, that is by making reasonable assumption to determine how long it would take to develop the income of the existing company by building a new plant at the same location and under the same conditions. I have also made a study of the going value computations of other engineers in various cases and have classified, put together many cases where Courts and Commissions have rendered the decision as to what, in their judgment, was a fair allowance for going value. With these facts before me I fixed upon what I considered would be a fair allowance for going value in this case.

Q. Give us a specific case in which you found that the going value cost was 11.3 per cent? A. I did not say that I found—

Q. From your own experience or study? A. I did not say that I found 11.3 per cent in any specific case. I said I had studied the early records of companies where books were available and found that they had development costs, not that I found 11.3 per cent going value.

Q. What companies did you study the records of? A. I have studied the records of the Ansonia Water Company.

Q. What were the development costs as shown from the records of the Ansonia Water Company? A. I do not recall offhand, I would not like to make a statement, but that is a property where they put— I think I placed the fair value upon it of $850,000 and my recollection is that the development cost in that plant was about $579,000, that is, taking, capitalizing the deficiency in earnings.

Q. What did they lose, what were the early losses? A. That is what I am giving you.

Q. Was that shown by the books of the company? A. Yes.

Q. As the early losses? A. Yes.

Q. You cannot give us any idea of what it was, what it cost them the first year and what they made the first year? A. No. I do not recall that.

Q. They did not earn enough later to make it up or you would not have put it in? A. No, I do not think they have earned it.

Mr. Wherry: What is that?

Commissioner Osborne: The last question was if they had since made it up you would not have—

Mr. Treacy: He says he does not know it.

Commissioner Osborne: Yes, but suppose you had ascertained that they subsequently had made it up and made enough over a fair return to take care of that deficiency.

The Witness: Recoup those early losses? I think it would have been fair to have eliminated it.

Commissioner Osborne: Have you ever known of a case where the engineers have eliminated them because of a larger profit later on, where those losses

have been recouped; have you ever heard tell of anybody testifying to such a state of fact?

The Witness: I do not recall it.

Commissioner Osborne: I do not either.

By Mr. Treacy:

Q. On page 44 of your report, Mr. Hill, you give a table headed "Increase in Cost of Waterworks Materials and Labor over the Pre-war Cost"? A. Yes.

Q. You split up the percentages into four columns, pipe specials and lead thirty-five per cent, other materials, twenty-five per cent, a total of sixty per cent for materials; common labor and teams twenty-five per cent, skilled labor, fifteen per cent. A total of forty per cent. Will you give us the details supporting that table? A. Yes, I can do that, I think. I do not know whether I have it with me or not.

Q. If you haven't it will you furnish it so our engineers can have it? A. Yes.

By Mr. Record:

Q. Mr. Hill, I would like to follow up just a bit that early loss case. I would like to know about that Ansonia case. Did they build the plant all at once? A. No.

Q. When was it they commenced to build it? A. My recollection is it was about 1870, somewhere.

Q. Who built it, a private company? A. Yes.

Q. What did they install first; how much? A. I could not give you the details. They installed some reservoirs and distribution system. I obtained the capital investment in plant—

Q. I am talking about the beginning; did you know what they started with? A. Yes.

Q. Did you ever know? A. Yes.

Q. You do not recollect at the moment? A. No.

Q. Do you recollect what proportion it was they built at the beginning when they opened up? A. It was a comparatively small proportion.

Q. What would you say; ten per cent? A. I should say probably twenty or twenty-five per cent.

Q. Twenty or twenty-five per cent? A. Yes.

Q. Then they commenced business with that? A. Yes.

Q. Was that in the thickly settled portion of the town? A. It was in the center of Ansonia.

Q. It was the place where the water people thought would be the best trade to begin with? A. Yes.

Q. Then they installed that much and began. How much did they lose the first year? A. I do not remember all the figures.

Q. Did you ever know? A. Yes.

Q. Do you know if they lost anything the first year? A. Yes.

Q. When did they commence to make substantial extensions? A. They were making extensions almost every year.

Q. That is from the start? A. Yes.

Q. Did they make extensions while they were losing money? A. Yes.

Q. What was the purpose of an extension if they were losing money on the present plant, what did they extend for; to enlarge their losses? A. No, I presume they extended in the hope of developing their business so it would pay.

Q. If it did not pay where the lines ran how would it pay if they ran up another street? A. That is a very common thing with public utilities in this country.

Q. Do you know what percentage they extended each year? A. No. I ascertained the precise figures of what the annual capital expenditures were in each year.

Q. Do you know that it is the practice of those private water companies if they get started, not to extend up a street unless it pays? A. No, I do not.

Q. You deny that? A. I deny that, until recent years, yes.

Q. What do you mean by "recent years"? A. It is difficult to fix an exact date, but I should say the custom of exacting extension guarantees has been confined certainly to the last eight or ten years, I should say.

Q. If you have a water company that has spent $150,000 or $200,000 and is doing business and is not earning enough to pay, do you mean to say that the Board of Directors sit down and extend up another street without determining in advance whether that will add to their deficit or add to their revenue? Don't they put their judgment upon that? A. No, I do not say that.

Q. Don't you admit that is the way Boards of Directors proceed, that they estimate whether that particular extension will pay or will not pay? A. Not in every case.

Q. What do they put it there for if they do not estimate it will pay? A. In many cases, the question of policy and the future revenues of the company enter into the question as well as the immediate return which they will receive from the extension.

Q. They do not put it down there unless they estimate it will pay sometime, do they; they do not put it down to lose? A. They hope it will pay.

Q. They believe it will pay? A. I do not know that they always do.

Q. Have you ever sat in with a Board of Directors that voted an extension up a street that they believed never would pay? A. Yes, I have done it myself.

Q. What for? A. As a matter of policy.

Q. What kind of policy? A. In one particular case I can recall, I did it because it was a question of satisfying a demand that was made by the officials of the city at that time and I thought it was a good thing to do.

Q. Then you did that for the purpose of protecting the company's investment in some other way? A. Well, that may have been.

Q. Do you know what the deficit started in the Ansonia case, how much it started? A. No, I cannot give you the exact figures. I do not carry those figures—

Q. Do you know how many years it continued? A. Yes, it continued in that case for some eighteen or twenty years, I should say.

Q. That is, they ran behind? A. Yes.

Q. How much? A. I do not recall the yearly amount.

Q. How much did they expend in that eighteen or twenty years to add to their capital account? A. I do not recall the exact amount.

Q. Do you know anything about the percentages? A. No, I do not carry all those figures in my head, of these different companies.

Q. Do you mean to tell this Commission that in the Ansonia case those people lost in the early years, 11 per cent upon $800,000? A. I do.

Q. You say that as a fact? A. I do say that, yes.

Q. That would be over $80,000 that they lost? A. Yes.

Q. In what period of time do you say that occurred? A. I could not say exactly how long it took them to lose $80,000.

Q. Doesn't that as a sample case, depend entirely upon how long it took? A. Well, no, I do not think so. I was asked if I ever knew a company that had undergone early deficits and I named the Ansonia Water Company as one.

Q. I am asking you about it. You said you based your eleven per cent upon the cases where you had built yourself— A. No.

Q. Wait a minute until I am through. Upon the cases you have built yourself, upon places where you have made extensions, upon studies of other engineers' reports; those were the three things you said here not ten minutes ago? A. No, I did not.

Q. What do you base your eleven per cent on then? A. I said I based it upon studies of the past histories and early deficits of companies where the records were available, showing that they did encounter the deficits in the early years of corporate existence; that I based it upon estimates which I had made by the comparative method of how long it would take for a new company in the same field with an existing company, but with the territory open to develop, to develop its income up to a point where the income was equivalent to that of the existing company, third, by looking at estimates of other engineers of the same kind and fourth, by reference to the awards of Courts and Commissions for going value in various cases.

Q. In those cases where you made a study of these companies by the comparative method, you had to apply there in your estimate, the result of your ex-

perience gained from the study of other places, didn't you, like Ansonia? A. Well, I do not know that I did, because I was there making a reproduction estimate and what I did was to set out a construction program to determine the time it would require to build a plant equivalent to the plant then existing; in other words, it was based on the construction period and the time then it would require to attach consumers to the lines.

Q. That time must have been based upon your study of actual facts where it had taken time? A. I presume that entered into it, yes.

Q. It was not based upon somebody's theory, it must have been based upon knowledge of a thing similar having happened? A. I presume that is true.

Q. Ansonia is one of the cases where you say it happened? A. It may have been. I do not know whether I had Ansonia specifically in mind.

Q. Do you now say that Ansonia carries out your theory? A. Yes, sir; I do.

Q. So if we get the facts on Ansonia here you are entirely satisfied to stand by your theory on that? A. Oh, yes, certainly.

Q. Will you name another town where you made a study of incomes and losses? A. I made a study of the Bridgeport Hydraulic Company. They encountered losses in the early years of their existence.

Q. Tell us what they started at? A. I cannot give you the figures offhand.

Q. Then when we come down to brass tacks as the foundation of your eleven per cent, you have no facts here that we can cross-examine you about, isn't that so? A. I have told you that that eleven per cent was—

Q. Isn't that so, that you have no facts here upon which we can cross-examine? A. I have no figures.

Q. What do you mean by using the term comparative plant as compared to an existing plant; a new imaginary plant? A. Yes. You may term it an imaginary plant, if you like to characterize it in that way.

Q. What has that got to do with determining the time it would take to get a supply, an imaginary or comparative plant; why don't you take the plant as it is? A. The comparative plant method involves a study of how long it would require to build a plant of like capacity in a community supplied by the existing plant, assuming that the field was open to a hypothetical plant, laying out a construction program of how long it would require to build that plant and how it would be complete and further a study of how long it would take to attach the consumers to the new plant and in that way determining the period which it would require to develop the income of the hypothetical plant up to a point equal to the income of the existing plant.

Q. As a matter of fact the developing of this trade and traffic, after you have built your plant, depends upon local conditions in each case? A. I presume it does.

Q. If the town grows rapidly that helps. If it goes to seed, that hurts. A. Yes.

Q. If it is a staid town with wells and no particular change from year to year, it is harder to develop the business than if it is a growing town where new houses are put up with water attached which compete with the old houses with no water; all of those conditions have to be taken into account, don't they? A. That does not affect this comparative plant

method. What you are estimating is how long it would take to attach the business which the existing plant then had, not necessarily the new business that they would require—

Q. Doesn't the attaching of the business which the old plant has to the new plant which you are thinking about, does not the cost, the time and the expense, all depend on studying that particular locality? A. Why, I presume in some locations people would connect with a new water company more rapidly than others.

Q. Wouldn't they connect with a new company more rapidly than others in other towns, if in one town for example, they had been accustomed to having and in another town they had never been accustomed to have anything but well water; wouldn't that make a difference? A. I presume it would.

Q. That is one of the considerations to be taken into account in the study, isn't it? A. In the comparative plant method.

Q. Now then, you said to Judge Treacy you did not take the disposition of the people into account, whether they had been used to water or had not been, anything about them at all, whether they had a sewerage system or pipes in the houses; you said you did not take that into account, didn't you? A. I said I made no comparative plant, no comparative estimate.

Q. Didn't you say you did not take that into account? A. I did.

Q. Now, you say it ought to be taken into account, don't you? A. No, I do not. You are confusing two things. I have been explaining what would be done and saying those elements would all enter into account in an estimate based on the comparative plant method, which I have not used in fixing upon my go-

ing value. I have testified that the going value which I have allowed in this case, is based upon what I think is a fair allowance from experience had in various places and a study of the going value of various properties.

Q. The minute we get at those cases you haven't any facts or figures here by which we can test you out, isn't that so? A. I cannot carry with me figures of plants—

Q. I do not say you could. I am saying the fact is, we are confronted here with this estimate of one million and odd dollars and we haven't any facts to cross-examine on? A. I testified I made no estimate of it.

Q. What did you say? Didn't you put on going value here? A. Yes.

Q. How much was it, in round figures a million and odd dollars, wasn't it? Eleven per cent? A. Eleven per cent is correct, yes.

Q. You put that on there? A. I have.

Q. Now, you say you base it upon something? A. My judgment.

Q. Your judgment was based upon your study of the actual history of the development of water companies? A. Yes.

Q. Among other things? A. Yes.

Q. Very well. I am asking you if you have anything here by which we can cross-examine you on the result of that experience and you say no. A. On my judgment, that is all.

Q. On what? A. On my judgment.

Q. We want to get the basis of your judgment and you haven't anything here to give to us, that is the point I am bringing out. In your appraisal of 1912 was there not included a considerable paving which

Mr. Metcalf excluded as of 1920, on the advice of counsel? A. I did not get that question.

Q. In the Water Supply Commission appraisal of 1912, was there not included considerable paving which Mr. Metcalf has excluded as of 1920 on the advice of counsel, as he says, because laid after the mains? Didn't you include paving over mains in your 1912 appraisal; that is what that means? A. Well, I included some, but how much I do not recall offhand.

Q. What did you do in bringing your 1912 appraisal to date; did you include paving over mains? A. I have never included in any of my estimates uncut paving. I only include the paving that was actually cut, so far as it could be determined.

Q. You only include the paving that was actually cut? A. Yes.

Q. Then you do not know whether in the Commission appraisal there was paving that had to be cut included, do you? A. I cannot say offhand. I would have to go back to the details a good many years ago.

Q. Can you point out in your report where you have excluded it or how much you deducted from the paving allowed in 1912? A. No.

Q. In bringing the 1912 appraisal up to date, have you excluded the estimated discount on bonds which was in the 1912 appraisal? A. No.

Q. Have you included it in your reproduction appraisal on the ten year basis? A. No.

Q. What is the detail of your method by which you reach the accrued depreciation on the mains? Give us a sample. A. On the mains?

Q. Yes. How did you get at it; take any main; or didn't you do it by detail? Have you any exhibit on the whole of that that we could study? Any

method by which you got at the depreciation. A. I can state it to you. We have taken the life of mains—

Q. Have you got a table or facts there by the years, by which we can study out your detail on that? A. I can give you a statement which I think will satisfy you, if you will give me just a moment to do it.

Q. All right, go ahead. A. I allowed a life of one hundred years for cast-iron pipe. I ascertained the average age of that pipe as accurately as I could, by taking the weight of pipe bought—

Q. I do not want to cut you, but that don't help us a bit. What these engineers want to know, have you got any detail which we can have—these general statements do not help us at all. Have you got a main down a certain street that was planted such and such a time, I have estimated depreciation such and such on that particular main; have you those details anywhere that we can have? A. I am going to give you the statement by which your engineers can check me exactly on the depreciation of the distribution mains if they wish, if you will allow me to do it. I am not making any general statement, but a specific statement of how I did it. If you do not want me to do it, I will stop.

Q. I want the details. If you must talk generalities, I cannot stop you. A. I am not talking generalities.

Q. Why not give me the details if you have got them; if not go ahead in your own way? A. I haven't anything more than I am going to give you now.

Q. Why don't you answer it as best you can? I did not tie you up; I urged you to give the details; if you want, go ahead your way. A. Every time I

start to answer, you tell me you don't want me to. I will do either you say. I will answer and give you the best I can if you want me to.

Q. How did you get the ages if you have no details? A. I can give you precisely what I did, if you want that.

Q. Let us have that. A. I took the life of cast-iron pipe at one hundred years; I ascertained the average age of the pipe by taking the weight of pipe bought in different years, taking the totals and taking the age in each year and adding up the ages and the weights obtained, the average age of the pipe in each of the companies. I then, having established the life and the age estimated by the sinking fund method, assuming a sinking fund at three per cent, for example in the case of the Montclair Water Company, I took the life at one hundred years, the age in years at twenty-two, and estimated by the three per cent sinking fund method what the accrued depreciation on that pipe would be. If you want it, it amounts to five per cent depreciation, and that can be checked by a table of which I know your engineers have a copy, the sinking fund tables which will enable them with that life and that age to judge exactly whether my five per cent is correct or not.

Q. Have you these amounts of pipe by years? A. Not with me, no.

Q. That is what we want, can we have that? A. Yes.

Q. Will you get them to us as quickly as you can? A. Yes, I will.

Q. That is what we want so we can check you up. Will your statement show the values you applied each year to these pipes? A. The values of the pipes?

Q. Yes. A. I did not apply any values to the pipe each year.

Q. You got it by weight? A. I ascertained the weight.

Q. And the life? A. Yes, and the age.

Q. In making your deductions from operating expenses on account of the discontinuance of the water supply to Glen Ridge, West Orange and Jersey City, have you deducted from your fair value of the property, your valuation of the property used in this particular service? A. I did not include any property used in that particular service.

Q. So you have made no deduction from your valuation by reason of the discontinuance of that supply? A. There is nothing, in my judgment, that should be deducted, so there is nothing deducted.

Q. Would you require as large a pipe as 51 inches if you were not carrying water through for those places? A. Oh, I think so, yes; I think that makes very little difference.

Q. What are your details supporting the estimate of 11.8 per cent as the cost of fire service? A. In the first place I took the population served by the affiliated companies, based on the 1920 census, 422,416. Then I took the analysis made by Metcalf, Kishling & Hawley, the proceedings of the American Water Works Association, 1911, page 87; they made a study of the proportion of plants chargeable to fire service in towns of different populations and from that tabulation of theirs, I found that for a community of the size, like size, that is, four hundred and twenty-two thousand population, that thirteen per cent of the entire property of the water works would be devoted to fire service. I then took the average daily pumpage, excluding that for Jersey City, West

Orange and Glen Ridge, 42,000,000 gallons and estimated the pumpage that would be required in addition, during times of fire and found that the fire service demand was about 14.6 per cent of the total demand, and on that basis the 14 per cent would be chargeable to fire service. I then detailed an apportionment of the property to fire service and detailed those as follows: Distribution mains 35 per cent, hydrants 100 per cent, services and meters no per cent, Paterson reservoirs 20 per cent, Great Notch reservoir 15 per cent, other joint ownership property 2 per cent, Montclair pumping station 20 per cent, Montclair standpipe 50 per cent, general structures 15 per cent. The weighted average per cent resulting from the application of the above per cents to the corresponding plant values was 14.6 per cent. I considered the results obtained from these apportionments, 13, 14.6 and 14.6 respectively, chargeable to fire service, and I took 14 per cent of the capital investment as chargeable to fire service. Then I distributed the operating expenses to fire service, and taking both together I made the following apportionment; net return 14 per cent, taxes 14 per cent, depreciation 14 per cent, operating expenses 5 per cent; giving me a total of operating expenses and fixed charges combined of 11.8 per cent of the total service revenue. I then compared this with the apportionment of fire service in other cases under the jurisdiction of this Commission.

Q. You are through with that, are you? A. Yes.

Q. How did you arrive at the percentage of the cost of fire service in Paterson, Passaic and Montclair which on page 78 of your report you figure at 17 per cent, 20 per cent and 34 per cent, respectively? A. What page is that?

Q. Page 78. A. By precisely the same method.

Q. Will you turn to page 3 of your report on the Kikeout, Volume 4? A. Page 3?

Q. Page 3, Volume 4. Tell us whether your estimate of the Kikeout reservoir was on the basis of the investment of it or whether on the basis of its being used and useful for water property or either or both? A. It was included as used and useful property on the basis of the appraisal of the real estate expert.

Q. What use did you expect to make of it? A. Well, I was somewhat in doubt as to what this property would ultimately be used for. My own idea was that the company had secured this reservoir site and it would probably be developed, the demand at Little Falls rapidly approaching the minimum flow of the stream, and I felt that it was justifiable to include it with the used and useful property.

Q. What was your basis of pricing, of valuing the Beattie dam, page 4? A. It was substantially what the company paid for the property.

Q. In the Kikeout reservoir were you contemplating the use of that by a pipe line or by letting the water out into the stream? A. By letting the water into the stream.

Q. Is there a pipe line right of way there that the company owns? A. They own some property along the Pequonnock, but those rights of way are not included in my reproduction estimate.

Q. Aren't they included in the Metcalf appraisement that you take as the foundation, the Metcalf inventory? A. I really do not know whether Metcalf included them or not.

Q. Do you know whether they were in 1912 or not? A. Yes, they were.

Q. They were? A. Yes.

Q. Then have you got them out here? A. Yes.

Q. These gentlemen said that it was not in that list of excluded property that you offered in evidence? A. That was property sold, not excluded; that was property sold since 1912.

Q. Have you got a list of property excluded? A. Yes, I can give you a list of the property that I have excluded. Of the joint ownership property I have excluded a dwelling at Totowa near the Passaic River, $3,413, a dwelling at Totowa and a dwelling at the Great Notch reservoir, $3,413. On the East Jersey Water Company I have excluded $30,625, which is the land owned the rights of way along the Newark pipe line. On the Montclair Water Company I excluded the land at the Split Rock reservation site, reservoir site, one stone dwelling and two wooden dwellings at Split Rock reservoir site, a total of $238,321. For the Passaic Water Company the strip along the Passaic River, the land at the Stoney Road pumping station, the Stoney Road pumping station and stack, and the brick stack at Great Falls, a total of $69,658. Making a total for the affiliated properties, $342,317. In addition to that I depreciated specially the Stoney Road, Totowa and Middle reservoirs one hundred and fifty thousand dollars on account of the depreciation in the use to which they are now put. That makes a total of approximately $492,000, in round figures.

Q. Have you excluded the property which the East Jersey sold to the Butler Water Company to build a dam below this Kikeout, has that been excluded? A. I do not know what property they sold.

Q. Have these exclusions and sales been excluded from your Valuations A, B and C in Volume 1, page 94 of your report? A. No.

Q. And for the other companies likewise? A. No.

Q. They have not? A. That question was asked me this morning and I told Judge Treacy that I would look up to see exactly what the exclusions were. I would have to go back to the old original 1912 report. I do not recall.

Q. You are going to get that? A. What?

Q. You agree to get that? A. Yes.

Q. You have not excluded them in this report? A. No.

Q. They are in there? A. I would have to go back to the old original report of 1912, to the details of that, to see precisely what was included.

Q. Do you say you have excluded them in this A, B and C, page 94, or that you do not know whether you have or have not? A. I say I do not know what items. I know some of them I included, but how much I do not know.

Mr. Wherry: In this report, Mr. Hill?

The Witness: No, in the original 1912 report.

Mr. Wherry: He is talking about this report. Aren't you, Mr. Record?

The Witness: He asked me about the 1912 report.

Mr. Record: I asked you if this list of excluded property and sold property which you have read was included in A, B and C, page 94, Volume 1 of your report.

The Witness: The property sold is not included.

Q. In A, B and C? A. In A, B and C.

Q. But the property excluded? A. The property excluded in A and B may or may not be there. I cannot answer that at this time. I think some of it is probably included.

Q. At all events you don't know. How about C? A. C? I think that includes C, too.

Q. What is the basis of your price on page 4, for the intake canal. Volume 4, page 4, $400,000; where did you get that from? A. Volume 4, page 4?

Q. Yes. A. I will have to get Volume 4. Which item was that, the intake canal?

Q. $400,000, yes, what is the basis of that price? A. That was based on an estimate of the materials in the canal. Do you want the details of that estimate?

Q. I want to know what the basis of that $400,000 is. You say what? A. It was based on an estimate of the materials and labor entering into the intake canal, taking the quantities of different materials and the price.

Q. Can we have that; is that in convenient form so we can have that? A. I can give you the figures that I used, if you want them.

Q. That can be done quickly or is it a long table? We do not want to read a long table into the record if it is something we can get at. We want to know it for study. Can you mail that to us? A. I can give you a copy of my estimate of that intake canal, if you want.

Q. Going back to A, B and C, is Split Rock reservoir in A, B and C? A. That is one of the items I am in doubt about.

Q. Is bond discount in there? A. Yes.

Q. Is the paving that was in the appraisal of 1912, is that still in A, B and C? A. Yes.

Q. What is the basis, on page 9, what is the basis of your price for the coagulating basin? A. The basis of my estimate of the cost of the coagulating basin was first the actual cost of this basin as shown by the company's records, after deducting the cost of

the steel connecting mains, $145,565, which was checked by an estimate, a detailed estimate of the cost of reproducing it on ten year average prices, which is $149,524. I have the detailed estimate of the coagulating basin, giving the prices we have used and the quantities, as in the preceding case I can either read that or furnish that.

Q. What is the difference between $149,500 and $160,000; what would that item be; is that overhead? A. What page is that?

Q. That is page 9. A. Page what?

Q. Page 9. You have given us $149,524 and your estimate is $160,000. A. No, that was the amount we allowed, I think, $160,000.

Q. You just testified to $149,524. I am trying to find out what made up your $160,000. A. Where do you see $160,000?

Q. Page 9. A. Look on page 10. I think you have a typographical error on the top of that page. Base cost allowed is $150,000.

Q. That is probably a typographical error. You have two figures there apparently, on turning over to page 10 you have $150,000 and you have $160,000, a total of $310,000. A. There are two different basins. I gave you the figure for No. 2 basin at $150,000. There is another basin, No. 1 basin.

Q. Then your $149,000 and so forth was No. 2? A. Yes, No. 2.

Q. And the other one is No. 1? A. Yes.

Q. What part of that $149,524 that you have just testified to was overhead, do you know? A. None.

Q. You did not add anything? A. That is the base cost.

Q. Did you add something to that later on? A.

Yes, if you will look at page 22 you will find the amounts which have been added for overhead.

Q. Which volume are you using? A. Volume 1.

Q. What page did you say, Mr. Hill? A. Page 22.

Q. That is what you gave us this morning. A. I allowed 19.65 per cent as the overhead on the coagulating basis, that is the structures and 15.72 per cent on the equipment.

Q. That is added to the $149,000? A. What?

Q. Is that added to the $149,000? A. Yes.

Q. Where does that appear in your report; can you tell us where that appears in your report as overhead? A. I do not know that I have in this report given the overhead on each element of the plant. I do make the statement though that on page 17 of that report the average gross over all is fifteen per cent.

Q. Page 17, which volume is that? A. Volume 1.

Adjourned until Monday, November 27th, at the Kinney Building, Newark, N. J.

BOARD OF PUBLIC UTILITY COMMISSIONERS.

Newark, N. J., Tuesday, November 28th, 1922.

Data used by Mr. Metcalf in forming an opinion of the value of the water rights purchased from the S. U. M. at Little Falls, received and marked Exhibit P27.

Underlying data requested from Mr. Hill received and marked Exhibit P28.

Mr. Wherry: I received a request from Judge Treacy to put the minute books of the company at the disposal of Dr. Bemis and permit him to examine them. Of course, the minute books contain matters that are entirely irrelevant to this proceeding, and not competent, we claim. But nevertheless we made this agreement—I am reading now from my letter to Judge Treacy—the engineers representing the cities may have access to the company's minute books on condition that they will indicate by appropriate reference any portions of the same from which they draw inferences or on which they base their testimony. No evidence based on these minutes shall be admitted except subject to my right to make objection. And Judge Treacy replied under November 14th date, "As to paragraph number one your letter the understanding therein set forth is agreeable to me. Of course, any use that is made of those minute books must be subject to that right to make objections as to its relevancy."

Commissioner Osborne: Oh, of course.

EDWARD W. BEMIS, sworn on behalf of Municipalities.

Direct-examination by Mr. Treacy:

Q. What is your business? A. Engineer, more particularly in appraisal work.

Q. How long have you been engaged in that line of business? A. Since 1901 when I took charge of the Cleveland Water Department.

Q. Will you please state what experience you have

had in that line? A. When at Amherst, I made special studies in mathematics and physics which underlie engineering, and took honors in this line. For a while I specialized after that in economics and history, taking a degree of Doctor of Philosophy in those lines at John Hopkins in 1884 or February, really, of 1885. Then I was in college work as a teacher and professor, five years being at Vanderbilt University and three years at the University of Chicago, in economics. During the period prior to 1900 I had begun to assist cities in public utility cases, even starting in 1891 with the gas case at Des Moines, perhaps the earliest rate case with possibly one exception outside of water, at least which I know of in this country. Beginning with 1900 I devoted myself exclusively to work in connection with the management and appraisal and investigation of public utilities. From the fall of 1901 until the end of 1909 I had charge of the Water Department of Cleveland, Ohio.

By Mr. Wherry:

Q. What was that date? A. The Water Department of Cleveland, Ohio.

By Mr. Treacy:

Q. But the date? A. From the close, from the fall of 1901 until the end of 1909 I had charge of the Water Department, as I say, of Cleveland. During the last few months of that time I had also charge of the municipal electric light department, also in Cleveland. I had occasion in that eight years and a quarter to make large extensions of mains and build a new pumping station and a tunnel under the lake. I probably set more water meters than anyone had set up to that time, or perhaps since, for I set over

seventy thousand in the City of Cleveland, metering every service and greatly checking waste thereby.

After 1909 I took the position of deputy commissioner of water supply, gas and electricity in New York City under Mayor Gaynor, where I had specially to do with the water end of the work and more particularly with the question of metering and the introduction of somewhat better business methods in the department. I left that department soon after the shooting of Mayor Gaynor and organized my own staff of engineers and accountants with an office in Chicago, where I have resided since then, but I have had an office in New York for the last five years also, at 101 Park Avenue. During this period since 1910 I have appraised the Water Department of Akron, Ohio, for city purchase, the city obtaining the property on slightly less than my appraisal. I appraised the water company of Des Moines, Iowa, for the City of Des Moines and later was the advisor of the city in the purchase of the property, which was bought about three years ago by the City of Des Moines. I represented Lake Forest in a water case in Illinois; also Streetor, Illinois. I have just been representing Fort Madison, Iowa in a water case, not yet finished, before the Federal Court. And I have had a large amount of other public utility work. I have represented a large portion of the larger cities of the country in rate cases. I was in the first and second Consolidated Gas cases in New York, the Gas and Electric Light case in Maryland, where I was employed by the state. I appraised all of the utilities in Washington, D. C., for the District Commission except the Water Department; that was publicly owned. I appraised all the utilities in Dallas, Texas, for that city. I have had all the gas engineering work for Chicago

for ten or twelve years, also for Des Moines and St. Paul. I appraised the street railways of Detroit for Mayor Couzzens and others, when they were on the Commission, before he became Mayor and have done work for him since he was Mayor. I have just finished the appraisal of the street railways of St. Paul. I am now representing Schenectady in a gas case and have represented them in a street railway. I recently made an appraisal of the Syracuse Street Railways. I have been a member since its organization in 1914 of the Advisory Board of the Interstate Commerce Commission, in the valuation of all the railroads of the United States, the Telegraph & Long Distance Telephone Lines. The work of that Board was practically finished some three years ago, it being advisory with regard to the plans and methods of appraisal. I have been employed by the State of Massachusetts and the State of New York through their Public Service Commissions in similar work of appraisal and advice on rates. It was after my investigation that the telephone rates were fixed in both New York and Chicago prior to the war, the rates which were maintained by agreement between the city, the state and the company, in both cases for three or four years until the middle of the war. I think that perhaps will sufficiently explain the work, although I might give a great many others.

Mr. Treacy: Is the Board satisfied?

Commissioner Osborne: The Board is satisfied.

Mr. Treacy: Maybe Mr. Wherry is not?

Mr. Wherry: I am satisfied that Dr. Bemis has testified in a good many cases. As to whether Dr. Bemis is qualified to give an opin-

ion as to the fair value of property is another proposition. I am willing to concede that he has the same qualifications to testify as he had when he—in this case, as he had in the Passaic Gas case and the Des Moines Gas case and reserve my right to cross-examine as to his qualifications and the weight of his testimony.

Commissioner Osborne: If you want to cross-examine him as to his qualifications to testify in this case, you better do it now.

CROSS-EXAMINATION by Mr. Wherry:

Q. Dr. Bemis, you say you represented the municipalities in these cases? A. Yes, and many other cases which I did not stop to quote.

Q. The first work you did in this line was in connection with the movement for lower rates in Nashville? A. Yes, way back in 1890.

Q. And you have always been employed in an effort to obtain lower rates, have you not? A. In some cases I have been making merely appraisals without reference to rates. But I have been on the public's side and it has been the side that usually had to do with rates. The public's side was in an effort to prevent often either an increase or to secure lower rates; that is true.

Q. In every case where you testified, either before a board, a commission or a court, you have either contended for lower rates or contended against an increase in rates, haven't you? A. Probably that is true as to my testimony. I have given advice to several cities independently.

Q. I am asking you now in regard to your testimony? A. On testimony, I think my testimony has

always been for cities and states and other public bodies and their case has been usually in regard to having lower rates.

Q. Just answer the question I am asking you? Perhaps you will recall you testified before this Board of New Jersey Commissioners in the case involving the Public Service Street Railway Company? A. Yes.

Q. Perhaps we can get along a little faster if I call your attention to some of your testimony? A. When was that?

Q. That is 1919. A. Oh, yes; I had testified in a gas case before, before this Commission, so I thought you were referring to that.

Q. You were asked this question there; you were asked then whether in any case that you testified in —in which you testified, the Court or the Board had not given a higher value than you testified to. Do you recall that? A. I may have been asked that question. I do not remember now.

Q. Do you remember that you answered that the same way you just did now; probably, I do not recall now. Then you were asked this question, on page 3763 of the testimony: "You do not remember any such case," and did you give this answer: "No, I was chiefly interested in the general result which was generally a big victory. There were more victories than defeats." Did you give that testimony? A. I do not remember, but if it is there I won't dispute it.

Q. Is that your attitude? Would that be your answer today? Is that true in the cases you have testified you have generally had more victories than defeats? A. There has been a nearer approach to my valuation than to that of the engineers on the other side, and I call that a victory.

Q. I am directing your attention particularly to the word "victory." When you use that word "victory" you meant, what you were contending for was a lower rate and the company got a lower rate than it would have gotten if you had not appeared? A. I do not remember what I had in mind when I stated that.

Q. You use the word now; is that what you mean? A. I mean there has been a nearer approach in the view by the Commission to the attitude I took in the cases than the position taken by the engineers of the company. I call that perhaps a victory in that sense because that came nearer to what I was testifying to.

Q. What you were trying to get was a lower rate? A. To maintain my views as to both values and rates.

Q. In each of those cases where you say you won a victory, the victory consisted in getting a lower rate, didn't it? A. Not always. It might have consisted in an approval of something nearer to my values than the other side's. It might have been a prevention in the increase of rates.

Q. A lower valuation or a lower rate? A. Than perhaps would have resulted if this work had not been done.

Q. Your object was to obtain a lower valuation or a lower rate for these municipalities? A. My object was primarily to present the actual cost or the investment of the property, which has always been my theory of a proper rate, and I always considered it a victory when it came nearer to that point of view rather than the reproduction theory on present prices.

Q. Then you used the word, the particular word "victory," didn't you? A. Very possibly; I do not deny it. I do not deny it since it is there.

Q. You have been sitting with counsel, advising in this case? A. I have been suggesting questions that we needed for our work.

Q. You have been doing that with the idea of getting—you are not an engineer, are you? A. There is a great question of what is meant by an engineer. I have never had a graduate's degree as an engineer. I have had charge of a large quantity of engineering work.

Q. You have done a great deal of work of a statistical character, haven't you? A. I have done that also, and I have supervised and did in Cleveland, a large amount of construction work and had to pass on many plans and in fact sometimes made plans of my own, which were adopted.

Q. In connection with waterworks? A. Yes.

Q. I am talking about your appearance, your work which was done in rate cases? A. Yes.

Q. In those rate cases your work has been generally in the nature of getting costs, hasn't it? A. Getting costs and studying the actual records of the book, but at times, in late years more and more I have associated myself with specially trained engineers in order to present all sides of the question.

Q. You have been interested in maintaining the cost theory of rate making, haven't you? A. Certainly. I believe it most decidedly.

Q. And in that, the question of statistics has had—statistical training has been considered more important by you than engineering? A. Statistical and accounting training is necessary but engineering training in the development of studies of depreciation and the accuracy of the inventory and the general management of business is necessary.

Q. In this particular case is the work that you are going to testify to here work along that line? A. The work that will be testified to here in part will be by engineers, which has been under my supervision.

Q. I mean what you are going to testify to.

Mr. Treacy: I object. I will introduce what Dr. Bemis is going to testify to.

Commissioner Osborne: You should confine this examination strictly to cross-examination on the witness's qualifications.

Mr. Wherry: If they are tendering him as a witness as to the fair value of the property, the question of his bias at once comes in, as to whether he will or will not be taken as an expert. If it is a question of his statistics and he is going to give us data that he has gotten from the books, I cannot say he has not qualified to give that. I do not say he is not. But if it is a question of his testifying as to values, I do not think the witness is qualified.

Mr. Treacy: I am willing to accept Mr. Wherry's proposition that this witness is not qualified, if he testifies to anything—to lower rates on condition that Mr. Wherry will admit that Mr. Hill is not qualified to testify to higher rates.

Commissioner Osborne: That is not the question. Do you tender him as an expert on valuation as well as statistics?

Mr. Treacy: Yes.

Q. You say you testified in the Des Moines Gas case? A. Yes. That was before I had any organization of engineers. 1911, wasn't it?

Q. 1912. You stated among your qualifications that you testified in that case and it was one of the leading cases in the country? A. Yes.

Q. And you were a witness in that case. In that case where Judge Sloan made the famous remark in regard to your testimony that has been quoted so many times in cross-examination? A. They have been quoted a few times.

Q. It was your testimony then, was it, that Judge Sloan made these remarks, in his opinion, with reference to? A. I think he referred to me there in one place.

Q. Here is the remark—

Commissioner Osborne: Do you think what Judge Sloan, whoever he may be, said about this witness's testimony will have any effect on this Board? What do we care what Judge Sloan said?

Mr. Wherry: I think in cases where a witness has testified as an expert witness and he refers to those cases as being part of his qualifications as an expert, the weight which was given to his testimony in those cases is very material.

Commissioner Osborne: What the Judge said about the weight that was given to it ultimately is reflected in the decision of the court. We are not interested in what some Judge said about it. We don't know who the Judge is.

Mr. Wherry: The Judge ruled on his testimony in that case.

Commissioner Osborne: His ruling is not going to govern us. We will rule as we understand the law of evidence.

Mr. Wherry: I think it is material to know, where a witness tenders himself as an expert, as having testified in other cases, it is material to show what the courts and commissions in those cases—the weight they gave to his testimony and what they said about his testimony. Take this particular case, this particular board—

Commissioner Osborne: Technically it may be so.

Q. You testified in the Passaic Gas case, didn't you, Dr. Bemis? A. Yes.

Q. In that case you were a witness before this Board? A. Yes.

Q. Before this New Jersey Board? A. Yes.

Q. It was your testimony in that case that is referred to by the Board in its opinion in that case, is it? A. Probably; although I do not remember now whether they did refer to it by name or not. It is a long time since I read the decision. If you say they did, I don't deny it.

Q. Would you consider that case was one of the victories? A. I was never satisfied with the unusually large amount of going value of thirty per cent, allowed in that case.

By Commissioner Osborne:

Q. How much? A. Thirty per cent.

Mr. Wherry: At the outset, I do not think that the witness has qualified as a witness on fair value, because from the very outset of his whole—and through his whole career in these cases, he has been an advocate in the cases—

Commissioner Osborne: Are not all experts

subject to that criticism, if it be a criticism? I have never seen any yet that were not.

Mr. Wherry: That may be the Board's ruling.

Commissioner Osborne: I have seen a good many on the witness stand, medical and otherwise.

Mr. Record: Somebody had to represent the city.

Commissioner Osborne: Anything else?

Mr. Wherry: That is all.

DIRECT-EXAMINATION continued by Mr. Treacy:

Q. Dr. Bemis, you were employed by certain municipalities to undertake the valuation of the properties of the five companies named in the petition in this case, the East Jersey Water Company, the Kearney Water Company, the Passaic Water Company, the Aquackanonk Water Company and the Montclair Water Company, were you not? A. Yes.

Q. When were you retained or when were you first employed in the case? A. About the middle of September, just after the middle, I think it was the nineteenth.

Q. Since that time you have been engaged in that work? A. Yes.

Q. Of ascertaining what is a fair valuation, in your judgment, of the properties of these companies? A. Yes.

Q. And also an investigation of the earnings and expenses of the companies? A. Yes.

Q. And also with reference to what, in your judgment, would be a fair rate of return upon the valuation as found? A. Yes.

Q. Now, what methods did you—did you have any previous experience with these companies prior to your employment in this case? A. I did have.

Q. When? A. About 1915 I was engaged by the Cities of Paterson, Passaic and Montclair to study the appraisal that had been made as of December 31st, 1912, by the Water Supply Commission consisting of Messrs. Hill, Herschel and Morey, and the appraisal made at the same time for the company by Mr. Leonard Metcalf. I did not have the assistance at that time of any staff of engineers or accountants, but I did study for over a month the reports or appraisals that they had made, together with a large amount of descriptive matter that accompanied their exhibits. I visited the properties, went over them, got in touch with the city engineers of the respective cities and made as careful an examination as I could under the circumstances, and made a report of about thirty pages to those three cities.

Q. Now, what was your general method of valuing these properties in this investigation? A. I first familiarized myself, as best I could, with the exhibits that had been put in by Messrs. Hill and Metcalf and later by Mr. Rossiter, I think it was, the land appraiser, and the testimony that had been taken or was taken.

Q. Let me interrupt you. How many values, or how many studies did you make of the properties of these companies with a view to furnishing a valuation for this Board? A. Two.

Q. Will you please name them? A. The historical cost, as I term it, which may be called the recorded cost, so far as we could find the records, and we did find the records outside of lands, of about ninety-

three per cent in value of the property, of the structures.

Q. You found the historical cost for about ninety-three per cent? A. And we estimated the other seven per cent from the data we did get of similar constructions during the same years. We got the entire construction of the Montclair Company from its origin and that was about as old as the Passaic and the Acquackanonk, so we could use those prices to a large degree in connection with the Passaic and the Acquackanonk, knowing as we did, a great deal about the property in use about 1902 when many of the books were burned, of the Passaic and Acquackanonk Companies. Nothing was burned of the Montclair Company. We were also aided by the fact that a considerable portion of the mains, of the early period, in the Passaic and Acquackanonk Companies were cement pipe, which was later replaced by cast-iron pipe and replaced since 1900, so we could get data frequently of the cost of the replacement, even where we had not been able to get the cost of the original cement pipe. There were no services to be appraised. The meters have mostly come in in the last twenty-five years. Furthermore we have all the records of the East Jersey and the Kearny Companies; none of their books were burned. We had all the records of what is known as the jointly used property, which is at least one-half of all the property, and all the construction of all the companies since the fire, 1902, which was about another quarter; about three-quarters involved just in that. It was only another one-quarter, in round figures, that was prior to the fire, or prior to the construction of the jointly used property. We had further help with regard to that, not only by having the Montclair records but there were a good many engineering books

preserved, not in the fire at all, of the Passaic and Acquackanonk Companies, where the engineers of those companies kept the records of quantities of pipe laid each year, the sizes, the lengths and the costs. At least a large portion of the cost. Some elements of cost may not have been in there, but the large portion of the costs were in records preserved in the engineering books, which we have had access to. Then there was another source of information. By arrangement made here by the commission and Mr. Wherry, certain reports made from 1897 to 1902 by Mr. Fisher, who was cashier and secretary, I believe at that time of the companies, and continued so until his death lately, reports that he made to the President or the Vice President and General Manager, Mr. Gardner, now President, reports that were made to the directors. They were official documents in a way; they gave the balance sheet each year of the five companies; they gave the revenues and expenses and the disposal of the surplus, showing how much of it was used for construction and to some extent itemizing the construction of each year, how the money was spent, so we had that data. We had other data in the offices relating to contracts, and all sorts of papers belonging to the companies which were in the offices where all these records are kept, which is in Paterson. All the records are now centered in the office of the Passaic Water Company in Paterson. So we found many records there even besides those I have spoken of. We had the directors' minutes, for example, from 1902 on, and I believe the directors' minutes complete before that for the Montclair Water Company and for the East Jersey, which started a little before the fire. So we had an unexpected amount of information, far more than would appear, if it was merely

supposed that everything was burned in 1902. A great deal was not burned at that time, we found, of the early records.

Q. That was in connection with your historical cost method? A. Yes.

Q. What do you mean by historical cost? A. I mean the cost as recorded on the books of the company or other records of the company, and which sometimes had to be supplemented by estimates, but where so, we will be able to indicate it. But the record, the actual recorded cost, every dollar that the company spent, was either spent in these costs which they recorded as the costs of property, or in operating expenses or paid out of course in dividends and interest. Now, we had a record of all their operating expenses and payments of every kind, and we had the further evidence that we thought would be important that we found no records that the company had ever appealed to this Board to change their accounts as shown by their books, which are brought up to date, based on the past records; no claim made by the company in any hearing, so far as we could learn, that the books had been inaccurately kept, and we thought the system of bookkeeping was very good and we did not see any reason to reject these cost items that we found.

I might say that the company was very courteous in letting us have everything we asked for, except two or three things that are known, where there was a discussion here, but ultimately we got, I think, everything we asked for and furthermore they were courteous in conferring through Mr. Cooke, and answering questions that I frequently asked for information, and Mr. Cooke kindly took some of us around the property.

Q. You did not get the New Jersey General Securities Company's records? A. No. We did want those, but did not get them. The New Jersey General Securities Company owns these five companies, the holding company, and we thought those records would be useful. We were told that those were not considered as appropriate to this investigation; Mr. Wherry did not allow us to have those.

Q. Now, did you visit the properties of these companies? A. Yes.

Q. And made an inspection of them? A. Yes.

Q. Will you describe the work that was done by yourself and by your assistants in developing first the historical cost? You were in general charge? A. Yes.

Q. Did you lay out a plan for your assistants? A. Yes.

Q. How many assistants did you have in doing this work? A. About a dozen.

Q. Who were your chief assistants under you? A. My oldest son, W. S. Bemis, a graduate mechanical engineer of the University of Wisconsin with a staff of other engineers, specially I might mention Mr. I. E. Dischinger, a practical engineer, although not a graduate of any technical institution; Mr. Lloyd Bemis a graduate civil engineer of Cornell, and an advanced student in engineering at Harvard afterwards; Mr. George Matthews, a certified public accountant and also a chartered accountant of England, who is a member of the firm of Sangster & Matthews of New York and Chicago, with some of his staff, three of his staff, so in all there were about a dozen of us at work constantly from the latter part of September until the present time, working day and night as far as that goes.

Q. How did you handle the matter of depreciation? A. I found a very careful study in the appraisals that had been made by Messrs. Hill and Metcalf of the age of the various parts of these properties. In some cases, however, we found that there was not sufficient detail and we went back and got further studies, breaking up the cost for example, the age of certain things like mains in the various years, and we accepted then with those checks and perhaps additions, the ages of the various parts of the properties. Then we took up the question of probable life. Mr. Hill had given estimates of that life for every class of property, varying from one hundred years in the case of cast-iron mains to less for wrought iron and steel, like the fifty-one inch, and so on down to shorter lives for pumps, boilers, buildings and so forth, meters, and we took his lives as they were quite in harmony with the lives that we had found by study and inspection elsewhere to be commonly taken in such cases. We had no evidence of any special deterioration from electrolysis or other causes and could not personally examine the mains. Most of the property consists of buried mains; very little is above the surface, outside of reservoirs and the filtration and pumping plant at Little Falls, and a few buildings, pipe yards outside.

Q. You said that you developed a valuation by another method also? A. Well, perhaps I should add in the matter of depreciation that while we used Mr. Hill's lives and ages, we applied the straight line method of calculation of depreciation instead of the sinking fund method which he and Mr. Metcalf used. There were several reasons why we believed that the straight line method was a better one, as well as being

the more usual one in appraisals before commissions in this country.

Q. Now, under you, I understand your chief assistant in the development of the historical cost, who was in charge of the work, was your son, Walter S. Bemis? A. That is right.

Q. Lou developed another method of valuing this property, as I understand it? A. Yes.

Q. Besides the historical cost method? A. Yes.

Q. Will you please state what that was? A. I took the appraisal made for the State Water Supply Commission in 1912 by Mr. Hill, Mr. Herschel and Mr. Morey, and which was referred to many times in this case as the foundation for some of the work done later by Mr. Hill; I took that appraisal, analyzed it, and took up the cost new; it had cost new and depreciation on the sinking fund theory, the same as in this case, and I studied that cost new. I took out of it for reasons that I prefer to treat separately later, the going value, and took the cost that they gave new of the physical property, a little over nine million dollars. I took the valuation as of December 31st, 1912, new that they gave. Now, there were certain adjustments that I made in that valuation. I shall present later an exhibit showing the work—that was done directly by myself. I excluded certain things which I thought were improperly in there; one was paving over mains, where the paving had not been cut through in the process of lawing the mains, but came later. The method of including only the paving that was cut through is used by Mr. Hill himself in his present exhibit as of December, 1920, but he used the other method as of December, 1912, and the method that he and Mr. Metcalf both use now is the common method before courts and commissions every-

where, so I took out the paving that was in the 1912 appraisal but is not in the present appraisal. I followed as to that Mr. Metcalf, because he seemed to me to have made a more careful study of that paving that had Mr. Hill. Then in the 1912 appraisal was included overheads on land and diversion rights as well as on all structures, overheads of a little over eighteen per cent. I considered that they should not be included, should not have been included in 1912, as they are not included by some commissions, following apparently the decision of the United States Supreme Court in the Minnesota rate cases where all such overheads on railroad land were rejected. Then a third exclusion that I made was discount on bonds, something which Mr. Hill and Mr. Metcalf had excluded in the present appraisal also, but which was in the appraisal of 1912. It amounted to quite a large sum of money, because it was seven and one-half per cent of the base cost and then there was interest of seven per cent reckoned on that, so it made over eight per cent, the total of discount on bonds, which also is excluded by both courts and commissions. I took that out. Then there was some property in the 1912 appraisal that has since been abandoned but not sold, the use has been given up. There are some wells, for example, at the Montclair pumping station; there is the Stony Brook Reservoir which is not claimed any more by the company, but which was not taken out of the 1912 appraisal by Mr. Hill when he brought it up to date in his so-called valuation C. He had A, B, C, D, E, F, G, H, I think, several different values, and one was 1912 brought up to date as I am doing, but he did not take it out, although he no longer includes the Stony Road Reservoir, he said in his testimony, he or Mr. Metcalf, perhaps both said that.

Then I took out the other reservoirs that are known as the Totowa and the Middle Reservoirs. The Totowa Reservoir, I understood the company to agree should be deducted as practically abandoned; no water in it, has not been for a long time. They still claim the Middle Reservoir and it is full of water, but my engineers report to me that there is nothing in the use of that reservoir that cannot be equally well managed by a valve attached to the high service in a way they will explain, or Mr. W. S. Bemis will explain later, and so there seems to be no use for that reservoir. It is a small reservoir anyway. There was a little other property which I shall show in an exhibit later, where I shall present those particular exclusions. Having thus, as it were, adjusted the 1912 appraisals by taking out the discount on bonds, paving over mains, overheads on land and diversion rights, and some property that is discarded, yet not sold, I then added the net additions since then up to the close of 1920, and also to the close of 1921, net additions which Mr. Matthews prepared for me from the books of the company, being the gross additions less the sales and so forth, and reached a figure that way, which surprised me by its closeness to this other historical cost. The two, my latest figures would indicate they do not vary two per cent, those two figures from each other, in fact less than that difference, although I did not bring the figures together until late last night, to know just how they were coming out. They were prepared entirely independent of each other. The criticisms I have made this morning of the 1912 appraisal are the same criticisms that I made in my written report in 1915 to the cities that I was then helping. Then I applied depreciation. I am applying depreciation in the same percentages to this

1912 appraisal brought up to date that I found necessary on the historical cost, based on the same ages and lives that Mr. Hill used, but taking the straight line method insteal of the sinking fund.

Q. I show you a volume entitled "Valuation of the properties of the East Jersey Water Company, the Kearney Water Company, the Passaic Water Company, the Aquackanonk Water Company, the Montclair Water Company, Edward W. Bemis, Consulting Engineer, New York and Chicago," and ask you what that volume represents? A. This represents the historical cost, a volume which was prepared under my immediate direction. I have been with the work constantly every day almost, but under the more immediate supervision of W. S. Bemis. There are 193 pages of data here.

Mr. Treacy: I ask that be marked for identification.

Volume entitled, "Valuation of the properties of the East Jersey Water Company, etc., Edward W. Bemis, Consulting Engineer, New York and Chicago," received and marked Exhibit R1 for identification.

Mr. Treacy: If your Honor please, as Mr. W. S. Bemis has been in actual charge every minutes of the time that this investigation has been made, I would like to withdraw Dr. Bemis now and put on the practical man so we will not have that same sort of thing as we had when Mr. Metcalf was on and he had to continually call an assistant to remind him—

Commissioner Osborne: Do you intend to recall Dr. Bemis?

Mr. Treacy: We intend to recall Dr. Bemis later on.

The Witness: We are not ready, not quite ready, will not be ready before tomorrow. I worked until twenty minutes of four this morning.

Mr. Treacy: We will take the historical cost first and the comparative study second, which Dr. Bemis made.

Mr. Wherry: May I ask Dr. Bemis one question before he retires?

By Mr. Wherry:

Q. Dr. Bemis, as I understand it, your son and these other assistants, do the detail work and report to you and you are the final judge or arbiter of what use is to be made of them? A. Yes.

Q. So that they are simply detail workers under you? A. Yes, they make independent suggestions, of course, which I endorse often.

Q. But you are the final arbiter, and it is your judgment and your opinion that is responsible for the final conclusion? A. Yes, sir.

Q. That is embodied in these reports? A. Yes.

WALTER S. BEMIS, sworn on behalf of Municipalities:

Direct-examination by Mr. Treacy:

Q. Mr. Bemis, what is your business? A. I am an engineer.

Q. What kind of an engineer? A. I received education as a mechanical engineer.

Q. Did you obtain any degree? A. I received a degree of mechanical engineer from the University of Wisconsin.

Q. When? A. 1915.

Q. Will you state very briefly what experience you have had in connection with work of the kind that Dr. Bemis has testified that you were engaged in in this case? A. My first experience in work of this kind was the year prior to my completion of my college work, when I was employed in Dr. Bemis' organization in Washington, D. C., as a field engineer in the appraising of the underground distribution system in connection with the utility properties located there, for the District of Columbia Utility Commission. After completing my education in college I returned to Washington where the job was still progressing, and had charge of some of the special features, the engineering end of the appraisal of the Chesapeake & Potomac Telephone properties for the same Utility Commission. Subsequent to that time I was sent to Dallas, Texas, as the field engineer in charge of the preparation of the inventory and data for the pricing of the Street Railway, Electric Light and Gas properly located there. I then was sent to Seattle, Washington for similar work—we did not make a valuation, but we made an appraisal of the existing valuation of the Seattle Gas and Electric Company's property, the gas end of their property. Subsequent to that time I have been engineer in charge of a large number of valuations handled by Dr. Bemis. The largest one involved was the appraisal of the Peoples Gas Light & Coke Company, Chicago, Illinois, of which I had charge of the engineering features of. The St. Paul Gas Company is another large one, the Twin City Rapid Transit Company's property located in St. Paul is another one. I might refer to others but I do not think it is necessary. I might add that I am an associate member of the American Society of Mechanical Engineers.

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Q. You have been engaged in the present case since about the middle of September? A. Yes, sir.

Q. And you have given it your constant supervision since that time? A. Yes, sir.

Q. You developed what is known and called here the historical cost of the properties of the five companies involved in this case, the Passaic, Aquackanonk, Montclair, East Jersey and Kearny Water Companies? A. Yes, sir.

Q. How was the property or the properties of the five companies treated first, in regard to joint ownership, and secondly, as to individual ownership? A. We found upon investigation that the properties were roughly divided, should be roughly divided by us into two general classes, namely that portion of the property which was used in varying degrees jointly by more than one of the companies involved, and the other class of property was that that was used specifically in connection with the operation of only one of the different properties involved. That line of demarkation has been followed in this exhibit.

Q. What inventory did you use in connection with your valuation of historical cost? A. We used the inventory prepared by Mr. Metcalf and adopted by Mr. Hill in their two reports.

Q. What percentage of the total properties of these various companies did you find the cost for on the books and records of the company? A. Excluding the items of interest during construction, which we estimated, and which the company did never keep a record of on its books, and the item of land, upon which we took the reproduction cost as fixed by the company's witness, Mr. Rossiter, and I understand, Mr. Lambert, we found ninety-three per cent of the

total cost of the property. The balance, or seven per cent, we estimated the cost of.

Q. What prices did you use? A. We used in the case of the ninety-three per cent, the actual cost to the company for the property in the inventory and now existing in the property. In the case of the balance of the property, we estimated what, in our opinion, was the actual cost to the company of the property at the time it was actually installed, basing that estimate on the costs to the company of its particular construction and also basing that estimate on our experience in connection with other property.

Q. What method of depreciation did you use? A. What?

Q. What method of depreciation did you use? A. We used the straight line.

Q. What is known as the straight line method? A. What is known as the straight line method of depreciation, yes.

Q. Instead of the sinking fund method? A. Yes.

Q. Will you please explain what the straight line method is and state why you used it? A. The straight line method is in effect zero per cent sinking fund method. In other words there is no fundamental difference between the straight line method and the sinking fund, except in one case zero per cent is allowed, that is in the case of the straight line, and in the case of the sinking fund varying amounts larger than zero per cent are allowed. Mr. Hill used three per cent and Mr. Metcalf used four per cent; there might be any amount higher or lower than those figures used and still be a sinking fund method.

By Commissioner Osborne:

Q. That is, the sinking fund method provides for

a sinking fund and the straight line method does not? A. The sinking fund method provides for a sinking fund earning a definite rate of interest. In the case of the straight line basis it is assumed no interest is to be earned. If it is one per cent sinking fund, there would be only one percent, and so on, yes.

By Mr. Treacy:

Q. In the straight line method a certain percentage is taken, for example, one per cent based upon the estimated life of the property and that depreciation is taken off each year? A. Yes, sir, in the case of the existing property that was done by us.

Q. By you. But that was not done by Mr. Hill? A. No, sir.

Q. So that if a property were forty years old, or a unit were forty years old, assuming the life of that unit is one hundred years, the depreciation would be forty per cent? A. On the straight line basis, yes.

Q. On the straight line basis? A. Yes.

Q. Assume the same unit forty years old and adopt the sinking fund method, that would mean that a certain amount, was—a three per cent sinking fund method would mean that such an amount would be set aside each year, that with compound interest upon it at the end of one hundred years there would be made up the total value of the property? A. Yes.

Q. Will you please state what is the result approximately of using the one method as against the other? A. If the straight line method and the sinking fund method are used separately and in a consistent way, that is, if you take the accrued depreciation and deduct it from the cost new, in the case of the straight line method, figured on the basis of the straight line, and also the annual depreciation on that basis, then

take a reasonable rate of return on the property, whatever you want to use, and then in the case of the sinking fund method of depreciation if you deduct also the accrued depreciation arrived at by following that method and use the annual depreciation on that method, you will get almost identical results.

Q. At the end of one hundred years? A. Even in an intermediate period. In the case of these properties we made such a study.

Q. Have you any criticism to make of the sinking fund method in connection with these properties? A. Not if it is properly used, but I consider that it was improperly used by Mr. Hill and Mr. Metcalf.

Q. Why? A. In that the annual depreciation which they used was not the depreciation found by a strict sinking fund method of depreciation. The sinking fund basis applied to Mr. Hill's appraisal, which we did in our property, we find a much smaller annual depreciation than he actually testified to as being necessary. If you take a seven per cent return on his cost new less depreciation, and take the annual rate of depreciation which his total lives will give as being proper on his three per cent basis for the properties, you will get the same total figure, by adding the annual rate of depreciation and the rate of return on the property together, you will get the same figure as by depreciating his same figures, the same ages and lives on the straight line basis and taking a seven per cent return on the depreciated cost and adding to that the annual depreciation.

Q. What I want to know is this: Does the straight line method which you adopted show that this property, that the accrued depreciation in this property is greater or less than the sinking fund method used by Mr. Hill? A. On the straight line basis that we

used, it shows a greater depreciation existing in the physical property than on the sinking fund basis

By Commissioner Osborne:

Q. As used by Mr. Hills? A. Yes, as used by Mr. Hill or as used anyway on the same property.

By Mr. Wherry:

Q. The straight line method always produces a greater depreciation than any sinking fund method, doesn't it? A. The higher the rate of return in the sinking fund method, the less the accrued depreciation. A four per cent basis will give a less accrued depreciation than a three, a three than a two and a two than zero or the straight line.

Q. Since yours is zero it is always higher, the straight line is always higher? A. It is bound to be. Also I might add that the annual depreciation is also higher and that accounts for the offsetting feature. However, Mr. Hill in his exhibit used an annual depreciation equivalent to the straight line basis of depreciation, and yet he used the accrued depreciation on the sinking fund basis.

By Mr. Treacy:

Q. In other words, Mr. Hill adopted the sinking fund method as to past depreciation, which gave him a lower depreciation on the property, and as to future depreciation he estimated that in accordance or in the same manner as the straight line basis? A. He did not testify as to how he did it.

Q. What do you mean by what you said just now? A. He obtained the same result within a few thousand dollars as he would on the straight line basis. I have no knowledge personally, as to how he arrived at the

amount which he did finally set up as the annual depreciation. But using his total lives, and getting an annual rate on the straight line basis for the total dollars that he used, we get the same answer practically. I assume he did it that way, but I do not know.

Q. On page three of the report, in Exhibit R1, for identification, you state that you took the weighted average of the lives of certain property, particularly the distribution mains and accessories? A. Yes.

Q. And the structures under the Little Falls improvement. Will you please state what you mean by that? A. There were certain expenditures in the company which were lumped to include more than one class of property, that is, by class, I mean property having different total lives, and so it was necessary in applying the lives found by Mr. Hill to estimate the number of dollars in the total dollars, which was included in the different classifications, and to weight those dollars with the total life used by him and so get a weighted total life to apply to the lump sum. That is what this statement refers to on page three.

Q. Now, will you please give us a description in some detail of the methods that were pursued in obtaining the prices of the property inventoried. A. On page four there is a caption there entitled, "Detailed description of methods pursued in pricing inventory" which goes into this matter at some length. In a general way, after dividing first the property into the two main classes which I testified to before, namely the property which was jointly operated and which we have considered as jointly owned, as against the property which was individually operated and individually owned, we then went into the records of the different companies involved as owning this property and determined in so far as we could the actual

cost of the different elements included in the inventory. After determining the actual cost of all the property which we could in this manner, there was a certain residue of property which it was necessary to estimate the cost of. In connection with the estimating of this cost there were certain records which we found which were of material assistance to us, but which I would not like to call records of definite costs; they consisted of engineering records, estimates of engineers of the property, but did not tie in directly with the records of the company, and so I am considering that we estimated costs of those properties.

Q. You first placed a valuation, as I understand it, on the jointly owned property, the property jointly owned by all the companies? A. Yes.

Q. Then you obtained the valuation of the property of each of the companies which was not jointly owned? A. Yes.

Q. But which was individually owned by each company? A. Yes.

Q. What was the jointly owned property which you placed a valuation upon? A. The jointly owned property consists of the—

Q. Is it property designated on page twelve of Exhibit R1 for identification? A. Yes.

Q. And the individually owned property is that—you set that forth for each company? A. Yes, sir.

Q. Where is that set forth in this report or this volume, R1 for identification? A. On page 82 is contained the summary of the individual property of the East Jersey Water Company.

Dr. Bemis: You do not mean 82, do you?

The Witness: 82.

Dr. Bemis: No.

Q. What does page fifteen show? A. That is the summary of the property of the Passaic Water Company. That is right; there is a further summary than the one I was just referring to.

Q. Page fifteen shows the valuation found by you of the Passaic Water Company's property on the basis of original cost new, the annual depreciation and the original cost new, less depreciation? A. Yes, sir.

Q. By original cost new you mean the historical cost? A. Yes, sir.

Q. By "you" you mean your father or yourself? A. Yes. This is not my exhibit. This is Dr. Bemis' exhibit, but I acted under his instructions in doing this work.

Q. And the figures there are his figures as he gave you the instructions to put them in there? A. They are a reflection of his ideas as carried out by me under his instructions.

Q. You simply put them in by instructions from him then? A. Yes, sir; I worked as his assistant.

By Mr. Treacy:

Q. You found the figures on the book, didn't you? A. Yes, sir.

Q. As to costs? A. Yes, sir.

Q. As to depreciation, you put that in in consultation with Dr. Bemis? A. Yes, sir.

Q. You did not mean to say that you put every figure in that you have in this volume of 193 pages upon the express direction of Dr. Bemis? A. Why, no. I received the general instructions from him as to methods of procedure and in case I needed further

interpretation regarding those instructions I came to him and obtained additional information.

By Mr. Wherry:

Q. And the final conclusions, the final figures that you give, they were his figures and you used them by his instructions, isn't that correct? A. I turned them over to him and discussed them with him and got my instructions from him as to whether he thought they represented the actual historical cost of the property and when he was satisfied that they did, then those were the final figures adopted.

Q. They were his figures, the final figures adopted were his figures? A. Yes, sir.

By Mr. Treacy:

Q. Now, as to the jointly owned property, on page eleven you say in the same manner, original cost new, annual depreciation, original cost new less depreciation? A. Yes.

Q. That means of course historical cost? A. Yes, sir.

Q. And on page sixteen you show the same with reference to the Acquackanonk Water Company? A. Yes.

Q. The property owned by the Acquackanonk Water Company? A. Yes.

Q. Page seventeen, the Montclair Water Company? A. Yes, sir.

Q. Will you state in a general way for the board the method pursued with reference to what you call "Details of additions," pages eighteen to thirty-five of this report? A. Those represent, are analyses—

Q. Those are with reference to the joint ownership property? A. Not only the joint ownership

property but also the individual ownership property. These additions are added to the actual historical cost as of December 31, 1920, found in the pages immediately following page 36. To the costs based on the inventory of Metcalf of December 31, 1920, we got the historical cost as of that date. We then went into the records of the company and obtained the additions during the year 1921, contained in the pages 18 to 35 inclusive. These additions added to the cost as of December 31, 1920, gives the total figure as of December 31, 1921, found on pages 10 to 17 inclusive.

Q. So that from pages 18 to 35 you set up the cost as found by you from the books of the company of all additions made during the year 1921? A. Yes, sir.

By Commissioner Bacharach:

Q. Are they your figures or those of your father's now; from 18 to 35, they are figures he found himself, or after consultation with Dr. Bemis? A. After consultation with him. In a general way our method of procedure is this; I am given general instructions to find the historical cost of a property, under a definition laid down by him; then acting under those instructions I went into this property, as I have done in other properties, to obtain that cost. Of course he did not keep in touch with all the details of the work, which would have been physically impossible, with twelve men working, any more than I personally put down every figure in this valuation; I had a number of assistants. But finally certain figures were arrived at, tentative figures and they were taken up with Dr. Bemis and he went over them, reviewed them, suggested certain modifications—I do not remember what they were at this moment, but I think there were some

in this case, my recollection is—but then finally at least he stated that he was satisfied with the conclusion.

By Mr. Treacy:

Q. When you say "your figures" the figures of all costs are the company's figures, aren't they, to the extent of ninety-three per cent? A. Yes, to the extent of ninety-three per cent they are the recorded costs.

Q. Those are not your figures? A. They are not my personal figures, no. They are the figures obtained from the records of the company, yes.

Q. And as to the figures representing depreciation, overheads or items of that kind, you consulted with Dr. Bemis, as I understand it? A. Yes, sir.

Q. Before the amount was set down? A. Yes.

By Mr. Wherry:

Q. Does it appear anywhere in this exhibit you are going to offer what part is estimated and what part you claim to have taken from the books? A. We indicate in here, I think in every case, the property that we estimate the cost of, but I can give you a collection of those items to facilitate your check on that, if you care to have it.

Commssioner Osborne: That figure of ninety-three per cent was just an estimate on your part?

The Witness: No. I have the actual dollars; that was 93.05 per cent.

Commissioner Osborne: In dollars?

The Witness: Yes, sir; I have listed all those dollars.

By Mr. Wherry:

Q. Take up the items of costs; what did you include in the item of costs, where you speak of costs; are you speaking of unit prices or overheads, or both unit prices and overheads? A. I am speaking of the actual cost as shown by the records of the company of specific items in the inventory made by Metcalf.

Q. Take items that were put in before 1902? A. Yes.

Q. The way in which you would ordinarily find the cost of those items would be by consulting the vouchers? A. Yes, sir.

Q. Were there any vouchers in existence regarding items prior to 1902? A. There were a number of—yes, there were in connection with the Montclair Company, as I recall it, there were complete general books of the Montclair Company, and a number of contracts, and I think vouchers also.

Q. Take up the question of general books. You used the item in a general book; you had to have some analysis to determine what part of that particular entry in a general book you would apply to a particular individual item of property? A. Yes.

Q. And was that analysis made by Dr. Bemis or by you, or by you in the first place and then referred to him? A. That was made under his general direction by myself and Mr. Matthews, the accountant, and the results were shown to him.

Q. Then he passed on it and his word was final on it? A. Yes.

Q. And his instructions were followed in the beginning in regard to it? A. Yes. There was no difference in the method of procedure in our office from any other engineer's office in that respect.

Q. Never mind that—I am trying to get the fact —what goes on in any other engineering office. Did that apply to the items you included in this ninety-three per cent? A. No. That applied—we got the actual costs, I am stating—

Q. From vouchers? A. (Continued.) —of property we could allocate, ninety-three per cent.

Q. From vouchers? A. Yes, sir; I think every bit of it was from the costs.

Q. You are ready to stand on that, are you? A. I will say this; I do not think even during the last year we went into every voucher in this property. I know we did not, and our additions, I am positive, we could not possibly have done that inside of a year's time instead of a month and a half's time, go into every voucher in this property. It is not necessary.

Q. Isn't it a fact that in the early years especially that entries on the books to capital account would cover more than one item and that you would have to make an analysis to determine what you would allot to these different items? A. Yes. Hydrants were included with mains as one item.

Q. Did you attempt to separate them? A. We attempted to separate them, yes.

Q. That is what I am asking you. And you did that all through your costs in that ninety-three per cent, didn't you? A. Well, in the case of hydrants we did, yes.

Q. Didn't you with many other items? A. We did not. We did not take balance sheet items, in other words, if that is what you mean, and take the difference between the two balance sheet items and say that was the property increase, if that is what you mean.

Q. But the books showed they were balance sheet items, didn't they?

Recess.

After recess.

WALTER S. BEMIS resumes the stand on behalf of Municipalities.

Direct-examination continued by Mr. Treacy:

Q. Mr. Bemis, before recess Mr. Wherry asked you if you examined the vouchers, showing the costs? A. Yes.

Q. And you stated you did not examine each and every voucher? A. No, sir.

Q. Was it necessary to examine each and every voucher? A. No.

Q. Why? A. For the reasons that the other records of the company gave sufficient detail.

Q. What other records? A. The journals.

Q. The books? A. The books.

Q. The bookkeeping books? A. Yes, the bookkeeping records of the company.

Q. Now, with regard to everything that is contained within the two covers of this Exhibit R1 for identification, did you have personal knowledge and personal supervision? A. Yes.

Q. And you are personally familiar with every item contained there? A. Yes.

Q. And I understand you to say that as to ninety-three per cent of the valuation found, you got the costs from the books and records of the company? A. Yes, sir.

Q. How did you arrive at the other seven per cent? A. The other seven per cent was arrived at by estimating the cost of the property based on the actual costs obtained from their records of the associated companies or from the Water Supply Commission's report made by Messrs. Hill, Herschel, and Morey in 1913.

Q. Then when you say you estimated it, what you actually did was to get the cost prices, the costs of similar items for the other companies? A. Yes, sir.

Q. As of the date of installation or acquisition of the units? A. Yes, sir.

Q. Or you took Mr. Hill's prices, where you could not get the costs of such units from the records of any of the companies? A. Yes.

Q. Or you took—what else did you take; anything else? A. Well, in the end, with a reflection of my judgment as to it, it is based on those items.

Q. Wait a minute; I did not come to that. What you did was to take those costs found on the books of the company? A. Yes.

Q. In each case? A. Yes.

Q. If there were no records for the particular company, and you found the recorded costs for one of the other companies for units of the kind you were valuing, then you adopt that as the cost as of the date of installation of the units? A. Yes, with one exception; that is, for instance, one town might have more rock excavation than the other, in the laying of a main, so that we would have to increase the estimate or the actual cost in one vicinity, or decrease it, to correspond with the particular conditions in the other.

Q. But in cases where you could not find, as I un-

derstand it, any book records, any items on the books to show what the cost was of the particular company under investigation, or one of the associated companies, you then took Mr. Hill's prices? A. That is true.

Q. So, as a matter of fact, there was no guess work insofar as you were concerned, as to any of those items? A. No, I would say there is no guessing in the whole appraisal.

Q. Did you or did you not get your costs from the books of the company, from the books of the other companies, in cases where you estimated the costs—I am speaking of the seven per cent—or from Mr. Hill's costs? A. Yes, sir; I did.

Q. Did you have any other source that you got them from, than those two sources, and if so, explain what it was? A. I do not recall any items that I got from any other source. There might possibly have been one or two, but I do not recall them at this time. Practically everything was obtained in that way.

By Mr. Brown:

Q. Dr. Bemis referred to some record of some cashier that you got? A. Of some what?

Q. Some cashier of the company; some records of the treasurer of the company? A. Yes, sir; we have some records, I considered them as part of the records of the company and used them for what they were worth.

By Mr. Wherry:

Q. Did you indicate where you used them? A. I am setting this up as an estimate, where it was not based on the books of record of the company.

By Mr. Treacy:

Q. How do you set it forth in this volume marked R1 for identification, how is the estimated, as you call it, the estimated cost which refers to the seven per cent, of which you can find no record on the books made up, and how is it set forth here in the books? A. I will have to give you the figures, I can give you the figures in some detail now.

Q. Can't you state how it is set forth in this book? A. Yes, sir; I can go through the book.

Q. Have you designated it in any way so that when we go through this book we can tell what is estimated and what is not? A. I have not found it designated in one or two cases as I hurriedly checked it. I thought it had been. It is on the detailed working sheet and in typing for some reason that designation was omitted. There was an E placed under each item that was estimated.

Q. At any rate, you had it on your working sheet? A. Yes, sir.

Q. All the details you transcribed, the sums on those sheets into this R1 for identification? A. Yes, sir.

Q. Will you please state in a general way what this R1 for identification consists of? A. This consists of the historical cost—

Q. You stated that. Can't you start in with page—I think we got to page—I think we got to page 35, didn't we? Yes. Beginning with page 36 state in your own language, so the Board may understand what it is? A. Starting with page 36 is obtained the details behind the historical cost of the property as of December 31, 1920. The summary of these costs is on page 37, totalling $9,431,624, for the cost new and $7,530,646.73 for the cost new less accrued depre-

ciation. There also is here the annual depreciation of $127,340.30.

By Mr. Wherry:

Q. How much? A. $127,340.30. This summary is in turn supported by the following sheets. In the report, page thirty-nine, is a further summary of the joint ownership.

By Mr. Treacy:

Q. Property? A. Property.

Q. That is continued through page forty, forty-one? A. That is continued. The further details of the summary on page thirty-nine are on the immediate pages following it in the order as set up on page thirty-nine.

By Mr. Treacy:

Q. So the items consisting of joint ownership property run from—the detail items run from page 39 to page 79, is that correct? A. Yes, sir.

Q. Then beginning with page 81 you take up for each company the individually owned property of that company? A. Yes.

Q. The East Jersey first, page 81, the Kearny on page 83, page 84, the Passaic on page 88, the Acquackanonk on page 124, the Montclair on page 154, showing in each case the details upon which you built up your valuation for each company? A. Yes.

Q. Then you itemized the property which in your judgment was not used or useful? A. Yes.

Q. You made an examination of those properties to determine for yourself whether they were used or useful? A. Yes, sir.

Q. And you set that forth on page 186? A. Yes.

Q. Both as to the joint ownership property and the individually owned property? A. Yes.

Q. The result of all your work is shown on page 11? A. Yes, sir.

Q. Which shows the value of the property as of December 31, 1921, both jointly owned and individually owned? A. Yes, sir.

Mr. Treacy: I offer this in evidence.

Marked Exhibit 1 for identification.

Commissioner Osborne: Any objection?

Mr. Wherry: May I see it please? This is a report signed by Edward W. Bemis and I understand it is a report prepared by Edward W. Bemis. I suppose I have a right to cross-examine both Edward W. Bemis and this present witness with respect to it?

Mr. Treacy: You have a right to what?

Mr. Wherry: Cross-examine. This is an appraisal of Edward W. Bemis, signed by him.

Mr. Treacy: You can cross-examine either witness you want to in regard to that.

Mr. Wherry: It is the appraisal of Edward W. Bemis. Is it offered as his appraisal or is it now offered as this witness's appraisal?

Mr. Treacy: It is offered as the appraisal of this witness.

Mr. Wherry: I object to it as going in as an appraisal of this witness because he has testified all the final figures, all the instructions, everything with regard to it which involves final conclusions are those of Edward W. Bemis and not of this witness. If he can show us the parts of it that he is particularly responsible for, then that might be marked in evidence.

By Commissioner Treacy:

Q. Is there any part of it that you are not responsible for? A. I do not know of any part of this report that is not a reflection of my judgment.

Q. Is it all your judgment? A. Yes, I think it is. Yes, it is; it is all my judgment, it is taken up, as I testified this morning with E. W. Bemis and the matters were gone over; it was his judgment to the extent that it was a historical cost that was used. I received instructions—

Q. What you mean is, it was not his judgment. He told you to obtain the historical cost? A. Yes, that was his instructions.

Q. There is no judgment about historical cost if it is actual value taken from the books? A. There is no judgment exercised with regard to obtaining historical cost, no. It was his instructions to me to get the historical cost of the property and this is—

Q. Everything in this, as I understand, was something that you personally had to do with before it was finally set up? A. Yes, sir.

Q. And was your judgment? A. It is my judgment, yes, sir.

Q. And you aided yourself by consultation with Dr. Bemis from time to time? A. Yes, sir.

Mr. Wherry: I object to it on the ground that the witness has not shown himself competent or been qualified as an expert to give an appraisal of this sort. In the first place it is entirely misleading to call this the historical cost of these properties, because the report itself says, "An appraisal of the historical cost new of the property." They have taken off some theoretical depreciation. In getting their

figures they have taken costs of the property from the records of one company and applied them to property that belongs to another company, according to this witness's own statement; he says the associated companies and he has gotten his unit prices from the records of one where he could not get it from the records of the other. And what it all is I do not think you can tell, but on the face of it it is not an appraisal of these properties.

Commissioner Osborne: If it is not an appraisal then your objection falls. If it is merely a compilation of facts based upon the records of the company, then of course any person who is old enough to transfer figures would be competent.

Mr. Wherry: But it does not purport to be a compilation of facts.

Commissioner Osborne: I do not know what it purports to be.

Mr. Wherry: It says it is an appraisal; "I herewith present my appraisal of historical cost new."

Mr. Treacy: And both witnesses have stated how it was made up, from the records of the company.

Commissioner Osborne: If it is an appraisal based merely upon historical cost, then that is one thing. But if it is an appraisal based upon judgment, and where the element of judgment and experience is a necessary part to the conclusion, a necessary element to the conclusion, that is another thing. Then of course the witness must be competent to exercise that judgment. Now, it is entitled—counsel says he

don't know what it is except as it is indicated by its title, and it is entitled, "Valuation of property."

Mr. Treacy: I think the testimony shows what it is and how it was made up.

Mr. Wherry: Read the letter transmitting it.

Commissioner Osborne: I herewith transmit my appraisal of the historical cost.

Mr. Treacy: And the testimony shows what they meant by that.

Commissioner Osborne: I do not know just what Dr. Bemis means by his appraisal of the historical cost. I thought historical cost was historical cost. You did not appraise historical cost.

Mr. Treacy: That is what he means. That it is the historical cost.

Commissioner Autenreith: With depreciation applied?

Mr. Treacy: With depreciation applied.

Commissioner Osborne: There are two things here, apparently, historical cost new; that is one?

Mr. Treacy: Yes.

Commissioner Osborne: That is merely a transcription of the records of the company. And historical costs new, less depreciation; there comes the element of the exercise of judgment in reaching the percentage of depreciation and deducting it from the historical cost of the five companies and so forth. I find the historical cost new is so much, the historical cost new less depreciation so much; both of these figures including a certain amount

for diversion and power rights owned by the above companies. So that insofar as the report indicates depreciation on historical cost, there the exercise of judgment seems to have necessarily been an important element.

Mr. Treacy: Let me ask a question. How did you arrive at depreciation?

Mr. Wherry: What has depreciation got to do with historical cost?

Commissioner Osborne: I do not know. That is what this apparently purports to show.

By Mr. Treacy:

Q. How did you arrive at depreciation? Whose figures did you take in regard to that? A. I used Mr. Hill's total lives on depreciation as estimated by him and the actual age as shown by the property.

Mr. Treacy: So there wasn't any judgment in regard to that. He used Hill's.

Commissioner Osborne: Let me ask Mr. Wherry a question which may develop the point of his objection. You do not object to the qualifications of the witness as to reproduction of historical cost in this volume?

Mr. Wherry: I object to the volume going in as a compilation of historical cost from the books, because I do not think he stated it was a historical cost from the books.

Commissioner Osborne: You do not object to the witness's qualifications to make an historical compilation?

Mr. Wherry: No.

Commissioner Osborne: And set it up in this volume, if that is what is done?

Mr. Wherry: If this volume is that—

Commissioner Osborne: We will take up that other point in just a moment so as to get the matter logically cleaned up. Do you object to his qualifications as to the determination of depreciation?

Mr. Wherry: Yes.

Commissioner Osborne: He has qualified as an expert.

Mr. Wherry: He has not qualified as an expert. He mentioned gas companies and electric companies; he didn't mention a single water company. I did not question him as to qualifications; I did not know what he was going to testify to. I understood he was an assistant to Edward W. Bemis, as he himself said, he took instructions from him, took all his final figures where it was a question of judgment, and it is perfectly apparent there was a question of judgment in regard to almost every item here, and he took them from Edward W. Bemis. It seems to me it is Edward W. Bemis' report and not this witness's report.

Commissioner Osborne: We will accept it in evidence, to be marked of course subject to your cross-examination when you cross-examine the witness.

Exhibit R1 for identification received and marked Exhibit R1.

By Mr. Treacy:

Q. What water company appraisals were you in, without going into a long statement? A. I made an appraisal of the Des Moines Water Company and had complete charge of that.

Q. What else? A. In connection with its purchase by the City of Des Moines.

Q. What else? A. The Streetor Aqueduct Company, Streetor, Illinois. The Edwardsville Water Company, Edwardsville, Illinois. The engineering services in connection with the purchase of the Lake Forest Water Company by the City of Lake Forest, or village—I do not know its form of government, and some others. I am sorry that I neglected to mention any water companies in my qualifications. I did not mean to.

Mr. Treacy: Your Honors, I would like to call attention to what the Board will take judicial notice of; I call the attention of the Board to the supplement to the compiled statutes, page 1610, Section 11, particularly to the proviso in that secion which states that no water plant or water plants shall be purchased or contract or contracts made for such purpose under the authority of this Act (this being an amendment to a former act) in any case where the value of the right to divert water or the added value of the property as a going concern is included as a part of the total values as shown by the appraisement of the property made on behalf of the state or the Water Supply Commission, unless a sum equal to the amount of the value as appraised of the right to divert water and the added value of a plant as a going concern shall be deducted from such total appraisement and the purchase price of such property shall not exceed such reduced appraisement. I call attention to that in this connection, that all these appraisals that have

been made by Messrs. Hill and Metcalf are based upon that alleged 1912 valuation which they arrived at and which they have testified to was accepted by the state. As a matter of fact the state never did accept that. It accepted it conditionally as is shown by this law, upon the elimination of going concern value and water diversion rights. Certainly as to those two items that valuation is subject to question. I call it to the attention of the Board.

Commissioner Osborne: That statute refers to the sale of property, doesn't it?

Mr. Treacy: Yes, but it was for that purpose that this appraisal was made which they are now using as a basis for rate making.

Commissioner Autenreith: What year was that statute passed?

Mr. Treacy: This is 1915. The other act which it amends, was in 1910, Public Laws of 1910, page 546.

Commissioner Osborne: You contend that from this 1912 valuation should be deducted the diversion rights which were put in there at that time and the going concern value?

Mr. Treacy: Yes. I contend that whatever authoritativeness is attributed to this as a state valuation by Messrs. Hill and Metcalf should be subject to the qualification made by the state as to going concern value and water diversion rights. I am not contending that no going concern value shall be allowed, nor am I contending that no value for water diversion rights be allowed, but I am saying that that valuation of eight million dollars or nine million dollars, whatever it was, that included water diversion rights, should not be considered as in any manner authoritative so far as

this Board is concerned in their valuing of water rights and going concern value.

Mr. Herrmann: How would you do; have that deducted from the 1912 valuation and then added in the new valuation? You do not go so far as to say that no diversion rights can be valued in a rate proceeding?

Mr. Treacy: All we contend is that whatever sanction is claimed this valuation has from the state, is not supported, because the state has passed this law.

Commissioner Osborne: What was the purpose of that 1912 valuation?

Mr. Treacy: The purpose of the 1912 valuation was to enable certain municipalities to purchase this water supply system, the East Jersey and its combined and its affiliated companies.

Commissioner Osborne: They never did it, did they?

Mr. Treacy: The Water Supply Commission was to purchase these for the benefit of the municipalities concerned.

Commissioner Osborne: Who made the valuation?

Mr. Treacy: The valuation was made for the state by Messrs. Hill, Hershel and Morey. That valuation included going concern value and certain values for water diversion rights.

Commissioner Osborne: And the state now says subsequently declared in a statute, that under circumstances such as that it should not be called upon to pay for water diversion rights or going concern value, I suppose on the theory that they were contributions by the state to the enterprise and therefore should not be capitalized as against the state.

Mr. Herrmann: In the event of purchase, but for rate making—

Commissioner Osborne: I would go perhaps even further and say that in no event should certain elements, which are contributed by the public to a utility be capitalized and the public be made to pay a rate of return on them.

Adjourned until Wednesday, November 29th, at the Kinney Bldg., Newark, N. J., at 10:45 A. M.

GEORGE H. MATTHEWS, sworn on behalf of Municipalities.

Direct-examination by Mr. Treacy:

Q. Mr. Matthews, what is your business? A. Certified public accountant.

Q. And where are you in business? A. I am a member of the firm of Sangster & Matthews of Chicago and New York.

Q. They are certified public accountants? A. Certified public accountants.

Q. New York City and Chicago. How long have you been in that business? A. Why, I started in 1901 in England when I was articled to the firm of Fox Simmons & Company chartered accountants in London. I served a five year apprenticeship with them and in 1909 was admitted as a member of the London Society of Chartered Accountants. In the fall of that year I secured a position with the Chicago office of Morwitch Mitchell & Company, chartered accountants. I remained with them until 1912 when I was made assistant treasurer of the United States

Printing and Lithographing Company at Cincinnati, Ohio, where I had charge of the accounting and cost department. I resigned that position in 1916 to become associated with Mr. Andrew Sangster in Chicago as chartered accountant. We formed the partnership of Sangster & Matthews on January 1st, 1917 and have continued public accounting practice since that time.

Q. Did you prepare an exhibit of operating revenues and expenses of the East Jersey Water Company and the Acquackanonk, Montclair, Passaic and Kearney Companies? A. I did, sir.

Q. Those are the same companies as are mentioned in the appraisal which was submitted by Mr. E. W. Bemis yesterday? A. Yes, they are.

Q. And under whose instructions did you prepare that exhibit? A. Under the instructions of Edward W. Bemis.

Q. That is Dr. Bemis? A. Dr. Bemis, yes.

Q. What years are covered by that exhibit? A. Covering the years 1920 and 1921.

Q. Now, will you state briefly the arrangement of the exhibits and state whether the figures were obtained from the books of the several companies or not? A. All the figures contained in these exhibits were obtained from the books of the company. The exhibit shows, first, the operating revenues—

Q. For what year? A. For 1920 and 1921. The exhibit shows, first, the operating revenues apportioned between the water sales and miscellaneous operating revenues. The next items are shown here as modified operating expenses and are arrived at by excluding payments made for water diversion at Little Falls, and the provision made by the companies for general amortization.

Following the modified operating expenses there is shown an item of taxes, excluding the Federal income tax. The total of the modified operating expenses and taxes subtracted from the total operating revenues, gives the excess of operating revenues.

From this excess operating revenues, there has been deducted the amount previously excluded covering the items which I have enumerated, namely, payment for water diversion at Little Falls, provision for amortization and income tax payments.

Having deducted—

Q. Have you several copies of that? A. Yes, I have, Mr. Treacy.

After making these latter deductions there is left the net water operating income as shown by the company's books to which I have added the non-operating income as reported by the company and thereby obtained the gross corporate income; from which I have deducted interest accrued on funded debt and other interest deductions; reaching the net corporate income as shown by the company and as reported to the Commission in 1920 and 1921.

Q. Now, taking up first the Passaic Water Company; what did you find the operating revenue to be from the item of water sales? A. $631,877.14.

Q. And miscellaneous operating revenue? A. $11,642.03.

Q. Making the total of operating revenues? A. $643,519.17.

Q. That is for the year 1920? A. For the year 1920.

Q. For the year 1921 what was the total of operating revenues for that company? A. $670,642.03.

Q. For the year 1920 what were the operating expenses as you found them to be, modified operating

expenses? A. $192,067.11, that is before including taxes.

Q. Yes, for the year 1921? A. $214,714.19.

Q. The item of taxes for the year 1920? A. Exclusive of Federal income tax $85,117.66.

Q. For the year 1921? A. $90,962.30.

Q. What was the total of modified operating expenses and taxes for that company for the year 1920? A. $277,184.77.

Q. And what was the excess of operating revenues over the operating expenses and taxes? A. In 1920, $366,334.40.

Q. For 1921? A. $365,965.54.

Q. You made some deductions from this item of $366,334.40, I believe, for 1920 and of $364,965 for 1921; what were those deductions? A. The deductions are the payments made by the company in 1920 for water diversion at Little Falls, $17,619.25; the provision made by the companies for general amortization, $63,720.61, and the income tax paid by the companies in 1920, $7,055.40; making the total deductions $88,395.26.

Q. Now, will you explain why you deducted those items? A. I deducted those items—

Q. Just, first, take the water diversion item there at Little Falls? A. The statement was drawn up in this way at the request of Dr. Bemis in order that he might be advised what was the total amount in 1920 for the items covered by these deductions.

Q. You made those deductions under the instructions of Dr. Bemis? A. Yes, sir.

Q. And with those deductions you found a net water operating income to be what for the year 1920? A. For the Passaic Company?

Q. For the Passaic Company, $277,939.14? A. Yes, sir.

Q. To which you added the nonoperating income amounting to $4,406.16? A. Yes, sir.

Q. And obtained in that manner the gross corporate income of how much? A. $282,345.30 for the Passaic Company.

Q. What are the next two items, deductions for gross corporate income? A. They represent the interest accrued for the year 1920 on the funded debt, the outstanding bonds of the Passaic Water Company, amounting to $206,699.53. The other interest deductions represent interest on certain metered deposits that the company has received, $176.03 for the year 1920.

Q. Making the total deductions $206,875.56? A. Yes, sir.

Q. What did you find the net corporate income to be? A. $75,469.74.

Q. Now, you pursued the same plan with reference to each of the other companies? A. Yes, sir; exactly the same procedure for each company and I showed the total for the five companies.

Q. For the Acquackanonk Water Company you found the total operating revenues to be $363,344.56? A. $363,344.56.

Q. What was the total of your modified operating expenses and taxes? A. 1920, $112,926.52.

Q. And after all deductions were made in the same manner as you have described with reference to the Passaic Water Company, what did you find the net corporate income to be for the year 1920 for the Acquackanonk Water Company? A. $80,867.19.

Q. Treating the Montclair Water Company in the same manner, what did you find the result to be, first, as to the total operating revenues? A. Total operating revenues, $194,967.45. The total modified op-

erating expenses and taxes, $123,574.90. The net result for the year after deducting the other items enumerated, was a loss of $721.02.

Mr. Wherry: Is that cross on this exhibit to indicate a loss?

The Witness: Yes, sir.

Mr. Wherry: It should be, ordinarily, in red.

The Witness: It should ordinarily, but we put it in black—

Mr. Treacy: There is a footnote.

Mr. Wherry: Yes.

The Witness (continuing): So we could make blueprint copies.

Mr. Wherry: I didn't see that. It says, "Denotes deductions."

The Witness: Yes.

Q. For the East Jersey Water Company in the same manner? A. In the same manner, Mr. Treacy, except that so far as the East Jersey and Kearny Companies are concerned, the total revenue of the Kearny Company was obtained in the form of rental payments from the East Jersey Water Company for transportation of water. I therefore deduct from the total operating revenues the money received by the Kearny Company and correspondingly deducted from the operating expenses of the East Jersey Company a similar amount, so that the total operating revenues in the last column would not include any intercompany transactions of the nature of transportation of water.

Q. Under whose instructions did you do that? A. I had no instructions in that regard.

Q. What was your reason for doing it? A. The purpose was to show the total operating revenues re-

ceived by the five companies not including inter-company charges.

Mr. Wherry: Treating the companies as a whole?

The Witness: Treating the companies as a whole, yes, sir.

Q. Then did you make a similar set-up for the five combined companies? A. Yes, sir.

Q. For the five companies combined? A. That is shown in the last column and is simply the gross footing of the results of the five companies.

Q. Showing how much for total operating revenues? A. $1,776,658.76.

Q. How much is your total modified operating expenses? A. Not including taxes, $713,301.71.

Q. What will it be if you include taxes other than the Federal income tax? A. $904,928.45.

Q. Leaving you an excess of operating revenues of how much for the year 1920? A. $871,730.31.

Q. After making the same deductions as in the other cases from this item, what did you arrive at as the net corporate income? A. $240,749.48.

Q. Sheet two of this exhibit is a similar set-up for the year 1921, for the five companies separately and also for the five companies combined? A. Yes, sir.

Set-up for 1920 and 1921 for the five companies separately and combined marked Exhibit R2.

Mr. Wherry: I reserve cross-examination.

EDWARD W. BEMIS resumes the stand on behalf of Municipalities.

Further direct-examination by Mr. Treacy:

Q. Now, Doctor, referring to Exhibit R1, I understood you to say that that work was done under your supervision? A. Yes.

Q. That the appraisal contained in the exhibit known as R1 was one that was prepared under your general direction?

Mr. Wherry: I object to the use of the word "appraisal" in this Exhibit R1. They have stated they offered it as a transcript of the historical cost from the books of the company with the exception of a certain percentage of the items which they are to indicate, and they calculated depreciation.

Mr. Treacy: I will say Exhibit R1.

Q. Exhibit R1 was prepared under your general direction? A. Yes.

Q. You are familiar with the makeup of it? A. Yes, sir.

Q. Your son and other assistants you had collaborated with you and consulted with you? A. Yes.

Q. All along from the inception of the work? A. Yes.

Q. Being September of this year? A. I left a great many of the details to them so that I prefer that Mr. Bemis, Jr., W. S. Bemis should testify as to the details.

Q. Are you prepared to testify to the correctness of Exhibit R1? A. Yes. There is one typographical change that I was planning to call your attention to this morning which will be found on page thirty-nine,

the first column, the last line, where the figure four should be five; the figure five was used, in any use of it made later. In other words, page 39, first column, last line, total joint ownership, original cost new instead of being $4,391,907.99 should be $5,391,907.99.

Now, turning back two pages to page 37, first line, the same change should be made where the figure is copied.

Q. It would have to be made also in the last column? A. The first column, first line.

Q. Also the last column, first line? A. There is to be no change made of the totals on page 37. On the totals, page 37, there are correct figures given. Those other figures that were used in the report as the basis of a conclusion, they were right, but the first line on page 37 should be five million and so forth instead of four million.

Mr. Wherry: The last column on page 37?

The Witness: The first column.

Mr. Wherry: How about the last column?

Mr. Treacy: The last column remains the same, he says.

Mr. Wherry: Aren't you subtracting sixty-three hundred from five million?

Mr. Treacy: No; he is subtracting $63,000 a year.

The Witness: This annual depreciation in the last column is correct.

Mr. Wherry: Are you sure it is correct?

The Witness: Yes; the only change is in the—

Q. Doctor, have you prepared an exhibit which you term "Basis for Conclusions"? A. Yes, sir, "Bases for Conclusions," it was written inside. I note on the cover it is "Basis." "Bases," it is meant to be several factors that must be considered.

Q. Will you please describe generally how this exhibit is made up? A. I have given here seven chapters, short ones. One is the 1912 appraisal brought up to December 31st, 1921, along the lines described in general yesterday.

Q. The 1912 appraisal which was testified to by Mr. Hill? A. Yes, and made by Hill, Morey and Hershell, as of December 31st, 1912, for the Board of Water Supply Commission—the Commission of Water Supply.

Q. How did you term that? A. I can describe it with details with reference to what follows, but in yesterday's statement I said in general that I took the 1912 appraisal but did not attempt to determine the accuracy of the inventory or the figures, but for purposes of this computation I assumed that to be what they purport to be and to be correctly made on the basis outlined on that exhibit, which was a reproduction cost of the property then in use. I made some adjustments of it by deducting such things which are no longer considered proper in such an appraisal, such as paving over mains—

Mr. Wherry: I object to this as not being proper evidence at all, what he did. Are they some computations you made?

Mr. Treacy: Yes.

The Witness: That explains what it is and the pages.

Mr. Wherry: This is given as supporting data of Exhibit R1?

Mr. Treacy: No; this is a separate study based on Mr. Hill's appraisal of 1912.

The Witness: That is the first part for that.

Mr. Wherry: If this is a computation as to the appraisal of 1912, a mere computation I don't think is admissible in evidence. Is this computation in regard to 1912 intended to modify, certain modifications; they ought to be taken into consideration.

The Witness: By Mr. Hill, yes.

Mr. Wherry: And the pipe purchases, that is in support of this other data, is it?

The Witness: That is to show how his reproduction cost was based on a theory of the cost of pipe which may be checked by the actual cost paid in this company for the last ten years, ten-year average prices.

Mr. Wherry: As I understand it, that is intended as a criticism on the value the company reports.

The Witness: Either as a criticism or as helpful to the Commission in forming a conclusion as to present fair value. I am not giving in this report a fair value.

Mr. Wherry: All right.

Mr. Treacy: It is not submitted as his appraisal; it is submitted as a criticism of the Hill appraisal and the Metcalf appraisal.

Mr. Wherry: I have no objection to its going in for what it is worth with that understanding of what it is.

Criticism of Hill appraisal and Metcalf appraisal by Dr. Bemis marked Exhibit R3.

Q. Will you proceed and describe in your own way, Doctor, beginning at page three, what this exhibit shows? A. The first ten pages take up the appraisal of 1912 and bring it up to date. On page three I take the exact figures from that appraisal of Hill,

Morey and Hershell, arrived at perhaps slightly different but the same figures and the same totals. The page speaks for itself.

They reach a total cost new of the physical property and the diversion rights of $9,214,684. In that they included certain diversion rights not then owned by the company below Little Falls, but they estimated the company would need to use in time to come fifty million gallons per day although they were not then using as much as forty million. And they estimated what the value of those rights would be if the state or the company acquired them. They put in a going value of $1,200,000. They took out a depreciation of about the same amount.

In the pages that follow I do not concern myself with their going value study or their depreciation, but take up the cost new of the structural property including lands, physical property.

By Mr. Wherry:

Q. May I just ask a question there? Dr. Bemis, this appraisal that you speak of of the State Board's, was an appraisal made by three men of the Board, was it not? A. Yes.

Q. That is the composite judgment of those three men? A. I so understand it.

Q. But it was given in an analyzed report? A. Yes.

Q. In these pages you have taken certain items that you deduct and show what you deduct? A. Yes, sir.

Q. And other items you left in? A. Yes.

Q. Now, you propose to tell us why they were not properly included back in 1912, is that correct? A. Yes.

Q. And that is what the purpose of this is? A. Yes, the first few pages.

Mr. Wherry: Of course, this testimony, may it please the Commission, really amounts to putting a witness on the stand and swearing him and letting him make a sworn argument. I make the objection because it is argument.

Mr. Treacy: It isn't sworn argument if a man finds fault or criticizes a valuation.

Commissioner Autenreith: We will allow it as a matter of expert opinion. There might be some elements you indicate.

Mr. Wherry: I make the objection.

Commissioner Autenreith: I will overrule the objection.

By Mr. Treacy:

Q. Proceed, Doctor. A. On page four I make my first deduction from the 1912 appraisal by deducting the allowance made in that report for discount on bonds. My reason for making that deduction is that such allowances are not included, so far as I may be able to judge from extensive reading in cases before courts and commissions and is not included by either Mr. Metcalf or Mr. Hill in their present report as of 1920. I tried to determine what the report would have been in 1912, in other words, had they followed the same rule which I understand they have followed in their exhibit for December 31st, 1920. I present the calculation on page four.

They had an allowance of seven and a half per cent as discount on bonds. They had another three per cent for engineering and other items; that made ten and a half per cent and then they had seven per cent

on the total, and I have calculated that; that is equivalent to 8,025 per cent for the discount and interest on the discount. And I take out all the overheads in the first place which amount to 20.375 per cent and get the second column. And then I show what the discount was and the interest on the discount in the last column. Therefore, that figure of $475,990 represents in my judgment a reduction in the 1912 appraisal which they would have made, the same engineers, Hill, Hershell and Morey, had they made it on the basis on which they are now making the same appraisal today. That is all on page four.

On page five I make another deduction for all overheads on land and diversion rights because of my opinion that overheads on those items are not usually included, or not included in the Minnesota rate case by the United States Supreme Court in the case of land and I don't see why they should be in the case of diversion rights. There are apparently to my mind no overheads in the purchase of diversion rights or none that amount to anything; and as I take the appraisal that was given in 1912 of the land and the diversion rights and find that the overheads were in at; which are totalled eighteen and a half per cent. And then I find that those overheads amount to $319,993. They are therefore deducted.

Those diversion rights it will be noted were valued at that time, so far as the Little Falls plant and its relation to the Beattie Company was concerned, at $350,000 and the diversion rights below the falls to the extent of fifty million gallons a day were valued at $400,000, although the latter rights were not then owned by the company, but they were included in the appraisal, that I am using, to start with in the first line of the appraisal.

On the next page, six, I make another deduction for paving over mains, where the paving was not cut through in the laying of the mains. I believe that nearly all courts and commissions exclude paving under those circumstances, that was laid after the laying of the main. Mr. Metcalf quoted one decision to the contrary, of the District Court, a Federal Court, but I have read a great many decisions of courts and commissions and they almost always take the view here expressed. Now, in order to determine how much was involved in their inclusion in 1912 of that item, which they do not attempt to include in the present appraisal, neither Mr. Metcalf or Mr. Hill, I have taken the study that Mr. Metcalf made in his recent appraisal on that paving, reproduction cost new in 1920. He gives that in his report and it is tabulated here together with the overheads which he says he used, twenty-four per cent. That seems to me high, but I have used them just as he did, making $85,357. But that was on the basis, as Mr. Metcalf has testified, of prices of the last few years, and he has also stated that those prices were about forty per cent above the pre-war prices which were in vogue, of course, in 1912.

So if $85,357 is, as it seems to me, to be Mr. Metcalf's appraisal new, for paving actually cut through in the process of laying the mains, then on the basis the Commission was acting on in 1912, had been following the theory which Mr. Hill now follows and Mr. Metcalf now follows, the cost would have been, on their figures, would have been as of the appraisal, $60,969. Mr. Hill reaches a somewhat higher figure now but apparently Mr. Metcalf had gone into the matter with great thoroughness, I infer from my study

of it, with more thoroughness on this particular item than Mr. Hill.

Mr. Wherry: Which item was that?

The Witness: Item of paving over mains I am talking about.

Mr. Wherry: Paving over mains ?

The Witness: Yes, this item (indicating). The actual paving over mains in 1912 which I state as per Hill's report, it was the report of Hill and others made to the Commission, was $320,636, which it would have been, as it seems to me, on Mr. Metcalf's present set-up $60,969, leaving a reduction on that ground in 1912 of $259,667.

On page seven I take up certain individual pieces of property, certain individual pieces of property which were in the 1912 appraisal but which are not in use today and, in my judgment, are not used and useful for this company for waterworks purposes. The first item, wells at Montclair, the figure given is the figure $8,020, appearing in that appraisal, page 231. Then certain reservoirs and a small station connected with them, aggregating about—

Q. What reservoir, the middle? A. Totowa and Stony Road. The company has admitted in this hearing that Stony Road and Totowa are not in use and, as I understood them, they make no claims for them. The middle reservoir is full of water, a small reservoir. It is my best judgment that it is of practically no use, that a connection by valves with the high service mains in that neighborhood would give—serve all the purposes that small middle reservoir serves. If it is in, it is still a small matter.

By Mr. Wherry:

Q. You stated that was based on your son's recommendation, wasn't it? A. That really was although I consulted with others of the staff and they all looked into it, all made that report to me. And it seemed to them—

Q. How much is the amount involved? A. I can tell you in a moment.

By Mr. Treacy:

Q. Only a few thousand for the middle reservoir? A. Yes.

Q. It don't make much difference? A. There is no doubt as to the other two. The total is $101,344 for all three reservoirs of which the middle was one of the small ones and Stony Road one of the large ones.

By Mr. Brown:

Q. You haven't indicated on the record why you exclude the wells at Montclair? A. I might state they are not in use and have not been for several years. The Water is obtained now from the East Jersey Water Company and some of it repumped to a station near those wells. I visited the station and saw the location of the wells. They are closed and no use has been made of them for several years. I think for a good many years, and I received no information that they were likely to be used. In fact, the information I received was that there was no intention of using them by this company.

By Mr. Treacy:

Q. Are they in condition to be used? A. No; they are not. When I say that I want to guard myself a

little. I suppose they could be put in condition to use at some expense, but they do not—I think it would require some new connections and piping to the station that is not far away; the building over one of them is partly fallen, over a well, and the others are out in the brush a few hundred feet away, overgrown with weeds and brush. The next item was Great Falls station consisting of a small amount of property amounting to $25,616 in the appraisal which is admittedly not in use. Then the Split Rock pond site, $187,179, which I—

By Mr. Brown:

Q. Before getting to Split Rock, when you say "not in use," does that mean it can't be used, not used, or useful? A. Yes. I think those buildings and a little of the machinery is all dismantled.

Q. Is that used for any purpose at all? A. No, no. I understand not. This and several—all that page represents property that has not been sold but which has passed out of use, or, in the case of the middle reservoir may not be absolutely out of use, but it seems to be of very little importance.

Now, as to the Split Rock pond site, which was valued for $187,179, my best information is that that is not in use and has not been, and the same as to the Wanaque River farm and certain rights on the Pequannock River. There is some dispute as to the Kikeout reservoir site; that is not used, never has been; whether it is a reasonable reservation for the company I will not absolutely decide, but according to my best information it would require certain additional rights as well as expenditure of money.

By Mr. Treacy:

Q. It is not used or useful at this time? A. No; it is not.

Q. It is a site for a reservoir? A. Yes.

By Mr. Wherry:

Q. Dr. Bemis, have you seen it? A. I have not.

Q. It is the high point there, is it not? A. I understand it is higher than Little Falls and can be dammed.

Q. It would be a good site for a reservoir? A. Whether you have the right to bring the water down has been a question of dispute, I understand. At any rate it would require the expenditure of some money to develop it.

Q. Yes; it is simply held as a reservoir site for reservoir purposes? A. I understand so.

By Mr. Treacy:

Q. Will they be likely to need that within the next five years? A. No. I can see no reason for their needing it there in the next five years. However, the next ten or fifteen years, if no more cities cease using water, they might. There is a prospect of not only Jersey City, which has practically fallen away now, although not completely, for any length of time, but there is a prospect—

Q. Jersey City isn't taking any more water. A. Not since May.

Q. From the East Jersey? A. But it may again for emergency purposes. Probably not as much as it used to take and—

Q. Jersey City has acquired a new water supply, hasn't it? A. Yes; it has.

Q. Split Rock Pond? A. That may not relieve it

from needing water sometime on occasions of dry periods, I can't say.

Q. Do you know what the Jersey City situation is? A. Of course, from what I have been told, not very officially and very formally, I haven't investigated. It doesn't seem to me with the prospects ahead for cities like Bayonne and Jersey City having a different position as to the water supply than what they have had, they would need to develop this for some time to come. Now, I next take the land at Middle and Totowa reservoirs and at the Stony Road reservoir. I wasn't able to determine just what that land was valued at in the 1912 appraisal. The total value is given in Mr. Metcalf's appraisal, the valuation set up by Rossiter, but it is much more than I have used for those two properties; it is about $240,000 whereas I used only one hundred and eighty. The reason I do that is because in the Commission's report in 1912 there is a statement made, a reduction of sixty or eighty thousand dollars on all the lands as a whole, about five or six per cent because of some information they have received from Mr. Lambert, but just where this was apportioned didn't appear. In order to be on the safe side I took a very much larger proportionate deduction on those two pieces of land than would be the deduction on Lambert's deduction in the whole appraisal and believe I took a figure very much in favor of the company in that particular point as to land.

However, leaving it as it is, but deducting the overheads from these items since they are elsewhere treated, as we have seen, I get a total deduction on account of land and certain structures that seem to me no longer used and useful of $506,382 which

should come out of the 1908 appraisal, in bringing it up to date.

On page eight is a summary of these various deductions which are four in number, which make $1,562,032 and leaving the adjusted appraisal now of $7,652,652. That I put in the net additions from December 31st, 1912, to December 31st, 1920, of which details will be given in two or three pages, amounting to $1,763,654.42 making the appraisal new of 1912 brought up to date except for the exclusion of some doubtful items and going value, $9,416,306.42.

Then I add for a boiler house and certain other small equipment which was not included in the appraisal but is included in the retirements that follow in order to have the accounts balance. I put it into the 1912 appraisal, as it is retired later, in order not to rewrite the accounts (it seems to me an entirely correct treatment) $25,000.

Then I add for certain diversion rights, as explained here—this, of course, will be subject to very much argument and I only present it as the best thought I could give on it at present—in 1912 the rights below the falls, Little Falls, was valued at $400,000. The company was using somewhere between thirty and thirty-five million gallons a day at that time, but they appraised what fifty million gallons a day would be worth. The company has subsequently made a contract by which they bought the right to use seventy-five million gallons a day. On the basis of fifty million gallons a day being worth in 1912, $400,000, I have assumed that in 1912 seventy-five million gallons would have been worth fifty per cent more, or two hundred thousand dollars, and I added that as an adjustment of the 1912 appraisal, to take account of

a seventy-five million gallon a day situation instead of fifty million gallons. Of course, I am aware they have paid to the S. U. M. and Dundee a larger amount. Adjusting this 1912 appraisal in this way, new, I get $9,641,306.42.

On page nine I compare this adjusted appraisal to the historical cost new presented yesterday as R1, and to my great astonishment when the figures were brought together for the first time last night, or the night before, it appeared there was a difference of less than one per cent between the two totals.

Page nine. The 1912 adjusted appraisal, adjusted in the way I have mentioned, is only $68,329.23 above the historical cost new as of December 31st, 1921, a difference of seventy-one hundredths of one per cent. I had expected a very much larger difference and was quite—one reason for that is this: At the time I thought it would be larger, I didn't quite realize the very considerable amount of overheads that the company has put on their books in connection with extensions. Many companys put very little; this company has put much more than many, and that makes the historical cost, which includes the overheads on the books, much more nearly its reproduction cost on pre-war prices than is the case in most companies where more of the overheads are often borne in the operating expenses than they have been in this company. Now, I show on pages ten, eleven and twelve—

Q. How do those figures which you have just mentioned of the adjusted 1912 appraisal $9,641,000 (speaking in round numbers) as to the historical cost new as of December 31, 1921, $9,572,000 compare with the historical cost less depreciation found by you

in Exhibit R1? A. Well, since the cost new is practically the same the cost new less depreciation would be practically the same. It is the same property and it would—the same ratio, one to the other.

Q. On page eleven, Exhibit R1, you gave original cost new less depreciation $7,544,000? A. Yes. This would be practically the same. It would only be a difference of probably fifty thousand dollars.

Q. With depreciation worked up? A. Yes.

Q. Proceed. A. From the 1912 appraisal to bring it down, since it starts with the same figure new, with the historical cost it would depreciate, the same property, the same age, the same life, it naturally ends with the same result. Probably the two wouldn't vary more than one per cent.

Turning now to the last three pages of this particular chapter, pages ten, eleven and twelve, I give the extensions and retirements since 1912 in some detail to make up the summary I just used before this. I do this, first, as shown on page ten and for the period 1913 to 1920, and then for 1921, and then for the whole period classified by the system of classification of accounts under which the company is operating under the authorization of this commission.

On page eleven the same for the East Jersey and on page twelve for the jointly owned property, and then I summarized the individually owned property on pages ten and eleven at the obttom of the page, and then I gave a grand total which ends with the last figure on the page, $1,944,486.61, which was the same figure that entered into the calculations with—that is, it would for 1920 return the same figure that enters into the calculation that I have used previously. You will notice at the close of 1920, the middle of the last page we are talking about, page twelve, you

have the net of $1,763,654.42, which is the same figure used on page eight about the middle of the page. That completes the first chapter of this exhibit R3.

The next chapter consists of only one page and gives the weighed average cost of cast-iron pipe per ton that was bought by this group of water companies during the ten years 1911 to 1920 covered by the company's studies of average ten-year prices. These companies during that ten years bought the amount of cast-iron pipe referred to in the first column of page fourteen, 3,541,000 tons; they paid $93,917.52 for it, or an average of $26.52 per ton.

This I worked out, to check Mr. Hills's statement that the average prices for Passaic, or the figures which he gives on page 689 of his testimony or of his exhibit, I have really forgotten which, where he reaches a figure of $36.50. He does that by taking practically the same figures that are here in the last column for several of these—I guess all these years (differing slightly, but not very much), and adding them up and dividing them by the number of years. Whereas, if you get the weighted average based on the total pipe bought and total price paid, you get a figure not of $36.50, but of $26.52. In other words, the company didn't buy any pipe, being prudent in their investment, during the years 1918 and 1919 when pipe was very high; not very much in 1920 but bought large quantities when pipe was low.

By Mr. Wherry:

Q. Dr. Bemis, may I ask you a question? Do I understand this is a weighted average for the whole period, but what Mr. Hill took was an average of the weighted averages per year? A. Yes, giving each

year the same importance whether they bought—no matter how much or little pipe they bought.

Q. Yes. A. Yes, I dispute his theory.

Q. It is a different thing. You are giving the weighted average for the whole period? A. Yes.

Q. But he was giving the average for the weighted average? A. Yes.

By Mr. Treacy:

Q. They aren't the same figures? A. They are not the same figures.

By Mr. Wherry:

Q. The weighted average for the year is practically the same, isn't it? A. Yes.

Q. Only your total of $26.52— A. Excuse me, I may have answered your question hastily. He gave no weighted average; his numerical average is about the same as I would get if I followed his theory.

Q. It is the average of the weighted average, the numerical average of the weighted average? A. Yes,

By Mr. Treacy:

Q. Hill's isn't a weighted average at all, is it? A. It is for each individual year, but not—

Q. But yours is the weighted average of all the prices paid during all those ten years? A. Yes.

Q. Which is correct? A. I believe so.

Mr. Wherry: I object to him saying "which is correct." That is a matter for argument

Q. Isn't your weighted average on all prices actually paid by the company? A. It is.

Q. For the period of ten years? A. Yes.

Q. You find the weighted average of the prices in that way, $26.52? A. Yes.

Q. As against the figure shown by Mr. Hill of $32? A. $36.50.

Q. Didn't he reduce that to $32.50? A. He did not use it but he gave the average of $36.50 on the page about it. I turn, perhaps, next then to page sixteen, which I call a comparison between the straight line basis of depreciation and the three per cent sinking fund depreciation.

Q. Yes. You take the straight line. A. I have set up both.

Q. You are showing the results. Proceed. A. I take up in the first column the actual cost new that Mr. Hill used in volumes two, three and four of his exhibit of the valuation of 1920 on ten-year averages. That is the one computation that he gives in detail and he takes most of Volumes 2, 3 and 4 in setting it up, and it appears to include all the companies because he apportions most or all of the property owned by the East Jersey and the Kearney in connection with that appraisal. I have omitted here going value, but I think this—it covers everything he gave in the last three volumes and appears to cover practically all on the ten-year average basis he set up except going value. So starting with the first column, I take in the next column his lives and his ages, first, his lives and get the annual depreciation by dividing the total cost new he gives by the lives he gives, and, of course, there is no depreciation assumed on water diversion rights and on that reservoir site. And taking the whole thing as we find it here (land is not in this either, he said, "going value"; I think land is not in either), and he gets a figure of $150,975.32 which is the annual depreciation on the straight line theory using Mr. Hills lives.

Mr. Hill, as a matter of fact, stated that he fixed his valuations on the sinking fund theory, or three per cent annual allowance for sinking fund interest but he said he took as his annual depreciation on this same property $156,000 or almost—only a trifle more than $150,000 which he would have taken on the straight line basis.

Q. Please explain that more fully because I am not sure we all understand it. A. I think it will appear as I go on with this statement.

Mr. Wherry: I object to the witness stating what Mr. Hill said. I didn't understand his testimony that way. He hasn't a correct understanding of what he took.

The Witness: I found that figure.

Mr. Wherry: 156 is the figure you found?

The Witness: Yes. One and a half or $156,000. I can point to the page.

Mr. Wherry: The way in which it was worked out is different from what you have there.

Q. Now, Doctor, you said that according to the straight line basis of depreciation, the annual depreciation is, on Mr. Hill's figure, $150,975? A. Yes, sir.

Q. And that that, as I understand it, that annual depreciation should have been deducted from Mr. Hill's valuation or cost new of the property for past depreciation. A. No. I am coming to that. I haven't reached that yet. I am only talking about the amount the annual depreciation should have been, what I gave in the next column. If you take the sinking fund theory which he professes to take, it should have been $64,586, instead of the $156,000, which he uses. In other words, he took only the same as the straight

line when he came to the annual. When he came to the accrued he took the sinking fund.

Q. Will you explain that to the Board? That is what I want. A. Yes. When I get through this table I can make it clear. Coming to the third column, I have set up here what would have been necessary on the same ages—the same lives, rather, for an annual depreciation on the sinking fund theory. I have calculated every item of Mr. Hill's report and summarized it here and it mentions what you would have to put in a sinking fund at three per cent interest with the various lives, one hundred years for cast-iron mains and other shorter lives for other property, in order to have the proper annual depreciation.

And adding those up, you would have had to put in annually only $64,586.03 instead of $156,000. In fact, on a straight line basis you would only need $150,975.32, using the same lives that he used; I have used the same values he used, the same lives he used and I have merely here illustrated the difference between the straight line and the sinking fund as to annual depreciation.

Now I want to go on with the accrued depreciation. Now, on the accrued depreciation the calculation is a simple one. It is the amount that—

Q. Will you state there what you mean by accrued depreciation? A. I mean the amount that would have accumulated on either basis. For example, depreciation can be met by taking a certain amount equal—

Q. You mean the amount which should have been set aside? A. And put into the depreciation reserve—

Q. From the inception of the business? A. Yes, it represents the amount of liability for renewals which has accrued to the company to a certain time.

Q. All right; now proceed. A. It may be illustrated in the difference in this case; suppose you had a piece of property that had cost $100,000, and you assumed it had a life of forty years. Now, on the straight line basis you would set aside each year one fortieth or two and one-half per cent of that one hundred thousand dollars.

Commissioner Bacharach: If you had a life of forty years.

The Witness: Yes; one fortieth or $2,500, a year. At the end of ten years you would have set aside $25,000, that would be in the reserve and you would call the depreciation $25,000.

On the sinking fund basis you would set aside such an amount as would equal one hundred thousand dollars at compound interest at the end of forty years. For illustration; suppose you use four per cent in your sinking fund; you would have to set aside not $2,500 a year, but about $100,000 a year, about one per cent instead of two and a half per cent. At the end of ten years instead of having $25,000 in the fund, you would probably have less than $15,000 in the fund, less than $10,000 probably; but at the end of the time you would have the same amount, sufficient to make, say, $100,000. There are two different methods of financing the depreciation and caring for it at the end of the time. The straight line assumes no interest on the fund and the sinking fund assumes an interest that may be calculated.

Now, going on to calculate accrued depreciation on the straight line method; I take again Mr. Hill's figures, this time of age. I took his figure of lives, I also took his figure of ages of each piece of property. And suppose a piece of property was thirty years old

and we estimate it had a life of one hundred. Then on a straight line method one hundredth of thirty years is thirty-hundredths or thirty per cent of the depreciation would have accumulated on the straight line basis, and that I put down in this column; that makes his total $2,581,469.06.

Then I take up what he set up as the sinking fund that he would have at three per cent, $1,276,085; that is adding all his figures. And then the last two columns are cost new less the accrued depreciation. On the straight line it totals up $8,947,794.94. On the sinking fund it is higher because there is less taken out, only one-half as much, $10,352,179.

Now, to show that the two theories are properly worked—

Q. Right there, let me ask you, so that if Mr. Hill had taken the straight line method of depreciation as to accrued depreciation, the amount of depreciation would have been approximately $1,305,000 higher than the depreciation which he actually did take? A. Yes.

Q. On the accrued depreciation? A. Yes.

Q. Upon the three per cent sinking fund basis? A. Exactly. He took two theories; one theory of annual depreciation overlapped a little over the straight line, while taking the sinking fund for accrued depreciation he reached half what he should. Now, if you had applied either one, it would be the same to the company or the fund; it makes no difference which theory you apply if you apply it consistently.

Q. What do you understand Mr. Hill testified?

Mr. Wherry: That is a different proposition.

A. I understand Mr. Hill to state when he came to annual depreciation he did not work out the figure but assumed one and a half per cent, which is about the same as he would have reached if he had followed the straight line, but he reached a figure arbitrarily of one and a half per cent, and reached a figure thereby of $156,000. He did the same thing, practically, as if he had taken the straight line.

Q. The same thing, is it? The straight line is the deduction of a certain percentage per year? A. Yes. Now I want to show at the end of this page, it would have made no difference if he had done—if he had followed either one consistently. Take the last one at the bottom of the last column; suppose we assume a seven per cent return, the theory would be the same if you assumed eight or six per cent; seven per cent return on the straight line theory would be on the valuation, $8,947,000; that would be the cost new less depreciation, would be a return on the investment of $626,000. If you took the sinking fund, we might say it would be seven per cent on the $10,253,000 or $717,000.

On the other hand, the annual depreciation being much higher on the straight line than on the sinking fund balances and the two are very, very close. There is a difference of only five thousand dollars. It happens to be in favor of the sinking fund. It really makes no difference they are so close together. But if you take the accrued depreciation, as he seems to have done, has done on the sinking fund basis, he should take the annual depreciation on the same basis. But to take the annual depreciation—in other words, he should have taken about $64,586, instead of $150,000 or if, as I have done, I take the depreciation accrued on the straight line, which is a little over two and a

half million dollars, then he must take the annual depreciation on the straight line the same as I took.

In other words, I have no particular quarrel with Mr. Hill as to the annual depreciation, but a very great difference of opinion as to accrued depreciation.

Q. Your complaint is, if he took the sinking fund basis on one theory as to the past depreciation, he should continue it as to the future depreciation? A. Exactly.

Q. That if he takes the straight line or a flat percentage for depreciation for the future, he should have adopted the same method for past depreciation? A. Yes.

Q. But he didn't do that? A. No.

Q. He gives himself the benefit of a low past depreciation by taking the sinking fund method—

Mr. Wherry: I object to that.

Q. (Continuing)—giving him a big capitalization.

Mr. Wherry: If his inferences are correct, that may be his characterization, but I object to the question in the form in which it is put there.

Q. If those inferences are correct?

Mr. Wherry: I think the witness can testify himself without counsel stating his opinion for him.

Commissioner Autenreith: You haven't a jury here, Mr. Wherry.

Mr. Wherry: All right.

Q. Answer the question. A. Yes. I wish to be entirely accurate in my quotation of Mr. Hill and I stated a few minutes ago Mr. Hill didn't state how he

reached the $156,000 except by saying it was one and one half per cent.

Q. That was what in his judgment should be set aside for annual future depreciation? A. The amount of $156,000. I say that is about the figure he would have reached if he had followed the straight line method.

By Mr. Wherry:

Q. That is the figure you would set aside? A. Yes, only I start with a somewhat lower cost than he did so my annual is nearer $130,000 than $156,000, as will be developed a little later. Also in the report Exhibit R1, for annual depreciation, pages 11 and 37—

Q. You base it on cost? A. The same ages and lives as I used yesterday but the historical cost was lower, the first column, than Mr. Hill used in this report, and which I am comparing.

Q. You took a smaller amount then for amortization? A. Yes, I take the historical cost to be amortized, where—as he has taken $11,529,000, which is a higher cost.

If you will turn to either page 11 for 1921, or page 37, for 1920, he had a figure to be amortized of $9,431,000 and reached an annual depreciation, $127,340.30, but it is the same thing I have got here, the same ages and the same lives, only I apply it to a little lower base.

Q. The issue there is right on what the depreciation is? A. Yes, I am not here quarreling with his base.

Mr. Treacy: You accept his base for the purpose of your criticism.

The Witness: For the purpose of this table. I am

only showing his annual depreciation falls or hits very close to the straight line theory. Whether he intended to or not, I don't assert; it comes out that way. whereas his accrued depreciation, what he would have gotten on the sinking fund if he followed the sinking fund only should have been sixty-four thousand dollars in annual depreciation instead of $156,000, or if he is following straight line and got $156,000 for annual he should have over two and a half million for accrued.

Q. You don't see any reason for making that distinction? A. I should say you would have to be consistent in any theory you take. You can't take advantage of one side without the disadvantages. It don't make any difference to me which theory you take but it does make a very great difference practically which theory is taken because of one fact, it is exceedingly difficult to carry out a sinking fund theory accurately because of the immense number of computations involved in working it out correctly. For example, here is what I consider a very clear example of the differences in your sinking fund method as Mr. Hill applies it. Suppose, as he did, he had some pipe to depreciate; let us take this as an illustration: Suppose you had ten thousand dollars worth of pipe five years old and ten thousand dollars of pipe forty-five years old, and you assumed its life is a hundred years. Now, on the straight line method you could say ten thousand dollars at five years is the same as fifty thousand dollars for one year, and the ten thousand dollars for forty-five years is the same as—the amount of ten thousand dollars, yes, for forty-five years is the same as one thousand dollars for ten times that amount, or what is the same thing, you can add

the two together and say the average life is twenty years; and the weighted average of that twenty thousand dollars is twenty years; and then you can say that in twenty years, therefore, you must accumulate twenty-one hundredths or twenty per cent of the $100,000 or $2,000, or if it was forty-five years and five years it would be an average of twenty-five years and it would be twenty-five per cent you must accumulate. The average age of twenty-five years, twenty-five hundredths of $100,000 or about $5,000.

Now, suppose you are going to find that result by the sinking fund method, and you assume twenty-five years as a normal life. You won't get the same result at all if you take ten thousand dollars at five years and ten thousand dollars at forty-five, because the sinking fund accrues so slowly the first few years and so rapidly by compounding later. Your ten thousand dollars, for example, equals, ten thousand dollars in five years would have accumulated only sixty-two cents at the end of five years on $100 against sixty-two cents on a forty-five year life it would have accumulated $12.27, with three and a half per cent sinking fund. And averaging the two or twenty-five, if you take that base, it would be only $4.63; if you are going to average the two you would have in your fund, and taking out for depreciation, $4.63. But if you take, as you must, the sinking fund for each year separate and make a separate calculation for each year, you take out sixty-two cents on one hundred dollars for five years or $12.27 a year for those forty-five years. You can't weigh your average years or average purchase prices at all on the sinking fund; you have to take each purchase each year by itself and it is an interminable job to do the thing accurately

and I don't think it is hardly ever attempted. It is a fallacy as I hold, any attempt to work out the accumulation of the sinking fund as has been done by Mr. Hill, on a sinking fund basis where he weighs his average of prices. I don't think you can do it. You can on the straight line all right.

By Mr. Treacy:

Q. Will you proceed with your explanation of this exhibit? A. Turning to page eighteen, flotation of securities. This is intended to show the yield to the investor, as stated by the Commercial and Financial Chronicle of New York for every utility bond or stock that has been floated since June, 1921, up to the close of September, 1922, the latest period for which date had been published, a few days ago when I made up this report. I want to say, it does not include railroad securities but only what are commonly called public utilities, street railways, gas, electric, water, telephone and so on. Here are the number of bonds and the flotation of the issues and the average yield to the investor for each month. I then give the numerical average by adding those and dividing by six. 7.33 on the stocks, 7.73.

Q. That is for six months? A. That is the first six months of the period. The last half of last year. The first half of this year that figure is less so that the 127 flotations, the first six months of this year are for bonds 6.54, and for stock 7.38.

Q. That is the average yield? A. The average yield to the investor. The next three months following June of this year, still lower on the bonds, fell to 6.19 per cent yield to the investor from the bonds. The stock was a trifle higher, 7.49 per cent. I do not place so much value on the stock as I do on

the bonds because there are so few of them that one or two large or small exceptions would affect the average, but still the trend I believe is shown all right on the stock.

And then at the bottom of the page for convenience I put it together in the form of three lines showing that decline. Now I don't deny that a company has to pay a little more than this to float their bonds, perhaps four or five per cent, sometimes less for what is known as—well, the charges of the bankers is for handling the underwriting charge or the promotion, but that will not affect the trend; it would still be evidently downward very much and wouldn't add more than two tenths of one per cent, as near as I could figure the total I have here.

Q. What would that mean? A. It wouldn't add to this, I mean.

Q. What percentage? A. It works out not more than two-tenths of one per cent.

Q. No, what would that mean with reference to the bond yield for the period July to September, 1922? A. It would mean about 6.4 per cent.

Q. Is that with the bond discount added to the bond yield— A. No; the bond discount is carried in here, but I meant something which the company loses and which the investor don't get which the banker absorbs, the banker's commission. If a company had three-quarters in bonds and one-quarter in stock, as is often the case, you could work out an average very readily, taking any ratio you wish between bonds and stock.

Q. Do I understand that this statement, the statement of securities includes all the public utilities, excluding railroads, that floated issues of securities in the time stated? A. Yes, I didn't omit a single one.

Q. You didn't omit a single one? A. That gave the yield. There was a few cases where the yield wasn't given. Of course they would have to be omitted.

Q. This exhibit shows the yield of every public utility security except railroads from July, 1921, to September, 1922? A. All the new issues.

Q. All the new issues?

By Mr. Wherry:

Q. Taken from the financial column? A. Yes, I haven't quite finished with the exhibit because I gave on page twenty and following the details of every issue of the last three months and can, if necessary, furnish it for the previous period, but I haven't copies made out yet. I give an illustration therefore for three months, showing everything for the last three months, which shows how the thing was done. This is supposed to be a correct copy from the commercial and financial chronicle.

Q. It isn't a list of all of these; simply those in the last three months. A. I have not attempted to because I had that prepared previously in another case; those copies were used up, but I can have those made up.

Q. Will you send me them? A. I will have copies made up and send blueprint copies of the first year, of the twelve months preceding this three.

By Mr. Brown:

Q. Dr. Bemis, you haven't made any comparison between this set up of stock yields and bond yields and the set up by Mr. Hill? A. No.

Q. Is there any difference at all in the set up? A. I think he was talking about the yield to present

owners and I am talking about new flotations showing what it costs to get new money on the part of these utilities going out in the market, what must they pay for money to make extensions or refinance expiring bonds.

Q. You both refer to the same line of utilities, do you not? A. Yes. I think he was working on a different point of view. That is what I wanted to get on the record. I appreciate you will not use this to do any more than put it in for what it is worth. This company—

Q. Here is what I wanted, Dr. Bemis, to get on the record, if I can for the benefit of the Board the method you used in making your references because it is material— A. I want to explain—

Mr. Treacy: Won't you wait, Doctor, until Mr. Brown has asked his questions?

Q. (Continuing.) Where you take a certain line of securities and utilities and he another line, or did you both pursue the same course? A. I will not undertake to say what Mr. Hill did, at the moment, although I did know at the time. But I took all the securities, the new issues, I don't think he was discussing new issues, but he took a whole lot of utilities, old issues that were being sold in the market.

By Mr. Treacy:

Q. Did he take all old issues? A. That I won't undertake at the moment to say.

By Mr. Brown:

Q. That is what I wanted to know. Did he select here and there, or was there a general rule? A. I wouldn't want to say without refreshing my recollection what he did.

Q. You know the Courts stress the purchasing power of the dollar? A. Yes.

Q. And the cost of money? A. Yes.

Q. With reference to that? A. Yes.

Commissioner Bacharach: Do you know anything personally about security sales, the value of them?

The Witness: I have studied those things a great deal in all the cases and have had a great deal to do with that subject, constantly going to brokers and talking with them about those matters.

Commissioner Bacharach: Do the bonds and securities of water companies sell better or worse than those of the general run of utilities? Do they bring a higher price, do you know?

The Witness: As far as I can judge the difference can't be made very great between a water company and an electric light or telephone, perhaps, or a gas company. I think they sell better today than street railway securities which are in competition so much with jitneys.

Commissioner Bacharach: You think a water company is on the same basis as a gas or electric light or telephone?

The Witness: Yes.

Commissioner Bacharach: That is your judgment?

The Witness: I should say the great difference as to what the securities are selling for is based on the relation of the quantity of bonds to the total property. A company that is bonded away up to almost its entire value wouldn't be able to sell a new issue of bonds as readily as a company like a natural gas company, which has no bonds, most natural gas companies have no bonds. Normally a utility has bonds of three-

quarters to five-sixths of the total value of the property. Some haven't that and some do have. I don't say all utilities have.

I might add this: That a study of the bonds and securities generally of these five water companies shows that nearly all their bonds have a long time to run and they do not have to refinance, even within the next twenty years, their bonds. Consequently, the fluctuating markets which I have referred to here, which would have to be faced in the case of new securities being issued, would not effect them so much if they only have to pay five per cent, as they do, on about seven million bonds, these water companies, which have twenty years yet to run; they don't face any change in the value of the dollar and the value of the dollar don't effect them one cent as far as the bonds are concerned, because the bonds have a contract of five per cent, five per cent in dollars, that isn't effected by the change in the dollar a bit.

Recess from one to two o'clock.

After recess.

EDWARD W. BEMIS, resumes the stand on behalf of municipalities.

Commissioner Osborne: This witness is under direct-examination?

Mr. Treacy: The doctor was explaining this exhibit.

The Witness: I had been talking about depreciation this morning, too, as a part of it. I wish to

say that after the adjournment this morning Mr. Metcalf thinks that I did not understand just how Mr. Hill worked out his annual depreciation.

Commissioner Osborne: You think you can tell us what Mr. Metcalf thinks?

The Witness: No. I am not going to try.

Commissioner Osborne: You are not trying to do so?

The Witness: I want merely to say that if I understand Mr. Metcalf's statement in his own testimony and he says it is a good deal like Mr. Hill's I would like to comment a little on what Mr. Metcalf has said as to his treatment of annual depreciation in his testimony, merely to say this: That it seems to work out in a way to throw on the future users of any utility more of a burden of annual depreciation than would be met by spreading the depreciation over the entire life of the property. I believe that even though it was not usual to set aside depreciation reserve twenty years ago, though it has been quite common for ten or fifteen years, that it is a proper, fair thing to treat it as if it had been done.

By Mr. Treacy:

Q. What are you doing now? Explaining something as the result of a talk you had with Mr. Metcalf? A. Discussing Mr. Metcalf's testimony on annual depreciation, which he says is like Mr. Hill's. I say that I believe the only fair method is to spread the depreciation over the entire life of the property as have done.

Commissoner Osborne: According to your understanding, because my recollection is not clear; over what period was it spread by Mr. Metcalf?

The Witness: That I won't undertake to say.

Commissioner Osborne: I thought you were making a comparison between his system and yours.

The Witness: He spreads a larger amount on the future users than if it had been spread equally over the whole lot. That is all I want to undertake to say at present. If the earnings of the plant permitted of carrying a burden of depreciation based on the age and life, I don't see why it shouldn't be apportioned to the past in which the depreciation occurred as well as the present and future for further depreciation.

By Mr. Brown:

Q. You were dealing, just before the noon recess, with bonds and stock as shown on page 18, of your exhibits. Please indicate on the record the reliability of the reference you make there, the Commercial and Financial Chronical of New York, to show what evidential value it may have. A. The Commercial and Financial Chronical of New York has been recognized and is recognized the country over as one of the two leading financial journals of New York City; the other being the Wall Street Journal.

The Commercial and Financial Chronical of New York, however, more extensively than does the other paper, goes into such matters as the flotation of securities; has been everywhere recognized as a correct portrayal of financial matters. It has been a journal of long history, many decades, and is everywhere taken by bankers and business men and utilities as authoritative on the field it covers. It has no party or partisan affiliation that I know of.

Commissioner Osborne: You may quote, I think, from a standard work.

Mr. Wherry: This is an investors' service letter by Moody; this isn't Moody's Manual. It is a letter.

Mr. Treacy: By John Moody.

Commissioner Osborne: Let me look at it.

(Letter handed to Commissioner.)

Mr. Wherry: I don't think it is admissible unless we have an opportunity to cross-examine John Moody.

The Witness: What I wanted to quote was the column marked on the last page.

Mr. Treacy: It is in there, it goes into Moody's Manual at the end of the year.

Commissioner Osborne: This is not and there is nothing on this to indicate it is Moody's Manual. The witness has perhaps inadvertently referred to Moody's investment service as Moody's Manual because he knew it was issued by the same people.

The Witness: And goes with the sub-description to Moody's Manual.

Record of Prices of Capital.

Year	Public Utilities.
1903	4.63%
1904	4.60
1905	3.91
1906	4.56
1907	4.91
1908	5.11
1909	4.71
1910	4.79
1911	4.77

1912		4.80
1913		4.90
1914		5.01
1915		4.81
1916		4.46
1917		4.91
1918		5.66
1919		6.30
1920		7.61
1921	First half	7.85
1921	Second "	7.36
1922	First quarter	6.92
1922	Second "	6.20
1922	Third "	6.38

The Witness: This shows substantially the same trend that I showed this morning as downward quotations of bonds of public utilities. My quotation for the last half of 1921 was 7.33 per cent; that investors' letter is 7.36 per cent.

Commissioner Osborne: Let me interrupt to ask whether you are talking now about bonds.

The Witness: Yes. That is what I was talking about; these are bonds, too, I think.

Commissioner Osborne: This letter and column of figures refers to bonds?

The Witness: Yes. My quotation for the first half of 1922, was 6.54 per cent. Their quotation averaged for the second quarter, 6.56 per cent, almost precisely the same.

My quotation for the last three months, July, August and September, mine was 6.19; his is 6.38; there is the only disrepancy and that isn't large.

Now, if I can go on with this report I will turn to the next chapter, page 28, Profits in 1921, compared

with a seven per cent return on the historical cost less depreciation. I might have added or compared with the seven per cent return on the 1912, valuation brought up to date in the way I did this morning because—less depreciation since 1912, figures almost precisely the same

By Mr. Wherry:

Q. Doctor Bemis, by historical cost less depreciation you mean the figure in your Exhibit R1, do you not? A. Yes.

Mr. Wherry: I object to his calling it "historical cost less depreciation," because it isn't that.

Commissioner Osborne: How do you know it isn't?

Mr. Wherry: Well, his admission shows. It is Exhibit R1.

Commissioner Osborne: What was his admission?

Mr. Wherry: He says it is Exhibit R1; return on historical cost less depreciation as shown on Exhibit R1.

Commissioner Osborne: R1; that is the book you were discussing the other day.

Mr. Wherry: Yes.

Commissioner Osborne: Which he said was a book the title of which was somewhat misleading.

Mr. Treacy: Yes.

Mr. Wherry: This just simply shows what it is.

The Witness: I didn't say it wasn't the historical cost. I said perhaps the word "appraisal" might not

be accepted by some; but I didn't claim historical cost wasn't a correct title.

Commissioner Osborne: That, as I understand it, is the historical cost, as far as you are able to get it from the books.

The Witness: Yes.

Commissioner Osborne: As to what you have not been able to get from the books—

The Witness: Estimate it.

Commissioner Osborne: Estimate it less depreciation.

The Witness: Yes, on the straight line method, using the same ages and lives Mr. Hill has used.

Commissioner Osborne: As long as you understand what it is—

Mr. Wherry: Really that is what he has in Exhibit R1.

The Witness: That is true as to the first two lines of page 28. I made the remark just now the figures had been almost precisely the same as shown this morning if I had taken 1912 appraisal brought up to date in the way I did this morning, less depreciation. The figures wouldn't vary one per cent.

Then I proceeded to give the average of historical cost less depreciation between December, 1920, and December, 1921, so as to get the average for the year, 1921, adding together and dividing by two, in other words. Then I present the excess of operating revenues, as shown by Mr. Matthews this morning—

Mr. Wherry: In exhibit what?

The Witness: R2. (Continuing.) Above the operating expenses in 1921, before paying for diversion rights, general amortization or the federal income tax.

By Mr. Treacy:

Q. What was your total historical cost? A. Seven million dollars.

Q. With the average for 1921 excluded. A. $7,531,652.68. The excess of operating revenues above operating expenses in 1921, before paying for diversion rights, general amortization or the Federal income tax was, as shown by Mr. Matthews, $783,183.05; less the annual depreciation according to Exhibit R1, page 37, $127,340.30; leaving the adjusted operating income, $656,842.75.

I do not include the payment for diversion rights. They were paid for in 1921, but I substituted the higher appraisal or higher historical cost by putting into that that historical cost what was paid, $1,120,000, on January 1st, 1922. For convenience I substituted that for the annual payment, increasing my historical cost by that amount and rendering unnecessary the annual payment for diversion rights. So that there has been no ignoring of diversion rights.

Q. You included the diversion rights in that way? A. In that way.

Q. But included— A. What was paid for them.

Q. What was paid for them. A. In the capital account. I omitted the general amortization as described in this third line because that is the allowance for depreciation which they made. I substituted the slightly lower amount, about six thousand dollars, if I remember right, which was worked out on the basis of straight line depreciation. I omitted the Federal income tax, because it seemed to me that that was not to be considered as an operating expense or if it be such it should be taken account of in fixing the rate of return.

I then get an adjusted operating income of $655,842.75, for the year 1921. Then I give the ratio of this income to the historical cost less depreciation as just found, of $7,357,652.68 or 8.7 per cent. And seven per cent profit on the same historical cost less depreciation would be $527,635.69. And the same thing—it wouldn't vary one per cent, as I have said repeatedly, if I took the 1912 appraisal brought up to date in the way I did it this morning.

The excess of actual profit above seven per cent being the difference between the $527,635.69 and the $655,842.75 is $128,208.06. That is the showing of the properties as a whole, treated as one property, jointly used and the individual companies, in 1921.

I regret that the data is not yet quite available for 1922. It may be possible before we assemble again for me to get the first eleven months and estimate December so as to present a similar table for 1922, where there has been some changes on account of a lessened demand for water by Jersey City since April, I believe. There was consumption before May, but not I think since then. That will effect the situation, but I don't think it will reduce it below the seven per cent. But the exact, more exact estimate than I am able to give now I hope to be able to give after the short adjournment.

By Mr. Brown:

Q. Doctor, that exhibit you are referring to now, page 28, gives the historical cost less depreciation according to B1, page 11? A. Yes.

Q. On page 11, you have $130,795.72. A. I am glad that was asked.

Q. Can you explain the difference? A. It shows in the haste of copying—I should have given you page

37. The difference is this: On page 37, it gives the annual depreciation as applied to the property in use at the close of 1920, and that is what should be used for the year, 1921. So instead of saying Exhibit R1, page 11, I should have said Exhibit R1, page 37. This page 11, or one hundred and thirty thousand dollars would be the figure for 1922, but for 1921, substitute page 37, for page 11. I discovered that, but forgot to mention it.

I would like to add a remark relative to the future profits of this company, in view of the loss of business for a while or, perhaps, permanently from Jersey City. The million gallons that were used by these companies outside entirely of Jersey City, increased from nine billion nine hundred and thirty-eight million gallons in 1910, to fifteen billion nine hundred and twenty million gallons in 1920, and his estimate for 1930, is twenty-one billion five hundred million gallons, by Mr. Metcalf on page 5 of Exhibit P3, being Volume I of his exhibits in the present case. So that even with the loss of Jersey City the growth of population on the watershed or in the cities getting water from the East Jersey is growing so steadily, the consumption per capita is also increasing despite metering, to some extent at least increasing, that the loss of Jersey City will apparently be made up in a short time, according to the estimate of Mr. Metcalf and according to my own judgment knowing how the rest of the cities, outside of Jersey City, have been increasing in the last ten years.

By Mr. Treacy:

Q. That is on the assumption that Jersey City's emergency supply, which was sometimes obtained from the East Jersey, should be permanently discontinued. A. Should be entirely stopped.

Q. Of course, nobody can say whether it will be or not. A. No. That leads us to perhaps the last or next to the last chapter, a short one on page 30, on which I have going value. It is a very short treatment for a very big subject, because I am not quite through with some studies that I hope to present on that after the short recess. But my studies have already gone far enough into the earnings and expenses of these companies to convince me that there have been no early losses not made up by later gains, which is one method, and a very common one in the Courts and Commissions, for computing going value. If it can be shown that during the history of a company they have failed to earn six to seven per cent above—after paying all expenses and depreciation, that deficit is sometimes set up as a measure of going value and has had the sanction of the Courts of New York State where it is universally followed by the Commission and has been favorably referred to by the United States Supreme Court in the Des Moines gas case and other cases.

Q. Will you prepare a list of cases, recent cases, showing what going value was allowed in those cases? A. Yes.

Q. And submit it as an exhibit? A. Yes.

Mr. Treacy: We will ask that that shall be permitted, just as Mr. Hill submitted one to sustain his going value.

Mr. Wherry: When he offers it we will consider whether we will object or not.

The Witness: I may say then there are two theories of going value. One being, as I understand it, the historical theory and that may be what early losses there were incurred that were not made up by later

gains, or it may take a form which is very much like it in result, namely, what were the early development costs not paid for by earnings.

A second theory is one presented by Mr. Metcalf, just what it would cost today to develop the business if the property was suddenly blotted out and you had to rebuild it; a reproduction theory as contrasted with the historical theory. I do not consider that. It is so full of—I have my reasons for not accepting it. I consider that it is so hypothetical—

By Mr. Treacy:

Q. So hypothetical in every way? A. So hypothetical in every way. You can't infer from what happened in New Orleans, for example—

The Witness: With a negro population and with the French population unused to having water in any large extent from the old company, depending on wells and rain water systems, because it took them some time to connect with the modern system put in by the city, it wouldn't seem to me to be much of a test of a city brought up with modern plumbing—

Q. Like Montclair, Passaic, Bloomfield and Paterson? A. Yes.

Q. And Jersey City? A. Yes. Where they are accustomed to depend and couldn't very well exist—

Commissioner Osborne: Which was an economic condition then which was not comparable on your theory—

The Witness: No.

Commissioner Osborne: Between this locality and New Orleans.

The Witness: Yes. Then there is a third method

which is to take what Courts and Commissions generally have done, which I will present at the next meeting and which Mr. Hill has presented already, only he claims he has taken a selected list while I have attempted to present every case within a certain recent period, showing where they did and where they didn't allow it.

Then there is another theory which was the overhead allowed. A dead plant, unconnected, without any engineering, interest during construction and taxes, overhead charges; it may be called absolutely a dead plant. A plant with the various elements connected up, with the overhead charges allowed, can be called a going plant, and I am prepared to assert under oath, with great positiveness, that what was done in the Des Moines gas case, what was called going value was nothing but their overheads. I know the evidence and the figures found in that case. They found, for instance, no evidence of early losses, but going value. For instance, the Master held that overhead charges, all engineering—he mentioned the item of overhead charges—they said they had paid sufficient attention to going value and analyzed overhead charges in this.

Q. You had some notes in regard to the history of the company? A. Yes. They may not be ready at the present time. I have ended the exhibits with a series of historical statements about the companies. I don't think those statements will be subject to much dispute.

By Mr. Wherry:

Q. Where were they taken from? A. They were taken from the records of the company.

Q. What records? A. To some extent from exhibits already in the case and in the 1912 case. Mr. Metcalf put in a large amount of data in a very large volume in 1913, called the 1912 case, and he has put some in in the present case. Mr. Hill has done the same. In addition to that there was data brought to our attention from time to time in looking over the reports of the company in the office of the company; but I can't select any particular paragraph and say it came from any one record that was prepared under my direction, without my reading all the notes that went into it by Mr. Mathews.

By Mr. Treacy:

Q. On page 28, you state that the profit of seven per cent or return of seven per cent would be $527,000? A. Yes.

Q. And that the companies would have $128,000 excess above a return of seven per cent on the basis of 1921, operating expenses and other costs? A. Yes.

Q. Why did you take seven per cent as a fair return? Will you submit an exhibit showing the rates of return on that at the next hearing? A. It was based in part on the exhibits on flotation of securities, the chapter on that, which I gave today, showing how securities are now being floated at under six and a half per cent for bonds and a little over seven and a half per cent for stock. And it was partly based on that, partly on general judgment based on a study of a great many of these cases. I believe with the apportionment between bonds and stock that prevails in this utility and in most utilities and with these quantities of stock and bonds at the yield which is on page 18 of this exhibit, this seven per cent is a reasonable return now. It wouldn't have been six

months ago or a year ago when it cost more to float securities; but with the downward trend, which is a steady one, and apparently hasn't come to an end, I hold that seven per cent is a fair return.

Commissioner Osborne: You say it has not come to an end?

The Witness: Of course that is mere prophecy. Perhaps no one can prophesy. It looks as if bonds were being—anyway the evidence shows that July, August and September were still a further downward trend, as shown on page 18. Perhaps I shouldn't profess to be a prophet. It looks that way to me; that is all I can say.

Mr. Treacy: I guess that is all.

The Witness: Do you want to ask about depreciation?

Mr. Treacy: I thought you covered that.

The Witness: Depreciation of prices, the amount of the dollar, the fall of the dollar. If you don't want that at all—

Q. All right, suppose you tell us your judgment in regard to appreciation. A. Well, some commissions have allowed for that and some have not, the last two years, for appreciation. It is a matter of judgment for each commission whether to allow it or not. Where commissions have allowed it, it has generally passed muster in the courts, where it hasn't been allowed it has also passed muster in some courts.

Q. You say the courts have allowed for appreciation where the commissions have not allowed for it? A. Yes, in some cases, as far as the United States Supreme Court is concerned that is true. It is also true in recent decisions in New York State, also in the

Schenectady gas case decided by the Supreme Court of New York a year ago.

Q. How about the Consolidated Gas Company? A. The Consolidated Gas Company case, which I was also in, the Master followed the investment theory. Justice Hand thought he should have followed the other theory, the reproduction theory, but said that on either theory the company wasn't earning enough money. Then Justice McReynolds of the Supreme Court in his decision in March didn't decide which theory was right, but said since the evidence of—he praised the Master and said his general conclusions he agreed with him (whether that meant the valuation didn't appear), but he approved the finding there should be more charged for gas. So it wasn't really settled, but the Master was confirmed by I think Judge Mayer and Justice Hand. When it came to the Supreme Court they didn't settle the issue because the case was decided without having to do that.

Q. As far as the Circuit Court was concerned they confirmed the Master's report? A. Yes.

Q. In which he eliminated depreciation? A. In which he only presented the investment, only decided on the investment theory.

By Mr. Wherry:

Q. Without depreciation, didn't he? A. I don't think there was any depreciation.

Q. He didn't deduct any depreciation? A. I don't think he did; I am not absolutely sure of that though, whether he deducted it or not.

Mr. Wherry: Are you through?

Mr. Treacy: Yes.

By Mr. Brown:

Q. Doctor Bemis, are those exhibits in such shape no one can ascertain just what the rate of return for each company should be? A. No; there has not been a separation made in the investments in any exhibit you have, as between the companies. At least, not to the extent I think that would be desirable, not to the full extent that would be desirable. There are separations of three kinds, first, the way the company sets it up under the basis of legal ownership; the way it can be set up on Mr. Hill's basis on the use of water and the way it can be set up on further allocation based not only on the use of water, but on the pressure, for there is a higher pressure in some parts of the system going out from Little Falls than other parts, and on the distance from the Little Falls pumping station. Those studies, we have been working on them but haven't completed to the present time. We didn't know they were desirable.

Q. The rates you have indicated in your exhibit— A. Yes, as far as—

By Mr. Treacy:

Q. That is the value of the combined properties? The value of the combined properties and the flat rate for all of them. A. Mr. Matthews did present something for each company on operating expenses this morning and we have some things in our report on the separate companies, but not such a complete treatment of the companies separately as would be necessary to answer your question.

Q. Have you the East Jersey Water Company seggegated there? A. No. We have the jointly used property as a whole, I think separated from the individual distribution system.

Mr. Treacy: You could get up an exhibit based on property ownership as set forth by the company, for instance?

The Witness: Yes.

Commissioner Osborne: If it is set up by the company why should he go to the trouble of getting up such an exhibit?

Mr. Treacy: I don't see it is necessary.

Commissioner Osborne: If it is in the case and not seriously disputed why duplicate it?

Mr. Treacy: The only point being that Mr. Hill's is on a higher valuation, of course, than ours would be.

Commissioner Osborne: You are not asking him to get out a valuation. You are asking him to get out a statement of the property—

The Witness: It would be necessary to take—if I was going to distribute historical cost that would be distributed different for each company than what Mr. Hill and Mr. Metcalf did.

Commissioner Osborne: As to historical cost there shouldn't be much difference.

The Witness: There is.

Commissioner Osborne: How does it come about there is such a difference in historical cost, over ninety per cent of it taken from the same source?

The Witness: I don't understand Mr. Hill has attempted to give the historical cost, except for the properties put in since 1912. He has repudiated the historical cost on the ground he couldn't get it and I understand Mr. Metcalf to have testified the same way. We have attempted to do what they said couldn't be done.

Commissioner Osborne: Then what they will do will not be a duplication of what they have done.

The Witness: No. Oh, no.

Mr. Brown: I want to have it in an exhibit in such a shape in this case that if there is a decision of the Court that the East Jersey is not a part of this combined operation, then the Board can find a value and base a rate for each company separately.

Commissioner Osborne: I understand they will put that in.

Mr. Wherry: We have put it in as part of our case; if the municipalities don't care to put it in I don't see why we should object.

The Witness: I want to say a large part of the work done on that was under the general direction of Mr. Potts, in which we have helped; but that is as far as it has gone. We haven't presented anything. Mr. Potts may have something ready he would like to present.

CROSS-EXAMINATION by Mr. Wherry:

Q. Doctor Bemis, you are not a lawyer? A. No. I have read a great deal of law, I had to, but I never passed the examination at the bar; no.

Q. Do you know anything about *obiter dictum*? A. Yes.

Q. You recognize there is a difference in a case where the company claims that it is entitled to an injunction because the rate is confiscatory and where it claims that it is entitled to a higher rate because the rate is unreasonable? A. Yes. One is primarily for a commission to decide, in theory, and the other is primarily a court case.

Q. There are two different questions involved, aren't there? A. Yes.

Q. In this Consolidated gas case you referred to, that was a case where they were trying to enjoin a rate because they claimed it was confiscatory? A. Yes.

Q. And the Master made an examination to see whether or not the rate would give them a fair return? A. Yes.

Q. He took an investment value? A. Yes.

Q. The investment theory, without any depreciation? A. Yes.

Q. Didn't he? A. I don't say positively whether he took off depreciation or not, but if you say he did, I will not deny it.

Q. He took an investment theory. Do you recall he stated if he took a reproduction theory it would necessarily be higher? A. I do.

Q. He said even taking this lower value, the investment theory, the rate was confiscatory? A. Yes.

Q. Because they don't get the rate of return? A. Yes, I remember.

Q. So it wasn't essential in that case to determine what the value of the property would be on the reproduction theory. It was sufficient for the case to take the investment theory? A. Yes.

Q. To tell whether the rate was confiscatory or not? A. Yes.

Q. That is what you mean, by the *obiter dictum*? A. Yes.

Q. In this table of cases you say you will prepare will you bear that in mind and make that distinction? A. I will try to; I may not always succeed; I will try to.

Q. It might save us a little trouble in examining these cases, if you are going to give us the cases? A. Yes. I make the broad sweeping assertion I have yet

found nothing from the United States Supreme Court that decided you can or cannot consider all factors including the historical and reproduction and depreciation—

Commissioner Osborne: Well, Doctor, you don't mean that exactly, do you? As a matter of fact, the United States Supreme Court has said that you should consider all the factors.

The Witness: Should consider all the factors. I put it 'round about. They haven't ruled out any factors.

Q. In the Galveston case the appraisal which was approved by the Court has increased the unit prices thirty-three per cent over the pre-war prices? A. Yes.

Q. That was adopted by the Court, was it not? A. Yes. I think that again was a case where it didn't necessarily imply, if I read Justice Brandice's decision correctly, he means to say that necessarily must be a precedent, that thirty-three percent.

Q. He tests the confiscation? A. Yes; exactly the same thing.

Q. And in order to determine whether it was confiscatory it is fair to add all the thirty-three per cent. A. He didn't disturb it, but he didn't adopt that as the theory to be applied as a precedent.

By Mr. Treacy:

Q. Wasn't all the court did this: The Master having allowed the thirty-three per cent and the company having claimed it was entitled to sixty per cent, the Court said it wouldn't interfere with the allowance by the Master; that thirty-three per cent was plenty? A. I so understood Justice Brandice and he also had

some reference to investment that hadn't been used so he didn't say any more about it.

Q. Didn't he say thirty-three and a third per cent was beyond what should be allowed? He said he wouldn't interfere with that because it had been allowed; it wouldn't allow the company a higher rate? A. And I wouldn't say, from cases I have read from Justice Brandice's work, he would have excluded the investment theory if that had been the basis.

Q. With the prudent investment theory, which would be somewhat analogous to the historical cost theory in this case? A. Somewhat analogous.

By Mr. Wherry:

Q. Providing it showed a confiscation he wouldn't have excluded it? A. Yes.

Q. He wouldn't have to, then, consider any higher basis of value.

By Mr. Treacy:

Q. The prudent investment theory wouldn't have included anything for appreciation? A. No.

Commissioner Osborne: Gentlemen, have you observed the tendency on the part of our experts who are called in these cases to reach a unanimity of opinion as to these theories? Is there any tendency towards a common understanding of this subject?

The Witness: There are two broad divisions in that work. One is certain things of pure engineering and pure accounting, such as inventories, costs, on that particular theory there shouldn't be one cent difference between one engineer and another.

Commissioner Osborne: They agree on that.

The Witness: They ought to and will if they take

time enough to see what the differences are and the come together. Then there is a big twilight zone where they are as far apart from each other as the poles.

Commissioner Osborne: I know they are far apart. Have you noticed any tendency to get together? Have you noticed anything that points to the end of this constant difficulty we are having in this whole problem?

The Witness: I see no tendency to come together except as the Supreme Court of the United States may bring them together by deciding an issue of some kind, deciding a case.

The questions upon which they differ are not questions of engineering or of accounting, they are questions of economic public policy and question of equity. They are questions of equity, public policy and economics.

Mr. Wherry: There are really two schools, Doctor, the investment school and the value school.

The Witness: Yes. They are not questions of engineering in the slightest degree or questions of accounting in the slightest degree.

Commissioner Osborne: The Courts have approved the value school (if you can designate them by those titles), dividing those two schools the Court has said value.

Mr. Wherry: They have in this case, yes.

Commissioner Osborne: If that expression means anything.

Mr. Wherry: They all do come to the question of what is the value, considering investment as having a bearing on it.

The Witness: But I might say that hasn't settled the economics say value is what a thing will sell for, which say the present value, for if they had it couldn't have answered except in one way. All business and all econimics say value is what a thing will sell for, which is the only value in the whole world. But they said, what is the present fair value, they didn't set the present value because that would be reasoning in a circle. The moment the Court fixed a rate that would control the value.

Commissioner Osborne: The Court hasn't any right to fix a rate.

The Witness: If they fix the rate according to the present value you could never change it, because the moment you change the rate you change the value, if you mean by value what is ordinarily meant by present value. Value is dependent on what a thing is selling for. What a thing sells for depends on the present and prospective earnings. Your rates effect that. Consequently it would be reasoning in a circle, as the Courts say themselves and Commissions, repeatedly, if you interpret value as exchange value, which is the only value known in business and economics the world over.

So the controversy is still what is meant by present fair value; it isn't present value. That isn't decided.

Adjournment until Tuesday, December 19, at the Kenney Building, Newark, N. J., at 10:45 A. M. To be then adjourned until Thursday, December 21st, at the Kennedy Building, Newark, N. J.

HENRY F. BELL, sworn on behalf of Municipalities.

Direct-examination by Mr. Record:

Q. Mr. Bell, you are a citizen of Paterson? A. Yes, sir.

Q. And have been for many years? A. Yes, sir.

Q. Are you an official of Paterson? A. Yes, sir.

Q. What office do you hold? A. President of the Board of Finance.

Q. How long have you been a member of the Board of Finance? A. I think since March, 1920.

Q. In your capacity as an officer of Paterson have you had part in negotiations on behalf of Paterson, Passaic and Clifton, particularly on behalf of Paterson, to purchase the property of the East Jersey Water Company including the underlying companies, Aquackanonk, Passaic, Montclair Water Company, East Jersey Water Company and Kearny? A. Both as an official and by special appointment.

Q. What do you mean by special appointment? A. There was a special committee appointed to negotiate with the associated water companies for the purchase of their properties and to develop a new water supply for the city.

Q. Do you remember, as an official of Paterson, receiving a letter under date of May 5th, 1921, addressed to the mayors of Paterson, Passaic and Clifton by the New Jersey General Security Company offering to sell these water companies or the property that they owned for an aggregate of $9,800,000 plus—

Mr. Wherry: I object.

Mr. Record: Wait a moment.

Q. (Continuing.) Plus an adjustment for water

rights in addition? Do you remember receiving such a letter?

Mr. Wherry: I object to the question, first, because it embodies the contents of a document which is the best evidence, the document itself. Second, because an offer to sell is not admissible, in New Jersey, as evidence of value in these cases.

Commissioner Osborne: Will you read the question?

(Question read.)

Commissioner Osborne: He is merely asking if he remembers receiving such a letter and he can answer that yes or no.

Mr. Record: He has answered yes.

Commissioner Osborne: That answer is not on the record, because the question was objected to. Counsel's objection would not avail very much if a witness insisted on answering prematurely.

Q. Did you say "yes"? A. Yes.

Q. I hand you a document (handing witness paper) and ask you if that is a copy of the letter? A. Yes.

Mr. Record: I offer it in evidence.

Mr. Wherry: It is objected to on the ground I have stated. In the first place, according to the statement of counsel it is a letter from the New Jersey General Security Company and not admissible in any way as an admission. In the second place, that a mere offer to sell property is not evidence of value, not admissible as evidence of value.

Mr. Record: The letter shows the source of ownership. This says they own these properties now and did own the property, the stock.

Mr. Wherry: There is no dispute of the fact that the New Jersey General Security Company do own all the stock of these companies, but that offer of the stockholders to sell isn't binding on the companies.

Commissioner Osborne: The New Jersey General Security Company is owner of all the stock?

Mr. Wherry: Except the qualifying shares.

Commissioner Osborne: Which fact we think would make the New Jersey General Security Company the agent of the subsidiaries for the purpose of making this offer.

Does that only leave the question whether an offer of this kind is evidential?

Mr. Wherry: My objection rests squarely on the principle that an offer to sell a piece of property is not evidentiary value.

Commissioner Osborne: We will admit the evidence and the exhibits in evidence.

Mr. Record: Mark the exhibits, Mr. Stenographer.

Mr. Wherry: That is a copy. Have you the original?

Mr. Record: Yes, I will put in the letter of March 17th or 21st, I think it is, both copies.

Mr. Wherry: I am not objecting to its being a copy. That is a preliminary letter and the other says it may be without prejudice.

Mr. Record: Produce the other.

Mr. Wherry: I think there were two letters.

Commissioner Osborne: Is the other part of the same correspondence?

Mr. Wherry: Yes. I think they ought to produce the originals and let me see them.

Q. Mr. Bell, has Mr. Ferguson those originals now? A. I believe he has.

Commissioner Osborne: Mr. Record, I gather from what has been said here now, this is part of complete correspondence on the subject. The whole subject is to be introduced?

Mr. Record: Yes.

Commissioner Osborne: Would it not be better to have it merely marked for identification at the moment until you have produced the rest of the correspondence and then offer the whole?

Mr. Record: That may be better.

Commissioner Osborne: Because there may be aspects of the correspondence which, taken altogether would make a little different aspect.

Mr. Record: All right.

Letter containing offer and opinion, marked Exhibit R5 for identification.

Q. After that letter was received did you act on a committee of Paterson officials to take up the subject-matter of the offer and go on with the negotiations? A. That committee was appointed by the mayor of the city and included civilians, some of the citizens as well as officials of the city.

Q. What officials of the city did the committee consist of? A. The Board of Finance, the Board of—

Q. A member of the Board of Finance, wasn't it? Yourself for the board of finance? A. No; the full board, this was the full Board of Finance.

Q. The full board were appointed as a committee? A. As a general committee. Four members of the Board of Finance, which was all the Board of Finance, four members of the Board of Public Works and five citizens.

Q. Five citizens? A. Yes.

Q. Who were those citizens; do you remember? A. Mr. John W. Ferguson was one and was selected to act for the citizens in the negotiations that were carried on as well as—

Q. After that committee was appointed and met, did you develop a subcommittee to go on with the negotiations? A. Yes.

Q. Were they to go on with the full committee? A. No; they went on with a subcommittee. Mr. Ferguson representing the citizens, Mr. Fuld the president of the Board of Public Works and myself and we joined with the mayors of Clifton and Passaic in a general committee.

Q. After that general committee composed of representatives of the two boards of Paterson, the citizens of Paterson and the officials of Passaic and Clifton had got to work did that committee or did you as a member of it, have any further negotiations with Mr. Gardner or with the company, the General Security Company? A. We did. We addressed a letter to Mr. Gardner as president asking him—

> Mr. Wherry: I object to what the letter contained. If they have that letter they can offer it and that evidence can be received subject to my objection.

Q. I ask you if that is a copy of the letter to which you refer, dated March 15, 1922 (handing witness letter)? A. Yes, sir.

Mr. Record: I offer that letter as a part of the situation leading up to the next letter.

Commissioner Osborne: Do you desire to have it marked for identification?

Mr. Record: Yes, please. This is simply a letter in which we say to them, give us more specific information as to the details of your offer contained in the other letter. And we ask for the details; then the details come along, which I am now about to offer.

Letter, March 21, 1922, by Le B. Gardner to Committee of City of Paterson, together with statement, etc., received and marked Exhibit R6.

Q. As a result of that letter did you receive a reply from the president of the New Jersey General Security Company? A. Yes, sir.

Q. I hand you this letter (handing witness letter) and ask you if that is the letter that you received in reply and if the enclosures were the enclosures that came with it or were given to you in connection with it? A. Yes, sir.

Mr. Wherry: May I see the letter? In the last letter; the first was preliminary to the negotiations, stating certain legal questions that would have to be met, but the offer is in that last letter. If you will let me have it, I will read the paragraph. That paragraph says, "The figures mentioned in our proposition are submitted for prompt acceptance only and without prejudice to our right to prove present value in excess of the detailed figures just submitted in any proceeding

that may be taken to acquire the property by the exercise of the right of eminent domain."

Mr. Treacy: In condemnation proceedings.

Mr. Wherry: Yes, but the cases all hold if you put in a clause of this sort, a statement "without prejudice to your rights" it is not limited to a condemnation proceeding. If you mention that or some other proceeding, the offer is not an offer that is evidential of value and that it is not admissible as such.

Commissioner Osborne: We will admit them as evidence. Give them the same numbers.

Exhibit R5 for identification marked R5.

Exhibit R6 for identification marked R6.

Exhibit R7 for identification marked R7.

Q. After that detailed letter was received and opened, did the committee composed of representatives of these three municipalities and of the citizens of Paterson, take any action in reference to the letter that was brought home to Mr. Gardner representing the companies? A. We had a conference with Mr. Gardner, Mr. Cook and Mr. Cuddeback, I think all three were there just about this time.

Q. Who were in that conference? A. Mr. Fuld, Mr. Ferguson and myself.

Q. Representing the municipalities? A. Yes.

Q. And you were a subcommittee which had been appointed by this other subcommittee in which the representatives of Clifton and Passaic were members? I mean, when you went there you went there as a committee representing all three municipalities? Did you or did you not? A. That is my recollection, yes, sir.

Q. These men you met were Mr. Gardner and Mr. Cook and some one else? A. Mr. Cuddeback.

Q. These are all officers of these companies? A. I believe so.

Q. What communication did you make to them and what did they say to you in reply?

Mr. Wherry: This of course is subject to the same objection. I would like to have my objection noted on the record.

Commissioner Osborne: The same objection as you made to the letters?

Mr. Wherry: Yes. It is a negotiation.

Commissioner Osborne: You better make it specific then.

Mr. Wherry: I object to this evidence as being inadmisisble, incompetent, immaterial and irrelevant.

Commissioner Osborne: We will admit it upon the theory that it is intended to be connected up. Whether it is immaterial I can't say unless you show there was some admission on the part of the company.

Mr. Record: That is what I propose to do. That is what the answer will bring forth.

Commissioner Osborne: It is admissible.

Q. What did this committee in effect say to the officers of the company and what in effect did they say back? A. We discussed the offer, discussed the property that was included in the offer and went over the matter in detail.

Q. Did you make an offer? A. I don't think at that meeting, no, sir. Excuse me just a minute.

Q. Did you have another meeting? Did you see Mr. Gardner yourself alone afterwards? A. I don't think there was any discussion or any offer made at that meeting in March.

Q. Then did you have a subsequent meeting with Mr. Gardner yourself or with the committee? A. I had a subsequent meeting with Mr. Gardner myself.

Q. What was said by Mr. Gardner or the other officials as to the price? A. I don't recall any discussion of the price at that particular meeting, except a statement as to the offer that they had made. There was no offer I recall made by our committee at that meeting.

Q. They did not withdraw the offer they had made in writing? A. No, sir, they have not at any time.

Q. They discussed the terms of that offer with you at that conference? A. They did and the various properties that went in to make up the property in total that was to be sold.

Q. In that conference no alteration in the price was made by any of these officials? A. No, sir.

Q. Did you see Mr. Gardner after that? A. I did.

Q. Did you see him alone? A. Yes.

Q. How long afterward was that? A. I think about two months.

Q. About two months after your interview in March? A. Yes, sir.

Q. Where did you meet Mr. Gardner? A. The discussion was in Mr. Gardner's office by appointment.

Q. The office of these water companies? A. Yes.

Q. And it was for the purpose of discussing this offer? A. It was.

Q. And this discussion was about the offer? A. It was.

Mr. Record: I should think that ought to clear it up.

Mr. Wherry: What date was this?

Mr. Merrey: He said it was about two months later.

The Witness: Something like that, yes. I have the date in my memorandum somewhere.

Q. What transpired, in effect, briefly? What did you say to him and what did he say to you? A. I told him our committee thought the price asked was entirely too high, and asked him to reduce the price fixed in his offer. He refused to do so; he said they wouldn't take any less. In the offer there was a proposal I think, to accept six per cent bonds issued by the municipalities in payment for the equity over and above the liens that were on the property. I asked him if he would take any lower rate of interest than six per cent at that time. He said no; they wouldn't, and would make no reduction whatever in the price that he had offered to sell the property for.

Q. In this letter? A. Yes.

Q. In this previous letter? A. Yes, sir.

Q. Did he at that interview withdraw the offer? A. No, sir.

Q. As far as you know has he ever withdrawn it? A. No, sir.

Mr. Wherry: I object to that as drawing a conclusion by the witness. The thing speaks for itself. To reject the offer it didn't have to be withdrawn.

Commissioner Osborne: He is asked, as far as he knows.

Mr. Wherry: I am pointing out the absurdity of the question. To reject an offer it don't have to be withdrawn, especially if you make it and say this is for prompt acceptance.

Q. When you went there you were still acting as a part of this larger committee, appointed by the officials of Paterson and part of this subcommittee of which Passaic and Clifton had become members? A. Yes, sir.

Q. You went there in your capacity? A. Yes.

Q. As such a representative? A. Yes, sir.

Q. To make a formal offer and bring back an answer? A. Yes, sir.

Q. Mr. Bell, what is your business? A. Banker.

Q. Are you an officer of a bank? A. Yes, sir, I am president of the Citizens Trust Company of Paterson.

Q. How long have you been connected with that company? A. Since it was organized in 1901.

Q. Have you held any other political office except as member of the Board of Finance of Paterson? A. Never, sir.

Q. Are you a large property owner or a property owner of the City of Paterson? A. Yes, sir, a large property owner.

Q. You have always been a citizen of Paterson; born there and brought up there? A. No. I wasn't born there, but my parents were residents of Paterson when I was born.

Q. You have always lived your active life in Paterson? A. Yes, sir.

Mr. Brown: Did you connect Mr. Cuddeback's relation to this company?

Mr. Wherry: He isn't an officer; he is superintendent.

Mr. Cook: Mr. Gardner is president of pretty much all of them, except the Montclair Water Company in which Mr. Snow is presi-

dent and Mr. Gardner, treasurer. I am vice president of all the companies except the General Security Company.

CROSS-EXAMINATION by Mr. Wherry:

Q. Do you remember a conversation that took place in Mr. Gardner's office, at which Mr. Cook was present and you were present and the Mayor of Clifton was present, when the former Mayor of Passaic was also present? A. Yes, sir.

Q. Do you remember that Mr. Cook took part in that conversation? A. Yes, sir.

Q. You remember Mr. Cook stating that the property was worth more than the offer? A. I think that the Mayor of Clifton asked Mr. Cook the question as to how we would best get at a termination of our negotiations and Mr. Cook stated that we had better start condemnation proceedings, because they would get more for the property under condemnation proceedings than the amount they offered to sell it to us for.

Q. That is what I had in mind? A. I think that was the conversation.

Mr. Wherry: That is all; I have no further questions.

Mr. Record: That is all.

G. H. MATTHEWS resumes the stand on behalf of Municipalities.

Further direct-examination by Mr. Treacy:

Q. Have you prepared a statement in the form of an exhibit reconciling the book cost as shown by the books of the company with the Bemis appraisal already put in? A. Yes.

Mr. Wherry: The Bemis appraisal? You mean by that Exhibit R1?

Mr. Treacey: R1.

Q. The exhibit which you have prepared entitled, "Reconciliation of Joint Property as per Books with Bemis Appraisal and Reconciliation of Individually owned Property as per Books with Bemis Appraisal," what is the purpose of that exhibit? A. It was drawn up primarily for the purpose of showing how the various entries on the books had been disposed of in obtaining the Bemis appraisal.

Q. Well, how were they disposed of? Can you state it more particularly? A. I would have to explain it. I have some copies of this.

(Witness distributes copies.)

Q. Go ahead. Have you stated what the general purpose of the exhibit is? A. Yes. I have explained that. On page 1 in the first row of figures there is shown a total construction account, that is, the plant and equipment accounts of each of the companies as of December 31st, 1921, at which date they have a total plant account of $11,755,863.69.

Q. Where was that figure taken from? A. That is taken direct from the books of the various companies. That eleven million figure is composed of

jointly owned property and individually owned property and as the Bemis appraisal was likewise divided between those two classes of property, I have first deducted the individually owned property in order to arrive at the jointly owned property.

Q. Now, let me ask you, the purpose of this exhibit is to show, first, what the books of the company show? A. Show first what the books of the company show, yes, sir.

Q. As to the total costs of construction and to reconcile those with the Bemis appraisal? A. Yes, sir.

Q. And by comparing the Bemis accounts with the book accounts? A. With the book accounts, yes, sir.

Q. And in the end, after you have analyzed this you show what the different book accounts show and they are all segregated and you explain the reason why? A. Yes.

Mr. Treacy: I think I will offer this in evidence now and then we will have the explanation of it afterwards.

All companies combined reconciliation of construction accounts as per books with Bemis appraisal as of December 11, 1921, Exhibit R8.

Q. Will you explain more fully now what this exhibit shows? A. The first page of the exhibit is prepared for the purpose of reconciling the joint property according to the books with the Bemis appraisal.

Q. And in taking the joint property, what do you regard as the joint property? A. I have taken the items of interest in Little Falls—

Q. No; I mean where did you get the allocation of

the joint property? A. I got it direct from the books of each company.

Q. From the books. All right. Then you got that from the books? A. Yes, sir.

Q. All right; proceed? A. The total jointly owned property as of December 31st, 1921, that are here included as jointly owned property, consists of interest in Little Falls improvement account and general equipment account and construction to December 31, 1920, of the East Jersey Company making a total of $4,720,904.35. Immediately below I have shown certain items which I have deducted from the book figures because they were not included in the Bemis appraisal.

The first item is a profit to the East Jersey Water Company on sale of the interest in the Little Falls imrovement and on sale of the Beattie rights in 1907.

Q. Why do you deduct those? A. The East Jersey Water Company had constructed the Little Falls property and in 1907 disposed of that property in various proportions to the different companies and in doing so they charged to each company a larger amount than the property had cost them.

Q. Therefore, it was taken out of the jointly owned? A. The East Jersey Company had charged to these companies on these sales a larger amount than the property had cost them according to the East Jersey records and that profit was arrived at as intercompany profit and was not considered as part of the cost of the jointly owned property.

The next deductions were original cost of land. In going through the East Jersey Company's books we ascertained the charges for land and deducted those because land was considered in the Bemis appraisal at reproduction cost.

There is a further reduction for an amount received in 1907 in connection with the sale of some water rights in 1898 amounting to three hundred thousand dollars. There was some further small adjustment.

Commissioner Bacharach: Why was that three hundred thousand dollars taken out?

The Witness: That was taken out because it was in—

Commissioner Osborne: For the different reasons just indicated by you?

The Witness: Yes.

Commissioner Osborne: This three hundred thousand dollars is the total of the four deductions.

The Witness: No. The three hundred thousand dollars is a separate deduction. That is an amount received—

Commissioner Osborne: An amount received on the sale of water rights in 1898 to Patrick H. Flynnn.

The Witness: Yes, sir.

Commissioner Osborne: Why did you take that out?

The Witness: Because it was in, because it was taken into account by the Bemis engineers in arriving at their valuation of the water diversion rights. They considered what the company had paid for the rights and deducted what they had received when they sold some of them.

Q. Wasn't that money that was paid by Flynn to the East Jersey for water rights? A. Yes.

Q. For the diversion of water for the Jersey City supply? A. Yes, sir.

Q. That is the reason you took it out because the East Jersey received three hundred thousand dollars for it? A. That is correct.

Commissioner Osborne: Who is Flynn?

Mr. Treacy: Flynn was the Jersey City contractor, the contractor who got the contract for the supplying of the Jersey City water supply and in order to get that supply from the Rockaway River he had to pay to the East Jersey Water Company, three hundred thousand dollars for the water diversion rights.

Commissioner Osborne: Paid by Flynn to the company.

Mr. Treacy: To the East Jersey Company.

Commissioner Osborne: Therefore it goes toward the reduction of the cost on that.

Mr. Treacy: Goes to reduce the cost of the water diversion rights which the company set up in this appraisal.

Commissioner Bacharach: And which they never took credit for.

Mr. Treacy: Never took credit for in this appraisal.

By Mr. Brown:

Q. Can you tell why you didn't take this general equipment construction account at the date of this appraisal? A. The general equipment? That was an omission on the part of the engineer. They took the 1920 appraisal and included in it the general equipment according to the books at that time. We subsequently brought our appraisal down to 1921 by taking the book figures of additions, but the change in the general equipment account was overlooked.

Mr. Treacy: But there is a separate exhibit.

Mr. Brown: I was going to ask if that was shown in some other exhibit.

Mr. Treacy: Yes. We put in an exhibit showing that.

Commissioner Bacharach: The item of three hundred thousand dollars, how did the company carry it on the books?

The Witness: The three hundred thousand dollars from Flynn?

Commissioner Bacharach: Yes.

The Witness: That was carried by each company as an addition to its surplus in 1907. That was not credited to the plant account; does not appear.

Mr. Wherry: Who is responsible for this treatment of the three hundred thousand dollars? Did you take that by instruction? Who should we cross-examine as to the reason for it? Are you responsible for the treatment of it?

The Witness: No, sir.

Mr. Wherry: You took it by instruction.

The Witness: Yes, sir.

By Mr. Treacy:

Q. Where did you get that from, the three hundred thousand dollars? A. I got that from the books of the various companies as credit to their surplus account. Passaic Company one hundred thousand dollars, and so forth, it is all here.

Q. That was what was received by these affiliated companies for the Flynn water rights? A. Yes, sir.

Q. You took that out because Mr. Bemis instructed you to take it out? A. Yes. I didn't take it out because he instructed me to take it out. I took it out of the books because he had not included it in his appraisal.

Q. But all the items were set up on the books? A. Yes, sir.

Q. Aggregating the three hundred thousand dollars? A. Yes, sir.

Q. Paid by Flynn for the water diversion rights to enable him to supply Jersey City with its water supply? A. Yes, sir.

Q. Now, go on with your explanation? A. The various adjustments that I have explained, and one or two smaller ones shown on the exhibit, bring down the book figures from 4,720,000 to 3,691,000.

Q. For jointly owned property? A. For jointly owned property only, and to that figure there was added in the Bemis appraisal certain items which were entered on the books. I have listed them here; so that the total Bemis appraisal would be brought out at the end. The items included in the Bemis appraisal in addition were $1,721,000 making an aggregate of $5,412,000. That one million seven hundred thousand dollars added is largely caused because in the Bemis appraisal there was included an item of $1,120,000 representing diversion rights acquired from the S. U. M. and the Dundee Water Power & Land Company at the beginning of 1922.

The other items represent the land at reproduction cost and an allowance for materials and supplies and diversion rights.

In preparing a similar statement for the individually owned companies—

Commissioner Osborne: Will you indicate the page; what page are you referring to?

The Witness: Yes; referring now to page 3. Page 3 is an attempt to reconcile the individually owned property of the Aquackanonk Water Company, as stated in the book with the Bemis appraisal of December, 1921. In order to show what disposition was

made of the charges on the books, this exhibit has been set up in three periods and the total of all the periods. The total according to the books 1921 is $1,062,984.19 made up of the accounts listed. We have a set of books for the Aquackanonk Water Company in the period of 1902 to 1921 and during that period there was added a net amount of $594,984.18.

We were furnished by the company officials with some annual reports covering the Aquackanonk Water Company for the years 1899 to 1901 and from those reports we were able to ascertain the net amount added to construction account in each of those three years. The annual report for 1898 showed there was a plant account at that time amounting to $432,143.54, the component parts of which we had no information on whatever, there was no book and nothing else to assist us.

The figures from 1902 to 1921 were adjusted because of certain items found on the books which did not appear to be properly deductible from the expenditures of the period. For example, the company in those days charged to construction account materials as purchased and continued that course until 1911 or 1912 when they began to set up material and supply accounts and thereafter only charged to construction accounts materials as used. In January, 1911, they made an adjustment entry for materials and supplies on hand at that time, which was credited to construction account and charged to material and supplies account.

It was not considered by the Bemis engineers that that adjustment, $8,020.50 should have any bearing on the expenditures made in 1902 to 1921. We didn't know when the materials had been purchased and therefore we thought it better to throw that en-

try back and consider it as applying to a period prior to 1902. And it was therefore thrown back into the last column.

Similarly the book record retirement of the physical property amounting to $25,396.23 for the period 1912 to 1921, those retirements were considered to represent property that had been constructed in the period prior to 1912 and these adjustments were made in order to obtain the gross amount from 1902 to 1921.

An estimate was then made by the engineers of the original cost of the property retired from service from the period 1902 to 1911, the period in which the books did not show the displacement of property.

The next item is an adjustment of the general equipment account 1921, representing the net additions for that year, which, as previously stated, were intentionally omitted from the Bemis appraisal.

There was a small difference between the dollars that the Bemis appraisal used as represented in the period from 1902 to 1921 and the adjustment which I have already mentioned amounting to $3,301.13. And correspondingly, there was another adjustment the other way from the period 1899 to 1901; the effect of which was that the Bemis engineers had used $1,922.50 in its reproduction more than the books actually showed to have been spent.

By Mr. Brown:

Q. That item of omissions in the general equipment 1921 of the Bemis appraisal; are you accounting now in this exhibit for the omissions on page 1 of the same exhibit? A. No, sir. That is a separate adjustment on page 1.

By Mr. Treacy:

Q. Do you know how much that amount was, the amount of those omissions at page 1 for general equipment? Do you recall? A. It is on page 2, Judge. On the joint property the omission was four hundred and twenty-three dollars. That was not an addition in 1921, but a displacement in 1921. In other words, the Bemis appraisal for joint property showed general equipment four hundred and twenty-three dollars more than the book figures at December, 1921, because they omitted to make the four hundred and twenty-three dollar displacement.

Having enumerated for the Aquackanonk Water Company all the items I have stated there still remains a difference, which I have described here as unidentified expenditures, amounting to $231,853.03 in the period prior to 1899 on which we have no records and therefore didn't have anything to go upon in explaining what the nature of those expenditures were.

The final items are, the items included in the Bemis appraisal not on the books, representing land, reproduction cost, interest during construction and materials and supplies.

Q. Have you treated each of the other companies— A. Each company has been treated in exactly the same way.

Q. Page 5, the Passaic Water Company? A. Page 5, the Passaic Water Company. The Passaic Water Company, however, I have gone a little further than I did in the case of the Aquackanonk Company.

Q. Page 4 is the treatment of the Passaic Company? A. The Passaic Company, pages 4 and 5.

Q. You say you went into it a little more deeply? A. In the case of the Passaic Company I would explain. I attempted as far as I could from the infor-

mation available to bring up the plant account according to the books as it was prior to 1898. That again was a period in which we had no records to guide us. I have assumed, shown in the items on page 5, I have assumed that certain contracts which were placed at our disposal by the company, have been charged to construction account in that period and in that way I attempted to make up the book figures they have at January 1st, 1898, amounting to some $3,800,000.

By Mr. Wherry:

Q. Practically every figure there on page 4 is an assumption? A. On page 5, yes, sir.

Q. Page 5 is an assumption? A. Yes. Every figure in the way of an adjustment there is an assumption.

By Mr. Treacy:

Q. But it is an assumption based upon papers and documents referred to there in these contracts? A. Yes, sir. That is the source of my information; and there is a difference that we haven't been able to account for of $618,000.

By Mr. Treacy:

Q. Will you proceed, Mr. Matthews? A. I think that is all I want to offer in explanation of page 5.

Page 6 is a similar reconciliation of some small items of property on the East Jersey Water Company's books considered as individually owned property. The total according to the books was $5,168.86. And there was a small omisison in the Bemis appraisal of $2,031.66 representing some expenditures in the year 1921 and the 1921 general equipment ex-

penditures amounting to $2,442.75 altogether. To which has been added the allowance for materials and supplies in order to reach the Bemis appraisal shown in R1, page 11.

Page 7 is a similar statement for the Kearny Water Company. According to the books of the Kearny Water Company their construction account for 1921 amounted to $100,010.51. The expenditures consist principally of a pipe line known as the Kearny extension. This pipe line was built by the East Jersey Company and subsequently sold to the Kearny Company and the East Jersey Company in that transaction took a loss of $72,369.26. This loss has been added back in order to arrive at the cost of the Kearny extension when built rather than the cost of the Kearny extension to the Kearny Company.

That gave an adjusted book cost of $172,379.77 from which there was deducted the cost of land and rights of way incurred at the time of construction by the East Jersey Company amounting to $13,074.23. To the adjusted figure was then added land at reproduction cost and interest during construction in order to reach the Bemis appraisal figure of $179,897.87.

Page 8 contains a similar reconciliation for the Montclair Water Company's individually owned properties. The total according to the books of December, 1921, was $835,911.48. The books of the Montclair Company were available from the time of the inception of the company in 1887. The deductions from the book figures of 1921 were for land at a cost of $15,382.95; wells at Montclair not included in the Bemis appraisal as being now used or useful, $10,488 and pumping station equipment retired from service, but not recorded upon the books as a displacement in the period, 1887 to 1912, $15,048.38, making

the adjusted book figure $794,992.15. To which was added an adjustment for general equipment displaced in 1921 not deducted in the Bemis appraisal $429.33; land at reproduction cost, materials and supplies, producing a total of $835,590.56.

By Mr. Brown:

Q. On page 3 under the last column, prior to 1895 you assign that figure because you didn't find any record as previous to that year of expenditures? A. Yes.

Q. $432,143. Now the totals you deduct for unidentified expenditures are $231,853. Do you think those figures have any relation to each other?

Mr. Wherry: Which two?

Mr. Brown: Page 3.

Q. What is the relation? A. I think the two hundred and thirty-one thousand dollars is a part of the four hundred and thirty-two thousand dollars.

Q. You account for that deduction latterly in the computation? A. Yes. I show in the Bemis appraisal they have used all the expenditures from 1899 to 1921 in their appraisal, that in addition to that they have included in their appraisal one hundred and fifty-three thousand dollars (this is all right at the bottom of the last column) $153,996.45 as being property now in existence constructed prior to 1899. And, therefore, the two hundred and thirty-one thousand dollars is bound to have been spent in that time, prior to 1899 not subsequently.

By Mr. Treacy:

Q. And not found by the Bemis appraisal? A. Not included in the Bemis appraisal.

By Mr. Brown:

Q. What I wanted to get on the record is, in your opinion, then, prior to 1899 the actual value that you think was then in the plant is this figure you have referred to, $432,143, less the unidentified expenditures of $231,853? A. No. That isn't the situation at all. The books show, the trial balance, the first evidence I have of the book figures, which was in January 1, 1899, there was a recorded construction account of four hunrded and thirty-two thousand dollars.

Q. Yes. You don't think that is the actual value there at that time? A. Why, I have no knowledge of that at all.

Q. There must be a disbursement of some of that balance since that time. Have you accounted for that in any particular figures here? A. No. I don't know what the four hundred and thirty-two thousand dollars consists of, there are no records.

By Mr. Treacy:

Q. It could be discarded or obsolete property? A. It could represent expenditures that the Aquackanonk Company had made before they were getting their water supply from Great Falls; it might represent pipe lines at their previous source of supply, at Vreeland's Lake or pumping equipment—

Mr. Wherry: You can sit here and speculate what it would be. You don't know.

The Witness: No; I don't know.

Mr. Wherry: I move to strike out his speculation.

Mr. Treacy: I am the one to make that motion.

By Mr. Treacy:

Q. Was it customary in those early days of bookkeeping to write off all discarded property? A. No, sir.

By Mr. Brown:

Q. I want to find out if that was the value that then existed, if there was any way you could find it out, if it was actual value or just a book value.

Commissioner Osborne: I don't understand this witness is an engineer who knows anything of value.

Mr. Brown: No.

Commissioner Osborne: All this man has done is to take figures he found and put them in the form of this exhibit.

Mr. Brown: I understand. I thought the books would disclose some expenditures that would be deducted from this particular item.

Commissioner Osborne: You can ask that question.

A. There are no books in that period.

CROSS-EXAMINATION by Mr. Wherry:

Q. Mr. Matthews, as far as the books show of the Aquackanonk Company there is $432,143.54 paid for the cost of construction prior to 1899. Isn't that so?

A. There is a construction account recorded on your annual trial balance of January 1, 1899 of $432,000.

Q. That is on the trial balance? A. Yes, sir. That is not on the books.

Q. I hand you this (handing witness book) which

is the first book of the Aquackanonk Company and ask you to look at the first entry and see what you find there. The first entry; what is the second entry there? A. This is a statement of assets and liabilities of the Aquackanonk Company of January 2nd, 1902.

Q. Yes. What does the construction account there show? A. $467,800.41.

Q. You haven't put that in this reconcilement sheet, have you? A. Yes, sir.

Q. Where does it appear? A. It appears as far as the period, as far as 1902 is concerned it is the total of the thirty-five thousand dollars spent 1899 and 1901 and the four hundred and thirty-two thousand dollars prior to 1899.

Mr. Brown: What page is the witness referring to?

Mr. Wherry: Page 3 of this Exhibit R8.

Q. In other words, you take the item on the books of the company there and divide it into two items? A. Yes.

Q. It isn't the exact item as it appears on the company's books? You haven't taken an exact transcript from the company's books? A. I have used this four hundred and sixty-seven thousand dollars.

Q. You didn't exactly transcribe that from the company's books? A. I don't know what you mean by "transcribe."

Q. You didn't transcribe that item, the second item, the construction account? A. I didn't show four hundred and sixty-seven thousand dollars for that item on this sheet, no.

Q. You divide this into two items? A. Into two periods.

New Jersey State Library

Q. What was the authority you had for dividing it into two periods? A. I explained how I made that by saying I used the trial balance the company turned over to me in the period 1899 to 1901.

Q. It was not from the books but the trial balance? A. Yes. The figures from 1899 to 1901, which is a difference in the construction account from the beginning and end of this trial balance.

Q. I am not quarreling with that, that it was the proper thing to do. I want to know whether it is or is not a transcription from the books or whether this item prior to 1899 comes from another source. A. It comes from another source.

Q. Not the books, but is based on evidence of what you could get, what the books might show at that time? A. Yes.

Commissioner Osborne: Before you leave that, does the item of $35,856.47 for the period 1899 to 1901 and the $432,143.54 under the column headed, "Prior to 1899," do those two items total that amount on the books?

Mr. Wherry: That is what I am going to ask him.

Commissioner Osborne: Then, he took it from the books and divided it into two parts according to the year and that is the result.

Mr. Wherry: Yes. He took the items from the books and divided the item found on the books.

Q. $35,856, you get that by deducting the balance sheet, as I understand it, the balance sheet item from the first entry on the books, is that correct? A. I got it from deducting a similar balance sheet to this one of 1902.

Q. What do you mean? A. The books here start with the balance sheet of January 2nd, 1902. I had—

Commissioner Bacharach: The balance sheet, how much does that show in 1902?

The Witness: $467,000 at that time.

Commissioner Osborne: This book you are referring to, has that been indicated on the record?

Q. Is that the original book of the company you examined? A. Yes.

Q. The first general book—

Commissioner Osborne: The company produces a book which is shown to the witness and to which he is now referring?

Mr. Wherry: Yes.

Commissioner Osborne: It being stated that it is the original book of the company and the book from which he made his figures.

Q. As I understand it, Mr. Matthews, that was the first book that you found, all the earlier books having been destroyed? A. Yes.

Q. That is the first entry in that book? A. In that book.

Q. The first entry of construction account there is four hundred and how many thousand dollars? A. $467,800.41.

Q. You deducted from that the construction that appears on the copy of the balance sheet of 1899, didn't you? A. Yes, sir.

Q. And that difference you put in here in this column 1899 to 1901? A. Yes.

Q. On the assumption that they were construction items of that amount expended during that year? A. Yes, sir.

Q. And the two together make the total sum in the book. A. Make four hundred and sixty-seven thousand dollars.

Q. But the total on the book is the sum of those two? A. Yes, sir.

Q. And was gotten at in that way? A. That is so, it is.

Mr. Brown: About the sheets, what you just referred to identify that a little more.

Mr. Wherry: You recollect you asked us to produce certain carbon copies of statements that were found in the safe of the company, which I produced and said they could use providing they identified the items they took from them.

Mr. Cook, have you those statements here? The statements are not signed and they are carbon copies and they are not identified; they are not part of the regular records.

Commissioner Osborne: Those are statements they said they had used in exercising their judgment.

Mr. Wherry: Yes. In order to get all the records and see what the character of them was. When a man makes a statement he takes everything from the books of the company that is a different thing than taking the records of the company. We turned over all our available records.

Q. Are those the five copies of the papers that you had (handing witness papers)? They are produced as part of the record of the company, but not as part of their books. A. Yes, sir. Those are the ones.

Q. That item of four hundred and thirty-two thousand dollars appears on one of those, does it? A. Yes.

Q. Then, the total items, Mr. Matthews, the first item of construction account of this company that appears on its books is four hundred and sixty-seven thousand dollars and you accepted that as the first item that had to be reconciled, didn't you? A. Yes, sir. There was another small item there, furniture and fixtures there, that is, $199.60 that was attributed to the period 1899 to 1901.

Q. Where did you get that? A. That is on your balance sheet of 1902, but it isn't in your 1899 statement, it turns up in the meantime, so I put it into that period.

Q. Take this first column, the total as per the books, that is page 3 of the Aquackanonk Water Company, $1,062,984.19? A. Yes.

Q. That is what the books showed the property cost, is that right; that is the book cost? A. That is the book cost, yes, sir.

Q. That is the book cost? A. December, 1921.

Q. The last item down here at the bottom of the page, as per Bemis appraisal, page 11, $851,983.61, where did you get that item? A. That is from page 11 of the Bemis appraisal.

Q. Exhibit R1? A. Exhibit R1.

Q. Page 11? A. Page 11.

Q. What were you undertaking to do, to reconcile that $851,983.61 with the figure which you took from the books? A. Yes, sir.

Q. That is what you were trying to do? A. Yes, sir.

Q. In other words, this item of $851,983.61, which appears here as given in R1 as the book cost of this

company differs from the book cost as you found on the books by a considerable sum of money, doesn't it?

A. Yes.

Q. The problem was to find out what that difference was made up from? A. That wasn't so much the purpose of the exhibit. The primary purpose, as I explained here, was to show what disposition had been made by the Bemis engineers of the expenditures recorded on the books.

Q. You were trying to reconcile that eight hundred and fifty-one thousand dollars with the one million and sixty-two thousand dollars, were you not? A. Yes.

Q. Didn't you start with the one million and sixty-two thousand dollars and make certain deductions and changes and arrive at the eight hundred and fifty-one thousand dollars? A. Yes, sir; that is just what I did. I got down as far as I could and then I put the difference in unidentified.

Q. You took everything off and then when you got through you found Bemis had eight hundred and fifty-one thousand dollars and there was two hundred and thirty-one thousand dollars you couldn't find any way to deduct? A. Yes.

Q. So you put it down as an unidentified expenditure of two hundred and thirty-one thousand dollars. A. Yes.

Q. All that means is there were some items that were headed unaccounted for in the book cost, page 11, but were included in the book? A. Yes.

Q. Is there any journal entry that shows what those unidentified expenditures are? A. No.

Q. Is there any vouchers? A. No, sir. It is part of this four hundred and thirty-two thousand dollars.

Q. That is all you know? A. That is all I know.

Q. Part of the four hundred and thirty-two thousand dollars? A. Yes.

Mr. Wherry: I want to know whether there is any basis on the books of the company, as far as this witness they tendered is able to determine, for that deduction of $231,863, anything on the books.

The Witness: Nothing from the books.

Q. You did it because of instruction? A. I beg pardon?

Q. You deducted it because of instructions? A. No. I didn't deduct it. I show it here as the difference.

Commissioner Bacharach: It seems to me your cross-examination shows what he did.

The Witness: If I started at the other end (that will explain it, perhaps), if I started with the Bemis appraisal I would have added the two hundred and thirty-one thousand dollars to get at the books. I haven't deducted or added.

Q. It is the difference between the two, Bemis and the books? A. Yes.

Recess from one to two o'clock.

After recess.

Mr. Brown: If the Board please, there has been reference made to some typewritten or carbon statements that have been found in the archives of the water companies. They do

not seem to have been offered, and reference has been made to them. I think it will assist the Board to have those records in evidence; either one of the parties should offer them, it seems to me.

Commissioner Osborne: What are they, Mr. Wherry?

Mr. Wherry: These are five exhibits found in the safe. Of course, they are available to the Board's engineers just as they are to the other side's. You can have them marked if you desire. They were in a desk and not in the safe.

Commissioner Osborne: Do they relate to company matters?

Mr. Wherry: Yes. Suppose you look at it. I have not examined it very carefully myself. They are carbon copies unsigned of what apparently are balance sheets and records of the company.

Commissioner Osborne: Prior to the date of the first exhibit?

Mr. Wherry: Yes. They are all we have left.

Commissioner Osborne: Any objection to that? Let them be marked and if they become of any value then they will be here.

Mr. Brown. Mr. Bemis made many of his computations upon that information and if the engineer's exhibits are to be taken it seems to me the foundation of the exhibits ought to be taken.

Mr. Wherry: I think I should have Mr. Cook state what they are on the record so you can see just what they are.

JOHN H. COOK, sworn on behalf of companies.

Direct-examination by Mr. Wherry:

Q. Mr. Cook, what is your position with the Aquackanonk Water Company? A. I am its vice president.

Q. And the Passaic Water Company? A. Also.

Q. And the Montclair Water Company? A. I am, yes, the vice president of the Montclair Water Company also.

Q. The East Jersey Water Company? A. Yes.

Q. Vice president of each of those companies? A. Of each of those companies.

Q. How about the Kearny Company? A. Also the Kearny Company.

Q. You have been associated with these companies for how many years? A. I have been associated with the outfit I may say for twenty-five years, but my interest with these separate companies has practically been since 1902 or 1903.

Q. I hand you these five papers and ask you whether you recognize them? A. I do.

Q. What are those papers, where were they found and what are they? A. These papers were taken from certain papers that were in Mr. Gardner's office, in a pigeon hole there. It was the custom since about 1898, I think, for Mr. Gardner to have presented to him from time to time—

By Commissioner Osborne:

Q. He was president of the company? A. He was president of the company.

Mr. Wherry: Of the New Jersey General Security Company.

The Witness: Well, if he were not that he was vice president. With these sheets which I have in my hand were bound up other sheets that had to do with other companies that were under the same control, that is, the control of the New Jersey General Security Company. These sheets which I have here were taken from those bound up volumes, you might call them, of sheets which contained the reports of other companies that were controlled by the security company, sometimes as much as a dozen, I suppose.

By Mr. Wherry:

Q. They were sheets furnished to Mr. Gardner containing information in regard to the companies. A. I believe so, yes, sir.

Q. At the top of each one of those it says, "annual meeting," and the date of it; what is that? A. That referred to the date of the annual meeting as provided for in the by-laws of the company, that is, it was supposed to be, in connection with a number of them, to be some definite date, like the second Tuesday in June, or some such expression as that.

Q. That does not mean that those papers are copies of the minutes of the meetings? A. Not necessarily.

Q. Were they data that were used and made the basis of action at the meetings? A. That I could not say. These papers are practically before I had any connection of that kind with the companies.

Q. You do not know whether they were or not? A. I do not know whether they were or not.

Q. You simply know those papers survived the fire? A. That is all I know about it. They were in Mr. Gardner's desk and somebody found them there.

By Commissioner Osborne:

Q. You understand them to be papers submitted to Mr. Gardner as president or vice president of the company for the purpose of apprising him of the financial condition of the company? A. I do.

Q. And that they were prepared by the bookkeeper or whoever had charge of the data which was the basis for the figures and information contained therein? A. I believe they were.

Q. And that they were presented to the annual meeting of the company as indicated by the title? A. I would not say that.

Q. Where is Mr. Gardner? A. Mr. Gardner was the managing director and president—

Q. Where is he now? A. He is presumably at our office in Paterson.

Q. He is alive? A. Yes, sir.

Q. And available if necessary? A. Except he had a stroke some two or three years ago and he is very much disinclined, if he can avoid it, to have anything that is disturbing.

Q. Is he still head of the company? A. Yes, sir; he is.

Commissioner Osborne: Anything further on these papers? These relate, as I understand it, to the condition of the companies prior to the earliest available records in the books.

Mr. Wherry: Yes.

The Witness: So far as they go, I believe; yes, sir.

Mr. Wherry: You will note in there that there are some items where it says, "balance carried forward to construction account." Whether that was actually carried forward or

whether it was a recommendation that was going to be made at the directors' meeting we have no way of telling, because we haven't got the books to see whether the entries were or were not made.

Commissioner Osborne: If this witness's statement is correct, that these were statements of the existing financial condition of these companies taken from their books and furnished to their executive officer, it is a reasonable presumption they represented what they purport to represent.

Mr. Wherry: Yes; they are records of the company.

Commissioner Osborne: In other words, if they say, "balance carried over," the presumption is that is what was carried over.

Mr. Wherry: I think that is a fair inference. I am just calling attention to the fact they are not the books. If they draw inferences from them, you can see the papers.

Commissioner Osborne: They are not the books, but they are the best available information that we have, in view of the fact the books have been destroyed.

Mr. Wherry: That is it.

Mr. Brown: Those are the only written records you have of information that has been destroyed heretofore.

The Witness: There are divers other records of not a financial character that I think extend back of the fire, for example, a pipe book or things of that kind, engineers' reports, possibly something of that nature.

By Commissioner Osborne:

Q. What fire was this, the Paterson fire? A. Yes, sir, 1902, February.

Q. The fire that largely destroyed the City of Paterson? A. Yes, sir.

Q. Your office was in Paterson at that time? A. Our office was completely destroyed.

By Mr. Brown:

Q. You have every reason to believe these statements are accurate copies of the original records? A. I assume we have no reason to believe otherwise.

Commissioner Osborne: Let them be marked.

By Mr. Treacy:

Q. The only companies of which the records prior to 1902 are missing are the Aquackanonk and the Passaic. A. I believe so, yes, sir.

Q. The records are all extant today of the Montclair, the East Jersey and the Kearny Water Company? A. I understand so, yes, sir.

By Commissioner Bacharach:

Q. Mr. Cook, have you compared this statement of the Montclair Water Company, balance January 2nd, 1902, with the statement on your books? A. I have not.

Q. Whether it is correct? A. I have not.

Statement Passaic Water Company, annual meeting second Tuesday in June, received and marked Exhibit P29.

Statement Passaic Water Company, annual meeting second Tuesday in June, received and marked Exhibit P29a.

Statement Aquackanonk Water Company, annual meeting second Tuesday in June, received and marked Exhibit P29b.

Statement Aquackanonk Water Company, annual meeting second Tuesday in June, received and marked Exhibit P29c.

Statement Aquackanonk Water Company, annual meeting second Tuesday in June, received and marked Exhibit P29d.

G. H. MATTHEWS resumes the stand on behalf of municipalities.

Cross-examination by Mr. Wherry:

Q. Mr. Matthews, the books of the companies whose books were destroyed, that is, the Passaic and Aquackanonk companies, the books of record which you saw of those companies consisted of what? A. The general books were a ledger, cash book and journal.

Q. Those were financial books? A. Those were financial books.

Q. You make a distinction between financial books and records, do you? A. Yes, sir.

Q. Did you look at the pipe book? A. I have seen it, yes.

Q. You did not examine that? A. No.

Q. Would you consider that one of the books of the company? A. No, sir.

Q. One of the financial books? A. No, sir.

Q. How about the engineers' estimates or reports, did you examine those? A. I have seen them. I did not particularly examine them.

Q. You did not regard them as financial books? A. No.

Q. The figures taken from them might be from the records, but not from the financial books, is that the way you would put it? A. I would say that engineers' reports might supplement the books and they would be part of the records of the company but not part of the general books.

Q. Did you examine the engineers' reports and compare them with the pipe book to see whether there were discrepancies? A. No.

Q. If there were, neither one or the other would control the other, would they as an accounting or bookkeeping proposition? A. Well, I think that would all depend on how they were compiled.

Q. Of course, if there were discrepancies between those two books then there might be also difference between them and the books of account? A. Yes.

Q. They could not both coincide with the books of account. A. That would, I think, all depend upon the period when those discrepancies took place. As I remember it, from 1912 or 1913 down to date, the engineers' reports, so far as the distribution system is concerned do agree with the books year by year, so far as recording the expenditures is concerned. If the pipe book did not agree with that, then the pipe book would not be in accordance with the books.

Q. The engineers' reports, you say they agree with the books; they do not contain all the items the books contain, do they? A. I think they do, in the period from 1912 or 1913 down to date.

Q. Down to date? A. Yes, down to say 1921, as far as I can speak of. Prior to that time, no, they do not.

Q. It is prior to that time they do not? A. Prior to that time, yes. They have a different system of accounts in different periods.

Q. Mr. Matthews, I understand this Exhibit R8, pages 4 and 5, contain the same sort of reconciliation with respect to Passaic as page 3 contains with respect to the Aquackanonk Company? A. Yes, sir.

Q. On this copy I have, page 4 starts out, "Passaic Water Company, Reconciliation, forward total $4,943,000." Is that the way yours starts out? A. No; it does not. You have a poor copy.

Q. In other words, the numbers are wrong in mine? A. Pages 4 and 5 are transposed there.

Q. On your page 4 what is the total item as per the books of the value of the property of the Passaic Water Company? A. The value of the property is not stated there, Mr. Wherry.

Q. I did not say that. I said the total item as per the books. A. I thought you said value; I beg your pardon. The book cost is $5,030,884.30, December 31, 1921.

Q. I give you this volume, which is marked "Journal, Passaic Water Company," and ask you whether you recognize that? A. I first, perhaps, should go a little further and say again, this is a statement of the individually owned property only.

Q. Yes, only of the individually owned property. A. The total according to the books at 1921 is shown on page 1.

Q. That includes both? A. That includes both the joint and individual property. Which figure is the one want me to identify?

Q. I ask you now if you recognize that as the first book of account of the Passaic Water Company? A. This is the first one I saw, sir, yes, sir.

Q. The opening entry in that book shows how much for construction account? A. There are two construction accounts. One is called construction, $3,925,857.71, and the other one is Little Falls, extension $145,034.33.

Q. There are just those two items? A. There are just those two items as of January 2nd, 1902.

Q. The first item is three million nine hundred thousand dollars? A. Yes, sir.

Q. That appears on page 5 somewhere, doesn't it? A. On page 4.

Q. Of R8? A. Page 4.

Q. Page 4 of R8. A. You have your pages mixed.

Q. Have you divided that in the same way you did the other? A. In the same way. That is represented by the item of $228,243.61 in the period from 1898 to 1901, and the balance $3,697,614.10 stated as prior to 1898.

Q. Those two items together make the first entry on the book. A. They should, yes, sir; yes, that is correct.

Q. To that you have added the other individually owned property acquired since 1913, is that correct—1902? A. I have added since 1902 down to 1921, down to date.

Q. The total is $5,030,000? A. The total is $5,030,884.30.

Q. What was the total book value as per Bemis appraisal, Exhibit R1, which you used in your reconciliation? Where is that found? A. That is found on page 11 of R1. It is on my page 5.

Q. Your 5, and the amount? A. $2,289,991.77.

Q. So that the adjustments then represent a difference which would be necessary to account for in some way in order to reconcile this total taken by

Exhibit R1 as book cost, with the total of $5,030,884.30. A. Yes, sir; that is correct.

Q. It totals about what? A. $2,740,000. I will give it exact, if you want it. Approximately $2,740,000.

Q. Are any of those deductions which you found on page 4, Exhibit R8, beginning with the figure eight hundred dollars and going up to $54,589, are there any of those taken from the books? A. Yes, sir.

Q. There are book entries to correspond with them? A. There are book entries I think for every-one except Stoney Road Reservoir abandoned in 1918.

Q. How about these mains and hydrants retired from service 1902 to 1911? A. That is not on the books either.

Q. Not recorded on books, considered as constructed prior to 1898, fifty-four thousand dollars. A. $54,589.88, that is not on the books, as I have stated.

Q. Is there anything on the books to support that deduction? A. No, sir.

Q. Nothing on the books? A. That is not a deduction, Mr. Wherry.

Q. That difference? A. Yes, that one is.

Q. You would have to deduct it to reconcile it. A. Yes, that is a deduction.

Q. There is nothing on the books to deduct. A. Nothing on the books, no; the fifty-four thousand dollars is not on the books. Your feet of pipe represented by that fifty-four thousand dollars.

Q. The number of feet? A. The number of feet of pipe.

Q. Where were they taken from? A. They were taken from—I think the engineers took them from

the pipe book or the engineers' reports, I do not know which.

Q. That simply has the lineal feet and does not give the dollars and cents. A. It does not give the dollars, no. It is the feet of pipe reconstructed or replaced during that period.

Q. Somebody had to make a computation to get it. A. Yes, sir.

Q. About these adjustments in the column above that where you have recorded retirements of property estimated as constructed prior to 1898, fifty-five thousand dollars, you have deducted fifty-five thousand dollars in one place and added it in another? A. Yes, sir.

Q. What is the basis for that?

Commissioner Osborne: What page are you reading from?

Mr. Wherry: Page 4, Exhibit R8.

A. The fifty-five thousand dollar item is a book figure, Mr. Wherry.

Q. It is a book figure? A. It is taken from the books, yes, sir.

Q. You mean there is a book entry? A. Not of that item, but there are a number of book entries, which in the aggregate make up fifty-five thousand dollars, which are the recorded displacements of property in the period from 1911 to 1920.

Q. Yes, but there is nothing to support, to determine whether they were— A. Prior to 1898, no.

Q. Whether prior to 1898, that is an assumption or inference. A. Yes, sir, that is just an assumption.

Q. How about the one hundred and sixty-six thousand dollars, next to that? A. That is also taken from the books.

Q. The item in column 2 is taken from the books? A. $156,189, yes, sir.

Q. How about the deduction of $156,189? A. That is an assumption that the land was acquired prior to 1898. It was sold between 1911 and 1920.

Q. It was sold between those two dates? A. I would not say it was sold. It was taken out of the construction account.

Q. A proper entry? A. Oh, yes.

Q. So you assume it was purchased prior to that date and you make an entry here to correct for that? A. Yes, sir.

Q. How about this construction, Paterson extensions considered as in period 1898 to 1901? There you go back to where you have no records at all. How did you get those two figures? A. The $134,128.37 is the same item as is up at the top of that sheet in the last column, the second entry. It is gotten directly from that trial balance that you were just putting into the record, Mr. Wherry.

Mr. Treacy: That represents the Little Falls extension?

The Witness: The Little Falls extension. It is from the trial balance 1898, or thereabouts; it was on the trial balance at that time.

Q. It has since been abandoned; is there any entry to show that? A. No; it has not been abandoned.

Q. Never has been abandoned? A. It is in use today, as far as I know.

Q. There is an entry here, did you make it? A. Simply the engineers had it as being constructed in the period of 1898 to 1901; I think they assigned the year 1898 to it.

Q. In order to get an age for depreciation? A.

Yes. It was, as I see it, partly constructed in 1897, because you had only one hundred and thirty-four thousand dollars on your books at that time and then it was finished up in 1898 or 1899.

Q. Will you turn to page 5? As I understand, these entries, adjustments made on page 5, they have no entries on the books to correspond to them, is that correct? A. There are no books to have any entries on, Mr. Wherry.

Q. That first item you have here, you have to make two assumptions, don't you, in regard to this, this total column, this first column headed total; don't you first have to assume that that one million dollars was included in the $4,943,629? A. Yes.

Q. There is nothing in the books to show whether it was or was not included in the $4,943,000? A. No, sir.

Q. I think you have stated that clearly here on Exhibit 5; it said deduct items assumed to be charged to construction. Does that word "assume" there mean that everyone of these items deducted are assumed to be included in the $4,943,000? A. Yes, sir.

Q. They were assumed because you had no record; that original entry has no details, had is? A. No, sir.

Q. And there were not any details available. A. That is correct.

Q. Now, how did you determine those deductions; were they taken by instruction, by you or did you determine them? A. No; I determined those in some cases; some cases they are estimates, as there stated.

Q. Take the largest item there, unaccounted for, $618,390.16. A. Yes, sir.

Q. That is similar to that unaccounted for item in the Passaic property? A. Exactly.

Q. You have no book record or nothing to support that. A. No book record, no.

Q. You simply took that after you had deducted everything you could find? A. Yes.

Q. Is that what you call plugging the balance in order to get a balance? A. No.

Q. To take the difference? A. No. I would not call it plugging it. If I plugged it I would not show it as unaccounted for; I would stick it where you could not see it.

Q. You can label it unaccounted for; it corresponds to what is called plugging. A. No, sir. When you plug it you hide it where you cannot see it.

By Commissioner Osborne:

Q. Plugging means in your parlance, to conceal it somewhere? A. Yes, sir; that is the way it is usually done.

Mr. Wherry: I did not mean to insinuate you were concealing anything. I wanted to know whether that is not simply arbitrary.

Commissioner Osborne: You used the wrong term apparently to indicate what he has done.

Mr. Wherry: The technical term I used.

The Witness: I think, perhaps, it might have been set up the other way. I might have taken all these items I have enumerated and then taken the Bemis appraisal and shown the difference down below as unaccounted for.

Q. You have to deduct $618,390 over and above all these items you could find some excuse for, in order to make the two things balance? A. Yes, sir.

Q. Take that first item of one million dollars; did you examine that Contract No. 173 yourself? A. Yes, sir.

Q. Have you got it in mind? A. Generally, yes.

Q. Do you know what the contract provided this company, the Passaic Water Company was to pay that one million dollars for? A. As I remember it, three hundred thousand dollars of it was said to represent the damage which the S. U. M., the Society for Establishing Useful Manufactures, had sustained.

Q. Had already sustained? A. Prior to the date of the contract.

Q. The contract was 1887? A. Yes.

Q. And the Passaic Water Company had been in business from 1854, hadn't it? A. Yes, sir, I think so, 1849 or 1854, somewheres about that.

Q. You recalled the contract recited it had diverted water and hadn't obtained anything for it for twenty years? A. I think it recited rather that it diverted more water than they were entitled to under a previous agreement.

Q. That was the second item in it, was it not? A. No, that was the first item, as I remember, of the three hundred thousand dollars.

Q. It covered about twenty years they had already used? A. Yes, perhaps twenty, twelve years, something like that.

Q. You have assumed when they paid that three hundred thousand dollars they just charged it right to construction? A. Yes, sir.

Q. The seven hundred thousand dollars balance there that they paid to the Society for Useful Manufactures, do you know how much water they got the right to divert for that? A. I think the contract stated fifteen million gallons a day with a further

clause that the Passaic Company should so arrange storage facilities that the natural flow of the river during the dry season would not be materially lowered, or lowered at all.

Q. That was a privilege, with the storage facilities and was limited to 15 M. G. D.? A. Yes, sir.

Q. That was seven hundred thousand dollars that was paid for that? A. Yes, sir.

Q. You just deducted it? A. I assumed that was part of it, yes.

Q. And you deducted it? This next item, Contract No. 237, West Milford Water Storage Company, did you examine to see whether there were or were not any entries referring to that later in the books; did you find any later entries? A. I did find some entries, yes, Mr. Wherry.

Q. Do you know how this entry you have made here compares with the entries that were made subsequently by the company? A. I do not know that I do know exactly. I have that in my papers somewhere.

Q. You do not know whether there is a duplication or not? A. There was no subsequent entry in the plant accounts; the adjusting entry that I remember came along about 1903, I think there was some surplus adjustment at that time.

Q. This property, this Franklin Lake property, the company still owns it, doesn't it? A. I don't know, sir.

Q. Take this item of seven hundred thousand dollars that was paid in 1887, that covered damages too, didn't it? A. Not the seven hundred thousand dollars I do not think. The three hundred thousand dollars, I believe.

Q. The next item, West Milford, that was made as part of the same transaction at the same time, there were damages involved in that, weren't there? A. The West Milford, no, I do not think so.

Q. Do you recall whether that seven hundred thousand dollars covered the actual rights of water they took from the period from 1887 for forty years following that? A. I do not quite understand the question. Do you say, do I know?

Q. If it covered the water they actually took during that twenty years? A. No. I have no information on that.

Q. Did you, in examining the books, did you find from 1907 on they paid for the water they actually took? A. Yes, sir.

Q. And prior to that time you did not find any entries of payments, did you? A. No.

Q. It is a fair inference that that seven hundred thousand dollars covered the water that they actually took from 1887 up to the time they began to pay for the water they took? A. Yes, sir, I think so.

Q. Mr. Matthews, there is one thing that I think perhaps is an inadvertence, but you stated, I believe that you had derived all the jointly owned property from the books of the company. You have the East Jersey Water Company entitled to how much of that jointly owned property? A. I think perhaps I did not make that very clear. I have the East Jersey jointly owned property $1,355,458.98. In arriving at that figure, that included expenditures by the East Jersey Company directly and individually for some mains and I think meters down to 1920, amounting to $3,207.28.

Q. You know that the East Jersey owns the pipe line there, the 51-inch pipe line, if you examined the

books you found that under the title of the East Jersey; that you have included in this jointly owned property, haven't you? A. Yes, sir. The 51-inch line, as I remember, is divided up on the books of the company, and one company owns a section of it and another company owns so many feet of it and a third company owns some and the East Jersey has the rest of it.

Q. Although that is jointly owned it really is different from the other jointly owned property, because the East Jersey has a divided interest there and the other jointly owned it has an undivided interest. A. I do not know whether it is actually divided. It was divided on a different basis from the other jointly owned property.

By Commissioner Osborne:

Q. Set upon the books distinctly on a different basis. A. Yes, sir.

Q. Whether there was any actual difference from the set up on the books you don't know; you did not see the deeds. A. No, I did not see the deeds.

Q. All you saw was the set up on the books. A. Yes.

Q. Did you see the same method of set up as you found on their books? A. Yes, sir; this is exactly like that.

Q. Assuming their books were correct. A. Yes, sir.

By Mr. Wherry:

Q. The East Jersey Water Company purchased some water rights in 1895, didn't it? A. Yes, sir.

Q. Is that purchase referred to in any way on page one of Exhibit R8? A. Not as five hundred and thirty-five thousand dollars. There is a reference to it under the deductions.

Q. Under the deductions? A. Yes.

Q. The price was five hundred and thirty-five thousand dollars, wasn't it? A. The total amount paid up to date.

Q. To that date? A. Not up to that date, no; up to date, up to 1921, is five hundred and thirty thousand dollars. The original agreement was three hundred and thirty thousand dollars, as I remember it in 1895 or 1896.

Q. And in 1915— A. In 1915 there was an additional two hundred thousand dollars.

Q. So the total is five hundred and thirty thousand dollars. A. The total is five hundred and thirty thousand dollars.

Q. That would be the cost of that water right. A. Five hundred and thirty thousand dollars, yes.

Q. As per the books of the company, would it not? A. Yes, sir.

Q. Do you know how much of that was land and what they paid for that? A. I do not know, no.

Q. That was a right to divert, wasn't it, water from a certain drainage area? A. The three hundred and thirty thousand dollar purchase, as I remember the contract, included some land,

Q. As a matter of accounting, if a company purchases a property like that and afterwards sells a portion or part of it, how would you, as a matter of accounting, determine whether when it sells it had made a profit or not? A. I do not believe I would undertake to do that as an accountant all alone. I would want some help on it.

Q. You could not do it as an accounting proposition.

The Witness: I could make an apportionment of it, an arithmetical apportionment of it.

Q. That is what you would do in accounting. A. Yes, if I were left entirely alone to do it.

Q. Unless you had an appraisal made of different parts and had it divided differently, you would apportion it. A. Yes, sir.

Q. The cost would be apportioned in accordance with what was left, which would be in proportion of what the original cost was? A. Yes, sir.

Mr. Wherry: I have no further questions.

RE-DIRECT EXAMINATION by Mr. Treacy:

Q. On page 5, under the heading Passaic Water Company Mr. Wherry asked you concerning certain assumptions that you made, particularly with reference to the item of one million dollars and the item of five hundred thousand dollars. What was the basis for your assumption that those two items ought to be deducted from the total of $4,943,629? State that a little more particularly than you did. A. The assumption principally there was that the company was purchasing property and therefore it would undoubtedly be charged to the plant account at that time. The company was buying a diversion right, but in the second the five hundred thousand dollars, they were buying storage facilities from the West Milford Company.

Q. Do you know whether those items represent property that is no longer used by the company? A. The item of one million dollars includes in it undoubtedly property which is now being used by the company. It is a right to divert water from the Passaic River and that is what the company is doing today.

Q. Does all of it represent that? A. All of the million dollars? No.

Q. Yes. A. That was, as I understand, divided up into two items of three hundred thousand dollars and seven hundred thousand dollars.

By Mr. Brown:

Q. What is the first figure you assumed in this exhibit? A. Page 5, one million dollars.

Commissioner Osborne: Page 5 of which number?

By Mr. Brown:

Q. You first assumed some other figures before that, didn't you? A. In the entire exhibit?
Q. Yes.

Commissioner Osborne: Refer to the number of the exhibit.
The Witness: R8, sir.

By Commissioner Osborne:

Q. What is your first assumption, the first assumed figure? A. The first assumption, assumed figure—
Q. Whereabouts, which one? A. I do not think there are any assumed figures on page 1.

By Mr. Brown:

Q. None on page 1. What about page 2?

Commissioner Bacharach: You are not referring to that unaccounted for item?

Mr. Brown: No, that has been explained. That has been a matter of computation as I understand it.

The Witness: There are items in this exhibit which are not assumptions by me, but are estimates by engineers, supplied to me.

Q. You referred to assumptions when Mr. Wherry was cross examining you. For instance, on page 2 are there any? A. No.

Q. When you come to page 3 are there any? A. Page 3 there are assumptions there under the heading of adjustments between periods by Bemis engineers.

Q. What is the basis for the assumption there? First mention the figure. A. Meters and supplies on hand, January 2nd, 1911, $8,020.58.

Q. What is the basis of the assumption of that figure? A. There is no basis for it as such. The intention there was to be sure that in the period from 1902 to 1921 we did get the gross expenditures of the company for new property.

By Commissioner Osborne:

Q. Where did you get that figure? Why did you determine to put down $8,020.58 rather than $7,543.21 or any other figure? A. That is a book figure.

Q. Where did you get it from? A. From the books of the Aquackanonk Water Company, January 2nd, 1911.

Q. Why do you say it is assumed then? A. There is an assumption that the property was built prior to 1899.

Q. The figure was not assumed; merely the time in which that money was expended was assumed. A. Yes, sir; the figure itself is not assumed; that is a book figure, but it is one of the assumptions upon which I was cross examined.

Q. If you found that figure on the books of the company, why did you have to make any assumption as to when the expenditure was made? Wasn't it on the books of the company under a given date? A.

No. It is credit on the books at this time, at 1911. The company's plan before 1911, the process was to charge all property as purchased to construction, that was to be used for construction purposes, but apparently it was not all used, because in 1911 they take out of construction and charge to meters or to materials and supplies material that has not been used, that is on hand at that time.

Q. Amounting to how much? A. $8,020.58 for meters.

Q. You say they did that. If they took that figure in 1911 why do you say it is an assumption when you put it in the column 1902 to 1921? A. Because we did not know when the $8,020 was spent, what particular meters they were, though the assumption was that in 1899 they also had eight thousand dollars of meters on hand, eight thousand dollars worth.

Q. You did know the books showed they spent that much money within that period? A. They had spent more than eight thousand dollars in that period for meters, probably. We did not know when the particular meters had gone into service, we had no way of identifying them and did not attempt to.

By Mr. Brown:

Q. That particular item, you have it here as having been expended in 1899; that is twelve years almost? A. Prior to 1899.

Q. Yes, that is about twelve years to the time it appears on the books as a credit; is that right? A. Yes, sir.

Q. What is the next assumed figure? Then in fact the figure itself is not assumed; it is only a matter of classification as to time. A. The figure itself is a book figure. It is a classification as to that.

The Witness: Perhaps I could make it a little more clear to you.

Commissioner Osborne: Make it as clear as you can.

The Witness: I can describe a little how the company has kept their books from 1902 to 1921. There are two separate bookkeeping methods. In the period from 1912 to 1921, that is their present bookkeeping method, they carry their accounts by classifications and if expenditures are made for mains they are recorded as mains, if for meters they are recorded as meters, for land as land, and so on, in accordance with your commission classification. Prior to 1912 they did not have any classifications. They carried on their books a single construction account and to that account was charged all construction expenditures, for pipe, for labor, for supplies, for meters, land, buildings and everything else, and correspondingly during the same period they made credits for property which was sold, cash received, for various purposes. If they sold a meter they credited the cash to the construction account. If the consumer paid part of the cost of a service pipe or main or something of that kind, that cash was credited. The accounting work done was in the period from 1902 to 1911 to attempt to segregate as far as might be possible these construction expenditures so as to get them stated by classes of equipment. In other words, we went through and by an examination of the company's vouchers ascertained how many of the dollars were spent for meters and what kind of meter it was that was purchased, the size of it, and the quantity. If there was a purchase of land we would ascertain it from the voucher and set it aside as land. We handled every expenditure that way, so far as information was

available as to what it purported to represent. It was impossible, of course, to identify it entirely. Labor items were charged simply as labor and would represent the installation of meters, the construction of mains, any buildings or machinery that would be installed. The accounting work principally from 1902 to 1911 was to endeavor to explain to the engineers what the dollars represented and how they should be interpreted by the engineers.

In cases where there were credits to an account, as for example, this materials and meters on hand at a certain date, the accountants were consulted as to what period of time those expenditures, those credits should assume to have been charged to the account. If, for example, in the meters on hand, the eight thousand dollars in 1911, if we had let that stand as a credit in 1911 we would have reduced the 1911 expenditures by that much money and would have left only a net figure as representing construction expenditures in 1911 rather than the gross expenditures, and when the engineers came to compare that with the inventory showing a certain number of meters installed in 1911, we would have been giving them only the net cost for property installed in that year, rather than the actual cost. We got the gross cost by taking out and putting back in again this credit to construction for that year, showing it did not apply to 1911; it applied to some prior period. That was the process that we followed in general throughout the examination of accounts.

By Mr. Brown:

Q. Was that applied to all other items which you have referred to as assumed? A. No, it does not apply to the items that are on page 5.

Q. You have another item on page 3 you referred to; is that the twenty-five thousand dollar item? A. That is just an assumption of the date of construction of property which the company has recorded on their books as having been displaced in the period between 1902 and 1921.

Q. What was the basis of your assumption there? A. It was simply a similar basis. We did not think that property had been built in that time. In some cases we knew from the description of the item that it was installed before 1899.

Q. Confining yourself to this item, what was the basis of your assumption; why did you assume it was constructed as you have stated here? A. The twenty-five thousand dollars?

Q. Yes? A. Well, as I say, some of the items were explained on the books when the company made its displacement, that it was displaced property which had been installed, say, prior to 1899, or many years ago, or some such description as that.

Q. You mean that some of the items that you took into consideration in making up this twenty-five thousand dollars were expressed on the books? A. All of them.

Q. All of them were? A. Yes.

Q. Then that is not an assumption? A. No. No assumption so far as the dollars are concerned. The only assumption is the period in which the money was spent.

Q. You say that was expressed in the books, too, the time wasn't it? A. Yes, sir, in a great many cases, maybe not in all of them. In a number of cases it was stated generally how long ago the property had been built.

Q. What part of that item was assumed and what

was your basis of assumption? A. I do not know, I have not the details with me as to how many of the items were explained by the company in its entries, but our assumption is just between two periods.

Q. That is the best answer you can give to that at this time? A. Why, I think so. The only other explanation I could give would be the general explanation that in cases where we could not trace the identical property, as in the case of meters, the assumption would be that the meters most recently purchased were the ones that were in the appraisal, as a general proposition.

Q. Now, will you go to page 5. There is nothing on page 4 in the way of assumption? A. No, except for the similar items allocated to different periods than those entered on the books.

Q. And they were based on the classifications made as you have made it here, for the reasons you stated about the eight thousand dollar item on page 3? A. Yes, sir, just exactly similar items to that.

Q. Did you want to offer a further explanation of the items on page 5? A. Yes, the items on page 5 are in an entirely different category.

Q. You say you used assumptions in every case and it appears they are not all assumptions? A. There are two kinds of assumptions here. There is the assumption I have made as an accountant and there are the assumptions the engineers have made, which were somewhat different perhaps. There are engineers' estimates in here that I have used at times for property that has been abandoned and not recorded on the books; those are engineers' estimates; they are assumptions in that sense of the word.

Q. Can you state what they are? A. Yes, I can show where the engineers' estimates come in.

Mr. Wherry: Back to page 1 again?

The Witness: There are some minor ones on page 1 at the foot of the page. There is an item of $6,382, that is the estimated cost, by the engineers, of a temporary boiler house at Little Falls which they consider as not being of any use. There is a transfer of an expenditure of three thousand dollars from individually owned property to jointly owned property on the 42-inch Paterson extension; that is an engineer's adjustment and not an accountant's adjustment.

Q. An expression of his opinion? A. Yes, sir, an allocation of expenditures by an engineer for some engineering reason.

Q. Anything else on page 1? A. No, that is all.

Q. What are the engineer's assumptions on page 2, if there are any? A. Nothing on page 2.

Commissioner Osborne: Materials and supplies.

The Witness: Yes, materials and supplies is—well, that is not an engineer's assumption either. That is a book figure.

By Mr. Wherry:

Q. What assumption is that? A. Materials and supplies, the item on page 2.

Q. How about interest during construction? A. Interest during construction is an assumption or estimated figure by engineers, interest during construction. Materials and supplies is a book figure. Then there are a couple of small items at the bottom of the page estimated by Bemis engineers, the Ball and Wood vertical engine.

Mr. Treacy: Nine hundred dollars and four hundred and twenty-five dollars.

The Witness: Nine hundred dollars and four hundred and twenty-five dollars for the Venturi meter house, Passaic Avenue.

Page 3, in addition to the items I already mentioned, there is an item of $12,877.26 deducted, the estimated original cost of property retired in the period 1902 to 1911, not recorded on the books, assigned by Bemis engineers. That represents their estimate of the original cost of property displaced in that period and assumed by them to have been constructed in the period prior to 1899.

By Mr. Brown:

Q. You do not happen to know what the particular property was, do you? A. Yes, that is all mains; I think it is all cement mains replaced by cast iron.

Q. What is the next item on that sheet; that is Sheet 3? A. There is a small item there of $1,922.50, is the amount that the Bemis people put into their appraisal in addition to the money that was spent on the company's books, as adjusted, as I have explained, in the period from 1899 to 1921; they used up just a little more money than was actually on the books.

Q. Is this made then to— A. In order to bring the book figure up to their appraisal, yes.

Q. Is that all on that sheet? A. That is all on that sheet, yes, sir.

Q. Have you anything on Sheet 4? A. There are items similar to the ones I have described, materials and supply adjustments in 1912, materials and supplies on hand on that time; then an estimated retirement of property in 1901, considered as acquired in 1899, $32,325.62. That is in the third column.

Q. Yes. What is that property? A. That entry was caused, as I remember, in this way: I think in

1901 the trial balances that have been referred to here, showed for 1901 a difference, a net addition to construction account for the year of some thirty-two dollars or thirty-two dollars and a half, and the engineers estimated that in 1901, from the basis of the feet of pipe shown in some engineers' report or pipe book or some source of that kind, that thirty-two thousand dollars had been spent and therefore they estimated that thirty-two thousand dollars of property must have been retired in 1901.

Q. When you refer to a pipe book you do not mean a catalog book, but a book of this company known as a pipe book? A. A book of this company, yes, sir.

Q. A construction book, record book of these companies? A. Yes, sir.

Q. What is the next item you have that comes under the classification of engineers' assumptions? A. The Stony Road reservoir abandoned in 1918, $521.32. That is an engineers' estimate of the cost of the Stony Road reservoir.

Q. Because that was abandoned? A. No longer used or useful.

Q. Is that all on that sheet? A. No. The next item under it, $54,589.88, mains and hydrants retired from service, 1902 to 1911, not recorded on books, considered as constructed prior to 1898. That is similar to the adjustment in the Aquackanonk Company that I was explaining, of cast-iron mains replacing cement mains in the period 1902 to 1911.

Q. The Aquackanonk is on what page? A. The Aquackanonk is on page 3.

Q. That was the eight thousand dollar item? A. No.

Q. Twenty-five thousand dollars? A. The twenty-five thousand dollar item.

Q. Anything else on page 4? A. No.

Q. Now, you want to offer some explanation in addition to what you have already given for the figures on page 5, the assumptions. Will you proceed with that explanation, please? A. Having allocated to the different periods the dollars on the books at 1921 I attempted to ascertain what items could have made up the difference between the $3,322,000 item at the foot of the last column and the Bemis appraisal of $583,691.88 at the bottom of the last page which was all the property that they had allocated to the period prior to 1898. I went through the company's contract file and found that certain contracts had been entered into under the dates mentioned and I assumed that those contracts had been charged to construction at the time of the payment.

Q. The figures were there, but the time of construction is what you assumed because of the date of the contract? A. Yes, sir. I do not know that the items actually were charged to construction by the company.

Q. But they were in some form— A. I assumed they were.

Q. They were in some form on the books of the company? A. They are part of the records of the company. The contracts are part of the records of the company. There are no books in that period.

By Mr. Wherry:

Q. You do not know whether they have been charged off afterwards even if they were charged off? A. I know they have not been on the plant account since 1902.

Q. It might have been prior to 1902? A. It might have been prior to 1902. If my assumptions are not

correct, then to the extent they are incorrect, my unaccounted for item of six hundred thousand dollars, the remaining item would go up or down. If I have not put enough items in above, my six hundred thousand dollars would come down to that extent. If I put in too much assumption then my six hundred thousand dollars is short to that extent.

By Mr. Brown:

Q. Take the item of Contract No. 237. That is no longer part of the company's property, is it? A. I did not get the question, sir.

Q. The property described in contract No. 237, the West Milford Water Storage Company? A. What is the question.

Q. That is no longer an item of property of this company. The Passaic Water Company? A. Why, as I remember that transaction, when the contract was cancelled in 1903, the Passaic Company did acquire some real estate of some kind but it is not carried by them today as part of their construction account, but as a separate item on their books, as an investment.

Q. Are there any other items on this Sheet 5 that were assumptions by the engineers that you can explain further than you have? A. There is an item there of one hundred thousand dollars which was a general estimate for the buildings and equipment of the Great Falls pumping station not now used and useful. Not now in existence, I suppose. I don't know.

Q. What was the next item? A. The Stony Road pumping station, sixty-five thousand dollars.

Q. That is the Great Falls pumping station, isn't it? A. No, the Stony Road was a separate pumping

station that was right close to the Great Falls, I imagine. The Stony Road pumping station as I understand was built around 1897 or 1898 when the Paterson extension was put in.

Q. What about the ten thousand dollar item? A. The ten thousand dollars for the Middle reservoir, and the $25,889 for the Totowa reservoir are also engineers' estimates.

Q. Of unused property? A. Yes, sir.

Q. And not useful? A. Property not now used and useful.

Q. Anything else on that sheet that requires explanation? A. That small item of $1,692.72 which was again an overallocation in the appraisal, over and above the actual expenditures from 1902 to 1921; in making an apportionment between the classes of property the engineers assigned them more dollars than were actually on the books.

Q. This allowance for interest during construction, that is another estimate? A. That is another estimate by the engineers, yes, sir. The materials and supplies is a book figure.

Q. Land at reproduction cost, that is another estimate? A. I think that was taken from some other appraisal presented in this case.

Q. Materials and supplies, what is that item? A. That is a book figure.

By Mr. Wherry:

Q. Turn to page 5, you say that item of $618,390, the unaccounted for item, that would have to be increased if any of the items preceding it were decreased? A. Yes, sir.

Q. Taking that item of $618,390 unaccounted for, you have assumed that the next item, $583,691.88 contains all the costs, have you not? A. Yes, sir.

Q. So if that item did not include all the costs it would have to be increased by some part of that $618,000 unaccounted for, wouldn't it? A. Well, I said yes. I do not think I quite understood your question. I did not assume the five hundred and eighty-three thousand dollars included any costs. I took that figure from the Bemis appraisal.

Q. It is supposed to be cost, book cost of the property prior to 1898? A. It is their estimate of the property prior to 1898.

Q. It is their estimate? A. Yes, sir.

Q. So if they underestimated it, then of course, you would have had to account for more than if they correctly estimated it, would you? A. Yes.

Q. And it is not in the books; there is nothing to support that figure of five hundred and eighty-three thousand dollars from the books of the company, is there? A. Not from the books, no.

Q. I would like to understand that eight thousand dollars. It is a small item and I do not want to take much time about it, but on page 3 that item of $8,020.58 materials and supplies; were those materials and supplies added to the construction account between 1902 and 1921? A. I don't know, sir.

Q. You don't know whether they were added? A. I don't know when they were purchased.

Q. You have added them there to the total under that column, haven't you? A. The $8,020 was credited to construction in 1911, not charged to it. It was taken out of construction.

Q. Why do you add it? A. In order to get the gross expenditures in that period. Your actual expenditures in that period have been reduced by eight thousand dollars because of this entry.

Q. You mean they had a credit? A. Yes.

Q. So they spent more than five hundred and ninety-four thousand dollars during that period? A. Yes.

Q. You don't know where that credit came from, whether it came from construction prior— A. I don't know when it went into construction. The same way with the twenty-five thousand dollars.

Mr. Treacy: Referring to R8. Did you explain why that item was deducted from the $4,943,629?

The Witness: I don't know if I explained it clearly.

By Mr. Treacy:

Q. Will you do so now? A. The one million dollars is a payment for water rights and water rights have already been included in the appraisal.

Q. So that developed a duplication? A. So that would be a duplication if I had it over again.

By Mr. Wherry:

Q. What water rights have been included in the appraisal? You say water rights have already been included; what water rights are you referring too? A. I am referring to the water rights that are mentioned as such in R4, I think it is, the Bemis appraisal.

Q. The ones that were acquired in 1922? A. That is incluuded in there, I believe the one million one hundred and twenty thousand dollars.

Q. That was seventy million gallons daily, seventy-five million gallons daily that they acquired the right to divert at that time? A. Yes, sir.

Q. And without any storage requirements; entirely different water rights, weren't they? A. I don't know whether they were different water rights.

Q. This water right referred to in this contract was fifteen million gallons daily? A. Yes, sir.

Q. The other was seventy-five million gallons daily? A. Yes, sir.

Q. This contract 173, the water rights, was from 1867 to 1907? A. 1854, I think probably it was dated back to. It may have been 1867, way back in the beginning.

Q. Simply an assumption on your part that they were duplications? A. No, sir, I do not think that is the situation. The Bemis appraisal as I remember, shows one million three hundred and twenty thousand dollars for water diversion rights.

Q. That was intended to cover all of them? A. I assume so; that is their appraisal of it, but I have the one million three hundred and twenty thousand dollars in here already, so I could not put another million in with it; I had to take it out.

Q. That one million three hundred and twenty thousand dollars water rights, part of it was for the original Beattie rights, wasn't it? A. Yes.

Q. That was not any duplication? A. Oh, no.

Q. The balance of it was the water rights they acquired in 1921, wasn't it? A. Yes, sir.

Q. That was seventy-five million gallons daily? A. In 1920?

Q. 1921? A. Yes.

Q. Entirely different water rights? A. Well, it is a larger quantity than this contract covered.

Q. For that they have been paying an annual charge ever since 1897, haven't they, 1907? A. Since 1907, yes.

Q. Instead of paying an annual charge they bought the absolute right for which they have been paying a charge? A. In 1922 they bought the absolute rights, yes.

Q. This Contract 173, covers the payments up to

1907 when they began to pay— A. I think this contract of 1887 was cancelled in 1907 when the agreement to pay rental was entered into.

Q. It covered water rights from 1854 up to that period; it was not because it was a duplication then that you charged it off? A. The contract covers in part water rights purchased in 1887, seven hundred thousand dollars.

Q. As I understood your statement from 1854 to 1887 they had enjoyed certain water rights and settled for them by paying three hundred thousand dollars in 1887? A. No, sir. That was damages, as I remember. They had paid something for them before that when they made the original contract.

Q. If that had been carried into a suspense account or charged off then there would not be any reason for deducting it here, would there? A. No, if it had not been charged to plant account it would not have had to come out again.

Q. Can you tell whether it was or was not? A. I just assumed it was, putting it in and taking it out again.

Q. The other seven hundred thousand dollars paid in 1887 covered the privilege of diverting fifteen million gallons, with certain storage requirements, up to 1907? A. Yes, sir.

Mr. Treacy: That was cancelled in 1907?

The Witness: It did not cover their requirements, but the amount of water that they could take up to 1907; as I remember it, that was a purchase, a right to take so many gallons of water a day.

Q. They had to buy other water diversion rights in addition, they enjoyed other diversion water rights in addition to that? A. If they needed more water than that I imagine they would have.

By Mr. Treacy:

Q. Did they write anything off in 1907, off of their books for this contract which was cancelled? A. No, sir.

Q. Which was valued here at one million dollars? A. No, sir.

Q. Did they write off an annual rental in the years prior to that, applying on this contract? A. There are no credits to the plant account that I saw of that nature.

Q. Do you know whether there were any charges to operating expenses against this item? A. I do not recall any.

Commissioner Osborne: Is there to be any serious controversy about the legal effect of these water right contracts? There seems to be some difference indicated in this last examination and if there is to be any question about it we may as well have it cleared up now and settled, if we can. There is some question as to whether certain rights did not terminate, whether Contract 173 was or was not included in the Bemis appraisal.

Mr. Treacy: Our position, your Honor is that Contract 173 was terminated by cancellation in 1907.

Commissioner Osborne: Is there any doubt about that, any question about it? Where is the contract? Where is the one that terminated it; are they in evidence?

Mr. Wherry: I will have to clear it up on rebuttal. I cannot do it now.

Commisioner Osborne: Are the necessary documents in evidence?

Mr. Wherry: No, they have not been put in evidence.

Commissioner Osborne: Will they be put in?

Mr. Wherry: I expect to put in some testimony on it.

Commissioner Osborne: We do not want to speculate on anything we can determine with certainty. Is Contract 173 available?

Mr. Wherry: That will not show you whether it was. Oh, yes you can see that.

Commissioner Osborne: We wish to see whether it was terminated or not.

Mr. Wherry: Yes, you can see that contract.

Commissioner Osborne: Where is it? Has it been offered in evidence yet?

Mr. Wherry: No, it has not been offered in evidence.

Commissioner Osborne: It ought to be part of your case, shouldn't it?

Mr. Wherry: No, this was for water rights the company enjoyed from 1854, a property right to divert water, and they paid one million dollars for it and it is a different right than the right which they afterwards acquired in 1922.

Mr. Treacy: If it is you can show that.

Mr. Wherry: He has assumed that the one million dollars was charged by the proper company to its property account. Then he takes it out as abandoned. That is a pure assumption. There is nothing to support it.

Mr. Treacy: He says the contract cancels it.

Commissioner Osborne: How was it charged?

Mr. Wherry: I don't know how it was charged. How does anybody know?

Commissioner Osborne: Look at the books and get the answer. I don't know. If you don't know, that is the answer; not to say, how does anybody know.

Mr. Wherry: I don't know. That is a pure assumption.

Commissioner Osborne: Your books don't show how it was charged?

Mr. Wherry: There aren't any books in existence.

Commissioner Osborne: You say the rights under that contract were terminated by a subsequent instrument?

Mr. Wherry: We have put in evidence the appraised value of the water rights we are now enjoying. We do not claim there is any duplication. They purport to put in the book cost. These water rights were bought and we paid one million dollars for them. They paid in their operating account between 1897, when that was cancelled, up to 1921, and the company bought some additional water rights. Part of the historical cost of the plant was probably a portion of that one million dollars, part of it was operating expenses.

Commissioner Osborne: You must know, of course, if you are enjoying water rights, you must know upon what basis you claim to be enjoying them.

Mr. Wherry: Yes. This last transaction we put in evidence.

Mr. Treacy: They put in the value of their water rights at one million three hundred and

twenty thousand dollars; they say that is what they are worth, what they paid for them. We give them credit for one million three hundred and twenty thousand dollars, but we deduct from that a certain amount they received from Patrick Flynn, for instance, for the supply for Jersey City and we deduct this other item from the capital on their books, one million dollars for Contract 173, which by another contract was cancelled. We allow them every dollar of valuation for their water rights that they claim they are entitled to.

Commissioner Osborne: You do not, if you take one million dollars away, after allowing one million three hundred and twenty thousand dollars and then deducting one million dollars here, you do not allow everything they claim they are entitled to.

WALTER S. BEMIS, recalled on behalf of Municipalities.

Direct-examination by Mr. Treacy:

Q. Mr. Bemis, turn to Exhibit R8, page 5, under the item, the heading, deduct items assumed to be charged to construction not included in Bemis appraisal, the first item is Contract No. 173, dated May 16th, 1887, with the Society for Establishing Useful Manufactures, for the privilege of taking water at Great Falls. What does that item represent and why is it a deduction? A. This item represents the amount which this contract states—I have seen the contract, read it, and it is a water right which was purchased

at that time. However, it has no bearing at all on our appraisal. The item is not deducted from any figures or added to any figures in our appraisal. There is a difference existing between the capital account as stated on the books of the company and our appraised figures for the different items of property in this water affiliation or these affiliated water companies and this exhibit of Mr. Matthews is an attempt to show what those differences are and to explain some of them insofar as he can do so. He knows that we have no valuation for water rights other than those which were purchased from Beattie and the S. U. M. and the Dundee outfit recently, the Beattie in the case was prior to 1900 and we have them at one million three hundred and twenty thousand dollars. He knows we haven't got this one million dollars in there. We have only got the other which he is allowing for in this report, showing in this adjustment he is not making any allowances or any appraisal, but he is showing it in here. So his assumption is in this exhibit that the capital account as it existed in 1900 or 1902, whenever it is, contained this one million dollars as he testified, but it does not represent a deduction or an addition and does not enter in in any way into the computations which we made in determining the actual cost of the present property. It is merely his attempt to reconcile the difference in dollars between the appraisal and the capital cost as set up on the company's books, a lump figure that the company has on its books. That is true of this whole report. This report is not anything other than what it purports on its face to be, a reconciliation, an attempt to reconcile two figures which are apart. He goes part way on it; some of it by actual book figures, other parts by some esti-

mates and then he finds there is a gap he cannot bridge and he says that is unaccounted for.

By Commissioner Osborne:

Q. What was it made for? A. It was made for the purpose of showing the differences which exist between the capital account as set up on the books and our figures.

Q. You can tell those differences exist by looking at the two sets of figures? The capital account on the books is less than your appraisal, isn't it? A. No, the accounts on the books, some of them are more than the appraisal.

Q. The sum total of the value of the property indicated on the books is more or less than your appraisal? A. It is more.

Q. It is more? A. Yes, the asset account.

Q. It appears by the books of the company then that they spent more money for the property than you say it is worth? A. They have capitalized more. I do not know whether they have spent more for the present property.

Q. It cost them more than you say it is worth? A. No, I do not think the books prove that necessarily. They have put into their capital account and have in there today more dollars than we say they should have in there on the basis of actual cost.

Q. On the basis of actual cost? A. Based on actual cost, yes. I believe personally that the difference is explained by the fact that some of the dollars in their capital account represent property that is not in existence today, which they put into their books at one time or another and have since failed to write out again.

Q. But you are not able to determine that because

they haven't any books? A. No, and for that reason we went at it and instead of building up a complete book figure, we took, in making up our complete appraisal of actual cost, as we call it, part of which is estimated and part actual, we took an existing inventory which is the only thing we know about that, and billed the materials which we know exist today, because we can see them. Then we went into the books of the property to determine how much of that billed material we could get the actual cost of and we picked it out, item by item, a great majority of those costs we could get direct from the books and there was no case of manipulation; we could do it without any adjustment, we could definitely allocate the dollars to the inventory. In some cases we had to make some computations, allocations, differences between items. Then we had left over a residue of inventory items and also a residue of dollars in the capital account. We did not know anything about the dollars in the capital account, because we had no detail behind it. We took our residue of inventory and we went in and estimated the cost of the items in that inventory and added that estimated cost to the dollars that we had already been able to segregate from the company's capital account.

Q. Using as a basis the prices current at the time when the purchases were made? A. Yes, sir, at the time the construction was accomplished in the property, and that is the way we have built up our appraisal of material costs. Mr. Matthews comes along and thought it would be of assistance in this general case to the company and to the Commission, if he could reconcile in some way this total dollars in general terms, the total dollars in the capital account of the company as against our appraisal. There were

differences there and he thought he could possibly shed some light on the reason for some of these differences. Possibly his judgment is wrong. In some cases, such as this one million dollars, we cannot tell accurately, that is a matter of judgment, in a few of those cases.

Q. He was not able to reconcile it, was he? A. He was not able to. This is his idea. He is able to reconcile it within certain limits and then as I say, there is an unbridged gap in there. Then I think a lot of these items, there are a lot of the dollars in there he has been able to reconcile and show the difference; the gross difference in there between our figure and the company's books can be positively explained to a certain extent, to a great extent, and the balance is part of it conjecture and part of it we cannot give any answer to at all. That is the purpose of this exhibit.

By Commissioner Bacharach:

Q. What is the difference between your figures and the company's figures? A. That is indicated in here.

Q. Six hundred and eighteen thousand dollars, is that it? A. That is one difference in there, another is two hundred and thirty-one thousand dollars as developed in this exhibit, yes, sir.

Mr. Treacy: Two hundred and thirty-one thousand dollars in the Aquackanonk and six hundred and eighteen thousand dollars in the Passaic.

The Witness: Yes. We cannot explain that.

Mr. Wherry: There is more difference than that, isn't there, Mr. Bemis?

The Witness: This is Mr. Matthews' exhibit. I

do not want to testify on that, except insofar as it affects my appraisal. I think he has gone into that pretty thoroughly.

By Mr. Treacy:

Q. Mr. Bemis, when you were on the stand at the last hearing you stated you would prepare a statement in the form of an exhibit which would show how you arrived at the ninety-three per cent of the company's property which you stated was taken from the books and how you arrived at the seven per cent, which you said was estimated, and set forth in more detail than you have in R1 the various items and the allocations of the items under the ninety-three per cent and the seven per cent respectively. Have you done that? A. Yes, sir.

Q. Have you a statement entitled, "Summary Analysis 1920, Bemis Valuation showing book and estimated cost." Is that the exhibit you have prepared for that purpose? A. Yes, sir.

Q. Will you please state very shortly what this exhibit purports to show? A. It purports to show an analysis of the figures as set up by us in Exhibit R1 of the valuation of 1920, dividing these dollars into what is called here book costs and estimated costs.

Commissioner Osborne: This statement is just what you explained here a moment ago, isn't it, an analysis showing what you estimated and what you got from their books?

The Witness: Yes, sir.

Commissioner Osborne: Do you offer it? Any objection to it?

Mr. Treacy: Yes, I offer it.

The Witness: I want to mention one thing, on account of the development of the examination this morning. The book cost, I mean by that figure it is the cost from the books and records of the company; it is not from the books. It seems a distinction here has been developed, so that this is from the books and the records of the company.

Mr. Treacy: We offer that in evidence.

Summary analysis of 1920, Bemis valuation showing book and estimated cost received and marked Exhibit R9.

Adjourned until Thursday, December 21st, Kinney Building, Newark, N. J., at 10:45 A. M.

BOARD OF PUBLIC UTILITY COMMISSIONERS.

Newark, N. J., Thursday, December 21, 1922.

W. S. BEMIS resumes the stand on behalf of municipalities.

Direct-examination by Mr. Treacy:

Q. At the last hearing you were beginning your explanations of what Exhibit R9 means. I don't know at just what point you left off. If you know will you continue? A. Page 1 of Exhibit R9 is a general summary showing that in the 1920 value all costs as set up by us of that figure 92.898 per cent was obtained from the books or records of the company. This figure would be slightly increased going to 1921

due to the fact there have been some additions made, net additions to the property, bringing it slightly over 93 per cent, as I testified at the previous hearing.

However, in order to facilitate matters we have split up the 1920 figure as being a total which was readily traced back in Exhibit R1. The detail sheets, the following ones, support these figures. Page 2, as an example—

Q. Before leaving page 1: The book cost, the percentage of book cost items is 92.898? A. Yes, sir.

Q. And the percentage of estimated cost item 7.102? A. Yes, sir.

Q. Which figure will be decreased, the 7.102 by the 1921 figures? A. Yes, sir. This percentage, it will also be noted, as testified the other day, is based on the figures excluding land and interest during construction. Land was excluded because we did not use the book figures, but used in lieu of that the records of valuation as set up in the case in a previous exhibit.

Q. By whom? A. By a witness for the company.

Q. By witnesses for the company? A. And the interest during construction is an item which was not placed on the books of the company as such or in any form. We have added that to their capital account. Therefore, that item was excluded in determining what percentage of the property we were able to find the cost of. So that the fourth column on page 1 is headed, "Cost New, less the land and interest during construction," that is the figure in Exhibit R1 which we found 92.898 per cent of in either the books or the records of the company.

On page 2 is the detail behind the first item on page 1 under capitalization of joint ownership. Page

2, the second column on the left gives the page number in Exhibit R1 upon which the items contained in that line will be found and is shown here, the total cost new as used in the valuation in R1. And the next column gives the land against the figure for land in the next column which shows how much was interest during construction. The next column is the net figure after deducting the land and interest during construction from the cost new. The next column shows what proportion of the figure was estimated, and the last column gives the book or recorded cost of the company.

This same system is carried on through the report. On page 3, as an illustration, will give the details of the—give further reference to page 2 on the estimated figure. The latter is not essential in the report since the information is on page 2.

On page 4 is a summary again of the first item on page 1 under general capitalization of individual ownership of the East Jersey Water Company. This gives the same information as on page 2 for the East Jersey Water Company.

Page 5 does the same way for the Kearny Company.

Page 6 for the Passaic Water Company.

Page 7 gives the details supporting one line on page 6 headed "Distribution mains and accessories" giving the split up by years of that item.

Page 8 gives further detailed information of the general structures account contained in the summary on page 6.

Page 9 is the summary of the Aquackanonk Company carried forward to page 1.

And in a similar way there are further supporting sheets in this summary on pages 10 and 11.

Page 12 is a summary sheet for the Montclair Company. That is the last sheet in the exhibit.

Q. In the 7 per cent which was estimated, did you in some cases have the total cost or did you make allocations, or is that in the 93 per cent? A. No, sir. That composes a certain part of the 93 per cent. The 7 per cent was a complete estimated figure.

Mr. Treacy: All right, Mr. Wherry.

CROSS-EXAMINATION by Mr. Wherry:

Q. I understand the 93 per cent contains some partial estimate? A. Not as to the total dollars. There are some estimates in there, however, made to apportion certain total dollars. I mentioned it the other day in my direct-testimony on Exhibit R1. As an illustration, there was a segregation between hydrants and mains. For depreciation purposes it was necessary to make such a segregation. We had the cost of a certain set of mains and a certain number of hydrants.

Q. Is another illustration that of the Little Falls plant where you had distributed and divided up the total sum between the different elements of the property? A. There was very little of that done there. That was done some. I think there was a portion of the 42 inch line called the Paterson extension, my recollection is we had to apportion and did apportion out due to the fact that was considered as being individual ownership resting in the Paterson Company for the portion we segregated, whereas the balance of the Little Falls improvement was a joint proposition owned by several different corporations. However, we have the total dollars, either in the

Paterson Company or the Little Falls improvement, under the heading of Joint Ownership.

Q. But you distributed the difference and that would affect your depreciation and so on, wouldn't it? A. It would affect the depreciation in the case of hydrants and mains or in the case, wherever there was an apportionment and the two items have different total lives. If the shorter lived property was given more dollars than it should have as against the longer life property, that would mean the annual depreciation would be higher than it should be and the accrued depreciation would also be higher making the net value for rate purposes less, but that would be compensated and I don't think would affect the result materially.

Q. In other words, just in order to get it clear what your per cent on this exhibit refers to; 7 per cent is the portion which this item $623,000 bears to what? What is the base on which this calculation is considered? A. $8,773,817.46.

Q. That is made up of two items, is it, the last column there, the 6 per cent and the 8 per cent? A. I don't think—

Q. Look on this Exhibit R9. Take the last three columns on the first page there, numbered 1 of Exhibit R9, the item of six hundred and twenty-three thousand dollars and the estimated cost; that is what you say was entirely an estimate? A. Yes, sir.

Q. It doesn't include a partial estimate? The only way you had was to entirely estimate it? A. No. That wasn't the way I testified. I said those were the items we estimate the cost of.

Q. That data is a certain percentage of the total figure? A. Yes.

Q. Where is the figure that is the percentage of?

Immediately preceding the number— A. $8,773,817.46, in the immediately preceding column under the heading "Cost New less land and interest during construction."

Q. I understood you to say, of course it would be a larger percentage of the first column, which was the total cost, including land and interest during construction; that is plain enough, isn't it? A. You mean $623,000 would be a larger percentage of nine million four hundred thousand dollars?

Q. Yes? A. No; a lesser percentage of that figure.

Q. It would be a lesser percentage? A. Yes. It would be applied to a greater figure.

Q. This $8,773,817 is made up of the addition of the last two figures, is it? Are they added together? Will they make $8,773,000? A. Yes, sir.

Q. So that the amount of that estimate there, if that was underestimated with the percentages, would be smaller than it would be if it was overestimated, is that right? A. Yes, sir. In other words, if six hundred and twenty-three thousand dollars is too small. If it is too large, the seven per cent is too small an amount, why the seven per cent is too large in turn. That is a mathematical deduction, of course.

Q. It depends on what your estimate is, whether it is seven per cent or some other per cent? A. Seven per cent is merely reflecting the dollars here; the percentage changes with the dollars.

Mr. Wherry: I have no further questions.

Mr. Treacy: Is that all?

Mr. Wherry: That is all.

EDWARD W. BEMIS resumes the stand on behalf of municipalities.

Further direct-examination by Mr. Treacy:

Q. Doctor, before proceeding with the statement of going value which you have prepared for this hearing, may I ask you, are there any corrections you desire to make in the testimony you have previously given? A. I have discovered two places where a change of a word is desirable. On page 962 of my testimony on November 29th the question here reads, in the middle of the page, "You say the Courts have allowed for appreciation where the Commissions have not allowed for it?" And my answer was, "Yes, in some cases." I understood the question to be, "You say the Courts have not allowed for appreciation where the Commissions have not allowed for it?" And my answer was based on that understanding of the question. I may have been mistaken in my hearing, or it may have been a mistake of the stenographer as to the question asked. My answer was on the supposition that the word "not" was in there.

Again one more on page 970, the top of the page, where, after referring to Judge Brandeis referring to the decision in the Galveston case, I am here made to say, "He means to say that necessarily must be a precedent, that 33 per cent." What I am quite sure I said, and certainly intended to say, was, "He does not mean to say that necessarily must be a precedent, that 33 per cent."

Those are the only corrections.

Q. Doctor, have you prepared an exhibit showing a study of going value of the various companies who are here petitioners in this proceeding? A. Yes, I have them here. That is, I have four copies for

distribution, aside from the one you have, Judge Treacy, and the one I am using. There will be other copies ready, I am having them blueprinted today or soon after today.

Mr. Treacy: I will ask that be marked in evidence, and that you go right on and explain it after it is marked.

Mr. Wherry: I object to this. On the face of it, it shows it is not a historical cost. It begins with the year 1900. It is not historical cost. That is what I understood he was qualified to show and develop, the cost by the historical method and it is apparent on the face of it he hasn't any such thing here.

Commissioner Autenreith: That goes to its value and not its admissibility. We will receive it.

Volume headed "New Jersey Water properties of the New Jersey General Security Company, going value" by Edward W. Bemis, consulting engineer, Chicago, marked Exhibit R10.

Q. Doctor, is this Exhibit R10 based on your Exhibit R1? A. In part and in part upon other studies of the books and records of the company.

Q. The books and records of the company were used to obtain the data set forth? A. Yes.

Q. In Exhibit R10. All right. Now, Doctor, will you proceed to explain this Exhibit R10 that you have entitled "Study of Going Value"? A. This purports to show the revenues, expenses and profits since 1899. The first two years of that period, 1900 and 1901 are obtained from the records of the company that were presented in evidence yesterday. They

were in the form then described of reports by Mr. Fisher. Some of the data for 1900 and 1901 are estimates that will appear later. Since 1901 reliance has been had upon the books of the company and upon the exhibits already in the case.

The first column is gross operating revenues since 1899 by years and that is summarized at the bottom in a total for subsequent use. At the bottom of the page, at the very bottom of the first column is a reference to that column stating, brought forward from page 3. I will ask you to turn to page 3 for the moment, as a mere illustration of how the report can be studied.

On page 3 appears the gross operating revenues for each company for each of those years, although the order of plotting is reverted chronologically, it is put page 3, beginning 1921 and running backwards; but it is the same total. For illustration, if you wish an illustration of it, take 1911; the total for all the five companies is $1,125,955.22, and you will find that same figure in the first column on page 1.

At the bottom of the total, the middle of page 3, which is the same total as on page 1, is a statement that carries forward to page 1. That method has been followed through here of cross referencing for ease of subsequent checking.

Turning back again to page 1, the second column gives the operating expenses and taxes for each year and there is again a reference to page 2 where on the last half of that page you will find the same division between companies.

Then comes a column entitled "Nominal Gross Income" on page 1, being the gross revenue less operating expenses and taxes. And similarly, the subtraction of the second column from the first.

Then comes a column headed "Depreciation for each year," and that column is explained on page 2. But the explanation on page 2 is only summarized and is taken back to previous pages, but I will direct your attention to page 2. We start with the depreciable fixed capital from R1 as of December 31st, 1920, and there is a reference made—I am not going to bother you to turn to all the references here, but merely as an illustration of the method—at the bottom of that column there is a statement that is brought forward from page 4 and if you turn to page 4 you will find in the first column the same figures, but you will also find a foot note which shows how that $7,484,000 ties in to the R1 where the total historical cost new as of December 31st, 1920, is given at $9,431,624.99 as per references quoted here. It will be observed in that foot note that three items that were in that $9,431,000 are taken out, namely, land, water rights and materials and supplies, because they are not assumed to depreciate. By taking that amount, a total of $1,946,802.81 from the total historical cost new we get the depreciable fixed capital as of that date, as given also on page 2, first line, and which I have already referred to.

Then the second column or Column 2 gives the credit to the depreciation reserve, and a reference again is made in that column to page 4 and that is worked out on that basis in the last three columns. There is obtained in the third column the fixed capital as of January 1st, 1920, by deducting the net additions in 1920, and then to that figure is applied the depreciation of 1.7 per cent, which we found would be the ratio of the depreciation, annual depreciation on the straight line basis, using ages and lives as described by me in a previous day's testimony.

And applying that to the depreciable fixed capital. On all the capital the annual depreciation that we had reached, which would be a smaller per cent, a little over 1.3, but applying only to the depreciable fixed capital the annual depreciation on the straight line basis it is 1.701 as stated in the foot note of page 2. So applying that for the previous years in order to have the same ratio of depreciation for the previous years we get the credit to depreciation reserve, or that should have been set up on the basis of the straight line depreciation.

I might, while you are looking at page 4, call your attention to the second column, which is adjusted net additions. These net additions were obtained by my staff by going back into the records and books of the company through those previous years as shown by reference to the bottom of page 5, and then from page 5 there are references to earlier pages for other things. For example, page 5 (just for example) separates the additions by companies during each of those years. And then there are certain adjustments which were made, not large in amount, that are explained at the bottom of page 5 and refer to pages still later, which I will not now weary the Commission by going into, but where the references are carried back and back until you get to the end of the volume; the point being to show how these matters were obtained.

But for further checking for the latter pages it will probably be more satisfactory to the company to have one of my staff go over any matters in the office of the company with any of the company's men if they desire to have the more detailed adjustments explained.

I will go back now to page 1, because these other

things are more in the nature of mere reinforcing and showing how the thing was done; page 1 summarized the conclusion. And I also have just been explaining how the depreciation was obtained, the annual depreciation that should have been set up, on my theory, on the straight line basis each year and should be included as an expense and taken out from what I call the nominal gross income in order to get what I call the true gross income, which would be the gross income after deducting not only operating expenses and taxes, but this straight line allowance for depreciation. And that gives the column marked "True Gross Income."

Then the last column headed "Rate Base" which is explained on page 2, and I think I must take that page up again with reference to that point: Page 2 starts with the depreciable fixed capital, as I have already explained, as of December 31st, 1920, credit to the depreciation reserve as just shown that year $120,000, debit to the reserve, which I explained in page 5, as indicated at the bottom here, where the expenditures are deducted from the reserve shown by the books and records. Then the balance in the depreciation reserve on this basis being—explained also in the foot note here—that balance being tied in with what appears in Exhibit R1, page 37. That is, if you subtract that page of our Exhibit R1, the cost new from the cost new less depreciation, you will get this figure $1,900,000; $1,978,026; what I am assuming is that the accrued depreciation at that time by the straight line method, should according to the straight line method be in the reserve to meet that depreciation and should be put there out of earnings, of course, paid for by the consumers, as has been already assumed in the previous calculation.

Then comes the column headed "Depreciable Fixed Capital less your Depreciation Reserve," then the average property for each year has been taken at the beginning and end of the year and added together and divided by two. Then the added investment in land, which is explained on page 7 and starts with the appraisal—and I will not stop now to go into that—I can do so later, if desired. The average investment in water rights, which is explained on page 8, and perhaps I had better turn to that. This was the investment before the $1,120,000 was paid which was entered on the books as of January 1st this year. So those water rights which are the chief amount, do not appear here. At that time, prior to 1922 there was a rental, as has been often testified.

But on page 8 is a description of how that figure was reached that we do use, by taking out from the payment for water rights the amount received from the sale of some of these water rights in connection with Patrick Flynn, which are all described here on page 8, which I will not, however, attempt to read. The $300,000 net appears on page 2, as you will discover, at the bottom of the page, in the earlier years. Then that was paid off and the $200,000 put in later from further payments entered on the books.

On page 2 is the average materials and supplies; we carry them right through as explained on page 9, and then we add the land, the water rights, the materials and supplies to the depreciable fixed capital and we get the average rate base as shown in the last column of page 2. This is a rather wearisome explanation, I am afraid, but I see no way of avoiding a reference to it.

But now, to come back again to page 1. Page 1 is the rate base with the addition of all the land and

the water rights that I have allowed and deducting the depreciation. And then the last column is a ratio of the true gross income column, which is but the rate base, to the rate base; a mere, of course, mathematical calculation.

The final brings out the fact that the sum of the annual gross incomes amounted to $12,015,000 after deducting these allowances on the straight line basis for depreciation while the sum of the annual average rate basis amounts to $112,796.872. Then if we take six per cent on the rate base as an amount that would escape the claim that there were losses, following some remarks that Justice Hughes made when he was referee in the Brooklyn Borough Gas case, assuming that if the company had failed to earn a weighted average of six per cent during any period there would be evidence of losses not made up by later gains; it is not claimed that six per cent was necessarily all the rate desirable for the company to obtain, but if they had obtained that amount Justice Hughes had allowed in New York under the New York law for early losses not made up by later gains which should be allowed in a rate case—not a law exactly, but the decision of Judge Miller when he was on the Court of Appeals—I have computed what that six per cent would amount to; if they had earned six per cent it would have been $6,767,932.24. As a matter of fact, as I have said, they earned $12,015,000, or a weighted average of 10.65 per cent. So they earned $5,247,620 more than six per cent; that is, they earned 4.652 per cent more than the six per cent in the period from 1900 to 1920, inclusive. In 1921 they also earned more than six per cent, but I didn't have that data in there in time to make this up.

The last column, therefore, summarizes the details

that I show in somewhat large measure in the subsequent pages.

Commissioner Autenreith: That concludes page 1?

The Witness: That concludes this exhibit, the description of this exhibit.

Commissioner Autenreith: Your discussion of that.

The Witness: As far as I thought it might be desirable to discuss it now, for the rest are composed of explanatory pages.

After recess.

EDWARD W. BEMIS resumes the stand on behalf of municipalities.

Direct-examination continued by Mr. Treacy:

Q. Doctor, you were explaining Exhibit R10? A. Yes, and had perhaps finished with the leading points, the remaining matters, which I did not take up being the details referred to in the last part of the report, and how those were obtained can be explained if desired, or can be taken up with the company by one of my staff later. I have outlined, I think, this morning, all the fundamental points. It shows that during the period for which we have complete information from the books and records, and almost complete information for the previous three years or four years, that taking our rate base and working backwards and allowing all the depreciation which the straight line theory would call for, the company has had no losses, but rather large gains above six per cent, in fact above eight per cent, because they have

been making about 10.65 per cent in that period of twenty-one or twenty-two years. Apparently the amount thus made of over $5,000,000 over and above six per cent would wipe out any conceivable losses, at least what I would consider conceivable losses in any previous years, if there were such.

Q. What is the conclusion that you arrived at from that study? A. That so far as going value is based on evidence of early losses not made up by later gains, there is no evidence of it in the last twenty-two years, but rather an accumulation of profit sufficient to probably much more than wipe out any possible losses when the companies were much smaller in previous years.

Q. That is all you desire to say with reference to Exhibit R10? A. Yes.

Q. Doctor, how was working capital treated by you in this case? A. Materials and supplies were included at the amount that was found in the inventories of the company. That was run back several years and certain estimates were made as to earlier years. But the question of cash working capital was treated in a different way. The question was considered as to what the company would need in addition to materials and supplied. On that point it seemed to me that they would not need money in the bank for bank credit, because they will get that from the accumulation of money to meet interest and dividends and taxes, which are only paid quarterly or semi-annually. They do need money for that purpose, but I think it naturally accrues in accumulations for those purposes. Again, they do not need any money to buy materials and supplies, because we assumed the materials and supplies are there and added to their capital. I do not think they should be allowed to tax or charge the

consumer for working capital to meet taxes, because the taxes are not in a general way paid until after the money is earned, the same as interest and dividends, paid once or twice a year. But they do need cash for pay rolls and other small items that have to be directly paid for in cash. Now, assuming this company started business the first of the year at the present rate of business, it appears that if we take out the two or three larger items of expense, which are not pay rolls, such as coal, oil and a few lubricants, but probably leaving in many other things besides labor and salaries, there is about $400,000 a year that might be called their pay roll on operation, or about $20,000 in two months, and if we assume that they have to carry customers about two months before receiving money, that would require about $70,000; for three months it would require one hundred and five thousand. On the other hand, they get a certain amount of money prepaid, certain flat rates are prepaid in advance of the use of water. To the best of my information it is about $18,000. Therefore, on a two months' basis they would need about $70,000, less that $18,000 or about $50,000. On the other hand, the materials and supplies that have been allowed for, that they have on hand at the end of 1921 are $150,276.66, which was $36,000 more than they had on hand in 1920, and if one-third, as I think reasonable to assume, one-third of that materials and supplies is bought on thirty days' time without interest, you have $50,000, you might say, that they are enjoying without interest, in materials and supplies which we have conceded them, which will equal the $50,000 in cash which they might need. Anyway, for those reasons, I did not add anything for cash working capital, but took the materials and supplies as it

appears on their books for the latter years and made certain estimates for the earlier.

Q. Have you compared the amount allowed for depreciation in R1, with the amount in the depreciation and amortization reserve as shown on the books of the company? A. I have.

Q. How do they compare? A. The amount in the amortization and depreciation reserve at the close of the year 1921 was a little over $1,300,000 as compared with $1,900,000 that theoretically would be there on the straight line method. It was over $1,200,000 at the close of 1920. I had the exact figures, but seem to have mislaid them for the moment. But by taking the return made to the Commission, I have them before me and can read them for each year.

Q. What other studies have you made of going value in this case? A. I looked into the case of Indianapolis, which was referred to by Mr. Metcalf, who said he had about ten years ago recommended $1,000,000 for going value where Mr. Geist purchased the property.

Q. Mr. Clarence Geist? A. Yes.

Mr. Wherry: I object to his stating what he looked into. Does he know anything about this himself?

Commissioner Autenreith: It may be to contradict something that Mr. Metcalf has testified to, as a foundation for it.

The Witness: I can refer to Mr. Metcalf's testimony by page.

Mr. Wherry: That is not it. The question is, is this his knowledge?

Mr. Treacy: This is his knowledge from an examination of that case.

Mr. Wherry: Is it the report of the case?

Mr. Treacy: Yes.

Commissioner Autenreith: I do not know what it is.

Mr. Wherry: I think the report of the case is the best evidence. I object to his stating what the report of the case shows.

Commissioner Autenreith: The point of it is, I suppose, to contradict something that Mr. Metcalf has laid down as a theory.

Mr. Treacy: Yes.

Q. What do you know as to the amount that was allowed for going value by the Indiana Commission? A. The Indiana Public Utility Commission in the case in Public Utility Reports 1917 E 556—

Q. Regarding this property? A. Regarding this Indianapolis Water Company.

By Mr. Wherry:

Q. Nineteen hundred and what? A. 1917. Allowed $300,000 for going value.

Mr. Treacy: That is the property that Mr. Metcalf said that he estimated $1,000,000 should be allowed?

The Witness: Yes, sir.

Q. What happened next? A. In 1918, in Public Utility Reports 1918 A 448 the Commission in a review of the case objected to the allowance which had been made by a predecessor Commission of the same state and did not consider that any going value should have been allowed, but they did not cut it out in their decision, because that was an emergency case during the war.

Mr. Wherry: I still object to his stating what the Commission did. He can refer to

those two records and they speak for themselves.

Commissioner Autenreith: The record speaks for itself, I suppose.

Mr. Wherry: The record speaks for itself.

Mr. Treacy: Mr. Hill put in a statement as to what Commissions in various parts of the country decided.

Commissioner Autenreith: I know; everybody has done it. If we refer to the records and find they are wrong, we will consult the records in preference to their statement.

Q. Now, what other studies have you made as to going value? A. I prepared a short exhibit giving data on the profit during the three years of 1897, 1898 and 1899, preceding those covered in the exhibit offered this morning.

Q. What else does it show, does your exhibit show? A. There is some statement as to decisions of this Commission and of other Commissions, not a complete—it is complete, but it is not as detailed as I should like to make it, but it is complete.

Q. That is the exhibit entitled "Early Profits and Recent Going Value Decisions"? A. Yes, sir.

Mr. Treacy: I offer that in evidence.

Mr. Wherry: May I see it before it is marked?

The Witness: Yes, sir.

Mr. Wherry: Do you know where he got these figures?

Mr. Treacy: I beg your pardon?

The Witness: They are obtained from those documents that were put in yesterday, Mr. Fisher's reports to Mr. Gardner.

Mr. Wherry: It does not show they were used.

The Witness: It does somewhere here, in the beginning; it does show in the introductory page, the first two lines.

Mr. Wherry: On the question of this compilation, the exhibit, of course I object. The decisions speak for themselves. It is quite obvious that this Hackensack Water Company data that is put in by Dr. Bemis is wrong, although he probably may be misled because of his unfamiliarity with the case. It is very misleading to state that. I can bring it out.

Commissioner Autenreith: That may be subject to rebuttal by evidence that you want to offer. It goes more to its value rather than to its admissibility.

Mr. Wherry: I simply object on that ground.

Commissioner Autenreith: We will receive it.

Statement entitled "Early Profit and recent going value decisions" received and marked Exhibit R11.

Q. Will you explain, Doctor, this exhibit in some detail? A. The essential features are on page 3. On page 3 are given the three years preceding 1900, therefore the three years preceding those covered by Exhibit R10. The gross operating revenue for those three years is taken from the reports of Mr. Fisher to Mr. Gardner, presented yesterday morning. The operating expenses and taxes in the next column for the three years are taken from the same source. The nominal gross income is a mere subtraction of the expenses from the income or revenue. The documents put in yesterday morning were for each com-

pany and these are mere additions of the companies, but the figures are an exact addition of those for the companies.

By Mr. Brown:

Q. May I call your attention to the fact that you have been referring to yesterday morning all through your testimony? Do I understand we had a hearing yesterday? A. I mean Tuesday, when I said yesterday; the last hearing, I meant to say. That is true in every case today where I said yesterday. I would refer to these exhibits by number, but I do not remember the number. The exhibits I have been referring to, put in by the company Tuesday, are P29 to P29D. The fourth column on page 3 is the application of the same 1.7 per cent used this morning to the depreciable property which I will say was made by carrying back the depreciable property used in the exhibit this morning to the previous three years.

By Mr. Treacy:

Q. This exhibit was treated the same way? A. In the same way.

Q. As R10? A. Yes. The next page will show that more in detail. The true gross income in page 3 is obtained by a mere subtraction from the allowance for depreciation in the previous column. The rate base, like the allowance for depreciation was obtained, as in the exhibit this morning, and is shown on page 4, although not with all the details that were used this morning, but the same method is shown there, taking out the additions and putting in the retirements as you go backwards, and making adjustment for depreciation, and putting in the materials and supplies and the investment in land. The rate

base on that theory is given in the next to the last column on page 3. Now, that represents a great reduction from the rate base in 1900 used in R10, for the rate base in 1900 as shown on pages 1 and 2 of Exhibit R10, was three times as much as this; it was $4,542,000. The explanation of the immense drop as you go back from 1900 to 1899 is that it was in 1900 that the Little Fall improvement and properties associated with it, sometimes known as the generally used property—

Q. The New Jersey General Security? A. Yes, owned by the General Security.

Mr. Betts: The jointly owned property?

The Witness: The jointly owned property came into use, or came in as a basis for earnings. Before that they had been under construction, to be sure, and interest for them had been assumed as part of the construction cost. But as an operating proposition they came in, to some degree in 1900 and to a larger degree the next year. So we get here in these three years what the three companies that were selling water prior to 1900, the Passaic, Acquackanonk and Montclair were making on the investment determined as already described for those three years, and it appears from this that before taking out depreciation, or after taking it out, rather, they were making over sixteen per cent in each year. From that I draw the conclusion not that they had always made that amount, but that there is still, as we go back that further step, no evidence of early losses that needed to be made up by later gains, but if there had been, there is over $5,000,000 to take care of it. Further, I call attention in the last paragraph on page 2 to the fact that the rate base in 1897 was as shown here

on page 4 and also on page 3; page 3 will show it, $1,184,076; that was in 1897 and even if it had been as high as that in all the previous years back to 1857 when the first company, the Passaic, began to sell water apparently—of course, an impossible supposition in a way, because the companies had all been growing to reach the condition they were in in 1897, but even assuming that they had always had $1,184,000, six per cent on that for forty years, or an equivalent of two hundred and forty per cent for one year, even if they had never earned a cent on their investment up to 1897, would have been on that supposition, $2,841,000, which would be called in that sense, an early loss, but that was only about one-half as much as R10 shows has been made since 1899, but of course I do not concede that they had made no money prior to 1897, in view of the fact that they were making, as shown in the present exhibits, $227,000 in 1897 according to their own figures after deducting depreciation or $249,000 before deducting depreciation; that is from their own records, and it is not likely, therefore, that they had not made anything prior to 1897.

Q. What further does this exhibit show? A. On page 6 I have summarized the allowances for depreciation since 1920, or that have been given in the Public Utility Reports, so called, since 1920. Some of them represent cases in the latter part of 1920, but they were published in 1921 and 1922, up to December in the so-called P. U. R. I have taken every case in those two years where I could find any—

Q. Did you say depreciation? A. If I did, I meant going value.

Q. Does this embrace all utilities? A. It embraces

all the utilities that are known as city utilities. There may have been some street railroad cases or some bus cases, but it represents all so-called city utilities, gas, electric light, water, telephone, street railways.

Q. The first state mentioned in the list on page 6 is New Jersey, the percentage allowed, you say, is 0 to 20 per cent; did you find any water concern in which 20 per cent was allowed? A. No. This was not water, but this covered all utilities.

Q. It included street railways? A. I think that was a street railway case.

Q. That was the highest that was allowed in any case? A. Yes, that I found in those two years.

Q. Now, proceed. A. Then there were two states, Indiana and Illinois, whose allowances in various cases amounted to seven and one-half to fifteen per cent, and three others, Missouri, Louisiana and Utah, running from four and one-half to ten per cent in different cases, two, West Virginia and Idaho, from two and one-half to ten, three others, Michigan, North Dakota and Montana, running from 0 to 10 per cent, five others, New York, Wisconsin, California, Oregon and Texas that allowed nothing for going value, so far as I could determine. Massachusetts was not in the list, as no decision was quoted from Massachusetts, but Massachusetts does not allow going value. On the other hand there may have been some other states not quoted that do allow it, but I have simply confined myself to the decisions quoted or digested as they call it, as distinct from abstracted. The Public Utility Reports take what they call the more important cases and quote them in full, they call it digesting, and I took those cases.

Q. If you were to strike a numerical average of those sixteen states that you have just mentioned,

what would be the going concern value? A. It would, as near as I can determine, it would be under five per cent, that is taking into account the fact that some of these states have many more cases than others. New York has many more cases than any of the other states. I want to explain how this percentage was reached in this first column; it was the ratio of the going value allowed in dollars, to the rate base allowed in dollars, after the going value is taken out. That is, take the rate base they allowed, take out the going value and you get the rate base less the going value, then take the going value and see what percentage therefore must have been added to reach the total rate base.

Q. Did you prepare a list of cases showing the going value allowed in New Jersey with reference to water companies within the last two years? A. I did for this year only. I did not have time to go back, but I took 1922, the cases where property exceeded $200,000 in the rate base allowed, and there were five set up on page 7 of this exhibit, and I give the dates of the decisions, the rate base before adding the going value, the going value that was added, and the per cent that this going value thus added bore to the rate base before the addition, and it varied all the way from nothing to ten per cent. These were all water cases. Then I got a weighted average and an arithmetical. The arithmetical average is merely adding up the per cents in each case, the zero, five, ten, ten and four and dividing by five, five companies; 5.8 per cent. The weighted average, dividing the total dollars, 5.4. Then I gave the ratio of return, that is, the return that the Commission held was a proper return on the rate base they allowed. It has nothing to do with going value, except that going value is in the

rate base, but this last column shows that from 6.3 to 7.3 per cent or an average of about 7.07 was allowed. Of course, as observed here, all of these decisions were in the first half of the year, and all but one was prior to April 2nd and the data that I put in and that was also introduced from Moody two weeks or so ago, shows that there had been a decline in the yield to the investor on the flotation of securities since April, which I argue had a bearing on the question of return necessary to induce the investment of capital.

Mr. Treacy: That is all.

The Witness: There will be more copies, I will say, of this exhibit later for the Commission.

CROSS-EXAMINATION by Mr. Wherry:

Q. Dr. Bemis, looking at this last exhibit which you put in, do you know how many of these cases that you tabulated on page 6 there, the question of going value was an issue in the case? A. Yes, not perhaps in every case, but in most cases I read of its being raised and being discussed.

Q. But you have not got anything here that will enable us to determine what percentage of those cases there was an actual issue? You realize sometimes it is not litigated, don't you? A. Yes, sir. I have the list from which this was made up. I intended to write that up, but I have not had time. I will try to do that.

Q. As a matter of fact, what anybody can do is to take the report known as P. U. R. for those two years and they can make a compiliation. All the cases are in there? A. I will endeavor to submit a list of the cases I used.

Q. All the cases are in there; one can examine there and find out by looking at the cases themselves, can they not? A. Yes.

Q. You did look at the cases, but isn't it a fact from what you examined of those cases that different amounts were allowed in different cases? A. Decidedly.

Q. So that this seven and one-half to fifteen per cent represents a range, doesn't it? A. That is all.

Q. And different questions would determine that as they arose in the case? A. In most cases this allowance—

Q. Dr. Bemis, will you answer my question, please? I asked you a question you could answer yes or no. Wouldn't it depend on the different questions in different cases? A. Yes, but I made an answer a moment ago I want to explain just a moment.

Q. I don't care about your answer a moment ago. You can answer my question yes or no. A. I made an answer that I do not think is complete. Haven't I a right to complete it?

Q. To which question? A. As to cases where going value was allowed, my answer might lead you to think I put down as zero cases where going value was not mentioned. Every case here where I put down figures going value was considered.

Q. You are sure of that? A. Yes.

Q. Then we cannot tell by examining all the cases, the rate cases in those two reports, which one were the basis of this table of yours, because we do not know which ones you considered the going value was a question? A. I think to check it thoroughly you would need that list which I am going to try to make. I intended to make a complete list.

Q. Please turn to page 7, take the Somerville Water Company case, where did you get the data, the information about that case? A. One of my assistants went to the offices of the Commission here at my request and got this data.

Q. Do you know whether the Somerville Water Company asked for any going value or not? A. I think they did not.

Q. Take the case of the Hackensack Water Company, that decision of June 30th; that is the last; that was 1922, was it? A. These are all 1922.

Q. Do you know whether in that case there is any question about going value? A. I understood the going value was—I have given the exact figures—

Q. Where did you get that $471,941? A. That figure was obtained either in this case or in the case of a year or two before, which was carried forward into this.

Q. You mean the case in 1917? A. I think it quite possible.

Q. Do you know that in that case the question of going value was expressly reserved? You probably do not know, Dr. Bemis. A. I know this figure of this amount was an allowance for going value in this company; it may have been a year or two before.

Q. Do you know whether that amount was not taken as at least the amount of going value rather than as the actual going value? A. My understanding was that it was the amount included in the decision and was mentioned. Then in the later decision they simply added additions to the physical property to that earlier decision.

Q. You know in that case the company and the municipality got together and agreed on certain facts that were to be taken as at least the amount of the

rate base, did you know that? A. I do not know the details of it, no.

Q. If that was so, then you could hardly say that amount of $471,941 was a decision on going value, could you? A. It was only in the sense in which it was the going value in the previous case and they simply added additions since then. It was not up *de novo*.

Q. In this table on page 6 you haven't any information that would enable you to determine whether there were factors of that sort that entered into the amount which was taken as going value, have you? A. They gave in most of the decisions, discussions of the subject and then reached certain figures which I have put down. They often gave their reasons for reaching their conclusions.

Q. I do not suppose you ever saw the calculation of development cost in the Hackensack case that was made by the board's engineer, have you? A. No, I think not. I do not remember it.

Q. It would probably surprise you to know that that showed a development cost of eight hundred thousand dollars in that case, would it? A. I would have to know on what it was based. There may be costs in earlier years which would be wiped out by later earnings.

Q. This whole question of these deficits in early years, that is a question to determine whether early losses have been compensated by later earnings. A. Yes, where that is the basis, as it often has been.

Q. Isn't the very first thing you have to determine, whether there were any early losses or not? A. On that theory, which is often used, that is the first thing to determine.

Q. Of course, where you haven't any of the early books or records, you cannot find out whether there were any early losses; you simply have got to make an estimate or deduction in regard to it. A. Yes, and consider whether your largest estimate would not be compensated by a knowledge of later gain.

Q. In that method isn't it usual to take the historical cost as the basis, or do you take the value of the property as the basis in determining what the company is entitled to earn. A. I was taking the historical cost.

Q. That is what is usually taken. Where the company by decision of the highest court of the state is entitled to earn on the present value of its property, why shouldn't you take the value of the property as the basis to determine whether or not it had a fair return or not? A. Because you do not quote the decision correctly.

Q. I am asking you, where that is held by the Courts? A. It is not usually so held.

Q. If it is held wouldn't that be what you would have to take? A. That would logically follow as a deduction, but you are not right; it is present fair value. It does not say present value at all.

Q. What I asked you is, if the cases held that present fair value must be taken as the basis on which the company is entitled to earn, then isn't it the present fair value that you must take as your basis as to whether it has or has not earned it? A. Certainly, but that is altogether different from present value.

Q. That is a different thing from historical cost too. A. It may be. Historical cost less depreciation is the best way of reaching it.

Q. That is your opinion. A. That is my opinion.

Q. Let me ask; this table here, page 1, Exhibit

R10, these gross operating revenues and gross operating expenses and taxes, was that obtained by you or some assistant? A. That was obtained from an assistant of mine.

Q. Mr. Matthews? A. Yes.

Q. The next item there, the nominal gross income, that is simply a subtraction? A. Yes.

Q. This next one, depreciation, the next column, where did you get those figures? A. They were carried out under my direction.

Q. By an assistant? A. Yes. I did not actually write the figures down in any of these cases.

Q. Are they taken from the books of the company? A. As shown by reference further along, on page 2, and then on page 2 and the other pages I described this morning, that was worked out.

Q. Was that done by you or done by Mr. Matthews or some other assistant? A. He assisted some, but it was largely done by the engineering staff, mostly by the engineering staff.

Q. This next figure, the one marked under the column rate base, where did you get those figures? A. In the same way. Mostly worked out by the engineering staff, but with the aid of the accountant.

Q. You start in 1900 with a figure of $4,542,713.70. A. Really the start was from 1920 backward, as shown on page 2. It is set up here—

Q. Then you did not start with the book value of the company in 1900? A. No.

Q. You started and worked backwards? A. I think it would have been better if this table had been set up perhaps on the same basis as page 2, for the purpose of clearness, and yet there are some reasons for holding that, having arranged it as on page 2 the way we actually did it, there is some advantage in putting

it up in the chronological order directly as we did on page 1.

Q. Going back to that column 1, the first item, $4,542,713.70 under the head "Rate Base"; that was derived by working backward from the figure that you had in 1920, wasn't it? A. Yes, as shown on page 2.

Q. How does that compare with what the book costs of the company were in 1900? A. The exhibit that Mr. Matthews put in yesterday will show that, I think.

Q. R8? A. I am not quite sure; I have not tried to make a comparison. It probably does, but I have not made the comparison.

Q. You would have to, in order to reconcile that with the books, you would have to make certain additions. A. I would have to fall back on Mr. Matthews explanation in part, but not wholly, I should hold that you probably could not explain, as he could not yesterday, all of it.

Q. Will you just answer my question yes or no, Doctor Bemis? I think you can do it. Turn to Exhibit R8, page 5, under the heading "Passaic Water Company" I find the second item, contract No. 173, one million dollars.

Commissioner Autenreith: What page is that?

Mr. Wherry: Page 5.

Commissioner Autenreith: R8?

Q. At that time that item was, according to Mr. Matthews, probably in the book account if it had not been amortized.

Mr. Brown: Mr. Wherry, the commission has not the number. Is that R8?

Mr. Wherry: R8.

Mr. Brown: What page?

Mr. Wherry: Page 5.

Commissioner Bacharach: You are asking about that one million dollars?

Mr. Wherry: Yes.

Q. That one million dollars would have to be taken off here in order to make Exhibit R10, page 1, agree with the books, wouldn't it; it is one of the items you would have to take off, isn't it? A. It is one of the items that has been suggested by Mr. Matthews as probably on the books and taken off, but we do not have to reconcile those earlier years, because while it is desirable to show how far that discrepancy can be accounted for, it is not necessary to account for it, because we proceed from the present property, and the only advantage in looking into the earlier books is to see how much there does not appear now and we may estimate that that is property that has been retired, or we may estimate that it is bookkeeping entries that did not represent costs, but something more; we may make all sorts of estimates.

Q. All right. The best evidence you have, however, of what the construction account was, was the books at that time. A. Yes, the best thing we have as to the books.

Q. Now then, if the property had been retired the company was entitled to amortize it, was it not; it should have set up an amortization fund, should it not? A. Yes.

Q. So up to this point in 1900 there is one million dollars that should have been amortized, set up as an amortization fund. A. Unless it be the fact that the one million dollars represented partly wind to start with.

Q. Aren't there one million dollars of bonds outstanding still against that? A. That sometimes does not mean anything.

Q. The company paid it. A. I don't know in this case, but companies often issue them to buy up stock.

Q. You are just assuming then, after stating to me that the book accounts are the best evidence we have, then you are assuming that something on the book accounts was wind, is that right? A. I think you misunderstand my use of the words "book account." The book data as to the cost of the individual items of the present inventory is the best evidence we have. Any book balance sheets of early years do not mean much to me.

Q. You have used them. A. Yes, Mr. Matthews used them for what he could get out of them. I do not consider them at all conclusive, because I have seen too many.

Q. You have no other way in which you can reconcile the four million dollars or the three million three hundred and twenty-two thousand dollars of construction that was on the books of the Passaic Water Company prior to 1898 than this reconciliation which Mr. Matthews has put in for you. A. There is nothing directly on the books that can be used in that direction.

Q. That was your own exhibit by your own man. A. That was put in to show what could be found on the books and records.

Q. You have not attempted to reconcile this rate base with which you start on Exhibit R10 with the books, have you? A. No.

Q. You simply gone back to the beginning? A. Yes, from the inventory of the present property.

Q. Now then, looking at this; if you are in error in regard to what is the fair rate base and have that too

low, then the amount of net earnings that the company has had, that you say is too high, would be wrong, wouldn't it? A. The percentage would be too high.

Q. And if you are in error in regard to six per cent being a fair rate, average rate of return or weighted average rate of return by which to test it, then that would also throw out your whole result. A. It would affect the difference between the per cent and the ten and one-half, ten and two-thirds.

Q. What I mean is, that this whole table depends first on the assumption that six per cent is the fair average rate of return. A. No, I did not say that.

Q. That is one assumption, isn't it? A. No, I did not assume it.

Q. What did you assume? A. I assumed it was a fair basis on which to compute losses.

Q. That is one assumption. A. You notice Justice Hughes made a careful distinction between that and fair return.

Q. That is one assumption that you made that six per cent was a fair basis on which to test it. A. That was the purpose of giving the value table and that only.

Q. The other assumption is that the figures in the column headed "Rate Base" are the correct amount on which the company is entitled to earn? A. Yes.

Q. And if either one of those assumptions be wrong then the whole table goes. A. Not goes, but will be modified.

Q. It will have to be modified. A. Modified to that extent. That would not affect the statement of revenues and expenses.

Q. What is that? It does not affect the gross operating revenues and operating expenses and taxes; those were taken from the books direct? A. Yes, sir.

By Mr. Brown:

Q. Doctor, you have made reference to a distinction between present value and present fair value; you said there was a big distinction. A. Yes.

Q. I have endeavored to get the distinction before this. Will you tell me what your idea is about the difference between present value and present fair value? A. Present value has no meaning except the common business meaning and the meaning in all economic writings; it has the meaning of the value at the present time. Value has but one meaning, when you do not qualify it by fair or something else, and that is what a property will sell for. That is absolutely the only meaning of value known to business or economics. You cannot use value in that sense in any rate case or you would be reasoning in a circle, because value in that case is itself determined by the rate, because value is determined by the earnings and the earnings are determined by the rate and you would be going around and around in a circle. You never could reduce rates because you would affect the selling power of your property, you would affect the value and the Courts have pointed that out many times and the Commissions have many times. You cannot therefore, talk about it as value. Some have, however, thought the Courts meant the value of the individual items of property and that that was best determined by the cost of reproducing them today. The value of a property as a whole may be a good deal more or a good deal less than the value of the units from the standpoint of selling, and furthermore the value of the unit is not determined by the cost of reproduction or by actual cost; it is determined by the demand and the supply at the moment. If you cannot wait a long time for the

reproduction of it, the value even of an individual gas holder would not be determined altogether by the cost of reproducing it. So I think the Courts have been coming to the idea of fair value, but it has not been clearly defined what that is, except it seems to have elements in it of equity, public policy, justice, but there is no definition that the Courts have established, in my mind.

Q. That is what I would like to know, to get the distinction between present value and present fair value, but I have not been able to find it yet.

The Witness: Constant reference, of course, is made back to the decision of Smythe versus Ames where they mentioned so many different things to be considered, but there has not been a single case where the Court's own interpretation of that decision has ever been quoted until now. But a decision in a case not long after Smythe versus Ames of Minneapolis & St. Louis Railroad Company versus Minnesota, 186 U. S. 267, the Court said this: "Each case must be determined by its own consideration, and while the rule stated in Smythe versus Ames is undoubtedly sound as a general proposition, that the railways are entitled to a fair return upon the capital invested—that is their interpretation of Smythe versus Ames—it might not justify them in charging exorbitant mileage in order to pay operating expenses if the conditions of the country did not permit it." They seem there to have interpreted their own decision as to what is fair as a fair return upon the capital invested. I never came across that decision until an attorney pointed that out to me in Chicago a year ago.

Q. What was the distinction that you referred to in answer to Mr. Wherry's question with regard to the

six per cent rate that you were speaking about and a fair return? A. Justice Hughes pointed out in the Brooklyn Borough Gas Company after he left the Supreme Court, when he was a Referee for the Supreme Court of the State of New York, that he was carrying out the theory of the New York law, that the company was entitled to early losses not made up by later gains, under the term "going value," as meaning not all that the Commission would think it feasible to allow them to try to earn, which might be seven per cent or eight, but that if they had earned six per cent continuously or on the average for the entire life of the company they had earned enough, so that they could not come forward and say that there were losses that should be capitalized, and he went on and elaborated that point. It is in the P. U. R. report.

Mr. Wherry: I ask the Commission to examine the report itself.

Commissioner Autenreith: I think we can read the report.

By Mr. Treacy:

Q. There may be a distinction between the amount which a company ought to have as interest upon the money that it has invested during the period when it has early losses, and the rate that it should be allowed as a fair return upon its property for rate making purposes. A. Yes. I think a company might easily be given more than six per cent in a rate case.

Q. Doctor Bemis, you desire to make a correction there on R3, one of your exhibits, where you meant R1. A. One typographical error crept into R10 that I have discovered. There may be others.

Q. What page? A. Page 4, R10, page 4, under

references at the bottom of the page, at the right-hand side, you see a reference Exhibit R3, page 37. It should be R1, page 37.

BOARD OF PUBLIC UTILITY COMMISSIONERS.

Newark, N. J., Thursday, December 28, 1922.

LEONARD METCALF, resumes the stand on behalf of petitioners.

Further direct-examination by Mr. Wherry:

Q. On your cross-examination you stated that prior to the Knoxville case there were decisions holding that depreciation, annual depreciation was not an operating cost.

Q. What was the case you referred to? A. There were several cases, Mr. Wherry.

Q. All I want is the name of the case and the reference where it is found. A. U. S. versus Camden and Pacific Railroad, 99 U. S. 459; 25 L. Ed. 289 (179). The second one is Santiago Water Company versus Santiago, 1897, 118 California 556, 574, 583. Redlands, and so forth company, versus City of Redlands, in the year 1898, 121 California 312, 53 Pacific 791. Cedar Rapids Water Company versus Cedar Rapids in the year 1902, 91 N. W. 1081, 1091. And there is a full discussion of the subject in the oral argument in the Spring Valley Water case, Volume 3, Volume 12, pages 196-920, copies of which I think are lodged in the Library of the American Society of Civil Engineers of New York City.

Q. Have you made any study of the prices of pipe between the period from 1854 to 1902? A. Yes, sir.

Q. Was there a great variation in the prices of pipe? A. Yes, sir. The prices ranged from somewhat less than twenty dollars to somewhat over sixty dollars per ton.

Q. Have you any table showing that variation, the range in prices? A. No, sir, I didn't bring one here. I can submit one if you want one. I have a table here of the U. S. cast-iron pipe and foundry company that covers a considerable portion of them, but I haven't realized you wanted it year by year.

Q. Have you copies of that table you speak of? A. No, sir; I haven't. I just made these pencil notes.

Q. Give me some idea of the variation, how the prices would range by years. A. The complete records I believe are submitted by them in a pamphlet or a flyer which was issued perhaps two years ago, which showed the following figures: 1860 $32.15; 1865 $58.05; 1868 $65.00; with respect to that figure, I think it was taken from the pamphlet, I am not quite positive about that, it appears to have been from this record; I know the rest were; 1869 $57.00; 1870 $50.01; 1871 $53.58; 1872 $51.79; 1873 $58.05; 1874 $43.76; 1875 $37.51; 1876 $31.26; 1877 $25.00 1878 $23.22; 1879 $29.47; the same in the year 1880; 1881 $33.04; 1882 $35.68; 1883 $32.15; 1884 $26.79; 1885 $25.00; 1886 $26.79; 1887 $28.58; 1888 $25.00; 1889 $23.09; 1890 $24.65; 1891 $23.04; 1892 $21.43 1893 $21.30; 1894 $18.47; 1895 $17.95; 1896 $17.64 1897 $15.48. That is as far as I have the records copied here. I stopped at that point because it covers a period with respect to which Professor Bemis has been testifying; that is up to the year 1898 and subsequent prices were higher, of course, because the market rose after that time.

I may say, I have personal records of Boston, St. Louis, New York and a number of other cities which are in general accordance with these figures and confirmative thereof.

Q. Have you any reason for changing your opinion that the sinking fund method of depreciation was proper in this case in connection with the valuation you made? A. No, sir; I have not.

Q. Why not? A. Because the only additional information I have is the testimony which Mr. Bemis has put in, which I have analyzed and which indicates where there is included the depreciation allowance plus the abandonments a very much heavier total depreciation to date than I believe would have been possible or than I have ever seen in waterworks practice.

Q. Do you make any distinction between abandonments and depreciation? A. Yes, sir. By depreciation, in using the term in that way, I refer to the accrued depreciation upon the existing property. The abandonments, of course, cover the property which has gone out of service since it was put into the service; that is, in the past history of the plant.

Q. The two things you state have to be taken together? A. Not of necessity. It is advantageous where you have that record to consider them together, because it sheds some light on the present conditions and has a steadying effect in estimating, in indicating the limits between which the depreciation probably lies.

Q. You say you made a study from your experience of the actual depreciation and abandonments of plants? A. Yes, Mr. Wherry.

Q. Did you put that in the form of a table or— A. Yes. I might give reference to an article, which doubtless these gentlemen have seen, but perhaps

Colonel Betts would like to have reference to, which was presented before the American Waterworks Association by me entitled "Practical Check upon Waterworks Depreciation Estimates"; which was published in Volume 3, No. 3, September, 1919.

Q. Containing data based on your actual experience? A. Yes.

Q. Will you briefly state what you say are the limits ordinary limits that would be used as a check to determine whether there was excessive abandonment plus depreciation. A. I have a blueprint and tabulation, which appears in that article, but which blueprint covers additional plants, the records of which were obtained subsequent to preparation of that article.

Q. In other words, you got all the plants that were referred to in the article and some additional ones to those in the article? A. That is it exactly. These represents the plants with respect to which I have been able to get reasonably complete records, with regard to abandonment as well as data upon the accrued depreciation on the existing plant. They number thirteen. I may say, I have several other records now in the course of preparation, but they are not yet complete. There is included in that, however, all of the complete records which I have at the moment. The record indicates—

> Mr. Wherry: I will offer it in evidence.
>
> Depreciation records of some old waterworks by Leonard Metcalf, received and marked Exhibit P31.

Q. Just state briefly what it shows. A. The record shows, as you will see, in column 14, the next to the last column, the general range of the figures relating to the thirteen different plants and in the last column

what I have called the estimated normal range, that is, the approximate range. Take, for instance, the accrued depreciation on existing structures; the range was from about six per cent to twenty-three per cent. I have estimated the normal average from eight to thirteen per cent; the actual average is 12.9 per cent. The accrued depreciation in abandoned structures is from one and one-half per cent to 13.7 per cent; the range, the normal range I have stated to be from six to twelve per cent; the actual average is 7.7 per cent.

In the same way, the total amount of depreciation in existing and abandoned structures based upon the gross reproduction cost of the structures, ranges from 7.2 per cent to twenty-six and a half per cent, average 19.7 per cent. And as stated, the same thing, that is, the total amount of accrued depreciation upon existing structures and abandoned structures ranges from seven and a half to thirty and a half, the average being twenty-two per cent.

The subsequent figures relate solely to the annual allowance for depreciation, which I need not discuss, but which are clear in themselves.

Q. What do they show? What those plants are setting aside for their annual depreciation or what the actual experience of those plants show they should set aside. A. Yes; that is it exactly; the latter.

Q. What they should set aside. A. What they should set aside.

Q. Did you say you had made an estimate to determine or a computation to determine what the total depreciation plus abandonment claimed by Professor Bemis in his exhibit amounts to? A. Yes, I have.

Q. Did you put that in the form of an exhibit? A. Yes.

Mr. Wherry: I would like to have that marked in evidence.

Abandoned and omitted structures shown on Exhibits R1 and R8, received and marked Exhibit P32.

Q. Will you please state the source of this exhibit and what the different columns show and then the comparison? A. The exhibit consists of three pages, on one of which are shown figures taken from Mr. Bemis' exhibits relating to the accrued depreciation allowance on existing structures and in the other Mr. Bemis' items of abandoned property and Mr. Matthews' unidentified expenditures which I understand Mr. Bemis ascribed to abandoned property. Against each of these items I have shown the page of the exhibit from which they were taken so that I think probably no further discussion is necessary on that.

A summation then, as made by me, on the third page, from which it appears that on the jointly owned property the combined abandonment and accrued depreciation, on structures only, of course, is 29.7 per cent; on the Acquackanonk Water Company 38 per cent; the Passaic Water Company 46.7 per cent; the Montclair 27.4 per cent; the East Jersey 54.3 per cent; the Kearny 46 per cent, or on the total of these several groups of items an average of 36.9 per cent; about 37 per cent.

Q. How does that compare with the experience that you say you have had? A. That is far in excess of any of the records that I have or have ever known of.

Commissioner Bacharach: Mr. Metcalf, under your summary it states Costs; are they Doctor Bemis' figures or—

The Witness: Doctor Bemis' throughout.

Commissioner Bacharach: This $3,684,228 is Doctor Bemis' figure?

The Witness: Yes, sir. I meant to use his figures absolutely throughout.

Q. The source of it is Exhibit R1 and R8? A. Yes. I may say there are certain items also included by him relating to supplies or general equipment perhaps that may have been overlooked by me. If they had been added they would have slightly swelled the percentage I have shown here, but I have taken out the items referred to by him and Mr. Matthews or his engineering staff, as accrued depreciation and abandonment, and as here stated, have included in those items the two large items of unidentified expenditures, which I understood Mr. Bemis to say on the witness stand were ascribed to by him or accounted for by him as abandoned property, as representing abandoned property.

By Mr. Treacy:

Q. You say you have included those, you mean, they are in these amounts? A. They are, sir.

Q. You have included abandonments of 1887? A. I have included all abandonments. I am dealing, sir, in getting this percentage with the original property which has been built at the start and from time to time and then I am seeing what has gone out of service or been depreciated up to date.

Q. Merely for the purpose of arriving at a percentage? A. That is all; merely for the purpose of comparison with these records.

Q. It is not a criticism of the depreciation of Doctor Bemis upon existing property? A. Well, in my judgment it is because the combined amounts—there is another indication of it, in my judgment his allow-

ance is large for depreciation upon the existing property and it grows out of the fact he has used the straight line method; it is indicated also by this computation taking into consideration the abandonment as well as the accrued depreciation on the existing property. I didn't imply that this was his estimate of the accrued depreciation on existing property only. This is another means of testing his estimate.

By Mr. Wherry:

Q. In other words, in your opinion, his estimate of accrued depreciation is too large too, is it? A. It is, sir.

Q. Mr. Metcalf, you make a distinction between going value and development cost. A. I do.

Q. What is that distinction? A. It essentially is between reproduction and original conditions. The going value of today, being in a sense the cost of developing the business today as against the historical development expense which would represent the cost of developing the business under the actual conditions which have prevailed in the past history of the plant.

Q. And when you say the development cost you are talking in terms of original cost and in talking of going value you are talking in terms of reproduction cost? A. Yes; much more nearly. I believe reproduction cost furnishes a fairer yard stick today than original cost.

Q. In your study of going value you refer to two things on which you developed going value, as I understood it. One was the actual studies of development cost of certain plants and the other was sales you know of. What I want to know is in the study of development cost of actual plants, were those plants

built recently or were they plants which have grown similar to this plant? A. I take it what you are now referring to is the fact, which I think was stated by me somewhere in my evidence, that I have in the past made a study of the actual rate of acquisition of business of plants in the past. I had also the advantage of the study made by Mr. Benzette Williams of Chicago who had for years been collecting data of this sort and who sent me, before his death, records and diagrams showing the curves or the rate at which income was acquired.

Q. Was Mr. Benzette working under your direction? A. No. That is in the course of events. I have also had worked out from the actual history of certain plants the rate of acquisition of different cities and in different characteristic districts. For instance, in Indianapolis, where I was working this matter up, we took typical districts, residence districts of the better class, of the commercial and so on, cheaper housing districts in the outlying portion of the city, and examined the books as to the actual acquisition of revenue on the pipe system laid in those streets, that is, following the laying of the pipe system.

Q. That was in the City of Indianapolis? A. In the City of Indianapolis.

Q. Did you put that in the form of an exhibit? A. I have. This material was presented in a paper by the secretary of the company, Mr. Frank C. Jordan, presented before the New England Water Works Association and will be found in Volume 24, No. 4, page 595.

Q. You have such a statement prepared? A. I have had a photostatic copy made of the diagram which accompanied that article which I think best illustrates the rate of acquisition of the business.

Mr. Treacy: Whose article is this?

The Witness: Frank C. Jordan, who was secretary of the company, who made the investigations and got this data together for me in the course of my work with the Indianapolis Water Company.

Q. You were the engineer in charge of the work for the company? A. I was and I still am their consulting engineer.

Q. Of the Indianapolis Water Company? A. Of Indianapolis, Indiana.

Mr. Wherry: I offer that in evidence.

Graph showing general water rates in force during record period, received and marked Exhibit P33.

Q. Please explain this table. What do each of those lines indicate? In other words, how are we going to understand this graph? A. That indicates the rate of acquisition year by year of income on these pipe lines. They are of interest as showing in a general way that the business on these pipe lines was not acquired until a period of some five to seven years had been passed. In other words, indicating the gradual development of the business.

Commissioner Bacharach: How long ago was this, Mr. Metcalf?

The Witness: My impression is that this was made something like five years ago.

Commissioner Bacharach: In your opinion are residential sections developing more rapidly now than they did in those days?

The Witness: Why, no, excepting as influenced by the shortage of housing; in that sense perhaps I should expect this speeding up at the present moment.

Commissioner Bacharach: Yes.

The Witness: Yes; under general conditions.

Commissioner Bacharach: The conditions as they are today, development shouldn't take as long as it did in those days, because five years ago there wasn't the tremendous building of residential houses that there is at the present time; isn't that true; and in proportion the development would be that much more rapid.

The Witness: To the extent there is a speeding up of business that would be the tendency, I think, sir.

Commissioner Bacharach: When you take the reproduction value as of today, the development of a company starting today wouldn't be as slow as it would have been possibly ten years, or longer, ago.

The Witness: If you are dealing with normal conditions that is true, sir. If you are attempting to find what you might consider fair or normal prices I don't think there would be any material difference. In other words, it depends on the rate of growth in population, as well as the total population.

Q. Is that the water company that you referred to as having been sold on an appraisal made by you? A. It was; both.

Q. When was the appraisal made for that sale? A. Well, as near as I can remember, Mr. Wherry, it was about 1916. It may have been 1917.

Q. The appraisal for the sale? A. It may have been somewhat earlier, sir. Have you got the date of purchase there? I can tell you from that.

Q. You could refresh your recollection by examining this (handing witness book). Was that the appraisal which was made for the sale you refer to? Is that the appraisal which was made by the Board of

Public Utility Commissioners and is reported in Volume 1917 E. P. U. R., page 556? A. It is the same property plus additions.

Mr. Treacy: I object. The report speaks for itself. The report may be put in evidence.

Mr. Wherry: The report I can put in evidence. He stated he made an appraisal of the property or he made an appraisal of the property in which the going value was found. I am asking whether that appraisal referred to in this report is contained in the report, or a separate appraisal.

Mr. Treacy: If the report states it is, that is the best evidence.

Mr. Wherry: Not at all. He has made an appraisal in 1915 and this appraisal in that report is in 1917; there are two separate and distinct things.

Commissioner Bacharach: Is this the case in which the going value was questioned, there was some question of its being disallowed by the Indiana Commission?

Mr. Wherry: Yes.

Commissioner Bacharach: Is that correct?
The Witness: That is it.

Commissioner Bacharach: You want to show it is not the same.

Mr. Treacy: All right.

Mr. Wherry: I want to show when Geist bought it he paid one million dollars; then later on, when they come to appraise the property, they said the property was worth at least so much; the report speaks for itself as to what

the Commission did; they are two different things. Geist bought it at his own value.

Commissioner Bacharach: You can bring it out by cross-examination as to its being disallowed by the Indiana Commission.

Mr. Treacy: All right.

The Witness: Answering your question, Mr. Wherry, and refreshing my recollection, the report says: I will give you the reference; Public Utility Reports 1917 E, page 621: "The evidence disclosed that the present owners paid four million dollars for the five million dollars of stock in the latter part of 1912 and that the stock is worth on the market today six million dollars. The present owners have invested in this property at this time"—

Q. Wait a moment, don't read it all. That 1912 purchase is the one you refer to on which you made your appraisal? A. It is. I first appraised the property in 1907 or thereabouts and I have appraised it several times since. The appraisal to which they are referring was made a short time in advance of the purchase of the property.

Q. In 1912? A. Which the report says is in 1912.

Q. You stated, as I understand, the purchaser relying on that appraisal paid for the going value of the property some sum of money? A. He did, sir; that is the fact.

Q. What was it? A. One million dollars was included in my value at that time.

Mr. Wherry: Then I call attention to the fact that this report which was referred to by Mr. Bemis, in 1917, the Commission did not check the full value of the property, but stated,

as you will see at the last of this report, that the property is worth at least the 1912—at least nine and a half million dollars, which takes the figure, takes the rate the company has found, takes that amount to fix the rate.

Commissioner Bacharach: Before leaving the Indianapolis Water case. Have you made a valuation since 1917?

The Witness: I think it was in 1918 or 1919 I made another valuation. We were before the Commission again and that later case—I don't remember the reference—

Mr. Wherry: 1918, P. U. R. B.

Commissioner Bacharach: Not very recently, you haven't made one?

The Witness: No. Not since that time. One has been made within the past year. The company itself has been making—

Commissioner Bacharach: I was just wondering. I recall this case has been before the Indianapolis Commission recently.

The Witness: It is before them at the present time.

Mr. Brown: May I ask if this is the rate case Professor Bemis referred to in his testimony, where he said the Commission allowed three hundred thousand dollars and a later Commission said they wouldn't allow anything?

The Witness: I don't think the later Commission said that. It is the case which referred to the three hundred thousand dollars. In the second opinion to which you refer the Commission did stand on investment costs rather than reproduction and fair value.

By Mr. Brown:

Q. They said the previous Commission shouldn't have allowed anything for going value. A. They put it in the negative saying it might be doubtful whether three hundred thousand dollars should be allowed or some such statement as that.

Commissioner Bacharach: What percentage was going value you allowed on the sale price, do you recall? You say it is one million dollars. I was just wondering if you recalled the sale price.

The Witness: That was about one million dollars out of nine million six hundred thousand dollars; that would be one on eight and a half, which would be a little less than one-eighth.

Commissioner Bacharach: A little over twelve per cent, roughly.

The Witness: Yes, around that. That is my guess.

Q. Do you know the difference between the appraisement you made and the appraisement before the Board in 1912? A. Yes, sir. Let me see, the appraisal I submitted—

Q. I understood your testimony referred to an appraisement made by you before 1912? A. Yes.

Q. That is the decision we are referring to. In 1912 the same appraisement was considered by the Board that was considering that case. That is to say, there must have been additions or abandonments considered? A. Yes.

Q. I want to know what was the difference. A. I can't tell you; I can tell you what my position was in that case to which you are referring, 1917.

Q. How many years before 1912 was it you made the appraisement? A. I made the first one, as near as

I remember, about 1907 or 1908, and then I made it again just previous to the purchase of the property.

Q. In 1912? A. In 1912. It might have been the latter part of 1911, but it was just previous to the purchase.

Q. About pipe prices you were referring to in the first part of your testimony; that information was obtained from some catalog or schedule of producers' prices? A. It was a bulletin sent out by the United States Cast Iron Pipe & Foundry Company as the result of many demands on it by engineers for prices at which pipe had been sold by the foundry in those years.

Q. Were the prices reported direct from the foundry or locally? A. I think from Burlington, New Jersey, foundry; in that vicinity, at all events.

Q. The figures you have given can be ascertained from a comparison of that bulletin? A. Yes. Also writing to the New York office or Philadelphia, they would be glad to give you a copy, I am sure. Mr. Russell you can address; he is vice president.

Q. You put in Sheet No. P31 referring to the water companies outside of the State of New Jersey. I was wondering if the elements that caused depreciation are the same in the localities that are cited here in P31 as they are in the instant case or if there is a difference. A. There is, of course, in these records themselves a very substantial range of conditions. From the Spring Valley Water Company, for instance, in San Francisco, in which a very substantial amount of the cost of the property valued is in the large storage basin that don't depreciate, in tunnels, in conduits and in cast-iron pipe system, so that the rates are relatively less. In the case of the Denver-Union Water Company where a very substantial element of cost

lies in the Cheeseman Dam, a very long lived structure; offset, however, by the fact that there are wooden lines of conduit. In other cases where they go in the other extreme, where the pipes laid have been relatively smaller and where the abandonment has been relatively greater. There is no question in my mind that this property would tend toward the class of long lived property, because of the substantial nature of the construction, the amount of money which has gone into the reservoir at Great Notch reservoir, the pumping station, I mean, the Little Falls pumping station, and the filter plant and the development thereabout. That is offset in a measure by the steel supply mains which have somewhat shorter life.

Q. Are any of the companies you have cited in P31 comparable in their situation and because of depreciation and the kind of property to that of the instant case or the one we are now considering? A. All we can do with respect to that is to state, reviewing these records, as a whole and comparing this property with the others, I believe it to be a fact that this property would tend toward the average condition, on this range, or be slightly better than—

Mr. Wherry: May I continue? I have only a few more questions.

Mr. Brown: I thought you had finished.

Mr. Wherry: No.

By Mr. Wherry:

Q. Mr. Metcalf, do you make a distinction between overheads and going value? A. I do, sir.

Q. Can you cover or include your going value in your overhead? Do you do that? A. I do not do it.

Q. Why not? A. Because I think it is not a safe

procedure. I think it is exceedingly difficult to form judgment in that way. I think other methods of determination are much safer and, of course, are usual. That method is a very unusual method of doing it.

Q. You have overheads whether there was any business attached to the plant or not. A. You would have overheads, of course; overhead costs before the plant began operation.

Q. Did you make any study of what the unit cost of the plant is, compared with the population served? A. Yes.

Q. What is the result of your studies? A. May I state it under pre-war conditions?

Q. I mean, under pre-war conditions. A. Because most of the work has been done before the war and that is easier of comparison. The general range in this part of the country, or a general figure in this part of the country was thirty-five dollars per capita more or less.

Q. For what? A. For the value of the works.

Q. The entire works? A. The entire works. Of that amount—

Mr. Treacy: I didn't get that statement. Thirty-five dollars?

The Witness: Thirty-five dollars per capita. Of this amount approximately eighteen to twenty dollars per capita was to be ascribed or was involved by the distribution pipe system. Proceeding further south the cost is generally less and a corresponding figure might be stated as twenty-five dollars more or less. Going west, in the semi-arid region in Denver and in California, the per capita amount was upwards of fifty dollars; fifty or sixty dollars.

Q. On account of the reservoirs? A. That was on account of the greater need for carrying over stored water for a period of two or more years instead of for a period of months only as is customary in this region, and because of the distance of the supplies and the consequent increase in the cost of conduits. Of course those amounts have increased very much with the change in conditions resulting from the war.

Q. Now, Mr. Metcalf, what do you mean by historical cost? A. I think the term "historical cost" has been used in two senses.

Q. What do you mean? A. I have used it myself in two senses and have qualified it because I think that otherwise there is likely to be misunderstanding.

Q. When you said in this case you didn't get the historical cost, what sense did you use it? A. I used it in the sense of actual cost to the company of building, of acquiring and building the property which it has acquired and built and developed in the past. The two phases of historic cost to which I make reference are these: one in which the abandoned structures are included, that is, all of the original property built at the inception of the works, and subsequent thereto, down to date; the other sense is that in which the abandoned property is eliminated and you deal with the historic cost of the remaining property. The latter is, perhaps, the more common one with which we deal unless we are discussing outstanding securities when the former may become the more significant figure.

Q. The former is really investments, isn't it? A. It more nearly approaches investment. Well, I don't know that I can say that, Mr. Wherry, I think, generally speaking, that is true, but it isn't always true by any manner of means.

Q. You said you couldn't get the historical cost; what did you mean? What reason was there for that statement? A. I meant that the records were not in existence; that my examination of the property led me to feel that I would have to make so many estimates in regard to the property that when I got through that would be of relatively little service to me or to the tribunal in passing upon value.

Q. You still feel that way after seeing Exhibit R1 and Exhibit R8? A. I do, sir.

Q. You think that historical cost properly made would have much bearing on the value in this case? A. I do not, sir.

Q. Why? A. Because the conditions have changed so radically since the properties, many of the properties were bought or built and because of the influence of the war.

Mr. Wherry: Now you may cross-examine.

Commissioner Bacharach: You don't believe then, Mr. Metcalf, as the basis of value, you should take the historical cost even if you can get the records.

The Witness: I do believe in doing that. I have always been in the habit of doing it under pre-war conditions where I could. Where I could not do it and at the present moment when we are so near the war and when the changes have been so radical, I think that original cost has far less significance as a yard stick than it did before the war so that it is really of very much less assistance than the reproduction cost estimate at fair prices or normal prices.

Commissioner Bacharach: The difficulty is to find what engineers can agree on as fair prices.

The Witness: That is true, sir.

By Mr. Brown:

Q. Professor Bemis stated, I believe in his testimony they had obtained records of ninety-three per cent of the historical cost. A. I think that is not the fact, sir.

Q. What is there wrong about that? What criticism have you to make of that estimate? A. I don't believe their estimate covers all the items that have gone into the property; in the estimate, on the face of it, which was very large for unaccounted items; I don't think their treatment of the water rights question is a fair treatment, on the original cost basis—

Q. Not the method treatment; the actual records. Are there ninety-three per cent of the records? A. No, sir; there are not. I have examined Mr. Bemis' own report, R1, have taken his own statement and I believe it to be a fact that the estimates are probably nearer twenty per cent than seven per cent on the structures.

By Mr. Wherry:

Q. From the statements in R1 itself? A. From the statements in R1 itself and from what statements were made in evidence since.

By Mr. Brown:

Q. Then when he states there are ninety-three per cent of the historic records extant, why, you discount that by how much; what percentage? A. My impression is that something like twenty per cent instead of seven per cent.

By Mr. Wherry:

Q. That only referred to structures, anyway. A.

That is all. Of course the water rights are a different element. The overheads are different.

By Mr. Brown:

Q. You have testified about methods of depreciation. You have taken both methods, have you not, in your computation?

Mr. Treacy: I wasn't here when Mr. Brown asked his questions. I move that this witness's statement that twenty per cent was estimated be stricken out.

Commissioner Bacharach: Mr. Brown asked him what his impression was.

Mr. Treacy: I am not affected by what Mr. Brown says.

The Witness: May I answer your question differently, Mr. Brown? I went over Mr. Bemis' report taking the various items with respect to which he said he estimated the different elements, meters, meter fittings, pipe systems, pipe distribution systems, and wherever he said that he had estimated any portion of the item I excluded the item, as for instance, he referred to the pipe distribution system prior to 1898, with respect to which he said he got some information with regard to the distribution in the period of years from the notes of the engineers and then applied the average prices prevailing, I think between 1902 and 1911, or something of the sort. I considered that an estimate. It was an estimate. His reference to the use of certain of the meter records, I excluded also. In that I went through the report and I took his overhead allowance which, of course, isn't a book allowance, and I applied all of that to the valuation which he found. I think the result was something like eighteen per cent.

Q. When you referred to the twenty per cent you meant the eighteen per cent? A. Yes.

Q. Computing depreciation you have used two methods, have you not, the sinking fund method and the straight line method? A. I have not used the straight line; no, sir.

Q. In no part of the computation? A. No, sir.

Q. By using the sinking fund method for varied depreciations the result of that, of course, is to increase the rate base, is it not? A. I don't understand your question.

Q. By using the sinking fund method of depreciation the result of that would be to increase the rate base. A. If you mean that by the application of the sinking fund method in determining accrued depreciation, instead of the straight line method in determining accrued depreciation, you would get a higher present value; that is true, sir.

Q. Yes, and so your method, this step in that direction is to increase the base, it does that, and if you took the straight line method you would decrease the rate base. A. The first statement is not true. I do that because I believe it is in accord with the facts; it is in accord with what the Court did in the Denver-Union and the Spring Valley cases. The second statement is true; it results in a higher residual value than the other.

Q. I don't want to charge any motive to you. A. The question did.

Q. It wasn't meant that way. What I wanted to have on the record was your method resulted in a higher rate base. A. It does, sir.

Mr. Brown: I think that is all I have.

Petitioners' Witness, Leonard Metcalf, Cross

CROSS-EXAMINATION by Mr. Treacy:

Q. In your Exhibit P31, Mr. Metcalf, what was the depreciation method used, the sinking fund method or the straight line method in reference to the various companies set forth in that exhibit? A. In determining the abandoned property of course the facts determined that, the records determined that. In determining the accrued depreciation on existing property my impression is (I state this offhand, Judge Treacy) that practically all, if not all of the records are based on the sinking fund method of treatment which was used as you will find in the article, by the engineers on both sides of the case.

Q. These were engineers' estimates, all of them. A. With reference to the existing property, of course. They were the estimates, however, wherever obtainable, representing the consensus of opinion. It is my impression that in the Spring Valley case it was the Court's, the Court's findings which I used there. And I think that is true in the Denver case, but I shall have to verify that; the article will tell you.

Q. Can you state positively whether that is true or not? A. I shall have to verify the fact. It is so long since I did that.

Q. There are thirteen cases, thirteen utilities set out on this P31. A. Yes.

Q. And I ask you how many of those, if any, were Court findings in which depreciation and abandoned structure items are the findings of the Court or the Commission. A. I can't answer that question positively offhand. I can tell you about certain of them. In the case of the Portland Maine Water district the figure was the average of the four engineers, two on one side and two on the other, if I re-

member rightly. I can't tell you about Racine. Denver, I think was the Master's finding in that case; I can't say.

Q. You think that? A. Yes, I do think that. I think the same is true of the Spring Valley Water Company.

Q. The Pennsylvania Water Company, that was your own. A. I shall have to go back to that. I think it was.

Q. You investigated all of these? A. Yes, I did, sir.

Q. You can't recall? Indianapolis appears to be yours. A. Wait a moment. I think that is probably true, but I am not certain. East Chicago and Indiana Harbor Water Company was an average of the plaintiff's and defendant's engineers. The Consolidated Water Company, those are private records, those were made up by me. The Concord Waterworks, those are municipal plants and I am chairman of the Board and those were made up and reported to the town by me. They were also based on some work previously done by William Williams. The Tampa record, I think that was my own. The Portsmouth, Berkley and Suffolk Waterworks, was made by the Board. I was one of the Commissioners who sat in that case. It was a figure made up after the hearing of the evidence of the engineers on the two sides. In the Milford Water Company, the records are records of a private plant, one we had advised as consulting engineers; those I think were probably my personal records.

Q. Did any of the companies shown on P31 abandon their original source of supply in the same manner that the companies here have abandoned theirs? A. Yes, in these records there are a number of—

Q. To the same extent? A. There are a number of cases of abandonment of one sort or another.

Q. Can you mention any? A. Can I mention any?

Q. And the value of the property abandoned. A. I doubt if I can do that, Judge Treacy. I remember in the Denver-Union Water Company case the property at the Cherry Creek supply was abandoned, I can't tell you offhand, my impression is the money involved was three hundred thousand dollars; that is pretty hazy.

Q. The abandonment in the case of the East Jersey and its affiliated companies involved costs many times in excess of three hundred thousand dollars. A. I can't tell you that; I don't know. I don't remember. The Spring Valley Company had some source and—

Q. P31 is not introduced to show those are comparable situations to that of the East Jersey with reference to abandonment. A. Well, if you mean by "comparable" to these items, of course, there are no two items of plant in the country that are comparable. In introducing this it is of significance for comparison, in my judgment, with the East Jersey Water Company. Here are companies, in these thirteen companies, operating in different parts of the country under different conditions, with different kinds of plants, showing a range of values. I have stated to you my opinion this company falls within this range. I do think it is of significance. I think the Court has thought it of significance in the Denver-Union case and in the Spring Valley Water Company case, in both of which cases the evidence was submitted. I think you will find reference made in that opinion.

Q. Have you got a single company which has abandoned its entire source of supply the same as the

East Jersey, on your Exhibit P31? A. I shall have to answer you in this way, sir.

Q. Can you answer— A. Yes, I can. There is at least one and there are others. Several of those were made up of a number of companies brought together. That was the case in the Denver-Union, for instance; there are abandonments there which are substantial. In the case of the Pennsylvania Water Company—

Q. Was there an abandonment of the entire source of supply after it had been developed the same as the East Jersey did in this case? A. There were sources of supply developed by one—two, I think—more than two of the companies, that were supplying certain portions of the city, which subsequently were amalgamated, when twelve or fifteen companies were brought together as one property. In the case of the Pennsylvania Water Company, it took its supply from the Monongahela River at Pittsburgh; they now take their supply from the Allegheny; there is a complete abandonment.

Commissioner Bacharach: Did it require any development for the Monongahela?

The Witness: Yes.

Commissioner Bacharach: Not very much, did it?

The Witness: It took its water direct from the river. It required a pumping station; it required a reservoir up on the hill above and the pipe line up to that reservoir.

Commissioner Bacharach: That wasn't very extensive, was it?

The Witness: It was all that the company had at that time. It was extensive from the company's point of view, yes.

By Mr. Wherry:

Q. Was there any case in which the East Jersey abandoned its entire source of supply? A. I don't know.

By Mr. Treacy:

Q. Passaic, Aquackanonk and Montclair, they are not taking water from Great Falls, that was their entire source of supply or from the wells at Montclair, either. A. Well, the wells at Montclair are trifling as compared with these abandonments; the Great Falls were trifling as compared to—

Q. The source of supply originally was Great Falls for all this system. A. From the property point of view, Mr. Treacy, I do think these records contain abandonments which were more valuable to the company than this work.

Q. I don't want what you think, I want the facts. A. That is the fact.

Q. Isn't it a fact that every company stands on its own facts. A. Yes, that is true.

Q. You show here on your Exhibit P31 a difference in depreciation, in percentage on the average net reproduction cost of existing structures. A. Yes.

Q. In one case seven and a half per cent? A. Yes.

Q. In another case thirty and a half per cent. A. Yes.

Q. You show a difference in depreciation in gross reproduction costs between 7.2 per cent and 26.5 per cent. A. Yes.

Q. Then you show similar differences right along through this Exhibit P31. A. Less differences. You picked out the two biggest ones; but there are differences, yes.

Q. Were there any of these companies that had such a large proportion of short lived steel pipe as this company? A. Yes.

Q. Which one? A. The Spring Valley Water Company had and the life isn't proving short. The Denver-Union Water Company in its wooden stave pipe item had a much worse condition. The Portland water district had a worse condition in its wrought iron cement lined mains, those two main lines of pipe coming from Sebago Lake sixty miles distant; one of them has been completely abandoned and the other is partly abandoned. The Spring Valley Water Company has lost certain of its lines in the earthquake and lots of its structures. The East Chicago and Indiana Harbor Water Company had an abandoned twelve-inch pipe running away out into the lake and abandoned fourteen inch, I think it was—it has had three different pipes that have gone under and it is on its fourth main, as I remember the facts. It is running several thousand feet out into the lake.

Q. Did you make any effort— A. (Continuing.) The Consolidated Water Company shows similar cases. In Concord we are replacing wrought iron cement lined pipe at the present time. Portsmouth, Berkley and Suffolk had some of the same experience. I beg pardon; the last question I didn't get.

Q. You criticized Doctor Bemis' depreciation as being excessive. Was Doctor Bemis' depreciation, as you understand it, based on the lives that you furnished in your estimate in this case, in your testimony? A. I think he said he used the lives Mr. Hill had used, which were approximately the same, but he used the straight line method of treatment.

Q. So that all of Doctor Bemis' testimony which you criticized was based on the lives used by yourself

and Mr. Hill. A. That was his statement. I accepted it as the fact. I haven't verified it. I assume it to be the case. I think that is practically what he said.

Q. Your criticism then, is reduced really to a criticism of the straight line depreciation method as against the sinking fund method. A. It is, sir.

Q. Has any of the companies mentioned in Exhibit P31 got one-half or nearly one-half of its investment in short lived steel pipe today? A. No; I don't think so, sir.

Q. The East Jersey and its affiliated companies have, have they not, pretty nearly one-half. A. I don't think so. I think you are mistaken about that.

Q. The Passaic Water Company certainly has. A. Well, taking the property as a whole, I don't believe that is true, and the records don't show it.

Q. That and their pumping station would be short lived, which would constitute almost half. A. I don't know. The figures will show. I don't believe that is true, Mr. Treacy. The figures will show. You can separate them. From the point of view of the percentage of property, it isn't short lived, of course.

Q. Well, a pump lasts as long as cast-iron mains. A. No. The only fair comparison, Judge Treacy, is of a pumping station with another pumping station. From the point of view of a pumping station and the machinery contained in it, this is a long lived property. That is all you are concerned with. You can't compare potatoes with boots. You have to compare the same kind of potatoes when you are discussing potatoes.

Q. You can compare cast-iron pipe with property that is not so long lived for the purpose of determining what is long lived property as against that of

short lived property. A. Upon property of the same kind. You may discuss cast-iron and steel and wooden pipe for doing that work, but when you discuss pumping stations you don't discuss the life of a pumping station with reference to the life of cast-iron pipe or with reference to the life of a reservoir. At least, I don't, sir, and my remark was addressed to the fact that they have substantial machinery there, they have hydraulic equipment which is of the same general character.

Q. Do any of these plants contain as large a proportion of steel in the pumping station and in the cast-iron pipe? A. I can't answer that offhand, sir.

Q. Do you know whether they have as large a proportion of total investment or property in the pumping plant and in steel pipe? A. My impression is that the condition at the Spring Valley Water Company, that would be so. I can't answer you offhand. They have, of course, a considerable number of pumping stations and very large pumps. They have long steel mains, mains which go out into the country forty miles or thereabouts. Others which go a distance of twenty odd miles, a very substantial element of property.

Q. There isn't any other you can recall? A. The percentage?

Q. The percentage. A. Well, the Denver-Union— Do you wish to include wooden stave pipe? The Denver-Union Water Company—

Q. No. I said steel pipe and pumping stations. A. I think the Portland Water District may have in it wrought iron cement lined pipe, but it had no pumping station at that time. I doubt if the percentage is equal in any of the others, as I have glanced over them. Maybe in the Portsmouth, Berkley and Suffolk Works, but I think it is doubtful.

Q. What is the proportion of water rights and rights of way in the Denver-Union Water Company. A. Those were all eliminated from these comparisons. I am dealing with the structures.

Q. You did not include them? A. No intangibles or anything of that sort or water rights.

Q. Well, the rights of way. You didn't include real estate either. A. No. I am dealing with the structures here.

Q. Is it your idea that abandonment should be included in order to arrive at the depreciation or percentage of depreciation in P31? I didn't get your idea in reference to that. A. What I said, Judge Treacy, was this: I thought a completer record of abandonment as well as determination of accrued depreciation upon existing property was helpful in forming one's judgment as to what the fair allowance for depreciation on existing property was. It was an aid to judgment, that is all.

Q. That is all. A. It isn't essential. My valuations have been made of existing property without reference to abandonment.

Q. You didn't intend by this Exhibit P31 that the abandoned property should be considered in arriving at depreciation on the existing property except insofar as it might generally throw light on the whole situation? A. That is all; as an aid to judgment and a check on this accrued depreciation on existing—

Q. How is it a check on accrued depreciation of existing property? How are the two items to be reconciled, abandoned property and depreciation on existing property? A. In the case of a newly created or young property they are of no assistance.

Q. No what? A. No assistance because there haven't been any material abandonments, they haven't

begun to feel the effects of age. In the case of a very old property that may be very helpful.

Q. In what way? A. In this case: When you reach a condition, for instance, of the property in which your abandonments are as great as the accrued depreciation on existing property, if you make an error in your determination of the accrued depreciation upon the existing property, but discuss the total depreciation from the point of view both of abandonment and accrued depreciation upon existing property, the error is cut in two, any error of judgment is cut in two.

Q. I don't quite follow you there. A. I mean this: If half of the total depreciation allowance represents abandonment and half of your total depreciation allowance represents your estimate of accrued depreciation upon existing property, one may be in error. If it is an error, if you use the total record as applied to the total property, that record, your error is cut in two, because there is no question about the accuracy of the abandoned property record; that is not a guess, that is a fact; it is not an estimate. The estimate is of accrued depreciation upon existing property.

Now, that came out very markedly in the Spring Valley Water Company where that determination was made, and where the two sides, the engineers on the two sides of the case used in the one case the sinking fund method and in the other the straight line method where the results were so high on the straight line method, even increasing the life of the property—take the cast-iron pipe, two hundred years instead of one hundred years as was done on the sinking fund. The result was so great that the Court didn't follow it. The Court followed the sinking fund method and

found practically what the engineers for the company had found. The same thing was true in the Denver-Union Water Company case. I can give you the comparison if you would like it.

Q. What I am interested in finding out is whether or not you say that this Board in fixing a determination upon the existing property must take into consideration both the existing property and the abandoned property. A. No, sir; I do not. I say merely that this record may be of aid to it in deciding what is a reasonable allowance for the accrued depreciation upon the existing property only.

Q. You referred to the Indianapolis Water Company case and I would like to get that settled in my mind. As I understand it, what you attempted to testify on your direct-examination to was the appraisal you made for the purchaser of the Indianapolis Water Company on a purchase of that plant by him. A. That is true.

Q. You had no reference to a rate making proposition? A. No, sir, except as the continuity of the income might be a factor in the case.

Q. And the fact was that several years later in the report of the Indiana Commission in the Public Utility Report which you referred to, the item of going values which were allowed by you on your appraisal for the purchase was not allowed by the Commission. A. Not in full. On the other hand, the gross income asked for was practically allowed by the Commission.

Q. I asked you as to the going value; that was my question. A. Yes.

Q. Your gross income, you say, was allowed, but the going value was not allowed. A. It was practically, yes. We got almost what we asked for.

Q. The gross income was affected by the cost exist-

ing at that time. A. That was a factor of course. The operating expenses reflected that.

After recess.

LEONARD METCALF resumes the stand:

Further cross-examination by Mr. Treacy:

Q. You stated on your direct-examination by Mr. Wherry that you estimated that Doctor Bemis took an estimated value of twenty per cent of the total instead of seven per cent. Then I think you subsequently stated that would be about eighteen per cent, that in your judgment he took as estimated cost, instead of seven per cent that he testified to. That was your statement, was it?

Mr. Wherry: May it please the Commission, that was in answer to questions on cross-examination brought out by Senator Brown. It was not in answer to questions I asked. That was the cross-examination by Mr. Brown.

Q. At any rate that was the answer you made to Senator Brown? A. Yes, in general. That is a general statement, I think, of it.

Q. Now, having made your statement will you show us how you arrive at it? A. Yes, with pleasure, sir. I took, in the first place, Mr. Bemis' jointly owned property, which amounts to $4,672,000 in round numbers; of that $567,000 is estimated probable cost, $185,000—

Q. Are you referring to an exhibit there? A. All this is taken from his exhibits. I think from Exhibit R1, is it?

Q. R1. A. The original exhibit. That large exhibit of his. The second item of one hundred and eighty-five thousand dollars covers interest during construction allowance on that jointly owned property. In the East Jersey Water Company—

Q. What was the first one? A. Five hundred and sixty-seven thousand dollars. Do you wish me to give you the details of that?

Q. Yes. That is in R9? A. Yes.

Q. Will you please take R9 and point it out so we may know just where you get it. A. On page 41 you will find his estimate.

Q. That is R1? A. I think so.

Q. Yes. What was that? A. You will find the item of water rights two hundred thousand dollars. Little Falls land improvement, page 41, $41,296. Page 54, land, $5,862.

Q. Wait a minute. Water rights two hundred thousand dollars? A. Yes.

Q. You say that was estimated? A. The two hundred thousand dollars?

Q. Yes. A. Yes. That is his estimate.

Q. What is your basis for stating that is an estimate? A. Because he didn't pro rate the actual cost. That is gotten by taking deductions between the original cost and the selling price. He didn't pro rate the cost.

Q. Didn't the company get the money? A. The company got the money.

Q. It got that two hundred thousand dollars. A. That is a fair accounting cost, according to my view. That is a pure estimate.

Commissioner Osborne: Pure what?

The Witness: Estimate. If he had accounted for

it properly, as an accountant usually would account for it and as I understood Mr. Matthews to say he would have accounted for it, he would have pro rated it, the proportion sold, on the original cost price. In other words, of the original cost price he would have taken that portion which was left after selling a portion; now, he didn't do that. He deducted the full selling price which included any profit which the company made on the portion sold, and the portion sold was but a small fraction of the entire amount.

Q. You estimate the value of the company's water rights purchased from the S. U. M. at one million one hundred and twenty thousand dollars, the amounts paid for them. A. Yes. I have said I thought it was a reasonable price.

Q. If the company was to sell for two hundred thousaid dollars a part of those water rights so that they could no longer be said to be used or useful in the service of these communities served by these water companies, isn't it fair that that two hundred thousand dollars should be deducted from the valuation upon which these communities should be charged a rate of return? A. You have a mixed question there. If I may explain, if I understand your question: The one million one hundred and twenty thousand dollars is an estimate of the value of the water rights. It has nothing to do with cost.

Q. But it was the actual cost. A. Pardon me; I am wrong. In this case it was the cost. You are right, Judge Treacy; I beg pardon; I overlooked that fact; I was thinking of the property at the Upper Falls, at the large falls. He then has said he took that from the cost figure. If the amount sold has been one-tenth and we were dealing with the cost, he would take one-tenth of that amount. As applied to

Mr. Bemis' reasoning (I state these figures offhand so they may not be precise) but it is my recollection the deduction would be somthing like a hundred and nineteen thousand dollars as against two hundred thousand dollars. Whatever the figures are he would have taken up from the cost the ratio of the portion sold to the original property bought. I wouldn't do that.

Q. You wouldn't take out from the cost the amount received? A. No, sir, I would not.

Q. For the sale of a part of that property? A. No, sir, I would not.

Q. Even though that sale took place within two years of the date of the acquisition of the property? A. No; I would not. I don't think that is a fair procedure.

Commissioner Osborne: In other words, if a property cost one hundred thousand dollars, the ten acres cost one hundred thousand dollars and they didn't need but nine and sold one and got ten thousand dollars for it, you would deduct for that?

The Witness: I would not assume that the remaining nine acres—

Commissioner Osborne: Cost ninety thousand dollars.

The Witness: No. I would not.

Commissioner Osborne: You would not assume the remaining nine acres cost ninety thousand dollars.

The Witness: No, I would not.

Commissioner Osborne: Why not?

The Witness: Because of the fact you are not deducting pro rata the portion of the property sold in doing that.

Commissioner Osborne: How would you treat it?

The Witness: I would treat it in this way: If it

was a fact that the average cost paid was one hundred dollars an acre then I would deduct one hundred dollars for one acre sold out of nine, if every acre was at like value. Here is a case, however, where instead of getting one-tenth of the price for one-tenth of the property they got nearly two-tenths of the price for one-tenth of the property.

Commissioner Osborne: Then how would you carry the balance, at what price?

The Witness: I would say that the historical cost—

Commissioner Osborne: What would you do with this extra one-tenth?

The Witness: That is profit on the property of the company.

Commissioner Osborne: It is not profit at all.

The Witness: It is profit; of course it is profit of the company on its operations.

Commissioner Osborne: It does not tend to reduce the cost to the company on the cost of the land.

The Witness: I think not. May I put the case in this way? Suppose it was sold ten years later and you got more than the cost figure. I wouldn't assume that the nine acres left had no value, and that is what Judge Treacy's question implies. I would assume when you are dealing with the cost to reproduce them you should deduct, if you sell one-tenth you should deduct only one-tenth of the original cost which if the present cost was one thousand dollars would be one hundred dollars, even though you sold it for much more than that. The difference between the two is profit. I am dealing now with cost.

Commissioner Osborne: You make the difference in profit and not in reduction of value.

The Witness: Not in reduction of value. I am dealing with present historical cost.

Commissioner Osborne: Suppose these actions were all consummated at the same time and as part of the deal you were able to bring in your customer and immediately upon acquiring the whole property you were able to dispose of what you didn't need and the result to you was a given amount of money.

The Witness: Yes.

Commissioner Osborne: You would treat it in that way. But if it happened next week or next month you would treat it in a different way.

The Witness: Not if I sold that in the first week. If I sold a portion of it, in my opinion, on a basis which showed me a real profit, I would not take that profit from the present cost of the property. I would deduct such portion of the selling price as would correspond to the ratio of the portion sold to the entire property bought. No more.

Commissioner Osborne: Treating the rest as a profit.

The Witness: Treating the rest as a profit. We are dealing, sir, solely with historical costs, bear in mind, if I understand Judge Treacy's question.

Q. Suppose that was sold to a public body, the City of Newark, for its water supply. A. I believe it was, yes.

Q. Do you think you ought to make a profit on the public and charge the remaining part of the public still with the amount of the profit? A. I think that has nothing to do with it. I think I am entitled, if you are going to discuss value now, I am entitled to earn rates on the value of the property in service, regardless of what transaction has taken place prior thereto of that sort. If I have been able to sell a portion of the property for more than I paid for the

whole, I still think there should be included in the rate base, so to speak or the fair value of the property which is in the service of the public.

Q. As a matter of fact, Mr. Metcalf, you found an item of two hundred thousand dollars, did you not, upon the books of the company? A. Yes, I believe that is the fact.

Q. So it wasn't an estimate insofar as the two hundred thousand dollars is concerned? It was actually received by the company. You don't object to the item of two hundred thousand dollars being used, but you object to the particular use of it? I don't know whether I make myself clear or not. A. I don't question that the amount was two hundred thousand dollars.

Q. Yes. A. I do, however, feel from my point of view that is original cost, sir; that is original cost plus profit.

Q. When you said that was an estimate or an estimated item, you didn't mean that the amount of two hundred thousand dollars did not come from the company's books, the figure of two hundred thousand dollars, as money received from water rights? That is, it wasn't a figure that was estimated or conjured up in the brain of an expert. A. No, I didn't mean to imply that. It was merely, it was the original cost according to my theory, and believing that I could only consider it an estimate on his method of treatment.

Q. What was the next item? A. Page 43, land, $41,296.

Q. Well, Doctor Bemis stated that was an estimate, didn't he? A. I am dealing now with things he stated was an estimate. I am not dealing with my theory but what I understand to be his statement. In

other words, I am trying to interpret what he has said in his own report.

Q. That $41,296 is an estimate that you criticize? A. I saw it isn't original cost, yes. He said so. I say he said so; that is all I have said.

Q. Did he state it was original cost or did he state that it was the figure taken from the company's books or from your testimony, the testimony of the company's witnesses in the case? A. It was not taken from the company's books. He stated, as I remember, it was the present day value placed on it by the company's witnesses.

Q. This figure was the company's own appraisal. A. The present day figure; not the original cost.

Q. $41,296. A. Yes.

Q. Have you any complaint to make with reference to that figure? A. That it isn't original cost.

Q. Should that figure be more or less? A. With respect to what? Original cost; it should be less.

Q. As a matter of fact? A. What kind of fact? Do you mean to apply it to original cost or fair value?

Q. No. I am asking you in the value of this property whether that forty-one thousand two hundred and ninety-six dollars should be a different sum or not. A. It should be a different sum when Mr. Bemis is dealing with original cost, because the value of the land has advanced and the original cost of the land was less than as shown, I believe. I understand from the records such to be the case.

Q. The value $41,296 is in your own value, fixed in your appraisal for this property in this case. A. Yes, it is, Judge Treacy, but it isn't original cost and we are discussing original cost. All that I have stated—

Q. As a matter of fact, it should be lower if it is taken as original cost. A. It should be, sir. The next item was page 54, another land item.

Q. That was taken in the same way, was it? A. It was taken in the same way.

Q. All right. A. Page 62, land on Great Notch reservoir, which I think was taken in the same way, $103,375.

Q. All right. A. The next item was the item of land, 76, $206,110. Those figures aggregate the sum of $556,643. We come now to the interest during construction allowances.

Q. Now, as I understand it, with that figure $556,643 you have no criticism as to its being a fair value for rate making purposes in this case. Your only criticism is if original cost was taken it might be less. A. With respect to the lands I have no question. With respect to the water rights I think the treatment—

Q. I am talking about this $556,000. A. That includes the two hundred thousand dollar item of water rights, Judge Treacy. Now, we come to the question of interest during construction allowances, on page 47, on structures, $68,992. Item 52 on equipment—

Q. Let me see; page 47; what was the amount? A. $68,992. That isn't original cost. Mr. Bemis said it wasn't. It is allowance for it.

Q. Of course he stated that that was not original cost, because no item of that kind was found on the books, or it was an allowance he made in excess of the original cost. A. It is an allowance he made.

Q. In addition to what he found as original cost on the books. A. In addition to what he found. What

relation it was to the actual facts we can't ourselves tell.

Q. You don't criticize his allowing more in any case than he actually found? A. No; to the extent he allowed more it is advantageous. I do criticize the amount allowed for overheads, his total is inadequate; his total allowance 3.4 per cent.

Q. He didn't get an overhead item. A. The amount of interest during construction, the allowance on interest during construction I am talking about.

Commissioner Bacharach: You think that sum is insufficient?

The Witness: I do, sir. His entire allowance was I think, about 3.4 per cent. Wait a minute; I am wrong about that; I think less than 3 per cent on the entire property on this Group 3 and 4.

Q. This item of $68,992.58, that is more than 3 per cent; that is over 5 per cent. A. Yes; that is true; in this case it is. If you take the sum on joint ownership property I think he found 3.4 per cent. The schedules—

Q. You think that is a fair allowance in that case for interest during construction upon that cost, $1,205,000? A. I can't tell you, Judge Treacy, offhand with respect to each group of property. With respect to the property as a whole his allowance I believe to be inadequate.

Q. You are criticizing this particular item? A. No, criticizing that allowance of interest during construction in this property.

Q. On this item of $1,205,000. A. I haven't the facts clear enough, in the manner he stated, to differentiate on each item. From my own point of view it isn't a safe procedure. The only way I can do it

satisfactorily is to take the property as a whole. To follow through each individual group of items leads to—

Q. This whole pumping plant and transmission line is $1,205,069. A. Yes.

Q. Upon which interest during construction of 5 per cent was allowed. A. That is true. I think it is probably too little.

Q. Over 5 1/2 per cent. A. I think it is too little. But, as I say, I have preferred to consider that as to the property as a whole, and with respect to the property as a whole the allowance is, in my judgment, inadequate. The next item is on page 58, structures, $29,081. The next on page 60—

Q. That is another criticism of interest during construction? A. It is all, these I am giving now.

Q. You say that is an estimated item? A. All of these are.

Q. And they are admitted by us to be estimates. A. They are. I am simply grouping them together here in one statement. Page 60, equipment, $11,781. Page 64, $20,101. Page 78, conduits, $30,983. Those items aggregate $184,578 or 3.4 per cent on the joint ownership property. We now come to the Aquackanonk property—

Commissioner Bacharach: That was interest during construction covering what property?

The Witness: Joint ownership. With respect to the Aquackanonk property, I have fixed the land items, page 126, $19,087. On the distribution mains and accessories on page 133 to 137, with respect to property built prior to 1902, $159,728.

Q. What is that made up of? A. I don't know. I haven't the books before me.

Q. What did you say? A. Under distribution mains and accessories.

Q. Just let us have the details of that. You say that is an estimate? A. May I have an exhibit and see if I can itemize them?

Q. The first item you gave was land? A. It was.

Q. Page 126? A. It was.

Q. That was what; nineteen thousand dollars? A. $19,087. I think you will find on page 127 a summarized statement in Mr. Bemis' exhibit from the years prior to 1885 to and including the year 1901 the original cost new. Mr. Bemis himself states he didn't have the records there. That he applied the average cost figures, as I remember, from 1902 to 1911 to the total property as he estimates it would have been at that time. It is admittedly an estimate on Mr. Bemis' part. It isn't a question of fairness, Judge Treacy; it is a question of whether it is an estimate or not. He attempted to take it from the books and the books don't exist. He didn't apply the cost figures of that date; he applied the cost figures of 1902 to 1911.

Q. What did you say the total was there? A. $159,728.

Q. Does that include land? A. No, sir; it does not. I just added up those items and they seem to add up about one hundred and fifty-nine thousand dollars. Is that all right? Is that clear? The testimony relating to it must be somewhere around four, five or six, somewhere around there; I testified how I got it in the beginning.

Now, the next figure is $5,614, entitled, "Unidentified"; at the foot of that same page there, page 127; that is the item.

Q. With reference to the items prior to 1902 you are aware that Doctor Bemis testified he had records of cost of much of that property which he got from various records of the company? A. Earlier than that date.

Q. Earlier than 1902? A. No, sir. He had some assistance between the years 1899 to 1902 from the engineers' records, not from the books, not complete records. He applied, I think he said, the prices covering the period 1902 to 1911 as representing, in his judgment, a fair price.

Q. Will you turn to Exhibit R9, page 9, the Aquackanonk Water Company? A. I haven't got the exhibit here. If you will give me a copy I will do so with pleasure (witness handed copy of exhibit).

Q. Page 9, in the next to the last column on that page Doctor Bemis set up an estimated cost aggregating $94,976? A. Yes.

Q. That is detailed further on? A. Yes.

Q. What exception do you take to that estimate? A. I don't know. That set-up is not in accord with his original set-up in R1.

Q. In what way? Will you point it out? A. Yes. I may say to you, Judge Treacy, I made these figures out we are discussing now before this last exhibit had been put in by Mr. Bemis. Page 6 of Exhibit R1; I quote, beginning with paragraph transmission mains and accessories: "As previously explained, the company's records prior to 1912, did not clearly define the cost of the various elements of property. Since 1902, it has been the custom of the engineer for the company to prepare summaries of the cost of construction at the end of each year, using as the basis for these summaries, the actual

amount of work done, together with the actual cost of labor and material, as shown on records kept by himself during the year. This record was used by us in determining the quantities of mains laid each year. The cost as shown in the engineers' summaries did not include such costs as supervision, engineering, inspection, stable expenses, etc. Neither did this so-called cost include the salaries of persons whose salaries were paid weekly or monthly. These further costs were added to the engineers' cost by the bookkeeping department and were called 'suspense.' These additional costs were placed on the engineers' summaries during all years since 1911. During the period from 1902 to 1911 inclusive, this was not done, but the differences between the engineers' costs and the records in the bookkeeping department indicated that the bookkeeping records included the item of suspense, whereas the engineers' record did not. This suspense for the total period from 1902 to 1911 inclusive was found to be 17.4% of the cost shown in for the purpose of preparing estimates for mains in- the engineers' record. This percentage was obtained stalled prior to 1902. All costs as shown on the company's books subsequent to 1902 were used, but prior to that date, very little information as to costs could be obtained. Certain engineering record costs were found for the period from 1898 to 1901 inclusive, to which 17.4% was added for 'suspense' and 5.6% for 'miscellaneous.'" And he estimates, of course, that is what it had been for the period subsequent thereto. "This latter percentage was determined by analyzing the records from 1902 to 1911 inclusive, in the same manner as in determining the 17.4%. For all mains laid prior to 1898, estimates were prepared, there being no record of the cost of

this construction. After careful consideration of all of the elements of cost entering into this class of construction, it was decided that the average cost of laying mains during the years 1902 to 1911 inclusive would represent a fair estimate of the cost prior to 1898. These average costs during 1902 to 1911 inclusive, were, therefore, used, and allowances of 17.4% for 'suspense' and 5.6% for 'miscellaneous' were added."

Then he goes on to speak of cement mains. It seems to me on his own statement they were estimates; I am not discussing their adequacy; I don't know about that. I don't think he can tell because he didn't know the years when they were laid and prices even this morning fluctuate markedly in value during that period.

At the time of my analysis his Exhibit R9 had not been put in and I made my figures up from his Exhibit R1. When Exhibit R9 was put in his estimate differed from my interpretation of those remarks contained in R1 in which he said everything prior to 1898 was estimated.

Mr. Brown: I understood the question was, what criticism you had of the estimate on Exhibit R9, page 9, what criticism you had to that estimate?

The Witness: He went further. The effect of the question was how it differed.

Mr. Treacy: What you have done is to quote from the beginning of this report. His Exhibit R1 checks up this item of ninety-four thousand dollars in detail. For instance, turn to page 136, the fifth line.

The Witness: Page 36?

Q. Page 136 of R1. A. Yes.

Q. Twenty-inch cast-iron pipe, valves and fittings,

lineal feet 14,150, $44,431; do you think that was not obtained from the books and records of the company? A. For the year 1890, is it?

Q. Yes. A. 1890?

Q. Yes. You assumed everything prior to 1902, I think it was, was a pure estimate and not obtained from the books? A. That is the only answer I can give you, sir, which has governed my answer, "All costs as shown on the company's books"—

Q. What are you reading now? A. Page 6.

Q. You have read that. You made no investigation yourself to determine whether any of those items prior to 1902 were merely estimated or taken from the company's books? A. No; I didn't; I took Mr. Bemis' statement.

Q. As a matter of fact, that item of $44,431 may have been evidenced by a contract? A. They may have had some evidence in the years 1889, 1890 and 1891—wait a moment; pardon me. They may have had certain contracts. Mr. Bemis himself states, however, what I have read in regard to the period prior to 1898 and also prior to 1902. I have followed his statement this is all.

Q. If that item of $44,431 was taken from a contract, you wouldn't state then that it was an estimate in the sense you have been stating these items were estimates? A. No. If it did not provide there were no additional expenses incurred by the company itself in addition to the contract price; as far as that item itself is concerned I wouldn't question it was original cost.

By Mr. Brown:

Q. The difference between the set-up on page 9 of Exhibit R9 and the set-up in Exhibit R1, you said

they weren't the same, the estimates weren't the same and you proceeded to point the difference out by reading from Exhibit R1? A. Yes.

Q. Now, is there any further explanation you have got to make wherein there is any reconciliation between those figures? A. I haven't the means for reconciling them. I took Mr. Bemis' statement; I interpreted that statement as fairly as I could and I got the result of about one hundred and sixty-four thousand dollars.

Q. Instead of? A. Instead of ninety-five thousand dollars as shown on Exhibit R1. He states perfectly specifically back of that date he had to make an estimate, and I have taken the figures he put in as representing the work done back of that date as shown in his Exhibit R1. The two exhibits, R1 and R9, on the surface, don't appear to be just the same. Whether he had additional light then I don't know.

Q. You say there is a difference by your computation of over five thousand dollars, or thereabouts? A. There was a difference of over fifty thousand dollars; sixty thousand dollars.

By Mr. Treacy:

Q. You didn't take Exhibit R9 which attempted to reconcile it, did you? A. I did not, subsequently. My figures were based on R1.

Mr. Treacy: All right.

Mr. Brown: I don't understand the question, Judge. I understood Mr. Metcalf to refer to Exhibits R1 and R9 and say in the testimony they weren't a reconcilement; that is to say, the estimates of cost on R9, page 9, were not reconcilable with R1.

The Witness: That, Senator Brown, isn't just as it occurred. I stated that my computation had been based on R1, which was the only exhibit he furnished at that time, when I made my analysis. Then Judge Treacy called to my attention the statement contained in Exhibit R9 and asked why I hadn't followed that. My answer was, I followed Mr. Bemis' own statement contained in R1, which I read, with the result which I have stated, according to my interpretation of his plain statement he didn't have the records back of those dates.

By Mr. Brown:

Q. This will possibly bring the answer out: Is there any difference then or irreconcilability between Exhibits R9 and R1, as far as you can find on that particular item on page 8 of Exhibit R9? A. I can't answer that question, because I haven't seen all of the evidence which Mr. Bemis says he has found in the notes of the engineers. I haven't attempted to wade through that. They were not on the books of the company. They were notes outside of the account books, as stated by Mr. Matthews, so I have not attempted to go beyond the first analysis that I made. When you come to take sample records of contracts, those are on different records, because very often the work is done partly by contract and partly by day labor where the company furnishes certain material, and how far that took place here I have no means of knowing; Mr. Bemis has no means of knowing because he said the records didn't exist.

By Mr. Treacy:

Q. Now, page 10 of Exhibit R9 sets forth in the last two columns, estimated cost $83,976, book cost

$519,467 and in the year 1890 a book cost of $49,988. Do you say that $49,988 is not cost obtained from the records of the company? A. I don't know, sir. I have only Mr. Bemis' statement.

Q. This is his statement too? A. I understand.

Q. Exhibit R9 is his statement? A. I understand, sir. I infer from what has been said he has found some contract which may be covered by that item. I don't know.

Q. Will you proceed with your next? What is the total you make up in that way? A. $159,728 plus $5,614.

Q. Now, will you turn to Exhibit R9, page 9; point out to us where the excess of estimated cost above the $94,976.11 set forth on that page as estimated cost is to be found, in what item? A. I don't know, sir. I have no means of knowing. All that that exhibit shows, page 10, R9, shows, is that the costs were estimated from the year 1897 inclusive, backward, except one item which he says is book cost. Those two add up to about one hundred and thirty-four thousand dollars. I have no means of knowing what the other items are. I have gone by his Exhibit R1. That is the only evidence upon which my statement is based.

Q. You didn't attempt to reconcile the figures at all, R1 with R9? A. No, sir; I didn't.

Q. You took a broad statement here in the beginning and interpreted it as meaning that no book costs were obtainable for anything prior to 1902? A. I took his absolute statement on that.

Q. Notwithstanding the fact that if you had examined the exhibits you would have found that wasn't correct insofar as the items were concerned? A. Well, at the time I made the estimate I didn't have—

Q. You didn't go through the exhibits for that purpose? A. The exhibit didn't exist.

Q. It does exist. A. Now it does exist.

Q. It has since the last hearing? A. Yes, and I have been put in the position of not knowing which is right; the two seem to be at variance with each other. At least, I haven't the means at hand or the information Mr. Bemis has and I haven't interviewed all his men and—

Q. You talk about book figures and the sheets appearing in evidence; if you had examined R9 you would have found these items to have existed, on page 9? A. I would have found that one item in that one year, which he states is so and so at that time when he states the books didn't exist.

Q. That would be an item of approximately fifty thousand dollars; forty-nine thousand dollars? A. Yes; at a time when he says there wasn't a book. In other words, it isn't an account book entry, as I understand his statement, but probably some contract he has found somewhere, at least that is the only interpretation I can give, Judge Treacy, of his own statement.

Q. Will you take the next item? A. Yes, sir. I come to meters, meter boxes and vaults.

Q. What page? A. I think 140 and 141, $13,011.

Commissioner Bacharach: How much?

The Witness: $13,011; several items probably, years 1898 to 1911. That again is governed by Mr. Bemis' general statement.

Mr. Wherry: That is the same explanation?

The Witness: Yes, page 148, meters, meter boxes and vaults, $2,422. That makes a total of $199,862 with respect to the Aquackanonk Company and one item, one only, I believe.

Q. The $199,000 includes the $164,000 you have already given? A. Yes, sir; it does. One other item, one only, on interest during construction of $4,310 being an allowance of 3 per cent—

Q. How much? A. $4,310. We come now to the Passaic Water Company; I have an item of land—

Q. What page? A. Ninety; $28,380. The next item is under distribution mains and accessories, page 102, year 1901, $5,060; $10,464; $15,663; $12,539.

Q. Where are those items? You say 102? A. 102 and 103, I think. I may have gotten the pages wrong. I haven't checked these up. The total item $5,060 is made up of the two items of miscellaneous construction $1,483.60 and suspense $3,576.36.

Q. You say that is all on— A. Page 102, middle of the page, under the year 1901. In other words, he spoke of the basis in which he determined cost of laying from the later period, so I have eliminated those laying prices only because he assumes, I think, cast-iron prices from the book there.

Q. You say that is an estimate? A. I say that is in accordance with his statement made on pages 5 to 6; wasn't it? I read the statement before. It is contained in his Exhibit R1. I have taken it direct from his statement.

Q. You didn't hear Mr. Matthews testify he used the trial balance of the company for that year, did you, to get at those amounts? A. No. If that is the case that ought to be eliminated. I took Mr. Bemis' statement, which I have already read attached to Exhibit R1. In a similar way for the year 1900 $10,464.

Q. In what year? A. 1900.

Q. Do you know in that case Mr. Matthews used the trial balance? A. No. I don't. It may be. I

was following Mr. Bemis' statement. In the year 1899 $12,539.

Q. That is for the two items, miscellaneous construction and expense? A. I presume they are, sir. Let me look and see.

Q. In that case was Mr. Matthews' testimony that he used the company's trial balance to ascertain that amount? A. At the time I made this out Mr. Matthews hadn't testified. I was taking Mr. Bemis' statement in R1.

Q. Do I understand you to say 18 per cent out of Doctor Bemis' 7 per cent is estimated? A. No; I didn't say that, sir. I said of Doctor Bemis' original cost analysis upwards of 18 per cent was estimated, according to my interpretation of the statements, which he has made in Exhibit R1 and substantially as the case stands today.

Q. When you say that Doctor Bemis estimated 18 per cent instead of 7 per cent, you include in that 18 per cent the interest during construction? A. I do, certainly. I have already shown that.

Q. But Doctor Bemis does not include it? A. In his 7 per cent, I think that is true.

Q. And also the land? A. Yes.

Q. Which he does not include? A. Yes.

Q. And which he specifically stated was not included? A. Yes, that is true.

Q. And as to all other items they were costs obtained from the books and records? A. No; I don't admit that for a moment. That isn't true. It isn't true on his own statement. For instance, Judge Treacy, his treatment of the water rights question is another item which he omitted which he says was on the original cost.

Q. What water rights question? A. The rights purchased under contract (was it 217 or 213 or some other figure) for which one million dollars was paid. That is not included in any 18 per cent, but it is another item.

Q. Of course, Doctor Bemis don't purport to set up here a value based upon certain costs, but a value based on historical cost? A. Well, it isn't historical cost.

Q. That is what Doctor Bemis contends it is at any rate? A. Yes, I think he does.

Q. And historical cost, as he has arrived at it, is a cost taken from the books and records of the company with 7 per cent estimated? A. No, I think—

Q. With such deductions as he thought should be made, as, for instance, the item of water rights? A. Yes, with many deductions which he—a number of deductions which are material and with an estimated interest during construction, which I think is inadequate; overhead allowances which I think are inadequate and he has referred in his exhibit again and again to book costs, not historic costs, book costs.

Q. I have no objection to your criticism of any estimate he may have made, but as to the items that appear on the books which may represent historical cost, I would like to know what part of the 93 per cent you say is not taken from the books. Can you point that out? A. No; I don't know that I can. I have not segregated it in that way.

Q. The 93 per cent he refers to or stated as having been taken from the records of the company admittedly exclude interest during construction and land value? A. Yes, they did.

Q. Then, you have no right to say that 18 per

cent of that 93 per cent or any part, or 11 per cent of that 93 per cent was also estimated? A. 11 per cent of the 93?

Q. Yes, you said there was 18 per cent? A. I don't think I said that; I haven't meant to say that. I have said 18 per cent of the historic cost. Now, the cost includes overheads and interest during construction allowance. I am dealing with the question, the figures as finally arrived at.

Q. Weren't both of you dealing with different sets of figures? A. Yes, I think that is true, sir. I don't think you can directly compare the 7 per cent with the 20 per cent, because certain other items have gone into my base which I have discussed. Of course, my 20 per cent I have not included this contract for water rights, nor have I included Mr. Bemis' interpretation of the unidentified property aggregating approximately one million dollars as having represented abandoned property. My conjecture is if there is that real difference, some portions of it should have been ascribed to the actual historic cost of items that Mr. Bemis is discussing.

Q. You didn't include that one million dollars in your appraisal? A. The one million dollars in my appraisal?

Q. No. A. I haven't made any appraisal of the historic cost.

Q. You have made an appraisal of this property? A. I have made an appraisal of this property.

Q. You valued the water rights at one million one hundred and twenty thousand dollars? A. For the Great Falls rights, yes; not for the others.

Q. What have you valued the water rights of this company at? A. I valued them in two sums, one for the Little Falls and one for the Great Falls.

Q. At Great Falls. Did you include that one million dollars which you spoke of which was paid back in 1887 for water rights? A. Of course I didn't. I wasn't dealing with historical cost. I should have included if I was dealing with historic cost, the costs paid and bonds still outstanding, if I were dealing with historic costs; but not dealing with the value or reproduction cost. I think the two are entirely distinct.

Q. Didn't they buy the same rights when they paid one million one hundred and twenty thousand dollars? A. No, they did not.

Q. What was the difference? A. The difference was this: The one million dollar payment originally went to pay for rights which had been enjoyed in part for a period from about 1857 to 1861, was it —1863, ten years, and in major part that is so of the three hundred thousand dollars, the rights which had beeen enjoyed for the period 1867 to the time of payment, which was—what was the date—1887, a twenty-year period. That took care, adjusted the difference. The adjustment by the company included water used not only in the service of the public, but also generated power to pump the water that was used in the service of the public during this period of years. We find for it three hundred thousand dollars.

Q. Weren't they operating costs to that extent? A. No. I don't so regard them.

Q. How could you consider they were capital charges? A. Because they owned the property, they used the property in the service of the public at that time, they bought that right.

Q. And it has gone out of the property, it is no longer in the property? A. Perhaps I can answer

you best in this way—may I finish the first question? You have interrupted me so I haven't told you what the total payment was for. The remainder of the payment looks forward to the future. It covers first, the utilization of water diverted for the service of the public, and, second, the water used to generate power for the pumping of that water that was used in the service of the public during the period of years from 1887 to 1907 or 8. It covered also the right to store water on the river and to utilize that water in the service of the public up to an amount of not exceeding fifteen million gallons a day.

Q. Fifteen million gallons? A. Fifteen million gallons per day. The storage was never built on the river. That portion of their right lapsed. They had, however, enjoyed the right in one form or another from 1857 and from 1857 to 1907 without any payment except these payments, and those rights covered the use of water for the service of the public and for pumping water. The price paid for the S. U. M. rights of one million one hundred and twenty thousand dollars, was paid in 1922, not in 1857 or 1887, and to make the allowance in the original cost of one million one hundred and twenty thousand dollars for the right to divert seventy-five million gallons, without storage, is not at all supplanting the right to store and divert fifteen million gallons a day and it is not taking care of the service of the public during the period of years from 1857 to 1922.

In other words, as I interpreted it, Judge Treacy, some portion, some substantial portion, if not the whole, of that money should go into the historic cost. It isn't the value. I don't contend that the value of

the property is the sum of that one million dollars and the allowance for the Little Falls and the one million one hundred and twenty thousand dollars for the Great Falls, but when you talk about historic cost it is a different matter, as I see it.

I don't think it can be said it is an operating cost, because the company itself did not treat it so; it actually issued bonds against it and it included not only the water used but an adjudication of a very serious issue over a long period of years between the two companies, the sort of thing you can't get when you capitalize the amount they pay.

Q. The fact is, as far as that one million dollars is concerned, that is water that has all gone over the dam; the public are enjoying nothing out of that today? A. Oh, yes, they are.

Q. What is it? What are they enjoying? A. The consolidation at the time of the adjudication of the issue as between the companies, issues which were settled and were paid for.

Q. What consolidation? A. I don't mean "consolidation." I mean at the time that this agreement was arrived at in 1897 between the two companies which had been at issue, that is, the S. U. M. and these companies, which had been at issue for a number of years, as that contract recites. A settlement of the issue was effected, it became part of the cost of the company, it was treated by the company as a cost, securities were issued against it. Those securities are still outstanding. I don't see I can do otherwise when I am dealing with historical cost than include that.

Q. When the property has disappeared and there is nothing to show for it? A. That is always true

when you consolidate two companies; you paid something, but you can see no property there.

Q. Let us get away from the technicalities of the case, whether it should be charged as historical cost or ought not. The fact is if the property has disappeared there is no reason why the public should pay charges on it? A. I don't think the situation can be characterized in that way, Judge Treacy.

Q. Didn't those rights cease in 1907? A. I think the right to divert fifteen million gallons of water did cease at that time, probably.

Q. What still remains of any of those rights, that this public is enjoying today? A. The one million dollars covered something more—

Q. No; I am talking about this right, what part of the fifteen million gallons is anybody getting today? A. None of that I think, sir; none of that fifteen million gallons today.

Q. And it was abandoned? A. What was abandoned?

Q. The right to divert at Little Falls was practically abandoned—Great Falls, I mean, as far as that contract was concerned? A. No, sir. Well, wait a moment; it was superseded by a new contract. That is the better way to put it.

Q. The new contract provides for the payment of five million per day? A. Yes, provides for the payment of water that was used.

Q. That was in 1907? A. Yes.

Q. From 1907 to 1922 that was what was paid? A. That is true.

Q. In 1922 the S. U. M. sold its right to seventy-five million per day? A. Yes.

Q. To this company? A. Yes.

Q. In the face of that you say that a contract that

was cancelled and terminated fifteen years ago ought to be charged against the people using that water today? A. I haven't said any such thing, Judge Treacy.

Q. All right; I thought you did? A. If you will pardon me.

Q. All right. A. If you think that is what I said, I would like to explain my position again. I have drawn a sharp distinction between original cost and fair value. My own estimate shows that.

Q. Will you give the totals then aggregating this 18 per cent? A. I will, sir.

Q. As to the other companies. You start with the Aquackanonk and you are on Passaic; you had land $28,380. What is the next item, the total? I suppose you have there interest during construction? A. I have got on Passaic $673,162 and interest during construction $18,894 and a partially estimated cost $61,034 on the Kearny Water Company.

Q. What was the interest during construction there? A. $18,894. On the Kearny I have $11,034.

Q. For what? A. For the estimate of probable cost and on the interest during construction allowance $9,558.

Q. How much; eleven thousand dollars? That is land again? A. I will check it up for you. It may be, sir.

Q. Well, that is on page 5 of Exhibit R9, land $11,034? A. That is right. It is, page 35.

Q. Which is your reproduction cost that Doctor Bemis took? A. And not historic cost, yes.

Q. You really haven't any quarrel with that? A. I have from the point of view of historic cost, of course.

Q. You haven't from the point of view it is what the company should earn on? A. No, I have not. Then on the Kearny extension he allowed interest during construction $9,558; page 86 to 87, I think.

I think I have mentioned all of them now and it gives me out of a total valuation of $9,573,000, $1,483,000 or 15 1/2 per cent is made up of estimate; $217,340 or 2.3 per cent if made up by interest during construction and of the partially estimated cost, $86,942, or nine-tenths of one per cent, making a total of 18.7 per cent and those do not cover these other items which we have discussed.

Q. This item of $1,483,000 you say is your total of estimated cost? A. Yes.

Q. Consisting of $556,643 of land in the jointly owned property? A. No, not land. Land and his two hundred thousand dollars of water rights which I say wasn't historic cost.

Q. That is part of the five hundred and fifty-six thousand dollars? A. It is, sir.

Q. Five hundred and fifty-six thousand dollars which Doctor Bemis admittedly left out of his 93 per cent? A. Yes.

Q. And similarly, the item of land for each of the separate companies; the Aquackanonk Company nineteen thousand dollars, approximately; the Passaic twenty-eight thousand; the Kearny eighteen thousand; I haven't the East Jersey, I don't think you gave that; but in each case the land was in as a part of that $1,483,000? A. That is true.

Q. Why did you put that in, the land in and the interest during construction as a criticism of the 93 per cent, when Doctor Bemis stated he didn't include it in the 93 per cent? A. I didn't put it in that way. I put it in in my statement that of the

historic cost as presented by Mr. Bemis at least those figures were involved.

Q. But he didn't state that the land or the interest during construction was involved in this 93 per cent? A. No, Judge Treacy, but the examination has been directed towards the question as to whether Mr. Bemis' estimate of historic cost as a whole represented historic cost and I say, in my judgment, it did not, that without considering that contract on water rights, and I think there were one or two other items, the total amount of the estimate amounted to about 18 per cent of his total sum.

Q. I know you have said that, Mr. Metcalf. I am talking about the items which Doctor Bemis specifically stated were not included in his 93 per cent, land and interest during construction which aggregate probably seven hundred thousand dollars of this total of one million four hundred thousand dollars. Doctor Bemis stated that those were not included in the 93 per cent as set up by him on these exhibits, yet you say that of the 93 per cent they form a portion; I suppose that would be eleven per cent? A. It might be something like that. I don't know the exact figure. It might be ten per cent; it might be nine per cent; it might be eleven per cent of the figure which he has covered by his seven per cent.

Q. You didn't set up what portion of the 93 per cent which Doctor Bemis— A. I have not done that.

Q. You have not done that? A. I have not done that. If you got the impression in my evidence I was attempting to compare that directly with the seven per cent as representing everything covered by me, that is not the fact. I have been discussing, I have been trying to discuss the portion of the historic cost estimate that we have been discussing.

Q. I know how your mind is traveling, but what I am interested in and what I suppose the board will also be interested in is, what the actual situation is, without reference to bookkeeping figures, as to the property that is being today used and useful in the service of the public. A. Very well, sir. Then with respect to that; I don't know just what the difference is. It might be seven to ten per cent. I think it is —I am confident it is in excess of seven per cent because of these items to which I have referred tying to Mr. Bemis' statement in R1, and also his estimate neglects one million dollars of unidentified property which I do not think can be neglected in a discussion of historic cost.

Q. There again you are talking about historic cost, when I say what I want to find out is what property is being enjoyed today by the public. I thought we had finished that subject. A. Mr. Bemis, as I understand—

Q. You have admitted that one million dollars has gone over the dam? A. I do not.

Q. You admit that contract terminated in 1907? A. I do, sir.

Q. You admit it was superseded by another contract? A. I do not admit that the subsequent contract which was entered into covered everything that was covered by the original contract.

Q. What didn't it? Why didn't it and what didn't it cover? A. It didn't cover one million dollars bonds that were outstanding; they were part of the historic cost of these companies.

Q. Weren't they put out for water that was used? A. They were put out partly for water that was used and partly to settle issues between the companies which they had with the S. U. M.

Q. What issues? A. I don't know. The contract reversed that. It isn't my assumption. It is stated in that contract.

Q. What do you know about it? A. I know nothing but that contract.

Q. The contract is the best evidence of that. A. It is, sir.

Q. And that is from 1867 to 1887 or 1907 the people used the water and paid for the water in accordance with the contract that was entered into for the purchase of those water rights the one million dollars, whatever the sum was. A. The three hundred thousand dollar payment included something more than the water diverted at the Great Falls dam.

Q. What did it include, you said store room? A. No, no storage.

Q. Was it ever used? A. The water?

Q. The water. A. The water was used below Great Falls; the dam was lower down the stream.

Q. The storage was never used. A. The storage was never used, except such as existed above the Great Falls dam, they never built the storage contemplated by the contract, no. Whatever the issues were between the two companies are referred to in the contract.

Q. What was that? A. I have no means of knowing. A very substantial sum was placed on them.

Q. Yet you are going to place a value on them? A. Many times in the histories of companies it is included as a matter of value. I am not going to include it, as you very well know.

Commissioner Bacharach: If you were making a historical cost would you also include it?

The Witness: No. Include the bonds still outstanding; its capitalization.

Commissioner Bacharach: There was a capitalization and they paid one million dollars.

The Witness: Yes, sir.

Commissioner Bacharach: And issued bonds.

The Witness: Yes, sir.

Commissioner Bacharach: Wouldn't there be, besides the interest, a sinking fund to take care of the bonds?

The Witness: The books don't show. The books don't exist.

Commissioner Bacharach: Wasn't that natural where they put out one million dollars, to have a sinking fund?

The Witness: I am credibly informed the bonds are still outstanding. I know of no sinking fund created on the books of the company.

Commissioner Bacharach: It would be clear to me, as a business man, they would have to have a sinking fund and therefore the public by paying the rates paid for a sinking fund.

The Witness: I know of no evidence to that effect.

Commissioner Bacharach: And whether it ran fourteen or twenty years or in that proportion, it would appear clear to me.

The Witness: I know of no such fund. I am told the bonds are still outstanding.

Commissioner Bacharach: It may be they used the sinking funds for other purposes.

The Witness: I don't know about that. I really don't know. I do want your Honor to draw a very sharp distinction between the value of these rights and historic cost.

Commissioner Bacharach: You claim Doctor Bemis has gotten up a historic or original cost.

The Witness: I don't think he has, no. I think he has a modified historic cost.

Commissioner Bacharach: Why; because of the fact he has partially taken land at present day value?

The Witness: Yes, partly because he has excluded this property, whatever it was in addition to the water rights, whatever it was against which bonds were issued and are still outstanding, because he has made allowance for interest during construction which he thinks did not exist; his allowances, at all events are not on the books; because he ignores one million dollars of property which he can't account for, which he thinks was probably amortized as abandoned property.

Q. Wasn't that one million dollars property water? A. I don't think so. I don't know.

Q. You said it was the right to use the water. A. You are talking about this contract now?

Q. Yes. Isn't that what you mean? A. No. I am talking about the one million dollars; these two items. Two hundred and twenty-five thousand dollars and seven hundred and seventy thousand odd of unidentified property which appeared when he attempted to reconcile his estimate of cost with the books of the company.

Q. Don't you know, Mr. Metcalf, that Doctor Bemis did not profess to account for the bonds or securities that had been issued in historical cost, but what he attempts to account for is the historical cost of the property that is there today? Don't you know that is what Doctor Bemis attempted to set forth here? A. I don't think he has done that in what he has done, in his treatment of that question; I don't think that is what he has done.

Q. In what respect? A. In respect to this adjudication of the issue between the two companies against

which securities were issued in substantial amount as a capital sum.

Q. There is no property there now. A. There were rights there.

Q. There aren't any rights there. A. What right have we to say there aren't any rights when very substantial sum—

Q. No; I am asking you a question. There are no rights there now. A. Then, very well; you assert there are no rights—

Q. I say there are no rights there. A. You assert there are no rights there.

Q. Yes. A. I say that a very substantial sum of money, one million dollars, was paid at that time to settle differences of opinion with regard to the rights, to settle the enjoyment of those rights over a long period of years and whatever else was included.

Q. And they expired. A. The actual use of water for the communities, the actual advantage of pumping derived from them alone did not accord with that full sum.

Q. What allowance have you made in your appraisal for these rights you say now Doctor Bemis left out? A. I have made none because this is dealing with historic cost and I am dealing with value.

Q. Doctor Bemis is dealing with the historical cost on the present day property. A. Yes. He asserts there is nothing left of that; I don't think that is a fact.

Q. You didn't include it yourself in your value. A. Yes, I think I have.

Q. You haven't set it up anywhere. Where? A. I think my value of the water rights has taken it into—

Q. Point it out. We took the same value he took, one million one hundred and twenty thousand dollars.

A. I think I have valued in that adequately the water rights of the company.

Q. We have taken that too. A. Yes. In addition to that in dealing with original cost you were dealing—

Q. You are getting now again in the same circle. A. Well, it is a capital account which you are ignoring. That is all I say.

Q. A capital account which you ignore yourself. A. I wasn't dealing with historical cost.

Q. We are dealing with historical cost and Doctor Bemis is dealing with historical cost as applied to the present day property. You are attempting to inject into the value of the present day property an item of one million dollars paid for water consumed between 1867 and 1887 and on a contract that terminated fifteen years ago and is superseded by another contract and you are trying to force in Doctor Bemis' value the one million dollars which you yourself did not see fit to put in. A. No. That is your statement.

Mr. Treacy: I guess that is all.

Mr. Wherry: I produce that contract asked for and ask that copies may be substituted in evidence for the original contract.

Commissioner Bacharach: Is there any objection?

Mr. Treacy: What are those?

Mr. Wherry: This is the contract that has been referred to, contract 173 in regard to the one million dollars which were paid for water rights. That is a copy of it.

Commissioner Bacharach: Is there any objection?

Agreement between S. U. M. and Passaic

Water Company received and marked Exhibit P34.

Further DIRECT-EXAMINATION by Mr. Wherry:

Q. Mr. Metcalf, when you stated there was no question of the record of abandoned property, did you mean no question of the record or abandoned property in that exhibit which gave the list of abandoned property? A. No, sir. I used that expression as a general one, that when a property was abandoned and went out of service that was a definite fact; it wasn't a matter of estimate. In the case of the estimate of accrued depreciation on existing property it was a matter of opinion.

Q. You meant in your exhibit, you have no trouble in finding the record of abandoned property, in your exhibit. A. My own exhibit—P31, was it? The record there covered by abandonment covered abandonments that have actually taken place and record of the fact.

Mr. Wherry: All right.

By Mr. Treacy:

Q. You say abandonments are a matter of fact and are not an estimate? A. Abandonments are a matter of fact with respect to property that has actually come out of service. That may be a matter of opinion with respect to property which is still in service, as in the case of one or two of the reservoirs here.

Q. Are those reservoirs in service A. I am not raising an issue with regard to the reservoirs here which we have admitted are practically out of serv-

ice. What I wanted to distinguish, Judge Treacy, was between the remark which I made with respect to abandoned property and the estimate of depreciation on existing property, which property has actually come out of service; that is a record of fact. Property which is still in service and you estimate the depreciation, that is a matter of opinion based on facts.

NICHOLAS S. HILL, JR., resumes the stand on behalf of petitioners.

Further direct-examination by Mr. Wherry:

Q. Some question has been made as to certain property which was deducted which you apparently deducted from the final value and not from the 1912 valuation, that was included in that. Have you prepared any table to show what property you have actually excluded from your base in comparison with Mr. Bemis so we can have for convenience the two items? A. Yes, I have. I have prepared an exhibit taking the property which has been excluded by Mr. Bemis and also the property which has been excluded by me, priced on the basis wherever possible of the appraisal of the original Board of Appraisal, so as to estimate the comparison as near as possible.

Table showing comparison of cost of reproduction of property not used and useful as given by P35. Bemis and N. W. Hill, Jr.

Q. Mr. Hill, have you made any calculation as to the cost per capita of waterworks plants on pre-war basis? A. Yes, I have.

Q. In the vicinity of New Jersey? A. In the vicinity of New Jersey.

Q. Will you give me that data? A. I took three places with which I was familiar. First, the City of East Orange—

Mr. Treacy: What is this? Is this rebuttal or something new?

Mr. Wherry: No; this is rebuttal; the cost per capita.

A. (Continuing.) First, the waterworks plant of the City of East Orange, which is a municipally owned plant, taking the plant assets, less accrued depreciation, from the books of the water department, the cost per capita is $26.68 for the plant installed prior to December 31, 1919.

I also took the Citizens Water Supply Company which supplies Elmhurst and the second ward of the City of New York, which I appraised on a pre-war basis in 1915, nearly all the costs of which included in the inventory were taken directly from the books, and find that the value per capita is $38.17.

Q. Including the distribution system? A. That is including the distribution system.

Commissioner Bacharach: Where was that?

The Witness: That was the Citizens Water Supply Company which supplies the second ward of the Borough of Queens.

Mr. Treacy: The Borough of Queens?

The Witness: Yes. The third is the Hackensack Water Company, which was appraised by this Commission as of December 31st, 1913, and the value per capita was $33.22.

Q. In regard to the question of accrued depreciation, it has been stated that apparently you use two inconsistent methods of ascertaining accrued deprecia-

tion and annual depreciation. Will you please state what you did use and whether they are inconsistent or not? A. Answering the second question first: I do not think that the method which I have used is inconsistent. Secondly, explaining the method, or repeating the explanation which I gave in my direct-examination: I have divided the total depreciation of the property into three parts; first, loss of service or value due to decretion which I estimate on the sinking fund basis using 3 per cent as the rate of the sinking fund investment. The second portion of depreciation is that due to deferred maintenance which cannot be estimated by any method and which can only be ascertained by an actual inspection of the property under appraisal.

The third element of depreciation includes discarded, superseded and unused property which is not serviceable at the time the appraisal was made. That is a portion of the depreciation which has accrued in the past.

The sum of those three items make up the total depreciation allowance. And then there is the amount which is allowed or deducted, as the judgment of the appraiser, which should be deducted from the estimated total of the appraisal based on any given period of time.

Now, in the case of this property, taking the ten-year average basis, I estimated the total value of this property to be, or the total cost of reproduction to be $15,637,959. From that figure I deducted property which I did not consider used and useful and placed in Account 150 as capital, fixed capital in another department, $342,317, as the depreciation due to decretion.

Mr. Treacy: What are you testifying from?

The Witness: I have a memorandum. I have no exhibits. It is my personal memoranda I am testifying from. I said first that I deducted for discarded and superseded property and charged to Account 150 fixed capital in other departments $342,317 as the decretion of the depreciable items $1,547,146.

Special depreciation on the Totowa, Stoney Road and Middle reservoirs one hundred and fifty thousand dollars.

General reductions or reduction to my estimate of fair value $598,496, and a total deduction of $2,637,959 which, taken from the cost of reproduction new on ten-year average prices of $15,637,959 gives my fair value of thirteen million dollars.

Reducing this to the basis of the annual depreciation loss makes 1.356 per cent per annum in the past as compared with my allowance of one and one-half per cent for the proper annual reserve for depreciation, or as close as you can probably get two figures to coincide of that kind.

Mr. Wherry: I have no further questions. I would like to have noted on the record the date at which Montclair petitioned for the condemnation of the property is August 27th, 1921, that is the date of the petition served on the company, August 27th, and the matter is still pending.

Adjourned until Friday, December 29th, 1922, at the Kinney Building, Newark, N. J., at 10:00 o'clock A. M.

BOARD OF PUBLIC UTILITY COMMISSIONERS.

Newark, N. J., Friday, December 29, 1922.

Before: Commissioner Joseph F. Autenreith, Esq., Thomas Brown, Esq., counsel.

For the petitioners, appear W. M. Wherry, Esq., and L. Edward Herrmann, Esq.

For various municipalities, appears John J. Treacy, Esq.

NICHOLAS S. HILL, Jr., recalled on behalf of petitioners.

Cross-examination by Mr. Treacy:

Q. Mr. Hill, referring to P35, in the first column of figures you set forth the items of abandoned or unused property as given by Mr. Bemis? A. Yes.

Q. And in the second column and Column 3, I think you number it, those apparently which you say are the abandoned or unused properties, is that right? A. Well, that is substantially correct, yes.

Q. I see here, Totowa and Middle reservoirs, $129,610 in Mr. Bemis' list of unused property? A. Yes.

Q. And an item in your list "see below"; what is that "see below"? A. Mr. Bemis, if you will recall, classed all of the lands and structures at Stoney Road, Totowa and Middle reservoirs as not used and useful. I made a deduction of $150,000 as special depreciation on those three items. I did not take out everything, because the Middle reservoir is in service, and I show the difference in that way, that I did not classify it as land or structures, but made a special

deduction of $150,000 and that "see below" refers to the $150,000 item below.

Q. Do you question the accuracy of the figures of Dr. Bemis as to abandoned and unused property, if that property is abandoned and unused? A. No, I did not put that exhibit in for that purpose. I put it in to show the comparison; that is all.

Q. You testified, Mr. Hill, concerning three water companies yesterday. The Hackensack was one of them and I have forgotten what the other two were; to show the per capita cost? A. Yes.

Q. Of the properties of those various companies? A. Yes.

Q. Was it your purpose to make a comparison between those companies and the companies involved in this proceeding? A. Only those companies which distribute water, that is, the Aquackanonk, Passaic and Montclair.

Q. That is as to those companies that own their own distribution systems? A. Yes.

Q. And it would not be comparable with, for instance, the East Jersey Water Company which does not own its own distribution system? A. No.

Q. You referred to a memorandum from which you were testifying and of which you have given Dr. Bemis a copy under the item "Deductions to get fair value." First, is the fixed capital in other departments, Account 150, $342,317? A. Yes.

Q. Will you explain just what that is? A. That is the property that was excluded as not used and useful and was put into Account 150, fixed capital in other departments; in other words, it was not included in the estimate of the value of the property. It is a portion of the property shown in Exhibit P35.

Q. Does that item of $342,317 represent property

that is worthless for waterworks purposes? A. Well, I would not use that term, no. I should say it was property which in my judgment was not used and useful at this date.

Q. For any purpose? A. No, I would not say that. It was not used and useful for the purpose of this utility as a water utility and should not be included in estimating a base for rate making.

Q. Has the value to the company for the purpose of sale for other purposes disappeared? A. Has it—I did not get that.

Q. Has the value to the company for the purpose of sale for purposes other than water supply disappeared? A. I did not go into that question at all.

Q. Would it necessarily represent depreciation then? A. What?

Q. If the value remains there for other purposes, would it necessarily represent depreciation? A. Why, yes, it represents this; this company had during its history made certain investments for water supply purposes and these items of property are part of that investment, and I have excluded them. If I wanted to get the total value of all the property they would not be excluded, but I have excluded them and that is part of the depreciation which has accrued in the past.

Q. You would not say it has not any value? A. No, I should not say it has no value.

Q. Would you claim for the same reason that the $598,496 is depreciation? A. Yes.

Q. Is that depreciation? A. That is depreciation, that is absolute depreciation.

Q. In what way? A. I made an estimate of the value of this property on the basis of ten year average prices, and that value I found to be $15,637,000

in round figures. I placed a value upon the property of $13,000,000. After deducting the other items which I included in depreciation, there was left a residue of $598,000 necessary to make the difference between my valuation of $13,000,000 and the actual valuation of $15,637,000. In other words, that is what you might call judgment depreciation. I placed a value on the property that much less than if I had taken the actual appraisal as a basis of valuation.

Q. Does it represent depreciation on the ten year average? A. Well, I would say yes.

Q. Did you figure it out? A. Oh, no.

Q. What you got was $13,000,000 and then you concluded that in order to make up the difference you stick in $598,000 as depreciation? A. No, I did not do that; that was not my way of doing it.

Q. You took your ten year average and on the ten year average you made no attempt to compute this item of depreciation of $598,000? A. I do not believe in computing depreciation. I do not think there is any way by which depreciation can be computed in that sense.

Q. That remians in the judgment of the engineer? A. I think you can estimate the loss of service life, the loss of value due to loss of service life, with a reasonable assumption of life expectancy of the different elements of the property. But you cannot take care of deferred maintenance, the loss of value due to the property probably going out of existence in a short time, because of changes which obviously will be necessary in the near future, or other things of that kind. That is a question of judgment and not of computation.

Q. That is a question of judgment and every engineer would have his own judgment and likely to

have a different judgment on it? A. I presume that is true.

Q. What does your item of $10,907,762, which you testified to yesterday as gross reproduction cost of depreciable property used and useful represent? A. It represents buildings, structures, pipe lines, machinery and equipment, in other words, the depreciable property.

Q. Is that amount of $10,907,762 the depreciable property or undepreciated? A. That is cost of reproduction of the depreciable property.

Q. Is it cost of reproduction new? A. Yes.

Q. Without depreciation? A. Yes.

Q. Can you tell me what it is depreciated? A. No, I cannot, offhand.

Q. Can you tell us how much of it was undepreciable and how much represented depreciable property? A. I say that is all depreciable property, that represents the depreciable property.

Q. You have used your judgment as to depreciation; what is your judgment as to the amount that should be depreciated? A. I do not care to make a statement of that kind.

Q. How much of your $13,000,000 was undepreciable property and how much was depreciable property? A. Well, I should say—

Q. Haven't you any figures to show that? A. I did not bring all my details over here this morning because I did not think that they would be required.

Q. Let us have your estimate of it. A. I should say that probably $3,000,000 represented the undepreciable property, in round figures, that is, land, water rights and other things of that kind.

Petitioners' Witness, Nicholas S. Hill, Cross

By Mr. Brown:

Q. You testified in regard to P35, that you agreed with Dr. Bemis or had no criticism to make about his schedule of property that was not used and useful. Then again you said that Dr. Bemis did include in that classification the Middle reservoir and you did not. A. Yes.

Q. You differ with him in that particular, do you not? A. The difference between us is this: Dr. Bemis took out the entire value as he estimated of the Middle, Totowa and Stoney Brook reservoirs, including the land and structures. In my judgment $150,000 special depreciation was a fair allowance for the depreciation on those items of plant, for the reason that the Middle and Stoney Brook reservoirs have been in service more or less for a number of years past and the Middle reservoir is now in service.

Q. The Doctor has the Middle reservoir here as valued at $10,000. What value did you place on that? On the Stoney Brook, what value did you place on that? A. I would have to get a copy of my inventory for that. The base cost of that reservoir was $17,400, of the Middle reservoir was $17,400, the Totowa $45,400 and the Stoney Brook $100,000.

Q. That would not account for the difference as shown in P35 between your figures. A. No, that does not affect it at all.

Q. Mr. Hill, you made up the schedules that were filed in this case on February 1st, 1922, and again on June 7th, 1922? A. Yes.

Q. I notice the valuation in both schedules is the same; that is true, isn't it, both schedules are the same? A. The valuations? Yes.

Q. And your fixed charges are the same in both schedules? A. Yes.

Q. In the schedules filed February 1st, 1922, before the Board decided the East Jersey interest or its utility connection, you had a rate for the Passaic Water Company of $1.30 for the first 10,000 cubic feet and in the last schedule, the amended schedule you filed you have increased the rate $1.60 for Passaic and $1.90 for the Aquackanonk? A. Yes.

Q. Can you state why you increased the rates that way when your value is the same and the fixed charges are the same? A. May I ask a question? Do you refer to the rates that were filed with the petition for an increase in rates?

By Mr. Wherry:

Q. Mr. Hill, the question has been asked you as to whether you could compute accrued depreciation. Will you please state why you cannot compute accrued depreciation? A. Because there is no law governing the rate at which depreciation accrues. It is due to so many different factors that you cannot reduce it to a mathematical expression. The amount of maintenance that is put on a plant affects very largely the depreciation which accrues; that is a matter of management that you cannot control by formula. The quality of the materials that were originally used and entered into the construction of the property materially affect depreciation. The judgment exercised in selecting the units or in developing a property, in foreseeing the future of the property, materially affects the amount of property which is superseded, discarded or thrown out. There are so many factors, human and material, that it is impossible to reduce it to a mathematical equation.

Q. The annual allowance for future depreciation

is reduced to a mathematical equation? A. No, it is not. The annual allowance for future depreciation?

Q. Yes, the annual allowance for future depreciation; it is based on tables of average lives? A. No, it is not. It is based, I should say, more generally on experience, on what is required in similar properties, from experience, to take care of depreciation and to make the replacements as they occur.

Q. Don't you take the life of the property according to average lives of similar properties without regard to the actual conditions? A. Yes, but that is only a help.

Q. In forming annual depreciation? A. It is only a help in forming annual depreciation. One year the depreciation, the replacements may be very heavy, another year they may be light, but you say that from experience, knowing the life of certain elements of the plant, it is fair to allow so much to take care of those replacements, and that estimate may prove in the light of experience not to accord with the facts.

Q. Then in the case of accrued depreciation you have the actual condition and experience to go by in estimating the amount to be deducted? A. Yes.

Q. Whereas in annual depreciation you have got to make a prophecy as to the future? A. Yes, that is true.

By Mr. Treacy:

Q. Mr. Hill, the item of $147,910 in your memorandum, entitled, "Annuity at 3 per cent to produce accrued depreciation," does that represent your idea of the annual depreciation of this property? A. Not necessarily, no.

Q. What is the annual depreciation? A. I allowed as a fair reserve for depreciation, annual depreciation, one and one-half per cent per annum.

Q. Do you know what it amounts to in dollars? A. It is not very far from that figure. It may be about $150,000 a year, something like that.

Mr. Treacy: Have you any other witness?
Mr. Wherry: No, I have no other witness.

E. W. BEMIS, recalled on behalf of municipalities.

Direct-examination by Mr. Treacy:

Q. Dr. Bemis, you heard Mr. Hill's criticism or remarks concerning the list of abandoned property that you set up in this appraisal, this proceeding; were there any comments you desired to make with reference to that? A. Yes. He unintentionally had the wrong heading, I am sure, in the column he professed to quote from my report, in what was put in yesterday as Exhibit 35; he has a column headed, "E. W. Bemis, Original Cost," totalling $546,393; that column represents not original cost, but represents my quotation of the appraisal put on those several items of property in 1912 by the board of three men, of which Mr. Hill was one member. That did not purport to be an original cost, but purported to be the reproduction cost less depreciation, representing the fair value that they ascribed in that year to these various items, and I used it to show that those items should have been excluded from the appraisal of 1912 before bringing it up to date. There may have been some other items I wanted to exclude also—yes, there were. There was paving over mains and various other things, bond discounts. But with respect to

these particular items the column here does not represent original cost, that is what I wanted to correct. His column represents, of course, as he purports to have it, what he had deducted on the same item, and he had not deducted as much because he assumed some of these properties were still in use. That was all on that. I did want to comment on another point. I wanted to comment on the criticism of my figures on the depreciation that Mr. Hill put in. He gave me a copy of the memorandum. In order that my comments might be intelligible I had a copy of his memorandum struck off for the use of the Commission, being an exact copy of this memorandum which he handed me last night.

Commissioner Autenreith: Do you want to offer this in evidence, Judge?

The Witness: For the sake of understanding my comments it might be offered in evidence.

Mr. Treacy: Yes, better offer it in evidence.

Copy of Mr. Hill's memorandum from which he testified December 28th, received and marked Exhibit R12.

The Witness: I wanted to say, he reaches a depreciation in that Exhibit R12 of $2,637,959 by adding four items. The first item, however, I do not recognize as depreciation, for he has stated this morning that it represents property not used for waterworks purposes, but it may have a value for other purposes, it may be salable and, therefore, its scrap value must be deducted, and since part of it is land where those reservoirs are located, there must be a good deal of value, therefore, it should not be written off as depreciation merely because it is trans-

ferred from waterworks property to non-waterworks property, except so far as there is depreciation and there is in part. And I have my doubts as to the last item being real depreciation in view of the testimony this morning, being rather the difference between the $13,000,000 which seems to me to be his conclusion of fair value from many yard sticks, as Mr. Metcalf has used the term, rather than a direct reduction of depreciation on his ten year average. The point I want particularly to bring out is another point entirely. Near the bottom of the page he has a figure of $147,910 as the annual depreciation and as testified this morning it is very close to the figure which he thinks is about $150,000, which he used in his exhibits, and I think it is myself. And he also calls attention here to the fact that this is based on the figures of this page, which are on a three per cent sinking fund basis, and he speaks of the life of the property as being the total life of the property, as being 73.2 years and the age fourteen and one-half of the existing property. Accepting his figures, that means a further life of this property now in use of 58.7 years. Now, assume that you have $147,910 put into a three per cent sinking fund for fifty-eight years. It happens that one dollar a year put into a sinking fund, in fifty-eight years amounts to over $151 at three per cent. The $147,000 a year would therefore in fifty-eight years not only wipe out the $7,907,000, which he testified this morning was approximately the depreciable property, because he said this morning it was about $3,000,000 less than the $10,907,762 which he has next to the last line, that about $3,000,000 was undepreciable; this $147,910 a year will not only wipe out the $7,907,000; it would not only wipe out the $10,907,000, but it would bring

$22,334,000, leaving out the odd figures in fifty-eight years and leaving out the seven-tenths of a year also, showing that on his own basis of a three per cent sinking fund, $147,000 a year is over twice as much as is necessary. On a straight line basis I do not think it is too much, but on a straight line basis the accrued depreciation would be considerably greater as I show in my exhibit. So this $147,000 put into a sinking fund, as he has calculated, would be extravagant on the basis of the sinking fund table. That is the chief point I wanted to bring out. In other words, you cannot ride two horses; you have either got to take the sinking fund or the straight line and I hold you have also got to do two things—I do not know that Mr. Hill has done that—

Q. Did Mr. Hill attempt to ride two horses in fixing past depreciation and future depreciation?

Mr. Wherry: I object to that. The record speaks for itself. Mr. Hill stated what he did and the witness stated what he thinks he did. I object to any statements of this witness. I object to it. Let us have a ruling on it.

Commissioner Autenreith: Why can't the witness criticize this as well as he has the rest of his testimony?

Mr. Wherry: I do not think it is proper testimony.

Commissioner Autenreith: I will hear it anyhow, Mr. Wherry,

The Witness: What I am chiefly concerned in pointing out, however, is that the annual depreciation and the accrued must be on the same basis. If you are going to say that a main has a life of one hundred years for the purpose of fixing your annual deprecia-

tion, it has got one hundred years for the purpose of fixing your accrued.

Now, I agree fully that the determination of whether it is one hundred years or whether it is two hundred years or whether it is seventy-five years must be in part a question of observation and weighing of all facts and not merely the selection of an arbitrary table of lives, but having once determined from all points of view the probable life, then that life equally applies to the annual and the accrued. I cannot see any other way of treating it. And it does not meet it to say that he cannot rely on the table and must take observations. Of course, you must take observation, although you cannot do it so much in mains as you can in pumps and boilers, because you cannot see the mains so well; they are buried, and all that. But having fixed, from all points of view the life, as Mr. Hill and Mr. Metcalf have done, of one hundred years on mains and other lives which I am not disputing, on any of the other property, then I say the accrued and the annual must absolutely go together. I cannot separate them in my own mind. Furthermore, a point was made yesterday—

Mr. Wherry: I object to the witness going along and making a long lecture here on some other point.

Commissioner Autenreith: I think we ought to have a question pending.

Q. What else have you to say with reference to Mr. Hill's criticisms?

Mr. Wherry: I object to that as being entirely too vague.

A. It was about a criticism of Mr. Metcalf's on abandonment—

Mr. Wherry: Wait a minute.

Commissioner Autenreith: I did not hear the question.

Q. What else have you to say with reference to Mr. Metcalf's criticism of the list of property, abandoned property, set up by you? A. My depreciation instead of being 36 per cent as he figured it out—in Exhibit P32 put in yesterday it is claimed that my depreciation is 36.9 per cent of the cost new. The accrued depreciation on the actual existing property is less than 26 per cent of my appraisal of the depreciable property and only about 20 per cent of the total property, land and rights included. In other words, the depreciation was fixed at 36.9 per cent in that exhibit by including abandonments which have been in my theory cared for by the $5,000,000 of earnings in excess of six per cent in the last twenty years.

Q. What have you to say with reference to Mr. Metcalf's criticism of your method of setting up past depreciation or accrued depreciation and annual depreciation and with reference to his sinking fund method of starting out with a sinking fund only from the present time? A. It throws a burden on the future consumers which the straight sinking fund does not throw.

Q. Will you please explain that thoroughly so the Commission will understand just what Mr. Metcalf has done in this case and how fair it is to the present and future consumers? A. Suppose we take a main with a life of one hundred years, suppose we assume it cost $100,000 and suppose twenty years of its life have gone. On a straight line method, twenty one-hundredths or twenty per cent, $20,000 would be taken

out, provided we agreed, as we do in this case, that the life is one hundred years. Suppose we apply the sinking fund. What would have accumulated in twenty years in the sinking fund at an agreed rate per cent? Suppose we say three per cent. Unfortunately, not knowing that this question was to be asked in this way, I have not before me the exact figure of what would be in the sinking fund in twenty years at 3 per cent, but I do not think it would be over $7. Let us assume that for the moment that there would not be over $7 in the sinking fund at the end of twenty years, but there would be, say, $7 in the sinking fund and there would be a small annual amount added to that every year, which compounded at the end of one hundred years—

Q. I do not think you understood my question, Doctor. In order to estimate the annual depreciation or the depreciation for the future did Mr. Metcalf, as you understand it, begin with the present time to establish his sinking fund and disregard any sinking fund as to the past? A. I was coming to that. Mr. Metcalf disregards the seven dollars supposedly in the sinking fund, in my illustration, and says that since there is no sinking fund to draw compound interest at three or four per cent, whatever you use, you have got not only to put into the sinking fund from now on during the remaining eighty years what would ordinarily go into the sinking fund for the property that had one hundred years life, but what must go in for eighty years life of the property now in use at its depreciated amount. In other words, he foregoes the benefit of any sinking fund or compounding of interest on the existing sinking fund, since there isn't any, and makes the burden on the consumers during the remaining eighty years of the

life of that main larger than the straight sinking fund would give, to say nothing about being very different from what it would be with a straight line method where you would have a big depreciation accrued as well as annual. That throws a burden on the future users because they do not have a sinking fund. Mathematically he brings out his result correctly, but a company that has had a profit in the past sufficient to take care of depreciation on a sinking fund or on a straight line, whichever you use, he says should not be treated as having set it up if it did not set it up. But it seems to me if depreciation has accrued and the company has had the money to meet it, the depreciation should be written off and should be treated as if they had a proper method of treating it from the start.

Q. Is that what Mr. Metcalf did; as to past depreciation he first said that it should be fixed by the sinking fund method? A. Yes.

Q. Then as to future depreciation he left out altogether any consideration of past depreciation and allowed nothing for past depreciation, but charged the whole depreciation which this property would suffer for the entire life, to the future life of the property? A. That is part. Then he went on only half way between your position and the position that I think he should have taken. What he did was this: He did not ignore accrued depreciation, but he ignored the amount that would be in the sinking fund in determining the annual rate for the future.

Q. That is what I mean? A. But he did not ignore the seven dollars in my illustration, the actual depreciation, but he said ninety-three dollars would have to be amortized in the remaining eighty years without the benefit of the sinking fund of seven dollars now there.

Q. So that as to the customers, present and future customers, they did not get the benefit of the earning power of the seven dollars? A. Of the earning power of the seven dollars during the remaining eighty years.

Q. Which meant a higher rate to the present and future customers? A. Exactly.

Mr. Treacy: All right, Mr. Wherry.

Mr. Wherry: I would not ask him any questions. The Board's own decisions are so inconsistent with what he said, and they must govern.

CLYDE POTTS, sworn on behalf of municipalities.

Direct-examination by Mr. Treacy:

Q. Mr. Potts, what is your business? A. I am a consulting sanitary engineer.

Q. Where is your place of business? A. 30 Church Street, New York.

Q. Have you analyzed the contract which the City of Bayonne made with the New York & New Jersey Water Company for the purchase of the contract which the New York & New Jersey Water Company had with the East Jersey Water Company for the water supply to the City of Bayonne? A. I have, yes, sir.

Q. Have you analyzed that for the purpose of ascertaining what was paid for the contract and for the purpose of ascertaining what would be a fair price for water for the City of Bayonne in consideration of the amount paid for that contract?

Mr. Wherry: I object to this question as calling for a conclusion of this witness, where the contract is now in evidence and speaks for itself. The contract is in evidence and counsel can make such argument as he wishes, but it is improper to put a witness on and have a witness make a sworn argument.

Commissioner Autenreith: Does the contract show the price?

Mr. Treacy: The contract shows the price. That is not my question.

Commissioner Autenreith: Is your question for the purpose of getting an expert opinion?

Mr. Treacy: An expert opinion as to what —if the stenographer will read my full question.

(Question read.)

Mr. Wherry: There are three things there, but take the question of whether he has analyzed the contract to see whether the rate provides what Bayonne paid for the contract—

Commissioner Autenreith: He has already said he analyzed it in the previous question.

Mr. Wherry: The contract must speak for itself.

Commissioner Autenreith: No question about that; the contract does.

Mr. Treacy: He is not speaking for the contract. The contract is in evidence.

Mr. Wherry: Yes, the contract is in evidence.

Commissioner Autenreith: I take it Judge Treacy wants to get the opinion of the witness as to whether that price was a fair price.

Mr. Treacy: No.

Commissioner Autenreith: Then I have misconceived the question.

Mr. Treacy: Under the decisions of the Courts, the City of Bayonne contends that it has paid for the contract to the New York & New Jersey Water Company, to which company the East Jersey Water Company was obliged to supply water under a contract; it has paid a certain amount of money for that contract. It outlaid that money, laid out that money in good faith for the purchase of that contract, and the East Jersey Water Company has adopted that contract. Now, then, the City of Bayonne in the fixing of rates, so far as the East Jersey Water Company is concerned—it is the supplying company—will be entitled to an equitable adjustment insofar as the price paid by the City of Bayonne for that contract is concerned. I think there is a recent case in the United States Supreme Court; it is the case of Ortega versus Treay or Wichita Gas Company against the Town of Wichita, in which it is held that where a utility enters into a contract to supply a customer at a certain price that the customer will have an action in damages against the utility for the failure to give such supply even though it may be that there would be a question of discrimination as between that customer and the other customers. The City of Bayonne at any rate, wants to get its position on the record so it can take steps to protect itself.

Mr. Wherry: My objection goes right to the substance of this thing. If the City of

Bayonne did pay something for the contract, that is a fact that must be proved with other facts and cannot be proved by opinion evidence or analysis made by somebody.

Mr. Treacy: Why don't you let him go on? He will show it.

Commissioner Autenreith: It is in the case?

Mr. Wherry: The contract is in the case.

Commissioner Autenreith: The contract is in the case as to what the City of Bayonne paid?

Mr. Wherry: Exactly.

Commissioner Autenreith: I will receive the testimony and see what it is. I cannot follow it at the present moment. It may be quite material.

Q. (Question read.) A. The question divides itself into two answers—

Mr. Wherry: Then I object to the question being put in that form and ask that he make one question that can be answered.

Mr. Treacy: I did not think we were in a Court of law here.

Mr. Wherry: I have to see what this thing is.

Mr. Treacy: This Board is not bound by the strict rules of evidence. I want to know whether it is going to be let in or ruled out, just for the purpose of getting the case on the record for the City of Bayonne.

Commissioner Autenreith: I will not entertain the objection, because if it is a mere matter of facility in testifying I will leave it stand. Go ahead with the answer.

The Witness: The City of Bayonne had a contract with William D. H. Washington and Turner A. Beall, which was later assigned to the New York & New Jersey Water Company, for the supply of water to the City of Bayonne. They contracted to bring water from the corner of Kearny Avenue and Belleville Turnpike into Bayonne, for water at a certain schedule of rates, which was set forth in their contract with the city. That contract or franchise is in and there is no need of referring to it. It provided that water would be supplied to the City of Bayonne at a certain schedule of rates, for the first two million gallons consumed each day, eighty-nine dollars per million, for the third million gallons eighty dollars per million, for the fourth million gallons seventy dollars per million, for the fifth million fifty-five dollars per million and for the sixth and those in excess thereof at the rate of forty dollars per million.

Q. You are reading from the contract? A. Yes, sir. Turner A. Beall and William D. H. Washington had no supply, so they contracted with the East Jersey Water Company to furnish them with the water which they in turn proposed to sell to the City of Bayonne. The price which they were to pay the East Jersey Water Company was thirty-five per cent of the amount which they were to receive from the City of Bayonne. In 1918 the City of Bayonne determined to buy out the pipe lines and properties of William D. H. Washington and Turner A. Beall, known as the New York & New Jersey Water Company.

Q. They did buy them out under the contract that is in evidence? A. Yes. After negotiations with these gentlemen or the corporation they represented they did buy them out. In order to fix the price at

which they would buy them out the City of Bayonne employed—

Mr. Wherry: May it please the Commissioner, does this man know from his personal knowledge anything about this?

Commissioner Autenreith: I suppose so. The testimony sounds like it.

Mr. Wherry: It has not been brought out that he knows.

Q. Do you know that happened? A. I do. I am consulting engineer for the City of Bayonne at the present time and have been for four years past and have had access to all the records.

By Mr. Wherry:

Q. Do you know it from the records? A. Yes, sir.

Mr. Wherry: Then I object to this. The records are the best evidence.

Mr. Treacy: Are you referring to the records now?

The Witness: I am.

Mr. Wherry: I object to it. He has got to put the records in.

Commissioner Autenreith: Is it a mere matter of historical recital?

Mr. Wherry: I don't know. I just want to find out. If this thing can be shown as a fact let him show it as a fact.

Commissioner Autenreith: That is what I assumed he was leading up to; that this was a mere recital.

Q. Go ahead? A. Go on from where I was?

Q. Yes? A. In order to fix a price at which they would buy them out, the City of Bayonne employed two engineers to make a valuation of the properties of the New York & New Jersey Water Company. They each submitted reports to the city. Mr. Vermuele, Cornelius C. Vermuele submitted a report dated June 7th, 1913, in which he recommended the purchase of the property of the New York & New Jersey Water Company at a price of $2,304,323, in which he included an item of—

Mr. Wherry: I object to his stating what the report included. It is Mr. Vermuele's report and it speaks for itself.

Q. You are reading from the report? A. I am, yes, sir.

Commissioner Autenreith: Have you a copy of the report?

Mr. Treacy: We can furnish a copy of it.

Mr. Wherry: Let them put that in evidence.

Mr. Treacy: It is in evidence already.

Mr. Wherry: No, it is not in evidence.

Mr. Treacy: It is in evidence from the first hearing.

Mr. Wherry: It has never been put in evidence.

Mr. Treacy: We will offer this in evidence.

Commissioner Autenreith: If it has not been it ought to be I think, when we come to the question of figures.

Mr. Treacy: We will offer again the Bay-

onne contract, the Vermuele report and the Hill report upon the purchase of the Bayonne contract from the New York & New Jersey Water Company.

The Witness: He included an item of $1,351,765 as a consideration for the contract which Turner A. Beall and William D. H. Washington had with the East Jersey Water Company for the purchase of water, that being considered a very desirable contract and having that value.

Mr. Nicholas S. Hill, under date of July 1st, 1913—

Q. That is the same Mr. Hill who has testified here? A. Yes, sir—made a report to the city in which he put a valuation on this property of the New York & New Jersey Water Company, dividing his valuation under five heads.

Q. What value did he put upon the contract? A. He valued the contract, source of supply; he gave the source of supply value $738,518; that is the value which attached to the works by reason of this favorable contract with the East Jersey Water Company.

Mr. Wherry: I object to his stating that. This report must speak for itself.

Commissioner Autenreith: The report is in evidence. This is a mere statement of what it contains.

Mr. Wherry: I think it is entirely improper.

The Witness: I will accept the paragraph in Mr. Hill's report; the source of supply value is based on the difference—

Q. Read from the contract so as to convince Mr. Wherry? A. The source of supply value is based on the difference in cost of securing the water from other available sources as compared with the cost of obtaining water through the purchase of the New York & New Jersey Water Company.

Q. Now, then, proceed? A. The total valuation which Mr. Hill fixed on the property of the New York & New Jersey Water Company including the supply contract was $2,254,688. The city, following the submission of the Hill report and the Vermuele report, the city had an appraisal made of the plant by Mr. Reichhelm and Charles A. Dana, one representing the city and the other the water company, and these gentlemen put a value on this supply contract of $683,179.

Mr. Wherry: I object to his stating that these gentlemen put a value on it. He is not responsible for their report. The report will speak for itself. It has not been put in evidence.

The Witness: This appraisal is shown here on page 16 in this book.

Mr. Wherry: Did you put the book in evidence?

Mr. Treacy: Yes, the appraisals are in evidence. The book is in evidence for the purpose of the contract and the appraisal.

Mr. Wherry: This book has never been put in evidence, Judge Treacy. You had a copy made of the assignments which was marked Exhibit O1. These appraisals and this history contained in the pamphlet has never been put in evidence in this case.

Mr. Treacy: Suppose you mark it in evidence.

Mr. Wherry: I object to its going in evidence. I object to showing what the contract price that Bayonne paid was in this way. The contract speaks for itself and it shows Bayonne paid two million dollars or something for land, buildings, rights of way, pipe lines, contracts as stated in there.

Commissioner Autenreith: No question about that. I think it does speak for itself.

Mr. Wherry: There is no way of telling what part of that, if any part of it, was for the contract price.

Mr. Treacy: The appraisal shows how the purchase price was made up, the appraisal of Mr. Hill and Mr. Vermuele.

Commissioner Autenreith: That part of it that Mr. Hill is attached to may be valuable. I cannot tell yet. It may be a contradiction of his views as already given.

Mr. Wherry: No, they are not claiming that, I do not think.

Commissioner Autenreith: I do not know. I cannot tell myself yet. I am waiting to get the answer all in and see what it is.

Volume of information and documents, relating to the properties purchased from the New York & New Jersey Water Company by the City of Bayonne, received and marked Exhibit R13.

The Witness: Following these reports and appraisals the City purchased the property of the New York & New Jersey Water Company, including an

assignment of this contract to purchase water from the East Jersey Water Company, for the sum of $2,017,000.

Q. What was Mr. Hill's appraisal of the entire property, including the value of the contract? A. $2,254,688.

Q. In which he gave the value of the contract as $738,000? A. $738,518.

Q. The city purchased it for $2,017,000?

Mr. Wherry: When you say that, you are referring to the source of supply value item, aren't you Judge Treacy?

Mr. Treacy: Let me continue.

Mr. Wherry: I object to his question because the report of Mr. Hill speaks for itself and there is no item in that report which corresponds to the question which he asked, save an item labeled "Source of supply value seven hundred and thirty-eight thousand dollars." This witness cannot come and say that is something else.

Mr. Treacy: The witness has read from the report.

Commissioner Autenreith: Let him identify the item then so there will not be any question as to what item he means.

Mr. Treacy: The witness has read from the report to show that the source of supply was the contract value set up by Mr. Hill.

Q. All right. Proceed, Mr. Potts. A. The city paid eighty-nine per cent of Mr. Hill's valuation.

Q. Of Mr. Hill's appraisal? A. Yes, of Mr. Hill's appraisal. The city took over the plant and paid

eighty-nine per cent of its appraised value. Eighty-nine per cent of his appraised value of the right to buy water from the East Jersey Water Company at sthe contract price would reduce the $738,518 which he placed as source of supply value, and would make that $660,663.80 which would on that basis be the price which the city actually paid for this favorable contract with the East Jersey Water Company.

Q. Now, then, applying that purchase price to the water already consumed under that contract by the City of Bayonne and to the water to be consumed, what do you find the fair price? A. I find the city issued thirty-five year bonds for the purchase of this water plant and the interest on those thirty-five year bonds during their life would amount to $1,846,750 of which $604,899 would be chargeable to the purchase of this favorable contract for the purchase of water from the East Jersey Water Company, which together with the original cost of $660,683, would ultimately make this contract cost the City of Bayonne $1,265,563. Now, up to January 1st, estimating the consumption in the month of December, the city has purchased under that contract 18,411 million gallons of water, and pro rating that would make the water which the city has consumed up to January 1st, have a cost of $68.74 per million gallons in addition to the $19.50 which they are approximately paying at the present time. In other words, the city pays the East Jersey Water Company now $19.50 per million for the water which it uses, but in paying out interest and sinking fund charges on the purchase price of this favorable contract they have paid the rate of $68.74 in addition thereto for the purchase price, making a total of $88.24, which their water has cost them up to January 1st, 1923. Consid-

ering that same thing and assuming that this Board allows this contract to stand between Bayonne and the East Jersey Water Company, they will by 1929, on June 21st, at the expiration of the contract have used 56,298 million gallons of water. Pro rating that, pro rating the cost price on that basis makes $22.46 per million gallons which they are paying out for interest and sinking fund on the purchase price and with the $19.50 would make the water cost them up to June 21st, 1929, at the rate of $41.98 a million. In both these cases I take it that that price of six hundred and sixty thousand dollars was virtually a prepayment for water.

Q. And those payments ought to be taken into consideration in the fixing of any rate for the City of Bayonne. A. It would seem so, because that is what it is costing the City of Bayonne.

Mr. Wherry: I move to strike it all out on the ground that it does not appear in evidence that this appraisal which he based his whole assumption on has anything to do with the inducement to Bayonne to pay this price. The appraisal bears date July 1st, 1913. The ordinance authorizing the purchase of the property that he has quoted from is 1918, five years later, and there is nothing to show that you can take any part of the appraisal of Mr. Hill and proportion it off into the purchase price, because there is nothing in the contract to show how they divided their purchase price among the different items which they bought. It is a whole contract, an entire contract. They paid two million and seventeen thousand dollars for all the land, buildings, rights of

way, pipe lines, contracts and easements and of the contracts there was one between Washington and Turner Beall, there was one between the New York & New Jersey Company, there was another between the New York & New Jersey and the Mayor and Council of Bayonne; there is a list of them stated here. There is no way by which you can apportion the entire purchase price among all these different things that were bought.

Mr. Treacy: In the first place I do not see under the rules of evidence or the procedure of the Courts in the State of New Jersey how Mr. Wherry can make a motion to strike out the testimony of my witness. I would have the right to make that motion.

Commissioner Autenreith: He made his objection at the beginning and I take it the motion might be reserved. I accepted it because I was in doubt as to its materality in the beginning.

Mr. Treacy: In the next place, if he insists upon that, we will produce Major Reichhelm and the Mayor of the City of Bayonne to show what was included in this and on what basis the property was purchased. The fact remains here that Mr. Hill and Mr. Vermuele both appraised this property, the physical property at a sum from four to seven hundred thousand dollars less than the amount at which the property was bought by the City of Bayonne. The fact is that both of them in their appraisals made for the City of Bayonne for the purchase of the property—that was the object for which they were employed—in their

appraisal showed the value of this contract to be anywhere from seven hundred thousand dollars to eleven hundred thousand dollars, and then the fact is that the City of Bayonne did buy this property and paid $2,017,000 for it, which left a difference between the actual physical valuation of Mr. Hill and the amount actually paid by the City of Bayonne of something between five and six hundred thousand dollars, which could have gone for no other purpose than the purchase of this contract. I think when your Honor reads the contract and the appraisal, the whole thing will be perfectly clear.

Mr. Herrmann: Might I be heard on this: Of course I appreciate this Board is not governed by the strict admission of evidence or the strict rules of evidence. It does not need any stretch of the imagination to see what is attempted to be done here. Here are a number of appraisals at various periods made in advance of entering into a contract, some of them as early as five years before, some of them indicating a difference in different items, the major items being the pipe lines, the real estate—

Mr. Treacy: Both appraisals made for the City of Bayonne for the purchase of this property.

Mr. Herrmann: Subsequently there is a contract entered into. The rule of law is well established and of course that merges everything that went before it and cannot be modified or altered by anything said. See where this is going to lead the Board. Suppose Mr.

Potts says that by his analysis of these different estimates he finds there was included in this final contract so much for the contract between the New Jersey Suburban Water Company—

Mr. Treacy: You can show it is not, by your witness.

Mr. Herrmann: That interminable proposition will require an appraisal five years later to find out what the physical properties were worth and find out what was in different men's minds, and it will lead to chaos, taking years to determine.

Commissioner Autenreith: The contract itself does not show the value of this particular contract?

Mr. Herrmann: No, sir, it does not.

Commissioner Autenreith: The only thing that shows it is Mr. Vermuele's and Mr. Hill's appraisal?

Mr. Herrmann: Made five years earlier.

Mr. Treacy: Made about three years earlier.

Commissioner Autenreith: Mr. Potts used that as the basis for his calculation.

Mr. Treacy: Mr. Herrmann has not seen these contracts at all. He is talking from what Mr. Wherry has told him.

Mr. Wherry: The dates are here. July 1st, 1913, is the date of Mr. Hill's and June 7th, 1913, is the date of Mr. Vermuele's.

Mr. Treacy: Major Reichhelm's is June 6th, 1917.

Mr. Wherry: The ordinance is May 3rd, 1918.

Mr. Treacy: You do not dispute it was the same property which was purchased?

Mr. Wherry: I do. Between those dates they added considerable to their pipe lines and other property.

Mr. Treacy: Who did?

Mr. Wherry: The company selling, the New York & New Jersey Suburban Water Company. Between those two dates the prices changed.

Commissioner Autenreith: If the only place that this contract is valued is in the appraisal of Mr. Hill, their expert, an appraisal made some four or five years prior to the making of the contract itself, and that remains the basis for Mr. Potts' calculation, I do not think his calculation can have any weight made at some time afterwards. When the contract price comes out he then takes those in force five years before and reduces them and then makes his calculation on the cost of water to Bayonne on the contract price and on their investment over the period of years. How can that have any great evidential value? We do not know what price Bayonne actually did fix on those things when the contract was made.

Mr. Treacy: Suppose you had in evidence a contract for two million dollars, we will say, between Bayonne and the New York & New Jersey Suburban Water Company; suppose the appraisal of that property made for the purpose of purchasing the property shows that the physical value of the property is less than two million dollars and that there was a value put upon the contract which the New York & New Jersey Water Company had, can the Board adduce from the presentation—

Commissioner Autenreith: The logical inference is the difference in the value of the contract.

Mr. Treacy: That is all I want. I do not ask you to accept Mr. Potts' statement that the value of the contract is six hundred and sixty thousand dollars, whatever that may be.

Commissioner Autenreith: He purports to quote from Mr. Hill's appraisal. I will let it stand for whatever value it may have.

Mr. Wherry: I will cross-examine him.

CROSS-EXAMINATION by Mr. Wherry:

Q. Your whole statement here is based on the assumption that this item on page 13 of the paper that you have offered, that pamphlet marked R13, that that item, source of supply value $738,518, was the value which Mr. Hill in that appraisal put upon the contract between the East Jersey Water Company and the New York & New Jersey Water Company, is that right? A. It is based on what it says there, that he placed a value on their source of supply of that much money, he attached that much value to the method by which they were receiving water.

Q. You stated that that item, source of supply value, $738,518, was the value Mr. Hill put on a certain contract, haven't you? A. Well, it is in his report, I assume he put it on the source of supply.

Q. You have assumed he put that on the contract, haven't you; didn't you state that? A. Naturally, that was the source of supply of Bayonne at the time.

Q. Can't you answer the question yes or no? Did you make the assumption that that item, source of supply value, $738,518 was the value Mr. Hill put

upon the contract between the East Jersey and the New York & New Jersey Suburban Water Company that Bayonne was acquiring. A. Yes. You narrow it down pretty well though, Mr. Wherry, when you do that.

Q. What do you mean that I narrow it down; did you or didn't you make the assumption? A. It was not only that contract, but it was the situation existing at that time. The contract which the city had with Mr. Turner Beall and William D. H. Washington and the contract they in turn had with the East Jersey Company.

Q. You mean all the contracts? A. Yes.

Mr. Treacy: Weren't they all merged into one?

Mr. Wherry: Judge Treacy, won't you please let me conduct this examination? I think the witness can tell what he assumed.

Q. You mean the $738,518 you assumed was the value based on a number of contracts, not merely one. A. On those two particularly. It was based generally, apparently from this report and the situation, it was based on Mr. Hill's knowledge that the city was in a position to purchase water from the East Jersey Water Company at a very favorable rate.

Q. What I want to know is what you assumed in regard to it; what was your assumption, that that was the right to acquire water from a particular source of supply at a reasonable rate; is that what you mean? A. I did not assume anything. I took these contracts and these reports to mean what they say.

Q. You must have made some assumption, in order to make your calculation you made certain assumptions; you don't know what the City of Bayonne paid

for its contract or what value is put upon it, do you? A. What it paid for this contract? It paid $2,017,000 for the pipe lines and contracts.

Q. For everything it paid $2,017,000. A. Yes, sir.

Q. Now, you stated that that $2,017,000 included a certain amount for a contract and in order to work that out you took this $738,518 and found what proportion the item bore to the total two million two hundred and fifty-four thousand dollars, is that right? A. Yes, that is right. I took Mr. Hill's figures in that case, because he had them separate here. He had franchise value of four hundred and nineteen thousand dollars and had the physical value of the property $1,204,000. The balance of it was what you might call wind. The only amount of physical property he had was $1,024,000.

Q. The $738,518, source of supply, you took and attached that all to the contract that you say now has got a certain value. A. Yes. I say I prorated his subdivision on the basis of 89 per cent of the total.

Q. You attached seven hundred and thirty-eight thousand dollars to the value of the contract. A. Yes, sir, I did that, because Major Reichhelm's was higher and Major Reichhelm's was made only less than a year before the plant was purchased by the city, so I took Mr. Hill's as being lower than the value that Major Reichhelm put on it less than a year before.

Q. Do you know whether the property, the pipe lines, and all those other properties that were purchased are still being used by Bayonne? A. Yes, sir.

Q. Still in use? A. More or less. One 30-inch is in very bad shape, it is used only intermittently.

Q. The source of supply is still used? A. Yes, sir, they are buying water from the East Jersey Water Company now.

Q. Do you know whether any amortization allowance has been set up at all for this contract? A. In Bayonne?

Q. Yes. A. They issued serial bonds and they must under the Pierson Act pay those off so much per year.

Q. The contract was to expire in 1939, wasn't it? A. 1929.

Q. 1929; so if it had a value that value would all have been used up by 1929. A. They thought when they bought it that it ran to 1939; they had an adjudication from the Courts, and the Courts determined this contract ran only—

Q. This report of Mr. Hill's states—I call attention to it—on page 13, the period considered in estimating value given as from 1914 to 1929 inclusive. A. Yes. I know that is in there. That is on page 13, but the city thought when they bought it, however, that it ran to 1929. It was only after Vice Chancellor Lane passed on it in the court that it was determined to run to June 21, 1929.

Q. It was all assumed by everybody in this that that was the period of the contract.

Mr. Wherry: I have no further questions.

Commissioner Autenreith: Have you anything further, Mr. Wherry?

Mr. Wherry: No.

Commissioner Autenreith: The case is closed then, apparently.

(Mr. Wherry to file brief not later than the 8th of January; Mr. Treacy to have eight days after receipt of Mr. Wherry's brief to reply.)

(Matter taken into conference.)

Newark, N. J., Wednesday, February 28, 1923.

Commissioner Osborne: In this East Jersey case the Board was preparing an analysis and digest for the purpose of a conference and found that certain matters had not been developed, certain information not in the evidence, certain facts that were needed for the proper analysis of the whole situation. A memoranda of that was submitted to the Board by our engineering staff and the question arose whether those facts should be introduced by consent or whether they should be introduced by a further hearing. In view of the large number of municipalities involved it seemed rather impracticable to get everybody's consent, because of the time limit. Therefore we adopted this method of getting that evidence in the case; opening the proceedings for taking further testimony and the introduction of this information.

Have you had a copy of the list?

Mr. Treacy: Doctor Betts hands me this (indicating).

Commissioner Osborne: It is largely a statistical matter which our staff feels they need in developing the issues. You made up this list, Doctor Betts?

Mr. Betts: I made up the list.

Commissioner Osborne: Where does this information come from; from the company? I assume it does.

Mr. Betts: It comes from the company, yes.

Commissioner Osborne: Have you had this submitted to you, Mr. Wherry?

Mr. Wherry: We received a questionnaire with a request to furnish this information from the books and records.

Commissioner Osborne: Are you prepared to furnish it?

Mr. Wherry: We have here nine copies which were taken from the books of the company in reply to those questions.

WILLIAM P. SEIFFERT, produced and sworn to testify concerning certain information produced by the company at the request of the Board.

Mr. Wherry: I offer them in evidence as the company's exhibit for such purposes as the Board consider relevant in the case.

Commissioner Osborne: Will you examine the witness?

Examination by Mr. Wherry:

Q. I hand you this questionnaire (handing witness papers) and ask you whether that was handed to you to compile the data called for therein for the purpose of furnishing the Board that information? A. That is the data I compiled, yes (indicating).

Q. Have you the data as compiled prepared in tabulated form? A. This is it (indicating).

Q. Does it refer to the questions on the questionnaire so the answers can be identified with reference to the questions? A. Yes.

Mr. Wherry: I offer it in evidence in response to the request of the Board that the company produce that exhibit.

Petitioners' Witness, E. J. Seiffert, Cross

Q. Where did you get this data? A. I got it from the books of the company.

Q. Is it accurately transcribed from the books of the company? A. Yes, sir.

Commissioner Osborne: Have copies been furnished the other side?

Mr. Wherry: Yes. I furnished them copies, except of the questionaire; I didn't have copies of that. You have had a copy of it, haven't you, Judge Treacy?

Mr. Treacy: I have a copy of it.

Commissioner Osborne: We will adjourn for cross-examination on this.

Mr. Wherry: I suggest these be marked Exhibits C1 and C2.

Questionnaire of Board marked Exhibit C1.

Answers to questionnaire, Exhibit C1, marked Exhibit C2.

Adjourned until Wednesday, March 14th, 1923, at the Kinney Building, Newark, N. J., at 10:45 o'clock A. M.

Newark, N. J., Wednesday, March 14, 1923.

E. J. SEIFFERT, resumes the stand.

Cross-examination by Mr. Treacy:

Q. Did you prepare these tables yourself? A. Yes, sir.

Q. You are familiar with them? A. Yes, sir.

Q. You know the contents of them? A. Yes, sir.

Q. Turn to Table I, Item 2, pumpage into the 51-inch steel conduit, in millions of gallons, for the year 1920. Does that include the water that was pumped for the use of Jersey City for the year 1920? A. Yes, sir.

Q. Does it include water for the year 1921, under the heading of 1921, that was pumped for Jersey City? A. The same thing is true.

Q. And for the year 1922? A. The same thing.

Q. Do you know what the amounts that were pumped for Jersey City were for the years 1920, 1921 and 1922? A. Yes, sir.

Q. What are they? A. The year 1920, 2,675.6 million gallons; 1921, 2,228.3 million gallons; 1922, 831.45 million gallons.

Q. Since April, 1922, no water has been supplied to Jersey City? A. None at all.

Q. What is that Jersey City water supply? Is that an emergency supply? Do you know anything about that? A. No.

Q. Do you know how much it costs to supply that water to Jersey City? A. No, I do not.

Q. Turning to Item 3 on Table I, the water pumped into the 42-inch Paterson extension; have you a meter on the 42-inch Paterson extension? A. Yes, sir. That is the meter measurement right here.

Q. The 42-inch Paterson extension is connected with the 51-inch pipe line, isn't it? A. And the cross-connection vault.

Q. The water from the 51-inch pipe line flows into the 42-inch pipe line? A. Sometimes.

Q. Well, it does it pretty often, doesn't it? A. I couldn't say.

Q. It does it during the year a number of times? A. Well, I know it did for the last three years.

Q. What is that? A. I say, I know it did for 1920, 1921 and 1922, by months. That is, I can tell you how much flowed through the cross-connection vault for those various years.

Q. What I want to get at is this: You have this 51-inch pipe line under Column 2? A. Yes.

Q. This 42-inch pipe line under Column 3? A. Yes, sir.

Q. You have the amount pumped into your 51-inch pipe line and the amount pumped into your 42-inch pipe line. Are you able to segregate the amounts as between the 51-inch pipe line and the 42-inch pipe line, that flowed from the 51-inch pipe line into the 42-inch pipe line? A. Yes, sir.

Q. You have got that so we can separate it? Why didn't you set it forth in this Table I, so we could see the set-up? A. This here table is an answer to the Board's questions Number 1, 2 and 3. I didn't see there was any necessity of setting it up in that million gallons, say for the year 1920, pumped into the 42-inch main is the actual quantity of water used by the municipalities to which the 42-inch main is connected? A. With the exception of that which flows from the 51-inch for reinforcing the 42-inch, it represents the total supplied through the 42-inch line.

Q. So, in order to ascertain what the municipalities connected with the 42-inch main receive, it will be necessary to get in addition the amount that would come in from the 51-inch main? A. Yes, sir.

Q. Into the 42-inch main? A. Yes, sir.

Q. Can you supply that? A. Yes, sir.

Q. Will you supply that? A. The data is in the Table 9. The answer to that question is Table 9.

Q. In addition to the water supplied from the 51-inch pipe line do you know whether or not the company receives water from the 145 acres of surface water, from the 145 acres of land adjacent to the Great Notch Reservoir? A. I don't know.

Q. You don't know anything about that? Which doesn't require any pumping? A. I don't know.

Q. Do you know how the water is allocated, for instance, to Passaic from the 42-inch line of the Aquackanonk Company? A. The water flowing through the 42-inch line down to the City of Passaic?

Q. Yes. A. No. I couldn't answer that. I don't know.

Q. All you know is you made up these tables from the books in answer to the questions submitted by Doctor Betts? A. That is right.

Q. You did all this work yourself? A. Yes, sir.

Mr. Treacy: All right. That is all.

Mr. Treacy: Yes. I am through with this witness. I will call Mr. Wigley.

C. G. WIGLEY, sworn on behalf of municipalities.

Direct-examination by Mr. Treacy:

Q. Mr. Wigley, what is your profession? You have been sworn? A. Yes.

Q. You are associated with Mr. Potts, engineer, in this matter? A. Yes, sir.

Q. Have you made a study of Exhibit C2? A. Yes, sir.

Q. Will you please state what has been the result of your study of this exhibit? A. To begin with, Table 1, it appears that the data given there is actually the data requested by the Commission's engineer, as I understand it, and is the amount of water pumped into the 51-inch main and the 42-inch main; but due to the fact at times water is taken from the 51-inch main to reinforce the pressure in the 42-inch main, there should be deducted in each of the years from the 51-inch main figures the amount diverted so as to establish the figures indicating the amount of water actually used by the various municipalities from these mains.

For example, in 1921, there was diverted from the 51-inch main into the 42-inch, 210.1 million gallons. This amount should be deducted from the 51-inch figures and added to the 42-inch figures, making the latter figures 5,030.2 million gallons as against 4,820.1 million gallons in the table. And the same procedure should be followed for the other years.

Q. Have you prepared any statement showing that? A. The amount that is diverted is shown in Table 9 of this Exhibit C2.

Q. Have you prepared a statement of your own? A. Yes, sir.

Q. Showing that. Have you got copies of it? A. Well, I have shown it in connection with another exhibit.

Q. Go ahead and finish your statement and we will come to that afterwards. A. Then, furthermore, in connection with this Table 1, there is an additional amount of water obtained from the Great Notch Reservoir drainage area which is used by the municipalities. That is sold to the municipalities by the company and is not included in these tables. This

amount is roughly estimated at 100 million gallons per year, which at a selling price of one hundred dollars per million would amount to ten thousand dollars. The run-off from this watershed will, of course, vary with the rainy season on the watershed.

Q. What did that amount to in the year 1920 in gallons? 186 million gallons? A. I couldn't say that was the exact amount, except by inference. For example, if you take the total amount of water pumped into the 51-inch pipe line and deduct it from that, the water sold to the various municipalities using from that pipe line, as shown by the table in Exhibit C2, deducting also the amount transferred from the high pressure main, the 51-inch to the low and the amount of water sold to Jersey City, it shows that in 1920 the company sold 186.13 million gallons more than was pumped into the 51-inch pipe line. Now, this may possibly be a measure of the amount of water that is derived from that watershed. That is the only practical source I know of from which that deficiency could be made up. That deficiency in the amount of pumping into the main as against the amount of water sold in 1921 amounted to 99.84 million gallons and in 1922 to 107.36 million gallons.

Q. So that if there is to be any allocation of the rates to the towns supplied by this 51-inch pipe line that ought to be taken into consideration? A. Yes, sir.

Q. Now, please proceed. A. In connection with Table 3, being the quantity of water delivered through the 20-inch Grove Street meter for the years 1920, 1921 and 1922, it is my understanding that from this main—

Q. That is the main that supplies Montclair? A. Yes.

Q. And Glen Ridge? A. It is my understanding that the following towns and places are supplied from this 20-inch Grove Street meter: The Town of Montclair, Glen Ridge, West Orange and a portion of Little Falls and the Essex County institutions. If the total quantity of water sold to these customers, as indicated on Tables 2, 10, 11, 14 and 16 of Exhibit C2, is compared with the total quantity passing the meter, it will be found there is a considerable surplus passing that meter which is unaccounted for. In the year 1920 that unaccounted for flow amounted to 158.6 million gallons or 15.2 per cent of the amount passing the meter. In 1921 the unaccounted flow was 325.67 million gallons or 35.3 per cent of the total amount passing the meter. In 1922 the unaccounted for flow was 347.25 million gallons or 40.4 per cent of the amount passing the meter.

Q. This statement you have just made indicates that there was more water pumped through and passing through the 20-inch pipe than was actually received by the Towns of Montclair, Glen Ridge, West Orange, Little Falls and the Essex County institutions. A. And the Essex County institutions.

Q. What, therefore, is the deduction you would draw from that? A. The deduction I would draw from that would be either one of two conclusions, either that other customers are supplied from that main (which does not appear on this table) or that the leakage from this portion of the system, some of which is in a high service district, is excessive and it wouldn't be fair to charge the municipalities for that excessive leakage.

Q. At any rate it wouldn't be fair, in your judgment to charge these municipalities with a value of this 20-inch pipe line greater than the proportion of

water they actually received? A. I would say that would depend on whether or not there is another customer supplied from this main. I didn't feel they should be charged proportionately with that use if they are not the only user.

Q. Whether or not there is another customer or whether or not there is leakage should the municipalities be charged with such excess? A. They should not be charged with the excess water, but if the 20-inch main is necessary, which may be a matter of doubt—

Q. In allocating the charge on the basis of the use of water or the quantity of water consumed, which is the quantity that should be taken, in your judgment; the quantity passing through the meter or the quantity of water actually supplied to the customers? A. The quantity of water actually supplied.

Q. Will you proceed now? A. The only other criticism of these tables that I had was the fact there is a certain amount of water taken from the 42-inch pipe line and used to supply the customers of the Aquackanonk Water Company in Passaic.

Q. You mean the 42-inch or the 51-inch? A. The 42-inch pipe line. There was no segregation made, I know of, allocating that due to the fact there is no meter at the dividing line between Paterson and Passaic. I understand from the officers of the company that the quantity of water passing through the 42-inch to Passaic and charged to Passaic is determined by a percentage factor which has been worked out by the officers of the company.

Q. There isn't any actual method of measuring that? A. No.

Q. Have you prepared a table showing the quantities of water passing through the 51-inch pipe line

and the quantities supplying other municipalities and the excess? A. Yes.

Q. Of water above that amount pumped? A. Yes.

Q. Will you produce that, please? A. (Complies.)

Q. How did you make that up A. I made this up from the data contained in Exhibit C2.

Mr. Treacy: I offer that.

Table showing quantities of water passing through 51-inch pipe line and quantities supplied to the municipalities and the excess marked Exhibit R14.

Q. Have you also prepared a statement showing the amount of water purchased by the City of Jersey City in the years 1920, 1921 and 1922? A. Yes, sir.

Q. Which was supplied through the 51-inch pipe line? A. Yes, sir.

Q. Will you please produce that? A. (Complies.)

Mr. Treacy: I offer that.

Statement headed, "Water Purchased From the East Jersey Water Company by Jersey City," marked Exhibit R15.

CROSS-EXAMINATION by Mr. Wherry:

Q. I understand your Table R14 is a modification of Table 1, is that correct? A. I am not clear on the exhibits.

Q. The first one you offered in evidence, R14? A. No. Is compiled from the data contained in Exhibit C2; not Table 1 only. It is based on Table 1.

Q. On what other tables? A. Based on Tables 2, 3, 4, 6, 7 and 9 and 12, and, of course, Number 1.

Q. I understood you to say you thought that from the first column of Table 1, or the second column, marked "pumpage into 51-inch steel conduit in million gallons," from that should be deducted the figures taken from Table 9, is that correct? A. Yes.

Q. Your Table 14 doesn't make this computation, or does it? A. Yes, it does.

Q. Where in Table 14 have you made the deductions from Table 9, from this Column 2, Table 1? A. Where I have indicated "high" to "low," that is, I mean from high pressure to low pressure, that is the third item from the bottom above the first red line.

Q. You made other deductions also from this second column in Table 1, did you? A. Deductions of water that was actually sold.

Q. When you said that the quantities shown on Table 9 should be deducted from Table 1, Column 2, you are only giving your opinion that it should be done, were you not? A. Not entirely, no. I was basing this upon figures that were supplied to me by Mr. Cook at the beginning of this case. Mr. Cook—

Q. You are giving Mr. Cook's opinion on it? A. Mr. Cook supplied me with a book in which he kept a record of the water supply and certain adjustments he made and these figures in Table 1 are without the adjustment for that diversion. That is, after having made that adjustment. Afterward, in checking over the figures I find the adjustment is not included in this table.

Q. That was the reason why you formed the opinion that deduction should be made? A. I very naturally assumed Mr. Cook knew what to do.

Q. It was your opinion you were expressing that that deduction should be made? That is your opin-

ion? A. Not entirely. As this table states, it says it is the quantity of water pumped into the 51-inch main; it naturally would follow the deduction must be made.

Q. The table only purports to answer the Questions 1, 2 and 3 of the Commission? A. We wanted to bring it out on the basis of the water used from each main this adjustment should be made.

Q. You say the adjustment should be made? Why should it be made? A. If the table, as it indicates, is the quantity of water pumped into the main, the diversion is made after the water is pumped, therefore, the adjustment must be made, otherwise the table isn't correct; it isn't representative of the quantity of pumpage.

Q. All the company was asked to give was the quantity pumped into the 51-inch line? A. Yes.

Q. When it answered that question, when it gave the quantity pumped it answered the question? A. Yes.

Q. There shouldn't be any deductions from it or it wouldn't be giving the quantity pumped? A. No; except if you want to use it for the purpose of allocating the cost of that water certainly you have to allocate it to the mains which have certain customers grouped on it.

Q. You are assuming then the purpose of this table is to allocate the water? A. Naturally.

Q. And, in your opinion, in allocating the charges, in your opinion then this deduction should be made? A. Yes.

Q. That is what you mean when you say the deduction should be made? A. Based also on the fact Mr. Cook did make the deductions.

Q. That is the reason in your opinion? A. Not entirely.

Q. That is one reason? A. Yes.

Q. You don't mean to say Mr. Cook thinks in order to allocate these charges correctly those deductions should be made, do you? A. I mean to say he did make the deductions.

Q. You are not giving his opinion? A. No.

Q. You are trying to give your own? A. Yes.

Q. We can test your opinions, whether they are right or not; we can't test Mr. Cook's opinions by examining you; you realize that? A. Yes.

Q. That is your opinion? A. That is my opinion, the deduction should be made.

Q. You mean, in your opinion there should be a deduction for a certain purpose, that is what you mean? A. Yes.

Q. That purpose is what? A. To allocate the amount of water used from the two mains.

Q. That is a question for the Commission to decide how much deduction they will make in making a fair allocation, isn't it? A. Yes.

Q. That is the very question they had before them and the reason why they asked for this table, these different tables so they will have all the data, as you understand it? A. Yes; so they will have all the data.

Q. You say there is additional water from the Great Notch drainage area not included in Table 1. I understand you estimate, undertook to estimate the amount of that additional water? A. I estimated it on the basis—on a formula that Mr. Cook used.

Q. Did you estimate it or not? A. Yes, I estimated it, using that formula.

Q. What was the formula? A. I couldn't give the exact factors now. I haven't it here; except it practically reduced it to obtain 50 per cent of the rainfall on the watershed.

Q. How much did you estimate that amounted to? A. I roughly approximated it. An approximate estimate of 100,000,000 gallons a year.

Q. Does this table R14 purport to show the deficiency? A. Yes. The deficiency in the 51-inch pipe line is shown above the first red line.

Q. Is that figure opposite the word "deficiency" 186.13, 99.84 and 107.36, is that the deficiency you estimate? A. Yes.

Q. Was that done by applying the formula you mentioned? A. No; that is using the figures given in Table C2.

Q. How did you do that? A. Well, if you take the year 1920, top of the page, 51-inch pipe line, the total quantity, that means the total quantity of pumpage shown on the table, it is 13,582.7 million gallons. Then to the left of that are given the towns and the two meters which are supplied from 51-inch lines.

Q. You mean those are meter readings? A. Two of them are meter readings.

Q. Which ones? A. The 20-inch Grove Street meter and the 30-inch at Aquackanonk and Passaic.

Q. Those are given in C2? A. Yes.

Q. What table? A. Table 3 is the 20-inch Grove Street; Table 4 is the 30-inch line.

Q. Where did you get the quantities? A. From the remaining tables of the quantity of water delivered through that Nutley and Bayonne—

Q. They are all taken from these other tables? A. Yes.

Q. They are given in answer to this? A. Yes.

Q. Then you added those up and got these figures 11,075.43, is that correct? A. Yes.

Q. The difference was this figure 2,507.27, is that correct? A. Yes.

Q. Then what did you do? A. Then I deducted the amount that was diverted from the high service or 51-inch pipe to the 42-inch.

Q. That is taken from Table 9? A. Table 9. Then from that remainder I deducted the amount that was sold to Jersey City and it leaves a deficiency.

Q. As I read those figures, Jersey City used 2,675.70. Did you deduct 2,489.57? A. That is right.

Q. That shows that there was 186.13 more water in those combined tables? A. Yes.

Q. Then their pumpage? A. Yes.

Q. Your inference was that that was from the drainage area, is that correct? A. No, not necessarily. I don't know how that came.

Q. You don't know where it came from? A. No.

Q. It might be from the usual meter variations in their meter? A. It might possibly be, but you would expect the total amount sold would be less than the total leakage, rather than the other way.

Q. There is always leakage in the pipes? A. Yes; you would lose some in the transmission mains rather than make up water.

Q. You would expect always that in every pipe system there is bound to be a certain amount of unaccounted for water? A. Yes. It gives a surplus in the pumpage rather than a deficiency.

Q. So in order to find out how much came from the drainage area you would have to know how much unaccounted for water there was? A. No. I should

think the unaccounted for water and leakage and evaporation and several factors might enter.

Q. Do you know what percentage that 186.13 bears to the 13,582.7? A. Roughly 1 1/4 per cent; 1 1/3.

Q. That really could be disregarded, as being within the limits of estimate? A. It might be disregarded if it was the other way.

Q. Take this Table in C2, there you made an estimate also of the water to ascertain how much was unaccounted for water, did you not? A. Yes.

Q. You figured that in percentage. How did you determine the measure of water that was sold there? How did you determine that unaccounted for water? That water only goes through the meter once. A. To begin with, I took the total amount reported as passing the meter. Then I took the customers as shown by C2 that were supplied from those meters; West Orange, Glen Ridge, Essex County, Little Falls, Grove Road and Montclair and totalling the amounts sold to the customers and deducted from the total quantity passing the meter, I find there is a certain quantity of water passing the meter that is not sold.

Q. Table 15, is the data in Table 15 in that? A. I understand Bloomfield is not supplied from these mains at all, not from the 20-inch. It would have to be supplied through Glen Ridge. I don't see how they could get it.

Q. I understand Bloomfield is; you understand Bloomfield isn't? A. I don't see how it can be.

Q. If Bloomfield is supplied from that, getting a certain quantity, that might modify your figures, might it not? A. Of course, if Bloomfield was. I don't see how it—

Q. You have assumed it wasn't. I am asking you the question, if it was? A. If it was, of course, it would change these figures.

Q. I understood on your direct-examination you said if there were other customers you didn't know about that would change your figures for unaccounted for water? A. Yes, certainly.

Q. I will ask you this question about the unaccounted for water: It is very usual to have a certain amount of unaccounted for water in your system, isn't it? A. Yes. Not to the extent of 40 per cent.

Q. Often as high as 30? A. No; I should say not.

Q. Do you know what the report of the American Water Works proceedings was, that they showed the average? Have you got that in mind? A. No; I have not.

Q. Wasn't it 33 per cent? A. I don't know. I should say that was a high figure for ordinary—

Q. How would you take care of that unaccounted for water if you were making an allocation to these customers along that route? A. Why, I would find out where it was going and what should be charged for it, whether it is leakage, or whether it was customers—

Q. Suppose the unaccounted for water was due to leakage? A. I should say that was excessive leakage and the company should—

Q. No; answer my question. Do you think 15.2 is excessive? A. Yes, I think it is.

Q. You think that is excessive. What would you say wasn't excessive? A. I would put it upwards of around, about five per cent.

Q. Do you know of any plant in the United States that has as little unaccounted for water as that, five per cent? A. It would be a very small plant, probably, if it had. I don't happen to know of any, no.

Q. Do you remember what this Board stated in the original Hackensack case in regard to the efficiency

of this system as based on the small amount of unaccounted for water they had, or do you not? A. I don't know.

Q. You would be surprised to find out that in a system that had 30 per cent of unaccounted for water the Board considered in their report that was unusually low? A. It was unusually low?

Q. Yes. A. Yes.

Q. Take this five per cent which you say would be fair enough; how would you divide that among the customers? That is a normal per cent, you say, or not excessive; how would you allocate it? A. The only practical way, I should imagine, would be to allocate it on the basis of the quantity used or the character of the service possibly, whether high or low.

Q. You would include in that, the amount allocated to the group of customers? A. Yes; if it was the normal leakage.

Q. Where did you get the figures in R15? A. We obtained those from the records of Jersey City, and they checked practically with the Public Utility reports, annually. The figures put in this morning check those within two or three tenths, the annual figures.

Mr. Wherry: That is all.

RE-DIRECT EXAMINATION by Mr. Treacy:

Q. The 51-inch pipe line as I understand it, is the pipe line that supplies the municipalities south of Passaic, that is to say, the municipalities of Harrison, Kearny, East Newark, Bloomfield, Montclair, Bayonne? A. That supplies the municipalities south of Passaic, the main customers; they supply others; they supply part of Little Falls.

Q. That is a very insignificant portion of the supply? A. It is quite a considerable portion of the Little Falls supply; that is taken off near the pumping station, and Totowa is also taken from it.

Q. The 42-inch pipe line supplies Passaic and Paterson? A. It supplies all Paterson and part of Passaic.

Q. Now then, as I understand it, there is a connection between the 51-inch pipe line and the 42-inch pipe line near Passaic? A. You say near Passaic?

Q. Yes; or is it near Clifton? Where is that main? A. There is the 30-inch pipe line that comes from Clifton down to Passaic and hooks into the 42-inch in Passaic.

Q. I wanted the connection between the 51-inch, how the water from this 51-inch pipe line gets to the 42-inch pipe line. A. You mean, when they build up the pressure to the 42-inch?

Q. Yes. A. That is done at what is called the cross-over, up near the pumping station.

Q. That is near the pumping station? A. Yes. The water that is diverted would pass through both meters and is recorded on both meters.

Q. If the water pumped into the 51-inch pipe line instead of going down to the municipalities served by the 51-inch pipe line, Harrison, Kearny, East Newark, Bayonne, Bloomfield and Montclair, is diverted near the pumping plant to the supply of Passaic and Paterson and Clifton, then the municipalities that I have mentioned, Bayonne and Montclair, Bloomfield, Harrison, Kearney and East Newark should not be charged with the total pumpage into the 51-inch pipe line as indicated on these tables. A. Yes; certainly not.

Q. That is to say, it is indicated in the table of C2, Table 1. A. Yes. They should not be charged with that amount diverted.

Mr. Treacy: That is all.

Mr. Wherry: I would like to clear up this Bloomfield case, and I am going to call Mr. Cuddebach. You are through and have no other witnesses?

Mr. Treacy: No.

A. W. CUDDEBACK, sworn on behalf of petitioners.

Direct-examination by Mr. Wherry:

Q. Will you please state what your position with the company is? A. I am engineering and general superintendent of the associated companies.

Q. How long have you occupied that position? A. Twenty years.

Q. Will you look at the map in Exhibit P6A and tell me how Bloomfield gets its water and whether it gets any water through the Grove Street 20-inch meter? A. Bloomfield gets its water from the 51-inch line in part through a 16-inch connection from the 51-inch line at West Passaic Avenue and in part to the 20-inch line from the 51-inch pipe coming down Grove Street. The figures in Exhibit R14 labeled "excess and surplus," represent the water that comes through the 20-inch line and goes to Bloomfield through a 16-inch connection from the 16-inch at Watchung and Broad Street.

Q. Show on the map. Indicate where that 16-inch connection is. I understand the 16-inch connection

runs from the 51-inch line to the 42-inch line, is that right? A. No, there is a 16-inch connection from the 51-inch line at West Passaic Avenue that runs down Broad Street to Bloomfield, ending at the corner of Broad Street and Watchung Avenue. There is a 20-inch line coming down Grove Street through Montclair to Watchung Avenue, along Watchung Avenue connecting these two pipes is the 16-inch pipe.

Q. Water can flow either from— A. Either from the Bloomfield connection to Montclair, or the Montclair connection to Bloomfield.

Q. Either way? A. Either way and at times has flown either way.

Q. It is the water that flowed from the 20-inch Grove Street meter through that meter down into Bloomfield you say is included in that "excess and surplus" in R14. A. That represents the amount exactly according to meter measurements. That quantity could be determined by adjusting between the Broad Street meter, the 12-inch Broad Street meter or the 16-inch meter at West Park Avenue, and that is the way it is obtained. It is the difference between those meters.

Mr. Wherry: I have no further questions.

CROSS-EXAMINATION by Mr. Treacy:

Q. What amount of water is supplied from the 20-inch line to Bloomfield? A. I only know by these figures here that are given in these tables. That is, I don't remember them exactly. The year 1920, 158.6 million.

Q. You haven't any table that shows the amount of water supplied to Bloomfield, have you, for the

20-inch meter? A. No. I don't think there is any table in the exhibits that shows that.

Q. Then how can you testify; why do you say—A. Because I know how these figures are made up.

Q. Have you carried the amount in your head so you can tell? A. No, I haven't.

Q. Can you supply a table? A. There could be a table supplied.

Q. Instead of stating it from memory? A. I can state now—it isn't stating it from memory except as to the quantities. I know how these quantities are arrived at.

Q. There is no table showing it, is there? A. I don't know. I presume not. I didn't make up the tables.

Q. Question 15 is "Quantity of water delivered by East Jersey Water to Bloomfield." How did you answer that question in your table? Did you have anything to do with it? A. I didn't answer it. These were taken from our records.

Q. Does it show the water that went through the 20-inch pipe line? A. It shows that water as well as others.

Q. Where? I want to know the water supplied to Bloomfield through the 20-inch pipe line. You know what I want to get at. A. This apparently doesn't show that by itself.

Q. Is there any meter by means of which you can measure that quantity of water? A. The difference between the two meters.

Q. How do you take care of the amount supplied to Montclair? A. It is obtained by the difference between the two meters.

Q. I wish you would explain just where these meters are and how it is you can ascertain the quantity

of water supplied to Montclair, and the quantity of water supplied to Bloomfield from each pipe line? A. The total quantity of water going to Bloomfield and Montclair is combined, is supplied through three meters, the 20-inch at Grove Street, the 16-inch at West Park Avenue and a small meter on Broad Street. The water coming through the 16-inch line, down West Park Avenue and through Broad Street, is measured against Broad and Watchung by a 12-inch meter. That meter measures all the water going down Broad Street into Bloomfield and gets not only the water that comes through the 16-inch line, but also the water coming from the other, through from the 20-inch. The difference between the 12-inch meter and the 16-inch meter of necessity is the quantity that it gets from the 20-inch line. I could explain that if I had the big map I think.

Q. I show you a diagram (showing witness diagram); this is the City of Montclair (indicating); that is Bloomfield (indicating); this is your 51-inch pipe line (indicating). You have a meter outside of Bloomfield, haven't you, for your 16-inch line? A. We will mark the 16-inch line A-B.

Q. Yes. A. The 20-inch line running into Montclair A-C.

Q. Yes. A. We will mark the line from B to Bloomfield A-D. There is a 20-inch meter on line A-C near A, marked with a circle.

Q. That is the one that goes to Montclair? A. Yes. There is a 16-inch meter on the line B-D, at B marked with a circle. There is a 12-inch meter at the point marked D on the 12-inch line running into Bloomfield. Water coming from B through the meter at B goes on down. Water coming through A-C flows through C-D and also goes through the 12-

inch meter. The difference between the meter at D and the meter at B represents the quantity of water going through the meter at A that goes into Bloomfield.

Q. As I understand it, you have three meters? A. Yes.

Q. Then what Bloomfield is charged with is the amount shown by the meter on the 12-inch line. A. Yes.

Q. That is deducted from the total coming through Montclair? A. The difference is deducted from the total going through Montclair.

Q. Showing what Montclair is supplied with? A. That represents this quantity—

Q. Is there any other source from which Bloomfield receives water? A. Why, they are getting some water from Newark.

Q. They get some water from the City of Newark? A. Yes.

Q. What meter is that measured through? A. I don't know just where it is located.

Q. That is not connected up with your system at all, as I understand? A. No.

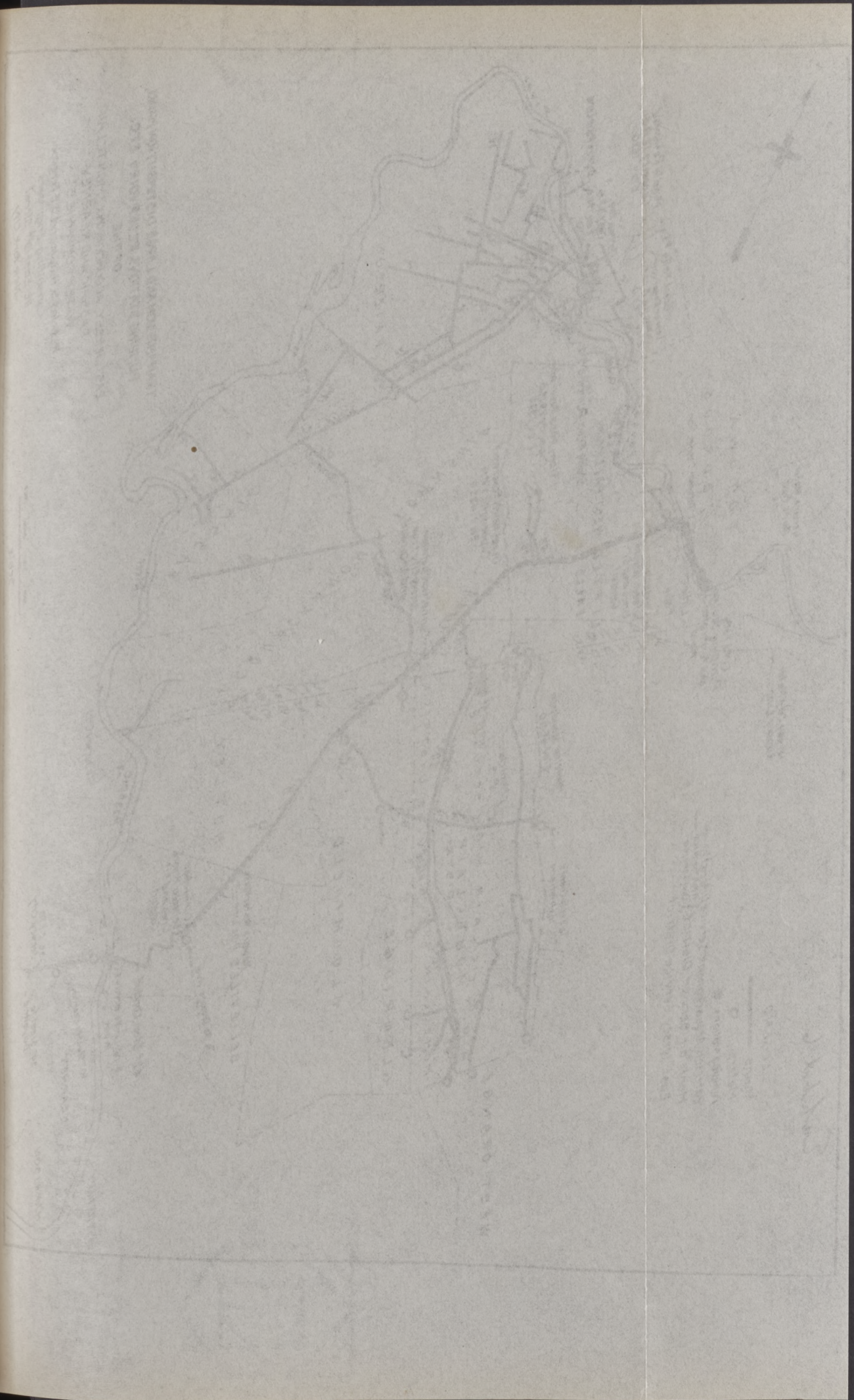
Q. You get paid for that water, however, at $65 a million? A. I believe so. I don't just remember what it is.

Q. That is just a royalty paid to you, to the company. That doesn't appear in these quantities in answer to Question 15, does it? A. I would have to look at the questions and answers. If it was asked for it appears.

Mr. Treacy: That is all.

Mr. Wherry: I have nothing further.

MATTER TAKEN INTO CONFERENCE.



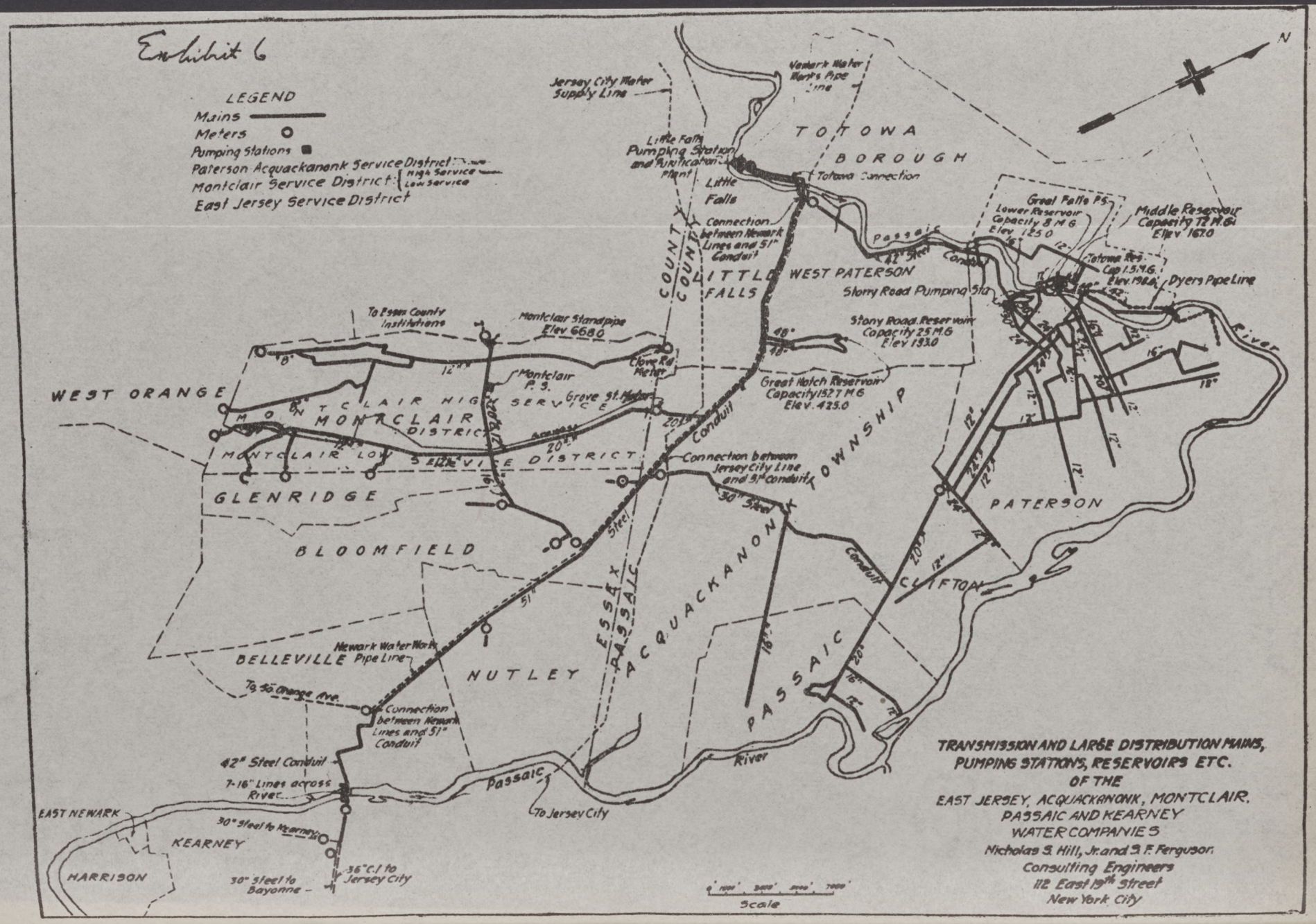


Exhibit 6
LEGEND
Mains
Meters
Pumping Stations
Paterson Acquackanonk Service District
Montclair Service District: High Service, Low Service
East Jersey Service District
N
Jersey City Water Supply Line
Newark Water Work's Pipe Line
Little Falls Pumping Station and Purification Plant
Totowa Connection
TOTOWA BOROUGH
Great Falls P.S.
Lower Reservoir Capacity 8 M.G. Elev 125.0
Middle Reservoir Capacity 12 M.G. Elev 167.0
Totowa Res. Cap 1.5 M.G. Elev 198.0'
Dyers Pipe Line
Connection between Newark Lines and 51" Conduit
LITTLE FALLS
WEST PATERSON
Stony Road Pumping Sta.
Stony Road Reservoir Capacity 25 M.G. Elev 193.0
To Essex County Institutions
Montclair Standpipe Elev 668.0
Clove Rd. Meter
Montclair P.S.
Grove St. Meter
WEST ORANGE
MONTCLAIR HIGH SERVICE
MONTCLAIR DISTRICT
MONTCLAIR LOW SERVICE DISTRICT
Great Notch Reservoir Capacity 152.7 M.G. Elev. 425.0
Connection between Jersey City Line and 51" Conduit
GLENRIDGE
BLOOMFIELD
ESSEX
PASSAIC
ACQUACKANONK TOWNSHIP
PATERSON
CLIFTON
PASSAIC
Newark Water Work's Pipe Line
To 36" Orange Ave.
BELLEVILLE
NUTLEY
Connection between Newark Lines and 51" Conduit
42" Steel Conduit
7-16" Lines across River
Passaic River
To Jersey City
EAST NEWARK
30" Steel to Kearney
KEARNEY
HARRISON
30" Steel to Bayonne
36" C.I. to Jersey City
Scale
TRANSMISSION AND LARGE DISTRIBUTION MAINS, PUMPING STATIONS, RESERVOIRS ETC. OF THE EAST JERSEY, ACQUACKANONK, MONTCLAIR, PASSAIC AND KEARNEY WATER COMPANIES
Nicholas S. Hill, Jr. and S. F. Ferguson
Consulting Engineers
112 East 19th Street
New York City

Exhibit P1.

Exhibit P-1 contains the following:

(1) Charter of the Passaic Water Company: Special Act of the Legislature of New Jersey, approved February 13, 1849, "for supplying the Town of Paterson and the Village of Manchester with water" and the amendments thereto.

(2) Charter of the Acquackanonk Water Company: Special Act of the Legislature of New Jersey, approved April 9, 1867, "for supplying the Village of Passaic with water" and the amendments thereto.

(3) Certificate of Incorporation of the Kearny Water Company, filed under the General Water Works Act of New Jersey, of April 21, 1876, filed October 18, 1886, "for supplying the Township of Kearny and such other cities, towns, townships and villages as it may be lawful for it to supply" by contract, etc. Consent of Kearny to the incorporation, dated October 15, 1886.

(4) Certificate of Incorporation of the Montclair Water Company, filed under the General Water Works Act of New Jersey, of April 21, 1876, filed January 13, 1887, "for supplying the Town of Montclair and such other cities, towns, townships and villages as it may be lawful for it to supply" by contract, etc. Consent of Montclair to the incorporation dated January 13, 1887.

(5) Certificate of Incorporation of East Jersey Water Company.

(6) Contract between the East Jersey Water Company and the New York and New Jersey Water Company, dated July 12, 1895, to supply the City of Bayonne under the Washington and Beall contract of

Exhibit P1

September 6, 1894. Recites the Washington and Beall contract, copy of which is attached and which has been assigned to the New York and New Jersey Water Company and provides that the East Jersey Water Company will supply to the New York and New Jersey Water Company an ample supply of pure and wholesome water sufficient to fulfill the conditions of the contract with the City of Bayonne. It further provides that the New York and New Jersey Water Company will pay 35% of the gross receipts arising from the resale of the water as specified in the Washington and Beall contract. The contract contains various other provisions regarding the safeguarding of the water supply, etc., including the duration of the contract and renewals which are now governed by the decison in Paterson vs. East Jersey Water Company, 74 N. J. Eq. 102.

(7) Contract between Washington and Beall and the City of Bayonne, dated September 6, 1894. Recites the City of Bayonne's desire to obtain water supply and Washington and Beall have offered to furnish or cause to be furnished such supply and provides the terms and conditions under which same is to be furnished and the price to be paid therefor at the following rates:

For the first 2,000,000 gallons per day $89.00 per million.

For the third 1,000,000 gallons per day $80.00 per million.

For the fourth 1,000,000 gallons per day $70.00 per million.

For the fifth 1,000,000 gallons per day $55.00 per million.

Exhibit P1

For all in excess of 5,000,000 gallons per day $40.00 per million gallons.

The Washington and Beall contract was assigned to the New York and New Jersey Water Company and later assigned by the New York and New Jersey Water Company to the City of Bayonne, September 6, 1918, the same being Exhibit 0-1.

(8) Various other contracts for supplying water, summarized as follows:

Name of Water Company	Character of Contract	Community Served by Company.
Passaic	Retail	Paterson
		Prospect Park
	Wholesale only	Totowa Borough (a)
Acquackanonk	Retail	City of Passaic
		City of Clifton (b)
Montclair	Retail	Montclair
	Wholesale only	Glen Ridge (c)
		West Orange (d)
		Essex County Institutions
East Jersey	Wholesale only	Bayonne
		Kearney
(See 9, 10 and 11 below for contracts under which these municipalities are served)		Harrison
		East Newark
		Bloomfield (e)
		Nutley (e)
		LittleFalls (e)
		West Paterson (e)
		Jersey City (f)

(a) Supplied since 1916.
(b) Formerly reported as Acquackanonk Township.

(c) Standby service only, since September, 1921.

(d) Standby service only, since March, 1921.

(e) Since June 1, 1915, formerly served by Montclair Water Company, assigned to East Jersey Water Company.

(f) Emergency supply.

(9) Contract between Montclair Water Co. and Bloomfield, dated May 8, 1905. Assignment of said contract dated June 1, 1915, to East Jersey Water Company, providing for a water supply for Bloomfield and the inhabitants thereof.

(10) Contract between the East Jersey Water Company and the New York and New Jersey Water Company and the New Jersey Suburban Water Company and East Jersey Water Company, dated July 1, 1903, by which the East Jersey Water Company agrees to supply water sufficient for Harrison Kearny and East Newark, under contracts between those municipalities and the New York and New Jersey and New Jersey Suburban Water Companies, which companies had to supply said municipalities.

(11) Contract between the East Jersey Water Company and Little Falls Water Co., dated June 1, 1903, by which the East Jersey Water Company undertakes to furnish water to be supplied to Little Falls and West Paterson.

Exhibit P2.

Unpriced Inventory.

This exhibit comprises the inventory of all the property of Acquackanonk Water Company, East Jersey Water Company, Kearny Water Company, Montclair Water Company and Passaic Water Company, without unit prices, classified and arranged in accordance with the classification prescribed by the Board of Public Utility Commissioners of New Jersey.

Exhibits P3-A, P3-A1, P3-A2, P3-A3.

Summary of Valuation made by Leonard Metcalf.

This exhibit is printed in full, with the exception of concluding index and summary. It consists of four parts:

Volume A—General Comments and Discussion of the Elements of Value.

Volume A1—Appraisal of the Acquackanonk Water Company.

Volume A2—Appraisal of the Passaic Water Company.

Volume A3—Appraisal of the Montclair Water Company.

Volume A.

Exhibits P3-A, P3-A1, P3-A2, P3-A3

VOLUME A. METCALF

General Comments upon

THE BASIS OF VALUATION OF THE PROPERTIES OF

THE AQUACKANONK WATER COMPANY. THE PASSAIC WATER COMPANY THE MONTCLAIR WATER COMPANY

Controlled by

THE NEW JERSEY GENERAL SECURITY COMPANY,

PATERSON, NEW JERSEY,

As of December 31, 1920.

Metcalf & Eddy, Consulting Engineers,
14 Beacon St., Boston, Mass.
May 8, 1922.

Exhibits P3-A, P3-A1, P3-A2, P3-A3

LETTER OF TRANSMITTAL.

Leonard Metcalf
Harrison P. Eddy
Charles W. Sherman
Almon L. Fales
Frank A. Marston

Members Am. Soc. C. E.

File

Designs Construction
Supervision Management
Water Works
Water Purification
Sewerage
Sewage Disposal
Industrial Waste Disposal
Reports Valuations

METCALF & EDDY
Consulting Engineers
14 Beacon Street
Boston, Mass.

May 8, 1922.

Mr. Edmund LeB. Gardner, President,
New Jersey General Security Company,
158 Ellison Street,
Paterson, New Jersey.

My dear Sir:

I send you herewith my report upon the value of the properties of The Aquackanonk, The Passaic and The Montclair Water Company, controlled by the New Jersey General Security Company of Paterson, New Jersey, eliminating from my earlier report the data concerning The East Jersey and The Kearney Water Companies, at request of counsel, following the decision of April 20, 1922, of the Board of Public Utility Commissioners of the State of New Jersey *in re* "Amendment of Rate Schedules dated February 1, 1922."

I find the fair value of these properties, as of December 31, 1920, excluding the water rights as against the riparian owners below Little Falls (the water rights as against the Society for Establishing Useful Manufactures and the Dundee Water Power and Land Co., excluding the right to divert through the

Dyers' Pipe Line, were purchased in December, 1921), to be as follows:

1.	The Acquackanonk Water Co.	$3,066,000		22.72%	
2.	The Passaic Water Co.	5,837,000		43.23%	
3.	The Montclair Water Co.	2,470,000	$11,373,000	18.30%	84.25%

The corresponding values placed by me upon the properties of The East Jersey Water Company and The Kearney Water Company, as of Dec. 31, 1920, in my earlier report, were as follows:

4.	The East Jersey Water Co.	$1,917,000		14.2 %	
5.	The Kearney Water Co.	210,000	2,127,000	1.55%	15.75%
Grand Total excluding Right to Divert Water from Riparian Owners below Little Falls			$13,500,000		100%

*ii

This report (Volume A) covers a discussion and "General Comments upon the Basis of Valuation of the Properties of The Acquackanonk Water Company, The Passaic Water Company and The Montclair Water Company."

The reports upon the value of these companies will be found in Volumes A1, A2, and A3.

There will be found in this volume:

A List of Contents	pages iii to iv
A List of Tables	page v
Text of Report	pages 1 to 48
A Summary	pages 49 to 55
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Respectfully submitted,
METCALF AND EDDY,
By LEONARD METCALF.

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Exhibits P3-A, P3-A1, P3-A2, P3-A3

REPORT

Leonard Metcalf
Harrison P. Eddy
Charles W. Sherman
Almon L. Fales
Frank A. Marston

Members Am. Soc. C. E.

Designs Construction
Supervision Management
Water Works
Water Purification
Sewerage
Sewage Disposal
Industrial Waste Disposal
Reports Valuations

File

METCALF & EDDY
Consulting Engineers
14 Beacon Street
Boston, Mass.

May 8, 1922.

Mr. Edmund LeB. Gardner,
President, New Jersey General Security Co.,
(The Acquackanonk Water Co.
(The Passaic Water Co.
Controlling (The Montclair Water Co.
(and others,

158 Ellison Street, Paterson, N. J.

My dear Sir:

Pursuant to your request the writer has valued certain water works properties of the New Jersey General Security Company, to wit, those of the Acquackanonk, the Passaic, and the Montclair Water Companies, as of December 31, 1920, and submits herewith his report.

A summary of this report will be found herein on pages 49-55.

Familiarity with the Property. The writer has examinded these properties on several different occasions in the past ten years, and has seen a number of their important structures under construction. In 1912, he was retained to make an inventory and valua-

tion of The Acquackanonk, The Passaic, The Montclair, The East Jersey and the Kearney Water Company properties, for presentation to the Water Supply Commission of the State of New Jersey. This investigation was made with great care and in co-operation with representatives of the State authority mentioned. The material then gathered, which is still significant, has been freely made use of herein.

Incident to the revaluation of 1920 the properties were reinspected. Further reference to this subject is made herein under the caption "Method of Preparing Inventory, Schedule of Property, Examination of Property, Records Consulted, Data Obtained."

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*2

LIST OF WATER COMPANIES

Owned by the New Jersey General Security Company and the Communities Served by Them.

Name-of Water Co.	Date of Incorporation	Character of Company	Community Served by-Company
Acquackanonk	April 9, 1867	Complete Operating Company	City of Passaic " " Clifton (b)
Passaic	Feb. 13, 1849	Complete Operating Company Wholesale only	Paterson Prospect Park Borough Totowa Borough (a)
Montclair	Jan. 15, 1887	Complete Operating Company Wholesale only	Montclair (Glenn Ridge (West Orange (Essex Co. Institutions

Exhibits P3-A, P3-A1, P3-A2, P3-A3

In addition to the above companies the valuation of which is covered by this report, the New Jersey General Security Company also owns the following water companies within this district: The East Jersey Water Company (selling water wholesale, only) and The Kearney Water Company, a water transportation company:

East Jersey	Aug. 1, 1889	Wholesale only	Bayonne Kearney Harrison East Newark Bloomfield (c) Nutley (c) Little Falls (c) West Paterson (c) Jersey City (d)
Kearney	Oct. 18, 1896	Transportation of water for	East Jersey Water Company

(a) Supplied since 1916
(b) Formerly reported as Acquackanonk Township,
(c) Since June 1, 1915, formerly served by Montclair Water Co.
(d) Emergency supply.

Joint Ownership, in Property. Certain of the properties, such as the source of supply, the water diversion rights bought from the Beattie Manufacturing Company, the Society for Establishing Useful Manufacturers, and the Dundee Water Power and Land Co., the pumping and filter plants, the Great Notch Reservoir, and the supply mains, are owned in common. It is to be noted, however, that the water rights as against the Society for Establishing Useful Manufacturers and the Dundee Water Power and Land Co., were not purchased until December, 1921, or nearly a year subsequent to the date of valuation (Dec. 31, 1920) of the properties referred to herein, and have therefore not been included in the property ownd by these water companies.

Exhibits P3-A, P3-A1, P3-A2, P3-A3

*3

The joint ownership property constitutes approximately 44% of the entire property. The individual interests are approximately as follows:

Water Company	Approximate Joint Property	Percentage of Joint Property in Terms of Entire Property
Acquackanonk	24.0	10.5
Passaic	33.9	14.8
Montclair	12.7	5.5
East Jersey	29.4	12.9
Totals	1000	43.7

The ratio of joint ownership in the various improvements is as follows:

Water Company	Passaic	Acquack-anonk	Montclair	East Jersey
Little Falls Improvement	3/8	2/8	1/8	2/8
Little Falls Filtration Plant	3/8	2/8	1/8	2/8
Great Notch Reservoir	3/8	2/8	1/8	2/8
Great Notch Steel Pipe Connection	3/8	2/8	1/8	2/8
51-inch Conduit				
Sta. 682+53 to Sta. 822+46	3/8	2/8	1/8	2/8
" 822+46 to " 911+05		2/5	1/5	2/5
" 911+05 to " 964+59			1/3	2/3
" 964+59 to " 1112+73				all
Water Diversion Rights at Little Falls bought Dec. 1921 excluded herein	1/4	0.19	0.19	0.51

Date of valuation, December 31, 1920.

PHYSICAL DATA.

The Population of the Communities Served is shown in Table 1, following.

Exhibits P3-A, P3-A1, P3-A2, P3-A3
*4

Table 1. Population in Cities and Towns in New Jersey, Served by the New Jersey General Security Co. Excluding Jersey City.

City or Town	Served by	Records of U. S. Census Bureau				
		1880	1890	1900	1910	1920
Paterson	Passaic Water Co.	51,031	78,347	105,171	125,600	135,866
Prospect Park	" " "				2,719	4,292
Totowa	" " " Wholesale					1,864
Passaic	Acquackanonk	6,532	13,028	27,777	54,773	63,824
Clifton **	Water Co.	1,603*	2,306*	4,816*	10,682*	26,470
Montclair	Montclair Water Co.	5,147	8,656	13,962	21,550	28,810
Glen Ridge	" " " Wholesale			1,960	3,260	4,620
West Orange	" " " "	3,385	4,358	6,889	10,980	15,573
Essex County Inst.	" " " "			1,300***	2,000***	2,400
Bloomfield	E. Jersey " " "	5,748	7,708	9,668	15,070	22,011
Bayonne	" " " " "	9,372	19,033	32,722	55,545	76,754
Little Falls	" " " " "			1,300***	2,000***	3,310
West Paterson	" " " " "					1,858
Kearney	" " " " "	777	7,064	10,896	18,659	26,724
Harrison	" " " " "	6,898	8,338	10,596	14,498	15,721
E. Newark	" " " " "			2,500	3,163	3,057
Nutley	" " " " "			4,000***	6,000***	9,421
Total	Wholesale of all Companies	26,180	46,501	81,831	131,175	183,313
-Grand Total-		90,493	148,838	233,557	346,499	442,575
Increase by decades			64.5%	56.9%	48.3%	27.7%

* 90% of Census Record
** Acquackanonk Township until 1917
*** Estimated

40 30 20 10

In this connection it is to be remembered that a large amount of water is delivered and sold wholesale to municipalities, or local water companies owning their own distribution pipe systems and serving their own consumers. These Communities are indicated in the "List of Water Companies," quoted on page 2, and are indicated by the word "wholesale" in Col. 2 of Table 1. Jersey City, which has been supplied with water in considerable amounts from 1917

*5

to date, is not included in the population list as this service is of a temporary character, likely to be terminated soon.

The Assessed Valuation of the Communities Served, as of 1890, 1900, 1910 and 1918 (the records of the year 1920, not yet being available)is given in Table 2.

The Water Consumption excluding Jersey City and the Dyer's Pipe Line is shown in the following tabulation:

Year	Per Year M. G.	Per Day M. G.	Per Capita Per day Gal.
1908	8,707	23.8	74
1909	8,804	24.1	72
1910	9,938	27.2	79
1911	10,153	27.8	74
1912	11,442	31.2	86
1913	10,630	29.0	78
1914	11,958	32.7	86
1915	11,872	32.4	83
1916	13,544	37.0	92

Exhibits P3-A, P3-A1, P3-A2, P3-A3

1917		14,329	39.1	95
1918		15,771	43.1	102
1919		14,977	40.9	95
1920		15,920	43.5	98
Forecast	1930	21,500	59.0	107
"	1940	28,000	76.5	113

JERSEY CITY.

Year	Per Year M. G.
1917	338
1918	283
1919	1117
1920	2676
1921	2229

The segregation of consumption as between the constituent companies, for the years 1916 to 1920, both inclusive, excluding the water consumption from the Dyer's Pipe Line is shown in the table on page 8. The water consumption from the Dyer's Pipe Line is shown in Table 7, page 33.

Exhibits P3-A, P3-A1, P3-A2, P3-A3

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Table No. 2. Assessed Valuation of Property in the Several Communities Served by these Water Works for the Years 1890, 1900, 1910 and 1918.
Excluding Jersey City.

City or Town	Year	Population Assumed & By Census	Assessed Valuation of Property Total	per Capita
(1)	(2)	(3)	(4)	(5)
Paterson	1890	78,347	$ 28,726,550.	$367.
	1900	105,171	48,901,040.	465.
	1910	125,600	97,741,206.	778.
	1918	131,445	116,759,434.	887.
Prospect Park	1890			
	1900			
	1910	2,719	732,845.	270.
	1918	4,116	1,345,440.	327.
Totowa	1890			
	1900			
	1910			
	1918	1,716	2,111,681.	1230.
Passaic	1890	13,028	4,006,717.	307.
	1900	27,777	10,442,370.	314.
	1910	54,773	35,546,586.	649.
	1918	62,785	54,887,407.	875.
Clifton	(1890	2,306*		
*90%	(1900	4,816*	2,081,200.	434.
	(1910	10,682*	7,653,370.	716.
100%	1918	23,795	18,145,764.	764.
Montclair	1890	8,656	3,555,000.	411.
	1900	13,962	9,571,000.	686.

Exhibits P3-A, P3-A1, P3-A2, P3-A3

	1910	21,550	35,470,000.	1,645.
	1918	27,299	51,285,453.	1,880.
Glen Ridge	1895		1,270,000.	
	1900	1,960	1,698,700.	867.
	1910	3,260	5,819,552.	1,785.
	1918	4,433	9,025,398.	2,035.
West Orange	1890	4,358	2,928,950.	672.
	1900	6,889	3,739,725.	543.
	1910	10,980	8,959,475.	816.
	1918	14,788	16,596,723.	1,120.
Essex County Inst.	1890			
	1900	1,300		
	1910	2,000		
	1918	2,320		
Bloomfield	1890	7,708	3,312,600.	430.
	1900	9,668	4,807,775.	497.
	1910	15,070	7,176,994.	476.
	1918	20,129	21,177,296.	1,058.
Bayonne	1890	19,033		
	1900	32,722		
	1910	55,545	45,931,310.	828.
	1918	71,837	72,624,696.	1,013.

Exhibits P3-A, P3-A1, P3-A2, P3-A3

*7

Table No. 2. Continued—Assessed Valuation of Property in the Several Communities Served by these Water Works for the years 1890, 1900, 1910 and 1918, Excluding Jersey City.

City or Town	Year	Population Assumed	Assessed Valuation of Property	
			Total	per capita
(1)	(2)	(3)	(4)	(5)
Little Falls	1890			
	1900	1,300		
	1910	2,000		
	1918	3,157	$2,243,329.	$710.
West Paterson	1890			
	1900			
	1910			
	1918	1,729	1,111,530.	644.
Kearney	1890	7,064	3,029,950.	429.
	1900	10,896	4,609,475.	423.
	1910	18,659	16,821,002.	901.
	1918	24,894	31,620,509.	1,273.
Harrison	1890	8,338	2,703,570.	324.
	1900	10,596	3,698,450.	349.
	1910	14,498	10,496,733.	724.
	1918	15,240	17,122,279.	1,125.
East Newark	1890			
	1900	2,500.	1,927,000.	771.
	1910	3,163.	3,367,463.	1,060.
	1918	2,983.	3,552,800.	1,190.
Nutley	1890			
	1900	4,000.	1,587,490.	394.
	1910	6,000.	4,583,570.	764.
	1918	8,847.	8,286,515.	938.
Totals	1890	148,838.		
	1900	233,557.		
	1910	346,499.	$280,300,106.	$808.
	1918	421,513.	$427,896,254.	$1,010.

NEW JERSEY GENERAL SECURITY CO.

Vol. III. Table 2a. Consumption of the Constituent Companies for the Years 1916 to 1920 Incl. Excluding Dyer's Line.

Year / Company	1916 Quantity m. g.	1916 % of Total for Year	1917 Quantity m. g.	1917 % of Total for Year	1918 Quan. m. g.	1918 % of Total for Year	1919 Quantity m. g.	1919 % of Total for Year	1920 Quantity m. g.	1920 % of Total for Year
Passaic Water Co.										
Paterson)	3512.6	25.9	3649.5	24.6						
Prospect Boro.)					3539.1	22.1	3123.5	19.4		
Totowa	4.6	0.1	10.6	0.1	14.6	0.1	12.5	0.1		
Total	3517.1	26.0	3660.1	24.7	3553.7	22.2	3136.0	19.5	3557.9	19.1
	(9.6 mgd.)		(10.0 mgd.)		(9.8 mgd.)		(8.6 mgd.)		(9.7 mgd.)	
Acquackanonk Water Co.										
Passaic										
Clifton										
Total	2543.6	18.8	2642.7	17.8	2562.6	16.1	2261.5	14.1	2561.1	13.8
	(7.0 mgd.)		(7.3 mgd.)		(7.0 mgd.)		(6.2 mgd.)		(7.0 mgd.)	
Montclair Water Co.										
Montclair	632.1	4.7	597.9	4.1	533.0	3.3	484.9	3.0	576.1	3.1
Glen Ridge	84.7	.6	95.4	0.6	92.6	.6	95.6	.6	97.2	.5
West Orange	240.2	1.8	232.6	1.6	248.6	1.6	296.5	1.8	278.9	1.5
Essex. Co. Inst.	78.7	.6	102.2	0.7	99.6	.6	72.6	0.5	66.8	.4
Total	1035.7	7.7	1028.1	7.0	973.8	6.1	949.6	5.9	1019.0	5.5
	(2.8 mgd.)		(2.8 mgd.)		(2.6 mgd.)		(2.6 mgd.)		(2.8 mgd.)	
East Jersey Water Co.										
Bayonne	3508.0	25.9	3902.3	26.4	5222.8	32.7	4968.9	30.8	5369.3	28.9
N. Y. & N. J. and)										
N. J. Sub. Cos.)	1794.4	13.3	2193.6	14.8	2449.3	15.4	2318.6	14.4	2500.6	13.5
Bloomfield	724.5	5.3	728.0	4.9	786.3	4.9	797.6	5.0	632.1	3.4
Nutley	138.5	1.0	115.5	.8	99.5	.6	103.2	.6	119.8	.6
Little Falls	25.5	.2	31.6	.2	38.1	.2	44.8	.3	60.2	.3
Jersey City			337.8	2.3	283.0	1.8	1117.1	6.9	2675.6	14.4
Total	6190.9	45:7	7308.8	49.4	8879.0	55.6	9350.2	58.0	11357.6	61.1
	(17.0 mgd.)		(20.1 mgd.)		(24.3 mgd.)		(25.6 mgd.)		(31.0 mgd.)	
Unaccounted for	247.4	1.8	160.8	1.1	0.2	—	399.4	2.5	100.5	0.5
	(0.6 mgd.)		(0.4 mgd.)				(1.1 mgd.)		(0.3 mgd.)	
Total mg. in Year	13534.7	100%	14800.5	100%	15970.9	100%	16096.7	100%	18,596.1	100%
40.6	Mid.			37.0	43.7		44.1		50.8	

40 30 20 10

Exhibits P3-A, P3-A1, P3-A2, P3-A3

*9

VALUATION.

The Difficulties of Valuation have been greatly increased by the effects of the Great War. Prices began to increase rapidly during the latter part of the year 1915. General commodity prices reached their peak of 220% of pre-war prices according to Dun's index numbers and 275% according to those of the Bureau of Labor Statistics of the U. S. Department of Labor, about the middle of the year 1920; and receded to about 137% and 153%, respectively, as of the latter half of the year 1921. Cast iron pipe, which in the northeastern section of this country cost about $26 per ton, on 10-year averages, for half a century or more, shot up during the war period to nearly $100 per ton when at its peak and receded gradually to slightly over $40 per ton in 1921 and rose again to about $50 in May, 1922.

The End Sought is the determination of what a decade hence will be recognized to have been the fair value of these properties as of the year 1920—such a value as will reflect the relatively stable advance in values in contradistinction to values reflecting the violent and extreme fluctuations growing out of the influences of the war—artificial control, inadequate transportation, the breakdown of credit, the loss in purchasing power of money, and the general business uncertainty and lack of confidence. Difficult as may be the task of determining what constitutes *"normal prices"* under such conditions as have prevailed in the past decade, the most significant yardstick of value legally, appears to be the fair reproduction cost of the property, as of the date or period of valuation, at "normal prices."

Exhibits P3-A, P3-A1, P3-A2, P3-A3

*10

It is clear that original cost figures covering a long period of years are of little significance today in determining value. They are much below present values, probably very substantually below average values or costs likely to prevail for a considerable period of years, if not for all time.

So, too, the extreme prices prevailing during the peak of the war period cannot be said to reflect fair value, but rather the more temporary, artificial and extreme conditions.

Somewhere between these two limits lies a plane which is characteristic of normal prices—the normal prices of this period.

In attempting to arrive at "normal prices," in determining the unit prices to be used in estimating the fair reproduction cost of these properties—the prices which might be said to be truly normal for this period —consideration has been given to cost records and the pre-war prices; the average prices of the past decade and of shorter periods; the significance of the index numbers of the Dun and Bradstreet agencies, the London Economist, the Bureau of Labor Statistics of the U. S. Department of Labor, all reflecting commodity prices; the extent of the readjustment and deflation in prices which has already taken place in some materials and the probability of more complete future readjustment in others in which deflation has been retarded; the general trend of prices, averaged by decades; present prices; the probable trend of future prices.

The Advance in Cost of Labor and Materials has been studied in detail through the index numbers of

commodity prices of Dun's and Bradstreet's and other agencies and through anaylsis of the prices paid by these and other water works companies for labor and structural materials in different parts of the country.

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With respect to the general advance in costs, or the loss in purchasing power of money, Table 3, covering Dun and Bradstreet's index numbers of commodity prices for the years 1912-1921 is significant. It shows the ratio of the prices of individual years to those of the pre-war period (as exemplified by the average of the 1912-13-14 prices); and the progressive change in average prices by decades over the period from 1903 to 1920, with forecast to 1923.

Fig. 1 shows graphically the progressive annual increase in average annual prices and in the average prices of the decade (prior to and including the year of record) over the pre-war prices exemplified by the average prices of the years 1912-13-14, annually from the year 1914 to 1921 with forecast to 1923.

The forecast has been predicated on the assumption that in the year 1923 the mean of the Dun and Bradstreet commodity price numbers, which now (average of year 1921) stand at approximately one-third (32%) in excess of pre-war prices will fall progressively to the pre-war scale of prices. or, in other words, that deflation will be complete in 1923. With this assumption, it appears that the *average-decade-prices will remain,* at least from the year 1920 to 1923 inclusive. *40% or more above pre-war prices,*

TABLE 3. DUN'S AND BRADSTREET'S INDEX NUMBERS OF PRICES.

Year	Dun's Index Numbers: Average Index Number †	Dun's Index Numbers: Factor Av. of Yr. divided by average for 1912 1913 & 1914	Dun's Index Numbers: Reciprocal of Factor in Col. 3	Bradstreet's Index Numbers: Average Index Number	Bradstreet's Index Numbers: Factor of Av. of yr. Divided by average for 1912 1913 & 1914	Bradstreet's Index Numbers: Reciprocal of Factor in Col. 3	Means of Factors derived from Dun's & Bradstreet's Figures	Means of Reciprocals of Factors Derived from Dun's and Bradstreet's Figures
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1912	124.401	1.02	0.98	9.1867	1.01	0.99	1.01	0.99
1913	120.887	.986	1.01	9.2115	1.01	0.99	1.00	1.00
1914	122.211	.998	1.00	8.9035	.98	1.02	0.99	1.01
Av. for 1912-13-14	122.500	1.00	1.00	9.1006	1.00	1.00	1.00	1.00
1915	126.393	1.03	0.97	9.8530	1.08	0.93	1.06	.94
1916	148.808	1.21	.83	11.8237	1.30	.77	1.25	.80
1917	204.121	1.67	.60	15.6385	1.72	.58	1.70	.59
1918	229.220	1.87	.54	18.7117	2.06	.49	1.96	.51
1919	230.846	1.88	.53	18.6642	2.05	.49	1.97	.51
1920	247.888	2.02	.49	18.8095	2.07	.48	2.04	.49
1921*	171.367	1.39	.72	11.3747	1.25	.80	1.32	.76
9-yr. av. 1912-20	172.753	1.41	.71	13.4225	1.47	.68	1.44	.69
10-yr. Avges.								
1903-12	110.458	0.91	1.10	8.4688	.93	1.08	.92	1.09
1904-13	112.643	0.92	1.09	8.5963	.94	1.06	.93	1.08
1905-14	114.867	0.94	1.06	8.6948	.96	1.04	.95	1.05
1906-15	117.429	0.96	1.04	8.8702	.97	1.03	.96	1.04
1907-16	121.775	0.99	1.01	9.2108	1.01	.99	1.00	1.00
1908-17	131.007	1.07	.93	9.8843	1.09	.92	1.08	.93
1909-18	142.942	1.17	.85	10.9545	1.20	.83	1.19	.84
1910-19	154.249	1.26	.79	11.9694	1.31	.76	1.28	.78
1911-20	167.158	1.37	.73	12.9515	1.42	.70	1.40	.71
1912-21*	172.614	1.41	.71	13.2177	1.45	.69	1.43	.70
1913-22**	173.884±	1.42	.70	13.3330	1.47	.68	1.44	.69
1914-23**	173.712±	1.42	.70	13.3109	1.44	.69	1.43	.70

†Determined by averaging the 12 monthly index numbers of the calendar yr.

*11 months.

**Forecast.

Exhibits P3-A, P3-A1, P3-A2, P3-A3

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Decade Ending	Ratio of Decade Averages to Averages of Years 1912-13-14.	Ratio of Decade Average to Average of Decade ending Dec. 31, 1912.
1912	0.92	1.00
1913	0.93	1.02
1914	0.95	1.03
1915	0.96	1.05
1916	1.00	1.09
1917	1.08	1.18
1918	1.19	1.29
1919	1.28	1.41
1920	1.40	1.52
1921	1.43	1.56
1922* (1)	1.44 Forecast	1.57 Forecast
1923*	1.43 Forecast	1.57 Forecast

*Based on assumption that in the year 1923 the average index figure will be the same as the pre-war figure, exemplified by the average for the years 1912, 13 and 14 and that he ratio will be unity, 1.0. Note that the ratio of the latest index number (to wit that of the month of November, 1921) to the average for the years 1912-13-14 was 1.29).

Basis of Valuation. The total value of these works has been determined by the writer from the results of an anaylsis of values, found by the application of the different criteria of value shown below.

New Jersey State Library

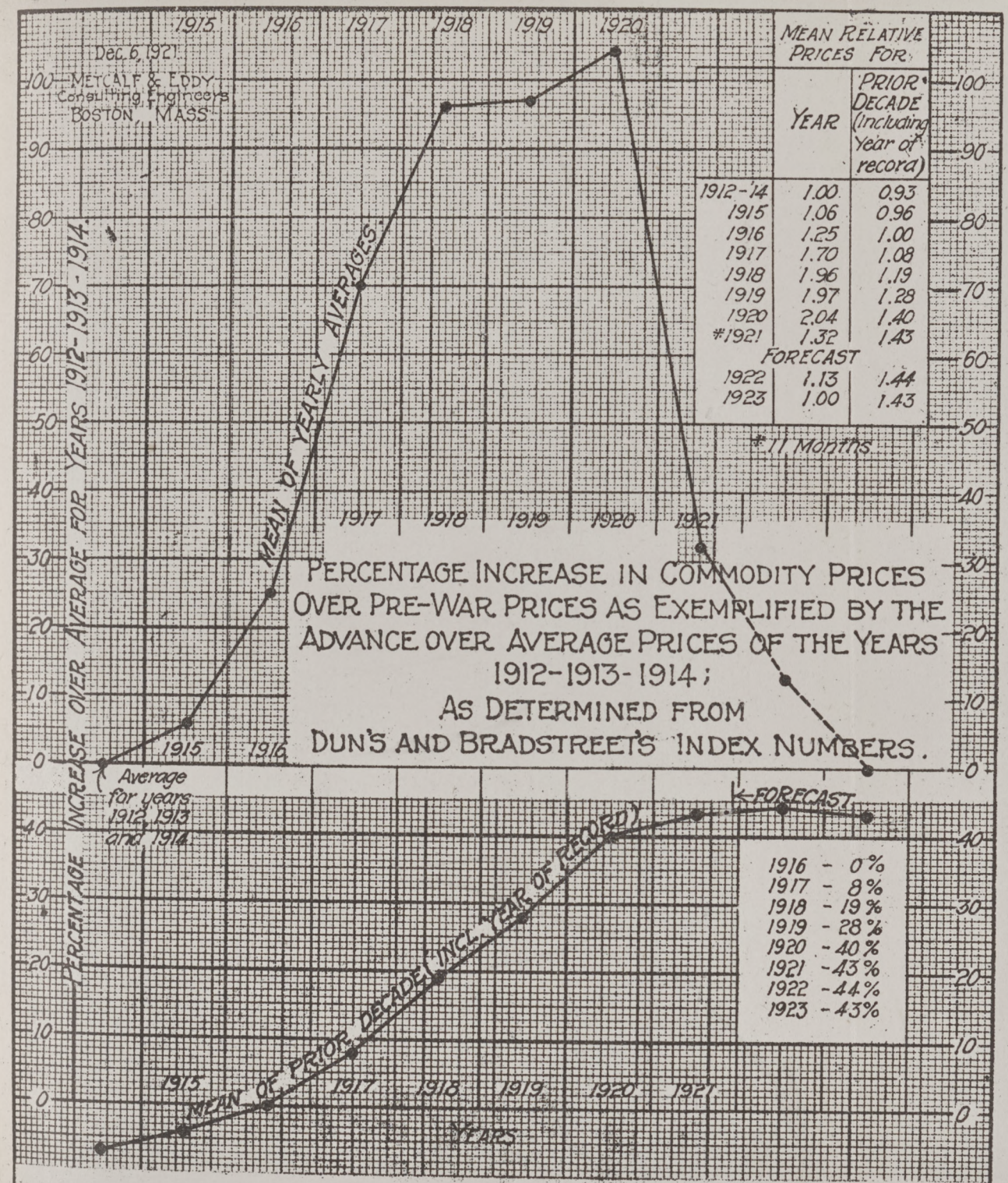
Dec. 6, 1921
METCALF & EDDY
Consulting Engineers
BOSTON, MASS.
MEAN RELATIVE PRICES FOR
Year
Prior Decade (including year of record)
1912-14 1.00 0.93
1915 1.06 0.96
1916 1.25 1.00
1917 1.70 1.08
1918 1.96 1.19
1919 1.97 1.28
1920 2.04 1.40
*1921 1.32 1.43
FORECAST
1922 1.13 1.44
1923 1.00 1.43
* 11 Months
PERCENTAGE INCREASE IN COMMODITY PRICES OVER PRE-WAR PRICES AS EXEMPLIFIED BY THE ADVANCE OVER AVERAGE PRICES OF THE YEARS 1912-1913-1914; AS DETERMINED FROM DUN'S AND BRADSTREET'S INDEX NUMBERS.
INCREASE OVER AVERAGE FOR YEARS 1912-1913-1914.
MEAN OF YEARLY AVERAGES.
Average for years 1912, 1913 and 1914.
FORECAST
1916 - 0%
1917 - 8%
1918 - 19%
1919 - 28%
1920 - 40%
1921 - 43%
1922 - 44%
1923 - 43%
PERCENTAGE INCREASE
MEAN OF PRIOR DECADE (INCL. YEAR OF RECORD)
YEARS
PERCENTAGE INCREASE IN COMMODITY PRICES AVERAGED BY DECADES, PRIOR TO AND INCLUDING YEAR OF RECORD, OVER PRE-WAR PRICES, AS EXEMPLIFIED BY AVERAGES FOR YEARS 1912-1913-1914 AS DETERMINED FROM DUN'S AND BRADSTREET'S INDEX NUMBERS.
5588-Z-1958

Fig. 1

Exhibits P3-A, P3-A1, P3-A2, P3-A3

The Original Cost could not be included because the early records of all of these companies were destroyed in the Paterson fire of 1902. This makes it impossible to determine the original cost of any one of them.

(1) *Note of May 1, 1922.*

The ratio of the latest index number (for month of April, 1922) to the average for the years 1912-13-14 was 1.31 and the ratio of the average index number for the first three months of 1922 to the average for the years 1912-13-14, was 1.31.

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CRITERIA OF VALUE.

(Of the Constituent Water Companies, as of December 31, 1920.)

1. Book Cost, excluding construction work in progress, materials and supplies, and cash and cash items.

2. Value of property on pre-war price basis.

3. Value of property on the basis of present (1920) prices.

4. Value of property on basis of 10-year average prices, prior to date of valuation.

5. Value of property on basis of its depreciated or net reproduction cost at fair normal prices.

Exhibits P3-A, P3-A1, P3-A2, P3-A3

DETERMINATION AND SIGNIFICANCE OF "CRITERIA OF VALUE."

The *Original Cost,* as previously stated, cannot be determined because of the burning of the early records of the Company in the Paterson fire of 1902.

Criterion 1. The Book Cost is given as a matter of information, though from a legal point of view it has relatively little probative force, because of changes in standards and in methods of bookkeeping and in values during the period involved in the life history of these works. The term "book cost" as used herein excludes construction work in progress, materials and supplies, and cash and cash items.

Criterion 2. Value of Property on Pre-War Price Basis. For the information of the Board of Public Utility Commissioners, and as a step in estimating the approximate value of this property today (by percentage increase over its fair value on normal pre-war prices) *the value of the property on pre-war price basis,* has been determined by adding to the value of the property fixed as of December 31, 1912, by the Board of Appraisers appointed by the Water Supply Commission of the State of New Jersey, the value at pre-war prices of the annual betterments built since that date, found by reducing their actual cost by factors, measuring the ratio of prices normal in the years stated to those normal under pre-war conditions, and

subtracting the annual depreciation allowance set aside by the Company, which was fairly commensurate with the actual depreciation which accrued on the property during this interval of time.

Exhibits P3-A, P3-A1, P3-A2, P3-A3

There were several reasons for using, as a starting point, the value put upon this property, as of December 31, *1912*, by the Board of Appraisers of the Water Supply Commission of the State of New Jersey;

First. The prices of this year or period were fairly characteristic of pre-war prices;

Second. A valuation then made, with the utmost care and detail was certain to be free from the uncertainties and perplexities induced by the war;

Third. The character of the three well known and competent engineers, who constituted this Board, Clemens Herschel and Nicholas S. Hill, Jr. of New York City, and Dabney H. Maury of Chicago;

Fourth. The manner of appointment of the Board, by a public authority (the New Jersey State Water Supply Commission) which desired to acquire these works as nucleus of a Metropolitan water district which was to be greatly enlarged thereafter; and

Fifth. The fact that the findings of the Board were based upon an agreed schedule of property, prepared jointly by a representative of the New Jersey State Water Supply Commission appointed by its chief engineer, Morris R. Sherrerd, and by the writer who had been called in by the New Jersey General Security Co. to make a valuation of its properties.

The finding of this Board of Appraisers was approximately 7/8ths of the value fixed by the writer upon these properties as of that date, *Dec. 31, 1912.* In certain groups of items, the divergence in value fixed was small; in others more material, as is always the case; but recognizing the diversity of experience of the different men and the independent and different meth-

ods of approach and analysis adopted, the values arrived at appeared to be in fair accord; and it was

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thought by the writer that in taking the lower value fixed, by men appointed by the public interest, a very conservative procedure was being followed.

In making use of any such basis figure, as the value fixed by the Board of Appraisers as of December 31, 1912, as a starting point, it is always safer and fairer to take the *final* conclusion reached by the tribunal than to attempt to segregate and discuss in detail various elements of the property, inasmuch as it is never possible to determine the exact weight attached to various elements or considerations of value by different men, in arriving at the final conclusion.

The value of the entire property fixed by the Board of Appraisal, as of December 31, 1912, was $8,728,300.

("excluding rights of diversion against S. U. M. and Dundee, and to a willing purchaser possessed of the power of eminent domain)."

The actual cost of the annual betterments from Dec. 31, 1912, to Dec. 31, 1920 was analyzed and reduced to their fair cost under pre-war prices (exemplified by those of the year 1912) by the ratio of the average of Dun and Bradstreet's index figures upon commodity prices for the year 1912 to their average figure for each of the years 1913 to 1920 both inclusive.

From the sum of the 1912 property value plus cost of betterments at pre-war prices, thus derived, was deducted the sum of the depreciation allowances set aside

by the Company annually from December 31, 1912 to 1920, and the sum realized upon sales of real estate and rights-of-way during the same interval of time.

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Criterion 3. Value of Property on the Basis of Present (1920) Prices. This criterion of value has been determined by the application to groups of property of factors indicating the ratio of 1920 to pre-war prices. The results thus obtained have been independently checked by the value found by multiplying the value of the property on *pre-war price basis* by the factor based upon Dun's and Bradstreet's index numbers on commodity prices indicating the ratio of *present (1920) prices* to pre-war prices, exemplified by those of the year 1912.

Criterion 4. Value of Property on Basis of 10-Year Average Prices, Prior to Date of Valuation. This value, like the previous one, was determined from the pre-war price valuation shown in Criterion 2 above, by the ratio of advance of present decade prices over pre-war decade prices.

Criterion 5. Value of Property on Basis of Fair Normal Prices. This criterion constitutes the most significant yardstick of value. It is the one to which our higher courts have attached the greatest importance. It may also be defined as *"The Depreciated or Net Reproduction Cost of the Property on Fair Normal Prices."* It was based upon detailed analysis.

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Method of Preparing Inventory—Schedule of Property—Examination of Property—Records Consulted

—*Data Obtained.* The property schedules, prepared in co-operation with a representative of the Water Supply Commission of the State of New Jersey appointed by its chief engineer, Mr. Morris R. Sherrerd, incident to the valuation of these properties as of December 31, 1912, were used as a base or starting point, for the property schedules of December 31, 1920.

The property has been re-examined and all available company records, and in many cases the original notes or entries, have been freely used in bringing the schedules down to date, by the addition of the betterments and the elimination of the abandoned property of all kinds. The cost records have been co-ordinated with the structural quantities involved, to make independent estimate possible. In certain of the properties, such as the Little Falls pumping station plant, the 51-inch conduit, the filter plant, etc., which were valued in 1912 on the basis of their original cost brought down to that date, entirely new inventories have been prepared in detail.

Real Estate Changes. Having no personal knowledge of real estate values, the writer requested that a revaluation of the real estate be made by competent authority for inclusion in this report. This course of action was pursued.

Unit Prices. As previously stated herein, the attempt has been made in making this reproduction cost estimate to base it upon prices that are truly fair and normal for the date or period of valuation.

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In fixing these *"normal prices,"* consideration has been given to:

Exhibits P3-A, P3-A1, P3-A2, P3-A3

1. Actual cost records and pre-war prices;

2. Average prices of the past decade and of shorter periods;

3. Index numbers of Dun and Bradstreet, the Bureau of Labor Statistics of the U. S. Dept. of Labor, and other agencies, reflecting changes in commodity prices during the period of record;

4. Extent of the readjustment and deflation in prices which has already taken place in some industries and materials, and the probability of more complete future readjustment in others;

5. General trend of prices averaged by decades;

6. Present prices; and

7. The prabable trend of future prices.

The *price for cast-iron pipe,* which constitutes one of the largest items entering into the inventory, has been fixed at *$35 per ton of 2,000 pounds f. o. b. cars at point of delivery, or $37 including delivery to the trenches. This shows an advance of approximately 40% over the pre-war prices* adopted in the inventory of December 31, 1912, in which there was allowed on cast-iron pipe f. o. b. cars at point of delivery, for 4 and 6-inch diameters, $25.50 per 2,000 pounds; for 8 to 12-inch diameter, $25; and for 16 to 36-inch diameters, $24.50.

This price ($35 per ton f. o. b. cars) was fixed in the light of the records of actual average prices paid on each of the years from 1911 to 1920 and during this period, by the City of New York, the Hackensack (N. J.) Water Company, the Commonwealth Water Co. of Summit, N. J., the Passaic Water Co.; the

Bridgeport Hydraulic Co., of Conn., the Consolidated Water Co. of Utica, New York, the Boston, Mass., Water Department, the Metropolitan Water Works of Boston, and the records of a large number of other works in different parts of the country; and the public records of the Engineering News-Record and of Iron Age. The prices during this decade ranged from ap-

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proximately $21 per ton to approximately $80 per ton, with isolated instances of still higher figures, approaching $100 per ton. The 10-year average of Engineering News-Record was $39.01; for New York City $39.43; for the Hackensack Water Co. $34.27; and for the Commonwealth Water Co., $32.25.

The average price per ton, weighted according to the actual purchases made in the several years, paid by the City of New York, the Hackensack and the Commonwealth Water Cos. during this 10-year period (1911 to 1920) was *$35.35*; the average for Bridgeport, Conn., Boston, Mass., and Utica, New York, *$34.41*; the average for New York City and Boston, the Hackensack, the Commonwealth, the Bridgeport Hydraulic and the Consolidated Water Companies, serving six large communities was *$35.08*.

The average paid by the Passaic Water Company does not cover this period because it prudently bought enough pipe at the beginning of the war to nearly meet its requirements during the war and, therefore, bought but a very small amount of pipe at war prices. It is clearly entitled in the light of the general experience of the other cities cited, to the financial advantage accruing to it from this shrewd and sound foresight.

Exhibits P3-A, P3-A1, P3-A2, P3-A3

It is to be noted that the lowest prices quoted upon cast-iron pipe for the year 1921 in this region have been upwards of $40 per ton, and that the prices of 1920 were at the peak.

Cast-iron fittings have been figured at 4¢ per pound comparable with 2.75¢ under pre-war conditions.

The small piping has been figured at an advance in cost of 50¢ over pre-war prices.

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Steel pipe which also constitutes a large element of value, has been figured at a basic rate (furnished, placed in trench, riveted and caulked but excluding earthwork) of 5.5¢ per pound, comparable with 4.5¢ per pound in the 1912 inventory, and showing an advance of one-fifth. Excess over this price has been allowed for especially difficult work, as in the earlier valuation.

Valves and hydrants have been figured at an advance of 50%; meters, 2 inch and under, 18%; over 2 inch, 12%; Venturi meters, 33%.

Horizontal return tubular boilers have been figured at $30 per H. P. complete, against $17.60 under pre-war conditions; *water tube* boilers at $40 per rated H. P., instead of $28, showing an advance of 43%.

Mechanical filters have been figured at approximately $25,000 per million gallons of rated capacity, or something less than two-thirds in excess of pre-war prices.

Unskilled labor commanded a wage in the water-works field of 17.5¢ per hour at Paterson and 22¢ at Montclair in 1912. The prices paid by different corporations and by these particular companies during

the interval from 1912 to 1921 have been carefully studied.

The Passaic Water Company actually paid 43¢ in 1919 and 55.5 cents per hour in 1920 for unskilled labor. Similar and, in general, slightly higher prices were paid in Montclair.

In brief then it may be said with respect to unskilled labor, that an analysis of average prices paid by waterworks in different parts of the United States in the past 10 years and those paid by the Passaic and Montclair Water Company indicates that it is fair to assume in estimating the fair reproduction cost of these properties as of December 31, 1920, at normal prices, a cost of unskilled labor at *Paterson of 30¢ per hour* and at *Montclair, 35¢ per hour.* These amounts show an

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advance over pre-war conditions, as exemplified by the average prices actually paid in the years 1912-13-14, *in Paterson from 18¢ to 30¢ or of about two-thirds; and in Montclair, from 23¢ to 35¢*, or of about one-half.

It is interesting to note further that the average prices paid by these companies during the 9-year period from 1912 to 1920 for common labor was, in Paterson 29.5¢ and in Montclair 32.5¢, involving increases over pre-war prices, as exemplified by the average prices paid during the three year period, 1912-13-14, of about two-thirds and two-fifths, respectively.

The Present prices are slightly in excess of those assumed for the valuation of December 31, 1920.

Pipe laying costs have been determined by a critical study of the average prices paid during the past 10 years, not only by these works, but by certain large

water works in Pennsylvania, Indiana and New York, with respect to which the writer has been familiar for a long period of years. *The increase* in allowances over pre-war costs *average 56.5%*.

Pavements. Allowance for pavement work has been made only in those cases where it is definitely known that the pavement was actually cut, removed and replaced, or tunneled, following the common interpretation of Judge Lurton's decision in the Omaha case. The destruction of the early records of the Company in the Paterson fire of 1902 has seriously limited information on this subject and probably curtailed the allowance. The available record concerning the cutting of pavements dates back to the following approximate dates, 1898 with respect to the operations of the Passaic Water Company; 1908, Acquackanonk Water Company, and practically to the beginning of opera-

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tion of the Montclair Water Company. It is probable that a good deal of pavement work, in addition to that claimed in the estimate, was actually done, but as specific proof cannot be made of the fact, because of want of definite record, claim for it has been eliminated.

Many engineers hold the view that even though in the laying of the distribution pipe system the pavements were not cut by the public utility, the actual value of its property was increased by the existence of the pavement. This is evidenced by outward aspects and increase in activity and business of many communities following the introduction of pavement and other public improvements and by the attitude of the purchasers of water works reflected in their greater willingness to make investment in water works prop-

erties in municipalities thoroughly paved. A part of this mental attitude of purchasers is no doubt due to the fact that the existence of pavements has in fact prevented unscruplous competition in a number of cases and tended to stabilize investment in water works plants in many places.

In this aspect of the matter, the cost of cutting and replacing all of the pavements overlying the pipe distribution system, regardless of whether they were or were not cut under the actual historic construction conditions, may have some significance as a measure of the value of the physical plant.

Nevertheless, following request of Counsel, no effort has been made here to list all of the pavements overlying the mains or to estimate the cost of cutting, removing and replacing it. Considerable work will be involved in assembling it.

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The elimination of this element of true reproduction cost materially reduces the value put upon the pipe lines.

In this connection, it may be significant also to refer to the recent decision in the Witchita, Kansas case before the Federal Court of that District in which the presiding judge (Judge Pollock) remanded the case to the Master with instructions to include in the reproduction cost estimate and rating base, the cost of all pavement work which would be involved in reproducing the plant, regardless of the fact that in the original construction of the works comparatively little pavement work was involved.

Railroad and Other Utility Crossings. The steam and street railroad and pipe crossings have been treat-

ed in principle in the same manner as the pavements, estimate being included only in those cases in which the railway lines were actually in existence at the time of laying the pipes. No allowance has been made for the additional work involved in reproducing the pipe lines, by reason of the existence of public utility conduits of various kinds, such as telephone, telegraph, electric light and perhaps heat. The record concerning the interference of these conduits under original-construction conditions is lacking, and practically impossible to get today. The remarks made above concerning the principle involved in the treatment of pavements apply with equal force to these structures.

Preliminary Expenses—Investigation, Organization, Incorporation, Promotion, etc. An allowance has been made for preliminary expenses of *1.3%* of the estimated gross reproduction cost of the structural and real estate items of property (including the overhead allowances thereon, but excluding interest-during construction, water rights and going-value items or allowances.)

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Overhead Allowances, Administration, Engineering, Miscellaneous Expenses, Contingencies, Omissions, etc. An allowance of 12 1/2% has been made for overhead expenses (excluding interest-during-construction) with respect to structural items; and 4% with respect to the purchase of *real estate, rights-of-way,* etc.

The Interest-During-Construction allowance to be applied cumulatively was fixed at 9% of the reproduction cost of the property (excluding only going value). This was based on an assumed annual interest rate of 7%, applied to the reproduction cost of the various

structural elements, up to the time when they were assumed to go into operation and to be capable of producing revenue.

The matter was also looked at in a broad way that interest upon construction costs might well have to be paid upon the entire sum involved in the building of the combined properties, for eighteen months, more or less, in view of the necessary construction period of five years during the last three of which, portions of the plant were assumed to go into revenue producing operation.

The Combined Amount of Preliminary and Overhead Expenses, and Interest-During Construction is equivalent to *24% on the structures and 15% on real estate.*

Depreciation on Structural Property. A careful analysis has been made annually by the Company; and of its equitable amount, independently determined by the Board of Appraisal of the Water Supply Commission of the State of New Jersey, as of December 31, 1912, and by the writer as of the latter date and as of December 31, 1920. It has been carefully reviewed also in the light of the actual condition of

the individual structures, and of the past experience of other water works as to the necessary annual allowance for depreciation in terms of per cent of the structural value of the property, the per cent of its gross annual revenue, and as expressed in cents per capita of population—criteria well known to water works men.

The depreciation allowances set aside annually by the Company have been equitable alike to the public

and to the corporation *on the basis of pre-war property values*, as will be found by detailed analysis.

With the change in conditions induced by the war and the resulting higher plane of values and costs, it is highly desirable from the corporate point of view, as it is from that of conservative public practice, to increase the depreciation allowances to accord with these higher values and costs, not alone with respect to the structures which have been built during the war period or which may hereafter be built, but also with respect to the property acquired or built prior to the war period.

The depreciation allowances should be reviewed and brought to scale periodically, or in other words be increased or decreased to accord with the general increase or decrease in prices and property values; in order that as the structures constituting the plant actually go out of service, and have to be amortized or replaced, there shall be on hand (set aside from earnings through the agency of the annual depreciation allowances), amounts adequate to replace them at the then existing prices, rather than to replace simply the original investment in the structures. While the latter method may be pursued equitably if it is consistently followed out, it is less conservative and less desirable than the former method, particularly under a rising market, because it tends more equitably to dis-

tribute the burden of cost upon the users of the service. It is more in accord, too, with the spirit of the Knoxville Water Company decision of the United States Supreme Court.

It was obviously impracticable for these water com-

panies to increase their annual depreciation allowances during the war, faced as they were, with very heavy increase in operating costs and preferring not to ask for increase in rates during the active war period, as would have been necessary to make possible the setting aside of increased allowances, large enough to cover not only the increase due to new property added but also the increase in value of the existing properties. This situation must be given careful consideration by the Commission and the Company in determining the policy to be followed in the future.

Annual Depreciation Allowances. About a year ago a detailed analysis was made by the writer of the annual depreciation allowances set aside by these companies up to December 31, 1919, which has served to make clear the adequacy and reasonableness of the annual allowances on pre-war price basis, thus far set aside. The analysis covers the annual depreciation allowances, and the withdrawals charged against it to cover property withdrawn, sold or abandoned, segregated under classes of property, in total amount and as charged to each of the companies.

The allowances made are in close accord with the limits fixed by the Board of Appraisal of the Water Supply Commission of the State of New Jersey for the year ending December 31, 1912.

The fair annual depreciation allowances on the basis of the estimateed fair depreciated reproduction cost of these properties as of December 31, 1920, on "*normal prices*" in contra-distinction to "pre-war prices," has been fixed by the writer on the sinking fund basis

with 4% interest rate, bearing in mind always and modifying the result to accord with the actual condition of the structure; and on the assumption that it is fair to lay aside an annual allowance which will amortize, in the remaining years of the life of the specific structures involved their present, depreciated value.

Water Power and Diversion Rights. These rights may be discussed in two general groups, the *first,* covering the water rights, at or in the vicinity of the Little Falls Pumping Station, which are composed principally of the rights acquired from the Beattie Mfg. Co.; the *second,* covering the rights, as against the riparian owners on the Passaic River below Little Falls.

Water Rights at Little Falls. Under the terms of an agreement dated February 15, 1898, the East Jersey Water Company acquired from the Beattie Mfg. Company, the plant of which is on the opposite side of the river from the Little Falls Pumping Station, the right to divert the flow of the Passaic River from it, subject to the reservation to the Beattie Mfg. Co. of a flow of water of 225 cu. ft. per sec. for a limited period of years and thereafter of but 2 mil, gal. per day.

In the latter part of March, 1911, the Beattie Mfg. Co., started its steam plant, installed to produce the power theretofore developed by water, and since that time is assumed by the writer to have diverted to its own use from the Passaic River, but 2,000,000 gallons daily of water.

These water rights with certain easements, rights

of way and land, purchased originally by the East Jersey Water Co., subsequently became the joint property of the East Jersey, the Passaic, the Acquackanonk and the Montclair Water Companies.

The value of the water rights at Little Falls has been analyzed from three points of view:

*30

first, the original cost of these rights;

second, the value put upon them by the Board of Appraisers of the Water Supply Commission of the State of New Jersey, as of December 31, *1912*, brought down to December 31, 1920; and

third, the value of the actual and the estimated future annual saving, resulting from the combined use of water- and steam-power pumping, as compared with the cost of pumping the entire water supply by steam-power.

The applicable values thus found range from about $500,000 to $900,000—the actual figures cited being from $414,000 to $1,395,000. A critical review of these figures indicates that *it is reasonable to fix the fair value of the Little Falls water rights owned by these water companies, at a sum of not less than $600,000, as of December 31, 1920.*

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Summary of Fair Value of

LITTLE FALLS WATER RIGHTS BOUGHT FROM THE BEATTIE MFG. CO.

1. Original Cost in 1896, $530,000, or excluding certain lands and rights of way,

and excluding allowance for the marked appreciation which has taken place in water rights within the past 20 years, say $515,000

2. Value fixed by the Board of Appraisers appointed by the Water Supply Commission of the State of New Jersey, as of December 31, 1912, page 66 of their report, without allowance for appreciation $413,822.

(a) On the basis of an advance in water rights values of 33%, the above sum would amount to $550,000

(b) On an advance of 50% $620,000

(c) On an advance of 66 2/3% $690,000

3. Value of annual saving resulting from water power pumping

(a) Based upon average annual saving in operating expenses ($39,700) average for past ten years; less allowance for repairs and maintenance, depreciation, and interest upon revised gross reproduction cost of water power equipment, with assumed right to divert 100 mgd. capitalized at 6% 391,000

(b) Based upon an actual saving of $63,400 in 1919 $676,000

(c) Based upon actual saving in 1920 of $79,200 $939,000

(d) Based upon saving of $106,500 in 1921 $1.395,000

(e) *Based upon future annual saving of $60,000* $619,000

Conclusion. It seems reasonable to conclude that the fair value of the Beattie water rights, as of December 31, 1920, may be fixed at a sum of not less than $600,000.

This amount ($600,000) is:

16% in excess of the original cost;

45% in excess of the valuation of the Board of Appraisers of the Water Supply Commission of the State of New Jersey, as of December 31, 1912;

Equivalent to $32.30 per foot-mile of a partly developed manufacturing plant privilege using the water also in its manufacturing processes;

A substantially less sum than the capitalized cost of pumping the water from the Passaic River, below the falls, to the sedimentation basins of the water purification plant.

*32

Water Right below Little Falls. In the discussion of the water rights of these water works properties, it is to be remembered that the New Jersey General Security Company is a holding company, which owns a number of other properties, amongct them those of the "Society for Establishing Useful Manufactures" and the "Dundee Water Power and Land Company,"

which latter operate properties on the Passaic River at Great Falls and at the Dundee Dam. Certain of the water rights of these water companies have been developed through or with the assistance of the latter companies. As operated, the water companies pay annually to the S. U. M. and to the Dundee Water Power and Land Co., specific amounts for water diverted by them from the river at Little Falls, and through the Dyers' Pipe Line at Great Falls. The quantities diverted and the amounts paid since January 1, 1912, are shown in Table 7.

While certain of the water rights are owned outright by these water companies, other rights as against the S. U. M. and the Dundee Water Power and Land Co., and some other small riparian owners have not been determined or liquidated. Of these, the former are much the more important and they are covered by the annual payments made for water actually diverted.

Inasmuch as this portion of the business of the S. U. M. and the Dundee Water Power and Land Co. (to wit, the permitting of these constituent water companies to divert water at Little Falls) has grown up gradually and been in force for a long time, perhaps since the inception of these water companies; and since the amounts paid by the manufacturers served with water, from the Dyers' Pipe Line running from the Great Falls dam, have been paid voluntarily, under conditions where it was possible for the manufacturers to serve themselves, independently or collectively, by other means; it is

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METCALF & EDDY,
Consulting Engineers.
Boston, Chicago.

(Tables 4, 5 and 6 Omitted.)

Table 7. Quantities of Water Diverted and Amounts Paid the S. U. M. and Dundee Water Power and Land Co., from 1912 to 1921 inclusive.

	From Dundee Water Power & Land Co.			S. U. M. at Little Falls			S. U. M. at Great Falls Dyers' Line			
Year	Mill Gallons	Rate	Amount	Mill Galls.	Rate	Amount	Mill Gallons	Rate	Amount	Total Amount Paid
1912	7,715.99	2.00	$15,413.97	11,430.886	5.00	$57,154.43	1,978.705	7.50	$14,840.29	$87,408.69
1913	7,478.73	2.00	14,957.46	10,541.728	5.00	52,708.64	1,557.066	"	11,678.00	79,344.10
1914	8,324.79	.75	6,243.59	11,756.49	"	58,782.45	2,254.583	"	16,909.37	81,935.41
1915	8,183.30	.75	6,137.48	11,674.728	"	58,373.64	2,345.94	"	17,594.56	82,105.68
1916	9,752.887	.75	7,314.64	13,269.272	"	66,346.36	2,552.892	"	19,146.69	92,807.69
1917	10,948.40	.75	8,211.29	14,608.496	"	73,042.48	2,378.696	"	17,840.22	99,093.99
1918	12,308.81	.75	9,231.77	15,765.434	"	78,827.17	2,268.6	"	17,014.49	105,073.43
1919	12,517.742	.75	9,388.30	15,653.668	"	78,268.34	1,700.49	"	12,753.67	100,410.31
1920	7,702.32)	.75)	5,776.73)							
1920	7,382.53)	2.00)	14,765.06)	18,642.57	"	93,212.85	1,604.421	"	12,033.16	125,787.80
1921	13,084.865	2.00	26,169.73	16,824.626	"	84,123.13	1,996.713	"	14,975.35	125,268.21
Totals	105,400.364		$123,610.02	140,167.898		$700,839.49	20,638.106		$154,785.80	$979,235.31

Note Dundee W. P. and L. Co. Rate for 1920 is 6 months at 75¢ and
6 months at 2.00

not to be presumed that the value of the power diverted is alone a fair measure of these old water rights.

The simplest method of treatment has, therefore, appeared to be to eliminate from the valuation of these properties, the value of the water rights on the Passaic River below Little Falls, utilized by them, and to include in the annual operating expenses of these companies the actual payments made by them for water diverted. *This is the method followed.*

It may be of interest to note, however, in connection with this discussion upon the water rights acquired below Little Falls, as against the S. U. M., and the Dundee Water Power and Land Company, that these rights were bought in December, 1921, about a year later than the date of this valuation, from the S. U. M. and the Dundee Water Power and Land Company, at a cost of *$1,120,000,* excluding the right to take water in the Dyer's Pipe Line. This payment is equivalent to the average total amount paid by the water companies to the Dundee Water Power and Land Company and the S. U. M. at Little Falls (excluding Dyers' Pipe Line diversion at Great Falls) *annually* during the past decade (1912-1921, inclusive), capitalized at the approximate rate of 7.35%. The division of cost as between the several water companies was:

The Acquackanonk Water Co.	$212,800	
The Passaic Water Co.	280,000	
The Montclair Water Co.	56,000	$548,800
The E-Jersey Water Co.		571,200
		$1,120,000

Exhibits P3-A, P3-A1, P3-A2, P3-A3

Going Value. The development of any project whether public service, industrial or commercial, generally involves three distinct periods or phases of development;

first, the period of preliminary investigation, comprising study of the local, physical and financial situation;

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second, the period of planning and construction, during which the detailed plans for the project are drawn, real estate and other property rights acquired, plans and specifications prepared, contracts awarded and executed;

third, the period of development of the business of the concern, which comprises the building up of the necessary administrative, operation and maintenance organizations, to conduct the business; the getting of water consumers and users; and the doing of those things, necesary to establish a profitable going business.

The merchant recognizes in commercial business, that time, effort and expense are necessary to attract customers, to determine their needs and how best to serve them, and to build up a profitable business. So too the operator of a public utility knows that time is required to acquire a revenue which will not only meet operating charges, but yield a fair return upon the fair value of the property. This period varies in length in utilities of different character, with the different conditions under which they operate, and decreases with the education of the public to the advantage of the service offered to it.

Exhibits P3-A, P3-A1, P3-A2, P3-A3

Ignorance of development costs, and failure to provide for them financially in outlining new enterprises, has wrecked many projects. This was the fate of most of the early irrigation and land settlement projects. But courts, commissions and engineers have come to recognize them clearly and have given weight both to the cost of establishing the business and to the greater inherent value of the going concern, of the property with established business, as compared with the identical physical but undeveloped property.

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The subject has been approached from three general points of view:

first, the historic cost of developing the business under historic conditions, so far as they can be determined;

second, the estimated reproduction cost under present conditions;

third, practical considerations and past experience with other properties, growing out of a comparative study of the original and reproduction costs of these properties, the historic and other conditions under which they have operated, the local conditions met with, and the character of service furnished by them.

While the terms "development expense," "going concern value" and "going value" have all been used synonymously, a correcter usage is to be found in the differentiation between past, historic or original conditions, and present or reproduction conditions. The term "development expense" should apply to the original conditions; "going concern value" or "going value," to present conditions.

Exhibits P3-A, P3-A1, P3-A2, P3-A3

The going value or *going concern value of a property may be* defined then as, *the difference in value between the existing property with its established plant, connections, business and revenue, and the identical structural plant, without established connections, business and revenue.* This has been the usual legal conception and is that to which particular weight was attached in the suit of the Denver Union Water Co. before the Federal Court of the District of Colorado, subsequently passed upon by the U. S. Supreme Court.

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The recent decision rendered by Mr. Justice Brandeis of the U. S. Supreme Court, in Galveston Electric Company versus Galveston, Texas, held that the so-called Wisconsin Railroad Commission method of measuring going value by the historic development cost was of little significance and in effect that evidence was lacking in that case, upon which to base a judicial determination of the fair allowance for going value.

It will be seen that the definition of going value given above, is a somewhat broader one than that covered by the usual definition of "development expense," as "the cost of reproducing the business of the Company." It is clear, too, that it recognizes the fact that a plant with a well established business is more valuable than the identical plant without such business, even though the original development expense or estimated cost of developing the business may have been amortized in a sense, in the past life of the utility, by excessive profits in some past period.

Going value is independent of franchise value, except insofar as it assumes that the property is an existing operating property, or one capable of being oper-

ated or continued in operation. Even though the franchise may have expired, the property with its established business is recognized to be more valuable and capable of greater or more certain earnings, than if such business had not been previously developed. In this case, no franchise value has been included, the cost of getting the franchise has been included under preliminary expenses.

In its narrower sense, it has not been possible in the past awards made by the courts and commissions to segregate the going value allowance from that for franchise rights and other intangible

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values; but in many if not most of these awards the value attributed to these intangibles has probably been a relatively small one. In any event, it has been merged in that of going value.

As has been stated heretofore by the courts, development expense or going concern value *is not* the "difference between the reproduction cost and the junk value of the property," but is in the nature of an addition to the value of the physical property. neither is it good will, for which no allowance is generally made in public utility properties, beyond such general consideration as it may receive in the review of the operating condition of any revenue producing company.

Summary of
Methods of Determining or
Reviewing Allowances for
GOING VALUE.

1. Development expense under past, historic, or orig-

inal conditions. This is also sometimes called the Wisconsin R. R. Commission method.

2. Going value determined by the "comparative method."

3. The relative cost of capital to an undeveloped and to an established business.

4. Comparison with going value found in other, more or less similar, properties as developed in court decisions, commission rulings and awards in various cases.

5. Rule of Thumb Methods.

   (a) Per cent of gross reproduction cost.
   (b) Per cent of gross annual revenue.

Development Expense Unavailable. In this case it is not possible to determine the "development expense" of these properties under original conditions, owing to the destruction of the early records of the company in the Paterson fire of 1902. Even were it possible, the development expense thus found would be likely to

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have little significance, owing to the age of these works.

Going Value by "Comparative Method." An analysis has been made of the "comparative method." In this it is assumed that, as of the date of valuation, Dec. 31, 1920, the existing operating or going property may *on the one hand,* be bought and continued in operation, or, on the other hand, that a new plant may be built, under the assumption that no plant is

now serving these communities. The going value of the existing plant is then the present worth of the differences in net earnings under the two stated conditions, from year to year, from the date of valuation to the date upon which it is assumed that the new or compartive plant could develop a business identical with that of the old.

In determining the going value of this property by the comparative method, the computation has not been based upon existing rates, which are known to be somewhat inadequate, but upon the equitable annual revenue, based upon the fair depreciated or net reproduction cost of the property, as of December 31, 1920, under fair normal prices.

Determination of the going value of this property was first made upon the property as a whole and the total allowance was segregated thereafter, in accordance with the depreciated net or reproduction cost of the property of the individual companies as of December 31, 1920; and as an aid to judgment, following the recent ruling of the Board of Public Utility Commissioners of New Jersey eliminating The East Jersey Water Company from consideration, new and independent estimates of going values were made as to each of the three companies hereunder discussed—The Acquackanonk, The Passaic, and The Montclair Water Companies.

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In the computation relating to the combined properties *a 5-year "period of construction,"* including the preliminary period of investigation, has been assumed; *a 6-year "period-of-business development," three years of which overlap the three last years of*

the construction period; making the *entire assumed period* of "preliminary-investigation," "planning-and-construction," and "business development," *8 years.* It has been assumed in figuring the going value of the combined works, that the plants are entitled to earn operating expenses, depreciation allowance, and a fair annual return of at least 7% upon the fair value measured by the depreciated or net reproduction cost of the property, although a somewhat higher rate is believed to be equitable.

In the independent estimates of going value of each of the separate companies—The Acquackanonk, Passaic and Montclair Water Companies—the assumptions as to the period of construction and the period of development of business, made for the unified system referred to above, were modified to such periods as might reasonably apply for the single property, without consideration of the effect upon the result where the individual programs were combined in a program for building a unified plant and establishing its business. The individual assumptions were as follows:

Water Company	Period of Years for Construction of Plant	Development of Business	Total Construction and Development
1. The Acquackanonk	3	4	6
2. The Passaic	4	5	7
3. The Montclair	3	4	6

In figuring the allowances to be made for interest upon unemployed capital, it has been assumed that the capital required by the investor-builder for construction-during-the-year, would earn

*40a

interest, as would bank balances, of 2% for an average six months' period of time; and with respect to the capital awaiting investment in structures, a 5% interest rate. The interest-during-construction allowances were made in like amounts with those used in determining the reproduction cost of the property, to wit: equivalent to 9% of reproduction cost of all items. The present worth computation was made on the basis of a 6% interest rate.

In discussing the fair allowance for going value, the interdependence of the interest during construction and the going value items is to be borne in mind. If the interest during construction allowance is decreased, the going value is correspondingly increased and vice versa.

Going Value Based upon Relative Cost of Capital to an Established and to an Undeveloped Property. Among other factors the cost of capital to any project is determined by the convertibility and hazard of the investment. If capital be borrowed for the building of a public utility property and the establishment of its business, a higher rate will have to be paid than for a like amount of capital borrowed against the same property, after the completion

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of its construction and the establishment of its going business.

On properties of this character, this increase in rate is likely to be one-fifth more or less. Thus, if capital were to cost a waterworks property, such as here under consideration, 9% to 10% if borrowed in ad-

New Jersey State Library

vance of its construction and of the establishment of its business, experience has shown that if the same capital were to be borrowed by this Company *after* the completion of its plant and establishment of its business, instead of *before,* assuming also that an income adequate to carry the investment can be earned, it would probably have to pay a rate of between 7% and 8%. The ratio of these two rates of interest then (9.5%:7.5% or 1.27:1 under the above assumption) may fairly be assumed to measure the betterment, the strengthening of credit and hence the increase in value of the property, and this increase in value constitutes the element of value which has been called "going value."

Going Value by Rule of Thumb Methods. Past experience has indicated that the going value of waterworks properties generally lies between 10% and 15% of the entire property value, and usually between 1 and 1 1/4 times the gross annual revenue.

Net Annual Income Not a Fair Criterion of Value. With inadequate rate schedules and the readjustments involved by the war, it is obvious that the present net annual income is not a fair criterion of value. No general increase in rates was asked for by the Company during the war period, despite the tremendous increase in operating expenses, and the necessary increase in rates, which is still pending, has not yet been realized.

No criterion of Market Value is available because the shares of the Company have been dealt in on the market only in minor

quantities, never involving either a controlling interest in, or a substantial part of, the property.

Condition of Property and Character of its Service. In general, it may be said that the plant is neither underbuilt nor overbuilt, but in a fairly normal state of development prudently in advance of its requirements.

Two striking examples of the prudence and foresight shown in its development are to be found.

First, in the purchase of the entire Beattie water rights which, had they not been purchased years ago, could very likely not have been purchased during the war period, or since that time, except at exorbitant prices. Had they not been purchased in full and to an amount substantially in excess of that deemed necessary by the Board of Appraisal appointed by the Water Supply Commission of the State of New Jersey as recently as of 1912, the operating expenses and rates of these companies would have been very largely increased, because of the great advance in cost of coal and fuel oil.

Second, in the purchase at the beginning of the war, of a large amount of cast-iron pipe, at prices far below those to which cast-iron pipe has risen during and subsequent to the period of war, when it was needed for the extension in service of these companies.

The general character of the service rendered by the companies is good and dependable, and the methods employed by it have been abreast of the best current practice.

Recapitulating, then, we have the following criteria of value:

Exhibits P3-A, P3-A1, P3-A2, P3-A3

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CRITERIA OF VALUE
As of December 31, 1920.
Excluding Value of Lower Water Diversion Rights, for which the Companies paid $1,120,000 in the year 1921.

1. Value of property on basis of its depreciated or net reproduction cost at fair normal prices.

2. Value of property on basis of 10-year average prices prior to date of valuation.

3. Value of property on basis of present (1920) prices.

4. Value of property on prewar price basis.

5. Book Cost excluding items shown on page 15.

6. Value of property on basis of present net annual revenue not a fair criterion of value.

7. Value of property on the basis of past selling price of its securities not a fair criterion.

The Gross Annual Revenue, Operating Expense, Depreciation Allowance actually set aside and the Net Divisible Return upon these properties annually during the period from 1909 to 1920, inclusive, are shown in the following tabulation:

(Table 8 omitted)

NEW JERSEY GENERAL SECURITY CO.

Table 9. Summary of Revenue and Operating Expenses for Years ending December 31, 1909-1915, inclusive.
(Based upon the analysis of Mr. Nicholas S. Hill, Jr.)

	1909	1910	1911		1912		1913		1914		1915	
Gross Annual Revenue												
Passaic Water Co.	$445,060	$460,334	$469,793	46.4%	$496,722	45.4%	$507,396	44.6%	$536,846	44.3%	$544,003	44.2%
Acquackanonk " "	174,838	204,926	222,007	22.0%	244,720	22.3%	261,769	23.0%	276,434	22.8%	298,288	24.2%
Montclair " "	142,677	151,165	172,896	17.1%	189,627	17.3%	207,893	18.3%	218,385	18.1%	191,322	15.5%
East Jersey " "	125,227	115,732	128,497	12.7%	142,465	13.0%	140,011	12.3%	156,060	12.9%	175,835	14.3%
Kearney " "	14,567	16,572	17,873	1.8%	21,438	2.0%	20,766	1.8%	23,317	1.9%	22,755	1.8%
Total	$902,369	$948,729	$1,011,066	100%	$1,094,972	100%	$1,137,835	100%	$1,211,042	100%	$1,232,203	100%
Operating Expense (excl. Depreciation)												
Passaic Water Co.	$156,577	$147,836	$148,108	40.2%	$158,070	39.0%	$142,949	36.8%	$170,577	40.0%	$180,027	39.9%
Acquackanonk " "	61,220	68,457	59,272	16.0%	72,116	17.8%	68,804	17.7%	76,477	18.0%	83,605	18.5%
Montclair " "	55,441	66,857	54,027	14.6%	68,242	16.8%	68,517	17.6%	73,817	17.3%	76,906	17.0%
East Jersey " "	81,820	86,350	106,428	28.8%	102,765	25.4%	103,930	26.7%	102,733	24.1%	108,177	24.0%
Kearney " "	1,110	1,309	1,483	0.4%	3,920	1.0%	4,681	1.2%	2,768	0.6%	2,877	0.6%
Total	$356,168	$370,809	$369,318	100%	$405,113	100%	$388,881	100%	$426,372	100%	$451,592	100%
Operating Revenue												
Passaic Water Co.	$288,483	$312,498	$321,685	50.1%	$338,652	49.1%	$364,447	48.8%	$366,269	46.7%	$363,976	46.7%
Acquackanonk " "	113,618	136,469	162,735	25.3%	172,604	25.0%	192,965	25.7%	199,957	25.5%	214,683	27.5%
Montclair " "	87,236	84,308	118,869	18.5%	121,388	17.6%	139,376	18.6%	144,568	18.4%	114,416	14.7%
East Jersey " "	43,407	29,382	22,069	3.5%	39,700	5.8%	36,081	4.8%	53,327	6.8%	67,658	8.6%
Kearney " "	13,457	15,263	16,390	2.6%	17,518	2.5%	16,085	2.1%	20,549	2.6%	19,878	2.5%
Total	$546,201	$577,920	$641,748	100%	$689,859	100%	$748,954	100%	$784,670	100%	$780,611	100%
Deduction for Depreciation Allowance												
Passaic Water Co.	$21,800	$21,800	$46,260	47.9%	$53,251	46.3%	$53,484	50.2%	$50,678	47.7%	$51,542	48.3%
Acquackanonk Water Co.	8,350	8,350	20,485	21.2%	28,414	24.7%	21,736	20.5%	22,820	21.5%	23,404	22.0%
Montclair " "	4,572	4,573	16,718	17.4%	20,460	17.8%	17,542	16.5%	18,976	17.9%	19,342	18.2%
East Jersey " "	6,000	6,000	9,500	9.9%	9,358	8.1%	10,099	9.5%	10,230	9.6%	10,284	9.6%
*Kearney " "	2,000	2,000	3,500	3.6%	3,500	3.1%	3,500	3.3%	3,500	3.3%	2,000	1.9%
Total	$42,722	$42,723	$96,463	100%	$114,983	100%	$106,361	100%	$106,204	100%	$106,572	100%
Net Divisable Return												
Passaic Water Co.	$266,683	$290,698	$275,425	50.4%	$285,401	49.7%	$310,963	48.4%	$315,591	46.5%	$312,434	46.4%
Acquackanonk " "	105,268	128,119	142,250	26.1%	144,190	25.1%	171,229	26.7%	177,137	26.1%	191,279	28.4%
Montclair " "	82,664	79,735	102,151	18.8%	100,925	17.5%	121,834	18.9%	125,592	18.5%	95,074	14.1%
East Jersey " "	37,407	23,382	12,569	2.3%	30,342	5.3%	25,982	4.0%	43,097	6.4%	57,374	8.5%
Kearney " "	11,457	13,263	12,890	2.4%	14,018	2.4%	12,585	2.0%	17,049	2.5%	17,878	2.6%
Total	$503,479	$535,197	$545,285	100%	$574,876	100%	$642,593	100%	$678,466	100%	$674,039	100%

* This is the sum reported by Mr. Hill, though it is understood that the amount actually set aside was $3,500.

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NEW JERSEY GENERAL SECURITY CO.

(Based upon the analysis of Mr. Nicholas S. Hill, Jr.)

Table 9. Cont.—Summary of Revenue and Operating Expenses for Years Ending December 31, 1916-1920, inclusive.

	1916		1917		1918		1919		1920	
Gross Annual Revenue										
Passaic Water Co.	$567,858	42.8%	$593,175	41.6%	$614,340	40.1%	$598,510	38.6%	$643,519	36.2%
Acquackanonk " "	312,697	23.6%	329,174	23.0%	331,299	21.6%	324,771	20.9%	363,345	20.4%
Montclair " "	177,733	13.4%	178,537	12.5%	175,319	11.5%	184,010	11.9%	194,967	11.0%
East Jersey " "	240,766	18.2%	294,629	20.7%	370,906	24.3%	403,718	26.0%	525,935	29.6%
Kearney " "	26,510	2.0%	32,168	2.2%	38,372	2.5%	40,964	2.6%	48,892	2.8%
Total	$1,325,564	100%	$1,427,683	100%	$1,530,236	100%	$1,551,973	100%	$1,776,658	100%
Operating Expense (excl. Depreciation)										
Passaic Water Co.	$195,006	37.1%	$222,937	35.4%	$258,892	32.8%	$271,296	32.7%	$301,859	29.1%
Acquackanonk " "	99,220	18.9%	118,098	18.7%	143,176	18.2%	145,302	17.5%	180,419	17.4%
Montclair " "	84,545	16.1%	92,410	14.6%	105,260	13.3%	108,452	13.0%	130,621	12.6%
East Jersey " "	143,483	27.4%	194,180	30.8%	277,397	35.1%	298,512	35.9%	413,083	39.8%
Kearney " "	2,598	0.5%	3,178	0.5%	4,855	0.6%	7,693	0.9%	11,842	1.1%
Total	$524,852	100%	$630,803	100%	$789,580	100%	$831,255	100%	$1,037,824	100%
Operating Revenue										
Passaic Water Co.	$372,852	46.6%	$370,238	46.5%	$355,448	48.0%	$327,214	45.4%	$341,660	46.2%
Acquackanonk " "	213,477	26.7%	211,076	26.5%	188,123	25.4%	179,469	24.9%	182,926	24.8%
Montclair " "	93,188	11.6%	86,127	10.8%	70,059	9.5%	75,558	10.5%	64,346	8.7%
East Jersey " "	97,283	12.1%	100,449	12.6%	93,509	12.6%	105,206	14.6%	112,852	15.3%
Kearney " "	23,912	3.0%	28,990	3.6%	33,517	4.5%	33,271	4.6%	37,050	5.0%
Total	$800,712	100%	$796,880	100%	$740,656	100%	$720.718	100%	$738,834	100%
Deduction for Depreciation										
Passaic Water Co.	$52,962	48.6%	$54,703	48.8%	$57,611	49.2%	$60,289	48.0%	$63,721	48.4%
Acquackanonk " "	23,945	21.9%	24,861	22.2%	25,953	22.2%	28,659	22.8%	29,807	22.6%
Montclair " "	19,585	18.0%	19,962	17.8%	20,675	17.6%	22,021	17.5%	22,934	17.4%
East Jersey " "	10,623	9.7%	10,516	9.4%	10,895	9.3%	12,713	10.1%	13,215	10.1%
*Kearney " "	2,000	1.8%	2,000	1.8%	2,000	1.7%	2,000	1.6%	2,000	1.5%
Total	$109,115	100%	$112,042	100%	$117,134	100%	$125,682	100%	$131,677	100%
Net Divisable Return										
Passaic Water Co.	$319,890	46.3%	$315,535	46.1%	$297,837	47.8%	$266,925	44.8%	$277,939	45.8%
Acquackanonk Water Co.	189,532	27.4%	186,215	27.2%	162,170	26.0%	150,810	25.3%	153,119	25.2%
Montclair " "	73,603	10.6%	66,165	9.7%	49,384	7.9%	53,537	9.0%	41,412	6.8%
East Jersey " "	86,660	12.5%	89,933	13.1%	82,614	13.3%	92,493	15.6%	99,637	16.4%
Kearney " "	21,912	3.2%	26,990	3.9%	31,517	5.0%	31,271	5.3%	35,050	5.8%
Total	$691,597	100%	$684,838	100%	$623,522	100%	$595,036	100%	$607,157	100%

* This is the sum reported by Mr. Hill, though it is understood that the amount actually set aside was $3,500.

Exhibits P3-A, P3-A1, P3-A2, P3-A3

*46

The Fair Rate of Return upon any public utility property is in a sense inseparably interwoven with the rating base. From an absolute point of view, the return should be commensurate with the degree of stability or hazard involved in the business, the attractiveness and the convertibility of the investment If the rating base be fixed on a basis which gives inadequate consideration to the hazards involved in the development of the property, the rate of return must be correspondingly increased and vice versa Otherwise, capital will not be attracted to such investments. Under prewar conditions a rate of return of 7 1/2% more or less, would have been considered reasonable upon such a property as this, fairly valued The corresponding present (1920) rate of return is at least 8 1/2 per cent; and this higher rate applies, as has been shown, to a rating basis 50% more or less, above the prewar base.

The actual and the estimated equitable gross annual revenue for the year 1920 are shown in the individual company valuation reports.

Equitable Gross Annual Revenue for Year 1920. In discussing the equitable annual revenue for such a property, during such a transition period as that through which we are passing (leading from the low prewar rating base to a postwar rating base which is substantially higher, though not up to the yet higher maximum which prevailed during the war; and involving also a substantial increase in rates of return which is not likely to fall again to prewar prices for any considerable period of time within the next decade), it appears reasonable to adopt for the present

* This is the sum reported by Mr. Hill, though it is admitted that

or perhaps for the first step in the advance of rates, a rate of return somewhat lower than 8%.

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The rate of 7 1/4% which has been adopted in some of the recent decisions of this Commission might furnish such a transition rate, if applied to a valuation which fairly reflected the hogher postwar prices, or loss in purchasing power of money.

In the discussion of the gross annual revenue of the five water companies, it is to be borne in mind that a portion of the revenue during the past three years was obtained from Jersey City and that this water service, and hence income from it, will probably be discontinued in the near future, as Jersey City will be able to meet her own needs.

The record of water sold to Jersey City follows:

Millions of Gallons of Water Furnished to Jersey City and Gross Income therefrom 1917-1921.

Year	Millions of Gallons	Gross Income
1917	337.80	$20,268
1918	283.02	16,981
1919	1117.1	67.026
1920	2675.6	160,536
1921	2228.3	133,698

valuation which fairly reflected the higher postwar

It is to be borne in mind further, that under the basis of inventory adopted herein, there must be included in the operating expenses allowance for the annual amounts paid to the Society for Establishing Use-

ful Manufacturers and The Dundee Water Power and Land Company for water diverted at Little Falls, because the right to divert this water was not acquired until after the date of this valuation (as previously discussed herein under the caption "Water Rights below Little Falls").

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Working Capital. A fair allowance should also be included in the rating base, for working capital, in addition to the capital involved in materials and supplies on hand.

VOLUME A1 METCALF

Value of the Property of

THE ACQUACKANONK WATER COMPANY

Controlled by

THE NEW JERSEY GENERAL SECURITY COMPANY

Paterson, N. J.

As of December 31, 1920.

Metcalf & Eddy, Consulting Engineers,
14 Beacon St., Boston, Mass.
May 31, 1922.

Exhibits P3-A, P3-A1, P3-A2, P3-A3

Leonard Metcalf
Harrison P. Eddy
Charles W. Sherman
Almon L. Fales
Frank A. Marston

Members Am. Soc. C. E.

Designs Construction
Supervision Management
Water Works
Water Purification
Sewerage
Sewage Disposal
Industrial Waste Disposal
Reports Valuations

File

METCALF & EDDY
Consulting Engineers
14 Beacon Street
Boston, Mass.

Boston, Mass. May 31, 1922.

Mr. Edmund LeB. Gardner,
President, New Jersey General Security Company,
158 Ellison Street, Paterson, New Jersey.

My dear Sir:

I submit herewith *Volume A1,* covering my valuation of the property of *The Acquackanonk Water Company.* These figures are supplemental to Volume A, which contains the "General Comments upon the Basis of Valuation of the Properties of The Acquackanonk Water Company, The Passaic Water Company and The Montclair Water Company.

From the following five criteria of value and a careful consideration of the property and the character of the services rendered by it, I estimate *the fair value of the property of The Acquackanonk Water Company at the sum of $3,066,000, as of December 31, 1920.*

This value excludes allowance for the right to divert water from riparian owners below Little Falls, because these rights as against the Society for Establishing Useful Manufactures and the Dundee Water Power and Land Company, excluding the right to divert water through the Dyers' Pipe Line, were not purchased until December, 1921, or about a year after the date of this valuation.

Exhibits P3-A, P3-A1, P3-A2, P3-A3

The value fixed is on like basis with my valuation of $13,500,000 as of December 31, 1920, for the entire property of The Acquackanonk, Passaic, Montclair, East Jersey and Kearney Water Companies.

*2

CRITERIA OF VALUE OF THE PROPERTY OF THE ACQUACKANONK WATER COMPANY

As of December 31, 1920.

1. *The Book Cost,* excluding Construction Work in Progress, Materials and Supplies, and Cash and Cash Items, all as of December 31, 1920,	$2,118,000
2. Value of Property on *Pre-War Price Basis*	$1,925,000
3. Value of Property on the Basis of *1920 Prices*	$4,058,000
4. Value of Property on Basis of *10-Year Average Prices,* prior to date of valuation	$2,926,000
5. Value of Property on Basis of its *Depreciated or Net Reproduction Cost at Fair Normal Prices*	$3,181,000
Metcalf's Fair Value, excluding right to divert water from riparian owners below Little Falls	$3,066,000

The rights against the S. U. M. and the Dundee Water Power and Land Company, excluding the right

to divert water through the Dyers' Pipe Line, were acquired in December, 1921, at the following prices:

(a) The Acquackanonk Water Co.	$212,800
(b) The Passaic Water Co.	$280,000
(c) The Montclair Water Co.	$56,000
(d) The East Jersey Water Co.	$571,200
Total	$1,120,000

Criterion 1. The Book Cost ($2,118,000) has been determined from the books of the Company, on the basis of the exclusion of all construction work in progress, materials and supplies, and cash and cash items, all as of the date of valuation, December 31, 1920.

Criterion 2. The Value of the Property on Pre-War Price Basis ($1,925,000) has been determined by adding to the value of the property fixed as of December 31, 1912, by the Board of Appraisers appointed by the Water Supply Commission of the State of New Jersey, the value, at pre-war prices, of the annual betterments built since that date, found by reducing their actual cost, by factors

*3

measuring the ratio of prices normal in the years stated, to those normal under pre-war conditions; and subtracting the annual depreciation allowance set aside by the Company, which was fairly commensurate with the actual depreciation, which accrued on the property during this interval.

In Table 1 are shown the valuation fixed by the Board of Appraisers; the annual cost of betterments; the factor to reduce the cost of betterments to the

1912 basis, which has been taken from Metcalf's Volume A, page 12, Table 3, Column 9; the value of the annual betterments on 1912 price basis; the cumulative amount of the property as of 1912, and betterments on pre-war price basis; the annual depreciation allowance and the resulting net value of the property on pre-war price basis.

Criterion 3. The Value of the Property on the Basis of 1920 Prices ($4,058,000) has been determined by multiplying the value of the groups or elements of property as found by the Board of Appraisers, as of 1912, by the approximate factor indicating the ratio of prices upon such property, current in the year 1920, to the prices current in the year 1912; adding to this the value of the structural betterments from 1913 to 1920, reduced to 1912 cost basis and subsequently increased by the ratio of 1920 to 1912 prices; adding allowance for increase in value of lands and water rights; and deducting allowance for depreciation actually set aside, multiplied by the ratio of 1920 to 1912 prices. The result thus reached, see Table 2, is *approximately 2.11 times the value upon 1912 or pre-war price basis.*

Exhibits P3-A, P3-A1, P3-A2, P3-A3

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Table 1. Acquackanonk Water Co.

Value (as of December 31, 1920) on Basis of Prices Normal in 1912

Year Ending Dec. 31	Cost of Betterments During Year*	Factor to Reduce Cost of Betterments to 1912 Basis Note X.	Value of Betterments on 1912 Price Basis* Col. (2) x Col. (3)	Value of Depreciable Property in 1912 Plus Betterments on 1912 Basis*	Annual Depreciation Allowance Actually Set Aside	Net Value Depreciable Property on Basis 1912 Prices*	Lands Water Rights, Organization, Going Value	Totals on Basis 1912 Prices (Depreciated)*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1912	Board of Appraisers' Report			$1,301,591		$1,301,600	$534,873	
1913	$54,660	1.00	$54,700	1,356,300	$21,380	1,334,900		
1914	39,688	1.01	40,000	1,396,300	23,088	1,351,800		
1915	34,391	0.94	32,400	1,428,700	23,404	1,360,800		
1916	38,263	0.80	30,600	1,459,300	23,945	1,367,500		
1917	38,285	0.59	22,600	1,481,900	24,861	1,365,200		
1918	17,657	0.51	9,000	1,490,900	25,953	1,348,200		
1919	140,552	0.51	71,700	1,562.600	28,659	1,391,300		
1920	59,208	0.49	29,000	1,591,600	29,807	1,390,500		
					Land Sales		— $65	
Totals	$422,704		$290,000	$1,591,600	$201,097	$1,390,500	$534,808	$1,925,300

*Includes Materials and Supplies.
Note X. see Metcalf's Volume A, page 12, Table 3, Column 9.

Exhibits P3-A, P3-A1, P3-A2, P3-A3

Table 2. Acquackanonk Water Co.

Approximate Net Reproduction Cost as of December 31, 1920 on Basis of 1920 Prices

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	Depreciated or Net Reproduction Cost on Basis of Appraisal as of Dec. 31, 1912 by Board of Appraisers	Factor	Net reproduction Cost on Basis 1920 Prices
Little Falls Improvements			
Filtration Plant	$271,554	2.	$543,100
Transmission Mains	114,121	2.	228,300
Reservoirs	168,693	3.	506,100
Pumping Sta. & Steam Pumping Equipt.	82,362	2.25	185,300
Distribution Mains, say Pipe and Labor	364,106	2.25 3.	1,092,300
Service Pipes and Stops	182,053	2.25	409,600
Meters, Boxes and Vaults	10,800	2.25	24,300
Fire Hydrants and Branches	42,865	1.3	55,700
General Structures	46,000	2.5	115,000
General Equipment	4,769	3.	14,300
Materials and Supplies	3,654	1.67	6,100
	10,614	2.	21,200
	$1,301,591	2.46	$3,201,300
Structural Betterments (1) 1913-1920 inclusive reduced to 1912 cost basis (excluding Interest during Construction) by Metcalf	290,000	2.04	591,600
	$1,591,600	2.38	$3,792,900
Depreciation 1913-1920 inclusive Actually set aside $201,097	201,100	2.38	478,600
	$1,390,500	2.38	$2,314,000
Organization	30,000	1.67	50,000
Lands ($90,780 (2)—$2,709 (3))	108,352 (4)		88,000
Water Rights	103,456	1.5	155,000
	$1,632,300	2.21	$3,607,000
Going Value (18% by Board) say 12 1/2%	293,000		451,000
	$1,925,300	2.11	$4,058,000

(1) Including materials and supplies
(2) Revaluation (1919) by Mr. Rossiter and Mr. Lambert
(3) Included in Betterments also, hence deducted here.
(4) $108,417 less sales of $65.

Criterion 4. Value of Property on Basis of 10-Year Average Prices, prior to date of valuation ($2,926,000). This value, like the previous one, was Criterion 2 above, by applying to it ($1,925,000) the determined from the pre-war price valuation shown in ratio of 1.52:1, or of the prices of the decade ending December 31, 1920, to those of the decade ending December 31, 1912.

Criterion 5. The Value of the Property on the Basis of its Depreciated or Net Reproduction Cost at Fair Normal Prices ($3,181,000) constitutes the most significant yardstick of value.

The valuation of the different groups of property, arranged according to the accounting system used by the Board of Public Utility Commissioners of New Jersey, is shown in detail in Table 3. The general unit prices used in this estimate, have been referred to in some detail in Volume A, pages 19-23.

The value arrived at, $3,181,000, is approximately two-thirds in excess of the value of the property on the basis of prices prevailing in 1912, or under pre-war conditions. In commenting upon this value, certain elements may be noted.

The accrued depreciation allowance ($410,000) is approximately 14.5% of the gross reproduction cost of the structural property.

The annual depreciation allowance, $39,120 becomes *$37,700* when reduced to Metcalf's Fair Value Basis. The latter sum is 1.38% of the gross reproduction cost of structural property; 1.61% of the depreciated reproduction cost of structural property; 10.5% of the actual gross annual revenue on existing rates; 8.6% of the actual gross annual revenue increased to admit of a 7 1/4% return; and 42¢ per capita.

Table 3. Acquackanonk Water Company

Gross Reproduction Cost and Net Depreciated Reproduction Cost as of December 31, 1920, on Basis of Fair Normal Prices.

Account Number	Description of Account	Gross Reproduction			Net Depreciated Reproduction Cost		
		Joint Ownership	Other than Joint Ownership	Total	Joint Ownership	Other than Joint Ownership	Total
112	Gravity Intakes & Suction Mains	$22,771		$22,771	$20,500		$20,500
115	Coagulation Basins	94,696		94,696	84,600		84,600
117	Filters	147,346		147,346	132,900		132,900
119	Chemical Treatment Plant	3,263		3,263	2,500		2,500
120	Clear Water Basins	68,041		68,041	55,800		55,800
121	Pumping Stations	157,166		157,166	133,800		133,800
122	Steam Power Pump Equipment	141,300		141,300	93,800		93,800
123	Hydraulic Power Pump Equipment	284,583		284,583	265,100		265,100
126	Miscellaneous Power Pump Equipment	553		553	300		300
127	Transmission Mains & Accessories	72,634		72,634	56,900		56,900
128	Reservoirs, Tanks & Standpipes	124,900		124,900	117,700		117,700
129	Distribution Mains & Accessories	92,142	$995,218	1,087,360	73,100	$896,500	969,600
130	Service Pipes and Stops		65,754	65,754		58,000	58,000
131	Meters, Meter Boxes and Vaults		128,152	128,152		97,800	97,800
132	Fire Hydrants & Fire Cisterns		71,343	71,343		58,100	58,100
134	General Structures		34,360	34,360		26,200	26,200
135	General Equipment		8,562	8,562		5,300	5,300
150	Fixed Capital in Other Departments	750		750	100		100
151	Construction Work in Progress	2,380		2,380	2,400		2,400
152	Materials & Supplies		22,900	22,900		22,900	22,900
	Sub-Total	$1,212,525	$1,326,289	$2,538,814	$1,039,500	$1,164,800	$2,204,300
	Engineering and Contingencies (on property other than real estate)	125,008	163,400	288,408	103,400	143,200	246,600
	Engineering and Legal Expense (on real estate)	2,500	763	3,263	2,500	800	3,300
	Sub-Total	$1,340,033	$1,490,452	$2,830,485	$1,145,400	$1,308,800	$2,454,200
	Preliminary Organization, Incorporation, Investigation, Legal Expense			35,200			35,200
	Sub-Total			$2,865,685			$2,489,400
	Interest during Construction			257,900			224,100
	Sub-Total			$3,123,585			$2,713,500
	Going Value			468,000			468,000
	Total, including Going Value			$3,591,585			$3,181,500

Exhibits P3-A, P3-A1, P3-A2, P3-A3

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The going value amounts to 15% of the gross reproduction cost of the property (excluding its going value).

The Water Rights as against property owners below the Little Falls, have been excluded, because at the date of valuation, December 31, 1920, these rights had not yet been acquired and their use was compensated through the annual sums paid to the Society for Establishing Useful Manufactures and the Dundee Water Power and Land Company, by the several water companies making diversion of water.

Respectfully submitted,

METCALF AND EDDY,

By LEONARD METCALF.

Volume A2

Metcalf

Value of the Property of

THE PASSAIC WATER COMPANY

Controlled by

THE NEW JERSEY GENERAL SECURITY COMPANY

Paterson, N. J.

As of December 31, 1920.

Metcalf and Eddy, Consulting Engineers,
14 Beacon St., Boston, Mass.

May 31, 1922.

Exhibits P3-A, P3-A1, P3-A2, P3-A3

Leonard Metcalf
Harrison P. Eddy
Charles W. Sherman
Almon L. Fales
Frank A. Marston

Members Am. Soc. C. E.

Designs Construction
Supervision Management
Water Works
Water Purification
Sewerage
Sewage Disposal
Industrial Waste Disposal
Reports Valuations

File

METCALF & EDDY
Consulting Engineers
14 Beacon Street
Boston, Mass.

Boston, Mass. May 31, 1922.

Mr. Edmund LeB. Gardner,
President, New Jersey General Security Company,
158 Ellison Street, Paterson, New Jersey.

My dear Sir,

I submit herewith *Volume A2,* covering my valuation of the property of *The Passaic Water Company.* These figures are supplemental to Volume A, which contains the "General Comments upon the Basis of Valuation of the Properties of The Acquackanonk Water Company, The Passaic Water Company and The Montclair Water Company.

From the following five criteria of value and a careful consideration of the property and the character of the service rendered by it, I estimate *the fair value of the property of The Passaic Water Company at the sum of $5,837,000, as December 31, 1920.*

This value excludes allowance for the right to divert water from riparian owners below Little Falls, because these rights as against the Society for Establishing Useful Manufactures and the Dundee Water Power and Land Company, excluding the right to divert water through the Dyers' Pipe Line, were not

purchased until December, 1921, or about a year after the date of this valuation.

The value fixed is on like basis with my valuation of $13,500,000 as of December 31, 1920, for the entire property of The Acquackanonk, Passaic, Montclair, East Jersey and Kearney Water Companies.

*2

CRITERIA OF VALUE OF THE PROPERTY OF THE PASSAIC WATER COMPANY,

As of December 31, 1920.

1. *The Book Cost,* excluding Construction Work in Progress, Materials and Supplies, and Cash and Cash Items, all as of December 31, 1920,	$6,425,000
2. Value of Property on *Pre War Price Basis*	$3,774,000
3. Value of Property on the Basis of *1920 Prices*	$7,865,000
4. Value of Property on Basis of *10-Year Average Prices,* prior to date of valuation	$5,737,000
5. Value of Property on Basis of its *Depreciated or Net Reproduction Cost at Fair Normal Prices*	$6,056,000
Metcalf's Fair Value, excluding right to divert water from riparian owners below Little Falls	$5,837,000

Exhibits P3-A, P3-A1, P3-A2, P3-A3

The rights against the S. U. M. and the Dundee Water Power and Land Company, excluding the right to divert water through the Dyers' Pipe Line, were acquired in December, 1921, at the following prices:

(a) The Acquackanonk Water Co.	$212,800
(b) The Passaic Water Co.	$280,000
(c) The Montclair Water Co.	$56,000
(d) The East Jersey Water Co.	$571,200
Total	$1,120,000

Criterion 1. The Book Cost ($6,425,000) has been determined from the books of the Company, on the basis of the exclusion of all construction work in progress, materials and supplies, and cash and cash items, all as of the date of valuation, December 31, 1920.

Criterion 2. The Value of the Property on Pre-War Price Basis ($3,774,000) has been determined by adding to the value of the property fixed as of December 31, 1912, by the Board of Appraisers appointed by the Water Supply Commission of the State of New Jersey, the value, at pre-war prices, of the annual betterments built since that date, found by reducing their actual cost, by factors

*3

measuring the ratio of prices normal in the years stated, to those normal under pre-war conditions; and subtracting the annual depreciation allowance set aside by the Company, which was fairly commensurate with the actual depreciation, which accrued on the property during this interval.

In Table 1 are shown the valuation fixed by the Board of Appraisers; the annual cost of betterments;

the factor to reduce the cost of betterments to the 1912 basis, which has been taken from Metcalf's Volume A, page 12, Table 3, Column 9; the value of the annual betterments on 1912 price basis; the cumulative amount of the property as of 1912, and betterments on pre-war price basis; the annual depreciation allowance and the resulting net value of the property on pre-war price basis.

Criterion 3. The Value of the Property on the Basis of 1920 Prices ($7,865,000) has been determined by multiplying the value of the groups or elements of property as found by the Board of Appraisers, as of 1912, by the approximate factor indicating the ratio of prices upon such property, current in the year 1920, to the prices current in the year 1912; adding to this the value of the structural betterments from 1913 to 1920, reduced to 1912 cost basis and subsequently increased by the ratio of 1920 to 1912 prices; adding allowance for increase in value of lands and water rights; and deducting allowance for depreciation actually set aside, multiplied by the ratio of 1920 to 1912 prices. The result thus reached, see Table 2, is *approximately 2.08 times the value upon 1912 or pre-war price basis.*

Table 1. Passaic Water Co.
Value (as of December 31, 1920) on Basis of Prices Normal in 1912.

Year Ending Dec. 31	Cost of Betterments During Year*	Factor to Reduce Cost of Betterments to 1912 Basis Note X	Value of Betterments on 1912 Price Basis* Col. (2) x Col. (3)	Value of Depreciable Property in 1912 Plus Betterments on 1912 Basis*	Annual Depreciation Allowance Actually Set Aside	Net Value Depreciable Property on Basis 1912 Prices*	Lands, Water Rights, Organization, Going Value	Totals on Basis 1912 Prices (Depreciated)*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1912	Board of	Appraisers'	Report	$2,593,375		$2,593,400	$1,290,168	
1913	$90,408	1.00	$90,400	2,683,800	$53,484	2,630,300		
1914	31,722	1.01	32,000	2,715,800	50,678	2,611,600		
1915	43,930	0.94	41,300	2,757,100	51,542	2,601,400		
1916	52,843	0.80	42,300	2,799,400	52,962	2,590,700		
1917	79,104	0.59	46,700	2,846,100	54,703	2,582,700		
1918	104,956	0.51	53,500	2,899,600	57,611	2,578,600		
1919	190,262	0.51	97,000	2,996,600	60,289	2,615,300		
1920	98,376	0.49	48,200	3,044,800	63,721	2,599,800		
					Land Sales		—$115,418	
Totals	$691,601		$451,400	$3,044,800	$444,990	$2,599,800	$1,174,750	$3,774,500

*Includes Materials and Supplies.
Note X. see Metcalf's Volume A, page 12, Table 3, Column 9.

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Exhibits P3-A, P3-A1, P3-A2, P3-A3

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Table 2. Passaic Water Co.

Approximate Net Reproduction Cost as of December 31, 1920 on Basis of 1920 Prices.

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5/4/22

	Depreciated or Net Reproduction Cost on Basis of Appraisal as of Dec. 31, 1912, by Board of Appraisers	Factor	Net Reproduction Cost on Basis 1920 Prices
Little Falls Improvements	$407,331	2.	$814,600
Filtration Plant	171,181	2.	342,400
Transmission Mains	214,525	3.	643,600
Reservoirs	189,315	2.25	426,000
Pumping Sta. and Steam Pumping Equipt.	11,780	2.25	26,500
Distribution Mains, say Pipe and Labor	790,244	3.	2,370,800
Service Pipes and Stops.	395,123	2.25	889,000
Meters, Boxes and Vaults	20,068	2.25	45,200
Fire Hydrants and Branches	97,708	1.3	127,000
Dyers' Pipe Line and Access.	86,800	2.5	217,000
General Structures	132,821	2.67	354,200
General Equipment	17,878	3.	53,600
Materials and Supplies	19,419	1.67	32,400
	39,182	2.	78,400
	$2,593,375	2.48	$6,420,700
Structural Betterments (1) 1913-1920 inclusive reduced to 1912 cost basis (excluding Interest during Construction) by Metcalf	451,400	2.04	920,800
	$3,044,800	2.41	$7,341,500
Depreciation 1913-1920 inclusive Actually set aside = $444,990	445,000	2.41	1,072,400
	$2,599,800	2.41	6,269,000
Organization	66,515	1.67	111,000
Lands	372,052 (2)		378,000 (3)
Water Rights	155,183	1.5	233,000
	$3,193,500	2.19	$6,991,000
Going Value (18% by Board) say 12 1/2%	581,000		874,000
	$3,774,500	2.08	$7,865,000

(1) Including Materials and Supplies.
(2) $487,470 less sales of $115,418.
(3) Revaluation (1919) by Mr. Rossiter and Mr. Lambert.

Exhibits P3-A, P3-A1, P3-A2, P3-A3

*6

Criterion 4. Value of Property on Basis of 10-Year Average Prices, prior to date of valuation ($5,737,000). This value, like the previous one, was determined from the pre-war price valuation shown in Criterion 2 above, by applying to it ($3,774,000) the ratio of 1.52:1, or of the prices of the decade ending December 31, 1920, to those of the decade ending December 31, 1912.

Criterion 5. The Value of the Property on the Basis of its Depreciated or Net Reproduction Cost at Fair Normal Prices ($6,056,000) constitutes the most significant yardstick of value.

The valuation of the different groups of property, arranged according to the accounting system used by the Board of Public Utility Commissioners of New Jersey, is shown in detail in Table 3. The general unit prices used in this estimate, have been referred to in some detail in Volume A, pages 19-23.

The value arrived at $6,056,000, is approximately two-thirds in excess of the value of the property on the basis of prices prevailing in 1912, or under pre-war conditions. In commenting upon this value, certain elements may be noted.

The accrued depreciation allowance ($1,004,000) is approximately 18.3% of the gross reproduction cost of the structural property.

The annual depreciation allowance, $86,440 becomes $83,400 when reduced to Metcalf's Fair Value Basis. The latter sum is 1.58% of the gross reproduction cost of structural property; 1.93% of the depreciated reproduction cost of structural property; 13.0% of the actual gross annual revenue on existing rates; 10.3% of the actual gross annual revenue increased to admit of a 7 1/4% return; and 59¢ per capita.

Table 3. The Passaic Water Company

Gross Reproduction Cost and Net Depreciated Reproduction Cost as of December 31, 1920, on Basis of Fair Normal Prices.

Account Number	Description of Account	Gross Reproduction Cost			Net Depreciated Reproduction Cost		
		Joint Ownership	Other Than Joint Ownership	Total	Joint Ownership	Other Than Joint Ownership	Total
106	Reservations		$ 72,662	$ 72,662		$ 72,700	$ 72,700
112	Gravity Intakes & Suction Mains	$ 34,156		34,156	$ 30,800		30,800
115	Coagulation Basins	142,045		142,045	126,900		126,900
117	Filters	221,018		221,018	199,400		199,400
119	Chemical Treatment Plant	4,895		4,895	3,800		3,800
120	Clear Water Basins	102,062		102,062	83,700		83,700
121	Pumping Stations	235,749		235,749	200,800		200,800
122	Steam Power Pump Equipment	211,950		211,950	140,600		140,600
123	Hydraulic Power Pump Equipment	426,875		426,875	397,600		397,600
126	Miscellaneous Power Pump Equipment	831		831	400		400
127	Transmission Mains and Accessories	108,953	248,610	357,563	85,500	181,600	267,100
128	Reservoirs, Tanks and Standpipes	187,349	255,672	443,021	176,500	215,300	391,800
129	Distribution Mains and Accessories	26,761	1,948,631	1,975,392	20,200	1,652,800	1,673,000
130	Service Pipes and Stops		118,776	118,776		94,900	94,900
131	Meters, Meter Boxes and Vaults		259,417	259,417		190,900	190,900
132	Fire Hydrants and Fire Cisterns		135,698	135,698		96,400	96,400
134	General Structures		77,345	77,345		60,800	60,800
135	General Equipment		40,660	40,660		25,300	25,300
150	Fixed Capital in Other Departments	1,125	62,790	63,915	200	47,900	48,100
151	Construction Work in Progress	3,571		3,571	3,500		3,500
152	Materials and Supplies		90,700	90,700		90,700	90,700
	Sub-Total	$1,707,340	$3,310,961	$5,018,301	$1,469,900	$2,729,300	$4,199,200
	Engineering and Contingencies (on property other than real estate)	177,001	381,263	558,264	147,200	308,600	455,800
	Engineering and Legal Expense (on real estate)	2,653	10,434	13,087	2,700	10,400	13,100
	Sub-Total	$1,886,994	$3,702,658	$5,589,652	$1,619,800	$3,048,300	$4,668,100
	Preliminary Organization, Incorporation, Investigation, Legal Expense			69,800			69,800
	Sub-Total			$5,659,452			$4,737,900
	Interest during Construction			509,351			426,400
	Sub-Total			$6,168,803			$5,164,300
	Going Value			892,000			892,000
	Total, including Going Value			$7,060,803			$6,056,300

*7

Exhibits P3-A, P3-A1, P3-A2, P3-A3

*8

The going value amounts to 16.3% of the gross reproduction cost of the property (excluding its going value).

The Water Rights as against property owners below the Little Falls, have been excluded, because at the date of valuation, December 31, 1920, these rights had not yet been acquired and their use was compensated through the annual sums paid to the Society for Establishing Useful Manufactures and the Dundee Water Power and Land Company, by the several water companies making diversion of water.

Respectfully submitted,

METCALF AND EDDY,

By LEONARD METCALF.

Volume A3

Metcalf

Value of the Property of

THE MONTCLAIR WATER COMPANY

Controlled by

THE NEW JERSEY GENERAL SECURITY COMPANY

Paterson, N. J.

As of December 31, 1920.

Metcalf and Eddy, Consulting Engineers,
14 Beacon St., Boston, Mass.
May 31, 1922.

Exhibits P3-A, P3-A1, P3-A2, P3-A3

Leonard Metcalf
Harrison P. Eddy
Charles W. Sherman
Almon L. Fales
Frank A. Marston

Members Am. Soc. C. E.

Designs Construction
Supervision Management
Water Works
Water Purification
Sewerage
Sewage Disposal
Industrial Waste Disposal
Reports Valuations

File

METCALF & EDDY
Consulting Engineers
14 Beacon Street
Boston, Mass.

Boston, Mass. May 31, 1922.

Mr. Edmund LeB. Gardner,
President, New Jersey General Security Company,
158 Ellison Street, Paterson, New Jersey.

My dear Sir,

I submit herewith *Volume A3,* covering my valuation of the property of *The Montclair Water Company.* These figures are supplemental to Volume A, which contains the "General Comments upon the Basis of Valuation of the Properties of The Acquackanonk Water Company, The Passaic Water Company and The Montclair Water Company.

From the following five criteria of value and a careful consideration of the property and the character of the service rendered by it, I estimate *the fair value of the property of The Montclair Water Company at the sum of $2,470,000 as of December 31, 1920.*

This value excludes allowance for the right to divert water from riparian owners below Little Falls, because these rights as against the Society for Establishing Useful Manufactures and the Dundee Water Power and Land Company, excluding the right to di-

vert water through the Dyers' Pipe Line, were not purchased until December, 1921, or about a year after the date of this valuation.

The value fixed is on like basis with my valuation of $13,500,000 as of December 31, 1920, for the entire property of The Acquackanonk, Passaic, Montclair, East Jersey and Kearney Water Companies.

*2

CRITERIA OF VALUE OF THE PROPERTY OF THE MONTCLAIR WATER COMPANY

As of December 31, 1920.

1. *The Book Cost,* excluding Construction Work in Progress, Materials and Supplies, and Cash and Cash Items, all as of December 31, 1920,	$1,389,000
2. Value of Property on *Pre-War Price Basis*	$1,706,000
3. Value of Property on the Basis of *1920 Prices*	$3,460,000
4. Value of Property on Basis of *10-Year Average Prices,* prior to date of valuation	$2,592,000
5. Value of Property on Basis of its *Depreciated or Net Reproduction Cost at Fair Normal Prices*	$2,563,000
Metcalf's Fair Value, excluding right to divert water from riparian owners below Little Falls	$2,470,000

The rights against the S. U. M. and the Dundee Water Power and Land Company, excluding the right to divert water through the Dyers' Pipe Line, were acquired in December, 1921, at the following prices:

(a) The Acquackanonk Water Co.	$212,800
(b) The Passaic Water Co.	$280,000
(c) The Montclair Water Co.	$56,000
(d) The East Jersey Water Co.	$571,200
Total	$1,120,000

Criterion 1. The Book Cost ($1,389,000) has been determined from the books of the Company, on the basis of the exclusion of all construction work in progress, materials and supplies, and cash and cash items, all as of the date of valuation, December 31, 1920.

Criterion 2. The Value of the Property on Pre-War Price Basis ($1,706,000) has been determined by adding to the value of the property fixed as of December 31, 1912, by the Board of Appraisers appointed by the Water Supply Commission of the State of New Jersey, the value, at pre-war prices, of the annual betterments built since that date, found by reducing their actual cost, by factors

measuring the ratio of prices normal in the years stated, to those normal under pre-war conditions; and subtracting the annual depreciation allowance set aside by the Company, which was fairly commensurate with the actual depreciation, which accrued on the property during this interval.

In Table 1 are shown the valuation fixed by the

Board of Appraisers; the annual cost of betterments; the factor to reduce the cost of betterments to the 1912 basis, which has been taken from Metcalf's Volume A, page 12, Table 3, Column 9; the value of the annual betterments on 1912 price basis; the cumulative amount of the property as of 1912, and betterments on pre-war price basis; the annual depreciation allowance and the resulting net value of the property on pre-war price basis.

Criterion 3. The Value of the Property on the Basis of 1920 Prices ($3,640,000) has been determined by multiplying the value of the groups or elements of property as found by the Board of Appraisers, as of 1912, by the approximate factor indicating the ratio of prices upon such property, current in the year 1920, to the prices current in the year 1912; adding to this the value of the structural betterments from 1913 to 1920, reduced to 1912 cost basis and subsequently increased by the ratio of 1920 to 1912 prices; adding allowance for increase in value of lands and water rights; and deducting allowance for depreciation actually set aside, mulitplied by the ratio of 1920 to 1912 prices. The result thus reached, see Table 2, is *approximately 2.03 times the value upon 1912 or pre-war price basis.*

*4

Table 1. Mont

Value (as of December 31, 1920) on

Year Ending Dec. 31	Cost of Betterments During Year*	Factor to Reduce Cost of Betterments to 1912 Basis Note X	Value of Betterments on 1912 Price Basis* Col. (2) x Col. (3)	Value of Depreciable Property in 1912 Plus Betterments on 1912 Basis*	Annual Depreciation Allowance Actually Set Aside	Net Value Depreciable Property on Basis 1912 Prices*	Lands, Water Rights, Organization, Going Value	Totals on Basis 1912 Prices (Depreciated)*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1912	Board of	Appraisers'	Report	$1,033,754		$1,033,700	$601,652	
1913	$53,767	1.00	$53,800	1,087,500	$19,034	1,068,500		
1914	60,877	1.01	61,500	1,149,000	18,976	1,111,000		
1915	25,616	0.94	24,100	1,173,100	19,343	1,115,800		
1916	11,167	0.80	8,900	1,182,000	19,585	1,105,100		
1917	19,925	0.59	11,700	1,193,700	19,963	1,096,800		
1918	28,784	0.51	14,700	1,208,400	20,676	1,090,800		
1919	80,158	0.51	40,900	1,249,300	22,021	1,109,700		
1920	35,032	0.49	17,200	1,266,500	22,934	1,104,000		
					Land Sales		—32	
Totals	$315,326		$232,800	$1,266,500	$162,532	$1,104,000	$601,620	$1,705,600

Column 9.

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5/4/22.

JPW
5/4/22

Note X see Metcalf's Volume A, page 12, Table 3, clair Water Co.
*Includes Materials and Supplies. Basis of Prices Normal in 1912.

Exhibits P3-A, P3-A1, P3-A2, P3-A3

*5

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5/4/22.

Table 2. Montclair Water Co.

Approximate Net Reproduction Cost
as of December 31, 1920, on Basis of 1920 Prices

	Depreciated or Net Reproduction Cost on Basis of Appraisal as of Dec. 31, 1912, by Board of of Appraisers	Factor	Net Reproduction Cost on Basis 1920 Prices
Little Falls Improvements at Montclair and Wells	$137,633	2.	$275,300
Filtration Plant	57,061	2.	114,100
Transmission Mains	57,601	3.	172,800
Reservoirs	47,739	2.25	107,400
Pumping Sta. and Steam Pumping Equip.	72,775	2.25	163,700
Distribution Mains, say Pipe and Labor	362,869	3.0	1,088,600
Service Pipes and Stops	181,434	2.25	408,300
Meters, Boxes and Vaults	7,439	2.25	16,700
Fire Hydrants and Branches	45,340	1.3	59,000
General Structures	28,700	2.5	71,700
General Equipment	19,600	3.	58,800
Materials and Supplies	5,175	1.67	8,600
	10,388	2.	20,800
	$1,033,754	2.48	$2,565,800
Structural Betterments (1) 1913-1920 incl. reduced to 1912 cost basis (excluding Interest during construction) by Metcalf	232,800	2.04	474,900
	$1,266,500	2.40	$3,040,700
Depreciation 1913-1920 inclusive Actually set aside $162,532	162,500	2.40	390,000
	$1,104,000	2.40	$2,651,000
Organization	27,440	1.67	46,000
Lands	320,452 (2)		301,000 (3)
Water Rights	51,728	1.5	78,000
	$1,503,600	2.05	$3,076,000
Going Value (13.5% by Board) say 12 1/2%	202,000		384,000
	$1,705,600	2.03	$3,460,000

(1) Including Materials and Supplies.
(2) $320,484 less sales of $32.
(3) Revaluation (1919) by Mr. Rossiter and Mr. Lambert.

Exhibits P3-A, P3-A1, P3-A2, P3-A3

*6

Criterion 4. Value of Property on Basis of 10-Year Average Prices, prior to date of valuation ($2,592,000). This value, like the previous one, was determined from the pre-war price valuation shown in Criterion 2 above, by applying to it ($1,706,000) the ratio of 1.52:1, or of the prices of the decade ending December 31, 1920, to those of the decade ending December 31, 1912.

Criterion 5. The Value of the Property on the Basis of its Depreciated or Net Reproduction Cost at Fair Normal Prices ($2,563,000) constitutes the most significant yardstick of value.

The valuation of the different groups of property, arranged according to the accounting system used by the Board of Public Utility Commissioners of New Jersey, is shown in detail in Table 3. The general unit prices used in this estimate, have been referred to in some detail in Volume A, pages 19-23.

The value arrived at, $2,563,000, is approximately one-half in excess of the value of the property on the basis of prices prevailing in 1912, or under pre-war conditions. In commenting upon this value, certain elements may be noted.

The accrued depreciation allowance ($412,000) is approximately 18.8% of the gross reproduction cost of the structural property.

The annual depreciation allowance, $37,660 becomes $36,300 when reduced to Metcalf's Fair Value Basis. The latter sum is 1.72% of the gross reproduction cost of structural property; 2.11% of the depreciated reproduction cost of structural property; 18.6% of the actual gross annual revenue on existing rates; 10.5% of the actual gross annual revenue increased to admit of a 7 1/4% return; and 71¢ per capita.

Table 3. The Montclair Water Company

Gross Reproduction Cost and Net Depreciated Reproduction Cost as of December 31, 1920 on Basis of Fair Normal Prices

Account Number	Description of account	Gross Reproduction Cost			Net Depreciated Reproduction Cost		
		Joint Ownership	Other Than Joint Ownership	Total	Joint Ownership	Other Than Joint Ownership	Total
109	Springs and Wells		$ 15,268	$ 15,268		$ 7,000	$ 7,000
112	Gravity Intakes and Suction Mains	$11,385		11,385	$ 10,300		10,300
115	Coagulation Basins	47,348		47,348	42,300		42,300
117	Filters	73,673		73,673	66,400		66,400
119	Chemical Treatment Plant	1,631		1,631	1,200		1,200
120	Clear Water Basins	34,021		34,021	27,900		27,900
121	Pumping Stations	78,583	48,257	126,840	66,900	32,700	99,600
122	Steam Power Pump Equipment	70,649	77,078	147,727	46,900	38,000	84,900
123	Hydraulic Power Pump Equipment	142,292		142,292	132,500		132,500
126	Miscellaneous Power Pump Equipment	277	1,502	1,779	100	800	900
127	Transmission Mains and Accessories	36,318		36,318	28,500		28,500
128	Reservoirs, Tanks and Standpipes	62,450	8,874	71,324	58,800	5,500	64,300
129	Distribution Mains and Accessories	84,466	855,637	940,103	67,400	735,500	802,900
130	Service Pipes and Stops		34,664	34,664		30,200	30,200
131	Meters, Meter Boxes and Vaults		72,760	72,760		46,600	46,600
132	Fire Hydrants and Fire Cisterns		50,890	50,890		40,500	40,500
134	General Structures	39,402	39,402	39,402		36,100	36,100
135	General Equipment		17,544	17,544		9,900	9,900
150	Fixed Capital in Other Departments	375	193,679	194,054	100	190,500	190,600
151	Construction Work in Progress	1,190		1,190	1,200		1,200
152	Materials and Supplies		60,600	60,600		60,600	60,600
	Sub-Total	$644,658	1,476,155	$2,120,813	$550,500	1,233,900	$1,784,400
	Engineering and Contingencies (on property other than real estate)	66,115	157,436	223,551	54,700	127,100	181,800
	Engineering and Legal Expense (on real estate)	1,629	8,667	10,296	1,600	8,700	10,300
	Sub-Total	$712,402	1,642,258	$2,354,660	$606,800	1,369,700	$1,976,500
	Preliminary Organization, Incorporation, Investigation, Legal Expense			29,300			29,300
	Sub-Total			$2,383,960			$2,005,800
	Interest during Construction			214,556			180,500
	Sub-Total			$2,598,516			$2,186,300
	Going Value			377,000			377,000
	Total, including Going Value			$2,975,516			$2,563,300

*7

The going value amounts to 17.2% of the gross reproduction cost of the property (excluding its going value).

The Water Rights as against property owners below the Little Falls, have been excluded, because at the date of valuation, December 31, 1920, these rights had not yet been acquired and their use was compensated through the annual sums paid to the Society for Establishing Useful Manufacturers and the Dundee Water Power and Land Company, by the several water companies making diverson of water.

Respectfully submitted,

METCALF AND EDDY,

By LEONARD METCALF.

*2

Exhibit P4 and Exhibit P7, Through Exhibit P22, Except Exhibit P18, Inclusive.

Valuation of Real Estate

These exhibits contain the appraisal of the real estate owned by all of these Companies. A complete list of them is contained in the index hereof. They are summarized in the text above, at page 230 *et seq.* to 233, line 20.

They are not printed in full here, but consist of the following:

List of Deeds and Abstract of Deeds (Exhibits P4, P14, P15, P16 and P17).

Plans, Maps and Diagrams of the Real Estate individually owned by each Company and that jointly P13a, P20 and P22).

Appraisal by parcels of each parcel separately owned (Exhibits P7a, P8a, P9a, P10a, P11a, P12a, *stated* (Exhibits P7, P8, P9, P10, P11, P12, P13, P19 and P21).

Exhibit P5.

Leonard Metcalf's detailed inventory and reproduction cost at fair and normal prices as of December 31, 1920.

This exhibit contains the complete inventory set-out in Exhibit P2, priced by Mr. Metcalf, and covers all the properties of Acquackanonk Water Company, East Jersey Water Company, Kearney Water Company, Montclair Water Company and Passaic Water Company, whether individually owned or jointly owned. It is summarized in Exhibits P3A to P3-A3.

*3

Exhibit P6-A.

Mr. N. S. Hill's Report on fair rate structure, including valuation, estimate of operating expenses and revenues, and analyses of the same.

This exhibit contains a complete discussion of the valuation of the properties by Mr. Hill, and of the underlying data on fair rate structure, namely, the fair rate of return, operating expenses and revenues, an analysis of the same to determine the cost of the different services, and a set-up of the rate structure. It consists of four parts: The first section is a general discussion; the second section deals particularly with the Acquackanonk Water Company; the third section deals with the Montclair Water Company, and the fourth section details with the Passaic Water Company.

Exhibit P6-A

Volume I.

REPORT
UPON
VALUATION OF THE PROPERTY OF
AND
FAIR RATE STRUCTURE FOR

THE ACQUACKANONK WATER COMPANY
THE MONTCLAIR WATER COMPANY
THE PASSAIC WATER COMPANY

BY

NICHOLAS S. HILL, Jr.

NICHOLAS S. HILL, Jr. and S. F. FERGUSON,
Consulting Engineers,
112 East 19th Street,
New York City.

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REPORT

UPON

VALUATION OF THE PROPERTY OF

AND

FAIR RATE STRUCTURE FOR

THE ACQUACKANONK WATER COMPANY
THE MONTCLAIR WATER COMPANY
THE PASSAIC WATER COMPANY

Mr. Edmund LeB. Gardner, President,
New Jersey General Security Company,
Paterson, New Jersey.

Dear Sir:

I transmit herewith my report upon the fair value of the Acquackanonk, Montclair and Passaic

Exhibit P6-A

Water Companies, together with recommendations for a fair rate structure for each of the companies. The rate structures proposed are based upon the values found in the report, and are such as will distribute the cost of service equitably between the different classes of consumers.

*2

For convenience, the report is divided into four sections:

In Section I will be found all general matter, an outline of the theory upon which the valuations and rates structures are based, methods employed, and general discussions relating to fair value, fair rate of return, unit prices, price trends, etc.

In Sections II, III and IV will be found the matter relating to the value found for each Company and the fair rate structures recommended for each of the three Companies.

It may be stated generally that the values found for the three companies, and the rate schedules predicated upon these values, are based upon the broad cardinal principle that capital legitimately invested in a public utility must be safeguarded and protected, both as to principal and as to the fair and just return on the principal invested, after it has been reimbursed for the expenses incurred in providing the services which it is called upon to give.

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SECTION I—GENERAL

Description of Properties.

Before outlining the basis of the valuations and rate structures, it will be desirable to describe briefly the group of properties of which the three companies under valuation form part.

This group of properties consists of five companies, all closely affiliated, and all controlled by a sixth or parent company which is known as the New Jersey General Security Company. The affiliated companies, only the first three of which are now under valuation, are:

*3

The Acquackanonk Water Company,
The Montclair Water Company,
The Passaic Water Company,
The East Jersey Water Company, and
Kearney Water Company.

All five companies are administered and operated by the same set of officials, although each is separately incorporated and has its own issues of securities. They all derive water from a common source of supply, the Passaic River at Little Falls. The water diversion rights, land, diverting dam, diverting canal, head works, pumping plant and water treatment plant at Little Falls, a distributing reservoir at Great Notch, and a portion of the transmission and supply mains are jointly owned by the Acquackanonk, Montclair, Passaic and East Jersey Water Companies. These elements constitute what is called the "Joint Owner-

ship" property. The value of the joint ownership property represents more than 50% of the value of the entire property owned and controlled by the affiliated companies.

The ratio of ownership in the joint ownership property is as follows:

TABLE No. 1

Ratio of Ownership in the Joint Ownership Property

Item	Acquackanonk	Montclair	Passaic	East Jersey
(1)	(2)	(3)	(4)	(5)
Little Falls Improvement	.25	.125	.375	.25
Little Falls Filtration Plant	.25	.125	.375	.25
Water Diversion Rights at Little Falls	.19	.05	.25	.51
Great Notch Reservoir	.25	.125	.375	.25
Great Notch Steel Pipe Connection	.25	.125	.375	.25
51-Inch Conduit:				
Station 682+65 to 822+46	.25	.125	.375	.25
822+46 " 911+05	.40	.20		.40
911+05 " 964+59		.333		.667
964+59 " 1112+73				1.00

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*4

Table No. 2 presents a list of the communities served by each of the five affiliated companies at the present time:

TABLE NO. 2

Communities Served by Each Company

Name of Water Company	Date of Incorporation	Character of Company	Community Served by Company
(1)	(2)	(3)	(4)
Acquackanonk	April 9, 1867	Complete Operating Company	City of Passaic City of Clifton (b)
Montclair	Jan. 15, 1887	Complete Operating Company Wholesale only	Montclair Glen Ridge (c) West Orange (d) Essex County Institutions
Passaic	Feb. 13, 1849	Complete Operating Company Wholesale only	Paterson Prospect Park Totowa Borough (a)
East Jersey	Aug. 1, 1889	Wholesale only	Bayonne Kearney Harrison East Newark Bloomfield (e) Nutley (e) Little Falls (e) West Paterson (e) Jersey City (f)
Kearney	Oct. 18, 1896	Transportation of Water for	East Jersey Water Company

(a) Supplied since 1916.
(b) Formerly reported as Acquackanonk Township.
(c) Standby service only, since September 1921.
(d) Standby service only, since March 1921.
(e) Since June 1, 1915, formerly served by Montclair Water Company.
(f) Emergency supply.

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*5

Under the terms of the agreement dated February 15, 1898, The East Jersey Water Company acquired from the Beattie Manufacturing Company the right to divert from it the entire flow of the Passaic River at Little Falls, less the reservation of two million gallons daily for use in their mill. These rights will be referred to subsequenty as the "Beattie" rights. The price paid for them was $530,000.

These water rights, together with certain easements, rights of way and land, subsequently became the joint property of the Acquackanonk, East Jersey, Montclair and Passaic Water Companies, ownership being distributed as shown on Table No. 1, page 3. The purchase of the Beattie rights and the acquisition of sixty-two acres of land on the north bank of the Passaic at Little Falls secured power rights on the Passaic at Little Falls as well as the right to divert the water from the Beattie Manufacturing Company's dam at Little Falls. These power rights are mentioned at this time because the water power developed at the Little Falls pumping plant is utilized to pump water for the communities and is a valuable asset.

The purchase of the Beattie rights gave no right, of course, to divert water from lower riparian owners upon the Passaic River without due compensation, but it is important to note at this time that by a decision of the New Jersey Supreme Court, rendered in April, 1913, it was decided that the affiliated companies had the power to acquire the right to divert water from the Passaic River to supply the communities which they served.

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*6

Excluding minor riparian owners, the value of whose claims for damages due to diversion are not material the water rights affected by the diversion at Little Falls are those of the Society for the Establishment of Useful Manufactures, ordinarily known as the S. U. M., owners of power rights at the Great Falls at Paterson, and the Dundee Water Power and Land Company which has power rights at Passaic. The right to divert from these power companies was heretofore secured by annual payments made to them for the water diverted at Little Falls, but during 1921 the water companies purchased the right to divert 75 million gallons of water per day from them at this point for the sum of $1,120,000.

The water diverted at Little Falls is treated at the Little Falls filtration plant and is then pumped for distribution through a 51″ conduit which terminates at Joralemon Avenue in Beeleville, and a 42″ line which extends to Stony Road Reservoir in Paterson and which supplies water for both Paterson and Passaic. The 51″ line supplies Totowa Borough, Little Falls, Montclair, Bloomfield, Passaic, Nutley, Kearney, East Newark, Harrison, Bayonne, and Jersey City when water is supplied to the last named community. The 51″ steel pipe line is owned jointly by the Acquackanonk, East Jersey, Montclair and Passaic Water Companies, but the 42″ Paterson extension is owned by The Passaic Water Company. The 51″ pipe line is connected with the Great Notch Reservoir, as shown on the accompanying map, which is also owned jointly by the four companies just mentioned.

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*7

The water delivered through the 51″ steel conduit is pumped at a pressure of 125 pounds and the water delivered to the 42″ Paterson extension at a pressure of but 65 pounds. This point is pertinent in connection with the cost of supplying water to the several communities served. The total water pumped and treated at the Little Falls plant in recent years varied between 40 and 60 million gallons per day. The water throughout the territory served is supplied by direct pumpage at Little Falls, except the high service area in Montclair. There is a pumping station situated in Montclair, as shown on the accompanying map, which takes its water from the Montclair connection with the 51″ steel conduit and boosts it 150 pounds in order to supply adequate pressures along the mountainside in Montclair. This pumpage, of course, adds to the cost of water supplied in the Montclair high service district.

All water delivered for distribution in Kearney, East Newark, Harrison, Bayonne, and a portion of the water supplied to Jersey City is transported from the terminus of the 51″ joint ownership steel pipe line at Joralemon Avenue, Belleville, through the 42″ steel pipe line of the Kearney Water Company, ordinarily known as the Kearney extension, to Belleville and Kearney Avenue, Kearney. The water is measured by meters at this point and delivered to the pipe lines of the City of Bayonne, the New Jersey Suburban Water Company, and Jersey City. A portion of the water supplied to Jersey City is taken at a connection with the 51″ inch steel pipe line about one mile north of Brookdale. The connection for the other communities served through the 51″ steel pipe line are shown on the accompanying map.

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*8

In addition to the water service from the Little Falls plant, The Passaic Water Company has since 1906 supplied from 4 to 6 million gallons of water daily by gravity to dyeing establishments and mills located below the Great Falls at Paterson. For this purpose this Company said a 48″ and 42″ steel conduit in 1905, known as the Dyer's Pipe Line, from the S. U. M. dam just above Great Falls to a point opposite the Weidemann Silk Dyeing plant in Paterson and about two miles downstream. The water thus supplied is not treated or purified, but is the raw water of the Passaic River and is used for manufacturing and process purposes only.

BASIS OF VALUATION.

In the final analysis the determination of the fair value of a property is a matter of judgment on the part of the appraiser after a careful review of all the information available as well as of all of the conditions affecting the plant at the time his appraisal is made. I have, therefore, in order to secure a fair perspective of the present value of the properties under valuation, made estimates of present value based on various considerations. I have taken into consideration the capitalization of the companies and their book values. I have made estimates of the cost of reproducing these properties at different periods. I have also made studies of the past and probable future trend of prices and by applying the proper ratio to the probable actual investment in these properties, have estimated the present investment worth on the

basis of the probable average value of the dollar during the next ten years. The values thus obtained were compared with the values obtained from the reproduction estimates for the purpose of securing a balanced judgment of all the factors affecting present value.

HISTORICAL COST.

No attempt has been made to ascertain the historical cost of the properties under valuation for the reason that their records were destroyed by fire in February, 1902, and it was, therefore, impossible to secure their historical cost, but I have considered the actual cost of those elements of the plants whose costs were available as an aid in the process of fair pricing in my reproduction estimates.

A. CAPITALIZATION—B. BOOK VALUE.

I have ascertained the value carried on the books of the several companies through an examination of their books, and have also ascertained their total capitalization and have given proper weight to these factors.

COST OF REPRODUCTION.

Speaking generally, in making estimates of the cost of reproduction I have used cost as an index of value, but in utilizing cost I have remembered that cost and value are not synonymous although they may be closely interrelated. I have also taken into consideration that the value of a property predicated upon cost of reproduction alone would vary with price fluctuations of labor and material, which it does not necessarily do, though price fluctuations do affect the value of a property. I have, therefore, determined the

value of the properties under appraisement based on the cost of reproducing them.

(C) On the basis of the average cost of labor and material prior to 1912 plus the actual cost of additions to the plant since that date.

*10

(D) On the basis of prewar prices.

(E) On the basis of the average cost of labor and material 1911 to 1920 inclusive.

I have used my estimate (C) of the value of the properties as a check against the capitalization and book value of the properties for the purpose of ascertaining the probable true investment in each plant. Estimate (D) was used as a base upon which to apply the price ratios fixed in the study of price trends for the purpose of ascertaining the probable enhancement of worth due to the probable future permanent set in price levels above those which obtained prior to the war. Estimate (E) has been used as a form to check the estimates based on the other assumptions outlined.

In addition to the reproduction estimates for the periods above mentioned, the ratio of the weighted average cost of labor and materials at the peak of 1920 to the average cost of labor and materials 1911 to 1920 inclusive was ascertained. The ratio of current prices to the average cost of labor and materials 1911 to 1920 inclusive was also determined. These ratios were applied to the cost of reproduction on the ten year average basis (E) for the purpose of ascertaining in an approximate way the cost of reproducing these plants at peak war prices and at

current prices. These comparisons were made for the purpose of determining the range of the price scale in recent times so as to assure a definite picture of where the final valuations fell in the scale of recent fluctuations in value.

*11

(C) Cost of Reproduction Based on Pre-War Value of Plant Existing Prior to December 31, 1912, Plus the Actual Cost of Additions to Plant Since That Date.

In 1913 I was appointed by the New Jersey State Water Supply Commission as a member of an appraisal board consisting of Mr. Clemens Herschel of New York, Mr. Dabney H. Maury of Chicago, and myself, to appraise the five companies controlled by the New Jersey General Security Company. The appraisers estimated the value of these properties as of December 31, 1912. That appraisal was made for the State after a careful and conscientious study of the properties. I have taken the values found in that appraisal as the best evidence obtainable of the pre-war value of the property and plant of the three companies now being valued, as of December 31, 1912.

To these values I have added the actual cost of additions to structural plant since December 31, 1912. That is, I have added the actual cost of betterments less withdrawals from structural plant.

From the sum of the two I have deducted depreciation accrued on depreciable property since December 31, 1912, at the rate of 1.5% per annum.

To the remainder I have added the value of land

acquired since December 31, 1912, less the value of land sold since that date.

To the sum of the above I have added water diversion rights acquired in 1921, to obtain the value of the plant on basis (C).

The details in the case of each Company under valuation appear fully in Sections II, III and IV of this report.

*12

(D) Cost of Reproduction Based on Pre-War Prices.

The basis for my estimate of the cost of reproduction at pre-war prices is the same as for my estimate of the cost of reproduction on the basis of the average cost of labor and materials prior to 1912 plus the actual cost of additions to the plant since that date. That is, the appraisal of the Board of Appraisers appointed by the New Jersey State Water Supply Commission was taken for all structural items as of December 31, 1912, and the cost of structural additions since that date was added to it. In estimating the cost of these additions, however, I have not taken the actual cost, but have reduced the cost of the structural additions in each year from January 1, 1916, to the pre-war level by applying the ratio of pre-war prices to the prices obtaining in each of the years 1916, 1917, 1918, 1919 and 1920. The reduction ratios used for these years were obtained from Diagram No. 4, page 44.

From the cost of the structural items depreciation at the rate of 1.5% per annum has been deducted.

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To the depreciated cost of structural items the value of real estate and rights of way acquired prior to 1913 was added at the figure allowed by the Board of Appraisers above referred to. To the sum of these two the net cost of the land bought since January 1, 1913, was added, that is, the total cost of the land acquired less the cost of the land disposed of since January 1, 1913. The Beattie rights have been included at the figure at which they were appraised by the Board of Appraisers. The water diversion rights acquired in 1921 from S. U. M. and Dundee have been added to the sum of these items at the value appraised by the Board of Appraisers in 1912, to obtain the value of the plant on basis (D).

The details, in the cases of each Company under valuation, appear fully in Sections II, III and IV of this report.

*13

(E) Cost of Reproduction Based on Average Prices Prevailing from 1911 to 1920 Inclusive.

General.

Cost of reproduction based on the average prices prevailing for a period of five or ten years prior to the date of appraisal is an accepted method of appraising a property and has probably been more generally used than any other method. I have, therefore, used cost of reproduction based on ten year average prices for labor and structural materials, with the exceptions hereinafter noted, as a normal and dependable index of value.

Exhibit P6-A

The inventories upon which the cost of reproduction are based and which are herewith presented are predicated upon Surveys of the properties made under the direction of Mr. Leonard Metcalf, of the firm of Metcalf and Eddy, Consulting Engineers of Boston, and by instruction I have used his surveys as the basis of my inventories.

The transcript of these inventories, with my pricing, will be found in Volumes II, III and IV. These inventories are set up in accordance with the "Uniform System of Accounting of Water Utilities of the State of New Jersey." Real estate and rights of way and water rights have been allocated to the various accounts in the same manner. Joint ownership property has been allocated to the companies under valuation in the ratio of ownership as set forth in Table No, 1, page 3.

Pricing.

The prices of labor and structural materials used in pricing the inventories are ten year average prices except that:

The ten year average price on cast-iron pipe is $38.98. I have used $32.50 f. o. b. nearest railroad siding in this appraisal.

*14

On steel pipe the ten year average price is 6.3 cents and I have used 5.5 cents a pound fabricated and laid in the trench, without excavation or backfill. A similar reduction in the unit price of steel was made in the case of other steel structures, such as structural steel bridges, standpipes, etc.

On some minor items, such as general equipment,

the cost of reproduction was taken at the value carried on the books.

Materials and supplies on hand are not included in the inventory, but have been taken into account in the allowance for working capital.

The real estate values are the values assessed by real estate experts retained by the affiliated water companies for the purpose, and I have by instruction accepted their valuations of realty.

The right to divert 75 million gallons of water daily at Little Falls against S. U. M. and Dundee, which own water rights below the point of diversion at Paterson and Passaic respectively, was acquired in 1921 by the four affiliated companies which own the other joint ownership property. Forty-nine (49%) per cent of this diversion right was acquired by the three companies now under appraisal, this division of ownership, as well as the division between the three individual companies, being in the ratio of the draft of water by the respective companies during eleven months ended November 30, 1921.

These diversion rights have been included in my inventories as of January 1, 1921, at the actual prices paid for them. In order to ascertain the value of the properties at any date subsequent to January 1, 1921, it will, therefore, only be necessary to add the cost of other additions to plant made since then. I have included in my appraisal the value of the water diversion rights recently acquired against S. U. M. and Dundee because heretofore these rights were secured

by the payment of annual sums to the water power companies which were in proportion to the amount of

water diverted. This will not be done hereafter. It will be necessary, therefore, to deduct these annual payments for water diversion in order to determine the fair allowance for future operating expenses. If the operating expenses are so reduced the fixed charges must be increased. It was necessary, therefore, to include the sum paid for these water diversion rights in the value as of January 1, 1921, in order to have the proposed rate schedules reflect the true requirements of the Companies at the present and in the immediate future.

I have estimated the Beattie water power rights at substantially the price paid for them by the affiliated companies, and have included in the valuation of each Company its proportional share in the total right.

Prices of labor and material used in the inventories were fixed after a canvass, not only of the local market, but of prices paid elsewhere in the vicinity of New York, and also after an investigation of the actual prices paid for labor and materials by the affiliated water companies as evidenced by their pay rolls and vouchers. The prices used for labor and materials in pricing the inventories are given in Table No. 3, page 16.

Elements of Cost.

I have divided the cost of every piece of a construction into its several elements:

1. The actual cost of the materials and labor going into the work. These costs include the rate per day or per hour paid for different classes of labor and the cost per unit of the materials delivered f. o. b. cars at the nearest point of delivery.

2. The cost of handling and hauling materials which must be added to the unit costs above described where the point of delivery is distant from the point of construction.

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TABLE NO. 3

Prices of Materials and Labors Used in Pricing Inventory

Materials:		
Brick	$10.00 per M.	f. o. b. nearest railroad siding
Cement, Portland	1.60 " Bbl.	" " " " " "
Hydrants:		
4" with one 2½" hose connection	29.10 each	" " " " " "
4" with one steamer connection	30.90 "	" " " " " "
Lead	0.06 per Lb.	" " " " " "
Lumber, long leaf yellow pine	45.00 " M.B.M.	" " " " " "
Meters, including couplings:		
5/8" disc	9.75 each	" " " " " "
3/4" "	14.50 "	" " " " " "
1" "	19.00 "	" " " " " "
Pipe, cast iron bell and spigot	32.50 per Ton	delivered on job
Sand	1.00 " Cu. Yd.	f. o. b. nearest railroad siding
Specials, cast iron bell and spigot	73.00 " Ton	" " " " " "
Steel, reinforcing	0.023 " Lb.	" " " " " "
Stone, broken	1.30 " Cu. Yd.	" " " " " "
Valves, iron body bronze mounted:		
4" hub end	8.80 each	" " " " " "
6" " "	14.75 "	" " " " " "
8" " "	23.15 "	" " " " " "
Labor:		
Bricklayers	0.80 per hour	(8 hours day)
Calkers	0.45 " "	"
Carpenters	0.65 " "	"
Cement Finishers	0.70 " "	"
Foreman, pipe laying	0.50 " "	"
Painters	0.60 " "	"
Plasterers	0.75 " "	"
Stone Masons	0.70 " "	"
Common Labor	0.32 " "	"
Hod carriers	0.45 " "	"
Team and Driver	0.90 " "	"

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3. Contractor's profit and expense which must be added to the cost of the labor and the cost of the materials delivered at the site of the work where work is done by contract, and even where the work is done by force account, there are expenses corresponding

to contractor's profit and expense which must be estimated.

4. The miscellaneous construction expenses, or the general overhead expenses which every company must necessarily pay in executing construction work. These include contingencies, errors and omissions, administrative, legal and general expenses, engineering and superintendence, taxes and insurance during construction and the cost of financing.

The prices which will be found in the inventories for each of the three companies are base costs which include the cost of labor and the cost of materials delivered at the site of the work plus contractor's profit and expense or its equivalent.

Miscellaneous Construction Expenditures.

To the base cost as given in the inventories I have added a proper allowance to cover miscellaneous construction expenditures or overhead costs, including contingencies, errors and omissions, administrative, legal and general expenses, engineering and superintendence, taxes during construction and interest during construction.

The over-all gross percentage allowed for miscellaneous construction expenses is 15% in the case of each Company which is a very conservative allowance.

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Depreciation.

No formula can be arbitrarily applied for finding the loss of value due to the total depreciation which has accrued in a given plant, and the results secured

by the use of formulae must be supplemented by the exercise of judgment formed from observed conditions.

The so-called sinking fund method computed on a 3% basis has been used to ascertain the loss of value due to the normal reduction in life expectancy of each used and useful element installed in the plant resulting from its present age, or, in other words, to determine the loss of value due to decretion. The use of a formula has, therefore, been limited to determining the fair amount of depreciation to allow on each element of the plant due to decretion or loss of service life based on its normal life expectancy when new. The normal life expectancy when new has in turn been based upon experience with similar elements elsewhere.

Loss of value due to deferred maintenance has been considered separately, but as there is little or none in these properties, which in general are maintained in excellent condition, no specific allowance for deferred maintenance has been made as no special rehabilitation is necessary to put the properties in useful and efficient condition, and a reasonable allowance for maintenance in the operating expenses will provide the means necessary to maintain the service value of the several elements of the plant.

Specific allowance for special depreciation has been made on items whose life expectancy is restricted due to their doubtful future value as used and useful property.

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The proper amount of depreciation to allow on items whose age could not be ascertained was determined by the exercise of judgment.

Exhibit P6-A

Property Not Used and Useful.

Property now owned by the companies which is not used and useful for water works purposes has been segregated and included in Schedule 150 "Fixed Capital in Other Departments." The items included in this account may be ascertained by reference to the inventories, Volumes II, III and IV. They do not appear in my valuation of the properties, but have been excluded.

Working Capital.

The allowances for working capital include proper provision for the capital which must be kept in bank and on hand to provide for running expenses, payrolls and the like, as well as for that which will be tied up in maintaining the necessary stocks of materials and supplies. In making my allowances for working capital I have been governed by my knowledge of the working capital required for a number of different water companies, including these companies, to whose accounts I have had access, as well as by previous decisions of the Public Utility Commission of New Jersey.

The allowances made represent approximately 2.25% of the depreciated value of the companies on ten year average prices, exclusive of the working capital to be determined. The allowance made by the Public Utility Commission of New Jersey in the Hackensack Case was 2.1% of the fair value, in the Commonwealth Case 2.3%, and in the Elizabethtown Case 2.15%.

Exhibit P6-A

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Preliminary and Organization Expenses.

The allowances for preliminary and organization expenses amount in round figures to 1.2% of the gross cost of reproduction of the tangible property. This is a conservative allowance and is lower than was allowed by the Board of Appraisal which valued these properties for the New Jersey State Water Supply Commission in 1913. From an examination of many appraisals I find that the allowance for this expense varies from 1% to 3%.

Going Cost.

To facilitate the work of determining the cost of reproduction of a public utility it is usual to divide its property and equities under three main heads:

1. Physical property or tangible assets.

2. Working capital or current assets.

3. Going or development cost, the intangible assets, or the added value which a going property has over and above a completed physical structure without a developed income.

The physical property includes everything required up to the point where the utility stands ready to produce and deliver the service which it is intended to perform.

The working capital includes the stock of materials and supplies which must necessarily be kept on hand and the cash in bank and on hand which is necessary for the efficient conduct of the business.

Going or development cost is the cost entering into the development of the earning power of a utility.

Exhibit P6-A

The total investment in a public utility is never represented by the cost of the physical plant plus working capital alone. Universal experience

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has demonstrated that the acquisition of an income costs an appreciable amount and that the cost of building up the business is as unavoidable as the cost of building up the physical plant. If it could be conceived that the business of a utility could be secured overnight there would be no going cost. The work of developing a paying business, however, takes time and it often requires more time than does the building of the plant itself. As capital outlays are prerequisite to building up and perfecting the operating and business organization and in acquiring a paying business, I have included a fair allowance for going or development cost.

Courts and commissions, as well as engineers, have recognized the cost of attaching the business to the property and have allowed going or development cost in many cases. I append herewith Tables Nos. 4 and 5, pages 22 to 29, which are the allowances made by courts and commissions in a number of public utility cases.

In this discussion I have used going and development cost as substantially synonymous. They are, so far as practical results go, as both are in reality measures of the cost of attaching business to the property, development cost being the historic cost of attaching the business to the property and going cost the reproduction cost. Development cost is based upon the annual losses accruing after the com-

pletion of a plant, but before it earns a return adequate to carry both its operating expenses and fixed charges. Going cost represents the difference in the value of the property of a public service corporation with an established business and income as compared with the value of a similarly located plant after the completion of construction of its physical plant, but before the acquisition of any business.

TABLE NO. 4

Allowances Made in Court Cases for Going or Development Cost

Case (1)	Nature of Case (2)	Date of Decision (3)	By Whom Decided (4)	Cost of Reproduction (5)	Allowance for Going or Development Cost Amount (6)	Allowance for Going or Development Cost Per Cent of Cost of Reproduction (7)
National Water Works Co. of N. Y. vs. Kansas City (62 Federal 853)	Purchase	July 1894	U. S. Circuit Court of Appeals	$2,546,112	453,888	17.8
Gloucester Water Supply Co. vs. Gloucester (179 Mass. 365)	Purchase	June 19, 1901	Mass. Supreme Judicial Court	526,500	75,000	14.3
Norwich Gas and Electric Co. vs. City of Norwich (57 Atlantic 746)	Purchase	Apr. 14, 1904	Supreme Court of Errors of Conn.	530,000	60,000	11.3
Galena Water Co. vs. City of Galena (87 Pacific 735)	Purchase	Nov. 10, 1906	Supreme Court of Kansas	12,172	3,043	25.0
Newburyport Water Co. vs. City of Newburyport (168 Mass. 541)	Purchase	January 1907	Mass. Supreme Court	235,000	40,000	17.0
C. H. Vennor Co. vs. Urbana Water Works (174 Federal 349)	Rate	Nov. 6, 1909	U. S. Circuit Court	155,000	25,000	16.1
Omaha vs. Omaha Water Co. (218 U. U. S. 180)	Purchase	May 31, 1910	U. S. Supreme Court	5,700,582	562,712	9.9
Pioneer Telephone and Telegraph Co. vs. Westenhaver (118 Pacific 354)	Rate	Jan. 10, 1911	Oklahoma Supreme Court	94,660	18,932	20.0
Des Moines Water Co. vs. City of Des Moines (192 Federal 193)	Rate	Sept. 16, 1911	U. S. Circuit Court	1,685,978	168,277	10.0
Des Moines Gas Co. vs. City of Des Moines (199 Federal 204)	Rate	Aug. 21, 1912	U. S. District Court	1,940,928	300,000	15.5
Knoxville vs. Knoxville Water Co. (212 U. S. p. 1)	Rate	—	U. S. Circuit Court	538,000	60,000	11.1
Public Service Gas Co. vs. Board of Public Utility Commissioners	Rate	July 7, 1913	Supreme Court of N. J.	—	—	30.0
City and County of Denver, et al. vs. Denver Union Water Co. (38 Supt. Ct. Rep. 278)	—	—	—	10,617,782	800,00	7.5

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TABLE NO. 5

Allowances Made in Commission Cases for Going or Development Cost

Case (1)	Nature of Case (2)	Date of Decision (3)	By Whom Decided (4)	Cost of Reproduction (5)	Allowance for Going or Development Cost Amount (6)	Allowance for Going or Development Cost Per Cent of Cost of Reproduction (7)
Hill vs. Antigo Water Co. (Wis.) (34 R. C. R. 623, 625)	Rate	Aug. 3, 1909	Wisconsin R. R. Commission	$ 97,660	$ 10,000	10.2
In re Purchase of Macon, Ga., Gas Light and Water Co. by City of Macon, Ga.	Purchase	1911	Valuation Committee and Appraisal Board	—	—	17.9
Superior Commercial Club vs. Superior Water, Light and Power Co.	Rate	Nov. 13, 1912	Wisconsin R. R. Commission	—	—	14.0
Gately and Hurley vs. Delaware and Atlantic Telegraph and Telephone Co., 14 A. T. & T. Co. 39, 91	Rate	Jan. 7, 1913	New Jersey Public Utility Commissioners	5,959,460	797,800	13.4
In re Application of Northern Michigan Power Co., 19 A. T. & T. Co. 244, 256, 261	Capitalization	June 11, 1913	Michigan R. R. Commission	7,246,097	507,226	7.0
Seattle vs. Seattle Ltg. Co. (Wash.) P. U. R. 1915 B. 135, 146	Rate	1915	Public Service Commission of Washington	7,532,787	1,594,096	21.2
Milwaukee vs. The Milwaukee Elec. Rwy. and Lgt. Co. (Wis). 10 W. R. C. R. 1, 122	—	—	Wisconsin R. R. Commission	9,942,125	500,000	5.0
City of Milwaukee vs. Milwaukee Gas Lgt. (Wis.) 12 W. R. C. R. 441, 507	—	—	Wisconsin R. R. Commission	9,841,986	658,014	6.7
Re Indianapolis Tele. Co. (Ind.) P. U. R. 1916 D.	Sale	1916	Indiana Public Service Commission	3,081,119	246,489	8.0
Commercial Club vs. Citizens Gas and Fuel Co. (Indiana) 1916 E. I.	Rates	1916	Indiana Public Service Commission	880,726	71,600	8.1
Re Indianapolis Water Co. (Ind.) P. U. R. 1917 E. 556	Capitalization & Rate	1917	Indiana Public Service Com.	10,003,431	328,000	3.3
Re United Fuel Gas Co. (W. Va.) P. U. R. 1918 C. 193	Rate	1918	West Virginia Public Service Commission	16,750,715	1,675,072	10.0

TABLE No. 5 (contd.)

Allowances Made in Commission Cases for Going or Development Cost

Case (1)	Nature of Case (2)	Date of Decision (3)	By Whom Decided (4)	Cost of Reproduction (5)	Allowance for Going or Development Cost Amount (6)	Allowance for Going or Development Cost Per Cent of Cost of Reproduction (7)
Salisbury vs. Salisbury Lgt. Heat and Power Co. (Maryland) P. U. R. 1918 E. 331	Rate	1918	Maryland Public Service Commission	$ 202,417	$ 18,395	9.1
Re Michigan State Tele. Co. (Michigan) P. U. R. 1918 C. 81	Rate	1918	Michigan Railroad Commission	11,849,612	835,215	7.1
Re West Va. Central Gas Co. (W. Va.) P. U. R. 1918 C. 453	Rate	1918	West Virginia Public Service Commission	3,576,690	311,627	8.7
Re Hydro Elec. Lgt. and Power Co. (Indiana) P. U. R. 1918 A. 325	Rate	1918	Indiana Public Service Commission	436,261	25,000	5.7
Re Appalachian Power Co. (W. Va.) P. U. R. 1919 D. 286	Rate	1919	West Virginia Public Service Commission	8,500,000	1,500,000	17.6
Gainsborough Tele. and Ga. R. R. Co. 1913	—	1913	—	8,797	2,500	28.4
Fruit Belt Telephone 1913	—	1913	—	23,893	4,779	20.0
Men and Mariatta Lgt. and Tr. Co. 3 W. R. C. R. 778	—	—	Wisconsin R. R. Commission	98,074	11,926	12.2
Cashtin Lgt. and Power Co. 3 W. R. C. R. 67	—	—	Wisconsin R. R. Commission	3,339	412	12.3
Superior Com. Club 11 W. R. C. R.	—	—	Wisconsin R. R. Commission	1,564,663	204,467	13.1
In re Mountain States Tel. and Tel. Co. (Colorado) 63 Commis. Leaflets 526	—	—	—	14,353,643	2,347,946	16.3
In re Rates of Public Service Co. for Gas (Passaic Case) New Jersey, I. N. J. P. U. C. R. 453	Rate	—	New Jersey Public Utility Commission	3,675,980	1,025,000	27.9

TABLE NO. 5 (contd.)

Allowances Made in Commission Cases for Going or Development Cost

Case (1)	Nature of Case (2)	Date of Decision (3)	By Whom Decided (4)	Cost of Reproduction (5)	Allowance for Going or Development Cost Amount (6)	Allowance for Going or Development Cost Per Cent of Cost of Reproduction (7)
In re Purchase Fond Du Lac Water Co. (Wisconsin) 5 W. R. C. R. 482	Purchase	—	Wisconsin R. R. Commission	$ 314,439	$ 38,078	12.1
In re Union Electric Light and Power Co. (St. Louis) Report of St. Louis Public Service Commission page 64	—	—	St. Louis, Mo. Public Service Commission	15,110,505	1,000,000	6.6
Carvel vs. G. L. and P. Co. (Arizona) 6, R. R. 101, 102	—	—	—	—	—	10.0
Peck vs. Indianapolis Light and Heat Co. (Indiana) P. U. R. 1916 B. 445, 475	Rate	1916	Indiana Public Service Commission	5,609,269	400,000	7.1
Commercial Club vs. Terre Haute Water Works Co. (Indiana) P. U. R. 1916 B. 180, 196	Rate	1916	Indiana Public Service Commission	1,259,845	80,000	6.4
Leavenworth vs. Leavenworth Water Co. (Kansas) P. U. R. 1915 B. 636	Rate	1916	Kansas Public Utilities Commission	571,804	37,283	6.5
Ft. Scott Gas and Elec. Co. v. Fort Scott (Kansas) P. U. R. 1915 B. 500	Rate	1915	Kansas Public Utilities Commission	284,500	15,000	5.3
Re Manchester St. R. R. Co. (New Hampshire) 37 A. T. and T. Co., 565	—	—	Public Service Commission of New Hampshire	1,599,729	352,750	22.0
Re Federal Tel. and Tele. Co. (2nd Dist. N. Y.) 34 A. T. and T. Co. 1081-1082, 1088	—	—	Public Service Commission, 2nd District, N. Y.	2,124,364	150,000	7.1
Re Westchester Lighting Co. (2nd Dist. N. Y.) 6 R. R. 243-248	—	—	Public Service Commission, 2nd District, N. Y.	421,327	42,000	10.0
Re Pacific Tele. and Tele. Co. (Washington) 25 A. T. & T. Co. 892, 893, 895	—	—	Public Service Commission of Washington	2,905,100	232,000	8.0
City of East Chicago v. East Chicago and Indiana Harbor Water Co. P. U. R. 1922 A 213	Rate	1922	Indiana Public Service Commission	1,600,000	150,000	9.4

Exhibit P6-A

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Owing to the destruction of the earlier records, I could not ascertain the historic cost of developing the business of these properties. Several methods have been used for estimating the cost of reproducing the business of a going property, among which the one most commonly used is the comparative method. By this method it is assumed that the existing property may, on the one hand, be bought and continued in operation, while on the other hand, a new plant may be built upon the assumption that no plant is now serving the territory served by the existing plant. By this method the going value of the existing plant is the present worth of the differences in net earnings which would accrue from year to year under the two conditions stated, that is, the net difference in net earnings which would accrue from the date of the hypothetical purchase to the date upon which it is assumed that a new and competitive plant should have developed a business identical with that of the old.

I have made no estimate of the going cost by any of the so-called reproduction methods of computing it, but have based my judgment of the fair going cost upon the awards for going cost made by courts and commissions for other properties, as well as upon my own experience in determining the cost of attaching or developing the business of a property where the records have been complete from the beginning of the property and the true historical development cost could be ascertained.

By reference to Tables Nos. 4 and 5, pages *22 to *29, it is seen that 11.3% of the cost of reproduction of tangible property is a reasonable allowance for going cost, and this is the amount I have allowed after taking into consideration the conditions

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and circumstances surrounding the development of these plants.

In fixing the going cost I have also had in mind the judgment of the Appraisal Board above referred to, which in 1913 fixed the going cost of the affiliated properties at 13.7% of the cost of reproduction of the tangible property as determined by it.

(F) Cost of Reproduction at Current Prices.

As an additional yardstick by which to measure the fair value of these properties I ascertained the ratio between average ten year prices for structural items and labor as above used and prices for similar materials and labor current at this time, and applied this ratio to the ten year average prices to obtain the probable current cost of structural items.

I then took land, rights of way, water diversion rights, releases from damages, working capital, preliminary and organization expenses and going cost at the same figures as in the ten year average appraisal and added their cost to the current cost of structural items to get the gross cost of reproduction. To get gross present value on the basis of current prices, I deducted from the gross cost of reproduction an allowance for depreciation figured at the same per cent of the cost of reproduction of the depreciable property as was found in the ten year average appraisal.

Exhibit P6-A

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(G) Cost of Reproduction at 1920 Peak Prices.

For the purpose of comparing my estimate of the value of the property based on the average prices obtaining during the past decade with peak war prices, I ascertained the probable cost of reproducing the property at 1920 peak prices by applying a predetermined ratio between the average ten year prices for structural items and labor used in my reproduction estimate and prices for similar materials and labor current in 1920. I have in this case, as in comparing current prices with ten year average prices, taken land rights of way, water diversion rights, releases from damages, working capital, preliminary and organization expenses and going cost at the same figures as in the ten year average appraisal. The gross present value was also calculated in the same way as in the case of the valuation at current prices.

VALUE OF PROPERTY.

Capitalization as a Measure of Value.

A moment's reflection will show that one cannot take the par value of the stock and the par value of bonds actually outstanding, nor the total obligations which a company has outstanding as a measure of the fair value upon which a company is entitled to earn a fair return. To do this would mean that a company which had been operated with a conservative financial policy and has maintained a low capitalization, and paid for more or less of its physical assets from earnings, would be penalized, and, on the other hand, that a company which was profligate

with capital issues and had maintained a capitalization much in excess of the fair value of the property would enjoy a bonus for high financing. The capitalization of these companies, however, when

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considered in conjunction with their book value and pre-war value plus the cost of additions since 1912, may be used in a general way as an index to the probable investment in property and plant as a comparison of the three figures mentioned, indicates that the capitalization is reasonable and conservative.

BOOK COST AS A MEASURE OF VALUE.

Neither can cost as shown by the books alone be taken as a true index of the value of the property, for as previously stated, cost and value are not synonymous, and to base a judgment of value on book costs alone would eliminate all consideration of many elements affecting value. It would most certainly eliminate all consideration of the value of the property at the time of appraisement. Then too undoubtedly there are items included in the book costs which have been discarded or else are not used and useful for water works purposes, and it is equally certain that all charges applicable to construction account have not been so charged. This is the universal experience of those familiar with the past records of utility companies. Book costs, therefore, are not necessarily even a true measure of investment unless they can be accurately verified. In this case the book cost of these companies does in a general way reflect the investment in property, but only in a very general way.

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	RESPONDENTS' EXHIBITS:		
O1.	Assignment, dated Sept. 6, 1918, between New York and New Jersey Water Company and Mayor and Common Council of City of Bayonne	804	1238
R1.	Volume entitled—Valuation of the properties of East Jersey Water Co., etc.—Edward W. Bemis, Consulting Engineer	490	1245
R2.	Setup for 1920-21 for five companies, separately and combined	566	1308
R3.	Criticism of Hill appraisal and Metcalf appraisal by Dr. Bemis	530	1310
R4.	Graph as to quality of water		1354
R5.	Letter, May 6, 1921, to Mayors of Paterson, Passaic and Clifton, by E. LeB. Gardner, together with opinion of R. V. Lindabury	587	1354
R6.	Letter to E. LeB. Gardner, Pres. N. J. General Securities Co., dated March 17, 1922	589	1354
R7.	Letter, March 21, 1922, by E. LeB. Gardner to Committee of City of Paterson, together with statement of total valuation of		

		Admitted page	Printed page
	plant and blueprints giving description of property	590	1354
R8.	All combined companies, reconciliation of construction accounts, as per books with Bemis' appraisal as of December 11, 1921	597	1359
R9.	Summary analysis of 1920 Bemis' valuation showing books and estimated cost	665	1368
R10.	Study of Bemis' going value ..	672	1382
R11.	Data on "Early profit and recent going value decisions" ..	685	1396
R12.	Mr. Hill's memo. from which he testified on December 28 ..	789	1403
R13.	Volume of information and documents relating to proposed purchase from New York & New Jersey Water Company by City of Bayonne	805	1405
R14.	Table showing quantities of water passing through 51-inch pipe line and quantities supplied to the municipalities and the excess	827	1414
R15.	Statement headed "Water Purchased from the East Jersey Water Company by Jersey City"	827	1415

Exhibit P6-A

PRE-WAR VALUE PLUS COST OF ADDITIONS SINCE 1912 AS A MEASURE OF VALUE.

Pre-war value plus cost of additions since 1912 cannot be used alone as a measure of value to the exclusion of all other considerations for the same reason that book costs cannot be so used, for this would also eliminate all consideration of value at the time of appraisement, and if my interpretation of numerous to appraise is the

present far value of these properties. Dr. Pierson states in his "Principles of Economics" that "Cost is the exact opposite of value." A moment's consideration will clearly indicate why cost is not necessarily a true index of value. If it happens that the determination of value is made at or near the time the plant is built and put in operation, cost may be the predominant index to value. If the time of appraisal, however, is remote from the time the bulk of the investment in plant and property was made, appreciation or diminution in value arising from changes in cost of labor and materials may enter largely into one's judgment of value. Then, too, if a plant is overbuilt, or disproportionate in size to the service required of it, neither actual cost nor reproduction cost would be the sole test.

The fact that these properties were appraised in 1912 by a Board of Appraisers representing the State of New Jersey does seem to warrant the assumption that one of the best evidences of the true investment in the properties may be obtained by adding to the values of the Appraisal Board as of De-

cember 31, 1912, the actual cost of additions to plant since that date, the cost of which additions are ascertainable from the books of the Companies. These figures, however, do not represent the value of the properties which are to be determined in this appraisal.

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It must be clear to anyone that if fair value is the thing sought after the appraiser must not be limited to the consideration of the amount of actual investment. If the investment had been reckless or improvident, losses would have been sustained, which the consumer could not be expected to underwrite. So, if a company is not to be protected in its investment, if the value of the property is plainly less than the investment, it cannot by the same token be penalized because the fair value is plainly in excess of its investments. The determination of a just return must, therefore, involve the recognition of fair value. The value of the dollar today is not the value of the dollar when the bulk of this property was built, for the value of the dollar is less now than the average value of the dollar during the life of this property. Consequently, the value of these properties has increased since they were acquired if for no other reason than by reason of the shrinkage in the value of the dollar. Such matters as the investment and capitalization should be taken into consideration in reaching a conclusion as to the fair value of these properties, but neither investment nor capitalization furnishes controlling or conclusive evidence of value.

Exhibit P6-A

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COST TO REPRODUCE AT CURRENT PRICES AS A MEASURE OF VALUE.

In order to reach a fair conclusion as to value one must consider what it would cost to reproduce these properties today, and by taking into consideration price trends and other factors which affect value, arrive at a conclusion which reasonably expresses a reasonably permanent fair value at the time of appraisal.

It will be evident from comparative figures which will be presented that investment in plant falls far short of measuring present value. The question then arises: Will a valuation based on cost to reproduce at current prices produce a temporary and inflated value? This question can only be answered by a consideration of price trends, past and future.

INVESTMENT WORTH AS A MEASURE OF VALUE.

Let us first consider the average purchasing power of the dollar today expressed in terms of general commodities. Appended hereto will be found Table No. 6, and Diagram No. 2, pages *37 and *38 respectively, showing the price trend in recent years as indicated by the wholesale indices of Bradstreet, Dun and the Bureau of Labor. The groups which go to make up the index number of these indices include such commodities as breadstuffs, live stock, provisions, fruits, hides and leather, clothing, metals, coal and coke, naval stores, building materials, chemicals and drugs, etc. They may, therefore, be said broadly to represent the average purchasing power of the dollar in the country at large because they cover

nearly all of the commodities which enter into human existence. The table shows that according to Bradstreet general commodities at this time are 24% higher than the average of 1913, according to Dun 36% higher, and to the Bureau of Labor 51%. The

TABLE NO. 6.

Stabilization of Prices Indicated by the Price Changes During the Past Six Months.

Date	Bradstreet's Index Numbers		Dun's Index Numbers		Bureau of Labor Index Numbers	
	Ratio to Average 1913	Per Cent Change Over Previous Month	Ratio to Average 1913	Per Cent Change Over Previous Month	Ratio to Average 1913	Per Cent Change Over Previous Month
Average, 1915	100	—	100	—	100	—
December 1, 1920	148	—13.1	175	—6.8	207	—8.0
May 1, 1921	118	— 4.9	138	—4.4	154	—4.9
September 1, 1921	120	+ 0.3	135	—0.7	152	+2.7
October 1, 1921	121	+ 0.9	134	—0.5	152	0.0
November 1, 1921	123	+ 1.4	135	+1.1	150	—1.3
December 1, 1921	122	— 0.3	136	+0.5	149	—0.7
January 1, 1922	123	+ 0.5	136	0.0	149	0.0
February 1, 1922	124	+ 0.4	136	0.0	151	+1.3
March, 1922	126	+ 1.6	140	+2.9	152	+0.7
April, 1922	125	— 0.6	138	—2.0	—	—

— Decrease
+ Increase

40 30 20 10

table and curves also show unmistakable evidence that wholesale commodity prices are stabiliziing. Price changes in general in the last half of 1921 were small. For January and February 1922 the figures show virtually no variation from month to month.

The Dun index is about an average between Bradstreet and the Bureau of Labor, and using this as a basis for comparison it appears that the purchasing power of the dollar in this country at this time is on the average but 73.5% of what it was in prewar times, or, in other words, basing present value on the average purchasing power of the dollar the investment worth of the properties under appraisement is 36% more today than it was in 1913.

There has, however, been a great disparity in the price range of different commodities and while the purchasing power of the dollar on the average may have shrunk but 26.5% when measured by general commodities, its purchasing power is very much more limited when applied to certain commodities. The disparity in price ranges of different commodities between 1915 and 1921 inclusive is shown on the accompanying Diagram No. 2, page *38. In this chart the solid line represents the Bureau of Labor Index of wholesale commodity prices. The value of this index shows no change in the average since June, 1921. thus indicating the greater stability in our price structure, which has been a feature of the past six months. It is well known, however, that the disparity between deflation in different commodities has been great. Thus metal products are now only 15% above the average price for 1913, while house furnishing goods are 113% more than in the earlier years. This is a spread of 98 points as compared

Dwg. No. M-249 Drawn by :# Checked by W.P.S. Examined by S.L.K Reviewed by A.N.A. Feb. 9, 1922 Revised May 1, 1922

Dwg No. M-249 Drawn by H Checked by W.P.S. Examined by S.L.K. Reviewed by A.N.A. Feb. 9, 1922 Revised May 1, 1922

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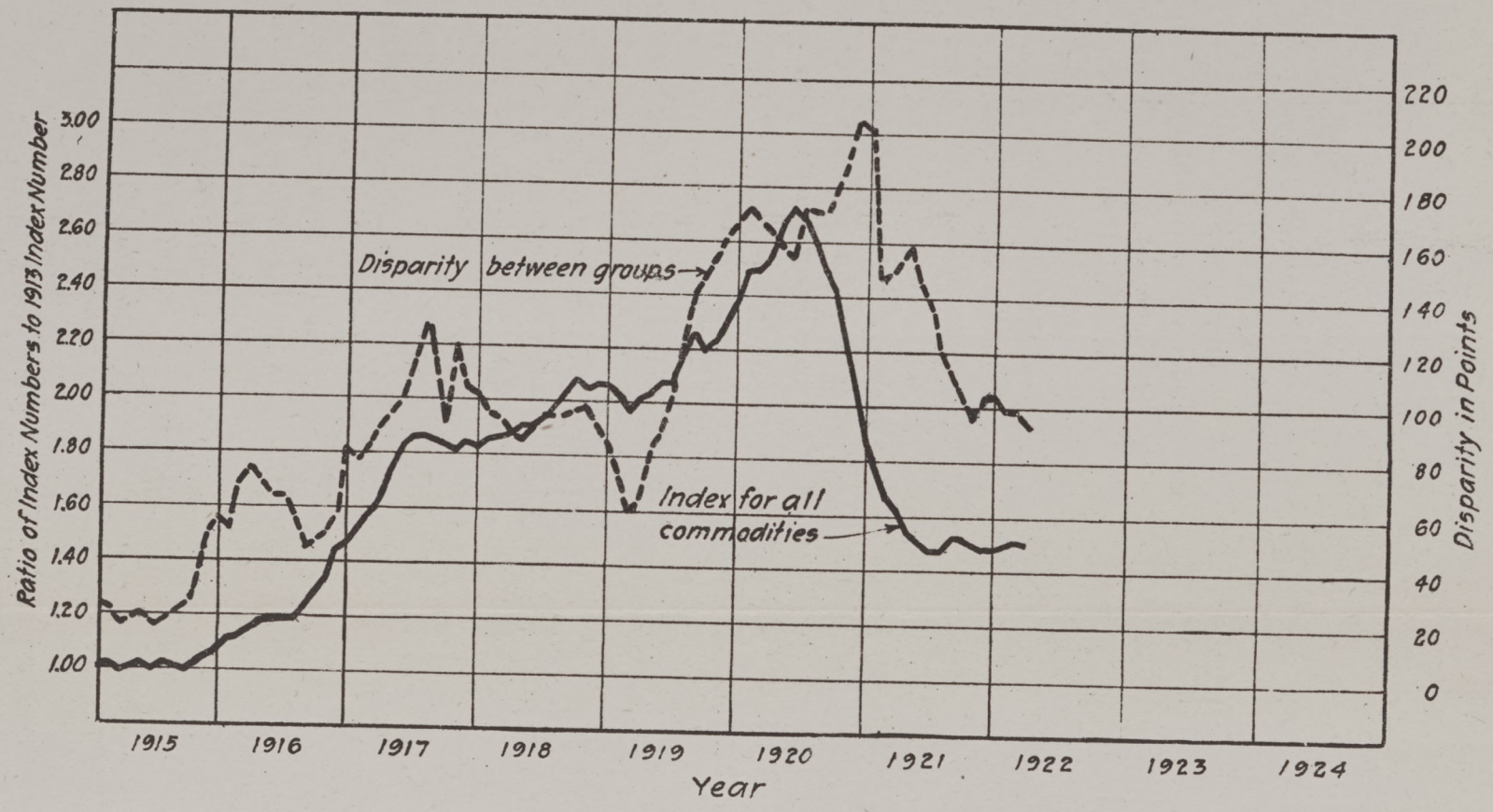
New York City

DIAGRAM NO. 2

DISPARITY IN PRICE DECLINE

NEW YORK EVENING POST



From Bureau of Labor Statistics Index of Wholsale Commodity Prices.

Exhibit P6-A

*40

with the maximum spread of 204 points in November, 1920. In the chart the spread between the highest and lowest groups by the index is represented by the dotted line.

While substantial progress has been made during the past year in reducing the disparity of inflation, as shown by the figures just given, it is evident that the true measure of the value of a dollar in a particular line of endeavor cannot be obtained by basing one's estimates on the purchasing value of the dollar as expressed by general commodities. By so doing, we encounter the time old danger of working out an average and applying it to a particular thing.

A detailed study of the various groups of commodities upon which the indices submitted are based clearly indicates that of these commodities building materials are among those which to date have declined the least.

I herewith append Table No. 7 and Diagram No. 3, pages 41 and 42 respectively, showing the "Engineering News-Record Construction Cost Index," which is based on the prices of steel, cement, lumber and common labor in 1913. In this index the materials and common labor are weighted according to their relative importance. These weightings are:

Steel	37.50%
Cement	7.14%
Lumber	17.10%
Labor	38.00%

The weightings were determined by studying the annual production of the three prime materials and the number of common laborers, exclusive of farm laborers, in the United States. (See "Engineering News-Record," January 5, 1922, Vol. 88, page 10.)

TABLE NO. 7.

ENGINEERING NEWS—RECORD CONSTRUCTION COST INDEX NUMBER—1914 TO 1922.

(1)	1914 (2)	1915 (3)	1916 (4)	1917 (5)	1918 (6)	1919 (7)	1920 (8)	1921 (9)	1922 (10)
January	89.22	87.12	130.46	167.75	184.51	198.05	206.55	230.87	168.72
February	89.22	87.36	134.46	167.75	184.51	201.50	225.10	230.67	168.72
March	88.97	87.66	142.96	175.66	184.51	198.05	240.85	224.27	162.04
April	87.97	90.16	147.31	183.41	186.01	191.25	265.20	213.07	164.72
May	88.62	90.16	148.86	187.61	186.01	191.25	268.20	210.82	164.62
June	87.87	99.96	146.51	199.26	186.31	191.85	273.80	209.82	166.62
July	88.12	90.51	145.76	204.01	188.65	193.65	265.65	203.82	
August	90.11	91.76	146.56	198.41	193.85	196.65	252.00	193.07	
September	90.36	93.01	149.56	190.31	193.85	202.85	255.20	188.27	
October	88.51	96.16	152.91	167.11	193.85	202.25	255.20	182.57	
November	87.26	101.06	155.66	166.51	193.55	206.85	255.32	166.32	
December	86.51	107.06	167.15	167.11	194.75	206.85	251.62	167.82	
Averages	88.56	92.58	147.35	181.24	189.20	199.26	251.28	201.78	

Dwg No. M-250 v. 705-E Checked by W.P.S. Examined by M Reviewed by S.K.K. Feb. 9, 1922 Revised to May 1922

Dwg No. M-250 ... n by H. Checked by W.P.S. Examined by M. Reviewed by S.K.K. Feb. 9, 1922 Revised to May 1922

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DIAGRAM NO. 3

CONSTRUCTION COST INDEX NUMBER

ENGINEERING NEWS-RECORD

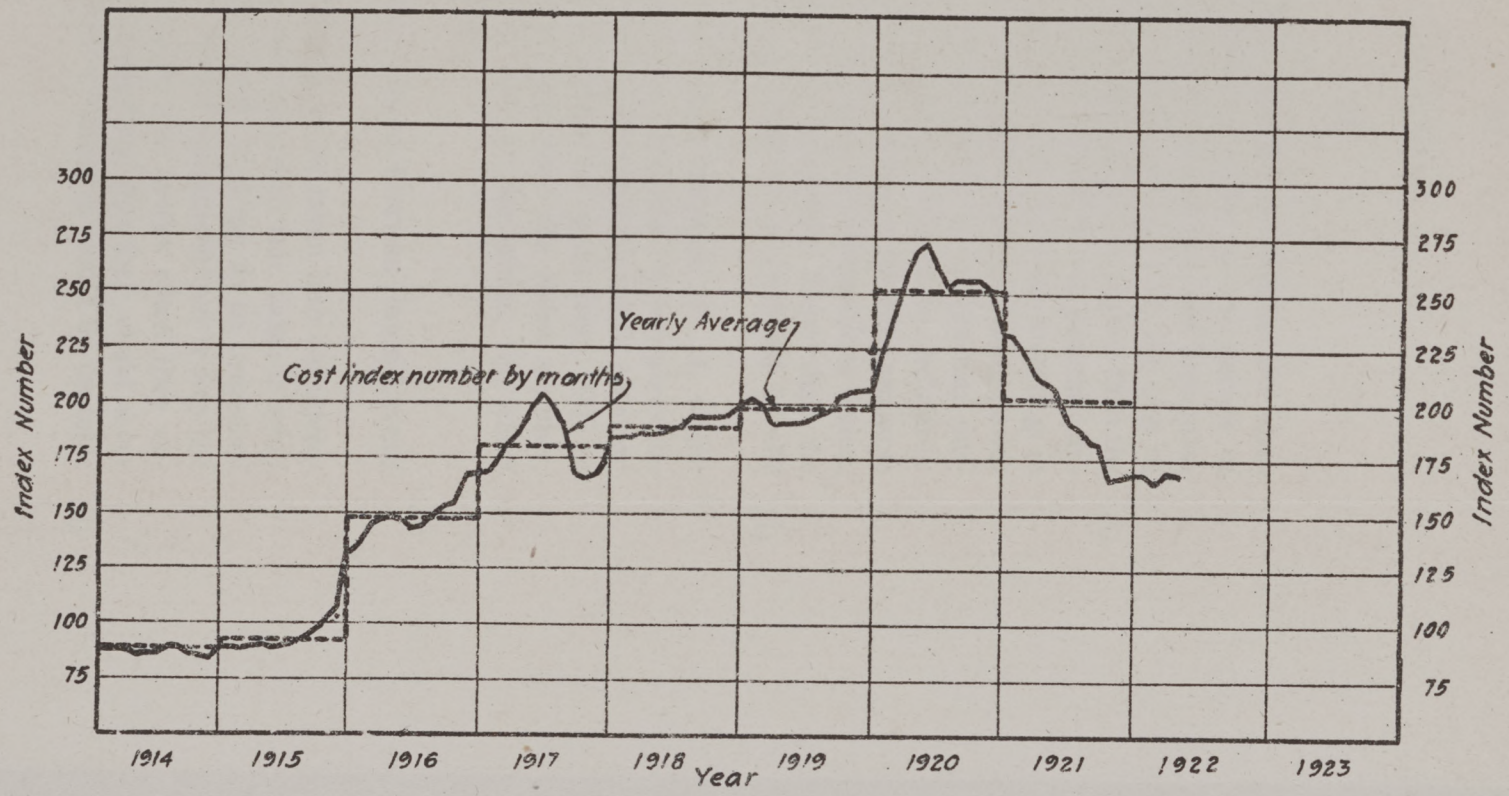

Exhibit P6-A

*43

The curve and table referred to indicate the same stabilization of construction prices as the curves of general commodities during November and December do, but they show that at the present time the cost of structural materials and labor are 62% higher than the pre-war basis, as compared with 36% for general commodities. This means that for the man investing in building or construction projects the purchasing power of the dollar today has but 60% of its pre-war purchasing power, and, therefore, if one bases one's present valuation of property involving appreciable amounts of construction upon the general commodities index, such a valuation would be materially lower than the present value of such a property as reflected by the construction cost index.

On page 44 will be found Diagram No. 4, which has been prepared under my direction, which gives the weighted average cost of labor and materials entering into water works construction by years from 1909 to date. From this it is seen that the index number, expressed in the same way as the others, for water works materials is 185.

PROBABLE PERMANENT SET IN FUTURE PRICE LEVELS

One of the main things to be taken into consideration in reaching a conclusion as to fair value is what the future set in price levels is going to be compared with pre-war levels. It was recognized that it was not fair to appraise on peak war prices when they occurred because it was recognized that they would never be maintained and such a valuation would be unstable

and but temporary in nature. Neither would it be fair to appraise on current prices if it can be fairly and reasonably assumed that they

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will be either materially higher or lower than the average for the next ten years say. What is wanted is a stable valuation which will hold for a reasonable term of future years. It is pertinent to ask, therefore, whether current prices are representative of the future permanent set in price levels.

On page 46, will be found Diagram No. 5, showing the trend of prices before and after the Civil War and World War. From this diagram it will be seen that it took thirteen years for the prices of materials to return to pre-war level after the Civil War. An analysis of the diagram also shows that the average price of commodities for the thirteen years subsequent to the Civil War was 35% higher than the pre-war level. It is important to note that wages of both skilled and unskilled labor during the Civil War did not increase as the cost of commodities did, nor did they increase in anything like the same way they did during the World War. It will also be seen that the cost of labor never returned to the pre-war level. The lowest point in the cost of labor reached subsequent to the Civil War was about 25% higher than the pre-war level, and it only remained at this level for a year or two around 1878 and 1879. The trend of labor has been continuously upward from 1880 to the present time, and this curve shows that the trend of materials has in a general way been in accord with the trend of labor, as would naturally be expected.

The question is: How long will it take for present prices to drop to pre-war levels?

Dwg No M-248 Drawn by HF Checked by G.H.B. Examined by ANA. Reviewed by S.K.W. Feb. 10, 1922 Revised To May 1922

Dwg No M-248 Drawn by H Checked by G.H.B. Examined by A.N.A. Reviewed by S.K.H. Feb. 10, 1922 Revised To May 1922

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DIAGRAM NO. 4
CURVES SHOWING

INCREASE IN COST OF WATER WORKS MATERIALS AND LABOR OVER THE PRE-WAR COST

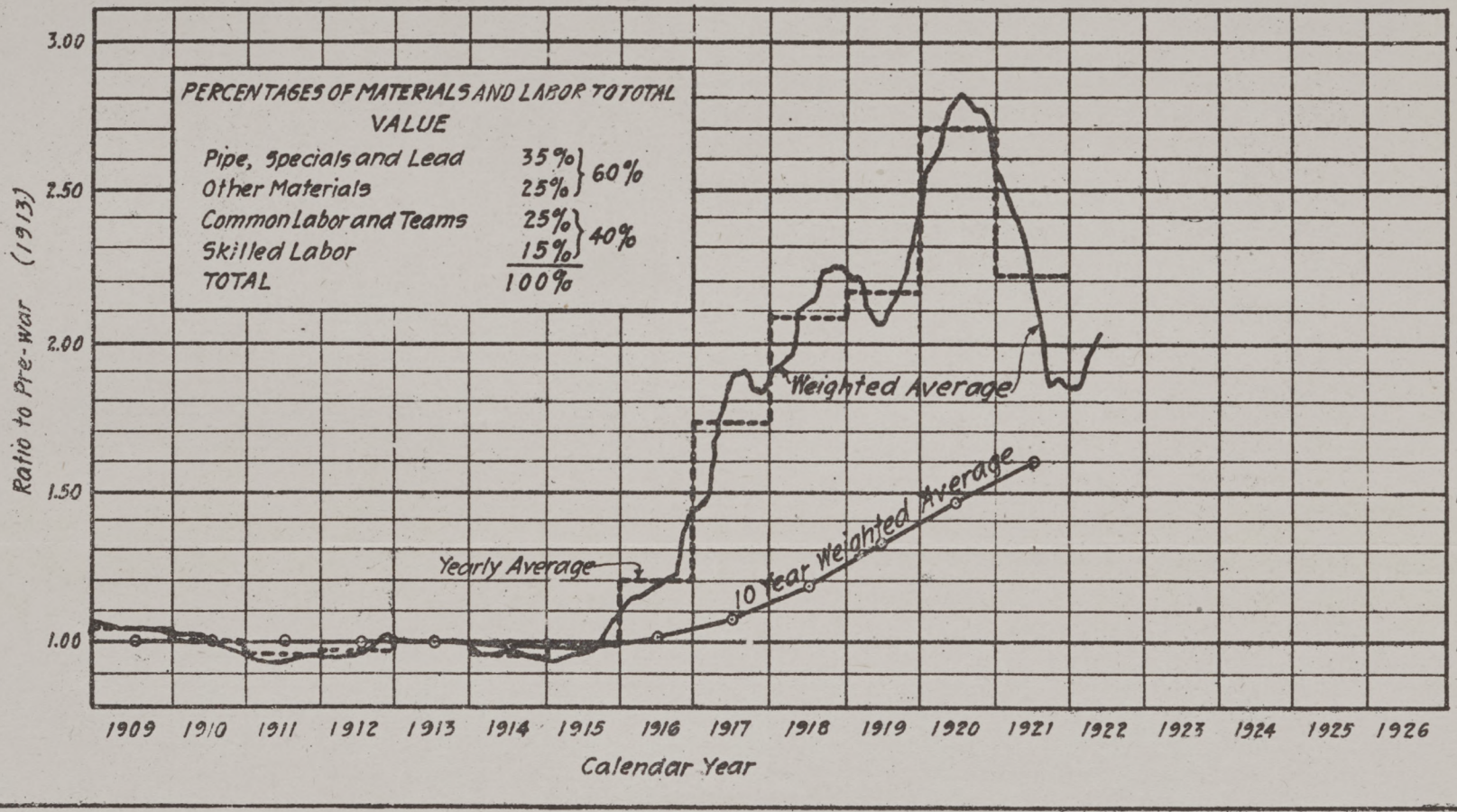

Exhibit P6-A

*47

When considering the average future set in price levels one must take into consideration changes in conditions existing now and those which existed after the Civil War. At the close of the Civil War labor was not organized as it is today, and the effect of organization has been markedly shown by labor's recent resistance to deflation. Labor after the Civil War was much poorer than it is today. It was not so well educated. It had not grown used to the luxuries to which it is now accustomed. During the World War labor received a rate of compensation which was hitherto unheard of, and in many branches of skilled labor workmen were able to lay aside sufficient to resist reduction in wages. The restrictions recently placed upon immigration have materially increased labor's power of resistance to deflation. Since the Civil War this nation has changed from one largely agricultural in character to one having the largest output of manufactured products in the world. It is generally recognized that factory labor which is concentrated and, therefore, lends itself to organization, is more insistent upon periodic wage increases than is farm labor, which is scattered and difficult to organize. The demand for employer's liability and workmen's compensation insurance, mill sanitation, accident prevention, shorter working hours, and child labor prevention, which have progressively increased within the last twenty years and were almost unheard of at the close of the Civil War, tend also to increase the cost of labor in production. I see no reason for assuming that the price of labor will fall more rapidly in the future than it did after the Civil War.

Exhibit P6-A

*48

The feeling is general that the turning point has been reached. Manufacturers and producers all over this country testify that recently they have been selling their output, many times at actual cost of labor and materials, sometimes at cost of labor and materials plus overheads, but rarely at prices sufficient to include any profit. Many concerns had enormous stocks of materials and supplies of finished products on hand at the close of the World War. This condition was one of the primary causes for the sudden cessation of demand for most commodities a year or so ago. These stocks have been partially assimilated and the loss of value on the residue was written off on or before January 1, 1922. The losses by reason of the deflation in value of stocks has, therefore, been to a very great extent absorbed. A quickening in demand for manufactured products of many kinds has been noticeable within the last few months as the result of the assimilation of stock on hand, and while there is no reason to anticipate a rapid return to prosperity there is good cause for anticipating a gradual resumption of business. While there have recently been sporadic reductions in the wages of labor of all kinds, it is undeniable that labor has been much more resistant to deflation than materials, as was the case after the Civil War. It is also true that labor has been more resistant to deflation than it was subsequent to the Civil War. Many varieties of labor in many sections have not had wages reduced at all. In some fields labor is now demanding increases. As business resumes both skilled and unskilled labor will be in greater demand than at present and as the demand increases, labor, organized

Drawing No. M-257 Drawn by H Checked by H.K.F. Examined by au Reviewed by Feb. 24, 1922

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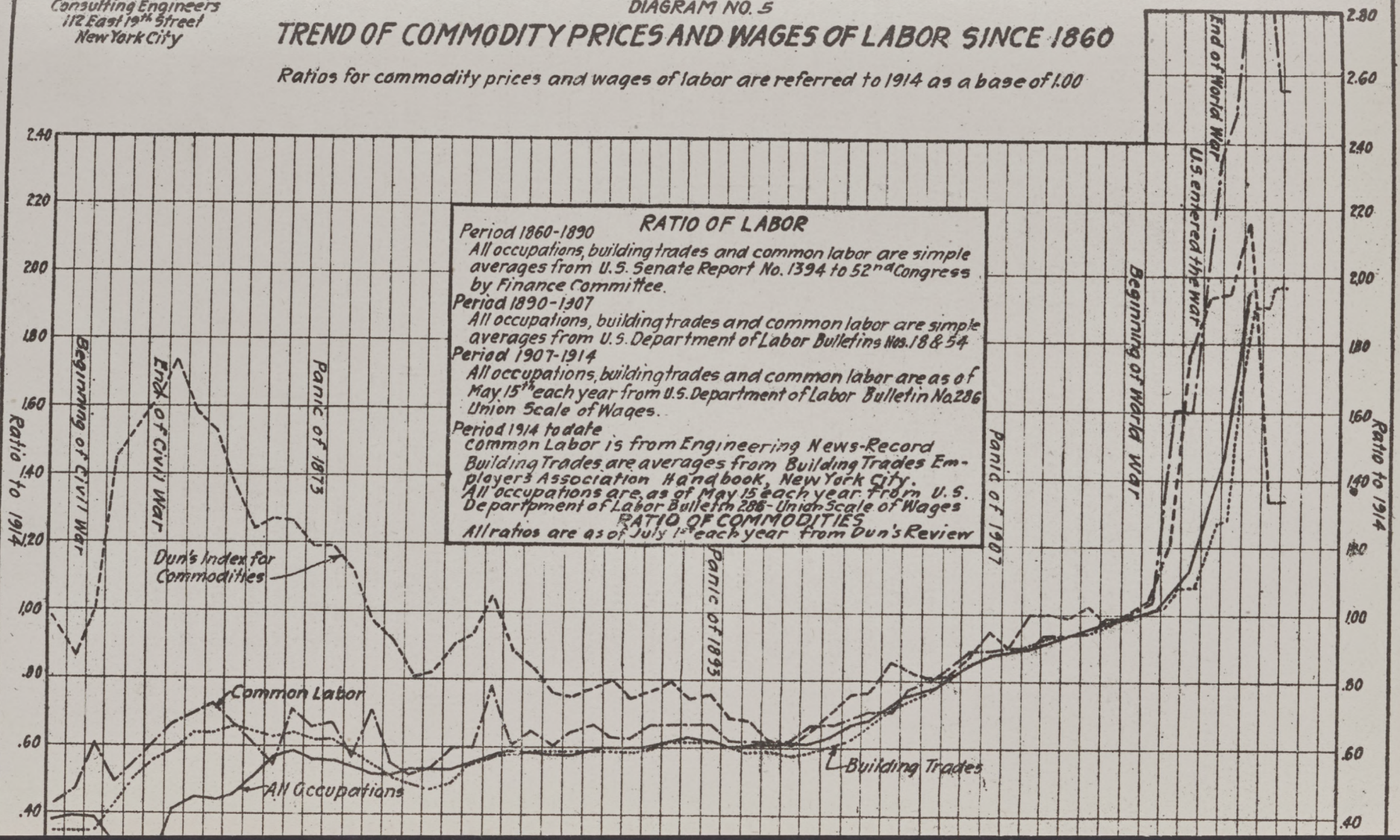
DIAGRAM NO. 5

TREND OF COMMODITY PRICES AND WAGES OF LABOR SINCE 1860

Ratios for commodity prices and wages of labor are referred to 1914 as a base of 1.00



as it is today, will be more and more resistant to reduction in labor prices, if not insistent upon increases. If this is so, manufactured products cannot be sold at pre-war

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levels for many years to come because the cost of labor entering into them will be materially greater than it was before the war. It will only be when the introduction of new processes and devices which reduce the quantity of labor entering into production has progressed sufficiently to have offset the increased cost of labor that prices can possibly reach pre-war levels. This will be a slower process at this time than it was subsequent to the Civil War when the modern systems of cost accounting, production control and automatic machinery were almost unheard of and the field of cost reduction in the arts and processes lay fallow in its virgin fertility, only needing to be scratched to produce the most wonderful economies in production cost. Under all the circumstances there is every reason to assume that the return to pre-war levels will be slower now than it was after the Civil War. It is, therefore, fair to assume that the average level in the prices of commodities for the next ten years will be more than 35% of the pre-war level, which was the average for the thirteen years subsequent to the Civil War.

Another factor entering into my conclusions that it will take longer for prices to return to the pre-war basis now than it did after the Civil War is the stabilization of credits as a result of the improvements in our national banking system since 1865. The recent banking laws, which have tended to create a

more elastic currency and, therefore, remove one of the underlying causes of the frequent panics which marked the financial history of the country between 1865 and 1905, tend to stabilize prices and, therefore, to maintain them at a higher average level. A study of the price trend from 1865 to date (See Diagram No. 5, page 46), shows the marked depressing influence which these panics produced on the average price

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for the period after the Civil War. Then, too, I have considered the steady and general upward trend of prices from time immemorial.

The only question which now remains is that of the fairness of including an allowance for the permanent future set in price levels in arriving at value. In considering this matter I have reviewed a number of recent decisions by courts and commissions regarding the propriety of including a permanent allowance for the permanent set in price levels in order to procure an idea of the current practice of courts and commissions in this regard. I find that numerous recent decisions have definitely considered the enhancement of value due to the deflation of the dollar. These decisions are in accord with the older decisions that present value must be considered in reaching a fair appraisal of any property. After taking into consideration the price ranges during the Civil and World Wars, the deflation which has occurred since 1921, the tendency towards stabilization which has been shown during the past six or eight months, as well as the general conditions heretofore alluded to, I am of the opinion that an allowance of 40% as the average set in price levels for the twelve years following the

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DIAGRAM NO. 6

INDEX CHART

SHOWING

TREND OF GENERAL BUSINESS CONDITIONS

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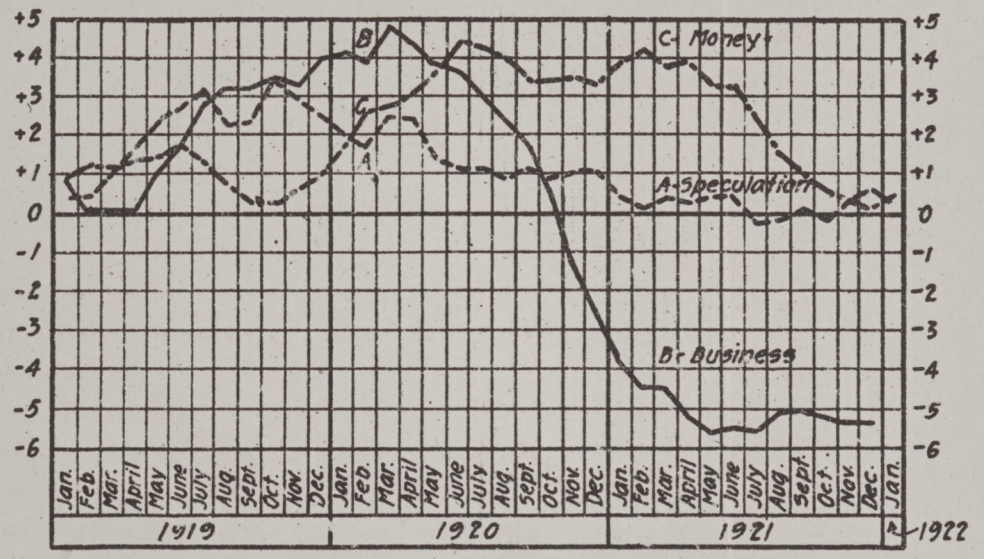
New York City

A New York City Bank Clearings
Shares Traded on N.Y. Stock Exchange
Price of Industrial Stocks

B Bank Clearings Outside N.Y. City
Bradstreet's Price Indices

C Rate on 4-Six Months Commercial Papers
Rate on 60-Ninety Day Commercial paper



FORECAST: From June to December curve C, representing money, moved downward sharply, reflecting decreased interest rates. A decline of curve C usually precedes, and hence forecasts, an upward movement of curve A, representing speculation, and then of curve B, representing business. The upward trend of curve A since July shows the expected result of easier money conditions, evidenced by the decline in curve C. The movement of these two curves forecasts a significant rise of curve B, reflecting increased commodity prices and business activity, in the spring of 1922.

From Harvard Economic Service

Dwg No N-252 Drawn by HF Checked by W.P.S. Examined by N.K.A. Reviewed by S.T. Feb. 10, 1922

close of the World War would be a reasonable and conservative assumption.

An allowance of a 40% average set above pre-war levels in a reasonable future period is but 4% higher than the present price level for general commodities. It is 28% lower than the present price level as shown by the construction cost index and 45% lower than the present price level as shown by the water works index. An assumption of a 40% average set, therefore, would allow for a large amount of deflation in the cost of water works materials in the future. A diagram, distributed by the Harvard Economic

Service in the Weekly Letter No. 6, dated February 4, 1922, is interesting in connection with the conclusions which I have just reached, and this diagram is reproduced herewith, page 51.

FAIR RETURN.

Money has a market value just as commodities have, but its value is expressed as a rate, for example, as dividend rate, interest rate, rate of return. In other words, the value of money is the amount of increase which one may expect to secure through its employment or investment. It therefore, costs money to obtain money just as it costs money to obtain other commodities. The cost of money also varies from time to time as the cost of commodities does. The cost of money also varies with the degree of risk involved in its use, or with the purpose to which it is to be applied. If it is to be used for speculative purposes or for a purpose that involves much risk of loss, but one which also offers a chance of consider-

able profit, its cost is very high. If it is to be used for safe investment its cost will be low. The gradation from speculation to investment, of course, is imperceptible, but speculation as it avoids chance in pursuit of more certain if more modest gain graduates into investment.

The chief requisite of a perfect investment is a maximum of security for the invested capital. If it is reasonably certain that the principal of an investment will be returned when demanded, or at the time agreed upon, or that it can be converted at will or at a fixed time into some equivalent form of worth equal in value and equally satisfactory to the lender, then the principal is secure. A perfect investment must also secure to the lender of the capital a fixed rental or income from the use of it. This rental, in the form of interest or dividends, should be as inviolable as princi-

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pal and certain to be paid promptly at regular intervals and in pre-determined amounts. The security of principal and stability of income reduce the cost of money, but other considerations also enter into the cost of money.

Marketability, or the ability to convert a security into cash promptly when required markedly reduces the yield secured from it. This is why a well known and popular listed security which is freely traded in often returns a lower yield than an unlisted security of the same grade which is traded in but little. It is possible to get a greater income return without loss of security if one will sacrifice the advantage of marketability. For example, if one will be satisfied with a bond less widely known than another, yet with

equal security a gain in return may be secured, but most bond buyers demand a high degree of marketability and hence marketability must be considered when fixing the return which a given security must yield.

Another important consideration which affects the cost of money for corporation financing is the value of the security offered as collateral. The value of a security as collateral depends greatly on its marketability. Therefore, a listed security is more acceptable as collateral than an unlisted security because current quotations are easily accessible and furnish an index of current value. The more actively a security is dealt in, the less necessary is knowledge of its intrinsic worth as the basis of a loan.

Perhaps the greatest service rendered by investment as distinguished from speculation is the assurance which it gives of pecuniary support. It goes almost without saying that bonds are not excelled by any other form of investment in their simplicity and the freedom from care which they bring to their owners.

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Other considerations affect the cost of money, but in general it is safe to say that the cost of money for investment depends chiefly upon the following elements:

1. Security of principal.
2. Stability of income.
3. Marketability.
4. Value as collateral.
5. Exemption from care.

Exhibit P6-A

It is well to remember these standards when comparing bonds and stocks. Is a man more sure of recovering the funds which he has invested in stocks or bonds? The answer lies in the very nature of stocks and bonds. Legally a share of stock is a certificate of ownership in a corporation. That is all. Unless otherwise stipulated, it represents a right to pro rata, participation in control, in profits, and if a corporation liquidates in whatever assets are unattached, but it does not represent any property except this right. Most people fail to understand the meagre property rights of stock. Except in bank stocks, recovery in liquidation rarely amounts to a small fraction of the sum invested, as ordinarily corporations expire only because of their inability to do business at a profit. When, as at present, not only the rights, franchises and physical properties, but even the very shares of corporations are pledged to secure borrowed money, the stockholder has little to expect from liquidation. Security of principal in a stock investment is further lessened because it is subject to assessment. The only recourse for the recovery of principal from stock is by sale.

*55

Mortgage bonds, on the other hand, represent an investment on the part of the borrower of an amount at least equal to their cost, generally of an amount at least double their cost. The principal of bonds is fortified by representative assets on which they have a prior claim and a bondholder is a secured or at least a preferred creditor.

The stability of income from stocks is not as great as from bonds. The dividend rate is not necessarily uniform. Dividends on stock are frequently passed or

cut. This may result from losses on the part of a corporation in hard times, the need of money for capital improvements necessitating the issuance of new securities with prior rights, or from other unforseen eventualities, or dividends may be passed or cut deliberately to serve the ends of an irresponsible directorate.

The rate of interest on bonds and the dates for interest payments are fixed. Bond interest must be paid before dividends on stock may be declared. If bond interest is not paid the bondholders of a property may foreclose it.

In the case of bond issues precaution is usually taken to prevent the creation of future indebtedness that in whole or in part may become a lien prior to existing obligations. In the nature of corporations there is nothing to prevent stockholders who are in control from imposing obligations on a company that will be charged to the revenues earned before dividends are paid. Stock partakes more of the character of speculative paper and bonds of the typical investment security.

*56

Some listed stocks may have a superior marketability to some listed bonds, and this probably accounts in great measure for the low average return on some listed stocks. They are popular with certain groups of investors who desire quickly convertible assets, but it should be remembered that listed securities are in the minority and by no means representative of the yields which unlisted securities which lack the advantage of marketability must be expected to yield. There is no means of proving that unlisted stock

possesses superior marketability over bonds. In fact, many contend that unlisted bonds are more easily sold than unlisted stock. This would be a normal condition due to the superior intrinsic worth of bonds. Then, too, outside of New York the banks give more attention to the merit of investments, and in the country at large bonds are more readily accepted as collateral than stock. It, therefore, follows that if in general security and marketability of bonds are superior to that of stocks it is absolutely correct that bonds in general are more acceptable as collateral.

From a financial viewpoint the corporate form of conducting business presents one most significant feature, the opportunity it affords for dividing and combining the incidence of ownership in varying proportions. By incidence of ownership I mean management, income and risk. By mortgaging the property he reduces ownership, but retains management and risk. Personal ownership affords no course between an absolute retention of management, or at least control, with retention of a large share of risk and income on the one hand, and an absolute separation of management with a consequent loss of a large share of income and risk on the other.

*57

The corporation makes parcelling out of the incidence of ownership into many divisions possible by varying the allotments of different classes of securities. Common stockholders accept a maximum risk in expectation of a maximum of income. They may share the expenses and control equally, or in varying proportion, with other classes of stockholders. Varying rights given special classes of stock make a widely

varying apportionment of income, control, management and risk. First mortgage bondholders accept a minimum of control, risk and income. Varying rights secured through different kinds of bond issues also make for varying apportionment of income, management and risk.

It is not pertinent to this discussion to go into the various combinations of management, income and risk which may be affected by variations in the capitalization of corporations, but the incidence of ownership is pertinent insofar as it affects the rate of return. There is no fixed rule or regulation for fixing the incidence of ownership in corporation management. As a rule, the corporation exercises its best judgment as to the amount and form of securities to be issued. There are certain accepted rules, however, which must be regarded in corporation financing. If bonds are to be regarded as a typical investment security, the number of bonds outstanding on a given property cannot exceed 50% or 60% of the total invested capital or fair value of the property issuing the bonds. This is the rule of all good bond houses and is based on sound financial principles. The overloading of the financial plan with bonded indebtedness creates a mass of fixed obligations which must be met even in the face of seriously contracting revenues and leads directly to failure, receivership, and reorganization. This rule limits the amount of investment securities

which may be placed by a utility property. It means that 40% or 50% of the capital required must be provided through the issuance of preferred and common stock or other forms of securities which partake more

of a speculative nature than do bonds and which do not rank with the mortgage bonds in security of investment and stability of income. It follows, therefore, that a utility must of necessity pay appreciably more for its money than the interest rate on its mortgage debt, and consequently the rate of return must be higher than indicated by the interest rate on its bonds.

The return of a utility must provide not alone for interest on bonds, but for dividends on stock as well. If the stock is to have value the rate of return must be sufficient to provide for a dividend rate which will make prospective purchasers of the stock willing to forego the security of investment and stability of income which they could acquire by purchasing its bonds. As interest on bonds must be paid before dividends on stock may be declared, dividends on stock is the first element of return to be sacrificed in the case of shortage of earnings. It, therefore, follows that if the stock is to be marketable the rate of return must include a reasonable allowance for surplus earnings, which may be set aside to cover new financing, contingencies, unexpected loss of business, periods of depression, and the like.

The question of rate of return is really a question of what is the current return on money when invested in securities presenting no greater or less risk than the securities of the properties under consideration. This is legally correct for the owners of a property are entitled to a return on their property equal to that which they could secure from the cash equivalent of

the fair value of their property if invested in an enterprise presenting no greater or less risk than the busi-

ness in which they are engaged. The proper method, therefore, of arriving at a fair rate of return for a particular utility is to ascertain the return which is being paid by the securities of similar utilities. Having established in this way the fair cost of money for utilty enterprises in general it is then pertinent to inquire whether the business of the property under consideration will insure the same security of investment and certainty of income, and also whether its securities will have the same marketability and value as collateral as the securities used for comparison.

The proper limitation for financial return involves three considerations:

1st The protection of the public against monopolistic gain.

2nd The protection of the corporation against confiscation.

3rd The protection of the service given against impairment of credit.

The first is hardly more important than the second and third considerations. The rate of return must be sufficient to insure a sufficient flow of new capital into a particular field of endeavor to obviate deferred maintenance of plant and equipment as well as to provide for necessary improvements and extensions. A sound credit structure cannot be reared on unsound financial foundations.

Protection against confiscation and service impairment is in the public interest, for a public policy which protects against confiscation and impairment of service tends to increase the security of investment and

stability of income which, in turn, reduce the expected return and thereby cheapen the cost of service.

Herewith will be found Tables Nos. 8 and 9, pages 61 and 62, which give the yield of a number of public utility bonds and stocks. A few of the bonds listed are actively traded in, more are traded in moderately, and some are traded in but little but are quoted from time to time in financial papers and publications giving the prices of utility bonds and stocks. Taken on the average the marketability and hypothecary value of the bonds listed are greater than that of the bonds of the properties under consideration. Inquiries from local bankers indicate that local banks and brokerage houses in Paterson and vicinity accept the bonds of these companies as collateral for loans. Loans are made on the bonds at about 80% of their appraised value at the time the loan is made. This gives an index of the hypothecary value of the bonds of the companies under valuation.

The security of investment and certainty of income of the bonds listed in Table No. 8, page 61, are on the average certainly as great if not greater than that of the first mortgage bonds of these companies. The great majority of the bonds listed are first mortgage bonds, many of them secured by mortgages on the entire property. All of the bonds listed have strong seniority rights and, therefore, represent the type of bond from which the lowest yield may be expected.

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*61

TABLE NO. 8.

YIELD OF PUBLIC UTILITY BONDS.

	Bond Issue (1)	Date of Maturity (2)	Rate of Interest With Bond at Par (3) %	Price Bid May 1922 (4)	Yield (5)
1.	Third Avenue	1960	4	64 7/8	6.5
2.	Detroit United	1932	4 1/2	83 5/8	6.7
3.	N. Y. Telephone	1939	4 1/2	94	5.0
4.	California G. & Electric	1937	5	95 3/4	5.4
5.	Interboro Rapid T.	1966	5	70	7.2
6.	Montana Power	1943	5	96 7/8	5.2
7.	Pacific Telephone	1937	5	97 1/4	5.2
8.	Public Service N. J.	1959	5	83 1/2	6.1
9.	Southern Bell	1941	5	95	5.4
10.	Mississippi River Power	1951	5	92 1/4	5.5
11.	Brooklyn Edison Ser. D.	1940	7	107 7/8	6.2
12.	Detroit Edison Ref.	1940	5	98	5.1
13.	Niagara Falls Power Co.	1932	5	99 1/2	5.0
14.	Consolidated W. Co. Utica	1930	5	89	6.8
15.	Consolidated Gas of N. J.	1936	5	80	7.3
16.	Detroit City Gas	1923	5	99 1/4	5.7
17.	Duquesne Light	1944	6	103 3/8	5.7
18.	Kings County E. L. & P.	1937	5	96 1/4	5.3
19.	" " " " " "	1954	6 1/2	98 3/4	6.5
20.	Syracuse Lighting	1951	5	91	5.5
21.	Syracuse Light & Power	1954	5	83 1/2	6.1
22.	Trenton Gas & Elec.	1949	5	85 1/4	6.1

Exhibit P6-A

23.	Utica Gas & Electric	1957	5	88 5/8	5.7
24.	Newark Cons. Gas	1948	5	89	5.8
25.	Hudson County Gas	1949	5	88 1/2	5.8
26.	Hackensack Water Co.	1952	4	76	5.6
27.	American Water works	1970	5	82 3/4	6.1
28.	Alabama Power	1946	5	90 1/2	5.7
29.	Charleston Cons. Ry. & G. E.	1999	5	80	6.2
30.	Newark Pass. Railway	1930	5	85	7.5
31.	South Jersey G. & E.	1953	5	87	5.9
32.	Cons. Gas	1927	7	117	3.2
33.	Great Falls Power Co.	1940	5	98	5.1
34.	Hudson & Man. Ref.	1957	5	83 1/2	6.1
35.	Laclede Gas. Ref.	1934	5	92 1/4	5.9
36.	New York Edison	1941	6 1/2	109 5/8	5.6
37.	N. Y. G. E. L. H. & P.	1948	5	97 5/8	5.1
38.	Northwestern Bell Tel. 1st A	1941	7	106 3/4	6.3
39.	Ontario Power	1943	5	96 1/2	3.2
40.	Pacific Power & Light	1930	5	91	7.0
41.	Portland Rail 1st & Ref.	1930	5	87	7.1
42.	Stand Gas & Elec.	1926	6	96 3/8	7.4
43.	Utah Power & Light	1944	5	91 1/2	5.6
44.	Western Pacific Power	1946	7	103 7/8	6.7
	Average				5.8

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*62

TABLE NO. 9.

Yield on Public Utility Stocks.

(1)	Dividend Rate (2)	Quoted Price May 1922 (3)	Yield (4)
Preferred			
Connecticut Power	6	86	6.9
American Gas and Electric	6	88	6.8
Niagara Falls Power	7	103½	6.7
Colorado Power	7	87	8.0
Columbus Electric	6	88	6.8
Northern States Power	7	91½	7.6
Pacific Gas and Electric	6	87	6.9
Southern California Edison	8	118	6.7
Adirondack Power & Light Co.	7	91	7.6
Consumers Power Co.	6	87	6.9
Duquesne Light Co.	7	100	7.0
Milwaukee Elec. Rail and Light	6	78	7.6
Scranton Electric	6	80	7.5
Toledo Edison	8	100	8.0
Average			7.2
Common			
Cons. Traction of New Jersey	8	54	
Gas and Electric of Bergen	5	68	7.3
Newark Cons. Gas	5	75	6.6
South Jersey Gas and Electric	8	106	7.5
Buffalo Gen. Electric	8	106½	7.5

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Capital Traction Co.	7	97	7.2
Essex and Hudson Gas	8	108	7.4
Southern California Edison	8	101	7.9
Tampa Electric	10	132	7.5
Consolidated Gas	7	117	5.9
Detroit Edison	8	107	7.4
Average			7.2

*63

In considering the security of investment and certainty of income of the bonds of the Companies under appraisal it must be noted that they have a large number of bonds outstanding at the present time. These, as will be seen by reference to the details subsequently presented, amount approximately to the following in per cents of the appraised value of these properties:

The Acquackanonk Water Company	50%
The Montclair Water Company	47%
The Passaic Water Company	75%

The outstanding bonds of all five of the affiliated companies which are controlled by the New Jersey General Security Company amount to 57% of the fair value of the properties.

The net earnings for 1920 of the three companies under appraisal in multiples of the bond interest requirements amounted to the following:

The Acquackanonk Water Company	2.08
The Montclair Water Company	0.90
The Passaic Water Company	1.34

The net earnings of all five of the affiliated companies which are controlled by the New Jersey General

Security Company amounted in 1920 to only 1.6 times the bond interest requirements. In order to satisfy the requirements for security of investment and certainty of income in a high class investment security it is usual to require that bonds shall not exceed 50% to 60% of the fair value and that the net earnings shall be at least twice the bond interest requirements.

As seen by reference to Table No. 8, page 61, the average yield of the bonds listed is 5.8%.

The bonds of the companies under valuation do not possess an active market and it was difficult to learn the market appraisal of these bonds. An investigation, however, disclosed that there have been one or

two sales of the first mortgage bonds of the Montclair and Passaic Water Companies recently at an average of about 82 1/2 which would make the yield 6.4% and 6.9% respectively, or an average of about 6.65%.

The bid price of the 5% purchase money mortgage bonds recently ranged from 55 to 65. This is the largest issue of bonds now outstanding, and the bid price corresponds to a yield of 9.4% and 8% respectively. These bonds are a prior lien on certain property at Little Falls only.

The average yield on the bonds at present outstanding at their present market price is approximately 7.5%.

The stock of these companies is held by the New Jersey General Security Company and there are no recent sales from which to secure an indication of what the market demands as a fair yield on the stock,

but by reference to Table No. 9, page 62, it is seen that the average yield on the preferred stocks listed is 7.2% and on the common stock 7.2%.

In considering the fair yield which the market would demand on the stock of these companies it should be borne in mind that the incidence of the present capitalization is such that it will be necessary for the companies to do their next future financing by selling stock, which under the circumstances could not be disposed of at par for less than 8%.

It seems reasonable to assume, therefore, that the owners of these properties are entitled to earn at least 5.8% on the bonds and 7.2% on the stock of these companies, an average of 6.5%. If proper provision is made for new financing and contingencies, the fair return must include something for surplus, so that 8% is the very least return which the properties must be expected to yield.

*65

GROSS REVENUE REQUIRED.

The elements of cost which go to make up the gross annual income required by a public utility corporation are as follows:

1. Fixed charges, including:

a. Fair return, or the annual rental on the money equivalent of the fair value of the property.

b. Taxes.

c. Annual reserve for depreciation.

2. Operating expenses.

Exhibit P6-A

FIXED CHARGES.

Fair Return.

Fair return in the case of each of the Companies under valuation has been taken at 8% of the fair value found for the property.

Taxes.

In calculating the real and personal property taxes of the companies, the rate used is the weighted average tax rate prevailing in the territory in which the several properties lie. This rate has been applied to the fair value of the used and useful taxable property as found in the appraisal.

In determining the fair value of the used and useful taxable property, organization expenses, water diversion rights, working capital, and going cost, were deducted from the value of used and useful property as determined on the ten-year average price basis and this result scaled down in the ratio of the adopted fair value to ten-year average value.

*66

Unquestionably, the real and personal property taxes will increase immediately following a valuation by the Public Utility Commission. This statement is based upon the experience of other water companies in Northern New Jersey. The real and personal property taxes of every water utility which has been appraised by the New Jersey Public Utility Commission have jumped in the year following the date of appraisal. I have made allowance for the expected increase in real and personal property taxes in estimating the gross annual income required by assuming that

the companies under appraisal will be assessed for the full valuation of their real and personal property.

The State franchise tax is based on the revenue which will be derived, at fair rates, from the mains in public highways except revenue derived from the sale of water at wholesale directly to municipalities. The rate is now 5% of the amount subject to tax if more than $50,000, and 2% when the amount is less than $50,000.

The Federal income tax has been figured upon the basis of the joint return of the five affiliated companies which are controlled by the New Jersey General Security Company. This is in accordance with the requirements of the Federal Government. Income taxes have been figured under the requirements of the Federal Tax Law for 1922. A fair net return of 8% on the fair value of used and useful property has been used in calculating the net revenue of the Acquackanonk, Montclair and Passaic Water Companies. The net revenues used for the East Jersey and Kearney Water Companies are based on existing rates.

*67

The total income taxes of the five affiliated companies and their allocation as between companies are shown in detail on Table No. 10, page 68.

The capital stock tax is figured at the rate of $1 per $1,000 of capital stock and surplus.

Annual Reserve for Depreciation.

After a careful study of the probable life of the depreciable elements of the several water companies, I am of the opinion that the fair annual reserve for depreciation is 1.5% of the value of the depreciable

property, which I have, therefore, used in the case of each company under valuation.

OPERATING EXPENSES.

For the purpose of ascertaining the true earnings and operating expenses of the companies under appraisal, I requested Mr. William J. Coote, my expert accountant, to make an examination of the books of the several companies. Tables giving the verified earnings and operating expenses for the years 1915 to 1921 inclusive, as submitted to me by Mr. Coote, will be found under the valuations of the respective companies. These statements are in substantial accord with the statements rendered to the Public Utility Commission of New Jersey by the companies in their annual reports, Mr. Coote having made a few modifications which he thought were justified.

In making my estimate of the future operating expenses which will be required I have used the 1920 operating expenses as a basis. This is proper as the operating expenses used are thus contemporaneous with the figures for depreciation, taxes and fair return which go to make up the gross earnings required as of December 31, 1920. The actual 1920 operating expenses have, however, been modified to suit changes in conditions of operation which may be expected in

the immediate future as well as to secure a fair average cost of operation. By the last is meant that when an element of operating cost was apparently excessive in 1920 it was modified to accord with the average cost of this element for several years preceding 1920.

Exhibit P6-A

Tables showing the changes which have been made in the actual operating expenses of the individual companies in order to arrive at the probable future fair average operating expenses will be found under the valuation of the respective companies.

From an inspection of these tables it will be seen that, in the first place, the taxes paid and the amounts set aside for depreciation reserve have been segregated and deducted from the total operating deductions as shown by the companies' books so as to determine the true operating cost.

The expenses at the Little Falls pumping station and filter plant, as well as every other element of the cost of operation of the joint ownership property, have in the past been distributed through the books of the Acquackanonk, East Jersey, Montclair and Passaic Water Companies in proportion to the amount of water used by each Company in a given year. This is not necessarily a true apportionment of cost. I have, therefore, deducted the joint ownership operating expenses from the operating expenses of the individual companies as shown by their books so as to obtain the operating expenses of each of the companies under valuation, exclusive of joint ownership expenses. The purpose of this segregation is to enable me to make a fair allocation of the joint ownership operating expenses to the several water companies, as well as to separate the costs allocable to different classes of consumers. Substantially all of the modifications in the operating expenses have been in the nature of deductions.

*70

The modifications made in the total joint ownership

expenses to the individual companies are set forth in Table No. 11, page 71.

Deduction (a) is self-explanatory. Deduction (b) is made to provide for the saving in coal and chemicals at Little Falls which will result from the discontinuance of the supply of water to Glen Ridge and West Orange. Deduction (c) similiarly provides for the saving in the same items of expense due to the discontinuance of the supply of water to Jersey City in the near future. Deductions (d) and (e) represent the amounts paid by the affiliated water companies to S. U. M. and Dundee Water Power and Land Company for water diverted in 1920 at Little Falls.

The deductions are made necessary because the companies owning the joint ownership property recently purchased the right to divert 75 million gallons of water per day at Little Falls for $1,120,000. Its proportionate share of the cost of this diversion right has been included in the fair value of the property of each of the water companies under appraisal and hence these water companies will not in future be required to pay water diversion charges for water diverted at Little Falls.

It will be seen by reference to Table No. 11, page 71, that the net modified joint ownership expenses amount to $314,368 per year as compared with $491,623 shown by the books and the modified figure properly allocated to the five affiliated companies of which the three companies under appraisal form a part, is the figure I have used in estimating the future gross annual income required by each of the three companies.

Exhibit P6-A

TABLE NO. 10

FEDERAL INCOME TAX.

Based on Income Tax Law Effective January 1, 1922.

Net Return:				
The Acquackanonk Water Company,	8% of	$2,940,000 =	$235,200 =	25.7%
The Montclair Water Company,	8% of	2,010,000 =	160,800 =	17.6%
The Passaic Water Company,	8% of	5,430,000 =	434,400 =	47.4%
The East Jersey Water Company,	adjusted,	=	49,462 =	5.4%
Kearney Water Company,	adjusted,	=	35,941 =	3.9%
Sum			915,803 =	100.0%
Tax of previous years (assumed)			65,000	
Total			$980,803	
Bond and Other Interest:				
Bond interest	$370.875			
Other interest, 382 + 6% of 1,120,000	67.592		438,467	
Total Amount Subject to Tax			$542,336	
Income Tax at 12.5% =			67,792	
		Use	67,500	
Distributed as Follows:				
The Acquackanonk Water Company,	25.7% =		$ 17,348	
The Montclair Water Company,	17.6% =		11,880	
The Passaic Water Company,	47.4% =		31,995	
The East Jersey Water Company,	5.4% =		3,645	
Kearney Water Company,	3.9% =		2,632	
	100.00% =		$ 67,500	

Exhibit P6-A

*71

TABLE NO. 11

Modifications Made in Joint Ownership Expenses For 1920 to Produce Normal Joint Ownership Expenses

Total joint ownership expenses distributed on the books of the five affiliated companies controlled by the New Jersey General Security Company in 1920		$491,623.
MODIFICATIONS:		
(a) Extraordinary repairs to purification and pumping plant at Little Falls	$35,000.	
(b) Discontinuance of supply to West Orange and Glen Ridge	3,500.	
(c) Discontinuance of supply to Jersey City	25,000.	
(d) Payment to Society for Establishing Useful Manufactures for the diversion of water at Little Falls	93,213.	
(e) Payment to the Dundee Water Power and Land Company for the diversion of water at Little Falls	20,542.	
Total Deductions due to modifications	$177,255.	177,255.
Modified Total Joint Ownership Expenses		$314,368.

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*72

The distribution of the joint ownership expenses found in the tables under the valuation of the individual companies takes into account not only the actual volume of water used by the respective companies, but also other factors entering into the cost of supplying water. Without entering too much into detail the principle of the subdivision is as follows: The fixed charges and operating expenses connected with the collecting and purification system and distributing reservoirs, for which the cost of service is proportional to the volume of water consumed, have been allocated to the different companies in proportion to the quantity of water used by them. Fixed charges and operating expenses at a pumping station used in common by several companies have been allocated in proportion to the volume of water pumped times the pressure pumped against or in proportion to the water horse power required to supply the service in each district.

The fixed charges and operating expenses on transmission mains used in common by several companies have been allocated in proportion to ownership in these lines.

*73

RATE STRUCTURE.

In order that the companies under appraisal may earn a fair return upon the value of their plants, it is necessary that the gross income shall equal the cost of service rendered. The total sum derived from the rates, therefore, must be sufficient not only to yield

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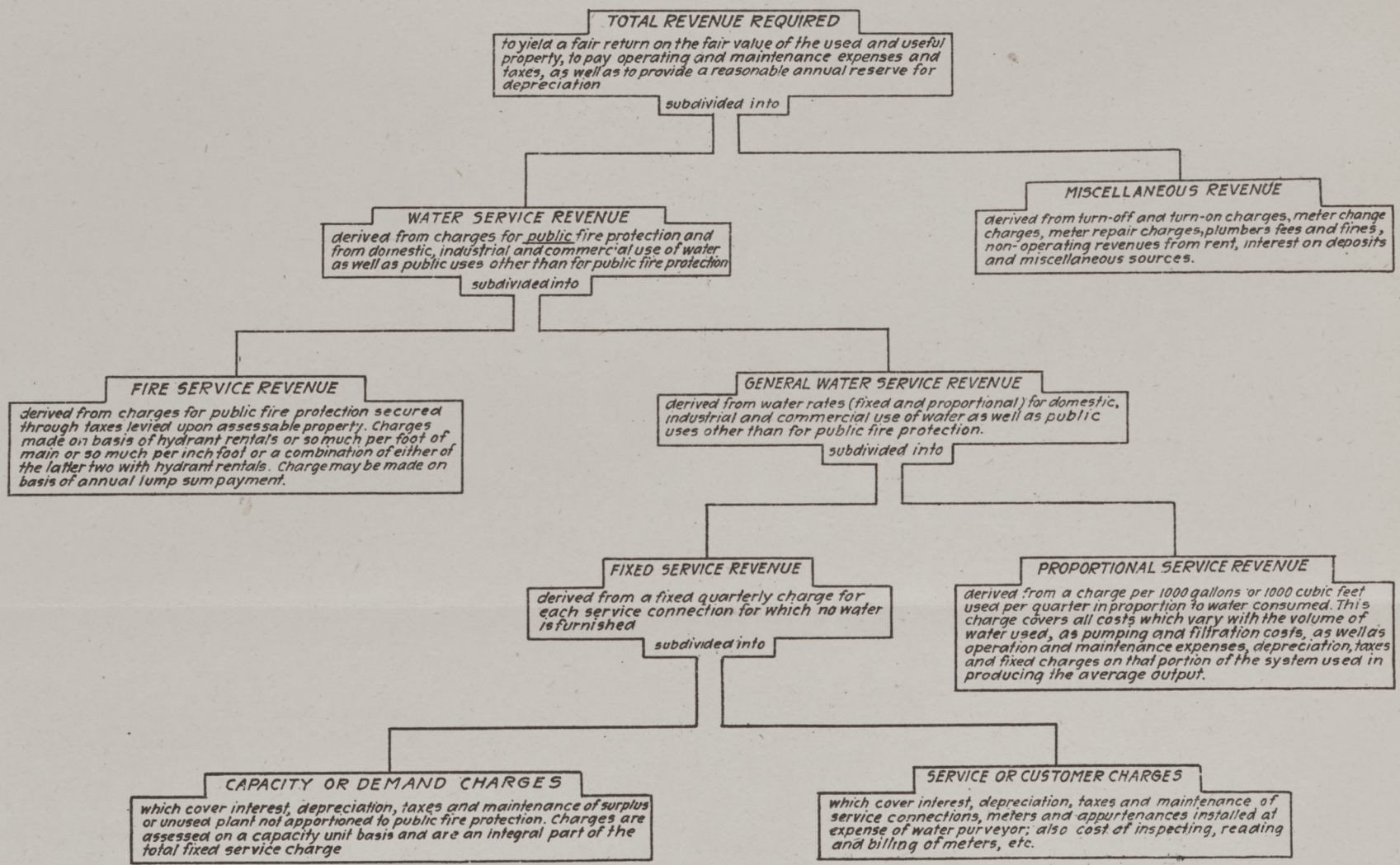
DIAGRAM NO. 7

DIAGRAMMATIC SUBDIVISION OF REVENUES AND CHARGES



a fair return but to pay operating expenses, taxes and a proper reserve for depreciation. The incidence of the rates must so distribute the required revenue that no undue performance will be given to one class of consumers as compared with another. Therefore, in determining how the rates shall be divided the cost of the service required by different classes of consumers must be considered and the entire cost, so far as possible, divided among the different classes of consumers requiring different classes of service.

Bearing these facts in mind, I herewith submit Diagram No. 7, pages 74 and 75, outlining the method of allocating the charges in the rate structure proposed for each of the companies under valuation. This diagram illustrates the principle of the rate structure and is applicable to a situation where there are one or more service districts. Of course, if the cost of service in different portions of the territory supplied by a water purveyor varies sufficiently, it is necessary to subdivide the territory into districts so as to secure a fair allocation of cost, but the subdivision to districts is subsidiary to the allocation under the rate structure as indicated in the diagram. The broad problem of establishing the rates may be briefly stated as follows:

*74

A. Determining the gross revenue required to provide for a fair return plus a proper allowance for operating expenses, taxes and a reasonable annual reserve for depreciation.

B. Establishing the incidence of the rates by:

1. A fair separation of the area served by the water

purveyor into districts if under conditions of service existing in the plant certain consumers possesses the advantage of location whereby the cost of supplying water to some is less than the cost of supplying water to others, such a separation being unnecessary if the average rate for the entire area may be used.

2. Subdividing the gross revenue between:

a. Miscellaneous revenue

b. Public fire service revenue.

c. Revenue derived from the sale of water to domestic, commercial, manufacturing and public consumers.

3. Subdividing the revenue from the sale of water between fixed service cost and proportional service cost.

4. The establishment of a sliding scale of proportional rates designed equitably to distribute the proportional service costs between large and small consumers in proportion to the cost of supplying greater or lesser quantities of water through a single service connection.

Briefly outlined, the process of making the allocation of costs between service districts when an individual company like The Montclair Water Company is divided into more than one service district, is as follows:

A. By determining the number of hydrants in each service district and the number of feet of transmission and distributing mains chargeable to each district, and distributing the gross fire service charge in propor-

tion to the number of hydrants and number of inch-feet of mains chargeable to each district.

B. By allocating the cost for general water service to the different service districts according to the use in each district as hereinafter outlined, and subdividing the gross revenue required for general water service in each district into fixed and proportional charges.

*75

METHOD OF DIVIDING THE TOTAL COST OF SERVICE

Subdivision of Gross Revenue between Service Revenue and Miscellaneous Receipts.

The first step in the allocation of the rates is to deduct the miscellaneous receipts from the gross revenue to ascertain the gross service revenue which must be secured from fire service and general water service.

The miscellaneous receipts are based upon the average miscellaneous receipts for the years 1916 to 1920 inclusive, in the case of each company under valuation.

Subdivision of Total Service Revenue between Fire Service Revenue and General Water Service Revenue.

The total service revenue required by each company is obtained from two sources:

(a) Fire service charges.

(b) General water service.

Exhibit P6-A

The amount to be obtained from fire service charges is a function of the fire service cost. The amount to be obtained from general water service is the difference between the total service revenue required and the fire service revenue.

In determining the proper amount of fire service revenue consideration has been given to the determinations of the proportion of plant properly chargeable to fire service which have been made in other cases by the Public Utility Commission of New Jersey as follows:

Hackensack Water Company	12.5%
Commonwealth Water Company	14.7%
The Elizabethtown Water Company	15.0%

*78

Consideration has also been given to detailed analysis which have been made of various water works plants to ascertain the proportion of their fixed charges and operating expenses which are chargeable to fire service. This percentage varies as between plants of different size and is greater in small companies than in large companies.

It has been estimated that approximately 11.8% of the total annual costs, including operating expenses and fixed charges of the five affiliated companies controlled by the New Jersey General Security Company, are incurred as a result of their obligation to furnish fire service to 400,000 people whom they serve. It is fair to assume that at least 12% of the annual costs of the three companies under valuation, considered as operating in combination, are so incurred.

If Paterson, Passaic and Montclair were served by three physically distinct companies with entirely in-

dependent sources of supply, it is probable that the percentage of annual cost chargeable to fire would not be less than the following:

Paterson	17%
Passaic	20%
Montclair	34%

As a matter of fact, the three companies supplying the above places and which are now under valuation, are not entirely distinct physically. They are distinct as to the distribution system elements, but operate in combination as regards supply sources, filteration, initial pumping and transmission.

It has been deemed fair to hold to 12% as the weighted average per cent of the annual costs of the three companies which is chargeable to fire service, and to unbalance this per cent substantially in the ratio indicated above with a view of weighting the several companies according to size.

*79

On this basis the fair fire service revenue in per cent of total annual cost of service will be taken at about 10% for the Passaic Water Company supplying Paterson; 12% for the Acquackanonk Water Company supplying Passaic and 17.5% for The Montclair Water Company supplying Montclair.

It has been assumed that the revenue to be derived from fire service will be received from two sources:

(a) From hydrant rentals.

(b) From inch-foot charges.

The annual hydrant charges has been placed at $10.00 per hydrant per annum in the case of each

company, or just sufficient to pay for the interest, depreciation and maintenance of the hydrants and branches. The total annual hydrant rentals of each company have been obtained by multiplying the number of hydrants owned by the annual charge per hydrant.

The difference between the gross fire service revenue required by each company and the total annual hydrant charges gives the amount to be received from inch-foot charges. The amount of the unit inch-foot charge has been determined in the case of each company by dividing the total required inch-foot revenue by the number of inch-feet of mains 6″ and larger which are owned by the respective companies.

The inch-foot charges founded on the foregoing assumptions, as will more fully appear under the valuations of the respective companies are:

The Passaic Water Company	$0.009
The Acquackanonk Water Company	$0.012
The Montclair Water Company	$0.015

*80

Subdivision of Fire Service Rates Between Municipalities.

As fire service is a property benefit, the fire service rates charged by each company should be levied against each civil subdivision served by it and the cost of fire service collected by taxing the property benefited. It is prerequisite, therefore, to ascertain in the case of each company the proportion of the total fire service revenue chargeable to each civil subdivision served.

Rentals for hydrants should obviously be charged to

each civil subdivision in proportion to the number of hydrants in each.

The inch-foot charges for transmission and distributing mains may be allocated to the various municipalities served on the basis of population. That is to say, it may be assumed that the number of inch-feet chargeable to a given community is to the total number of inch-feet in a transmission or distributing system as the population in that community is to the total population served by the system.

Subdivision of General Water Service Revenue Between Fixed Service Revenue and Proportional Service Revenue.

The total general water service revenue required by each company is obtained from two sources:

(a) Fixed service charges.

(b) Proportional service charges.

The amount to be obtained from fixed service charges is a function of the fixed service cost. The amount to be obtained from proportional service charges is the difference between the total general water service revenue required and the fixed service revenue.

*81

Fixed Service Charges.

The total fixed service cost is equivalent to the capacity or demand cost plus the service or customer cost. These costs do not vary with the quantity of water taken, but generally in proportion to the demand which a customer may make on the plant. The fixed service

charged is based on a capacity unit, and the 1/2″ or 5/8″ meter has been taken as the capacity unit or the basis of charging for the fixed service cost. The ratio of the capacity of other sizes of meters to the 1/2″ or 5/8″ meter has been determined, so that the number of capacity units in each size of meter may be ascertained. The fixed service charge for any size of meter other than 1/2″ or 5/8″ will be in proportion to the number of capacity units in that meter. The unit capacity charge will be the quotient of the total amount which should be derived in fixed service revenue divided by the total number of capacity units in the plant.

The true allocation of cost between fixed service and proportional service cost always results in a very high fixed service charge, higher as a rule than the public will bear. For this reason, it has been customary to base the fixed service charge upon what the traffic will bear rather than upon a theoretical allocation. The unit fixed service charge in this case has been placed at $6.00 per annum. That is, the fixed service charge on a 1/2″ or 5/8″ meter will be $6.00 per annum, and for other sizes of meters in proportion to the number of capacity units which they represent. This charge includes not only the fixed or static cost due to readiness to serve, but also interest, depreciation and maintenance of meters and reading and billing of meters.

*82

Based on the foregoing, the following fixed service charges for meters of different size have been determined. These figures have been used in calculating the Fixed Service Revenue for each of the three Companies under valuation.

Exhibit P6-A

TABLE NO. 12.

FIXED SERVICE CHARGE PER METER

1/2″ or 5/8″ meter	$ 6.00	per annum
3/4″ "	10.00	" "
1″ "	22.00	" "
1 1/4″ "	34.00	" "
1 1/2″ "	54.00	" "
2″ "	72.00	" "
2 1/2″ "	126.00	" "
3″ "	175.00	" "
4″ "	250.00	" "

In applying the fixed service charges to obtain the Fixed Service Revenue of the individual companies, a proper allowance has been made for the unmetered services on the lines of the companies. This has been done in order that these flat rate consumers shall not conflict with the development of a complete rate structure. I have ascertained the Fixed Service Revenue from the unmetered services on the metered service basis at the rates determined as outlined heretofore.

Proportional Service Charges.

The Proportional Service Revenue, as has been stated, is, in the case of each company, the difference between the General Water Service Revenue and the Fixed Service Revenue.

This amount divided by the total water consumption of metered and flat rate consumers gives the average proportional service charge. As in the case of the

Fixed Service Charges, account has been taken of the consumption of the flat rate customers in determining

the average proportional service charge. The quantity of water used by each flat rate consumer has been assumed at 250 gallons per day per service, which is somewhat more than the average consumption of 5/8" metered service.

Flat Fixture Rates.

The estimates of the total Fixed Service Revenue and Proportional Service Revenue found in the valuations of the three individual companies, Sections II, III and IV of this report, include revenue which should be received at present from flat rate consumers. These consumers until placed on the metered basis will not be subject to the scheduled fixed service and proportional service charges, but will continue to pay on the basis of fixtures.

The amount by which the existing fixture rates should be increased in order that flat rate consumers shall pay their fair proportion of the cost of supplying water has been determined as follows:

The estimated annual amount which these consumers would pay if metered has been ascertained in the manner which has been outlined in what precedes. The ratio between this amount and the amount which they pay under the existing fixture rates has been determined, and all existing fixture rates have been modified in this ratio.

Proposed Rate Schedules.

Suggested rate schedules for each of the individual companies under valuation are submitted under the

sections dealing with the valuation of the respective companies. The rates are based upon the distribution of the cost of service outlined in this report so that each class of consumers and each community served by the individual companies will receive its equitable share of the cost of supplying water. The rates will produce substantially the revenues required as determined under the valuation of each company.

ACKNOWLEDGMENTS.

In closing this report I wish to acknowledge the kindly assistance rendered me by Mr. William M. Wherry, Jr., counsel for the affiliated companies, in advising me regarding legal questions. I also wish to acknowledge my indebtedness to Mr. John A. Cook and Mr. A. W. Cuddeback for their complete co-operation and their courtesy and alacrity in furnishing me with needed information. I also wish to mention the valuable services of Mr. Albert N. Aeryns, Engineer in Charge of Design and Computing in my office, who had charge of compiling the data and preparing the tables submitted with my report, as well as those of Mr. William J. Coote, expert accountant, who drew off the transcript from the books of the companies.

Respectfully submitted,

NICHOLAS S. HILL, JR.

Exhibit P6-A

*85

Section II—The Acquackanonk Water Company.

A. Capitalization.

The capitalization of The Acquackanonk Water Company as of December 31, 1920, was as shown on Table No. 13.

TABLE NO. 13.

Capitalization of The Acquackanonk Water Company December 31, 1920.

Funded Debt:	
Purchase money mortgage 5% bonds due January 1, 1958	$ 800,000
Beattie Manufacturing Company mortgage 5% bonds	75,000
First mortgage 5% gold bonds, 1939	296,000
Second mortgage 5% gold bonds	300,000
Total	$1,471,000
Capital Stock	100,000
Total Capitalization	$1,571,000
Advances from other corporations	7,415
Total Outstanding Obligations December 31, 1920	$1,578,415
Water Diversion Rights (1921)	212,800
Total	$1,791,215

Exhibit P6-A

B. Book Value.

The book value of The Acquackanonk Water Company, as of December 31, 1920, was as shown on Table No. 14.

*86

TABLE NO. 14.

Book Value of The Acquackanonk Water Company December 31, 1920.

Fixed capital installed prior to January 1, 1913	$1,647,575
Fixed capital installed since December 31, 1912	470,346
Total Fixed Capital	$2,117,921
Material and supplies	10,536
Cash and cash items	19,353
Total Book Value, December 31, 1920	$2,147,810
Water Diversion Rights (1921)	212,800
Total	$2,360,610

C. Cost of Reproduction Based on Pre-War Value of Plant Existing Prior to December 31, 1912, Plus the Actual Cost of Additions to Plant Since that Date.

The value of the Acquackanonk Water Company on the basis of the allowance by the Board of Appraisers in 1912 plus net additions since December 31, 1912, at actual cost is as shown on Table No. 15.

Exhibit P6-A

*87

TABLE NO. 15.

VALUE OF THE ACQUACKANONK WATER COMPANY ON BASIS OF THE ALLOWANCE BY THE BOARD OF APPRAISERS IN 1912 PLUS NET ADDITIONS SINCE DECEMBER 31, 1912, AT ACTUAL COST.

Item (1)	Gross Cost of Reproduction (2)	Gross Depreciated Value (3)
1. Appraisers' estimate of value of property as of December 31, 1912 (excluding value of water diversion rights against S. U. M. and Dundee acquired in 1921)	$2,063,721	$1,836,464
2. Net cost of additions to structural plant from December 31, 1912, to December 31, 1920	398,897	398,897
	$2,462,618	$2,235,361
3. Depreciation accrued on depreciable property since December 31, 1912, at 1.5 per cent per annum	—	199,888
	$2,462,618	$2,033,473
4. Value of land acquired since December 31, 1912, less the value of land sold since that date, a net addition of	2,644	2,644
	$2,465,262	$2,038,117
5. Water diversion rights acquired in 1921	212,800	212,800
Total	$2,678,062	$2,250,917

Exhibit P6-A

D. Cost of Reproduction Based on Pre-War Prices.

The value of The Acquackanonk Water Company on the basis of the allowance made by the Board of Appraisers in 1912 plus net additions since December 31, 1912, at actual cost reduced to a pre-war basis is as shown on Table No. 16.

*88

TABLE NO. 16.

Value of The Acquackanonk Water Company on Basis of the Allowance by the Board of Appraisers in 1912 Plus Net Additions Since December 31, 1912, at Actual Cost Reduced to a Pre-War Basis.

Item (1)	Gross Cost of Reproduction (2)	Gross Depreciated Value (3)
1. Appraisers' estimate of value of property as of December 31, 1912 (excluding value of water diversion rights against S. U. M. and Dundee acquired in 1921)	$2,063,721	$1,836,464
2. Net cost of additions to structural plant from December 31, 1912, to December 31, 1920, reduced to a pre-war basis	253,963	253,963
	$2,317,684	$2,090,427
3. Depreciation accrued on depreciable property since December 31, 1912, at 1.5 per cent per annum	—	197,577
	$2,317,684	$1,892,850

Exhibit P6-A

4. Value of land acquired since December 31, 1912, less the value of the land sold since that date, a net addition of	2,644	2,644
	$2,320,328	$1,895,494
5. Water diversion rights acquired in 1921, reduced to a pre-war basis	135,000	135,000
Total	$2,455,328	$2,030,494

E. Cost of Reproduction at Average Prices Prevailing from 1911 to 1920 Inclusive.

The cost of reproduction and depreciated value of the Acquackanonk Water Company based on the average prices prevailing for the ten years 1911 to 1920 inclusive are shown on Table No. 17, page 89. The base costs of the several Schedules or Accounts accord with the detailed inventory presented in Volume II, pages 1 to 158.

*89

TABLE NO. 17.

Summary of Cost of Reproduction and Depreciated Value of the Property of The Acquackanonk Water Company on Basis of Ten Year Average Prices 1911-1920.

Schedule No.	Item (1)	Cost of Reproduction (2)	Depreciated Value (3)
	Tangible Property		
105	Water Diversion Rights	$ 212,800	$ 212,800
112	Gravity Intakes and Suction Mains	27,723	24,345

Exhibit P6-A

115	Coagulating Basins	87,816	82,627
117	Filters	123,492	109,133
119	Chemical Treatment Plant	2,288	1,972
120	Clear Water Basins	47,212	41,816
121	Pumping Stations	150,707	134,054
122	Steam Power Pumping Equipment	137,644	93,984
123	Hydraulic Power Pumping Equipment	279,663	257,988
126	Miscellaneous Pumping Equipment	2,692	1,750
127	Transmission Mains and Accessories	76,471	57,661
128	Storage Reservoirs, Tanks and Standpipes	143,313	137,378
129	Distribution Mains and Accessories	997,366	931,505
130	Service Pipes and Stops	49,250	44,224
131	Meters, Meter Boxes and Vaults	115,359	87,927
132	Fire Hydrants and Fire Cisterns	54,996	45,921
134	General Structures	36,103	28,495
135	General Equipment	8,562	5,565
151	Construction Work in Progress	1,984	1,984
	Total Base Cost of Used and Useful Property	$2,555,441	$2,301,129
150	Fixed Capital in other Departments	750	188
	Total Base Cost	$2,556,191	$2,301,317
	Miscellaneous Construction Expenditures (Overheads at 15%)	383,429	345,198
	Gross Cost	$2,939,620	$2,646,515

Exhibit P6-A

*90

GROSS COST OF REPRODUCTION OF TANGIBLE PROPERTY.

The gross cost of reproduction and gross depreciated value of the tangible property have been obtained, as indicated at the bottom of Table No. 17, by adding 15% to the base costs to cover miscellaneous construction expenditures. Table No. 17 gives the cost of reproduction and present value of all physical property owned by The Acquackanonk Water Company, that is it includes all property regardless of whether or not it is used and useful for water works purposes.

PROPERTY NOT USED AND USEFUL.

Property now owned by The Acquackanonk Water Company which is not used and useful for water works purposes is shown separately in Table No. 17. Account 150 "Fixed Capital in Other Departments."

The depreciated base cost of this property is only $188.

WORKING CAPITAL.

An allowance of $70,000 has been made for working capital. In round figures this is 2 1/4% of the depreciated value of the property other than working capital, on the ten-year average price basis.

PRELIMINARY AND ORGANIZATION EXPENSES.

I have allowed $35,000 for preliminary and organization expenses. This is in round figures 1.2% of the gross cost of reproduction of the tangible property.

Exhibit P6-A

GOING COST.

The allowance made for going cost is $335,000, which

is in round figures 11.3% of the gross cost of reproduction of the tangible property.

VALUE OF PLANT BASED ON TEN YEAR AVERAGE PRICES.

The value of the plant on the ten year average price basis, including only the used and useful property, is shown on Table No. 18.

TABLE NO. 18.

VALUE OF PLANT BASED ON TEN YEAR AVERAGE PRICES (1911-1920 INCLUSIVE).

Land, rights of way, releases from damage, and water diversion rights	$ 482,254
Structural items	2,456,503
Working Capital	70,000
Preliminary and organization expenses	35,000
Going cost	335,000
Total cost of Reproduction	$3,378,757
Less depreciation = 11.9% of the reproduction cost of structural items of $2,456,503	292,459
Total Present Value	$3,086,298

Exhibit P6-A

F. Cost of Reproduction at Current Prices.

The cost of reproduction at current prices, taking land, rights of way, releases from damage, water diversion rights, working capital, preliminary and organization expenses and going cost at the same figures as in the ten year average appraisal, and applying a factor to the figures for structural items to bring them to the current basis, is as shown in Table No. 19.

*92

TABLE NO. 19.

Value of Plant on Current Price Basis

Land, rights of way, releases from damage and water diversion rights	$ 482,254
Structural items	3,193,454
Working capital	70,000
Preliminary and organization expenses	35,000
Going cost	335,000
Total Cost of Reproduction	$4,115,708
Less depreciation at same per cent of cost of reproduction of depreciable property as used in the ten year average figures = 11.9% of the reproduction cost of structural items of $3,193,454	380,000
Total Present Value	$3,735,708

G. Cost of Reproduction at 1920 Peak Prices.

The cost of reproduction at 1920 peak prices, taking land, rights of way, releases from damage, water diversion rights, working capital, preliminary and

organization expenses and going cost at the same figures as in the ten year average appraisal, and applying a factor to the figures for structural items to bring them to the 1920 price basis, is as shown on Table No. 20.

*93

TABLE NO. 20.

VALUE OF PLANT AT 1920 PEAK PRICES

Land, rights of way, releases from damage, and water diversion rights	$	482,254
Structural items		4,374,443
Working capital		70,000
Preliminary and organization expenses		35,000
Going cost		335,000
Total Cost of Reproduction		$5,296,697
Less depreciation at same per cent of cost of reproduction of depreciable property as used in the ten year average figures = 11.9% of the reproduction cost of structural items of $4,374,443		521,000
Total Present Value		$4,775,597

COMPARISON OF VALUES.

The values found under captions A and G are brought together for comparison in Table No. 21, page 94.

VALUE OF PROPERTY.

Inspection of the comparative values as shown on Table No. 21 shows that on the basis of pre-war value

as determined by the Board of Appraisers in 1912, plus the cost of additions since 1912 (Value C.), the Company has an investment (depreciated) of $2,250,917 as compared with a capitalization of $1,791,215 and a book value of $2,360,610. The depreciated pre-war value plus cost of additions is 26% greater than the capitalization and 5% lower than the book value. It is probably fair to assume that

*94

TABLE NO. 21.

COMPARISON OF VALUES.

Basis of Value (1)	Cost of Reproduction (2)	Present Value (3)
A. Value based on capitalization, total outstanding obligations including water diversion rights acquired in 1921	$1,791,215	$1,791,215
B. Book value including water diversion rights acquired in 1921	2,360,610	2,360,610
C. Value based on pre-war prices to December 31, 1912, plus cost of additions since that date, and including water diversion rights acquired in 1921	2,678,062	2,250,917
D. Value based on pre-war prices including water diversion rights acquired in 1921	2,455,328	2,030,494
E. Value based on ten-year average prices (1911-1920) including water diversion rights acquired in 1921	3,378,757	3,086,298
F. Value based on current prices including water diversion rights acquired in 1921	4,115,708	3,735,708
G. Value based on 1920 peak prices including water diversion rights acquired	5,296,697	4,775,697

the Company has now invested in used and useful property and plant at least $2,300,000. This figure, however, does not represent the value of the property which is to be determined in this appraisal.

The depreciated cost of reproduction of the used and useful property at current prices is $3,735,708, which is 62% higher than the probable investment in property.

UNMODIFIED CURRENT INVESTMENT WORTH.

It was shown in Section 1, pages 36 to 43, that the present prices of general commodities are 36% higher than in 1913, that the prices of structural material and labor are now 62% above the pre-war scale, and that the present prices of water works materials and labor are 85% above the pre-war.

It is seen by reference to Table No. 21, page 94, that the depreciated investment worth on a strictly pre-war basis (Value D.) was found to be $2,030,494.

Increasing this value in the amount by which present commodity prices exceed the pre-war scale (36%), the investment worth today would be $2,761,500.

Of the $2,030,494, pre-war investment worth, $1,357,977 represents structural items, and $672,517 non-structural items. Applying the construction cost index of 162 to the investment in structural items, and the commodity cost index of 136 to the investment in non-structural items, the present investment worth of the property would be $3,114,550.

Applying the water works construction cost index of 185 to the investment in structural items, and the commodity cost

index of 136 to the investment in nonstructural items the present investment worth of the property would be $3,426,880.

Summarizing, the unmodified investment worth obtained as a result of the foregoing analysis is as shown on Table No. 22, following:

TABLE NO. 22.

UNMODIFIED CURRENT INVESTMENT WORTH.

Present investment worth applying average commodity cost index of 136 to pre-war investment worth	$2,761,500
Present investment worth applying construction cost index of 162 to pre-war structural investment, and commodity cost index of 136 to pre-war non-structural investment	3,114,550
Present investment worth applying waterworks construction cost index of 185 to pre-war structural investment, and commodity cost index of 136 to pre-war non-structural investment	3,426,880

The probable actual investment as of January 1, 1921, as previously stated (see page 95) is approximately $2,300,000.

FAIR VALUE DETERMINED

It has been shown (page 95), that I have placed the actual investment of this Company in used and useful waterworks property at	$2,300,000
As compared with a book value of (see page 86)	2,360,610

It has further been shown (page 95), that it will require $1.36 at the current value of the dollar to purchase the same

amount of general commodities that the dollar would have purchased on a pre-war basis.

It has also been shown (page 95), that it will require $1.85 at the current value of the dollar to build and instal the equivalent structural elements of a waterworks plant which $1.00 would have built and installed on a pre-war basis.

It has also been shown that the present investment worth based on average commodity values at this date is (page 95) 2,761,500

And that the present investment worth based on the current structural worth of waterwork structures is (page 95) 3,426,880

It will be seen (page 88), that the worth of the investment of this Company, had all the plant been installed on a pre-war price basis is $2,030,494, and hence on a basis of a 40% average set in price levels (see Section 1, page 50) during the ensuing eight or ten years, the investment worth is 140% of $2,030,494, or 2,842,692

This value is but 24% above the probable capital investment in plant of $2,300,000 (see page 95).

By reference to page 91 it is seen that the value of the property based on a cost of pre-war production on ten-year average prices is 3,086,298

This is but 37% higher than the value based on cost of reproduction at pre-war prices to December 31, 1912, plus the cost of additions since that date of $2,250,917 (see page 87).

From page 92 it will be noted that the value of the property based on the cost of reproduction at current prices is 3,735,708

Taking all the conditions surrounding this property into consideration, including the actutal investment, the probable future set in price levels, the probable present enhancement of investment worth, and the cost of reproduction today, I am of the opinion that the fair value of this property is 2,940,000

Exhibit P6-1

*99

On page 98, will be found Diagram No. 8, which is a plotting of the values which I have found, graphically shown. The horizontal scale at the bottom of the diagram gives the basis of valuation arranged in the order of magnitude of the resulting amount produced. The vertical scales at the sides of the diagram give the rates of the value on a given basis to the pre-war level of value. The line A-B represents the pre-war level as 100%. The curve G-H represents the resulting values on the different bases referred to line A-B as a base. The line C-D represents the level of the appraised valuation of the property, and the line E-F the level of value produced by taking the cost of reproduction on ten year average prices, 1911 to 1920, inclusive. From the diagram it is seen that the appraised value level is about 45 points above pre-war. It is about 34 points above the pre-war basis of 1912 with subsequent additions at actual cost. It is about 57 points above the present capitalization. It is about 29 points above the book value. It is about 7 points below the cost of reproduction on the basis of ten year average prices. It is about 39 points lower than the value at current prices, and about 90 points lower than the value at the peak prices of 1920.

*100

GROSS REVENUE REQUIRED.

FIXED CHARGES

Fair Return — On the basis of a fair value of $2,940,000 and a fair return of 8%,

Dwg. No. 191-39 Drawn by HF Checked by A.C.S. Examined by H.D.C. Reviewed by [illegible] 5-23-22

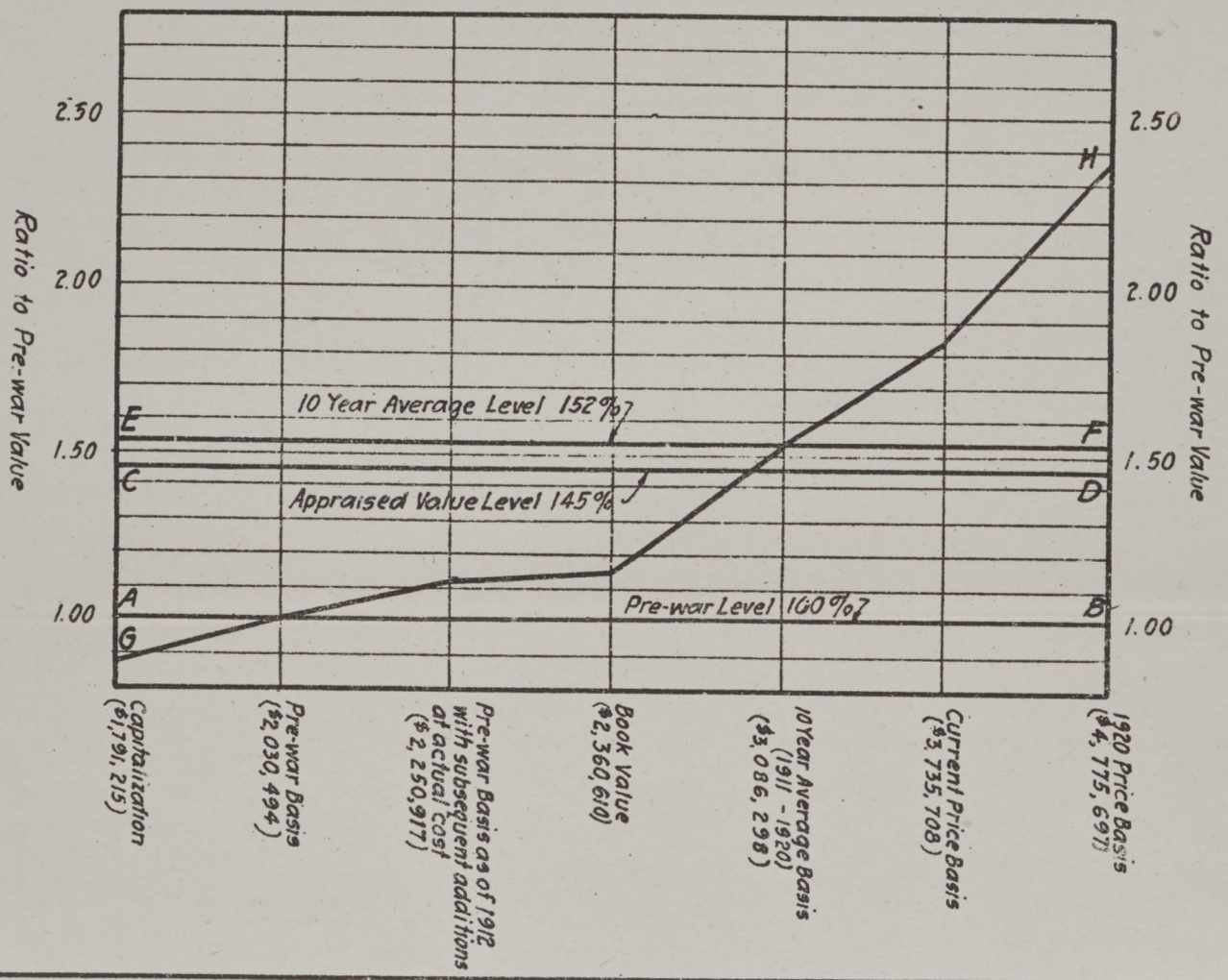
Dwg No. 191-39 Drawn by HF Checked by W.F.S. Examined by N.S.H. Reviewed by [illegible] 5-23-22

Nicholas S. Hill, Jr. and S. F. Ferguson
Consulting Engineers
112 East 19th Street
New York City

DIAGRAM NO. 8

COMPARISON OF VALUES ON VARIOUS BASES

THE ACQUACKANONK WATER COMPANY



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the net annual return required by the Acquackanonk Water Company amounts to $235,200.

Taxes

The amount of taxes paid by the Acquackanonk Water Company in 1920 (See Table No. 23, page 101), was $51,316. The fair value of the real and personal property subject to Municipal, County and State taxes as of January 1, 1921, is according to my appraisal $2,287,960. This amount, which is on the basis of a total value of $2,940,000, includes only used and useful taxable property. It does not include organization expenses, water diversion rights, working capital or going cost. The weighted average tax rate for 1920 in the territory in which The Acquackanonk Water Company's property lies was $2.97 per $100 of value. The amount of property taxes, therefore, based on the fair value of the taxable property will be $2,287,960 × 0.0297=$67,952.

The State franchise tax is figured at the rate of 5% of the estimated gross revenue to be derived from the property in public highways. About 99% of the revenue of The Acquackanonk Water Company is derived from property in the public highways. This gross revenue under the new rates will be $487,810, so that the State franchise tax will amount to $487,810 × 0.99 × 0.05=$24,147.

Table No. 23.

THE ACQUACKANONK WATER COMPANY

Comparative Statement of Water Supply Expenses Maintenance Expenses, General and Miscellaneous Expenses and Taxes for the Years Ended December 31, 1915, 1916, 1917, 1918, 1919, 1920 and 1921.

	1915	1916	1917	1918	1919	1920	1921
Water Supply Expenses							
Water Diversion	$11,292	$14,626	$15,196	$14,344	$13,004	$16,289	$19,088
Excess Water Diversion	256	314	1,165	1,053	905	672	967
Other Collecting System Expense	454	588	651	650	515	370	872
Purification System	6,718	9,783	10,015	11,942	10,833	13,159	13,093
Pumping System	5,899	8,657	17,724	23,960	19,355	26,518	34,740
Distributing System	4,756	5,681	7,634	8,051	7,597	12,613	11,521
Total Water Supply Expenses	$29,375	$39,649	$52,385	$60,000	$52,209	$69,621	$80,281
Maintenance Expenses							
Collecting System	$ 33	$ 58	$ 94	$ 44	$ 107	$ 163	$ 33
Purification System	360	1,495	696	710	1,947	5,539	5,120
Pumping System	908	1,002	1,153	1,727	2,896	5,045	3,879
Distribution System	4,693	3,879	4,909	7,606	3,972	6,271	7,399
General Repairs	291	159	348	27	1,452	517	309
Total Maintenance Expenses	$ 6,285	$ 6,593	$ 7,200	$10,114	$10,374	$17,535	$16,740
General and Miscellaneous Expenses							
Administration	$ 6,807	$ 9,447	$ 9,499	$ 9,855	$10,340	$11,696	$11,783
Accounting and Commercial	13,806	15,481	17,039	18,498	19,502	24,366	25,104
Legal	1,633	1,280	1,286	837	1,366	4,085	4,730
Injuries and Damages	44	134	152	159	2,290	274	602
Insurance	208	224	250	357	371	283	323
Relief Department and Pensions	1,200	1,200	1,200	1,200			70
Uncollectible Bills	36	175	955	1,423			
Miscellaneous General Expense	967	1,061	1,193	1,070	1,428	1,243	1,191
Total General and Miscellaneous Expenses	$24,701	$29,002	$31,574	$33,399	$35,297	$41,947	$43,803
Taxes							
State Franchise	$ 5,506	$ 5,910	$ 6,089	$ 9,564	$12,891	$15,876	$17,672
Real Estate and Buildings	3,209	3,280	3,805	3,490	3,630)	25,634	30,874
Personal Property	13,184	13,292	13,939	13,790	17,011)		
Federal	1,345	1,494	3,106	12,819	13,890	9,806	10,195
Total Taxes	$23,244	$23,976	$26,939	$39,663	$47,422	$51,316	$58,741

Exhibit P6-A

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The Federal income tax, figured according to the 1922 tax law, upon the basis of the joint return of the five affiliated companies, will amount in sum, for the five companies to $67,500 (See Section I, Table No. 10, page 68).

This is based upon a fair return of 8% on the fair value of the Acquackanonk, Montclair, and Passaic Water Companies, the net revenue of the East Jersey and Kearney Water Companies, being as per existing rates. Allocating the total income tax to companies in the ratio of their net revenue, the Federal income tax of The Acquackanonk Water Company is found to be $17,348.

The capital stock tax, calculated on the basis of $1.00 per $1,000 of capital stock and surplus, amounts in the case of The Acquackanonk Water Company to $531.

Summarizing, the taxes of The Acquackanonk Water Company, on the basis of the fair value and rate of return found, will amount annually to:

Real and personal property tax	$67,952
State Franchise tax	24,147
Federal income tax	17,348
Capital stock tax	531
Total	$109,978

The round figures of $110,000 will be used in subsequent calculations to represent total taxes.

Exhibit P6-A

*103

ANNUAL RESERVE FOR DEPRECIATION.

The annual depreciation reserve figured at 1.5% of the fair value of the depreciable property amounts to $35,100.

OPERATING EXPENSES.

Table No. 23, page 101, gives the verified operating expenses of The Acquackanonk Water Company for the years 1915 to 1921 inclusive as submitted to me by Mr. William J. Coote. As explained in Section I, page 67, the use of 1920 operating expenses, as a base, is necessary in order that the fair operating expenses determined may accord as to time with the other figures entering into the determination of the gross earnings required, and with the figures for water consumption on which the rate schedules have been calculated.

Table No. 24, page 104, shows the changes which have been made in the actual 1920 operating expenses as reported to the Public Utility Commission of New Jersey in order to arrive at the probable future fair average operating expenses.

It is seen by reference to Table No. 24 that the total modified operating expenses amount to $108,201 per year as compared with $129,103 shown by the books, and the modified figure is the figure I have used in estimating the future gross annual income required. The distribution of the joint ownership expenses shown on this table has been made in the manner described in Section I, page 70 of this report Summary of Gross Revenue Required.

Exhibit P6-A

SUMMARY OF GROSS REVENUE REQUIRED.

On the basis above outlined, the gross income required to yield a fair return on the fair value of The Acquackanonk Water Company as of January 1, 1921, is as follows:

Fair return 8% on $2,940,000	235,200	10
Taxes	110,000	
Reserve for depreciation	35,100	
Operating expenses	108,201	
Total Gross Income Required	$488,501	

*104

TABLE NO. 24.

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RECONCILIATION OF OPERATING EXPENSES FOR 1920 AS SHOWN ON ANNUAL REPORT TO BOARD OF PUBLIC UTILITY COMMISSIONERS FOR 1920 WITH 1920 MODIFIED OPERATING EXPENSES USED IN THE CALCULATION OF RATES.

Total Operating Deductions including operating expenses, taxes and depreciation, as per Annual Report for 1920		$210,226	30
Deduct taxes and depreciation as per 1920 Annual Report:			
Taxes	$51,316		
Depreciation	29,807		
Total	$81,123	81,123	

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Exhibit P6-A

Operating Expenses as per books, unmodified (See Table No. 25, page .)	$129,103
Deduct joint ownership expenses as distributed on Company's books	68,561
Operating Expenses as per Accountant with joint ownership expenses separate	$60,542
Company's portion of modified joint ownership expenses	47,659
Total modified operating expenses including fair share of joint ownership expenses	$108,201

Table No. 25.

THE AQUACKANONK WATER COMPANY

Comparative Statement of Operating Revenue. Operating Deductions, Depreciation, Non-operating Revenue and Non-operating Deductions, for the Years Ended December 31, 1915, 1916, 1917, 1918, 1919, 1920 and 1921

Item (1)	1915 (2)	1916 (3)	1917 (4)	1918 (5)	1919 (6)	1920 (7)	1921 (8)
Operating Revenue:							
Sale of water	$297,231	$311,751	$326,027	$327,889	$322,962	$359,441	$379,626
Miscellaneous operating revenue	1,057	946	3,147	3,410	1,809	3,904	4,321
Total Operating Revenue	$298,288	$312,697	$329,174	$331,299	$324,771	$363,345	$383,947
Operating Deductions:							
Water expenses	$ 29,375	$ 39,649	$ 52,385	$ 60,000	$ 52,209	$ 69,621	$ 80,281
Maintenance expenses	6,285	6,593	7,200	10,114	10,374	17,535	16,740
General and miscellaneous expenses	24,701	29,002	31,574	33,399	35,297	41,947	43,803
Taxes	23,244	23,976	26,939	39,663	47,422	51,316	58,741
Depreciation	23,404	23,945	24,861	25,953	28,659	29,807	31,494
Total Operating Deductions	$107,008	$123,165	$142,959	$169,129	$173,961	$210,226	$231,059
Net Operating Income	$191,279	$189,532	$186,215	$162,170	$150,810	$153,119	$152,888
Non Operating Income:							
Rent	$ 17	$ 27	$ 27	$ 27	$ 27	$ 27	$ 0
Net Earnings for period	$191,296	$189,559	$186,242	$162,197	$150,837	$153,146	$152,888

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Exhibit P6-A

*106

GROSS REVENUE REQUIRED COMPARED WITH GROSS REVENUE RECEIVED.

Table No. 25, page 105, gives the verified earnings of The Acquackanonk Water Company for the years 1915 to 1921 inclusive as submitted to me by Mr. William J. Coote.

Compared with the gross revenue required of $488,501, the revenue received in 1920 according to the Company's books was $363,372 distributed as follows:

Sale and distribution of water	$359,441
Miscellaneous operating revenue	3,904
Non-operating income	27
Total	$363,372

This represents a deficiency of 34.4%.

*107

RATE STRUCTURE.

The theory of a scientific rate structure is explained in Section I of this report, pages 73 to 84. In the subsequent pages will be found the details of the application of this theory in the case of The Acquackanonk Water Company.

DESCRIPTION OF TERRITORY SUPPLIED.

The territory supplied by The Acquackanonk Water Company includes the Cities of Clifton and Pas-

saic. (See Diagram No. 1, at the front of Section I of this report.) This territory will be treated as a single service district having a uniform schedule of rates. The area served by The Acquackanonk Water Company receives about 60% of its supply from the Little Falls low service pumps through the 42" Paterson extension and about 40% from the Little Falls high pressure pumps through the 30" connection with the 51" steel pipe line in the City of Clifton. But the 40% of high pressure water is delivered through a reducing valve at substantially the same pressure as that at which the 60% of low pressure water is delivered so that there appears to be no good reason for subdividing this territory into service districts.

SUBDIVISION OF GROSS REVENUE REQUIRED ACCORDING TO CLASS OF SERVICE.

In Section I of this report, pages 77 to 80, will be found a discussion of the methods employed in the subdivision of the total cost of service as a basis for the establishment of a fair rate structure.

Table No. 26, page 108, shows the subdivision of the required gross revenue according to class of service for The Acquackanonk Water Company.

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TABLE NO. 26.

ALLOCATION OF REQUIRED GROSS REVENUE ACCORDING TO CLASS OF SERVICE THE ACQUACKANONK WATER COMPANY.

Fair net return, 8% on $2,940,000	$235,200
Taxes	110,000
Annual Depreciation Reserve	35,100
Operating Expenses	108,201
Total Gross Revenue Required	$488,501

ALLOCATION OF GROSS REVENUE.

Item (1)	Per Cent (2)	Amount (3)
A. Subdivision of Gross Revenue between:		
Service Revenue	99.1	$484,001
Miscellaneous Receipts	0.9	4,500
Total Gross Revenues	100.0	$488,501
B. Subdivision of Total Service Revenue between:		
Fire Service Revenue	12.0	$ 58,100
General Water Service Revenue	88.0	425,901
Total Service Revenue	100.0	$484,001

Exhibit P6-A

C. Subdivision of General Water Service Revenue between:		
Fixed Service Revenue*	19.8	$ 84,500
Proportional Service Revenue	80.2	341,401
Total General Water Service Revenue	100.0	$425,901

*Based on complete metering.

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The Miscellaneous Receipts, taken at $4,500 are, in round figures, the average miscellaneous receipts for the five years 1916-1920 inclusive as follows:

TABLE NO. 27.

MISCELLANEOUS RECEIPTS.

Item (1)	1916 (2)	1917 (3)	1918 (4)	1919 (5)	1920 (6)	Average (7)
	$	$	$	$	$	$
Operating Revenue Miscellaneous Water Service	3,682.56	2,441.94	795.00	1,849.65	2,840.27	2,321.88
Profit on Sales of Material	262.27	2,079.51	2,976.55	1,808.77	3,903.91	2,206.20
Total	3,944.83	4,521.45	3,771.55	3,658.42	6,744.18	4,528.08

Exhibit P6-A

The Total Service Revenue, $484,001, is the difference between the Total Gross Revenue and the Miscellaneous Receipts.

The Fire Service Revenue is taken at $58,100 representing approximately 12% of the total cost of service. It corresponds to an annual hydrant charge of $10.00 per hydrant, and to an inch-foot charge of $0.012 per inch-foot of mains owned. For a discussion of the general basis on which the unit charges above used were determined, see Section I, pages 73 to 84.

The General Water Service Revenue, $425,901, is the difference between the Total Service Revenue and the Fire Service Revenue.

The Fixed Service Revenue, taken at $84,500 is the sum of the products of the number of meters (or service in the case of flat rate consumers) of each size, by the fixed service charge for that size of meter (or connection) as shown by the schedule

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of fixed service charges derived and discussed in Section I of this report, pages 80 to 83.

The Proportional Service Revenue, $341,401, is the difference between the General Water Service Revenue and the Fixed Service Revenue.

PROPOSED RATE SCHEDULE.

The rate schedule proposed for The Acquackanonk Water Company is submitted on pages 111 to 112. It has been determined in the manner outlined in the report, and so as fairly to distribute the cost of service between the different class of customers. The rates will produce substantially the revenue required as given in Table No. 26, page 108.

PROPOSED RATE SCHEDULE

The Acquackanonk Water Company

Miscellaneous Service:
Same as at present.

Fire Service:

Hydrant Charge	$	10.00 per hydrant per year
Inch-foot Charge		0.012 per inch-foot per year

General Water Service:
Fixed Service Charges:

1/2″ or 5/8″ meter	$	1.50 per quarter
3/4″ “		2.50 “ “
1″ “		5.50 “ “
1-1/2″ “		13.50 “ “
2″ “		18.00 “ “
3″ “		43.75 “ “
4″ “		62.50 “ “
6″ “		120.00 “ “
8″ “		190.00 “ “
12″ “		312.50 “ “
16″ “		462.50 “ “
30″ “		1,050.00 “ “

Proportional Service Charges or Meter Rates:

First 10,000 cubic feet per quarter	$	1.70 per M. cubic feet
Next 90,000 “ “ “ “		1.55 “ “ “ “
Next 900,000 “ “ “ “		1.25 “ “ “ “
Over 1,000,000 “ “ “ “		0.80 “ “ “ “

Fixture Rates:
The rates for the following private houses include one set of fixtures, consisting of two draw cocks, one range and boiler, one bath tub, one water closet, one wash basin, one set of stationary tubs.

Rates for sprinkling	$6.00 per annum for each 25 ft. front.
Extra Water Closet	$6.00 per annum.
Extra bath tubs	$3.00 per annum.
Urinals	$3.00 per annum.

Rates based on 25 feet or under; over 25 feet 33 1/3 per cent.

40 30 20 10

	1 Family	2 Family	3 Family	4 Family	5 Family	2 Closets* 2 Baths	3 Closets* 3 Baths	4 Closets* 4 Baths	5 Closets* 5 Baths
2 Story House	$18.00	$22.00	$27.00	$	$	$36.00	$	$	$
2½ " "	21.00	27.00	33.00			36.00	53.00		
3 " ")									
2 " & basement)	24.00	30.00	36.00			36.00	53.00		
2 " & French roof)									
4 " House	30.00	36.00	42.00	47.00		36.00	53.00	71.00	
5 " "	36.00	42.00	47.00	53.00	59.00	36.00	53.00	71.00	90.00
Rear Houses:									
1 Story House	9.00								
2 " "	15.00	18.00							
3 " "	18.00	21.00	24.00						

Three, four, etc., story houses occupied by a business on the first floor, rated for the business shall be rated for the occupancy above the first floor, independently of the first floor.

Tenement property—Special or yearly rate	$ 60.00	-	$240.00	per annum	
Hotel property—Special or yearly rate	110.00	-	220.00	" "	
Boarding houses—Special or yearly rate	30.00	-	120.00	" "	
Wholesale liquor houses	30.00	-	60.00	" "	
Restaurants	30.00	-	120.00	" "	
Saloons, includes 1 water closet, 1 urinal, 1 draw cock back of bar	30.00			" "	
Water pressure beer pumps	30.00	-	60.00	" "	Ex.
Barber shops, 1st chair	12.00			" "	
Each additional chair	6.00			" "	
Building purposes—For each barrel lime or cement used, 21 cents.					
Private stables, one horse	12.00			" "	
Each additional horse	6.00			" "	
Livery stables—Special rates	47.00	-	300.00	" "	
Private garage, one automobile	6.00			" "	
Each additional automobile	3.00			" "	
Stores—Butcher shop	12.00	-	18.00	" "	
Fish market	24.00	-	60.00	" "	
Grocery store	6.00	-	18.00	" "	
Fruit and vegetable stands	12.00	-	36.00	" "	
Bakery	18.00	-	60.00	" "	
Offices	6.00			" "	
Printing offices	110.00	-	150.00	" "	
Laundries	24.00	-	220.00	" "	

*Plate with full set of fixtures $18.00 per annum each.

Exhibit P6-A

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SECTION III—THE MONTCLAIR WATER COMPANY.

A. CAPITALIZATION.

The capitalization of The Montclair Water Company as of December 31, 1920, was as shown on Table No. 28.

TABLE NO. 28.

CAPITALIZATION OF THE MONTCLAIR WATER COMPANY DECEMBER 31, 1920

Funded Debt:	
Purchase money mortgage 5% bonds due January 1, 1958	$ 400,000
Beattie Manufacturing Company mortgage 5% bonds	37,500
First mortgage 5% gold bonds, January 1, 1896 to 1946	500,000
Total	$ 937,500
Capital Stock	500,000
Total Capitalization	$1,457,500
Advances from other corporations	122,781
Total Outstanding obligations December 31, 1920	$1,560,281
Water Diversion Rights (1921)	56,000
Total	$1,618,281

Exhibit P6-A

8. Book Value.

The book value of The Montclair Water Company as of December 31, 1920, was as shown on Table No. 29.

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TABLE NO. 29.

Book Value of The Montclair Water Company December 31, 1920.

Fixed capital installed prior to January 1, 1913	$1,128,122
Fixed capital installed since December 31, 1912	260,936
Construction work in progress December 31, 1920	1,061
Total Fixed Capital	$1,390,119
Materials and Supplies	84,981
Cash and cash items	3,555
Total Book Value, December 31, 1920	$1,478,655
Water Diversion Rights (1921)	56,000
Total	$1,534,655

Exhibit P6-A

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C. Cost of Reproduction Based on Pre-War Value of Plant Existing Prior to December 31, 1912, Plus the Actual Cost of Additions to Plant Since that Date.

The value of The Montclair Water Company on the basis of the allowance by the Board of Appraisers in 1912 plus net additions since December 31, 1912, at actual cost is as shown on Table No. 30.

TABLE NO. 30.

Value of The Montclair Water Company on Basis of the Allowance by the Board of Appraisers in 1912 Plus Net Additions Since December 31, 1912, at Actual Cost.

Item (1)	Gross Cost of Reproduction (2)	Gross Depreciated Value (3)
1. Appraisers' estimate of value of property as of December 31, 1912 (excluding value of water diversion rights against S. U. M. and Dundee acquired in 1921)	$1,837,066	$1,635,406
2. Net cost of additions to structural plant from December 31, 1912, to December 31, 1920	225,087	225,087
	$2,062,153	$1,860,493
3. Depreciation accrued on depreciable property since December 31, 1912, at 1.5% per annum	—	160,334
	$2,062,153	$1,700,159

Exhibit P6-A

4.	Value of land sold since December 31, 1912	2,532	2,532
		$2,059,621	$1,697,627
5.	Water diversion rights acquired in 1921	56,000	56,000
	Total	$2,115,621	$1,753,627

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D. Cost of Reproduction Based on Pre-War Prices.

The value of The Montclair Water Company on the basis of the allowance made by the Board of Appraisers in 1912 plus net additions since December 31, 1912, at actual cost reduced to a pre-war basis is as shown on Table No. 31.

TABLE NO. 31.

Value of The Montclair Water Company on Basis of the Allowance by the Board of Appraisers in 1912 Plus Net Additions Since December 31, 1912, at Actual Cost Reduced to a Pre-War Basis.

Item (1)	Gross Cost of Reproduction (2)	Gross Depreciated Value (3)
1. Appraisers' estimate of value of property as of December 31, 1912 (excluding value of water diversion rights against S. U. M. and Dundee acquired in 1921)	$1,837,066	$1,635,406
2. Net cost of additions to structural plant from December 31, 1912, to December 31, 1920, reduced to a pre-war basis	163,603	163,603
	$2,000,669	$1,639,773

Exhibit P6-A

3.	Depreciation accrued on depreciable property since December 31, 1912, at 1.5% per annum	—	159,236
4.	Value of land sold since December 31, 1912	2,532	2,532
		$1,998,137	$1,637,241
5.	Water diversion rights acquired in 1921 reduced to a pre-war basis	35,500	35,500
	Total	$2,035,637	$1,672,741

E. Cost of Reproduction at Average Prices Prevailing from 1911 to 1920 Inclusive.

The cost of reproduction and depreciated value of The Montclair Water Company based on the average prices prevailing for the ten years 1911 to 1920 inclusive are as shown on Table No. 32.

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The base cost of the several schedules or accounts accord with the detailed inventory presented in Volume III, pages 1 to 196.

TABLE NO. 32.

Summary of Cost of Reproduction and Depreciated Value of the Property of The Montclair Water Company on Basis of Ten Year Average Prices 1911-1920.

Schedule No.	Item (1)	Cost of Reproduction (2)	Depreciated Value (3)
	Tangible Property		
105	Water Diversion Rights	$ 56,000	$ 56,000
109	Springs and Wells	19,738	8,989

Exhibit P6-A

	112	Gravity Intakes and Suction Mains	13,861	12,172
	115	Coagulating Basins	43,909	41,314
	117	Filters	61,746	54,567
	119	Chemical Treatment Plant	1,143	985
	120	Clear Water Basins	25,606	20,908
	121	Pumping Stations	111,052	99,519
10	122	Steam Power Pumping Equipment	162,572	107,991
	123	Hydraulic Power Pumping Equipment	139,831	128,993
	126	Miscellaneous Pumping Equipment	2,716	1,765
	127	Transmission Mains and Accessories	38,234	28,829
	128	Storage Reservoirs, Tanks and Standpipes	80,333	74,107
	129	Distribution Mains and Accessories	833,275	771,003
	130	Service Pipes and Stops	23,381	19,684
	131	Meters, Meter Boxes and Vaults	74,489	48,282
	132	Fire Hydrants and Fire Cisterns	37,424	26,645
20	134	General Structures	31,475	30,306
	135	General Equipment	8,864	5,752
	151	Construction Work in Progress	992	992
		Total Base Cost of Used and Useful Property	$1,764,641	$1,538,813
	150	Fixed Capital in Other Departments	194,054	190,573
		Total Base Cost	$1,958,695	$1,729,386
30		Miscellaneous Construction Expenditures (Overheads at 15%)	293,804	259,408
		Gross Cost	$2,252,499	$1,988,794

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GROSS COST OF REPRODUCTION OF TANGIBLE PROPERTY.

The gross cost of reproduction and gross depreciated value of the tangible property have been obtained, as indicated at the bottom of Table No. 32, by adding 15% to the base costs to cover miscellaneous construction expenditures. Table No. 32 gives the cost of reproduction and present value of all physical property owned by The Montclair Water Company, that is it includes all property regardless of whether or not it is used and useful for waterworks purposes.

PROPERTY NOT USED AND USEFUL.

Property now owned by The Montclair Water Company which is not used and useful for waterworks purposes is shown separately in Table No. 32, Account 150 "Fixed Capital in Other Departments." The depreciated base cost of this property is $190,573.

WORKING CAPITAL.

An allowance of $55,000 has been made for working capital. In round figures this is 2 1/4% of the depreciated value of the property other than working capital on the ten year average price basis.

PRELIMINARY AND ORGANIZATION EXPENSES.

I have allowed $25,000 for preliminary and organization expenses. This is in round figures 1.2% of the gross cost of reproduction of the tangible property.

GOING COST.

The allowance made for going cost is $230,000 which is

in round figures 11.3% of the gross cost of reproduction of the tangible property.

VALUE OF PLANT BASED ON TEN YEAR AVERAGE PRICES.

The value of the plant on the ten year average price basis, including only the used and useful property, is shown in Table No. 33.

TABLE NO. 33.

VALUE OF PLANT BASED ON TEN YEAR AVERAGE PRICES (1911-1920 INCLUSIVE).

Land, rights of way, releases from damage and water diversion rights	$ 216,685
Structural items	1,812,652
Working capital	45,000
Preliminary and organization expenses	25,000
Going cost	230,000
Total Cost of Reproduction	$2,329,337
Less depreciation=14.3% of the reproduction cost of structural items of $1,812,652	259,702
Total Present Value	$2,069,635

F. COST OF REPRODUCTION AT CURRENT PRICES.

The cost of reproduction at current prices, taking land, rights of way, releases from damage, water diversion rights, working capital, preliminary and or-

ganization expenses and going cost at the same figures as in the ten year average appraisal, and applying a factor to the figures for structural items to bring them to the current basis, is as shown in Table No. 34.

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TABLE NO. 34.

VALUE OF PLANT ON CURRENT PRICE BASIS.

Land, rights of way, releases from damage and water diversion rights	$ 216,685
Structural items	2,356,448
Working capital	45,000
Preliminary and organization expenses	25,000
Going cost	230,000
Total Cost of Reproduction	$2,873,133
Less depreciation at the same per cent of cost of reproduction of depreciable property as used in the ten year average figures=14.3% of the reproduction cost of structural items of $2,356,448	337,000
Total Present Value	$2,536,133

G. COST OF REPRODUCTION AT 1920 PEAK PRICES.

The cost of reproduction at 1920 peak prices, taking land, rights of way, releases from damage, water diversion rights, working capital, preliminary and organization expenses and going cost at the same figures as in the ten year average appraisal and applying a

factor to the figures for structural items to bring them to the 1920 price basis, is as shown on Table No. 35.

*121

TABLE NO. 35.

VALUE OF PLANT AT 1920 PEAK PRICES.

Land, rights of way, releases from damage and water diversion rights	$ 216,685
Structural items	3,263,312
Working capital	45,000
Preliminary and organization expenses	25,000
Going cost	230,000
Total Cost of Reproduction	$3,779,997
Less depreciation at the same per cent of cost of reproduction of depreciable property as used in the ten year average figures=14.3% of the reproduction cost of structural items of $3,263,312	467,000
Total Present Value	$3,312,997

COMPARISON OF VALUES.

The values found under Sections A to G are brought together for comparison in Table No. 36, page 122.

VALUE OF PROPERTY.

Inspection of the comparative values as shown on Table No. 36 shows that on the basis of pre-war value as determined by the Board of Appraisers in

Exhibit P6-A

1912 plus the cost of additions since 1912 (Value C.) the Company has an investment (depreciated) of $1,753,627, as compared with a capitalization of $1,618,281, and a book value of $1,534,655. The depreciated pre-war value plus cost of additions is 8% higher than the capitalization and 14% higher than the book value. It is probably fair to assume that the Company has now invested in used and useful property and plant at least $1,750,000. This figure, however, does not

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TABLE NO. 36

COMPARISON OF VALUES.

Basis of Value (1)	Cost of Reproduction (2)	Present Value (3)
A. Value based on capitalization, total outstanding obligations including water diversion rights acquired in 1921	$1,618,281	$1,618,281
B. Book value including water diversion rights acquired in 1921	1,534,655	1,534,655
C. Value based on pre-war prices to December 31, 1912, plus cost of additions since that date and including water diversion rights acquired in 1921	2,115,621	1,753,627
D. Value based on pre-war prices including water diversion rights acquired in 1921	2,033,637	1,672,741
E. Value based on ten year average prices (1911-1920) including water diversion rights acquired in 1921	2,329,337	2,069,635
F. Value based on current prices including water diversion rights acquired in 1921	2,873,133	2,536,133
G. Value based on 1920 peak prices including water diversion rights acquired in 1921	3,779,997	3,312,997

represent the value of the property which is to be determined in this appraisal.

The depreciated cost of reproduction of the used and useful property at current prices is $2,536,133, which is 45% higher than the probable investment in property.

UNMODIFIED CURRENT INVESTMENT WORTH.

It was shown in Section I, pages 36 to 42, that the present prices of general commodities are 36% higher than in 1913, and that the prices of structural material and labor are now 62% above the pre-war scale, and that the present prices of waterworks materials and labor are 85% above the pre-war.

It is seen by reference to Table No. 36, page 122, that the depreciated investment worth on a strictly pre-war basis (Value D) was found to be $1,672,741.

Increasing this value in the amount by which present commodity prices exceed the pre-war scale (36%), the investment worth today would be $2,274,928.

Of the $1,672,741 pre-war investment worth $1,038,121 represents structural items, and $634,620 non-structural items. Applying the construction cost index of 162 to the investment in structural items, and the commodity cost index of 136 to the investment in non-structural items, the present investment worth of the property would be $2,544,839.

Applying the waterworks construction cost index of 185 to the investment in structural items, and the commodity cost index of 136 to the investment in non-structural items, the present investment worth of the property would be $2,783,607.

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Summarizing, the unmodified investment worth obtained as a result of the foregoing analysis is as shown on Table No. 37, below.

TABLE NO. 37.

UNMODIFIED CURRENT INVESTMENT WORTH.

Present investment worth applying average commodity cost index of 136 to pre-war investment worth	$2,274,928
Present investment worth applying construction index 162 to pre-war structural investment, and commodity cost index of 136 to pre-war non-structural investment	2,544,839
Present investment worth applying waterworks construction cost index of 185 to pre-war structural investment, and commodity cost index of 136 to pre-war non-structural investment	2,783,607

The probable actual investment as of January 1, 1921, as previously stated (see page 121), is approximately $1,750,000.

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FAIR VALUE DETERMINED

It has been shown (page 121), that I have placed the actual investment of this Company in used and useful property at	$1,750,000
As compared with a book value of (see page 114)	1,534,655

It has further been shown (page 123), that it will require $1.36 at the current value of the dollar to purchase the same amount of general commodities that $1.00 would have purchased on a pre-war basis.

It has also been shown (page 123), that it will require $1.85 at the current value of the dollar to build and install the

New Jersey State Library

equivalent structural elements of a waterworks plant which $1.00 would have built and installed on a pre-war basis.

It has also been shown that the present investment worth based on average commodity values at this date is (page 123) 2,274,928

And that the present investment worth based on the current structural worth of waterworks structures is (page 123) 2,783,607

It will be seen (page 116), that the worth of the investment of this Company, had all the plant been installed on a pre-war price basis, is $1,672,741, and hence on a basis of a 40% average set in price levels (see Section I, page 50) during the ensuing eight or ten years, the investment worth is 140% of $1,672,741 or 2,341,837

This value is but 34% above the probable capital investment in plant of $1,750,000 (see page 121).

By reference to page 119, it will be seen that the value of the property based on cost of reproduction on the ten year average price is 2,069,635

This is but 18% higher than the value based on cost of reproduction at pre-war prices to December 31, 1912, plus the cost of additions since that date of $1,753,627 (see page 115).

From page 120, it will be noted that the value of the property based on the cost of reproduction at current prices is 2,536,133

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Taking all the conditions surrounding this property into consideration, including the actual investment, the probable future set in price levels, the probable present enhancement of investment worth, and the cost of reproduction today, I am of the opinion that the fair value of this property is $2,010,000

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On page 127, will be found Diagram No. 9 which is a plotting of the values which I have found, graphically shown. The horizontal scale at the bottom of the diagram gives the basis of valuation arranged in the order of magnitude of the resulting amount produced. The vertical scales at the sides of the diagram give the ratio of the value on a given basis to the pre-war level of value. The line A-B represents the pre-war level at 100%. The curve G-H represents the resulting values on the different bases referred to line A-B as a base. The line C-D represents the level of the appraised valuation of the property, and the line E-F the level of value produced by taking the cost of reproduction on ten year average prices, 1911 to 1920 inclusive. From the diagram it is seen that the appraised value level is about 20 points above pre-war. It is about 15 points above the pre-war basis of 1912 with subsequent additions at actual cost. It is about 23 points above the present capitalization. It is about 28 points above the book value. It is about 4 points lower than the cost of reproduction on the basis of ten year average prices. It is about 32 points lower than the value at current prices and about 78 points lower than the value at the peak prices of 1920.

Exhibit P6-A

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Job No 191-40 Drawn by HF Checked by H.N.F. Examined by H.N.F. Reviewed by H.N. 6-1-72

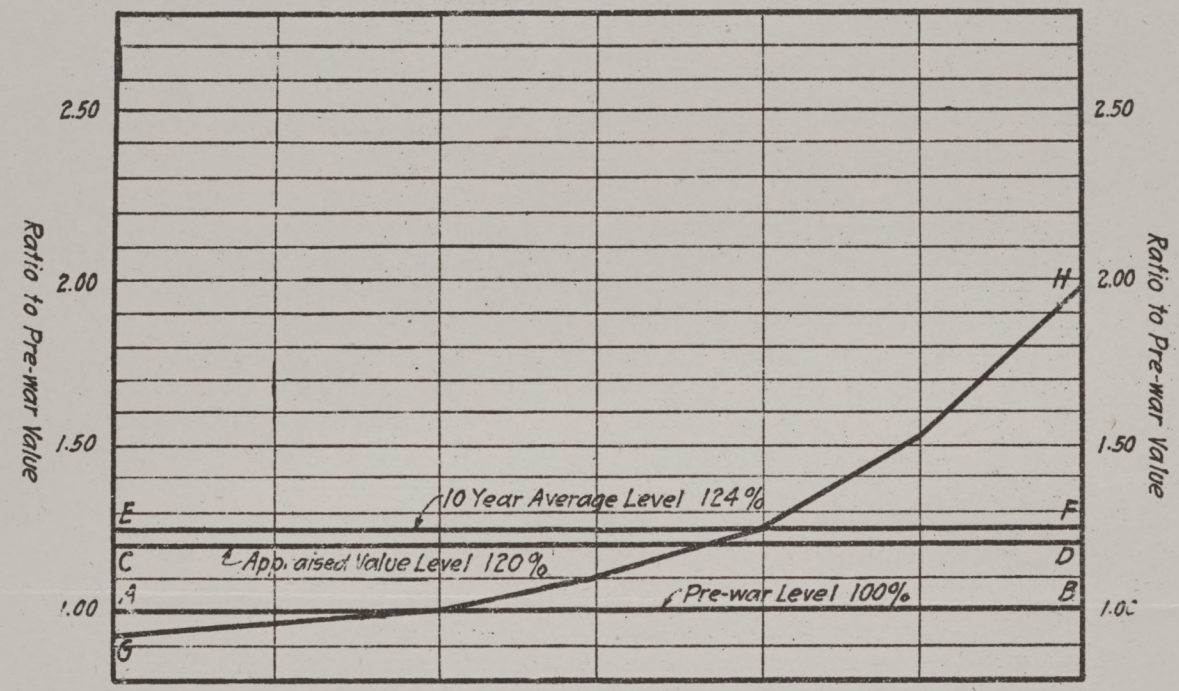
Job No 191-40 Drawn by H Checked by H.N.F. Examined by [illegible] Reviewed by N.S.H. 6-1-22

Nicholas S. Hill, Jr. and S.F. Ferguson
Consulting Engineers
112 East 19th Street
New York City

DIAGRAM NO. 9

COMPARISON OF VALUES ON VARIOUS BASES

THE MONTCLAIR WATER COMPANY



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GROSS REVENUE REQUIRED.

FIXED CHARGES.

Fair Return.

On the basis of a fair value of $2,010,000 and a fair return of 8%, the net annual return required by The Montclair Water Company amounts to $160,800.

Taxes.

The amount of taxes paid by The Montclair Water Company in 1920 (See Table No. 38, page 130), was $34,143. The fair value of the real and personal property subject to Municipal, County and State taxes as of January 1, 1921, is according to my appraisal $1,655,807. This amount, which is the basis of a total value of $2,010,000, includes only used and useful taxable property. It does not include organization expenses, water diversion rights, working capital or going cost. The weighted average tax rate for 1920 in the territory in which The Montclair Water Company's property lies was $3.18 per $100 of value. The amount of property taxes, therefore, based on the fair value of the taxable property will be $1,655,807 × 0.0318=$52,655.

The State franchise tax is figured at the rate of 5% of the estimated gross revenue to be derived from the property in public highways except revenue to be derived from the sale of water at wholesale directly to Municipalities. About 99% of the revenue of The Montclair Water Company will normally be derived from property in public highways and be subject to the State franchise tax. The gross revenue under the new rates will

Exhibit P6-A

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be $349,221 so that the State franchise tax will amount to 349,221 × 0.99 × 0.05=$17,286.

The Federal income tax, figured according to the 1922 tax law, upon the basis of the joint return of the five affiliated companies, will amount in sum, for the five companies to $67,500 (See Section I, Table No. 10, page 68). This is based upon a fair return of 8% on the fair value of the Acquackanonk, Montclair and Passaic Water Companies, the net revenue of the East Jersey and Kearney Water Companies being as per existing rates. Allocating the total income tax to companies in the ratio of their net revenue, the Federal income tax of The Montclair Water Company is found to be $11,880.

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Table No. 38

THE MONTCLAIR WATER COMPANY

Comparative Statement of Water Supply Expenses, Maintenance Expenses, General and Miscellaneous Expenses and Taxes for the Years Ended December 31, 1915, 1916, 1917, 1918, 1919, 1920 and 1921

	1915	1916	1917	1918	1919	1920	1921
Water Supply Expenses							
Water Diversion	$ 7,371	$ 6,002	$ 5,914	$ 5,602	$ 5,844	$ 6,967	$ 6,391
Excess Water Diversion	337	221		28			13
Other Collecting System Expense	298	240	253	242	216	136	270
Purification System	4,413	3,987	3,895	4,539	4,555	5,236	4,061
Pumping System	15,292	16,250	24,392	30,958	32,293	37,583	36,391
Distribution System	4,225	4,305	4,000	3,759	5,533	6,571	6,198
Total Water Supply Expenses	$31,936	$31,005	$38,454	$45,128	$48,441	$56,493	$53,324
Maintenance Expenses							
Collecting System	$ 22	$ 24	$ 36	$ 17	$ 45	$ 65	$ 10
Purification System	236	609	271	270	817	2,204	1,588
Pumping System	794	1,525	795	860	1,611	2,061	1,577
Distribution System	4,368	5,112	6,305	7,749	4,846	4,542	4,012
General Repairs	1,027	468	1,089	322	312	763	376
Total Maintenance Expenses	$ 6,447	$ 7,738	$ 8,496	$ 9,218	$ 7,631	$9,635	$ 7,563
General and Miscellaneous Expenses							
Administration	$ 6,224	$ 8,666	$ 8,539	$10,224	$ 9,668	$10,894	$10,583
Accounting and Commercial	12,048	13,782	$13,829	12,880	12,481	15,605	15,260
Business Promotion							
Legal	1,937	958	443	1,257	101	3,139	2,778
Injuries and Damages	46	130	146	532	165	100	100
Insurance	490	417	476	517	518	384	424
Uncollectible Bills	489	3,371	235				
Miscellaneous General Expense	323	387	353	629	134	228	19
Total General and Miscellaneous Expenses	$21,557	$27,711	$24,021	$26,129	$23,067	$30,350	$29,164
Taxes							
State Franchise	$ 4,302	$ 3,742	$ 3,400	$ 5,194	$ 6,796	$ 8,907	$ 9,307
Real Estate and Buildings	2,640	2,048	2,209	2,380	2,342)		
Personal Property	9,244	11,784	14,895	14,993	18,827)	24,158	25,976
Federal	780	517	935	2,218	1,348	1,078	512
Total Taxes	$16,966	$18,091	$21,439	$24,785	$29,313	$34,143	$35,795

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The capital stock tax, calculated on the basis of $1.00 per $1,000 of capital stock and surplus, amounts in the case of The Montclair Water Company to $519.

Summarizing, the taxes of The Montclair Water Company, on the basis of the fair value and rate of return found, will amount annually to:

Real and personal property tax	$52,655.
State franchise tax	17,286
Federal income tax	11,880
Capital stock tax	519
Total	$82,340

The round figure of $82,300 will be used in subsequent calculations to represent total taxes.

ANNUAL RESERVE FOR DEPRECIATION.

The annual depreciation reserve figured at 1.5% of the fair value of the depreciable property amounts to $26,400.

OPERATING EXPENSES.

Table No. 38, page 130, gives the verified operating expenses of The Montclair Water Company for the years 1915 to 1921 inclusive as submitted to me by Mr. William J. Coote. As explained in Section I, page 67, the use of 1920 operating expenses, as a base, is necessary in order that the fair operating expenses determined may accord as to time with the other figures entering into the determination of the gross earnings required, and with the figures for water consumption on which the rate schedules have been calculated.

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Table No. 39 below, shows the changes which have been made in the actual 1920 operating expenses as reported to the Public Utility Commission of New Jersey in order to arrive at the probable future fair average operating expenses.

TABLE NO. 39.

RECONCILIATION OF OPERATING EXPENSES FOR 1920 AS SHOWN ON ANNUAL REPORT TO BOARD OF PUBLIC UTILTY COMMISSIONERS FOR 1920 WITH 1920 MODIFIED OPERATING EXPENSES USED IN THE CALCULATING OF RATES.

Total Operating Deductions including operating expenses, taxes and depreciation, as per Annual Report for 1920		$153,553
Deduct taxes and depreciation as per Annual Report		
Taxes	$34,143	
Depreciation	22,934	
Total	$57,077	57,077
Operating expenses as per Books, unmodified (see Table No. 40, page 133)		$96,478
Deduct joint ownership expenses as distributed on Company's books		27,302
Operating Expenses per Accountant with joint ownership expenses separate		$69,176

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MODIFICATIONS:	
(a) Deduct allowance for saving in cost of coal and chemicals which will result from discontinuance of the supply of Water to Glen Ridge and West Orange	4,400
Modified operating expenses, exclusive of joint ownership expenses	$ 64,776
Company's portion of modified joint ownership expenses	14,902
Total modified operating expenses including fair share of joint ownership expenses	$ 79,678

Table No. 40.

Comparative Statement of Operating Revenue, Operating Deductions, Depreciation, Non-operating Revenue and Non-operating Deductions, for the Years ended December 31, 1915, 1916, 1917,1918, 1919, 1920 and 1921

Item (1)	1915 (2)	1916 (3)	1917 (4)	1918 (5)	1919 (6)	1920 (7)	1921 (8)
Operating Revenue:							
Sale of water	$188,710	$173,587	$176,742	$173,453	$181,845	$190,001	$170,739
Miscellaneous operating revenue	2,612	4,146	1,795	1,866	2,165	4,966	2,188
Total Operating Revenue	$191,322	$177,733	$178,537	$175,319	$184,010	$194,967	$172,927
Operating Deductions:							
Water expenses	$ 31,936	$ 31,005	$ 38,454	$ 45,128	$ 48,441	$ 56,493	$ 53,324
Maintenance expenses	6,447	7,738	8,496	9,218	7,631	9,635	7,563
General and miscellaneous expenses	21,557	27,711	24,021	26,129	23,067	30,350	29,164
Taxes	16,966	18,091	21,439	24,785	29,313	34,143	35,795
Depreciation	19,342	19,585	19,962	20,675	22,021	22,934	23,254
Total Operating Deductions	$ 96,248	$104,130	$112,372	$125,935	$130,473	$153,555	$149,100
Net Operating Income	$ 95,074	$ 73,603	$ 66,165	$ 49,384	$ 53,537	$ 41,412	$ 23,827
Non-Operating Income:							
Rent							$ 610
Interest	$ 769	$ 663	$ 537	$ 662	$ 577	$ 735	$ 451
Total Non-operating Income	$ 769	$ 663	$ 537	$ 662	$ 577	$ 735	$ 1,061
Net Earnings for Period	$ 95,843	$ 74,266	$ 66,702	$ 50,046	$ 54,114	$ 42,147	$ 24,888

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Exhibit P6-A

*134

It is seen by reference to Table No. 39, that the total modified operating expenses amount to $79,678 per year as compared with $96,478 shown by the books, and the modified figure is the figure I have used in estimating the future gross annual income required. The distribution of the joint ownership expenses shown in this table has been made in the manner described in Section I, page 70 of this report.

SUMMARY OF GROSS REVENUE REQUIRED.

On the basis above outlined, the gross income required to yield a fair return on the fair value of The Montclair Water Company as of January 1, 1921, is as follows:

Fair return 8% on $2,010,000	$160,800
Taxes	82,300
Reserve for depreciation	26,400
Operating expenses	79,678
Total Gross Income Required	$349,178

GROSS REVENUE REQUIRED COMPARED WITH GROSS REVENUE RECEIVED.

Table No. 40, page 133, gives the verified earnings of The Montclair Water Company for the years 1915 to 1921 inclusive as submitted to me by Mr. William J. Coote.

Compared with the gross revenue required of $349,178, the revenue received in 1920 according to the books was $195,702 distributed as follows:

Exhibit P6-A

Sale and distribution of water	$190,001
Miscellaneous operating revenue	4,966
Nonoperating income	735
Total	$195,702

This income as shown by the books, however, does not truly reflect the gross income which the present rates will produce

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in the immediate future, because it includes items amounting to $31,200 received from the sale of water to West Orange and Glen Ridge in 1920, which services have since been discontinued. The $31,200 does not include the readiness-to-serve charge of $2,000 for the stand by service which the company is still rendering to these communities.

Correcting for the item $31,200 the true gross revenue which the present rates will produce is

195702—31200=$164502

This represents a deficiency of 112.3%.

RATE STRUCTURE

The theory of a scientific rate structure explained in Section I, pages 73 to 87. In the subsequent pages will be found the details of the applicatiton of this theory in the case of The Montclair Water Company.

Description of Territory Supplied.

The territory supplied by The Montclair Water Company includes customers within the municipal

limits of the Town of Montclair and customers in outside but contiguous territory who are now supplied through mains located in the Town of Montclair. This territory is subdivided into the Montclair Low Service District, and the Montclair High Service District as shown on Diagram No. 1, at the front of Section I, of this report.

The subdivision into Low and High Service Districts is necessary to do justice to the case of this company. A portion of The Montclair Water Company's territory is served direct

at Little Falls High Service pressure. The remainder of the territory is supplied with water which is repumped at the Montclair Pumping Station, which entails additional cost. Separate rates are, therefore, provided for the Montclair Low Service District and the Montclair High Service District.

SUBDIVISION OF GROSS REVENUE REQUIRED ACCORDING TO CLASS OF SERVICE.

In Section I of this report, pages 77 to 80 will be found a discussion of the methods employed in the subdivision of the total cost of service as a basis for the establishment of a fair rate structure.

Table No. 42, page 137, shows the subdivision of the required gross revenue, according to class of service for The Montclair Water Company.

The Miscellaneous Receipts, taken at $3,700, are the average miscellaneous receipts for the five years, 1916-1920, inclusive as follows:

Exhibit P6-A

TABLE NO. 41

Miscellaneous Receipts

Item (1)	1916 (2)	1917 (3)	1918 (4)	1919 (5)	1920 (6)	1921 (7)
Operating Revenue:	$	$	$	$	$	$
Miscellaneous Water Service	2034.24	1564.06	1597.47	1869.29	1089.03	1630.82
Tapping, plumbing and inspection	2597.42	206.48	174.00	382.50	406.50	753.38
Profit on sales of material	178.40	183.64	424.06	485.03	3514.95	956.82
Non-Operating Revenue:						
Rent of rear 15 Park Street, Montclair for carpet cleaning establishment	-	-	-	-	385.00	77.00
Interest on Bank deposits	353.24	332.81	201.59	213.15	310.12	282.18
Total	5163.30	2286.99	2397.12	2947.97	5705.60	5700.20

TABLE NO. 42

Allocation of Required Gross Revenue According to Class of Service the Montclair Water Company.

Fair Net Return, 8% on $2,010,000	$160,800.
Taxes	82,300.
Annual Depreciation Reserve	26,400
Operating Expenses	79,678.
Total Cross Revenue Required	$349,178.

Exhibit P6-A

Item (1)	Per-Cent (2)	Amount (3)
A. Subdivision of Gross Revenue between:		
Service Revenue	98.6	$344,433.
Transportation of Water for the East Jersey Water Company	0.3	1,045.
Miscellaneous Receipts	1.1	3,700.
Total Gross Revenue	100.0	$349,178.
B. Subdivision of Total Service Revenue between:		
Fire Service Revenue	17.7	$ 60,800.
General Water Service Revenue	82.3	283,633.
	100.0	$344,433.
C. Subdivision of General Water Service Revenue between:		
Fixed Service Revenue*	13.8	$ 39,100.
Proportional Service Revenue	86.2	244,533.
Total General Water Service Revenue	100.0	$283,633.
D. Subdivision of Proportional Service Revenue between:		
Low Service District	21.2	$ 51,922.
High Service District	78.8	192,611.
Total Proportional Service Revenue	100.0	$244,533.

*Based on complete metering

Exhibit P6-A

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The revenue from transportation of water for The East Jersey Water Company $1045 is taken at the amount received for this service in 1920.

The Total Service Revenue $34,443.33, is the total gross Revenues less the Miscellaneous Receipts and this transporting charge.

The Fire Service Revenue is taken at $60,800 representing approximately 17.5% of the total cost of service. It corresponds to the annual hydrant charge of $10.00 per hydrant, and to an inch-foot charge of $0.015 per inch-foot of mains owned. These unit charges are the same for both high and low service districts.

For a discussion of the general basis on which the unit charges above used were determined, see Section I, pages 73 to 84.

The General Water Service Revenue $283,633 is the difference between the Total Service Revenue and the Fire Service Revenue.

The Fixed Service Revenue, taken at $39,100 is the sum of the products of the number of meters (or services in the case of flat rate consumers) of each size, by the fixed service charge for that size of meter (or connection) as shown by the schedule of fixed service charges derived and discussed in Section I of this report, pages 80 and 83. The fixed service charges per meter (or connection) do not vary as between high and low service districts.

The Proportional Service Revenue, $244,533, is the difference between the General Water Service Revenue and the Fixed Service Revenue.

Exhibit P6-A

*139

The total Proportional Service Revenues, $244,533, as shown on Table No. 42, page 138, has been subdivided between the High and the Low Service Systems.

In making this subdivision, total property elements, taxable property, elements and depreciable property elements and the fair net return, taxes, annual depreciation reserve and operating expenses which make up the Gross Revenue Required were allocated between districts in the proper ratio, to obtain the gross revenue required from each district.

This allocation gave for Gross Revenue Required:

Low Service District	$ 78,185
High Service District	270,993
Both Districts	$349,178

The Miscellaneous Receipts, Transportation charges, Fire Service Revenue and Fixed Service Revenue were then ascertained for each district and deducted to obtain the Proportional Service Revenue required from each district.

PROPOSED RATE SCHEDULE

The rate schedule proposed for The Montclair Water Company is submitted on page 140. It has been determined in the manner outlined in the report, and so as fairly to determine the cost of service between the different classes of consumers. The rate will produce substantially the revenue required as given in Table No. 42, page 138.

Exhibit P6-A.

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PROPOSED RATE SCHEDULE

THE MONTCLAIR WATER COMPANY.

Miscellaneous Service:
Same as at present.

Fire Service:

Hydrant charge	$10.00 per hydrant per year
Inch-foot charge	0.015 per inch-foot per year

General Water Service
Fixed Service Charges

1/2″ or 5/8″ meter	1.50 per quarter
3/4″ "	2.50 " "
1″ "	5.50 " "
1 1/2″ "	13.50 " "
2″ "	18.00 " "
3″ "	43.75 " "
4″ "	62.50 " "
6″ "	120.00 " "

Proportional Service Charges or Meter Rates:
Low Service District:

First 10,000 cubic feet per quarter	$3.35 per M cubic feet.
Next 90,000 " " " "	2.80 " " " "
" 900,000 " " " "	2.20 " " " "
Over 1,000,000 " " " "	1.65 " " " "

High Service District:

First 10,000 cubic Feet per quarter	$4.50 " " " "
Next 90,000 " " " "	3.75 " " " "
" 900,000 " " " "	3.00 " " " "
Over 1,000,000 " " " "	2.25 " " " "

Exhibit P6-A

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SECTION IV, THE PASSAIC WATER COMPANY

A. Capitalization

The capitalization of The Passaic Water Company, as of December 31, 1920, was as shown on Table No. 43.

TABLE NO. 43.

Capitalization of the Passaic Water Company, December 31, 1920

Funded Debt:	
Purchase money mortgage 5% bonds due January 1, 1958	$1,200,000.
Beattie Manufacturing Company mortgage 5% bonds	112,500.
First mortgage 5% bonds, 1937	2,141,000.
First mortgage 6% bonds	155,000.
Second mortgage 5% bonds, 1937	500,000.
Total	$4,108,500.
Capital Stock	750,000.
Total Capitalization	$4,858,500.
Advances from other corporations	356,695.
Total Outstanding Obligations December 31, 1920	$5,215,195.
Water Diversion Rights (1921)	280,000.
Total	$5,495,195.

Exhibit P6-A

B. Book Value

The book value of the Passaic Water Company, as of December 31, 1920, was as shown on Table No. 44.

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TABLE NO. 44

Book Value of the Passaic Water Company December 31, 1920.

Fixed capital installed prior to January 1, 1913	$5,717,461.
Fixed capital installed since December 31, 1912	707,789.
Construction work in progress December 31, 1920	193,337.
Total Fixed Capital	$6,618,587.
Materials and supplies	89,579.
Cash and cash items	24,197.
Total Book Value December 31, 1920	$6,732,363.
Water Diversion Rights (1921)	280,000.
Total	$7,012,363.

C. Cost of Reproduction Based on Pre-war Value of Plant Existing Prior to December 31, 1912, Plus the Actual Cost of Additions to Plant since that Date.

The value of The Passaic Water Company on the basis of the allowance by the Board of Appraisers in 1912 plus net additions since December 31, 1912, at actual cost is as shown on Table No. 45.

Exhibit P6-A

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TABLE NO. 45

VALUE OF THE PASSAIC WATER COMPANY ON BASIS OF THE ALLOWANCE BY THE BOARD OF APPRAISERS IN 1912 PLUS NET ADDITIONS SINCE DECEMBER 31, 1912 AT ACTUAL COST.

Item (1)	Gross Cost of Reproduction (2)	Gross Depreciated Value (3)
1. Appraiser's estimate of value of property as of December 31, 1912 (excluding value of water diversion rights against S. U. N. and Dundee acquired in 1921.)	$4,422,403.	$3,883,543.
2. Net cost of additions to structural plant from December 31, 1912 to December 31, 1920.	562,451.	562,451.
	$4,984,856.	$4,445,994.
3. Depreciation accrued on depreciable property since December 31, 1912 at 1.5 per cent per annum.		396,639.
	$4,284,856.	$4,049,355.
4. Value of land sold since December 31, 1912.	151,540.	151,540.
	$4,833,316.	$3,897,815.
5. Water diversion rights acquired in 1921.	280,000.	280,000.
Total	$5,113,316.	$4,177,815.

Exhibit P6-A

D. Cost of Reproduction Based on Pre-war Prices.

The value of the Passaic Water Company on the basis of the allowance made by the Board of Appraisers in 1912 plus net additions since December 31, 1912 at actual cost reduced to a pre-war basis is as shown on Table No. 46.

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TABLE NO. 46.

Value of the Passaic Water Company on Basis of the Allowance by the Board of Appraisers in 1912 plus Net Additions since December 31, 1912 at Actual Cost Reduced to a Pre-war Basis.

Item (1)	Gross Cost of Reproduction (2)	Gross Depreciated Value (3)
1. Appraisers' estimate of value of property as of December 31, 1912 (excluding value of water diversion rights against S. U. M. and Dundee acquired in 1921).	$4,422,405.	$3,883,543.
2. Net cost of additions to structural plant from December 31, 1912 to December 31, 1920 reduced to a pre-war basis.	333,234.	333,234.
	4,755,639.	4,216,777.

Exhibit P6-A

3. Depreciation accrued on depreciable property since December 31, 1912 at 1.5 per cent per annum.		392,677.
	4,755,639.	3,824,100.
4. Value of land sold since December 31, 1912.	151,540.	151,540.
	4,604,099.	3,672,560.
5. Water diversion rights acquired in 1921, reduced to a pre-war basis.	177,000.	177,000.
Total	$4,781,099.	$3,849,560.

E. Cost of Reproduction at Average Prices Prevailing from 1911 to 1920 Inclusive.

The cost of reproduction and depreciated value of the Passaic Water Company based on the average prices prevailing for the ten years 1911 to 1920 inclusive are as shown on Table No. 47, page 145. The base costs of the several Schedules or Accounts accord with the detailed inventory presented in Volume IV, pages 1 to 212.

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TABLE NO. 47.

SUMMARY OF COST OF REPRODUCTION AND DEPRECIATED VALUE OF THE PROPERTY OF THE PASSAIC WATER COMPANY ON BASIS OF TEN YEAR AVERAGE PRICES 1911-1920.

Schedule No.	Item (1)	Cost of Reproduction (2)	Depreciated Value (3)
	Tangible Property		
105	Water Diversion Rights	$ 280,000.	$ 280,000.
106	Reservations	72,662.	72,662.
112	Gravity Intakes and Suction Mains	41,584.	36,517.
115	Coagulating Basins	131,724.	123,940.
117	Filters	185,237.	163,699.
119	Chemical Treatment Plant	3,431.	2,957.
120	Clear Water Basins	70,819.	62,724.
121	Pumping Stations	206,468.	140,976.
122	Steam Power Pumping Equipment	206,059.	201,080.
123	Hydraulic Power Pumping Equipment	419,494.	386,981.
126	Miscellaneous Pumping Equipment	4,038.	2,625.
127	Transmission Mains and Accessories	361,259	263,060.
128	Storage Reservoirs, Tanks and Standpipes	512,174.	482,300.
129	Distribution Mains and Accessories	1,816,016.	1,686,755.
130	Service Pipes and Stops	89,888.	76,220.
131	Meters, Meter Boxes and Vaults	235,269.	179,485.
132	Fire Hydrants and Fire Cisterns	97,463.	71,115.
134	General Structures	77,087.	62,986.

Exhibit P6-A

135	General Equipment	40,660.	26,429.
151	Construction Work in Progress	2,977.	2,977.
	Total Base Cost of Used and Useful Property	$4,874,309.	$4,325,488.
150	Fixed Capital in Other Departments	62,315.	56,738.
	Total Base Cost	$4,936,624.	$4,382,226.
	Miscellaneous Construction Expenditures (Overheads at 15%)	740,494	657,334.
	Gross Cost	$5,677,118.	$5,039,560.

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GROSS COST OF REPRODUCTION OF TANGIBLE PROPERTY.

The gross cost of reproduction and gross depreciated value of the tangible property have been obtained, as indicated at the bottom of Table No. 47, by adding 15% to the base costs to cover miscellaneous construction expenditures. Table No. 47 gives the cost of reproduction and present value of all physical property owned by The Passaic Water Company, with the normal depreciation due to decretion only included, that is it includes all property regardless of whether or not it is used and useful, and it fails to take into account special depreciation.

PROPERTY NOT USED AND USEFUL.

Property now owned by The Passaic Water Company which is not used and useful for water works purposes is shown separately in Table No. 47, Ac-

count 150 "Fixed Capital in Other Departments." The depreciated base cost of this property is $56,738.

SPECIAL DEPRECIATION.

The special depreciation on the plant of The Passaic Water Company amounts to $150,000. This special depreciation makes allowance for the uncertain life expectancy and doubtful future value of the Middle and Stony Brook reservoirs owned by this Company.

WORKING CAPITAL.

An allowance of $125,000 has been made for working capital. In round figures this is 2 1/4% of the depreciated value of the property other than working capital on the ten-year average price basis.

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PRELIMINARY AND ORGANIZATION EXPENSES.

I have allowed $65,000 for preliminary and organization expenses. This is in round figures 1.2% of the gross cost of reproduction of the tangible property.

GOING COST.

The allowance made for going cost is $640,000, which is in round figures 11.3% of the gross cost of reproduction of the tangible property.

VALUE OF PLANT BASED ON TEN YEAR AVERAGE PRICES.

The value of the plant on the ten-year average price basis, including only the used and useful property, and allowing for special depreciation is as shown on Table No. 48.

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TABLE NO. 48.

VALUE OF PLANT BASED ON TEN YEAR AVERAGE PRICES (1911-1920 INCLUSIVE).

Land, rights of way, releases from damage, and water diversion rights	$ 886,188.
Structural items	4,719,267.
Working capital	125,000.
Preliminary and organization expenses	65,000.
Going cost	640,000.
Total Cost of Reproduction	$6,435,455.
Less depreciation, including $150,000 special depreciation allowed for property of doubtful future value = 16.6% of the reproduction cost of structural items of $4,719,267.	781,144.
Total Present Value	$5,654,311.

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F. COST OF REPRODUCTION AT CURRENT PRICES.

The cost of reproduction at current prices, taking land, rights of way, releases from damage, water diversion rights, working capital, preliminary and organization expenses and going cost at the same figures as in the ten-year average appraisal, and applying a factor to the figures for structural items to bring them to the current basis, is as shown on Table No. 49.

Exhibit P6-A

TABLE NO. 49.

VALUE OF PLANT ON CURRENT PRICE BASIS.

Land, rights of way, releases from damage and water diversion rights	$ 886,188.
Structural items	6,135,047.
Working capital	125,000.
Preliminary and organization expenses	65,000.
Going cost	640,000.
Total Cost of Reproduction	$7,851,235.
Less depreciation at same per cent of cost of reproduction of depreciable property as used in ten-year average figures = 16.6% of the reproduction cost of structural items of $6,135,047	1,018,000.
Total Present Value	$6,833,235.

G. COST OF REPRODUCTION AT 1920 PEAK PRICES.

The cost of reproduction at 1920 peak prices, taking land, rights of way, releases from damage, water diversion rights, working capital preliminary and organization expenses and going cost at the same figures as in the ten-year average appraisal, and applying a factor to the figures for structural items to bring them to the 1920 price basis, is as shown on Table No. 50.

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TABLE NO. 50

VALUE OF PLANT AT 1920 PEAK PRICES.

Land, rights of way, releases from damage and water diversion rights	$ 886,188.
Structural items	8,494,521.
Working capital	125,000.
Preliminary and organization expenses	65,000.
Going cost	640,000.
Total Cost of Reproduction	$10,210,709.
Less depreciation at same per cent of cost of reproduction of depreciable property as used in ten-year average figures = 16.6% of the reproduction cost of structural items of $8,494,521.	1,410,000.
Total Present Value	$8,800,708.

COMPARISON OF VALUES.

The values found under captions A to G are brought together for comparison in Table No. 51, page 150.

VALUE OF PROPERTY.

Inspection of the comparative values as shown on Table No. 51 shows that on the basis of pre-war value as determined by the Board of Appraisers in 1912 plus the cost of additions since 1912 (Value C) the Company has an investment (depreciated) of $4,177,815, as compared with a capitalization of $5,495,195 and a book value of $7,012,363. The depreciated pre-war value plus cost of additions is

24% lower than the capitalization and 40.5% lower than the book value. It is probably fair to assume that the Company has now invested in used and useful property and plant at least $4,500,000. This figure, however, does not represent the

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TABLE NO. 51.

COMPARISON OF VALUES.

Basis of Value (1)	Cost of Reproduction (2)	Present Value (3)
A. Value based on capitalization, total outstanding obligations including water diversion rights acquired in 1921.	$ 5,495,195.	$5,495,195.
B. Book value including water diversion rights acquired in 1921.	7,012,363.	7,012,363.
C. Value based on pre-war prices to December 31, 1912, plus cost of additions since that date and including water diversion rights acquired in 1921.	5,113,316.	4,177,815.
D. Value based on pre-war prices including water diversion rights acquired in 1921.	4,781,099.	3,849,560.
E. Value based on ten-year average prices (1911-1920) including water diversion rights acquired in 1921.	6,435,455.	5,654,311.
F. Value based on current prices including water diversion rights acquired in 1921.	7,851,235.	6,833,235.
G. Value based on 1920 peak prices including water diversion rights acquired in 1921.	10,210,709.	8,800,709.

value of the property which is to be determined in this appraisal.

The depreciated cost of reproduction of the used and useful property at current prices is $6,833,233 which is 52% higher than the probable investment in property.

UNMODIFIED CURRENT INVESTMENT WORTH.

It was shown in Section I, pages 36 to 43, that the present prices of general commodities are 36% higher than in 1913, that the prices of structural material and labor are now 62% above the pre-war scale, and that the present prices of waterworks materials and labor are 85% above the pre-war.

It is seen by reference to Table No. 51, page 150, that the depreciated investment worth on a strictly pre-war basis (Value D) was found to be $3,849,560.

Increasing this value in the amount by which present commodity prices exceed the pre-war scale (36%); the investment worth today would be $5,235,400.

Of the $3,849,560 pre-war investment worth $2,533,932 represents structural items, and $1,315,628, non-structural items. Applying the construction cost index of 162 to the investment in structural items, and the commodity cost index of 136 to the investment in non-structural items, the present investment worth of the property would be $5,894,224.

Applying the waterworks construction cost index of 185 to the investment in structural items, and the commodity cost index of 136 to the investment in non-structural items, the present investment worth of the property would be $6,477,028.

Exhibit P6-A

Summarizing, the unmodified investment worth obtained as a result of the foregoing analysis is as shown in Table No. 52, page 152.

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TABLE NO. 52.

UNMODIFIED CURRENT INVESTMENT WORTH.

Present investment worth applying average commodity cost index of 136 to pre-war investment worth	$5,235,400
Present investment worth applying construction cost index of 162 to pre-war structural investment, and commodity cost index of 136 to pre-war non-structural investment	5,894,224
Present investment worth applying waterworks construction cost index of 185 to pre-war structural investment and commodity cost index of 136 to pre-war non-structural investment	6,447,028

The probable actual investment as of January 1, 1921, as previously stated (see page 149) is approximately $4,500,000.

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FAIR VALUE DETERMINED.

It has been shown, page 149, that I have placed the actual investment of this pany in used and useful waterworks property at	$4,500,000

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As compared with a book value of (see page 142)	7,012,363
It has further been shown (page 151), that it will require $1.36 at the current value of the dollar to purchase the same amount of general commodities that $1.00 would have purchased on a pre-war basis.	
It has also been shown (page 151) that it will require $1.85 at the current value of the dollar to build and install the equivalent structural elements of a waterworks plant which $1.00 would have built and installed on a pre-war basis.	
It has also been shown that the present investment worth based on average commodity values at this date is, (page 151)	5,235,400
And that the present investment worth based on the current structural worth of waterworks structures is (page 151)	6,477,028
It will be seen (page 144) that the worth of the investment of this company, had all the plant been installed on a pre-war price basis is $3,849,560, and hence on a basis of a 40% average set in price levels (see Section I, page 50) during the ensuing eight or ten years, the investment worth is 140% of $3,849,560 or	5,388,824
This value is but 20% above the probable capital investment in plant of $4(500,000 (see page 149).	

Exhibit P6-A

By reference to page 147, it is seen that the value of the property based on cost of reproduction on ten year average prices is	5,654,311
This is but 35% higher than the value based on cost of reproduction at pre-war prices to December 31, 1912, plus the cost of additions since that date of $4,177,815 (see page 143).	
From page 148, it will be noted that value of the property based on the cost of reproduction at current prices is	6,833,235
Taking all the conditions surrounding this property into consideration, including the actual investment, the probable future set in price levels, the probable present enhancement of investment worth, and the cost of reproduction today, I am of the opinion that the fair value of this property is	5,430,000

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On page 155 will be found Diagram No. 10, which is a plotting of the values which I have found graphically shown. The horizontal scale at the bottom of the diagram gives the basis of valuation arranged in the order of magnitude of the resulting amount produced. The vertical scales at the sides of the diagram give the ratio of the value on a given basis to the pre-war level of value. The line A-B represents the pre-war level as $100%. The curve G-H represents the resulting values on the different

bases referred to line A-B as a base. The line C-D represents the level of the appraised valuation of the property, and the line E-F the level of value produced by taking the cost of reproduction on ten year average prices, 1911 to 1920 inclusive. From the diagram it is seen that the appraised value level is about 41 points above pre-war. It is about 32 points above the pre-war basis of 1912 with subsequent additions at actual cost. It is about two points below the pres-capitalization. It is about 41 points below the book value. It is about 6 points lower that the cost of reproduction based on the basis of ten year average prices. It is about 37 points lower than the value at current prices and about 88 points lower than the value at the peak prices of 1920.

GROSS REVENUE REQUIRED.

FIXED CHARGES.

Fair Return. On the basis of a fair value of $5,430,000 and a fair return of 8%, the net annual return required by The Passaic Water Company amount to $434,400.

Taxes. The amount of taxes paid by The Passaic Water Company in 1920 (see Table No. 53, page 157) was $92,173. The fair value of the real and personal property subject

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to Municipal, County and State taxes as of January 1, 1921, is according to my appraisal $4,301,569. This amount which is on the basis of a total value of $5,430,000, includes only used and useful tax-

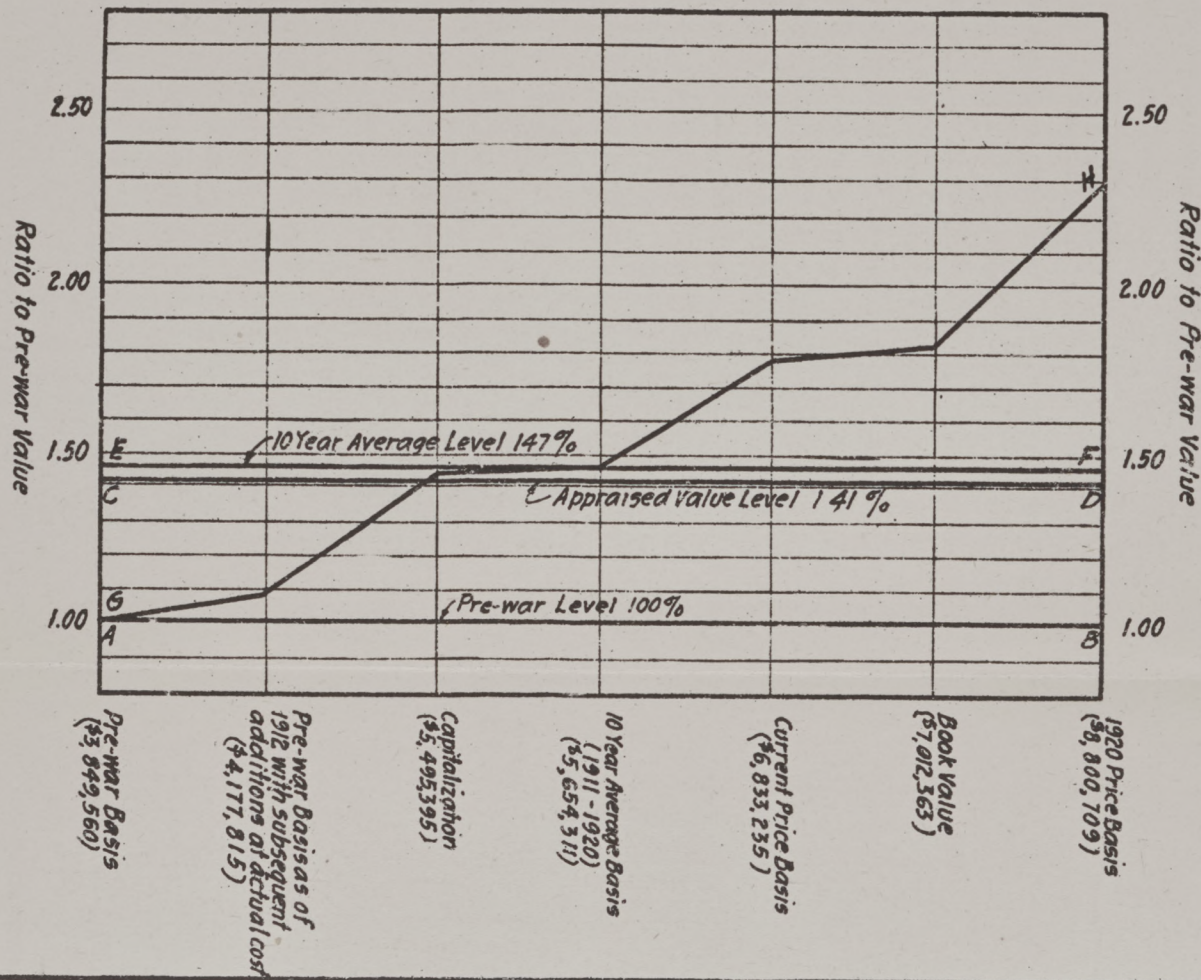
Dwg No. 191-35 Drawn by H Checked by K.N.B. Examined by H.H.S. Reviewed by S.K.K. 5-12-21

Nicholas S. Hill, Jr. and S.F. Ferguson
Consulting Engineers
112 East 19th Street
New York City

DIAGRAM NO. 10

COMPARISON OF VALUES ON VARIOUS BASES

THE PASSAIC WATER COMPANY



able property. It does not include organization expenses, water diversion rights, working capital or going cost. The weighted average tax rate for 1920 in the territory in which The Passaic Water Company's property lies was $2.93 per $100 of value. The amount of property taxes, therefore based on the fair value of the taxable property will be $4,301,569 × 0.0293=$126,036.

The State franchise tax is figured at the rate of 5% of the estimated gross revenue to be derived from the property in public highways except revenue to be derived from the sale of water at wholesale to the Borough of Totowa. Practically all of the revenue of The Passaic Water Company is derived from property in the public highways and only about $3,750 per annum will be derived from the sale of water at wholesale to municipalities. The revenue subject to franchise tax, under the new rates will be $870,550 which at 5% gives a State franchise tax of $43,525.

The Federal income tax, figured according to the 1922 tax law, upon the basis of the joint return of the five companies to $67,500 (see Section I, Table the five companies to $67,500 (see SectionI, Table No. 10, page 68). This is based upon a fair return of 8% on the fair value of the Acquackanonk, Montclair and Passaic Water Companies, the net revenue of the East Jersey and Kearney Water Companies being as per existing rates. Allocating the total income tax to companies in the ratio of their net revenue, the Federal income tax of The Passaic Water Company is found to be $31,995.

Exhibit P6-A

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Table No. 53

THE PASSAIC WATER COMPANY

Comparative Statement of Water Supply Expenses, Maintenance Expenses, General and Miscellaneous Expenses and Taxes for the Years Ended December 31, 1915, 1916, 1917, 1918, 1919, 1920 and 1921

	1915	1916	1917	1918	1919	1920	1921
Water Supply Expenses							
Water Diversion	$35,051	$36,729	$36,141	$34,297	$28,433	$29,822	$33,913
Other Collecting System Expense	807	813	901	897	714	502	1,212
Purification System	11,943	13,530	13,871	16,554	15,029	18,281	18,193
Pumping System	10,488	11,972	24,548	33,215	26,839	36,838	48,273
Distribution System	15,309	15,136	19,818	27,590	27,372	33,388	31,660
Total Water Supply Expenses	$73,598	$78,180	$95,279	$112,553	$98,387	$118,831	$133,251
Maintenance Expense							
Collecting System	$ 58	$ 80	$ 130	$ 61	$ 149	$ 227	$ 46
Purification System	640	2,068	964	984	2,700	7,694	7,114
Pumping System	1,616	1,385	1,597	2,394	4,016	7,008	5,390
Distribution System	14,511	13,850	20,471	14,793	14,490	11,476	24,147
General Repairs	689	4,289	2,854	1,259	2,477	3,428	3,867
Total Maintenance Expense	$17,514	$21,672	$26,016	$19,491	$23,832	$29,833	$40,564
General and Miscellaneous Expense							
Administration	$10,510	$13,391	$14,402	$14,071	$14,694	$16,273	$15,843
Accounting and Commercial	22,248	25,391	27,334	26,483	33,554	38,280	36,755
Business Promotion	159			749			
Legal	712	32	118	23	287	612	855
Injuries and Damages	1,085	941	3,057	2,723	5,694	3,003	3,143
Insurance	174	1,053	1,136	1,627	1,556	1,686	1,611
Relief Department and Pensions		507	176	1,132	732	374	779
Uncollectible Bills	695	836		8			
Miscellaneous General Expense	727	724	745	882	751	794	851
Total General and Miscellaneous Expenses	$36,410	$42,875	$46,968	$47,698	$57,268	$61,022	$59,837
Taxes							
State Franchise	$10,459	$10,618	$10,974	$17,009	$23,246	$28,649	$30,595
Real Estate and Buildings	9,179	9,661	7,920	7,609	8,537)		
Personal Property	31,179	30,305	32,452	34,660	43,866)	54,638	58,465
Federal	1,688	1,695	3,328	19,872	16,160	8,886	10,381
Total Taxes	$52,505	$52,279	$54,674	$79,150	$91,809	$92,173	$99,441

Exhibit P6-A

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The capital stock tax, calculated on the basis of $1.00 per $1,000 of capital stock and surplus, amounts in the case of The Passaic Water Company to $1,915.

Summarizing, the taxes of The Passaic Water Company on the basis of the fair value and rate of return found, will amount annually to:

Real and personal property tax	$126,036
State franchise tax	43,525
Federal income tax	31,995
Capital stock tax	1,915
Total	$203,471

The round figure of $203,500 will be used in subsequent calculations to represent total taxes.

ANNUAL RESERVE FOR DEPRECIATION.

The annual depreciation reserve figured at 1.5% of the fair value of the depreciable property amounts to $68,000.

OPERATING EXPENSES.

Table No. 53, page 157, gives the verified operating expenses of The Passaic Water Company for the years 1915 to 1921 inclusive as submitted to me by Mr. William J. Coote. As explained in Section I, page 67, the use of 1920 operating expenses as a base, is necessary in order that the fair operating expenses determined may accord as to time with the other figures entering into the determination of the gross earnings required, and with the figures for water consumption on which the rate schedules have been calculated.

Exhibit P6-A

Table No. 54, page 159 shows the changes which have been made in the actual 1920 operating expenses as reported to the Public Utility Commission of New Jersey in order to arrive at the probable future fair average operating expenses.

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TABLE NO. 54.

RECONCILIATION OF OPERATING EXPENSES FOR 1920 AS SHOWN ON ANNUAL REPORT TO BOARD OF PUBLIC UTILITY COMMISSIONERS FOR 1920 WITH 1920 MODIFIED OPERATING EXPENSES USED IN THE CALCULATION OF RATES.

Total Operating deductions including operating expenses, taxes and depreciation, as per Annual Report for 1920		$365,580
Deduct taxes and depreciation as per 1920 Annual Report		
Taxes	$92,173	
Depreciation	63,721	
Total	$155,894	155,894
Operating Expenses as per Books, unmodified (see Table No. 55, page 160)		209,686
Deduct joint ownership expenses as distributed on Company's books		90,394
Operating Expenses per Accountant with joint ownership expenses separate		119,292

Exhibit P6-A

MODIFICATIONS:

(a) Deduct portion of payment for diversion of water at Great Falls, due to modification in the annual charge paid to S. U. M. for the diversion of water through the Dyer's pipe line.	6,819
Modified operating expenses, exclusive of joint ownership expenses	112,473
Company's portion of modified joint ownership expenses	55,903
Total modified operating expenses including fair share of joint ownership expenses	$168,376

It is seen by reference to Table No. 54 that the total modified operating expenses amount to $168,376 per year as compared with $209,686 shown by the books, and the modified figure is the figure I have used in estimating the future gross annual income required. The distribution of the joint ownership expenses shown in this table has been made in the manner described in Section I, page 70, of this report.

Table No. 55

THE PASSAIC WATER COMPANY

Comparative Statement of Operating Revenue, Operating Deductions, Depreciation, Non-operating Revenue and Non-operating Deductions, for the Years Ended December 31, 1915, 1916, 1917, 1918, 1919, 1920 and 1921.

Item	1915	1916	1917	1918	1919	1920	1921
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Operating Revenue:							
Sale of Water	$543,225	$565,859	$584,550	$608,745	$590,615	$631,877	$660,453
Miscellaneous Operating Revenue	778	1,999	8,625	5,594	7,895	11,642	10,189
Total Operating Revenue	$544,003	$567,858	$593,175	$614,340	$598,510	$643,519	$670,642
Operating Deductions:							
Water expenses	$ 73,598	$ 78,180	$ 95,279	$112,553	$ 98,387	$118,831	$133,251
Maintenance expenses	17,514	21,672	26,016	19,491	23,832	29,833	40,564
General and miscellaneous expenses	36,410	42,875	46,968	47,698	57,268	61,022	59,837
Taxes	52,505	52,279	54,674	79,150	91,809	92,173	99,441
Depreciation	51,542	52,962	54,703	57,611	60,289	63,721	70.491
Total Operating Deductions	$231,569	$247,968	$277,640	$316,503	$331,585	$365,580	$403,584
Net Operating Income:	$312,434	$319,890	$315,535	$297,837	$266,925	$277,939	$267,058
Non-operating Income:							
Interest	$ 230	$ 261	$ 284	$ 320	$ 390	$ 447	$ 490
Rent							132
Total Non-operating Income	$ 230	$ 261	$ 284	$ 320	$ 390	$ 447	$ 622
Net Earnings for Period	$312,664	$320,151	$315,819	$298,157	$267,315	$278,386	$267,680

Exhibit P6-A

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SUMMARY OF GROSS REVENUE REQUIRED.

On the basis above outlined, the gross income required to yield a fair return on the fair value of The Passaic Water Company as of January 1, 1921, is as follows:

Fair return 8% on $5,430,000	434,400
Taxes	203,500
Reserve for depreciation	68,000
Operating expenses	168,376
Total Gross Income Required	$874,276

GROSS REVENUE REQUIRED COMPARED WITH GROSS REVENUE RECEIVED.

Table No. 55, page 160, gives the verified earnings of The Passaic Water Company for the years 1915 to 1921, inclusive as submitted to me by Mr. William J. Coote.

Compared with the gross revenue required of $874,276 the revenue received in 1920 according to the books was $643,966 distributed as follows:

Sale and distribution of water	$631,877
Miscellaneous operating revenue	11,642
Non-operating income	447
Total	$643,966

This represents a deficiency of 35.8%.

Exhibit P6-A

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RATE STRUCTURE.

The theory of a scientific rate structure is explained in Section I of this report, pages 73 to 84. In the subsequent pages will be found the details of the application of this theory in the case of The Passaic Water Company.

Description of Territory Supplied.

The territory supplied by The Passaic Water Company includes the City of Paterson and the Boroughs of Totowa and Prospect Park (see Diagram No. 1 at the front of Section I of this report). This territory will be treated as a single service district having a uniform schedule of rates, except that the service furnished from the Dyer's pipe line will be considered separately.

The cost of serving the consumers taking water from the Dyer's pipe line is, of course, much lower than in the case of other consumers, due in large part to the fact that this water is neither filtered nor pumped, but is taken by gravity directly from the Passaic River at the S. U. M. dam in Paterson. This necessitates the establishment of a special rate for these consumers.

Subdivision of Gross Revenue Required According to Class of Service.

In Section I of this report, pages 77 to 80 will be found a discussion of the methods employed in the subdivision of the total cost of service as a basis for the establishment of a fair rate structure.

Exhibit P6-A

Table No. 56, page 163 shows the subdivision of the required gross revenue, according to class of service for the Passaic Water Company.

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TABLE NO. 56.

ALLOCATION OF REQUIRED GROSS REVENUE ACCORDING TO CLASS OF SERVICE THE PASSAIC WATER COMPANY.

Fair Net Return, 8% on $5,430,000	$434,400
Taxes	203,500
Annual Depreciation Reserve	68,000
Operating Expenses	168,376
Total Gross Revenue Required	$874,276

ALLOCATION OF GROSS REVENUE.

Item (1)	Per Cent (2)	Amount (3)
A. Subdivision of Gross Revenue between:		
Service Revenue	98.7	$862,976
Miscellaneous Receipts	1.3	11,300
Total Gross Revenue	100.0	$874,276
B. Subdivision of Total Service Revenue between:		
Fire Service Revenue	10.2	$ 87,900
General Water Service Revenue	89.8	775,076
Total Service Revenue	100.0	$862,976

Exhibit P6-A

C.	Subdivision of General Water Service Revenue between:		
	Fixed Service Revenue*	22.5	$174,700
	Proportional Service Revenue	77.5	600,376
	Total General Water Service Revenue	100.0	$775,076
D.	Subdivision of Proportional Service Revenue between Dyer's Pipe Line and Other Customers.		
	Dyer's Pipe Line	8.0	$ 48,132
	Other Customers	92.0	552,244
	Total Proportional Service Revenue	100.0	$600,376

* Based on complete metering.

Exhibit Pó-A

*164

The Miscellaneous Receipts, taken at $11,300, are the average miscellaneous receipts for the five years 1916-1920 inclusive, as follows:

TABLE NO. 57.

MISCELLANEOUS RECEIPTS.

Item (1)	1916 (2) $	1917 (3) $	1918 (4) $	1919 (5) $	1920 (6) $	Average (7) $
Operating Revenue:						
Miscellaneous Water Service	4,387.61	3,767.36	1,227.65	3,197.81	3,592.10	3,234.51
Profit on Sales of Material	2,407.79	10,475.95	5,593.91	7,894.59	11,642.03	7,602.85
Non-Operating Revenue:						
Rent of farm house and lot at Stony Brook, Morris Co., N. J.	163.25	80.00	114.83	84.00	72.00	102.82
Rent of lot at Kakeout, N. J.		18.75	25.00	25.00	25.00	18.75
Interest on Bank Deposits	260.96	283.64	320.10	390.32	447.28	340.46
Total	7,219.61	14,625.70	7,281.49	11,591.72	15,778.41	11,299.39

The Total Service Revenue, $862,976, is the difference between the Total Gross Revenue and the Miscellaneous Receipts.

The Fire Service Revenue is taken as $87,900 representing approximately 10% of the total cost of service. It corresponds to an annual hydrant charge of $10.00 per hydrant and to an inch-foot charge of $0.009 per inch-foot of mains owned. This fire service revenue is exclusive of the Dyer's pipe and hydrants thereon which are not included in the number of inch-feet and number of hydrants upon which the calculation is based.

For a discussion of the general basis on which the unit charges above used were determined, see Section I, pages 73 to 84.

The General Water Service Revenue, $775,076, is the difference between the Total Service Revenue and the Fire Service Revenue.

The Fixed Service Revenue taken at $174,700 is the sum of the products of the number of meters (or services in the case of flat rate consumers) of each size, by the fixed service charge for that size of meter (or connection) as shown by the schedule of fixed service charges derived and discussed in Section I of this report, pages 80 and 83.

The Proportional Service Revenue, $600,376, is the difference between the General Water Service Revenue and the Fixed Service Revenue.

The total Proportional Service Revenue, $600,376, as shown on Table No. 56, page 163, has been subdivided between the Dyer's pipe and the remainder of the system.

After a consideration of the cost of supplying this service, it has been deemed reasonable to fix the charge for water taken from the Dyer's pipe at $30.00 per million gallons. This charge includes the cost of such fire service as is obtained by these consumers from the 15 hydrants located on this line.

(As previously stated, the cost of furnishing this fire service and the number of inch-feet in the Dyer's pipe, have been excluded in determining the proper inch-foot charge to be paid for fire protection by the City of Paterson and other municipalities receiving fire service from the remainder of the system.

Exhibit P6-A

As seen from Table No. 56, the total proportional service revenue which should be received from the Dyer's is $48,132, leaving

*166

$552,244 to be received from consumers taking filtered water from the regular distribution system.

PROPOSED RATE SCHEDULE.

The rate schedule proposed for The Passaic Water Company is submitted on pages 167 to 169. It has been determined in the manner outlined in the report and so as fairly to distribute the cost of service between the different classes of consumers. The rates will produce substantially the revenue required as given in Table No. 56, page 163.

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PROPOSED RATE SCHEDULE

The Passaic Water Company

Miscellaneous Service:		
Same as at present.		
Fire Service: (Excluding Dyer's Pipe Line)		
Hydrant charge	$	10.00 per hydrant per year.
Inch foot charge		0.009 per inch-foot per year.
General Water Service:		
Fixed Service Charges: (Excluding Dyer's Pipe Line)		
1/2" or 5/8" meter	$	1.50 per quarter
3/4" "		2.50 " "
1" "		5.50 " "
1-1/2" "		13.50 " "
2" "		18.00 " "
3" "		43.75 " "
4" "		62.50 " "
6" "		120.00 " "
8" "		190.00 " "
12" "		312.50 " "
16" "		462.50 " "
30" "		1,050.00 " "
Proportional Service Charges or Meter Rates:		
City of Paterson Prospect Park Borough: (Outside Dyer's Pipe Line)		
First 10,000 cubic feet per quarter	$	1.65 per M. cubic feet
Next 90,000 " " " "		1.55 " " " "
Next 900,000 " " " "		1.20 " " " "
Over 1,000,000 " " " "		0.75 " " " "
Dyer's Pipe Line:		
For all Water Furnished		30.00 per million gallons or 0.225 per M. Cubic feet

Fixture Rates:

The rates for the following private houses include one set of fixtures, consisting of two draw cocks, one range and boiler, one bath tub, one water closet, one wash basin, one set of stationary tubs.

Rates for sprinkling $7.00 per annum for each 25 ft. front.

General Water Service:
Fixture Rates (Cont'd.)
Extra Water Closet $7.00 per annum.
Extra bath tubs 3.00 per annum.
Urinals 3.00 per annum.
Rates based on 25 feet or under; over 25 feet 33 1/3 per cent.

	1 Family	2 Family	3 Family	4 Family	5 Family	2 Closets* 2 Baths	3 Closets* 3 Baths	4 Closets* 4 Baths	5 Closets* 5 Baths
2 Story House	$21.00	$26.00	$31.00	$	$	$42.00	$	$	$
2½ " "	24.00	31.00	38.00			42.00	63.00		
3 " ")									
2 " & basement)	28.00	35.00	42.00			42.00	63.00		
2 " & French roof)									
4 " House	35.00	42.00	49.00	56.00		42.00	63.00	84.00	
5 " "	42.00	49.00	56.00	63.00	70.00	42.00	63.00	84.00	105.00
Rear Houses:									
1 Story House	10.00								
2 " "	17.00	21.00							
3 " "	21.00	24.00	28.00						

Three, four, etc., story houses occupied by a business on the first floor, rated for the business, shall be rated for the occupancy above the first floor, independently of the first floor.

*Flats with full set of fixtures—$21.00 per annum each.

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General Water Service:

Fixture Rates (Cont'd):

Tenement property—Special or yearly rate	$ 70.00	-$280.00	per annum	
Hotel property—Special or yearly rate	130.00	- 260.00	"	"
Boarding houses—Special or yearly rate	35.00	- 140.00	"	"
Wholesale liquor houses	35.00	- 70.00	"	"
Restaurants	35.00	- 140.00	"	"
Saloons, includes 1 water closet, 1 urinal, 1 draw cock back of bar	35.00		"	"
Water pressure beer pumps	35.00	- 70.00	"	" Ex.
Barber shops, 1st chair	14.00		"	"
Each additional chair	7.00		"	"
Building purposes—for each barrel lime or cement	used 24 cents			
Private stables—One horse	14.00		"	"
Each additional horse	7.00		"	"
Livery stables—Special rates	56.00	- 350.00	"	"
Private garage, one automobile	7.00		"	"
Each automobile additional	3.00		"	"
Stores, Butcher shop	14.00	- 21.00	"	"
Fish market	28.00	- 70.00	"	"
Grocery store	7.00	- 21.00	"	"
Fruit and vegetable stand	14.00	- 42.00	"	"
Bakery	21.00	- 70.00	"	"
Offices	7.00		"	"
Printing Offices	125.00	- 175.00	"	"
Laundries	28.00	- 260.00	"	"

Exhibits P6-A1, P6-A2 and P6-A3.

HILLS DETAILED TABLES AND INVENTORY OF ACQUACKNONK WATER COMPANY, EAST JERSEY WATER COMPANY, KEARNEY WATER COMPANY, MONTCLAIR WATER COMPANY AND PASSAIC WATER COMPANY.

This exhibit contains the complete inventory set out in Exhibit P2, valued by Mr. Hill at its present value. It is summarized in Exhibits P6A and P23.

For Exhibits P7 through P17 see page 937.

Exhibit P18.

Proof of Notice of Hearing of October 5, 1922.

This exhibit consists of an affidavit setting out the details as to the notice of the hearing on October 5, 1922, which notice was printed in the newspapers of Bayonne, Bloomfield, Clifton, East Newark, Essex County, Glen Ridge, Harrison, Jersey City, Kearney, Little Falls, Montclair, Nutley, Passaic, Paterson, Prospect Park, Totowa, West Orange, West Paterson. A copy was also served on the public officials of these municipalities. The notice stated that at the hearing of October 5, 1922, proof to sustain a fair schedule of rates proposed by the Company as part of the system of the whole, would be produced.

For Exhibits P19 through P22, inclusive, see page 937.

Exhibit P23.

N. S. Hill's Summary Statement of Underlying Data for Fair Rate Structure.

Table No. A

Combined Statement of Operating Expenses East Jersey and Associated Water Companies

Item (1)	1915 (2)	1916 (3)	1917 (4)	1918 (5)	1919 (6)	1920 (7)
Water Supply Expenses:						
Water Diversion	$ 82,105	$ 92,808	$ 99,094	$105,074	$104,069	$129,932
Excess Water Diversion	593	535	5,082	5,082	6,468	6,707
Water Purchased	—	—	—	9,720	—	5,092
Other Collecting System Expense	2,703	3,072	3,605	4,147	3,573	3,040
Purification System	40,010	51,115	55,484	74,402	75,230	95,032
Pumping System	46,552	57,951	115,692	171,133	158,509	218,536
Distribution System	27,782	29,876	37,563	44,863	45,908	58,835
Transportation of Water	22,755	26,510	32,168	38,372	40,964	49,937
Total Water Supply Expenses	$222,500	$261,867	$348,688	$452,793	$434,721	$567,111
Maintenance Expenses:						
Collecting System	$ 196	$ 303	$ 520	$ 273	$ 746	$ 1,180
Purification System	2,143	7,812	3,857	4,423	17,437	39,999
Pumping System	5,609	6,350	6,734	10,963	16,573	36,486
Distribution System	23,667	23,084	32,426	30,360	24,666	24,210
General Repairs	2,022	4,916	4,291	1,608	4,250	4,708
Total Maintenance Expenses	$ 33,637	$ 42,465	$ 47,828	$ 47,627	$ 63,672	$106,583
General and Miscellaneous Expenses:						
Administration	$ 25,733	$ 37,021	$ 38,130	$ 40,402	$ 41,319	$ 47,312
Accounting and Commercial	49,617	56,008	59,569	59,496	67,679	80,785
Business Promotion	159	—	—	839	—	—
Legal	6,883	3,836	2,801	4,212	5,887	10,320
Injuries and Damages	1,175	1,205	4,212	3,490	8,168	3,473
Insurance	1,096	1,928	2,113	2,737	2,810	2,768
Relief Department and Pensions	1,200	1,707	1,376	2,332	732	374
Uncollectible Bills	1,220	6,425	1,216	1,431	—	—
Miscellaneous General Expenses	2,507	2,663	2,844	3,104	2,805	2,747
Total General and Miscellaneous expenses	$ 89,590	$110,793	$112,261	$118,043	$129,400	$147,779
Total Operating Expenses	$345,727	$415,125	$508,777	$618,463	$627,793	$821,473

TABLE NO. B

Reconciliation of Operating Expenses for 1920 as Shown on Annual Report to Board of Public Utility Commissioners for 1920 with 1920 Modified Operating Expenses Used in the Calculation of Rates.

Items (1)	Joint Ownership (2)	The Acquackanonk Water Company (3)	The East Jersey Water Company (4)	Kearney Water Company (5)	The Montclair Water Company (6)	The Passaic Water Company (7)	Total (8)
Total Operating Deductions including operating expenses, taxes and depreciation, as per Annual Report for 1920	$ —	$210,226	$431,465	$15,342	$153,555	$365,580	$1,176,168
Deduct taxes and depreciation as per 1920 Annual Report:							
Taxes	—	51,316	31,768	6,951	34,143	92,173	216,351
Depreciation	—	29,807	13,215	3,500	22,934	63,721	133,177
Total	—	$81,123	44,983	10,451	57,077	155,894	349,528
Operating Expenses as per books, unmodified	—	129,103	386,482	4,891	96,478	209,686	826,640
a. Deduction by accountant of amount charged to business promotion expenses for amortization of amount paid to The Montclair Water Company for purchase of contracts	—	—	5,167	—	—	—	5,167
Operating expenses per accountant	—	129,103	381,315	3,891	96,478	209,686	821,473
Joint Ownership expenses as distributed on the books of the Companies	491,623	68,561	305,366	0	27,302	90,394	—
Operating expenses per accountant with Joint Ownership expenses separate	491,623	60,542	75,949	4,891	69,176	119,292	821,473
Carry Forward	$491,623	$ 60,542	$ 75,949	$ 4,891	$ 69,176	$119,292	$ 821,473

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TABLE NO. B (CONTD.)

Reconciliation of Operating Expenses for 1920 as Shown on Annual Report to Board of Public Utility Commissioners for 1920 with 1920 Modified Operating Expenses Used in the Calculation of Rates

Items (1)	Joint Ownership (2)	The Acquackanonk Water Company (3)	The East Jersey Water Company (4)	Kearney Water Company (5)	The Montclair Water Company (6)	The Passaic Water Company (7)	Total (8)
Brought Forward	$491,623	$60,542	$75,949	$4,891	$69,176	$119,292	$821,473
Modifications of Operating Expenses:							
b. Extraordinary repairs to purification and pumping plant at Little Falls	35,000	—	—	—	—	—	35,000
c. Unusuan repairs and administration costs in Kearney Water Company	—	—	—	2,391	—	—	2,391
d. Discontinuance of supply to West Orange and Glen Ridge	3,500	—	—	—	4,400	—	7,900
c. Unusual repairs and adminissey City	25,000	—	—	—	—	—	25,000
f. Transportation of water by Kearney Water Company for The East Jersey Water Company	—	—	48,892	—	—	—	48,892
g. Transportation of water by The Montclair Water Company for The East Jersey Water Company	—	—	1,045	—	—	—	1,045
h. Payment to Society for Establishing Useful Manufactures for the diversion of water at Little Falls	93,213	—	—	—	—	—	93,213
i. Payment to the Dundee Water Power and Land Company for the diversion of water at Little Falls	20,542	—	—	—	—	—	20,542
j. Portion of payment for diversion of water at Great Falls	—	—	—	—	—	7,820	7,820
Total Deductions Due to Modifications	$177,255	$ 0	$49,937	$2,391	$ 4,400	$ 7,820	$241,803
Modified Operating Expenses, 1920	$314,368	$60,542	$26,012	$2,500	$64,776	$111,472	$579,670

Table No. C

Distribution of Modified Operating Expenses on Basis of Use

Operating Expenses (1)	The Acquackanonk Water Company (2)	The East Jersey Water Company (3)	Kearney Water Company (4)	The Montclair Water Company (5)	The Passaic Water Company (6)	Total (7)
Joint Ownership Expenses	$ 47,137	$198,110	$ 0	$14,448	$ 54,673	$314,368
The Acquackanonk Water Company Expenses	60,542	—	—	—	—	60,542
The East Jersey Water Company Expenses	—	26,012	—	—	—	26,012
Kearney Water Company Expenses	—	—	2,500	—	—	2,500
The Montclair Water Company Expenses	—	240	—	64,536	—	64,776
The Passaic Water Company Expenses	5,734	—	—	—	105,738	111,472
Total Operating Expenses	$113,413	$224,362	$2,500	$78,984	$160,411	$579,670
Total in Per Cent	19.6	38.7	0.4	13.6	27.7	100.0

Exhibit P23

TABLE NO. D

Summary and Allocation of Cost of Service on the Basis of Use.

Item	Dyer's Pipe Line Service District	Paterson-Acquackanonk Service District						Montclair Service District				East Jersey Service District								Total All Companies or Districts
		Passaic Water Company		Acquackanonk Water Company		Total Paterson-Acquackanonk Service District		Montclair Water Company Low		Montclair Water Company High		East Jersey Water Company		Kearney Water Company		Total		Service		
	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
Value of Plant ving District	1.3	$165,000	29.6	$3,855,000	19.9	$2,580,000	49.5	$6,435,000	2.5	$320,000	9.1	$1,190,000	36.1	$4,700,000	1.5	$190,000	37.6	$4,890,000	100.0	$13,000,000
Cost of All Service:																				
Return at 8%	1.3	13,200	29.6	308,400	19.9	206,400	49.5	514,800	2.5	25,600	9.1	95,200	36.1	376,000	1.5	15,200	37.6	391,200	100.0	1,040,000
es	1.5	6,700	32.3	150,600	21.6	100,800	53.9	251,400	2.7	12,700	10.1	47,100	30.5	142,000	1.3	6,100	31.8	148,100	100.0	466,000
reciation	1.7	2,700	30.8	48,100	20.7	32,300	51.5	80,400	2.7	4,200	10.3	16,100	31.7	49,300	2.1	3,300	33.8	52,600	100.0	156,000
rating Expenses	2.0	11,517	25.7	148,894	19.6	113,413	45.3	262,307	3.2	18,404	10.4	60,580	38.7	224,362	0.4	2,500	39.1	226,862	100.0	579,670
Total	1.5	34,117	29.3	655,994	20.2	452,913	49.3	1,108,907	2.7	60,904	9.8	218,980	35.3	791,662	1.2	27,100	36.5	818,762	100.0	2,241,670

Exhibit P23

TABLE NO. E

Subdivision of Total Taxes Between Companies Use Basis

Kind of Taxes	The Acquackanonk Water Company	The East Jersey Water Company	Kearney Water Company	The Montclair Water Company	The Passaic Water Company	All Companies
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Real and Personal Property Tax	$ 60,900	$110,500	$4,600	$35,500	$ 94,500	$305,000
State Franchise Tax	22,200	0	0	13,800	34,000	70,000
Federal Income Tax	17,200	31,200	1,300	10,000	26,800	86,500
Capital Stock Tax	500	300	200	500	2,000	3,500
Total Taxes	$100,800	$142,000	$6,100	$59,800	$157,300	$466,000

Exhibit P23

TABLE No. F

Depreciable Property by Companies and Depreciation Allowances in Amount and Per Cent Use Basis

Account	The Acquackanonk Water Company	The East Jersey Water Company	Kearney Water Company	The Montclair Water Company	The Passaic Water Company	All Companies
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Gross Cost of Reproduction of Tangible Property According to Use—Ten Year Average Price Basis (Table No. 17, Vol. I of Joint Report, pages 93 and 94)	$2,628,060	$4,904,657	$246,217	$1,576,176	$4,280,532	$13,635,642
Deduct as Non-Depreciable Water Diversion Rights, Land and Rights of Way, Water Power Rights, Releases from Damages and Working Capital	380,788	1,468,532	13,601	167,988	750,954	2,781,863
Gross Cost of Reproduction of Depreciable Tangible Property According to use—ten Year Average Price Basis	2,247,272	3,436,125	232,616	1,408,188	3,529,578	10,853,779
Reduction in ratio of 13,000,000 to 13,598,496 to bring to fair value basis	2,153,000	3,292,000	223,000	1,350,000	3,382,000	10,400,000

Exhibit P23

DEPRECIATION ALLOWANCES AT 1.5% OF DEPRECIABLE PROPERTY

Company	Amount	Per Cent
(1)	(2)	(3)
The Acquackanonk Water Company	$32,300.	20.7
The East Jersey Water Company	49,300.	31.7
Kearney Water Company	3,300.	2.1
The Montclair Water Company	20,300.	13.0
The Passaic Water Company	50,800.	32.5
All Companies	$156,000.	100.0

Exhibit P23

Table NO. G

Modified Gross Revenue for 1920

Company	Gross Revenue Received as per books 1920 Operating Revenue	Net Non-Operating Revenue	Total Gross Revenue Received	Modifications Jersey City	West Orange and Glen Ridge	Totowa	Transportation of Water	Modified Gross Revenue
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
The Acquackanonk Water Company	$ 363,345	$ 27	$ 363,372	$ —	$ —	$ —	$ —	$ 363,372
The East Jersey Water Company	525,935	863	526,798	—160,500	—	+2,102	—27,100	341,300
Kearney Water Company	48,892	0	48,892	—	—	—	(—48,892 (+27,100	27,100
The Montclair Water Company	194,967	735	195,702	—	—31,200	—	— 1,045	163,457
The Passaic Water Company	643,519	447	643,966	—	—	—2,102	—	641,864
Total	$1,776,658	$2.072	$1,778,730	$—160,500	$—31,200	$ 0	$—49,937	$1,537,093

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Exhibit P23

EXPLANATION OF PRINCIPAL MODIFICATIONS IN GROSS REVENUE RECEIVED IN 1920 AS SHOWN IN TABLE NO. G.

(a) A Deduction of $160,500.
from the income of The East Jersey Water Company for water sold to Jersey City which will not be sold in the immediate future, Jersey City having about completed the enlargement of its water supply so that it will not require water from the affiliated water companies.

(b) A Deduction of $31,200.
from the revenue of The Montclair Water Company covering payments derived from the sale of water to Glen Ridge and West Orange, a service which this Company is not now rendering. The amount of the readiness-to-serve charge ($2,000.) for the standby service which is rendered now has not been deducted.

(c) A Deduction of $1,045.
from the revenue of The Montclair Water Company transportation charges formerly paid to it by The East Jersey Water Company, which charge is a duplication as it is reported in the revenues of The East Jersey Water Company.

(d) A Deduction of $27,100.
from the revenues of The East Jersey Water Company which I estimate is a

fair allowance for the Kearney Water Company for transporting the water from Belleville to Kearney through the Kearney extension.

(e) A Deduction of $48,892.
from the revenues of the Kearney Water Company received from The East Jersey Water Company for the transportation of water from Belleville to Kearney through the Kearney extension, which sum is included in the revenues reported by the Kearney Water Company as well as by The East Jersey Water Company.

(f) An Addition of $27,100.
to the revenues of the Kearney Water Company to replace the $48,892 for the transportation expenses of the Kearney Water Company, a net deduction of $21,792.

(g) A Deduction of $2,102.
from the revenue of The Passaic Water Company due to the transfer of the Borough of Totowa from The Passaic Water Company to The East Jersey Water Company as herein explained.

(h) An Addition of $2,102.
to the revenue of The East Jersey Water Company for the reason set forth in (g).

Table No.

THE EAST JERSEY AND ASSOCIATED WATER COMPANIES

Statement Showing Operating Revenue, Operating Deductions, Depreciation and Net Non-operating Revenue for Year Ended December 31, 1921, Exclusive of Revenues From Non-water Properties and Investments.

Item (1)	Acquackanonk Water Company (2) $	East Jersey Water Company (3) $	Kearney Water Company (4) $	Montclair Water Company (5) $	Passaic Water Company (6) $	Total All Companies (7) $
Operating Revenue						
Sale of Water	379,626.31	435,842.17	43,834.00	170,739.20	660,453.06	1,690,494.74
Miscellaneous Operating Revenue	4,320.64			2,187.44	10,188.97	16,697.05
Total Operating Revenue	383,946.95	435,842.17	43,834.00	172,926.64	670,642.03	1,707,191.79
Operating Deductions						
Water Supply Expenses	80,280.70	306,907.27	1,365.51	53,324.66	133,250.81	575,128.95
Maintenance	16,740.23	34,386.73	136.69	7,562.85	40,564.01	99,390.51
General and Miscellaneous Expenses	43,802.58	12,946.14	1,578.46	29,163.68	59,837.19	147,328.05
Total Operating Expenses	140,823.51	354,240.14	3.080.66	90,051.19	233,652.01	821,847.51
Taxes	58,741.23	37,229.87	7,758.70	35,795.11	99,441.24	238,966.15
Depreciation	31,494.04	13,550.92	2,000.00	23,253.77	70,490.39	140,789.12
Total Operating Deductions	231,058.78	405,020.93	12,859.36	149,100.07	403,583.64	1,201,602.78
Net Operating Earnings	152,888.17	30,821.24	30,994.64	23,826.57	267,058.39	505,589.01
Net Operating Revenue						
Rent				610.00	132.00	742.00
Interest		479.15		451.72	489.62	1,420.49
Total Non-Operating Earnings		479.15		1,061.72	621.62	2,162.49
Net Earnings for Year	152,888.17	31,300.39	30,994.64	24,888.29	267,680.01	507,751.50

Exhibit P23

Table No.

THE EAST JERSEY AND ASSOCIATED WATER COMPANIES

Statement Showing Water Supply Expenses, Maintenance Expenses, General and Miscellaneous Expenses and Taxes for the Year Ended December 31, 1921.

Item (1)	Acquackanonk Water Company (2)	East Jersey Water Company (3)	Kearney Water Company (4)	Montclair Water Company (5)	Passaic Water Company (6)	Total All Companies (7)
Water Supply Expenses						
Water Diversion	$19,087.73	$ 69,964.87	$	$ 6,390.52	$ 33,913.17	$129,356.29
Excess Water Diversion	966.80	8,033.71		13.39		9,013.90
Water Purchased		6,035.38				6,035.38
Other Collecting System Expense	871.99	3,108.70		270.45	1,211.67	5,462.81
Purification System	13,092.95	46,677.19		4,060.86	18,193.22	82,024.22
Pumping System	34,740.17	123,850.89		36,390.99	48,272.97	243,255.02
Distribution System	11,521.06	4,387.65	1,365.51	6,198.45	31,659.78	55,132.45
Transportation of Water		44,848.88				44,848.88
Total Water Supply Expenses	80,280.70	306,907.27	1,365.51	53,324.66	133,250.81	575,128.95
Maintenance Expenses						
Collecting System	33.17	118.27		10.29	46.10	207.83
Purification System	5,119.86	18,252.63		1,587.95	7,114.27	32,074.71
Pumping System	3,879.03	13.828.97		1,576.39	5,390.07	24,674.46
Distribution System	7,399.26	2,186.86	136.69	4,011.90	24,146.42	37,881.13
General Repairs	308.91			376.32	3,867.15	4,552.38
Total Maintenance Expenses	16,740.23	34,386.73	136.69	7,562.85	40,564.01	99,390.51

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General and Miscellaneous Expenses						
Administration	11,782.49	7,322.06	1,185.99	10,583.25	15,843.34	46,717.13
Accounting and Commercial	25,104.25	2,487.89	392.47	15,259.80	36,754.34	79,998.75
Legal	4,730.41	2,160.16		2,777.77	855.09	10,523.43
Injuries and Damages	601.85	114.38		99.60	3,142.73	3,958.56
Insurance	323.16	391.71		424.27	1,611.29	2,750.43
Relief Dept. and Pensions	70.00				779.15	849.15
Miscellaneous General Expense	1,190.42	469.94		18.99	851.25	2,530.60
Total General and Miscellaneous Expenses	43,802.58	12,946.14	1,578.46	29,163.68	59,837.19	147,328.05
Taxes						
State Franchise, Capital Stock		100.00				100.00
" " Gross Earnings	17,671.99		642.29	9,306.86	30,594.80	58,215.94
Municipal	30,874.01	30,972.27	2,560.62	25,976.25	58,465.50	148,848.65
Federal Income	9,416.23	5,820.60	4,328.79		8,478.94	28,044.56
Federal Capital Stock	779.00	337.00	227.00	512.00	1,902.00	3,757.00
Total Taxes	58,741.23	37,229.87	7,758.70	35,795.11	99,441.24	238,966.15

Table No.

THE EAST JERSEY AND ASSOCIATED WATER COMPANIES

Statement Showing Operating Revenue, Operating Deductions, Depreciation and Net Non-operating Revenue for the Six Months Ended June 30, 1922, Exclusive of Revenues from Non-Water Properties and Investments.

Item (1)	The Acquackanonk Water Company (2)	The East Jersey Water Company (3)	Kearney Water Company (4)	The Montclair Water Company (5)	The Passaic Water Company (6)	Combined Total (7)
Operating Revenue:						
Sale of Water	$192,043.43	$193,171.63	$ 20,218.50	$80,658.39	$331,914.69	$797,788.14
Transportation of Water						20,218.50
Miscellaneous Operating Revenue	325.67	100.00		2,932.76	4,645.01	8,003.44
Total Operating Revenue	$192,369.10	$193,271.63	$20,218.50	$83,591.15	$336,559.70	$826,010.08
Operating Deductions:						
Water Supply Expenses	$ 30,457.94	$113,724.93	$	$18,881.56	$ 50,605.93	$213,670.36
Maintenance	5,361.82	8,861.55	70.31	1,939.90	13,480.83	29,714.41
General & Miscellaneous Expenses	20,102.85	4,703.88	420.87	15,507.45	29,387.10	70,122.15
Total Operating Expenses	$ 55,922.61	$127,290.36	$ 491.18	$36,328.91	$ 93,473.86	$313,506.92
Taxes	26,678.61	15,704.64	2,493.90	17,897.56	46,318.08	190,090.79
Depreciation	15,747.02	6,775.46	1,000.00	11,626.88	35,245.20	70,394.56
Total Operating Deductions	$ 98,348.24	$149,770.46	$ 3,985.08	$65,853.35	$175,035.15	$492,992.27
Net Operating Earnings	$ 94,020.86	$ 43,501.17	$16,233.42	$17,737.80	$161,524.56	$330,017.81
Net Non-operating Revenue:						
Rent				$ 310.00		$ 310.00
Interest		$ 758.73		94.30		853.03
Total Non-operating Earnings		$ 758.73		$ 494.30		$ 1,163.03
Net Earnings for Year	$ 94,020.86	$ 44,259.90	$16,233.42	$18,142.10	$151,524.56	$334,180.84

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TABLE No.

The East Jersey and Associated Water Companies Summary of Additions to Plant in 1921.

Account No. (1)	Item (2)	East Jersey Water Company (3)	Montclair Water Company (4)	Acquackanonk Water Company (5)	Passaic Water Company (6)	Total All Companies (7)
	Additions					
	Interest in Little Falls Improvements	8,447.08	4,223.55	8,447.08	12,670.62	33,788.33
127	Transmission Mains				216,714.78	216,714.78
129	Distribution Mains and Accessories		1,730.58	23,055.11	20,460.19	45,245.88
130	Service Pipes and Stops		6,031.21	12,443.16	16,996.60	35,470.97
131	Meters	2,031.66	3,162.59	15,785.16	11,174.62	32,154.03
132	Hydrants		334.13	4,127.30	2,904.64	7,366.07
134	General Structures				*8,225.10	8,225.10
135	General Equipment					
	General Office Equipment		155.00	147.87	139.08	441.95
	" Shop "			82.04	123.25	205.29
	" Stable " including Automobiles	1,394.45	3,825.00	1,325.00	6,151.75	12,696.20
		11,873.19	19,462.06	65,412.72	295,560.63	392,308.60
	Deductions					
129	Distribution Mains and Accessories			750.73	3,494.07	4,244.82
132	Hydrants			240.00	480.00	720.00
135	Tools and Equipment Prior to 1/1/13		38.00	93.90	592.72	724.62
135	Horses, Wagon and Harness prior to 1/1/13		225.00	150.00	502.68	877.68
135	Horses, Wagon and Harness since 12/31/12				90.00	90.00
135	Furniture and Fixtures Prior to 1/1/13				115.00	115.00
135	" " " since 12/31/12				224.10	224.10
135	Automobiles " "	700.00	(4,023.00		5,798.50	11,067.83
			(546.33			
135	General Equipment " "			47.39	27.69	75.08
		700.00	4,832.33	1,282.04	11,324.76	18,139.13

*Land $5,375.10, siding $2,850.

Exhibit P23

Table No.

THE EAST JERSEY AND ASSOCIATED WATER COMPANIES

Summary of Additions to Plant for the ix months Ended June 30, 1922.

Item (1)	The East Jersey Water Company (2)	The Montclair Water Company (3)	The Aquackanonk Water Company (4)	The Passaic Water Company (5)	Total All Companies (6)
Additions					
Interest in Little Falls Improvements	$468.72	234.36	$ 468.72	$ 703.09	$ 1,874.89
Distribution Mains and Accessories		2,252.47	7,775.19	3,503.55	13,531.21
Service Pipes and Stops		4,104.32	3,572.00	6,713.81	14,390.13
Meters, Meter Boxes and Vaults		865.14	7,003.41	4,328.75	12,197.30
Fire Hydrants		214.46	1,185.43	2,373.94	3,773.83
General Equipment					
Office			242.29	13.50	255.79
Shop			75.87	187.42	263.29
Stable	220.00	1,034.00	2,819.61	5,600.14	9,673.75
Undistributed Overhead		312.23	1,844.35	3,427.05	5,583.63
Total Additions	688.72	9,016.98	24,986.87	26,851.25	61,543.82
Deductions					
General Equipment Since December 31, 1912		2,050.00	370.00	4,869.00	7,289.00
Net Additions	$688.72	$6,966.98	$24,616.87	$21,982.25	$54,254.82

Exhibit P23

TABLE NO.

Value of Property and Plant of the East Jersey and Associated Water Companies as of June 30, 1922—Ownership Basis.

Item (1)	The Acquackanonk Water Company (2)	The East Jersey Water Company (3)	Kearney Water Company (4)	The Montclair Water Company (5)	The Passaic Water Company (6)	Total All Companies (7)
Fair Value Allowed as of January 1, 1921	$2,940,000	$2,420,000	$200,000	$2,010,000	$5,430,000	$13,000,000
Add Net Additions at Actual Cost During 1921	64,130	11,173	0	14,630	284,236	374,169
First Six Months of 1922	24,617	689	0	6,967	21,982	54,255
	3,028,747	2,431,862	200,000	2,031,597	5,736,218	13,428,424
Deduct Accrued Depreciation since January 1, 1921 to June 30, 1922	54,475	33,631	4,950	39,626	107,353	240,035
Value of Property as of June 30, 1922	$2,974,272	$2,398,231	$195,050	$1,991,971	$5,628,865	$13,188,389

TABLE NO.

Value of Property and Plant of the East Jersey and Associated Water Companies as of June 30, 1922—Used Basis.

Item (1)	The Acquackanonk Water Company (2)	The East Jersey Water Company (3)	Kearney Water Company (4)	The Montclair Water Company (5)	The Passaic Water Company (6)	Total All Companies (7)
Fair Value Allowed as of January 1, 1921	$2,580,000	$4,700,000	$190,000	$1,510,000	$4,020,000	$13,000,000
Add Net Additions at Actual Cost During 1921	61,129	22,469	0	11,846	278,725	374,169
First Six Months of 1922	24,443	1,346	0	6,815	21,651	54,255
	$2,665,572	$4,723,815	$190,000	$1,528,661	$4,320,376	$13,428,424
Deduct Accrued Depreciation since January 1, 1921, to June 30, 1922	49,479	74,303	4,950	30,733	80,570	240,035
Value of Property as of June 30, 1922	$2,616,093	$4,649,512	$185,050	$1,497,928	$4,239,806	$13,188,389

Metcalf's Table of Value of the entire property of all the Companies.

Exhibit P24.

Table of Value of Whole Property.

The Acquackanonk, Passaic, Montclair, East Jersey and Kearney Water Companies.

Summary of Values.

	Acquackanonk Water Co.	Passaic Water Co.	Montclair Water Co.	Sub-Total Three Companies	East Jersey Water Co.	Kearney Water Co.	All Companies
Metcalf's Fair Value as of December 31, 1920	$3,066,000	$5,837,000	$2,470,000	$11,373,000	$1,917,000	$210,000	$13,500,000
Add Water Rights	212,800	280,000	56,000	548,800	571,200		1,120,000
Sub-Total	$3,278,800	$6,117,000	$2,526,000	$11,921,800	$2,488,200	$210,000	$14,620,000
Add Betterments 1921	65,000	79,000*	19,000	163,000	12,000		175,000
Sub-Total	$3,343,800	$6,196,000	$2,545,000	$12,084,800	$2,500,200	$210,000	$14,795,000
Deduct Depreciation 1921**	39,000	86,000	38,000	163,000	26,000	5,000	194,000
Sub-Total	$3,305,000	$6,110,000	$2,507,000	$11,922,000	$2,474,000	$205,000	$14,601,000
Deduct Unused Property		52,000	199,000	251,000	27,000		278,000
Resulting Value as of Dec. 31, 1921, and approximately as of July 1, 1922	$3,305,000	$6,058,000	$2,308,000	$11,671,000	$2,447,000	$205,000	$14,323,000

*Actual betterments were $295,560. Of this amount, $216,715 was the cost of the 30-inch Riverside Extension, which structure was included in the schedule of properties upon which the valuation at fair normal prices was based. Note however that this property was excluded from the valuation on all other bases.

**Based on $14,000,000 value and assuming that the annual depreciation allowance should be predicated on the amortization of the reproduction cost, rather than the original cost of the structures.

Exhibit P25.

Metcalf's Computations of Going Value.

GOING VALUE DETERMINATIONS

for

THE PROPERTY OF THE FIVE WATER COMPANIES AND INDEPENDENT DETERMINATIONS

for

THE ACQUACKANONK WATER COMPANY
THE PASSAIC WATER COMPANY
THE MONTCLAIR WATER COMPANY

Controlled by

THE NEW JERSEY GENERAL SECURITY COMPANY

PATERSON, NEW JERSEY
As of December 31, 1920.

Metcalf & Eddy, Consulting Engineers,
14 Beacon Street, Boston, Mass.
May 31, 1922.

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Table 21. Metcalf's Going Value Determination for the Properties of the Water Companies Controlled by the New Jersey General Security Co. as of December 31, 1920. by the Comparative Method based upon Depreciated Reproduction Cost on "NORMAL PRICES". Order and Rate of Construction.

Year Ending Dec. 31.	Real Estate and Right of Way E.J.W.Co. $185,875 P.W.Co. 327,189 A.W.Co. 81,548 M.W.Co. 257,099 K.W.Co. 10,040 $861,749 Eng. & Legal 34,470 Total $896,219	Water Power Diversion at Little Falls	Gravity Intake, Coag. Basin Filters Chem. Treat. Pl. Clear Wat. Basin Acc't. Am't 112 $92,400 115 380,700 117 59,400 119 11,300 120 251,100	Pump. Sta., Steam Power, Pump'g Equip., Hyd. Pow. Equip., Misc. Pump. Equip. Acc't Am't. 121 $607,500 122 464,700 123 494,100 126 2,100	Transmission Mains and Accessories Acc't Am't. 127 $433,200	Reservoirs Springs and Wells. Acc't Am't 109 $1,100 128 509,300	Distribution Mains and Accessories. Hydrants. Acc't Am't. 129 $4,270,800 132 219,400	Services & Meters Acc't. Am't. 130 $206,000 131 395,800	Gen'l Structures. "Equipment. Fixed Capital in other Dept. Construction in progress. Acc't. Am't. 134 $85,700 135 47,200 150 31,100 151 10,700	Preliminary Organization, Incorporation, Etc.	Materials and Supplies. Acc't. Am't. 152 $196,900	Total Net Depreciated Reproduction Cost exclusive of Interest during Construction and Going Value.		
												During Year	To Date.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
1921	$ 800,000	$ 600,000	$ 500,000	$ 250,000	$ 133,000	$ 50,000	$ 290,000		$ 30,000	$ 160,000		$ 2,813,000	$ 2,813,000	
1922	96,000		827,000	630,000	300,000	300,000	800,000	$ 62,000	85,000		$ 47,000	3,147,000	5,960,000	Operation begins.
1923				450,000		160,000	1,200,000	200,000	60,000		100,000	2,170,000	8,130,000	Revenue begins.
1924				200,000			1,200,000	200,000			25,000	1,625,000	9,755,000	
1925				39,000			1,000,000	140,000			25,000	1,204,000	10,959,000	
Totals	$ 896,000	$ 600,000	$ 1,327,000	$ 1,569,000	$ 433,000	$ 510,000	$ 4,490,000	$ 602,000	$ 175,000	$ 160,000	$ 197,000	$ 10,959,000	$ 10,959,000	

Table 22 Going Value Determination ... Interest during Construction.

Year Ending Dec. 31.	Net or Depreciated Reproduction Cost of Property excluding Interest during Construction.				Interest during Construction at 7%		Net or Depreciated Cost of Physical Property incl. Interest during Construction.	
	Additions during Year Col. 13 Table	Cumulative amounts to end of Year	Equivalent average amt. added, running full Year.	Average Amt. on which interest is chargeable for full year.	During Year 7% × Col. 5	Cumulative to date.	Added during Year.	Cumulative to date.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1921	$ 2,813,000	$ 2,813,000	$ 1,055,000	$ 1,055,000*	$ 74,000	$ 74,000	$ 2,887,000	$ 2,887,000
1922	3,147,000	5,960,000	1,574,000	4,387,000*	307,000	381,000	3,454,000	6,341,000
1923	2,170,000	8,130,000	1,085,000	7,045,000*	493,000	874,000	2,663,000	9,004,000
1924	1,625,000	9,755,000	812,000	812,000	57,000	931,000	1,682,000	10,686,000
1925	1,204,000	10,959,000	602,000	602,000	42,000	973,000	1,246,000	11,932,000
	$ 10,959,000	$ 10,959,000			$ 973,000	$ 973,000	$ 11,932,000	$ 11,932,000

* On first year (1921), $\frac{7}{12}$ × col. 2
On second year $\frac{1}{2}$ × col. 2
On later years, as operation begins, interest ceases on most of the structures. Assume therefore that interest runs on the year's construction for a 6 months period.

Accompanying Metcalf's Valuation as of Dec. 31, 1920.

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Table 23 **Metcalf's Going Value Determination** for the Properties of the Water Companies Controlled by the New Jersey General Security Co., as of December 31,1920 by the Comparative Method based upon RATES YIELDING 7% FAIR RETURN upon the Depreciated Reproduction Cost on "NORMAL PRICES"

Assumed Capital in Hands of Investor-Builder December 31, 1920.

Reproduction Cost of Depreciated Physical Plant		$ 10,958,800
Interest during Construction		986,300
Depreciated or Net Reproduction Cost Exclusive of Going Value and Exclusive of Value of Water Diverted from S.U.M. and Dundee Water Power and Land Co.	$ 11,945,100	
Add Assumed Going Value (determined here-after)	2,062,000	
Assumed Capital in Hands of Investor-Builder December 31,1920. Excluding Allowance for Water Diverted from S.U.M. and Dundee Water Power and Land Co.	$ 14,007,100	

Assumed Period of Construction, 5 years; of development of business, 6 years, three of which overlap the Construction Period; making the Total Period of Construction and Development, 8 years.

Fair Return 7% upon the Depreciated Reproduction Cost plus Going Value, aggregating $ 14,007,100. Interest Allowances on Comparative Plant -- 5% on Capital Unemployed for a year or more, 2% for ½ year on Capital used during year. Present Worth Rate -- 6%

Year ending Dec.31.	Existing or Going Plant.				Equitable Gross Annual Revenue Cols (2+3+5)	New or Comparative Plant.							Excess Net Annual Return of Existing over New Plant (Col.(5-14)	Determination of Interest upon Unemployed Capital of New Plant.						Excess Net Return of Existing over New Plant.		Present Worth of Excess Net Return of Existing over New Plant.			
	Operation, Maintenance & Taxes.	Depreciation Allowance.	Fair Net Annual Return.			Operation, Maintenance & Taxes.		Depreciation Allowance		Combined Operation Maintenance Taxes & Depreciation Cols(8+10)	Gross Annual Revenue		Net Annual Return Col.(13-11)		Investment to Date in New Plant excluding Going Value.	Amount withdrawn for Construction & Interest during Year	Amount of Capital unemployed which is earning 5% Interest.	One Year's Interest on		Interest during Construction (See Table 22,Col. 6)	Total Interest Adjustment for New Plant Cols(19-20-21)	Before Adjustment for Interest See Col.(15)	After Adjustment for Interest Col.(23-22)	Period of Years	Factor @ 6%	Amounts	
			Base on which it is figured	Amount at 7% Rate (7% × Col.4)		% of Existing Plant	Amount Col.(7-2)	Sum on which based.	Amount		% of Existing Plant.	Amount Col.(12-6)						Half of Col.(17) @ 2%	Col.(18) @ 5%							Annual	Cumulative
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)
1921	$ 940,000	$ 133,000	$ 14,007,000	$ 980,000	$ 2,053,000								$ 980,000	$ 2,887,000	$ 2,887,000	$ 3,058,000	$ 29,000	$ 453,000	$ 74,000	$ 556,000	$ 980,000	$ 424,000	1	.9434	$ 400,000	$ 400,000
1922	900,000	125,000	"	"	2,005,000	15	$ 135,000			$ 135,000			135,000	1,115,000	6,341,000	6,454,000	4,604,000	35,000	280,000	307,000	622,000	1,115,000	493,000	2	.8900	439,000	839,000
1923	900,000	127,000	"	"	2,007,000	30	450,000			450,000	30	$ 602,000	152,000	828,000	9,006,000	2,663,000	2,941,000	27,000	147,000	493,000	667,000	828,000	161,000	3	.8396	135,000	974,000
1924	920,000	129,000	"	"	2,029,000	75	690,000	$ 9,004,000	$ 99,000	789,000	50	1,014,000	225,000	735,000	10,889,000	1,883,000	1,259,000	17,000	63,000	57,000	137,000	735,000	618,000	4	.7921	490,000	1,464,000
1925	940,000	130,000	"	"	2,050,000	90	846,000	10,688,000	118,000	964,000	70	1,435,000	471,000	509,000	11,945,000	1,259,000		13,000		55,000	68,000	509,000	441,000	5	.7473	329,000	1,793,000
1926	960,000	132,000	"	"	2,072,000	97	931,000	11,945,000	132,000	1,063,000	85	1,761,000	698,000	282,000	"							282,000	282,000	6	.7050	199,000	1,992,000
1927	980,000	134,000	"	"	2,094,000	100	980,000	"	134,000	1,114,000	95	1,989,000	875,000	105,000	"							105,000	105,000	7	.6651	70,000	2,062,000
1928	1,000,000	135,000	"	"	2,115,000	100	1,000,000	"	135,000	1,135,000	100	2,115,000	980,000														
									* 1.1%																Going Value	$ 2062,000	

Accompanying Metcalf's Valuation as of Dec.31, 1920.

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Table 23c. **Metcalf's Going Value Determination** for the Acquackanonk Water Company, as of December 31, 1920, by the Comparative Method based upon RATES YIELDING 7% FAIR RETURN upon the Depreciated Reproduction Cost on "NORMAL PRICES."

Assumed Capital in Hands of Investor-Builder December 31, 1920.

Reproduction Cost of Depreciated Physical Plant.	$ 2,489,000
Interest during Construction.	221,300
Depreciated or Net Reproduction Cost Exclusive of Going Value and Exclusive of Value of Water Diverted from S.U.M. and Dundee Water Power and Land Co.	$ 2,710,300
Add Assumed Going Value (determined here-after)	514,500
Assumed Capital in Hands of Investor-Builder December 31, 1920 Excluding Allowance for Water Diverted from S.U.M. and Dundee Water Power and Land Co.	$ 3,224,800

Assumed Period of Construction, 3 years; of developement of business, 4 years, one of which overlaps the Construction Period; making the Total Period of Construction and Developement, 6 years.

Fair Return 7% upon the Depreciated Reproduction Cost plus Going Value, aggregating $3,224,800. Interest Allowances on Comparative Plant -- 5% on Capital Unemployed for a year or more, 2% for ½ year on Capital used during year. Present Worth Rate -- 6%

Year Ending Dec. 31.	Existing or Going Plant: Operation, Maintenance and Taxes.	Depreciation Allowance	Fair Net Annual Return: Base on which it is Figured.	Fair Net Annual Return: Amount at 7% Rate. (7% × col. 4)	Equitable Gross Annual Revenue. Cols. (2+3+5)	New or Comparative Plant. Operation, Maintenance and Taxes: % of Existing Plant.	Operation, Maintenance and Taxes: Amount. Col. (7×2)	Depreciation Allowance: Sum on which Based.	Depreciation Allowance: Amount.	Combined Operation Maintenance Taxes & Depreciation Cols. (8+10)	Gross Annual Revenue: % of Existing Plant.	Gross Annual Revenue: Amount Col. (12×6)	Net Annual Return. Col. (13-11)	Excess Net Annual Return of Existing over New Plant. Col. (5-14)	Determination of Interest upon Unemployed Capital of New Plant: Investment to Date in New Plant Excluding Going Value.	Amount withdrawn for Construction and Interest During Year.	Amount of Capital unemployed which is Earning 5% Interest.	One Year's Interest on: Half of Col. (17) @ 2%	Col. (18) @ 5%	Interest During Construction. (See Table Col. 6)	Total Interest Adjustment for New Plant. Cols. (19+20+21)	Excess Net Return of Existing over New Plant. Before Adjustment For Interest. See Col. (15)	Excess Net Return of Existing over New Plant. After Adjustment for Interest. Col. (23-22)	Present Worth of Excess Net Return of Existing over New Plant: Period of Years.	Factor @ 6%	Amounts: Annual.	Amounts: Cumulative
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)
1921	$ 200,000	$ 30,000	$ 3,224,800	$ 225,700	$ 455,700	—	——		——	——	—	——	——	$ 225,700	$ 563,400	$ 563,400	$ 2,146,900	$ 5,600	$ 107,300	$ 14,400	$ 127,300	$ 225,700	$ 98,400	1	.9434	$ 92,800	$ 92,800
1922	174,000	30,000	3,224,800	225,700	429,700	20	$ 34,800		——	$ 34,800	—	——	$-34,800	260,500	1,521,900	958,500	1,188,400	9,600	59,400	69,500	138,500	260,500	122,000	2	.8900	108,500	201,300
1923	174,000	30,000	3,224,800	225,700	429,700	50	87,000		$ 15,000	102,000	25	$ 107,400	5,400	220,300	2,710,300	1,188,400	——	11,900	——	137,400	149,300	220,300	71,000	3	.8396	59,600	260,900
1924	177,000	30,000	3,224,800	225,700	432,700	90	159,300		30,000	189,300	50	216,300	27,000	198,700	——	——	——	——	——	——	——	138,700	198,700	4	.7921	157,400	418,300
1925	181,000	30,000	3,224,800	225,700	436,700	100	181,000		30,000	211,000	80	349,400	138,400	87,300	——	——	——	——	——	——	——	87,300	87,300	5	.7473	65,200	483,500
1926	185,000	30,000	3,224,800	225,700	440,700	100	185,000		30,000	215,000	90	396,600	181,600	44,100	——	——	——	——	——	——	——	44,100	44,100	6	.7050	31,100	514,600
																									Going Value	$ 515,000	

Accompanying Metcalf's Valuation as of Dec. 31, 1920.

Table 23a. **Metcalf's Going Value Determination** for the Acquackanonk Water Company, as of December 31, 1920, by the Comparative Method - based upon Depreciated Reproduction Cost on "NORMAL PRICES" **Order and Rate of Construction.**

Year Ending Dec. 31.	Real Estate and Rights of Way.	Water Power Diversion at Little Falls.	Gravity Intake, Coag. Basin, Filters, Chem. Treat. Pl. Clear Wat. Basin. Acc't. Am't. 112 $23,100 115 95,200 117 147,800 119 2,800 120 62,800	Pump. Sta. Steam Power Pumping Equip., Hyd. Power Equip. Misc. Pump. Equip. Acc't. Am't. 121 $144,800 122 105,500 123 123,500 126 300	Transmission Mains and Accessories. Acc't. Am't. 127 $57,400	Reservoirs Springs and Wells Acc't. Am't. 128 $103,600	Distribution Mains and Accessories. Fire Hydrants. Acc't. Am't. 129 $1,062,700 132 65,400	Services and Meters. Acc't. Am't. 130 $65,200 131 110,000	Gen'l. Structures. Gen'l. Equipment. Fixed Capital In other Dept., Construction In Progress. Acc't. Am't. 134 $14,700 135 6,000 150 100 151 2,700	Preliminary Organization Incorporation etc.	Materials and Supplies. Acc't. Am't. 152 $25,800	Total Net Depreciated Reproduction Cost Exclusive of Interest during Construction and Going Value.	
	$84,810	$150,000	$331,700	$374,100	$57,400	$103,600	$1,128,000	$175,200	$23,500	$35,200	$25,800	$2,489,000 During Year	
	$85,000	$150,000	$332,000	$374,000	$57,000	$104,000	$1,128,000	$175,000	$23,000	$35,000	$26,000	To Date	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1921	$85,000	$150,000	$125,000	$60,000	$12,000	$10,000	$68,000	—	$4,000	$35,000	—	$549,000	$549,000
1922	—	—	207,000	150,000	45,000	60,000	360,000	$50,000	11,000	—	$6,000	889,000	1,438,000
1923	—	—	—	164,000	—	34,000	700,000	125,000	8,000	—	20,000	1,051,000	2,489,000
Totals	$85,000	$150,000	$332,000	$374,000	$57,000	$104,000	$1,128,000	$175,000	$23,000	$35,000	$26,000	$2,489,000	$2,489,000

Table 23b. Going Value Determination ··· **Interest during Construction.**

Year Ending Dec. 31.	Net or Depreciated Reproduction Cost of Property excluding Interest during Construction				Interest during Construction at 7%		Net or Depreciated Cost of Physical Property incl. Interest during Construction.	
	Additions during year. Col. 13. Table	Cumulative amounts to end of year.	Equivalent average amt. added, running full year. *	Average amt on which Interest is chargeable for full year.	During year. 7% × Col. 5	Cumulative to date.	Added during year.	Cumulative to date.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1921	$549,000	$549,000	$206,000	$206,000	$14,400	$14,400	$563,400	$563,400
1922	889,000	1,438,000	444,500	993,500	69,500	83,900	958,500	1,521,900
1923	1,051,000	2,489,000	525,500	1,963,500	137,400	221,300	1,188,400	2,710,300
Totals	$2,489,000	$2,489,000			$221,300	$221,300	$2,710,300	$2,710,300

* On first year (1921), 3/8 × col. 2.
On other years 1/2 × col. 2.

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Table 23d. **Metcalf's Going Value Determination** for the Passaic Water Company, as of December 31, 1920, by the Comparative Method based upon Depreciated Reproduction Cost on "NORMAL PRICES." **Order and Rate of Construction.**

Year Ending Dec. 31	Real Estate and Rights of Way.	Water Power Diversion at Little Falls.	Gravity Intake, Coag. Basin, Filters, Chem. Treat. Pl., Clear Wat. Basin.	Pump. Sta. Steam Power, Pumping Equip., Hyd. Pow. Equip., Misc. Pump. Equip.	Transmission Mains and Accessories.	Reservoirs, Springs and Wells.	Distribution Mains and Accessories. Fire Hydrants.	Services and Meters.	Gen'l Structures. Gen'l Equipment. Fixed Capital in other Dept. Construction in Progress.	Preliminary Organization, Incorporation, etc.	Materials and Supplies.	Total Net Depreciated Reproduction Cost Exclusive of Interest during Construction and Going Value.	
			Acct. Am't.	Acct. Am't.	Acct. Am't.	Acct. Am't.	Acct. Am't.	Acct. Am't.	Acct. Am't.		Acct. Am't.		
			112 $ 34,600	121 $ 217,100					134 $ 40,500				
			115 142,800	122 158,200					135 28,500				
			117 221,800	123 185,300	127 $ 289,900	128 $ 246,400	129 $ 1,875,900	130 $ 106,800	150 27,000		Acct. Am't.		
			119 4,300	126 500			132 108,400	131 214,800	151 3,900		152 $ 102,000		
	$ 340,277	$ 225,000	$ 497,600	$ 561,100	$ 289,900	$ 246,400	$ 1,984,300	$ 321,600	$ 99,900	$ 69,800	$ 102,000	$ 4,738,000	
	$ 340,000	$ 225,000	$ 498,000	$ 561,000	$ 290,000	$ 246,000	$ 1,984,000	$ 322,000	$ 100,000	$ 70,000	$ 102,000	During Year	To Date
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1921	$ 300,000	$ 225,000	$ 190,000	$ 90,000	$ 95,000	$ 25,000	$ 84,000	———	$ 17,000	$ 70,000	———	$ 1,096,000	$ 1,096,000
1922	40,000	———	308,000	230,000	195,000	150,000	400,000	$ 50,000	50,000	———	$ 20,000	1,443,000	2,539,000
1923	———	———	———	160,000	———	71,000	700,000	140,000	33,000	———	40,000	1,144,000	3,683,000
1924	———	———	———	81,000	———	———	800,000	132,000	———	———	42,000	1,055,000	4,738,000
Totals	$ 340,000	$ 225,000	$ 498,000	$ 561,000	$ 290,000	$ 246,000	$ 1,984,000	$ 322,000	$ 100,000	$ 70,000	$ 102,000	$ 4,738,000	$ 4,738,000

Table 23e. Going Value Determination ··· **Interest during Construction.**

Year Ending Dec. 31	Net or Depreciated Reproduction Cost of Property excluding Interest during Construction.				Interest during Construction at 7%		Net or Depreciated Cost of Physical Property incl. Interest during Construction.	
	Additions during Year Col. 13. Table	Cumulative amounts to end of year.	Equivalent average am't. added, running full year. *	Average am't. on which Interest is chargeable for full year.	During year. 7% × Col. 5	Cumulative to date.	Added during year.	Cumulative to date.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1921	$ 1,096,000	$ 1,096,000	$ 411,000	$ 411,000	$ 28,800	$ 28,800	$ 1,124,800	$ 1,124,800
1922	1,443,000	2,539,000	721,500	1,817,500	127,200	156,000	1,570,200	2,695,000
1923	1,144,000	3,683,000	572,000	3,111,000	217,800	373,800	1,361,800	4,056,800
1924	1,055,000	4,738,000	527,500	527,500	36,900	410,700	1,091,900	5,148,700
Totals	$ 4,738,000	$ 4,738,000			$ 410,700	$ 410,700	$ 5,148,700	$ 5,148,700

* On first year (1921), $\frac{3}{8}$ × col. 2.
On other years $\frac{1}{2}$ × col. 2.

Table 23f. **Metcalf's Going Value Determination** for the Passaic Water Company, as of December 31, 1920, by the Comparative Method based upon RATES YIELDING 7% FAIR RETURN upon the Depreciated Reproduction Cost on "NORMAL PRICES."

Assumed Capital in Hands of Investor-Builder December 31, 1920.

Reproduction Cost of Depreciated Physical Plant.	$ 4,738,000
Interest during Construction.	410,700
Depreciated or Net Reproduction Cost Exclusive of Going Value and Exclusive of Value of Water Diverted from S.U.M. and Dundee Water Power and Land Co.	$ 5,148,700
Add Assumed Going Value (determined here-after)	943,000
Assumed Capital in Hands of Investor-Builder December 31, 1920 Excluding Allowance for Water Diverted from S.U.M. and Dundee Water Power and Land Co.	$ 6,091,700

Assumed Period of Construction, 4 years; of developement of business, 5 years, two of which overlap the Construction Period; making the Total Period of Construction and Developement, 7 years.

Fair Return 7% upon the Depreciated Reproduction Cost plus Going Value, aggregating $6,091,700. Interest Allowances on Comparative Plant -- 5% on Capital Unemployed for a year or more, 2% for ½ year on Capital used during year. Present Worth Rate -- 6%

	Existing or Going Plant.					New or Comparative Plant.								Excess Net Annual Return of Existing over New Plant.	Determination of Interest upon Unemployed Capital of New Plant.							Excess Net Return of Existing over New Plant.		Present Worth of Excess Net Return of Existing over New Plant.			
			Fair Net Annual Return.		Equitable Gross Annual	Operation, Maintenance and Taxes.		Depreciation Allowance.		Combined Operation, Maintenance Taxes & Depreciation.	Gross Annual Revenue.		Net Annual Return.		Investment to Date in New Plant Excluding Going Value.	Amount withdrawn for Construction and Interest During Year.	Amount of Capital unemployed which is Earning 5% Interest.	One Year's Interest on		Interest During Construction.	Total Interest Adjustment for New Plant.	Before Adjustment for Interest See Col. (15)	After Adjustment for Interest Col. (23-22)			Amounts	
Year Ending Dec. 31.	Operation, Maintenance, and Taxes.	Depreciation Allowance.	Base on which it is Figured.	Amount at 7% Rate. (7% × col. 4)	Revenue. Cols. (2+3+5)	% of Existing Plant.	Amount. Col. (7×2)	Sum on which Based.	Amount.	Cols. (8+10)	% of Existing Plant.	Amount. Col. (12×6)	Col. (13-11)	Col. (5-14)				Half of Col. (17) @ 2%	Col. (18) @ 5%	(See Table Col. 6)	Cols. (19+20+21)			Period of Years	Factor @ 6%	Annual	Cumulative
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)
1921	$ 333,000	$ 64,000	$ 6,091,700	$ 426,400	$ 823,400	—	—	—	—	—	—	—	—	$ 426,400	$ 1,124,800	$ 1,124,800	$ 4,023,900	$ 11,200	$ 201,200	$ 28,800	$ 241,200	$ 426,400	$ 185,200	1	.9434	$ 174,600	$ 174,600
1922	295,000	60,000	6,091,700	426,400	781,400	15	$ 44,200		—	$ 44,200	—	—	$ -44,200	470,600	2,695,000	1,570,200	2,453,700	15,700	122,700	127,200	265,600	470,600	205,000	2	.8900	192,400	357,000
1923	295,000	61,000	6,091,700	426,400	782,400	50	147,500		$ 30,000	177,500	25	$ 195,600	18,100	408,300	4,056,800	1,361,800	1,091,900	13,600	54,600	217,800	286,000	408,300	122,300	3	.8396	102,800	459,800
1924	301,000	62,000	6,091,700	426,400	789,400	75	226,000		62,000	288,000	50	394,700	106,700	319,700	5,148,700	1,091,900	—	10,900	—	36,900	47,800	319,700	271,900	4	.7921	215,100	674,900
1925	308,000	63,000	6,091,700	426,400	797,400	90	277,200		63,000	340,200	70	558,200	218,000	208,400	—	—	—	—	—	—	—	208,400	208,400	5	.7473	155,600	830,500
1926	314,000	64,000	6,091,700	426,400	804,400	100	314,000		64,000	378,000	85	683,700	305,700	120,700	—	—	—	—	—	—	—	120,700	120,700	6	.7050	85,100	915,600
1927	321,000	65,000	6,091,700	426,400	812,400	100	321,000		65,000	386,000	95	771,800	385,800	40,600	—	—	—	—	—	—	—	40,600	40,600	7	.6651	27,000	942,600
																									Going Value	$ 943,000	

Accompanying Metcalf's Valuation as of Dec. 31, 1920.

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Table 23g. **Metcalf's Going Value Determination** for the Montclair Water Company, as of December 31, 1920, by the Comparative Method based upon Depreciated Reproduction Cost on "NORMAL PRICES" **Order and Rate of Construction.**

Year Ending Dec. 31	Real Estate and Rights of Way.	Water Power Diversion at Little Falls.	Gravity Intake, Coag. Basin, Filters, Chem. Treat. Pl. Clear Wat. Basin. Acc't. Am't. 112 $11,600 115 47,600 117 73,900 119 1,400 120 31,400	Pump. Sta. Steam Power Pumping Equip., Hyd. Power Equip. Misc. Pump. Equip. Acc't. Am't. 121 $100,800 122 95,500 123 [illegible],800 126 1,000	Transmission Mains and Accessories. Acc't. Am't. 127 $28,600	Reservoirs, Springs and Wells. Acc't. Am't. 109 $1,100 128 55,700	Distribution Mains and Accessories. Fire Hydrants. Acc't. Am't. 129 $876,500 132 45,600	Services and Meters. Acc't. Am't. 130 $34,000 131 52,400	Gen'l. Structures, Gen'l. Equipment. Fixed Capital in other Dept., Construction in Progress. Acc't. Am't. 134 $30,500 135 11,100 150 3,900 151 1,400	Preliminary Organization Incorporation etc.	Materials and Supplies. Acc't. Am't. 152 $68,200	Total Net Depreciated Reproduction Cost Exclusive of Interest during Construction and Going Value.	
	$267,383	$75,000	$165,900	$259,100	$28,600	$56,800	$922,100	$86,400	$46,900	$29,300	$68,200	$2,006,000	
	$267,000	$75,000	$166,000	$259,000	$29,000	$57,000	$922,000	$87,000	$47,000	$29,000	$68,000	During Year	To Date
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1921	$267,000	$75,000	$60,000	$40,000	—	—	$45,000	—	—	$29,000	—	$516,000	$516,000
1922	—	—	106,000	100,000	$29,000	$35,000	400,000	$40,000	$30,000	—	—	740,000	1,256,000
1923	—	—	—	119,000	—	22,000	477,000	47,000	17,000	—	$68,000	750,000	2,006,000
Totals	$267,000	$75,000	$166,000	$259,000	$29,000	$57,000	$922,000	$87,000	$47,000	$29,000	$68,000	$2,006,000	$2,006,000

Table 23h. Going Value Determination ··· **Interest during Construction.**

Year Ending Dec. 31	Net or Depreciated Reproduction Cost of Property excluding Interest during Construction. Additions during year. Col. 13 Table	Cumulative amounts to end of year.	Equivalent average amt. added, running full year. *	Average amt. on which Interest is chargeable for Full year.	Interest during Construction at 7% During year. 7% × Col. 5	Cumulative to date.	Net or Depreciated Cost of Physical Property incl. Interest during Construction. Added during year.	Cumulative to date.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1921	$516,000	$516,000	$194,000	$194,000	$13,600	$13,600	$529,600	$529,600
1922	740,000	1,256,000	370,000	886,000	62,000	75,600	802,000	1,331,600
1923	750,000	2,006,000	375,000	1,631,000	114,200	189,800	864,200	2,195,800
Totals	$2,006,000	$2,006,000			$189,800	$189,800	$2,195,800	$2,195,800

* On first year (1921), 3/8 × col. 2.
On other years 1/2 × col. 2.

Table 23i. **Metcalf's Going Value Determination** for the Montclair Water Company, as of December 31, 1920, by the Comparative **Method** based upon RATES YIELDING 7% FAIR RETURN upon the Depreciated Reproduction Cost on "NORMAL PRICES".

Assumed Capital in Hands of Investor-Builder December 31, 1920.

Reproduction Cost of Depreciated Physical Plant	$ 2,006,000
Interest during Construction	189,800
Depreciated or Net Reproduction Cost Exclusive of Going Value and Exclusive of Value of Water Diverted from S.U.M. and Dundee Water Power and Land Co.	$ 2,195,800
Add Assumed Going Value (determined here-after)	377,000
Assumed Capital in Hands of Investor-Builder December 31, 1920 Excluding Allowance for Water Diverted from S.U.M. and Dundee Water Power and Land Co.	$ 2,572,800

Assumed Period of Construction, 3 years, of developement of business, 4 years, one of which overlaps the Construction Period; making the Total Period of Construction and Developement, 6 years.

Fair Return 7% upon the Depreciated Reproduction Cost plus Going Value, aggregating $ 2,572,800. Interest Allowances on Comparative Plant -- 5% on Capital Unemployed for a year or more, 2% for ½ year on Capital used during year. Present Worth Rate -- 6%

Year Ending Dec. 31.	Existing or Going Plant.				Equitable Gross Annual Revenue. Cols. (2+3+5)	New or Comparative Plant.								Excess Net Annual Return of Existing over New Plant. Col. (5-14)	Determination of Interest upon Unemployed Capital of New Plant.							Excess Net Return of Existing over New Plant.		Present Worth of Excess Net Return of Existing over New Plant.			
	Operation Maintenance and Taxes.	Depreciation Allowance.	Fair Net Annual Return. Base on which it is Figured	Fair Net Annual Return. Amount at 7% Rate. (7% × Col. 4)		Operation, Maintenance and Taxes. % of Existing Plant.	Operation, Maintenance and Taxes. Amount. Col. (7×2)	Depreciation Allowance. Sum on which Based.	Depreciation Allowance. Amount.	Combined Operation, Maintenance Taxes & Depreciation. Cols (8+10)	Gross Annual Revenue. % of Existing Plant.	Gross Annual Revenue. Amount. Col. (12×6)	Net Annual Return. Col. (13-11)		Investment to Date in New Plant Excluding Going Value.	Amount withdrawn for Construction and Interest During Year.	Amount of Capital unemployed which is Earning 5% Interest.	One Year's Interest on: Half of Col. (17) @ 2%	One Year's Interest on: Col. (18) @ 5%	Interest During Construction. (See Table Col. 6)	Total Interest Adjustment for New Plant. Cols. (19+20+21)	Before Adjustment for Interest. See Col. (15)	After Adjustment for Interest. Col. (23-22)	Period of Years.	Factor @ 6%	Amounts. Annual.	Amounts. Cumulative.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)
1921	$ 126,000	$ 23,000	$2,572,800	$ 180,100	$ 329,100	—	—		—	—	—	—	—	$ 180,100	$ 529,600	$ 529,600	$1,666,200	$ 5,300	$ 83,300	$ 13,600	$ 102,200	$ 180,100	$ 77,900	1	.9434	$ 73,400	$ 73,400
1922	110,000	23,000	2,572,800	180,100	313,100	20	$ 22,000		—	$ 22,000	—	—	$-22,000	202,100	1,331,600	802,000	864,200	8,000	43,200	62,000	113,200	202,100	68,900	2	.8900	79,100	152,500
1923	113,000	23,000	2,572,800	180,100	316,100	50	56,500		$ 11,000	67,500	25	$ 79,000	11,500	168,600	2,195,800	864,200	—	8,600	—	114,200	122,800	168,600	45,800	3	.8396	38,500	191,000
1924	114,000	23,000	2,572,800	180,100	317,100	90	102,600		23,000	125,600	50	158,500	32,900	147,200	—	—	—	—	—	—	—	147,200	147,200	4	.7921	116,600	307,600
1925	116,000	23,000	2,572,800	180,100	319,100	100	116,000		23,000	139,000	80	255,300	116,300	63,800	—	—	—	—	—	—	—	63,800	63,800	5	.7473	47,700	355,300
1926	118,000	23,000	2,572,800	180,100	321,100	100	118,000		23,000	141,000	90	289,000	148,000	32,100	—	—	—	—	—	—	—	32,100	32,100	6	.7050	22,600	377,900
																									Going Value	$ 378,000	

Accompanying Metcalf's Valuation as of Dec. 31, 1920

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Exhibit P26.

Metcalf's Valuation of the Little Falls Water Rights.

VALUE OF LITTLE FALLS, N. J. WATER RIGHTS

ACQUIRED FROM THE BEATTIE MANUFACTURING CO.
ACCOMPANYING REPORT UPON THE

Fair Value of the Property of

THE PASSAIC WATER COMPANY
THE ACQUACKANONK WATER COMPANY
THE MONTCLAIR WATER COMPANY
THE EAST JERSEY WATER COMPANY
THE KEARNEY WATER COMPANY

CONTROLLED BY

THE NEW JERSEY GENERAL SECURITY COMPANY

PATERSON, NEW JERSEY.
As of December 31, 1920.

Metcalf & Eddy, Consulting Engineers,
14 Beacon Street, Boston, Mass.
December 10, 1921.

Exhibit P26

LETTER OF TRANSMITTAL.

Leonard Metcalf
Harrison P. Eddy
Charles W. Sherman
Almon L. Fales
Frank A. Marston

Members Am. Soc. C. E.

Designs Construction
Supervision Management
Water Works
Water Purification
Sewerage
Sewage Disposal
Industrial Waste Disposal
Reports Valuations

File

METCALF & EDDY
Consulting Engineers
14 Beacon Street
Boston, Mass.

December 10, 1921.

Mr. Edmund LeB. Gardner, President,
New Jersey General Security Company,
158 Ellison Street,
Paterson, N. J.

My dear Sir:

I send you herewith Volume IV of my report upon the Value of the Properties of The Passaic, The Acquackanonk, The Montclair, The East Jersey and The Kearney Water Companies—controlled by the New Jersey General Security Company of Paterson, New Jersey.

VOLUME IV contains an analysis of the

"VALUE OF LITTLE FALLS, N. J. WATER RIGHTS,

ACQUIRED FROM THE BEATTIE MANUFACTURING COMPANY."

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Respectfully submitted,

METCALF AND EDDY,

By LEONARD METCALF.

REPORT.

*1

Value of the Water Rights at Little Falls Acquired from the Beattie Manufacturing Company.

Under the terms of an agreement dated February 15, 1898, the East Jersey Water Co. acquired from the Beattie Mfg. Co., the plant of which is on the opposite side of the river from the property of the water companies, the right to divert the flow of the Passaic River

from it, subject to the reservation to the Beattie Mfg. Co. of a flow of water of 225 cu. ft. per sec. up to a certain date, and thereafter of but 2,000,000 gallons per day.

In the latter part of March, 1911, the Beattie Mfg. Co. started its steam plant installed to produce the power theretofore developed by water and since that time is assumed to have diverted to its own use from the Passaic River but 2 mgd. of water.

For these rights and for certain easements, rights of way and land, the water company paid the sum of $530,000.

These rights subsequently became the joint property of the East Jersey, the Passaic, the Acquackanonk and the Montclair Water Companies.

This purchase was quite independent of the rights and claims of riparian owners, upon the Passaic River below Little Falls, for water taken from the Passaic River for the use, or to supply the consumption of, the several communities served. The latter will be covered in a separate discussion of water diversion rights.

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*2

Hydraulic Data Relating to the Little Falls Water Power Privilege.

Drainage area above Little Falls			773 sq. miles
Deduct diversion by the Cities of			
	Newark	62.5	
	Jersey City	121.5	184 " "
Net Drainage area tributary and available to the Little Falls Plant			589 sq. miles
Gross fall			35.1 ft.
Average daily fall, corresponding to actual variations in rate of stream flow			33.7 ft.

589 sq. mi. x 35.1 foot maximum fall=20,674 foot miles
589 sq. mi. x 33.7 foot average fall=19,849 foot miles

A reasonable water power development upon the Passaic River at this point for ordinary manufacturing or industrial uses would be to a limit of about 3,000 H. P. and to special uses, of a considerably larger amount.

Owing to the lack of ample storage facilities upon the river above Little Falls, whereby the minimum dry weather flow of the Passaic River could be increased sufficiently to give at all times, power equal to or in excess of the needs of these works, the East Jersey Water Co. built an auxiliary steam plant with boiler plant and coal-shed, and subsequently oil storage tanks, in separate structures opposite the pumping station, with railroad siding leading to them from which the fuel and supplies might be unloaded advantageously; and equipped its pumps to run by steam as well as water power.

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*3

Table 1.* Monthly and Annual Precipitation, in inches, at Paterson, N. J., for the Years 1888 to 1911, inclusive. From U. S. Government Records, Observer Probert.

*Table 10 in. 1912 Appraisal.

*4

Table 2*. Monthly and Annual Precipitation, in Inches, at Little falls and Boonton, N. J.

*Table 11 in 1912 Report.

*5

Table 3. Monthly and Annual Precipitation in inches, at Little Falls, N. J., for the Years 1913 to 1921. From U. S. Government Records.

	1913	1914	1915	1916	1917	1918	1919	1920	1921
Jan.	3.88	4.01	7.16	1.14	3.31	4.01	3.26	3.00	3.43
Feb.	2.72	2.38	4.36	4.79	1.67	2.86	3.22	5.38	5.82
Mar.	5.21	2.79	1.27	2.94	4.02	1.61	6.08	4.58	3.58
Apr.	5.94	3.57	2.74	4.26	2.32	3.76	3.35	5.05	4.10
May	3.17	3.26	3.75	3.60	4.00	3.73	5.41	3.62	5.14
June	1.17	2.73	4.06	5.76	3.85	3.47	2.17	4.24	3.06
July	3.81	6.59	2.70	3.15	3.03	4.40	7.32	10.01	2.30
Aug.	2.83	1.58	8.70	1.24	0.91	2.52	4.74	9.74	5.02
Sept.	2.94	.21	3.51	3.62	1.43	2.91	5.01	4.18	1.93
Oct.	10.19	2.50	3.33	2.08	7.41	0.92	3.92	4.20	4.32*
Nov.	2.82	4.22	2.03	2.42	0.79	2.09	3.82	4.13	2.79*
Dec.	3.88	5.59	7.83	3.57	3.06	3.24	2.74	6.63	4.57*
	48.56	39.43	51.44	38.57	35.80	35.82	51.04	64.84	46.06±

Average Annual (1913-1920)=45.65 inches
" " (1916-1921)=45.30 "

*Normal for 9 years.

Exhibit P26

Table 4. Monthly and Annual Precipitation in inches, at Paterson, N. J., for the Years 1912 to 1921. From U. S. Government Records.

	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921
Jan.	2.02	3.38	3.76	6.85	1.25	2.89	3.75	2.99	2.47	3.09
Feb.	2.16	2.76	2.80	5.94	5.20	2.22	2.35	3.17	5.29	3.95
Mar.	7.78	5.19	3.31	1.05	3.34	4.24	1.08	7.40	3.66	2.71
Apr.	2.96	5.34	3.62	3.05	4.02	2.02	3.74	2.68	4.21	3.04
May	4.48	2.53	2.68	3.53	4.33	4.28	3.81	5.28	2.75	3.82
June	2.22	2.04	2.98	2.18	4.63	2.93	2.23	2.00	4.17	2.32
July	1.82	2.35	4.76	4.03	4.02	2.71	5.22	7.96	6.70	1.66
Aug.	1.77	3.07	1.27	9.21	0.37	0.86	1.10	4.05	5.54	3.98
Sept.	4.35	2.84	.33	3.20	2.99	1.41	3.82	5.18	4.82	1.66
Oct.	3.15	9.98	2.78	2.90	2.15	6.39	0.79	3.64	1.81	4.73*
Nov.	3.71	2.96	3.61	1.85	2.21	0.58	2.17	2.56	3.22	2.54*
Dec.	4.40	3.53	5.09	4.97	4.31	3.94	3.21	2.09	5.41	3.62*
	43.66	45.97	36.99	48.76	38.82	34.47	33.27	49.00	50.05	37.12±

Average Annual 1912-1920=42.33 inches
" " 1916-1921=40.45 inches

*Normal for 9 years.

Table 5*—New Jersey General Security Company

AVERAGE WEEKLY FLOW IN CUBIC FEET PER SECOND

In the Passaic River, Great Falls, Paterson, N. J.

Weeks Arranged in Chronological Order

Recorded by the Society for Establishing Useful Manufacturers

June 24, 1913.

Exhibit P26

*7

Table 5 (Cont.) New Jersey General Security Company.

AVERAGE WEEKLY FLOW IN CUBIC FEET PER SECOND

IN THE PASSAIC RIVER, GREAT FALLS, PATERSON, N. J.

Weeks Arranged in Chronological Order

Recorded by the Society for Establishing Useful Manufacturers

Nov. 1, 1921.

*8

Table 6*—New Jersey General Security Company.

AVERAGE WEEKLY FLOW IN CUBIC FEET PER SECOND

IN THE PASSAIC RIVER, GREAT FALLS, PATERSON, N. J.

Weeks Arranged in Order of Dryness

Recorded by the Society for Establishing Useful Manufacturers

June 5, 1913.

Exhibit P26

*9

Table 6 (Cont.) New Jersey General Security Company.

AVERAGE WEEKLY FLOW IN CUBIC FEET PER SECOND

In the Passaic River, Great Falls, Paterson, N. J.

Weeks Arranged in Order of Dryness

Recorded by the Society for Establishing Useful Manufacturers

Nov. 3, 1921.

Table 72*—Little Falls, N. J. Water Power Privilege of the New Jersey General Security Company, Fifteen Year Average Flow or Discharge of the Passaic River at Little Falls, Based Upon Actual Gagings at Great Falls, Corrected for Difference in Drainage Area, (773 to 796 sq. mi. = 97%) Arranged by Weeks in Order of Dryness before Averaging; Corresponding Fall and Available Horse Power on an Assumed Wheel Efficiency of 80 Per Cent.

Period	Quantity Cu. Ft. per Second	Fall in Feet	H. P. at 80% Effi-ciency	H. P. at 80% Effic. Based upon Max. Wheel Capacity of 1,005 c. f. p. s.	Remarks
(1)	(2)	(3)	(4)	(5)	
Driest Week	145	35.1	462	462	
27th week or 6th Month	832	33.8	2,554	2,554	
Approx. Wheel Development	1,005	33.6	3,065	2,044	
31st week or 7th Month	1,053	33.6	3,210	3,066	
Wettest Week	6,900	31.	19,414	2,829	
Average for Year	1,322	33.7	4,040	—	
Average for Year on wheel development on 1,005 c. f. p. s.	679	33.7	—	2,044	
			(In 1912,—	1,909)	
Average for Year on wheel devel. of 1,005 c. f. p. s. but utilizing max. of 1,540 H. P., corresponding to the aver. water pumpage for 1912 (30.8 mgd.)	—	33.7	—	1,296	Note: 1,540 H. P. avail. for 32 weeks
			(1n 1912,—	1,197±	" " " " " " 28 "
Ditto, utilizing max. of 2,000 H. P., corresponding to the estimated aver. water pumpage for 1919 (40 mgd.)	—	33.7	—	1,563	Note: 2,000 H. P. avail. for 29 weeks
			(In 1912,—	1,441	" " " " " " 26 "
Ditto, utilizing max. of 2,800 H. P., corresponding to the estimated aver. water pumpage for 1928 (56 mgd.)	—	33.7	—	1,968	Note: 2,000 H. P. avail. for 24 weeks
			(In 1912,—	1,832	" " " " " " 23 "

Note: The power yields in the year 1912 were about 93% of the 15 year average.
*Table 22 in 1912 appraisal.

40 30 20 10

Exhibit P26

*11

Wheel Development and Auxiliary Steam Power Capacity.

The wheel installation consists of:

3 Francis Wheels, 76 inch, of total rated capacity 2000 H. P.
1 " " 76 inch, of total rated capacity 700 H. P.
1 McCormick Wheel, 30 inch, of total rated capacity 240 H. P.

Total 2940 H. P.

The maximum capacity of these wheels with 1005 cfs., 33.7 foot average fall, and 80% efficiency, is 3065 H. P. and under the average dry weather flow limitations, the average capacity is 2044 H. P.

As a result of investigations made in 1912, it was found that the wheel installation was capable of delivering under average conditions prevailing during the 15-year period from 1898 to 1912—

1539 H. P. corresponding to 31 mgd. pumped for 32 weeks in the average year;
2000 H. P. corresponding to 40 mgd. to be pumped in the year 1919 for 29 weeks in the average year;
2800 H. P. corresponding to 56 mgd. to be pumped in the year 1928 for 24 weeks in the average year.

The additional stream flow records obtained during the intervening period from 1912 to 1921, make available more reliable averages, covering a total period of observation of 23 years from 1898 to 1921. These new averages confirm the earlier 15 years averages, and differ but slightly from them, so that it has not appeared necessary to revise the analyses made in 1912. The differences are within the limits of accuracy of such work.

The present installation of pumps and steam boilers at Little Falls is as follows:

PUMPING UNITS.

No. of Units	Service	Capacity in Mgd. of Each Unit	Capacity in Mgd. of Total	Source of Power	Type	Total Lift (Av.) ft.	Water HP (Combined Units)	Line Shaft HP Required at 85% Efficiency	Gross HP at 68% over-all Effic. (80% x 85%)
1	Low	20	20	Water or Steam	Riedler Fly Wheel	150*	530	625	780
3	High	10	30	Water or Steam	Riedler Fly Wheel	290	1,530	1,800 at 75% effic.	2,250 at 60% effic.
1	High	12	12	Steam	Worthington Centrifugal	312	660	880	1,100
1	"	13.5	13.5	Steam	Allies Chalmers Centrif.	350	830	1,105	1,383
Total (active)			75.5 mgd.				3,550	4,410	5,513
(In reserve) 2	High	5	10	Steam	Holly Fly Wheel (in reserve)	290	510		

Grand Total 85.5 mgd. (50 mgd. of which can be operated either by steam or by water power)
(*—In 1920—Average 152 ft., in 1921—176.6 ft.)

BOILER UNITS.

No. of Units	Capacity H. P. Of Each Unit	Capacity H. P. Total	Maker
5	250	1,250	Heine
1	500	500	Edgemoor
2	500	1,000	Babcock and Wilcox
Total	8 units	2,750 HP (Total)	

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*13

The present steam capacity of the 8 boilers of 2750 H. P. nominal rating is equivalent to approximately 4500 engine H. P. based upon a steam consumption by the engines of 18 pounds per H. P. hour. The latter assumption (17.5 lbs. of steam consumption by the engines per H. P. hour) is equivalent to a coal duty of approximately 2 1/2 pounds per H. P. hour (60 lbs. per H. P. day) at 7 pounds steam evaporation per pound of coal, the corresponding duty per thousand pounds of dry steam being approximately 114,500,000 foot pounds.

The pre-war price of coal was approximately $3 per long ton of 2240 lb. delivered in the bins. This figure increased progressively during the war period to a maximum of $6.70 per (long) ton in October, 1920, at which figure it still remains (Nov. 1, 1921).

There are two electric generators of 80 kw each (370 rpm. D. C., 335 amperes, one of 230 to 240 volts, and one of 250) direct connected to a Ball and Wood 9" x 12" high speed, vertical, flywheel engine and McCormick water wheel of 240 H. P. A third generator of 160 kw. (175 rpm., D. C., 600 amperes, 240 to 250 volts) is direct connected to a Ball and Wood 18" x 18" high speed, vertical engine.

The output of these generators and the approximate gross water horse power and the net horse power on the wheel shaft, based upon an assumed efficiency of 75%, for the period of years from 1912 to 1921, are shown in the following tabulation. They indicate an average power demand on wheel shaft of 77 H. P.

Exhibit P26

*14

ANNUAL RECORD OF AVERAGE DAILY ELECTRIC POWER CONSUMPTION.

Year	Kw.	Gross Water H. P. at an assumed over-all efficiency of 75% × 90%=67.5%	Net H. P. on Shaft of Water Wheel at Efficiency of 75%	
1912	47.3	93.8	70.3)	
1913	43.6	86.4	64.4)	Aver.
1914	43.4	85.8	64.3)	66.0
1915	43.5	86.4	64.8)	
1916	42.5	84.2	63.2)	
1917	69.7	138.0	103.4)	Aver.
1918	77.5	153.5	115.0)	84.6
1919*	51.6	102.3	76.7)	
1920	54.5	108.2	81.3)	
1921**	43.9	86.8	88.2)	
Average	51.7	102.5	77.2	

*11 months average. Nov. record lacking.
**9 months average. (Jan.-Sept.)

ESTIMATED POWER AVAILABLE AT LITTLE FALLS.

The figures which follow, were given in Table 24, page 69, of the 1912 appraisal. They were based upon observations of the flow at Great Falls during the period of 15 years from 1898 to 1912 both inclusive,

with the average weekly flow arranged in order of dryness, corrected for the difference in drainage areas, and with the net fall actually developed, under different rates of stream flow. The figures have not been modified to accord with the average for the longer period of 23 years to date because, as will be seen from Tables 5 and 6, the difference in the averages found for the 15-year end and for the 23-year periods is negligible in this discussion, being but about 4%.

*15

Table 8**—Estimate of Available Power at Little Falls Privilege of the East Jersey Water Company. Flow Arranged by Weeks in Order of Dryness. Fall from Actual Gagings, Corresponding to Stream Flow.* *Based upon Average of 15 Year Record of Flow,* Kept at Great Falls by the Society for Establishing Useful Manufactures.

*Net Horse Power at 80% Wheel Efficiency, given for Total Average Flow for Present Wheel Installation (having a capacity of 1,005 c. f. p. s.) for Power Consumption of 1540 Maximum Horse Power, Corresponding to 30.8 mgd. average pumped in 1912; for 2,000 Maximum Horse Power, Corresponding to 40 mgd. Average Consumption Estimated for the year 1919; 2,800 Maximum Horse Power, Corresponding to 56 mgd., average consumption estimated for year 1928; with Deficit in Power which must be met by steam.

**Table 24 in 1912 Report.

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*16

Table 9*—Estimate of Available Power at Little Falls Privilege of the E. Jersey Water Company, Flow Arranged by Weeks in Order of Dryness, and Fall from Actual Gagings Corresponding to Stream Flow. Net Horse Power at 80% Wheel Efficiency, given for Total Average Flow for Present Wheel Installation (having a capacity of 1,005 c. f. p. s.) for Power Consumption of 1540 Maximum H. P.. Corresponding to 30.8 mgd. Average pumped in 1912; for 2,000 Maximum H. P., Corresponding to 40 mgd. Average Consumption Estimated for the Year 1919; 2,800 Maximum H. P., Corresponding to 56 mgd., Average Consumption Estimated for Year 1928; with Deficit in Power which Must be Met by Steam.

Based upon Observed Flow of the Passaic River in the Year 1912.

*17

Table 10*—New Jersey General Security Company, Paterson, N. J. Total Horse Power Required on Wheel Shaft to Operate the Little Falls Pumping Station in the Year 1912.

*18

In Table 25, page 70, of the 1912 appraisal, will be found a similar table "Based Upon Observed Flow of the Passaic River in *the Year 1912*.

It will be observed from Table 7, that the present wheel installation has an approximate capacity of 1,005 cubic feet per second, which upon the average fall of 33.7 ft. and on 80% wheel efficiency, would give on the wheel shaft a maximum of 3065 H. P.,

and an average of 2,044 H. P. as limited by variation in flow. With this wheel capacity under average conditions (indicated by the 15-year record of flow from 1898 to 1912, confirmed by the 23-year record from 1898 to 1920) and an average daily demand for power corresponding to that involved in pumping 30.8 mgd., as occurred in the year 1912, an average power on wheel shaft of 1296 H. P. can be developed. If the daily power requirement be increased from 1540 H. P. to 2,000 H. P., corresponding to the power demand incident to pumping 40 mgd., an average daily power on wheel shaft, of 1563 H. P. can be developed; and with an average daily demand of 56 mgd., corresponding to a power demand of 2800 H. P., an average daily power on the wheel shaft of 1968 H. P. can be developed during the year.

The total power on the wheel shaft required to operate the Little Falls pumping station in the year 1912, is shown in Table 10.

Saving in Cost of Pumping Due to Water Plant. A careful analysis covering the period from Jan. 1, 1912, to August 31, 1921, has been made of the annual saving in operating cost due to combined steam and water power pumping as compared with the cost which would have been involved by complete steam pumping. These estimates were based upon the actual cost of pumping water by water power during the months when water power alone was used; and by steam power when

water was pumped solely by steam power or when the amount of water power developed was relatively small and correction for it could be made on the basis of the actual cost of the water power. Consideration was given to the relative quantity of water pumped into low and high service and relative total head involved. The operating cost was segregated into the items "Labor Cost," "Fuel and Supplies" and "Total Annual Cost," because the accounts lent themselves most readily and accurately to this segregation.

During the period up to the latter part of October, 1920, coal was used as fuel. Since that date both coal and fuel oil have been used in the generation of steam—fuel oil having been used in larger part during the year 1921.

The detailed computations relating to saving in operating cost of combined water and steam pumping at the Little Falls pumping station, as compared with all steam pumping, for the years 1912 to 1921, prorating the 12 months' period on the 8 months' record in 1921, are shown in Tables 11-21 following:

Exhibit P26

*20

Table 11*—Cost per Million Gallons of Pumping Water by Steam or by Water Power at the Little Falls Pumping Station, New Jersey. Based upon Monthly Records for the Year 1912 and excluding Fixed Charges and Depreciation Allowances.

Month	Million Gallons Pumped Low Pressure	High Pressure	Total	Cost Total	Average Cost per Million Gallons Average	Low Pressure	High Pressure
				(By Water)			
March	400.5	569.9	970.4	$2,268	$2.34	$1.48	$2.94
April	325.7	560.1	885.8	1,739	1.96	1.20	2.41
May	357.6	523.2	880.8	1,789	2.03	1.26	2.56
Nov.	319.9	535.6	855.5	2,103	2.46	1.50	3.04
Average	350.9	547.2	898.1	$1,975	$2.20	$1.36	$2.74
				(By Steam)			
July	387.4	614.8	1,002.2	$4,887	$4.88	$3.04	$6.03
Aug.	364.1	586.6	950.7	4,747	4.99	3.06	6.19
Sept.	348.6	548.2	896.8	4,490	5.00	3.12	6.21
Average	366.7	583.2	949.9	$4,708	$4.96	$3.07+	$6.14+
Saving in Water Power					2.75	$1.71	$3.40
Actual Average Cost Mixed Power, 1912					$3.72	$2.30	$4.57

*Table 29 in 1912 appraisal.

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*21

Table 12*—Estimated Saving in Cost (Operating Charges Only) of Pumping Water in the Year 1912 at the Little Falls Pumping Station of the East Jersey Water Company, By Means of Water Power and Steam Power, Compared With Cost of Pumping Wholly by Steam Power, Based Upon Previous Tabulations.

(1) 1912 Month	(2) L. P. Water Million	(3) H. P. Pumped Gallons	(4) $3.07 L. P. at Cost	(5) $6.14 H. P. at for Pumping	(6) Total	(7) Steam Water & Cost by Actual	(8) (only) by Steam Excess
January	453.1	556.2	$1,391	$3,415	$4,806	$4,464	$342
February	446.7	637.8	1,371	3,916	5,287	4,575	712
March	400.5	569.9	1,230	3,499	4,729	2,268	2,461
April	325.7	560.1	1,000	3,439	4,439	1,739	2,700
May	357.6	523.2	1,098	3,212	4,310	1,789	2,521
June	348.4	563.2	1,070	3,458	4,528	3,667	861
July	387.4	614.8	1,189	3,775	4,964	4,887	77
August	364.1	586.6	1,118	3,602	4,720	4,747	—27
September	348.6	548.2	1,070	3,366	4,436	4,490	—54
October	353.9	567.4	1,086	3,484	4,570	3,892	678
November	319.9	535.6	982	3,289	4,271	2,103	2,168
December	300.2	612.8	922	3,763	4,685	3,378	1,307
Total	4406.1	6875.8	$13,527	$42,218	$55,745	$41,999	$13,746
Monthly Average	367.2	572.9	$1,127	$3,518	$4,645	$3,500	$1,146
Daily Average	12.04	18.79	$36.96	$115.35	$152.31	$114.75	$37.56

*Table 30 in 1912 appraisal.

Exhibit P26

12/24/20

Table 13. Saving in Operating Cost of Combined Water and Steam Pumping at the Little Falls Pumping Station. Year 1913.

December 24, 1920.

Table 14. Saving in Cost (Operating Cost only) of Combined Water and Steam Pumping at the Little Falls Pumping Station as Compared with All Steam Pumping. Year 1914.

12/24/20

Table 15. Saving in Operating Cost of Combined Water and Steam Pumping at the Little Falls Pumping Station, as Compared with all Steam Pumping. Year 1915.

12/27/21

Table 16. Saving in Operating Cost of Combined Water at the Little Falls Pumping Station, as Compared with all Steam Pumping. Year 1916.

Exhibit P26

Dec. 24, 1920.

Table 17. Saving in Operating Cost of Combined Water and Steam Pumping at the Little Falls Pumping Station as Compared with all Steam Pumping. Year 1917.

Dec. 28, 1920.

Table 18. Saving in Operating Cost of Combined Water and Steam Pumping at the Little Falls Pumping Station, as Compared with all Steam Pumping. Year 1918.

Dec. 28, 1920.

Table 19. Saving in Operating Cost of Combined Water and Steam Pumping at the Little Falls Pumping Station, as Compared with all Steam Pumping. Year 1919.

Oct., 1921.

Table 20. Saving in Operating Cost of Combined Water and Steam Pumping at the Little Falls Pumping Station, as Compared with all Steam Pumping. Year 1920.

Table 21. Saving in Cost (Operating Cost only) of Combined Water and Steam Pumping at the Little Falls Pumping Station as Compared with all Steam Pumping. Year 1921.

Table 22.

Summarized Data Upon Saving in Cost of Pumping Due to Water Power at Little Falls (excluding allowances for Depreciation and Fixed Charges). (Computation by Slide Rule.)

	Pumped by Water Power				Pumped by Steam Power				Total by Water and Steam				
Year	Low Service m. g.	High Service m. g.	Total m. g.	% of Total Pumped by Water & Steam	Low Service m. g.	High Service m. g.	Total m. g.	% of Total Pumped by Water & Steam	Low Service m. g.	High Service m. g.	Total m. g.	Average mgd.	Jersey City Consumption Included m. g.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1912	1,915	3,241	5,156	45.7	2,491	3,634	6,125	54.3	4,406	6,875	11,281	30.8	
1913	2,650	3,494	6,144	57.8	1,705	2,782	4,487	42.2	4,355	6,276	10,631	29.1	
1914	1,732	3,471	5,203	43.5	2,858	3,896	6,754	56.5	4,590	7,367	11,957	32.7	
1915	3,349	4,338	7,687	65.4	1,250	2,810	4,060	34.6	4,599	7,148	11,747	32.1	
1916	2,929	4,868	7,797	57.7	1,952	3,769	5,721	42.3	4,881	8,637	13,518	36.9	
1917	2,224	3,903	6,127	41.1	2,688	6,089	8,777	58.9	4,912	9,992	14,904	40.8	338
1918	1,598	3,702	5,300	30.6	3,614	8,385	11,999	69.4	5,212	12,087	17,299	47.4	283
1919*	1,991	7,965	9,956	56.4	2,390	5,323	7,713	43.6	4,381	13,288	17,669	48.4	1,117
1920	2,681	6,917	9,598	50.9	2,272	6,960	9,231	49.1	4,952	13,876	18,829	51.4	2,676
1921	1,807	5,301	7,108	40.0	2,935	7,733	10,668	60.0	4,741	13,035	17,776	48.7	2,229
Total	22,876	47,200	70,076	489.1	24,155	51,381	75,535	510.9	47,029	98,581	145,611	398.3	6,643
Average	2,288	4,720	7,008	48.9	2,416	5,138	7,554	51.1	4,703	9,858	14,561	39.8	

	Av. Total Lift in Ft.		Million Ft.—Gallons Pumped by Water			Water Power Utilized average (24 hr.) HP.		
(1)	Low Service (15)	High Service (16)	Low Service (17)	High Service (18)	Total (19)	Net HP See Note (1) (20)	Gross HP. (2) at 80% x 85%=68% overall Effic. (21)	
1912	143	285	274,000	924,000	1,198,000	576	848)	
1913	141	284	374,000	992,000	1,366,000	657	965)	
1914	140	285	242,000	990,000	1,232,000	593	871)	
1915	137	285	459,000	1,236,000	1,695,000	816	1,200)	Aver.
1916	137	285	401,000	1,387,000	1,788,000	859	1,260)	1,007 HP.
1917	137	285	305,000	1,112,000	1,417,000	682	1,000)	
1918	135	286	216,000	1,058,000	1,274,000	614	904)	
1919	140	285	279,000	2,269,000	2,548,000	1,226	1,800)	
1920	152	285	409,000	1,970,000	2,379,000	1,143	1,680)	Aver.
1921	175	314	316,000	1,665,000	1,981,000	955	1,400)	1,630 HP.
Total	1437	2,879	3,275,000	13,603,000	16,878,000	8,121	11,928	
Average	144	288	328,000	1,360,000	1,688	812	1,193	

*In 1919 in consequence of pump repairs 563.5 mg. of water were pumped into the high service and dropped into the low service. This involved an approximate added cost of $2,480. (563.5 mg. at $8.66 less $4.26 less per mg.)

(1) Factor for 1 HP year is 3,300 ft. lbs. divided by 8.34 lbs. per gallons equals 3,957 ft. gals. per min. x 60 x 24 hrs. x 365 days divided by 1,000,000 gives) 2,079 million ft. gallons per year.

(2) Test in 1900 indicated on 10 mgd. under 285 ft. head an overall efficiency of 70.2%; and on 20 mgd. under 140 ft. head an efficiency of 71.5%.

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Table 22 Cont.—Summarized Data Upon Saving in Cost of Pumping Due to Water Power at Little Falls (excluding allowances for Depreciation and Fixed Charges) (Computation by Slide Rule.)

Year (1)	Total Annual Pumpage Mgd. (12)	Coal: Bought or Burned in Tons (2240 lb.) (22)	Coal: Cost Per Ton of (2240 lb.) (23)	Cost of Coal & Fuel Oil & Supplies: Total (24)	Cost of Coal & Fuel Oil & Supplies: Per mg. pumped (25=24÷12)	Labor Total (26)	Labor Per mg. pumped (27)	Combined Fuel Supplies and Labor: Total (28)	Combined Fuel Supplies and Labor: Per mg. pumped (29)
1912	11,281		$ 3.00	$ 23,177	$ 2.05	$ 18,818	$ 1.67	$ 41,999	3.72
1913	10,631	5,968	3.00	18,707	1.76	19,768	1.86	38,475	3.62
1914	11,957	7,946	3.00	24,961	2.08	20,566	1.72	45,527	3.80
1915	11,747	5,506	2.80	17,459	1.49	21,407	1.82	38,866	3.31
1916	13,518	6,222	2.97	24,923	1.84	24,177	1.79	49,100	3.63
1917	14,904	14,156	3.91	51,780	3.47	31,682	2.13	83,462	5.60
1918	17,299	16,130	4.80	100,148	5.79	48,384	2.80	148,532	8.59
1919*	17,669	14,355	5.20	80,623	4.56	53.142	3.01	133,765	7.57
1920	18,829	17,917 (4)	5.58	109,192	5.80	72,269	3.84	181,461	9.64
1921	17,776	2,001 (5)	6.70	188.775	10.60	49,764	2.80	238,539	13.41
Total	145,612		$40.96	$639,745	($39.44)	$359,977	($23.44)	$999.726	($62.89)
Weighted Average	14,561	———	$4.10	$63,974	$4.39	$35,998	$2.47	$99,973	$6.86

Exhibit P26

Year (1)	Actual Cost of Water & Steam Power: Total (30)	Aver. per m. g. (31)	Low Serv. per m. g. (32)	High Serv. per m. g. (33)	Estimated Cost on all Steam: Total (34)	Aver. per m. g. (35)	Low Serv. per m. g. (36)	High Serv. per m. g. (37)	Saving Due to Water Power: Total (38)	Aver. per m. g. (39)	Low Serv. per m. g. (40)	High Serv. per m. g. (41)
1912	$ 41,999	$ 3.72	$ 2.30	$ 4.57	$ 55,740	$ 4.94	$ 3.07	$ 6.14	$ 13,700	$ 1.22	$ 0.77	$ 1.57
1913	38,475	3.62	2.27	4.56	55,750	5.24	3.29	6.61	17,300	1.62	1.02	2.05
1914	45,527	3.80	2.33	4.74	60,100	5.02	3.07	6.24	14,600	1.21	0.74	1.50
1915	38,866	3.31	2.00	4.15	56,600	4.82	2.91	6.04	17,700	1.51	0.91	1.89
1916	49,100	3.63	2.15	4.48	74,900	5.53	3.26	6.82	25,800	1.90	1.12	2.34
1917	83,462	5.60	3.25	6.76	108,000	7.25	4.20	8.76	24,500	1.64	0.95	1.99
1918	148,532	8.59	4.81	10.20	182,500	10.54	5.92	12.52	34,000	1.96	1.11	2.33
1919*	133,765	7.57	4.26	8.66	197,200	11.15	6.22	12.80	63,400	3.59	2.02	4.11
1920	181,461	9.64	5.85	10.99	260,700	13.84	8.41	15.78	79,200	4.20	2.56	4.79
1921	238,539	13.41	8.49	15.21	345,000	19.40	12.29	22.02	106,500	5.99	3.79	6.80
Total	999,726	62.89	37.71	74.32	1,396,490	87.73	52.64	103.73	396,700	24.84	14.99	29.37
Straigse Aver.		$6.29	$3.77	$7.43		$8.77	$5.26	$10.37		$2.48	$1.50	$2.93
Weighted Aver.	$99,973	$6.87			$139,649	$9.59			$39,700	$2.72		

* See corresponding note on previous page

(4) In addition to 201,186 gallons of fuel oil bought at 4.392 c per gal. in the last three months.

(5) In addition to 3,473,648 gallons of fuel oil bought at an average price of 4.98c per gallon.

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Table 22 Cont.—Summarized Data Upon Saving in Cost of Pumping Due to Water Power at Little Falls (excluding allowances for Depreciation and Fixed Charges) (Computation by Slide Rule.)

	Computed Saving due to Water Power on					Basis of Actual Annual Consumption		
Year	Actual	Correction for Coal at $4 per ton	Correction for labor at $2.50 per m. g.	Revised-Saving with Coal $4 & Labor $2.50 per m. g.	Correction for Coal at $5 per ton	Revised Saving with Coal $5 & Labor $2.50 per m. g.	Correction for Labor at $3 per m. g.	Revised Saving with Coal at $5 Labor at $3 per m. g.
(1)	(38)	(42)	(43)	(44)	(45)	(46)	(47)	(48)
1912	$ 13,700	$ 7,700÷	$ 9,300	$30,700	$15,500	$ 38,500	$15,000	$44,200
1913	17,300	6,200	6,800	30,300	12,400	36,500	12,100	41,800
1914	14,600	8,300	9,300	32,200	16,600	40,500	15,300	46,500
1915	17,700	7,400	8,000	33,100	13,700	39,450	13,900	45,300
1916	25,800	8,600	9,600	44,000	17,000	52,400	16,300	59,100
1917	24,500	1,200	5,500	31,200	14,400	44,400	12,900	51,800
1918	34,000	—16,700	—5,200	12,100	4,200	33,000	3,500	41,700
1919*	63,400	—18,600	—9,000	35,800	—3,200	51,200	—200	60,000
1920	79,200	—30,900	—25,200	23,100	—11,300	42,700	—15,800	52,100
1921	106,500	—76,100	—5,300	25,100	—48,000	53,200	3,500	62,000
Total	$396,700	—$102,900	+$3,800	$297,600	$31,300	$431,800	$76,500	$504,500

Av. for year 1916 to 1921	$39,700	—$10,300	+$400	$29,800	$3,100	$43,200	$7,700	$50,500
Total	$333,400	—$132,500	—$29,600	$171,300	—$26,900	$276,900	$20,200	$326,700
Average	33,300	—$ 13,200	—$ 3,000	$ 17,100	—$ 2,700	$27,700	$2,000	$32,700

Year	Population Excl. Jersey City.	Water Consumption Annual mg.	Mgd.
1922	464,000	17,100	46.8
1923	474,000	17,630	48.3
1924	486,000	18,250	49.8
1925	497,000	18,700	51.2
1926	508,000	19,210	52.7
1927	520,000	19,760	54.2
1928	532,000	20,400	55.8
1929	543,000	20,950	57.4
1930	554,000	21,500	58.9
1931	565,000	22,100	60.5
10 yr. Average 1922-1931		19,560	53.5
10 yr. Average 1912-1921		14,560	39.8

*See corresponding note on previous pages.

† This figure was obtained by applying the ratio of increase of the assumed price of coal over the actual price thus

$$\frac{\$4.00 - \$3.00}{\$3.00} = 33\ 1/3\% \times \$23,177$$

(Shown in Col. 24 and being the actual cost of coal and supplies) $7,726.

Exhibit P26.

*34

Table 22. "Summarized Data Upon Saving in Cost of Pumping Due to Water Power at Little Falls (excluding allowance for Depreciation and Fixed Charges) based upon the 10-year Period of Record from January 1, 1912, to December 31, 1921," indicates that:

1. Approximately one-half of the total water has been pumped by water power.
2. Of the water pumped into low service and also into high service, approximately equal quantities were pumped by water and by steam power.
3. The average amount of water pumped has been 39.8 mgd. increasing progressively from approximately 30 mgd. to 50 mgd. It is to be noted further that a considerable amount of water was delivered to Jersey City under governmental orders during the war period, and thereafter fluctuating and in general increasing progressively as follows: 338 mg. during the year 1917, 285 mg. in 1918, 1,117 mg. in 1919, 2,676 mg. in 1920 and 2,229 mg. in 1921.
4. The average total lift in feet has been on the low service 144 ft., ranging during this period from 135 to 175 ft.; and of the high service, 288 ft., being substantially 285 ft. throughout this period, excepting the year 1921 when it was 314.
5. The gross water power utilized has averaged approximately 1200 H. P., carrying from 848 H. P. in the year 1912, to 800 H. P. in the year 1919, 1680 H. P. in 1920, and 1400

Exhibit P26

H. P. in the year 1921. The average power utilized for the seven year period from 1912 to 1918 both inclusive was 1007 H. P. and for the three year period from 1919 to 1921 approximately 1630 H. P. The stream flow during the years 1917 and 1918 was exceedingly low, and during 1919, 1920 and 1921 high.

In reviewing these figures of power utilized, it is to be borne in mind that the fluctuations are due not only to differences in rate of water consumption, but also to the variation in stream flow and hence available power.

6. The cost of fuel and supplies per million gallons of water pumped, has averaged $4.39, varying from $1.49 in the year 1915 to $5.80 in the year 1920 and $10.60 in the year 1921. The cost of labor has averaged $2.47 per million gallons pumped, increasing progressively from $1.67 to a maximum of $3.84 in the year 1920 and was $2.80 in the year 1921.

*35

The combined cost of fuel, supplies and labor has averaged $6.86 per million gallons of water pumped, increasing from an average amount of $3.62 under pre-war conditions (1912-1916) to $9.64 in the year 1920 and $13.41 in the year 1921.

7. The actual average annual saving in operating cost due to water power is estimated at the approximate sum of $39,700, increasing progressively from $13,700 in the year 1912 to $106,500 in the year 1921.

Exhibit P26

Saving Due to Water Power

Year	Amount
1912	$13,700
1913	17,300
1914	14,600
1915	17,700
1916	25,800
1917	24,500
1918	34,000
1919	63,400
1920	79,200
1921	106,500
Average	$39,700

8. The saving due to water power during this period would have been approximately $29,800 had the price of coal been uniformly $4 per ton, and of the labor $2.50 per million gallons of water pumped; $43,200 with coal at $5 per ton and labor at $2.50 per mg. of water pumped;* and $50,500 with coal at $5 per ton and labor at $3 per mg. of water pumped.

It is interesting to note further that under the conditions cited above, the actual present rate of annual saving due to water power is very substantially in excess of the average for the 10-year period, as will be seen by the following comparison:

*It was assumed further that the price of supplies varied proportionately to the price of coal.

Exhibit P26

*36

Period	Actual Saving	Estimated Saving with Coal $4 per Ton and of Labor $2.50 per mg.	Coal $5 per Ton and Labor $2.50 per mg.	Coal $5 per Ton and Labor $3 per mg.
1920	$ 79,200	$23,100	$42,700	$52,100
1921	106,500	25,100	53,200	62,000
Average	$39,700	$29,000	$43,200	$50,500

Looking forward to the future, it is clear that with increase in the water consumption there will be a corresponding increase in demand for power and hence in the actual amount of water power which can be utilized by the wheels. The relative amount of this increase is indicated by the following diagram and tabulation. The diagram shows the average net 24-hour power available on water turbine shaft with wheel efficiency of 80% and present wheel capacity of 1,005 cfs., equivalent to 3,065 H. P. net on 33.7 foot average net fall under varying daily rates of stream flow and rates of water consumption and the corresponding power demand limitations. It is based on the 15-year stream flow observations from 1898 to 1912, supported by the later observations covering the more extended period of 23 years from 1898 to 1920.

The tabulation on the diagram shows the ratio of estimated future water consumption to the average in the past six years from 1916 to 1921 and the corresponding average available water power (24 hr. H. P.) on 80% efficiency, in the Passaic River. From the latter table, it will be seen that on the forecasted increase in average daily water consumption (excluding allowance for demand from Jersey City) increasing progressively from 46.8 mgd. in 1922, to 60.5 mgd. in 1931, the corresponding average usable 24-hour power under the average conditions of the past, will be 1915 H. P., increas-

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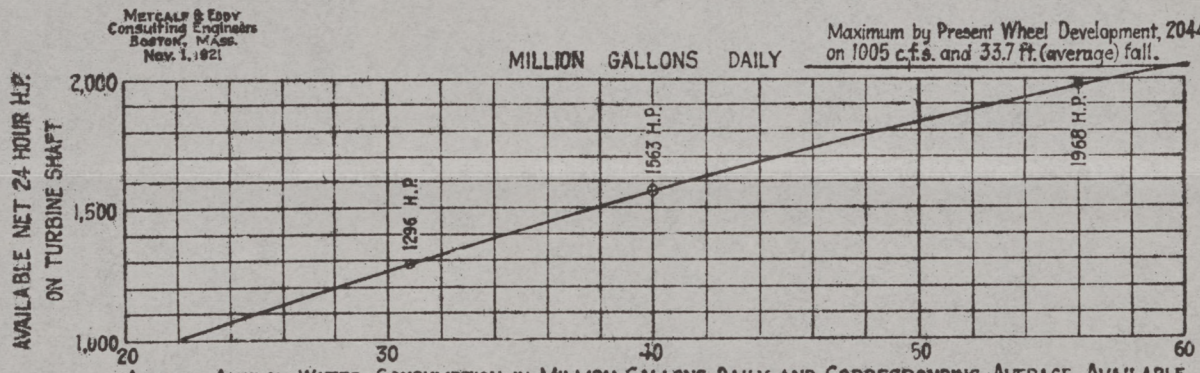
NEW JERSEY GENERAL SECURITY CO.
PATERSON, N. J.

Note:- Annual Average but 2044 H.P. due to dry weather flow.

DIAGRAM SHOWING AVERAGE NET 24 HR POWER USABLE ON WATER TURBINE SHAFT WITH WHEEL EFFICIENCY OF 80% AND PRESENT WHEEL CAPACITY OF 1005 C.F.S. (=3065 H.P. ON 33.7 FEET AVERAGE NET FALL) UNDER VARYING DAILY RATES OF WATER CONSUMPTION AND CORRESPONDING POWER DEMAND LIMITATIONS.

Based upon 15 Year Stream Flow Observations (1898-1912) at Great Falls, shown in 1912 Inventory, Tables 20 and 21 pp. 62 and 63. Note that the 23 Year Stream Flow Observations are similar to the 15 Year record and in average for the year, 4% less.



AVERAGE ANNUAL WATER CONSUMPTION IN MILLION GALLONS DAILY AND CORRESPONDING AVERAGE AVAILABLE 24 HOUR WATER POWER (H.P.) ON 80% EFFICIENCY BASIS.

RATIO OF ESTIMATED FUTURE WATER CONSUMPTION TO AVERAGE DEMAND OF PAST 6 YEARS (1916-1921)

YEAR	Water Pumped Average M.G.D. #	Corresponding Usable 24 Hour H.P. based on 80% Efficiency and on Average of 15 Years	NET AVERAGE 24 HOUR H.P. DEVELOPED: On Turbine Wheel Shaft @ 80% Efficiency	Average H.P. Corresponding to Water Consumption on 33.7 Feet Fall, 80% Effcy	On Electric Lighting Turbine @75% Efficiency	TOTAL	Average Per Cent of Average Available Power Actually Developed	Ratio of Estimated Future Water Consumption # to Average of last 6 Years (45.6 M.G.D.)
①	②	③	④	⑤	⑥	⑦	⑧	⑨
1912	30.8	1290	678	183	70.3	931	72.2	
1913	29.1	1250	772	173	64.4	1009	80.8	
1914	32.7	1350	697	194	64.3	955	70.7	
1915	32.1	1330	960	185	64.8	1210	91.0	
	36.9							
1916	36.9	1480	1008	219	63.2	1290	87.2	
1917	40.8	1590	800	242	103.4	1145	72.1	
1918	47.4	1770	723	281	115.0	1119	63.2	
1919	48.4	1800	1440	287	76.7	1804	100.0 ⊛	
1920	51.4	1870	1344	304	81.3	1729	92.4 ⊛	
8 mos. prorated 1921	48.8	1810	1539	290	68.2	1917	106.0 ⊛	
TOTALS	398.4	15540	9981	2358	771.6	13109		
AVERAGE 10 YEARS 1912-1921		1554	998	236	77.2	1311	84.5%	
AVERAGE 6 YEARS 1916-1921		1720						
1922	46.8	1760						1.026
1923	48.3	1800						1.058
1924	49.8	1840						1.090
1925	51.2	1870						1.120
1926	52.7	1900						1.152
1927	54.2	1940						1.188
1928	55.8	1970						1.222
1929	57.4	2000						1.257
1930	58.9	2030						1.290
1931	60.5	2040						1.325
TOTAL		19150						11.728
AVERAGE 10 YEARS 1922-1931		1915						1.173

⊛ Due to excess of actual power available in wet years over that on years of average flow (dryness or wetness)

Excluding allowance in the future for water demand by Jersey City.

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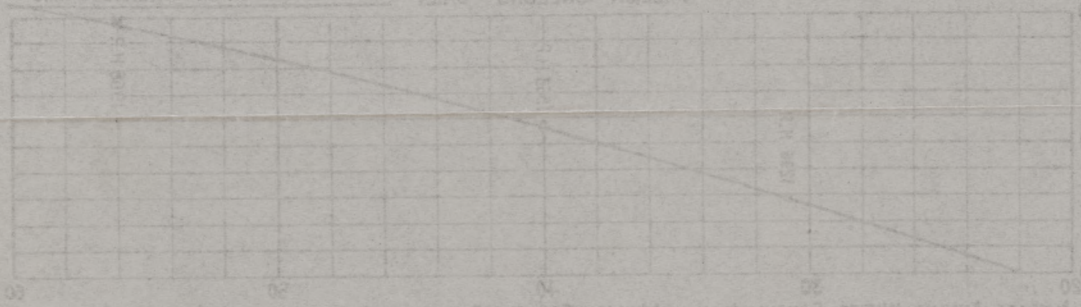

ing progressively from 1760 H. P. in the year 1922 to 2040 H. P. in the year 1931. The latter figure corresponds to the limit of usable power of the present wheel installation under average flow conditions.

Under these conditions, the ratio of the estimated future water consumption to the actual average daily water consumption of the past six years, 1916 to 1921, is as 1.173 to 1. In other words, the power utilized in the next decade promises to be approximately one-sixth greater than in the past decade.

Under these conditions, then, the average saving in annual operating cost due to the water power plant during the next decade may fairly be assumed to be one-sixth greater than the saving actually realized in the past decade under identical conditions as to operating cost, covering fuel, supplies and labor. If the costs of fuel and labor should increase during the coming decade, or even remain where they are, as compared with the averages during past decade, the saving in cost of pumping by water power would be correspondingly increased. (The application of these figures will be shown after the introduction of figures covering the maintenance, depreciation and interest upon the additional plant involved by the dual power—steam and water.)

Estimated Gross Reproduction Cost of Additional Plant Involved by Combined Steam and Water Power Pumping as Compared with all Steam Power Pumping. In Table 23 (a) following are shown in Column (1), the items making up the gross normal reproduction cost, as of December 31, 1920, of the items included in Account No. 123 (Board of New Jersey Public Utility Commissioners Uniform System of Accounts) covering "Hydraulic Power Pumping Equipment" aggregating the total sum of $657,843, excluding "Item 2, Water Power Rights."

Table 23 (a). Estimated Gross Reproduction Cost of Additional Plant Involved by Combined Steam and Water Power Pumping Plant as Compared with all Steam Pumping Plant.

Item or Group of Property (1)	Gross Normal Reproduction Cost as of December 31, 1920 Acct. No. 123. Hydraulic Pumping Equipment (2)	Deductions (See detail below) (3)	Revised Amount Net Amount Applicable to Water Power pumping Plant (4)	Estimated Annual Cost Involved on these items by Repairs and Maintenance (5)	Depreciation* Rate % (6)	Depreciation* Amount (7)	Interest at 6% (8)	Total (9)
1. Land								
(a Portion of 61.7 acres at $500	$ 16,042							
(b) Flowage Rights below Dam	436							
(c) From Beattie to Jackson's Land	4,390							
(d) " " 100 ft. strip along river	220							
	$21,088	$ 21,088	None					
2. Water Power Rights	to be determined		to be determined					
3. Beattie Dam	$ 22,500	$ 22,500	None					
4. Intake Canal and Gate Houses	275,480	$ 56,735	$218,700	$1,093	0.2	$ 437	$13,122	$14,652
5. Riedler Pumping System excl. water turbines	70,912	42,200	$ 28,700	$1,435	1.0	287	1,722	3,444
6. River Improvement below Dam	34,300		34,300	500	0.5	172	2,058	2,730
7. Equipment at Pumping Station, Turbines, Generators, etc.	49,875	6,900	43,000	2,150	1.0	430	2,580	5,160
8. Piping	64,178		64,200	642	0.75	482	3,852	4,976
Total	$538,333	$149,423	$388,900	$5,820		$1,808	$23,334	$30,962
Overhead Expenses 22.2%	119,510	33,172	86,300	1,292		401	5,180	6,873
	$657,843	$182,595	$475,200 (approx.)	$7,112		$2,209	$28,514	$37,835
Deduction on account of right to divert 100 mgd. from the Beattie Mfg. Co. which would have had to have been bought by the steam plant and which has not been charged up in capital sum to the steam plant.		$250,000					—$15,000	—15,000
	$657,843	$432,595	$225,200	$7,112		$2,209	$13,514	$22,835

* Determined from past life, and present condition of these structures.

Exhibit P26

Table 23 (b) Details of Deductions in Col. 3 Table

Assuming that water power had not been developed, the following would have been necessary to the all steam equipment.

1.	Land for intake (as above)			$21,088
3.	Beattie Dam			22,500
4.	Intake and Gate Houses of Steam Power only			
	Coffer Dam and river control		$7,000	
	Excavation Earth $11,375 x 1/5		2,275	
	Rock 159,125 x 1/5		31,825	
	Masonry under and around Morris Canal only		5,000	
	Morris Canal crossing water control		500	
	" " asphalt coating		1,100	
	" " drain pipe		390	
	" " embankment		454	
	Boom post		509	
	Gate House 1/6 x 30,500		5,083	
	" " Equipment		1,000	
	Pipe 8'-6" diam. steel 488 lb. at 5.5¢ = $26.89 x 1200 ft. (excluding earthwork)		32,208	
			$87,344	
	Total value Item 4			
	Account No. 112	$30,609		
	" " 123	275,480		
		$306,089		
	Amt. chg. in Col. 2 Table 23 (a)	275,480	$30,609	
		$30,609		56,735
5.	Pumping System			
	If there were steam power only there would be required two added spare engines and pumps at least			
	1 low service 20 mgd. centrif.	$25,000		
	1 high service 12 mgd. centrif.	17,200		42,200
6.	River Improvement below dam			
7.	Equipment & Generators			6,900
8.	Piping			
	Total excl. overhead			$149,423

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In order to make estimate of the relative cost of an all-steam power pumping plant as compared with the actual combined steam and water power pumping plant, consideration must be given to the changes in existing plant which would be involved. The items now appearing under Account No. 123 would be excluded, but a portion of them such as "land, water power rights, and Beattie dam," now covered by this account, would have to be included in the all-steam plant. Furthermore, were the water wheels eliminated, there would not be the same assurance of continuity of service and it would be necessary to install at least two additional steam driven pumping units—one 20 mgd. low service and one 12 mgd. high service, centrifugal—and probably the boiler plant would have to be increased though no such allowance has been made herein. The size of the river intake and of the gate house would be reduced; the canal would be eliminated and for it would be substituted a pipe line, similar to the steel pipe line to the new coagulating basin probably at least 8 ft. 6 in. in diameter; the penstock and intake gate house would be eliminated; and the appurtenant devices would also be modified.

These changes are shown in detail in Table 23 (b) and in condensed form in Col. 3 of Table 23 (a). The revised amount is shown in Col. 4. The corresponding estimated annual cost involved on these items by repairs and maintenance, depreciation, interest at 6%, and the total amount, is shown in Cols. 5 to 9, inclusive. The total annual net cost involved by the water power pumping plant is estimated at the approximate sum of $22,831 as shown in the footing of Col. 9, Table 23 (a).

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The necessity of purchasing water rights from the Beattie Mfg. Co. would not have been eliminated by the adoption of an all-steam power, in preference to a combined steam and water power, pumping plant; for the Beattie Mfg. Co. would have been damaged by the diversion by the joint ownership water companies of the water needed for the consumption of the district served by them. Or if in lieu of this the water had been taken below the dam, the water companies would have been put to the much greater expense of lifting all of the water used, from the river into the coagulating basins. The rights to be acquired would have been diversion, rather than diversion and water power rights.

It is difficult at this time to determine with certainty the quantity of water or stream flow which would have been purchased then by the water companies from the Beattie Mfg. Co. Ample provision for the increase in future demand for water would unquestionably have been made by the owners of the water companies, who were experienced in the operation of such plants. It seems highly probable that purchase would have been made of the right to divert at Little Falls at least 100 mgd. from the Beattie Mfg. Co. This quantity of water (100 mgd. or 155 cfs.) would develop 475 H. P. on the wheel shaft on a 33.7 ft. average fall, with a wheel efficiency of 80%. A normal development upon such a stream would be to the flow of the 30th week or seventh month in order of dryness, here 988 cfs. or say 1,005 cfs. corresponding to the actual development at Little Falls. The corresponding average usable flow would be 679 cfs. (see Table 7). The diversion of 155 cfs. would then be 155/679=22.8%.

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It is to be borne in mind further that this diversion would involve taking the whole flow of the stream during the two driest weeks of the year and an average of 50% of the flow during something over the dry half of the average year. It is to be noted further that such a diversion would have involved the requirement that it could be made before any of the flow of the stream was utilized by the Beattie Mfg. Co., in order to assure the uninterrupted water supply of the communities served by the water companies. Such water rights would have been more valuable and, therefore, higher in cost per unit than the average cost per unit of the greater rights actually purchased.

With an original cost, $515,000 of the right to divert the entire stream flow excepting only 2 mgd. reserved to the Beattie Mfg. Co. (excluding the value of the land and rights of way included in the original purchase price) the original cost of the right to divert 100 mgd, or 155 cfs. or 23%, of the usable stream flow, would have been at least one-third of the sum of $515,000 or $172,000. Making an allowance for an advance of about one-half in the value of water rights during the period from 1896 to date, a conservative assumption, the allowance for the present value of the right to divert 100 mgd. might be fixed at not less than $250,000.

With these facts in hand, it is possible to estimate the approximate net annual saving to the water companies resulting from the ownership and operation of the combined steam-and-water-power in comparison with an all-steam-power plant, and from it the fair value of the water rights as measured by this saving in annual cost of operation, maintenance, depreciation and interest.

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RECAPILULATION.

REVISED COST OF HYDRAULIC POWER EQUIPMENT PLANT (SEE COL. 4, TABLE 23a).

1. Gross Normal Reproduction Cost as of December 31, 1920, of revised amount of Account No. 123, "Hydraulic Power Pump Equipment." (See Table 23a)	$225,200
2. Estimated additional *annual* cost involved by repairs and maintenance, depreciation and interest at 6% on above amount (see Table 23a)	$ 22,835
3. Estimated actual average annual saving in operating expenses during 10-year period from 1912 to 1921 (See Table 22)	$ 39,700
4. Net annual saving resulting from water power plant resulting from use of water power rights	$ 16,900
5. Value of water power rights based upon 6% capitalization of net annual saving during past decade	$281,000

Adding increase in net annual saving of one-sixth of the average saving during the past decade from 1912-1921.

Exhibit P26

1.	Saving during past decade (see Item 3 above)	$39,700
2.	Add 1/6 increase	6,600
3.		$46,300
4.	Deduct Item 2 above	22.800
5.		$23,500
6.	Value of diversion and power rights based upon 6% capitalization of savings 1/6 greater than those of the past decade	$391,000

If the annual saving in operating costs (excluding repairs and maintenance, depreciation and interest) for the future, be assumed to be $50,000 or $60,000 respectively instead of the actual average (of $39,700) for the past decade, and the much greater actual amounts in the past two years ($79,200 in 1920, and $106,500 in 1921), the corresponding values derived by similar methods of computation would be as follows:

With an assumed future saving of combined water and steam over all steam pumping (instead of $39,700 plus 1/6) of:	
$50,000 the net annual difference ($27,165) capitalized at 6% would be	$453,000
$60,000 " " " " " " " ($37,165)	$619,000

Exhibit P26

With the actual saving in 1920 of $79,200, the resulting difference ($56,365) capitalized at 6%=	$939,000
With the actual saving in 1921 of $106,500, the resulting difference ($83,665) capitalized at 6%=	$1,395,000

Conclusion as to the Fair Present Value of the Water Rights at Little Falls bought from the Beattie Mfg. Co., Based Upon the Actual Saving in Cost Resulting from Combined Steam and Water Power instead of all Steam Power Plant Operation.

In the light of the actual annual saving in operating cost, which has averaged during the past decade $39,700, which was nearly double this sum in the year 1920 and nearly treble this sum in the year 1921; and of the fact that the right to divert 100 mgd. or thereabouts for water supply would necessarily have had to be acquired; that the demand for good water power has advanced materially during the past decade; and on the other hand that the future cost of labor may be slightly lower than at present, and of fuel and supplies substantially lower; the fair present value of the Little Falls Water Rights may be fixed conservatively at a sum of not less than $600,000.

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VALUE OF LITTLE FALLS WATER RIGHTS FIXED BY THE BOARD OF APPRAISERS OF THE WATER SUPPLY COMMISSION OF NEW JERSEY IN 1921.

In the year 1912, the value of the Beattie water rights acquired by the water companies was fixed by a Board of Appraisers (appointed by the Water Supply Commission of New Jersey) consisting of Clemens Herschel of New York City, Dabney H. Maury of Chicago, and Nicholas S. Hill, Jr., of New York City, was fixed at the sum of $413,822.

If the general value of water rights on the basis of prices now prevailing has advanced one-third, the value of these rights on the basis of the finding in 1912 of the Board of Appraisers would now be slightly over $550,000; if 45%, $600,000; if 50%, $620,000; if 66 2/3%, $690,000.

Metcalf's Appraisal of 1912. In his appraisal of the value of these properties in 1912, the writer while recognizing the substantially greater original cost of these water rights, and the probability of a value undeveloped of at least $300,000 placed upon these rights a value of "at least $200,000" on the theory that such a sum in addition to the other items of value, making up the full value of the property, was as large an amount as was justified by the annual saving in cost of pumping the water at Little Falls, by combined steam and water power plant, as compared with an all-steam plant. Today the conditions are markedly different, however, with respect to the actual saving effected and likely to be effected in the future, by the pumping of the water by combined

steam and water power as compared with all steam power—the saving in the year 1920 being five times as great as in 1912 when Metcalf's estimate was made and the annual average saving during the decade 1912 to 1921 nearly three times as great.

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Value on the Basis of Awards and Court Decisions.

It is helpful, often, to make comparison of the valuation of water rights with the actual cost of water rights or the awards of courts or tribunals for such rights in past cases. Valuable evidence of this sort was assembled in 1910 by a committee of the New England Water Works Association* of which the writer was secretary. The unit therein used as a basis for comparison was the cost per square mile per foot of fall—the so-called "Foot-Mile." For undeveloped privileges generally more remote from the market than this, the price paid up to that time had been approximately $15 per foot mile; and upon developed privileges from $2.45 to $366.10 averaging $76.85 on 125 awards depending upon the character of the development. In this case, the foot-mile diversion is 589 sq. miles on 35.1 feet of gross fall giving 20,674 and the corresponding amount on the average net fall of 33.7 ft. varying with the quantity of water flowing in the stream, is 19,849 foot miles.

The difficulty in the application of these records is in fixing the figure fairly commensurable with the scale of development here existing, and which would also reflect the fact that water had value to this privilege for manufacturing purposes. The privilege was developed, so far as the dam construction was

concerned, and it was developed up to the limits of the need of the Beattie Mfg. Co. by their wheel installation having a gross capacity of 300 H. P. It was not, however, a fully developed privilege in the sense covered by many of the records cited. Moreover, the prices prevailing in 1910 and prior thereto were much lower than those of today, or of those

*See Journal New England Water Works Association, Vol. 24, No. 1, 1910.

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likely to prevail in the future.

The allowance of $600,000 as the fair value of this privilege would correspond to approximately $32.30 per foot-mile on the basis of the average fall of 33.7 ft. This is certainly a very conservative allowance in the light of the records cited and the difference in conditions and values of today as compared with those prevailing at the date of the valuations covered by the records.

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SUMMARY OF FAIR VALUE OF LITTLE FALLS WATER RIGHTS BOUGHT FROM THE BEATTIE MFG. CO.

1. Original Cost in 1896, $530,000, or excluding lands and rights of way, say	$515,000
2. Value fixed by the Board of Appraisers appointed by the Water Supply Commission of the State of New Jersey on Dec. 29, 1913, as of December 31, 1912. Page 66 of their report)	$413,822

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(a) On the basis of an advance in water right values of 33%, the above sum would amount to $550,000

(b) On an advance of 45% $600,000

(c) On an advance of 50% $620,000

(d) On an advance of 66 2/3% $690,000

3. Value of annual saving resulting from water power pumping.

(a) Based upon average annual saving in operating expenses ($39,700); less allowance for repairs and maintenance, depreciation and interest, upon revised gross reproduction cost of water power equipment, with assumed right to divert 100 mgd.; capitalized at 6% $391,000

(b) Based upon future annual saving in operating cost of $50,000 $453,000

(c) Based upon future annual saving of $60,000 $619,000

(d) Based upon an actual saving of $63,400 in 1919 $676,000

(e) Based upon actual saving in 1920 $79,200 $939,000

(f) Based upon actual saving of $106,500 in 1921 $1,395,000

Conclusion. It seems reasonable to conclude that the fair value of the Beattie water rights, as of December 31, 1920, may be fixed at the sum of not less than $600,000.

This amount ($600,000) is

16% in excess of the original cost;
45% in excess of the valuation of the Board of Appraisers of the Water Supply Commission of the State of New Jersey, as of December 31, 1912;

*50

equivalent to $32.30 per foot-mile of a partly developed manufacturing plant privilege using the water also in its manufacturing processes;

a substantially less sum than the capitalized cost of pumping the water from the river below the falls to the sedimentation basins of the water purification plant.

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Metcalf's Valuation of the Great Falls Water Rights.

Data relating to

WATER RIGHTS

Purchased from

THE SOCIETY FOR ESTABLISHING USEFUL MANUFACTURES

and the

DUNDEE WATER POWER AND LAND COMPANY.

Metcalf and Eddy, Consulting Engineers,
14 Beacon St., Boston, Mass.
November 6, 1922.

Diversion Rights Covered in this Discussion

1. The diversion of water at Little Falls, as against the S. U. M., which would otherwise utilize said water at Great Falls.

2. Diversion of water at Little Falls as against the Dundee Water Power & Land Company, which would otherwise utilize said water at the Dundee Dam.

Rights Excluded in this Diversion

1. Water diverted by the Dyer's pipe line at Great Falls.

2. Water diverted from other riparian owners—than the S. U. M. and the Dundee Water Power & Land Company.

Exhibit P27-A

GENERAL PHYSICAL DATA.

Drainage Area 618 sq. mi., excluding 62.5 sq. mi. diverted by Newark, and 121.5 sq. mi. by Jersey City.

Fall at Great Falls 69 ft., at Dundee Dam at 21 ft.; combined total fall 90 ft.

Resulting Foot—Miles of Diversion

At Great Falls 42,642 and at Dundee Dam 12,987, giving a total of 55,620 (corresponding to 618 sq. mi. and 90 ft. fall).

Present Water Turbine Capacity at Great Falls

1250 c. f. s. on 69-ft. fall, 9790 H. P. gross, and at 80% efficiency, 7820 H. P. net on the wheel shaft.

Capacity of Combined Fall on Basis of Great Falls Development

1250 c. f. s. on 90-ft. fall at 80% efficiency=10.211 H. P. net capacity.

Table 1 hereto attached shows

"Average Flow and Power Available on the Wheel Shaft from the Passaic River at Great Falls (Paterson) and Dundee (Passaic) Dams, on Basis of 90-ft Combined Fall and 80% Efficiency; and per cent of available Power Corresponding to 75 mgd. and 100 mgd Diversion. Weeks arranged in order of wetness. Average flow based on 23-year record at Great Falls from 1898 to 1920."

From Table 1 the following facts appear:

The stream flow during the 23-year period from 1898 to 1920 at Great Falls including the water diverted at Little Falls ranged from a maximum of

6699 c. f. s. to a minimum of 170 c. f. s. and averaged 1345 c. f. s.

The average available power 10987 H. P. net.

Usable power 6551 H. P. net with—1250 c. f. s. (corresponding to 10211 H. P. on 90-ft. fall at 80% efficiency.)

Usable power 64% of average available power on 1250 c. f. s. wheel capacity.

Diversion Rights 75 mgd., recently purchased by Water Companies

75mgd.=116 c. f. s.=1186 H. P. gross, at 80% efficiency=948 H. P. net. This is equivalent to 8.1687 H. P. per c. f. s. on 90-ft. fall at 80% efficiency.

100 mgd. diversion would be 155 c. f. s. and 1580 H. P. gross, and at 80% efficiency, 1263 H. P. net.

Diversion in Terms of Percentage of Average Flow

75 mgd. or 116 c. f. s. diversion, as appears from Table 1, corresponds to 14.5%, or 1/7 of the average daily usable water during the entire year with wheel capacity of 1250 c. f. s.;

28.4% during the 8 driest months;
31.6% " " 7 " "
34.5% " " 6 " "

The range of diversion being from 68% in the driest week, to 9% in the wettest.

Similarly a water diversion of

100mgd. or 155 c. f. s., involving 1263 H. P. net on 90-ft. fall and 80% efficiency corresponds to 19.3% or about 1/5 of the average daily usable power

throughout the year limited by the wheel capacity of 1250 c. f. s.

37.7% for the 8 driest months
42.1% " " 7 " "
46% " " 6 " "

Equivalent Foot-Mile Diversion

75mgd. or 116 c. f. s. diversion equivalent to 14.5% of 618 sq. mi.=90 sq. mi. which on 90-ft. combined fall gives 8100-ft. mi.

Similarly

100 mgd. or 155 c. f. s. diversion equivalent to 19.3% of 618 sq. mi.=119.3 sq. mi., which at 90-ft. fall gives 10337-ft. mi.

Value of 75 mgd. Diversion by Different Criteria.

New England Water Works Association Committee Report, March, 1910, Volume 24, No. 1, Data Relating to Awards for Water and Water Power Diversion

The Committee submitted data concerning the cost per foot mile of water diversion in 185 cases of developed privileges, the range in values being from $366.10 to $2.45, the average being $69.07 per foot mile; and the record of 21 cases of undeveloped, unused or abandoned privileges showing a record of $25.60 to $0.20, the average being $7.66 per foot mile of diversion. It is important to note that these values covered a considerable period of years prior to 1910. It is significant to note further, that in the case of highly developed privileges, many awards of from $100 to $150 per foot mile of diversion were recorded.

Exhibit P27-A

In interpreting these results, in the light of present-day conditions, the marked increase in demand for water powers resulting from the doubling and trebling in cost of coal and oil, is to be borne in mind.

75 mgd.—116 c. f. s.—14.5% diversion of the total (618 sq. mi. × 90 ft.=55,620 ft. mi. × $125= $6,952,000) is equivalent to $1,010,000.

14.5% × (55,620 ft. mi. @ $150=8,343,000)— $1,210,000.

The price of $1,120,000 put upon the right to divert 75 mgd. is equivalent on like basis to $138.50 per foot mile of 12 months average usable flow diverted, or approximately $125 per foot mile of average available flow.

Note further that the cost ($1,120,000) of the right to divert 75 mgd. is equivalent (on 6551 net H. P. usable) to $171 per H. P. usable; and on a maximum total available power of 10,211 H. P. net (corresponding to 1250 c. f. s., 90-ft. fall, and 80% efficiency) to $110 per net horsepower of wheel capacity installed (similar to that installed at Great Falls).

Board of Appraisers Valuation in 1912

First Method

By this method the Board determined the loss by capitalizing, at 5%, loss per B. H. P. fixed at 0.5¢ and added 10 1/2% to cover discount on bonds, legal and preliminary expenses, and 7% cumulatively applied to cover interest during construction. It limited the diversion rights to 50 mgd. and found value of $425,591 on the basis of the increase of the amount of water diverted from 50 mgd. to 75 mgd. and an assumed increase in saving at the present time over the

1912 costs in the ration of 1.5:1 the $425,591 valuation would become $955,000.

If the ration of increase in the savings be 1.6:1 the valuation would become $1,015,000. If the increase be 1.75:1 the value would become $1,114,000.

Board of Appraisers Valuation in 1912
Second Method

By this method the privilege was estimated to affect an annual saving of $20,449, which the Board capitalized at 5% and to the results so found it added 10 1/2% for discount on bonds, legal and preliminary expenses, plus 7% cumulatively applied to cover interest during construction, getting a final figure by this method of $484,739.

If this annual saving be increase in the ratio of the quantities diverted, 75 mgd., 50 mgd., and the costs of 1920 over those of 1912 in the ratio 1.5:1 the Board's figures would become $1,072,000.

If the increase in the costs of 1920 over 1912 be assumed to be 1.6:1 and 1.75:1 respectively, the corresponding values would be $1,165,000 and $1,272,000 respectively.

Board of Appraisers Valuation in 1912
Third Method

Under this method the Board appraised the foot mile cost of diversion at $80 and allowed on the results so found an increase of 10 1/2% for discount on bonds, legal and preliminary expenses, and 7% cumulatively applied to cover interest during construction, finding thus a value of $417,133.

If the diversion of 75 mgd. on 90-ft. total fall be assumed, giving 8100 foot miles, the corresponding 1912 valuation would become at $80 per foot mile

with the additions stated, $766,000, and if, to cover the change in conditions, an increase of 50% be assumed, the total amount would be $1,150,000 corresponding to $120 per foot mile; if the increase be 60%, $1,225,000; and if 75%, $1,340,000.

On the Basis of Little Falls Partially Developed Privilege, Bought from the Beattie Mfg. Company.

The Company paid approximately $515,000 for these water rights, excluding land, in the year 1898.

The drainage area was 589 sq. mi. excluding diversion by Newark 62.5 sq. mi., and by Jersey City 121.5 sq. mi. The maximum fall at 35.1 feet and the average fall 33.7 feet, the foot miles corresponding to the maximum fall, 20,674 and corresponding to the average fall 19,849.

The cost of this slightly developed privilege in 1898 was equivalent to $24.90 per foot mile, on the maximum fall, and $26 per foot mile on the average fall. The wheel capacity installed by the water company subsequently 1,005 c. f. s., which, under an average 33.7-foot fall and 80% wheel efficiency was capable of developing 3,065 net horsepower and 2,044 net usable horsepower, the usable horsepower being 66.7% of the average available horsepower.

Metcalf's valuation of the Little Falls diversion rights acquired from the Beattie Mfg. Company was $600,000 corresponding to $29.10 per foot mile of practically undeveloped privilege (based upon 20,674 foot miles).

On like basis, a combined total fall of 90 ft. with a drainage area of 618 sq. mi. corresponding to 55,620 ft. mi. would be valued at $1,620,000 (for the entire privilege). Bearing in mind the fact that this privilege must be rated as a high developed and not as an

undeveloped privilege, and that the ratio of the developed to the undeveloped privilege may well be from 5:1 to 4:1, the entire value of the privilege might be fixed between $6,480,000 and $8,100,000.

If the 75 mgd. diversion be 14.5% available amount, the diversion would be valued at between $940,000 and $1,175,000, the former corresponding to $116.40 and the latter to $145.50 per foot mile of diversion.

Valuation Measured by Past Income.

Under such circumstances as prevail here, the historic record of amounts paid for water including the amounts paid for water developed by the water companies, and that paid by manufacturers for water taken directly from the Dyer's pipe line are not to be overlooked, particularly as the record extends back for a long period of time. In this connection Table 2 covering "Payments by Water Companies for Water Diverted" is significant. From it it appears that the water companies have paid to the S. U. M. for water diverted at Little Falls $5.00 per million gallons daily throughout the past decade from 1912 to 1921); to the Dundee Water Power & Land Company, $2.00 per million gallons daily in the years 1912, 1913, a portion of 1920 and 1921, and $0.75 per million gallons from the year 1914 to and including 6 months of the year 1920; and to the S. U. M. for water diverted through the Dyer's pipe line at Great Falls $7.50 per million gallons throughout the past decade.

Excluding the payments for water diverted through the Dyer's pipe line, the total payments during this decade have ranged from about $68,000 to $114,000

averaging $82,406 annually. The value of this annual sum capitalized at a reasonable rate would exceed the value ($1,120,000) fixed for the 75 mgd. diversion. Incidentally, it is to be noted that the average daily diversion corresponding to the average annual payment of $82,000 was 38.4 mgd. from the S. U. M. and 28.9 from the Dundee Water Power & Land Company.

The diversion of 75 mgd. at the prices now paid to the S. U. M. and the Dundee Company would amount to a substantially larger annual payment. The latter fact has not, however, the same probative force.

Sale of Water Rights to Patrick H. Flynn in 1898.

An important factor in the determination of the fair value to the water companies of the right to divert 75 mgd. from the S. U. M. and the Dundee Water Power & Land Company was the actual price at which the right to divert 70 mfd. of water from the Rockaway River at Boonton was sold to Patrick H. Flynn in 1898.

"Mr. Flynn at that time had a contract for supplying Jersey City with a supply of water to be taken from the Rockaway River, this contract afterwards being assigned by him to the Jersey City Water Supply Company, which he organized for that purpose, and which did a considerable part of the work incident to the building of said works. The Company finally got into financial difficulties and was taken over by our people and the works completed and, as you know, sold to Jersey City. This was a sale of water rights from a willing seller to a willing buyer, and on the same watershed. I reduced the amount paid by Flynn for diverting from these three power develop-

Exhibit P27-A

ments, by the Little Falls right, and the apportionment was made on the proportion of the available head and quantity at the different sites, and thus worked out the amount due the Society, and the amount due the Dundee and increased this reduced figure by 25% on the theory that the value of these water rights today is certainly 25% greater than in 1898. This gave me a total figure of $1,120,000."

Extract of a Letter of John H. Cook, Treasurer, New Jersey General Security Company to Nicholas S. Hill, Jr., dated December 27th, 1921.

Recapitulating then, we have the following summary of tests of the reasonableness of the price paid by the Associated Water Companies for the right to divert 75 mgd. at Little Falls, as against the S. U. M. and the Dundee Water Power & Land Company.

Summary of Criteria of the Value of the Right to Divert 75 mgd.=116 c. f. s. from the Society of Useful Manufactures and the Dundee Water Power & Land Company Purchased in 1891 for $1,120,000.

1. Sale in 1898 to Patrick H. Flynn of right to divert 70 mgd. from the Rockaway River, above Little Falls, prorated on foot mile basis and increased by 25%. $1,120,000

2. Past Court Awards and agreements, prior to 1910, which in 185 cases of record relating to developed privileges averaged $69.07 per foot mile, and in many cases of well developed privileges ranged from $100 to $150

Exhibit P27-A

per foot mile, with allowance for increase in value of such property, since the payments of record were made. Note that the entire privilege involves 618 sq. mi. × 90-ft. fall=55620 ft. mi. and that the diversion of water corresponds to

14.5% of average daily usable flow of the year
28.4% " " " " " "8 driest months
31.6% " " " " " "7 " "
34.5% " " " " " "6 " "

At 14.5% diversion and $125 per foot mile	$1,010,000
" 14.5% " " $150 " " "	1,210,000
" 14.5% " " $138.50 per foot mile	1,120,000

3. Board of Appraisers 1912—*First Method*

75 mgd. equivalent to 90 sq. mi. at 90 ft. fall or 8100 ft. mi. @ $80=$648,000 plus 10 1/2% discount on bonds, legal and preliminary expenses, plus 7% interest-during-construction=$766,000 as of 1912

At 33% increase in value	$1,020,000
" 50% " " "	1,150,000
" 60% " " "	1,226,000

4. Board of Appraisers 1912—*Second Method*

On basis of Cost of a "Mill Power" privilege the annual saving was estimated at $20,499. Correcting for increase in quantity from 50 mgd. to

Exhibit P27-A

75 mgd. and 50% increase in value	$1,072,000
75 " " 60% " " "	1,165,000
75 " " 75% " " "	1,272,000

5. Board of Appraisers 1912—*Third Method*
Saving 0.5¢ per BHP capitalized at 5% with 10 1/2% discount on bonds, legal and preliminary expenses, plus 7% interest-during-construction, for 50 mgd.=$424,591 in 1912. Correcting for

75 mgd. and 50% increase in value	$ 955,000
75 " " 60% " " "	1,015,000

6. Beattie Manufacturing Company, nearly Undeveloped Privilege at Little Falls.

Cost, excluding land, $515,000 in 1898. Estimated by Metcalf, as of 1920, at, at least $600,000, equivalent to $29.10 per ft. mi. for a nearly undeveloped privilege.

On this basis ($29.10 per ft. mi.) increased by the ratio of the foot-miles involved (55620:20674) and by the ratio of the value of a well developed privilege to a nearly undeveloped privilege, ranging probably between the ratio of 5:1 and 4:1, the total value of the developed privilege at Great Falls and Dundee Falls would range between $8,100,000 and $6,480,000 and the corresponding value of the right to divert 75 mgd., as against the S. U. M. and the Dun-

dee Water Power & Land Company, involving 14.5% diversion, would be between $1,175,000
and 940,000
These values correspond to unit values of $145.50 and $116.40 per foot-mile, respectively.

7. The Payments by the Water Companies for Water diverted at Little Falls, from the S. U. M., and from the Dundee Water Power and Light Company and from S. U. M. at Great Falls, through the Dyer's pipe line, are shown in Table 2.

Excluding the payments for water diverted by the Dyer's pipe line, annual payments to the S. U. M. and the Dundee Water Power and Land Company during the past decade have ranged from $68,000 to $114,000, averaging $82,406. The value of this annual sum capitalized at a fair rate would considerably exceed $1,120,000.

Exhibit P28.

Underlying Data furnished by Mr. Hill on request.

Exhibits P29, P29-A, P29-B, P29-C, P29-D.

Carbon Copies of Statements.

Exhibit P30.

Chemical Analysis of Water.

Exhibit P31.

828-D-6417

P-31

K:2.1

TABLE ■ DEPRECIATION RECORDS OF SOME OLD WATER WORKS BY LEONARD METCALF

14 Beacon St. Boston, Mass.

Aug. 1, 1918. Sept. 1, 1919.	PORTLAND, ME. WATER DIST. (AVER. OF PLAINTIFF & DEF.)	RACINE, WIS. (HAZEN)	DENVER UNION WATER CO. COLO. (FEDERAL COURT)	PENNSYLVANIA WATER CO. WILKINSBURG, PA. (METCALF)	SPRING VALLEY WATER CO. SAN FRANCISCO, CAL. (FEDERAL COURT)(W)	INDIANAPOLIS WATER CO. IND. INDIANAPOLIS, INDIANA (PUB. SERV. COMM.)(++)	E. CHICAGO & INDIANA HARBOR WATER CO. E. CHICAGO, INDIANA ◉	CONSOLIDATED WATER CO. OF UTICA, N.Y. (KEECHLER)	CONCORD, MASS. (Y) (METCALF, CHAIRMAN WAT. & SEW. BOARD)	TAMPA WATER WORKS CO. TAMPA, FLA.	PORTSMOUTH BERKLEY AND SUFFOLK WAT. CO. VA.	MILFORD WATER CO. MASS.	DEDHAM WATER CO. MASS.	RANGE	ESTIMATED NORMAL AVERAGE APPROX.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1 Date of Record	1907	1913	1913	1911	1913	Dec. 1915	Nov. 1915	Dec. 31 1916		Dec. 31, 1917	Apr. 1, 1918.	Dec. 31, 1918.	Nov. 30, 1918.		
2 Authority	Hazen & Metcalf.	Hazen	Metcalf	Metcalf	Hazen & Metcalf	Metcalf	Metcalf	Metcalf	Metcalf	Metcalf	Metcalf	Metcalf & Eddy	Metcalf & Eddy		
3 Population	78,200	38,000	242,000	90,000	453,000	270,000	29,600	102,000	6,750	Tam. & W. Tam. 68,000 + Ybor 26,250	80,000	16,800	11,310	6,750-453,000	
4 Whole period of Operation, Years	39	26	43	23	55	45	22	67	43	28	30	35	38	22-67	
5 Aver. Age of Investment, Years	18	16	20	12	26	16+++	11	22	18.3	13	13.1	19	18	11-26	
6 Gross Revenue during Whole Operating Period.	$6,605,000	$1,343,000	$22,000,000	$3,923,000	$76,968,000	$13,972,000	$805,000(est)	$6,84[illegible],000	$ 703,000	$2,502,000	$3,983,000	$1,376,384	$1,173,499		
7 Gross Reprod. Cost of Structures	2,594,000	1,219,000	10,411,438	3,128,389	21,537,000	7,906,000	JWA 609,400	4,509,000	380,200	$ 813,118 Tampa Fees	2,009,000 (Prewar basis)	520,452	464,800		
8 Abandoned Structures (Actual or Reproduction) Cost	137,000	19,000	1,420,505	250,000	3,420,000	883,000	94,400	285,000	41,200	40,000	165,000	25,410	24,700		
9 Total (incl. Overhead & Int. during Const.)	$ 2,731,000	$1,238,000	$11,831,943	$3,378,389	$24,957,000	$8,789,000	$703,800	$4,794,000	$ 421,400	$953,118	2,174,000	545,862	489,500		
10 Accrued Depreciation on Existing Structures (Reproduction Cost)	$498,000=18.2%	$70,600=5.8%	$1,320,970=12.7%	$ 271,700=8.7%	$2,800,000 LM 13%	$736,000=9.3%	$63,500=10.4% LM	$353,000=7.8%	$68,700 = 18.1%	$118,000=12.93%	$166,000=9.3%	$92,362=17.8%	$104,868=22.6%	5.8% - 22.6%	8% - 13% Aver. 12.9%
11 Accrued Depreciation - In Abandoned Structures, Actual (or Reprod.) Cost	137,000=5.0%	19,100=1.54%	1,420,505=12.0%	250,000=7.4%	3,420,000=13.7%	883,000=10.0%	94,400=13.4% LM	285,000=5.9%	41,200=9.8%	$ 40,000=4.2%	$165,000=7.6%	$25,410=4.7%	$ 24,700=5.04%	1.5% - 13.7%	6% - 12% Aver. 7.7%
12 Total Amount in Exist. and Aban. Structures	$635,000	$89,700	$2,741,475	$ 521,700	$6,220,000	$1,619,000	$157,900 LM	$ 638,000	$109,900	$158,000	$351,000	$118,372	$129,568		
13 " Deprec. in % on Gross Reprod. Cost (On exist. & aban. Structures)	23.2%	7.2 %	23.2 %	15.4 %	24.9%	18.4 %	22.4%	13.3%	26.1%	16.6%	16.1 %	21.7%	26.5 %	7.2 % - 26.5%	Aver. 19.7%
14 " Deprec. in % on Aver. Net Reprod. Cost of existing Structures. (See ⑱ below)	26.3%	7.5 %	26.2 %	16.7%	28.5%	20.3 %	25.3%	14.1%	30.0%	18.05%	17.6%	24.3%	30.5 %	7.5% - 30.5%	Aver. 22.0%
Average Annual Depreciation in Per Cent -															
15 Based upon (a) Gross Reproduction Cost and Abandoned Structures	23.2/18 = 1.29 %	7.2/16 = 0.45 %	23.2/20 = 1.16%	15.4/12 = 1.29%	24.9/26 = 0.96% (z)	1.13 %	22.4/11 = 2.04%	0.62%	26.1/18.3 = 1.42% (+) See also note (Y)	16.6/13 yrs = 1.28%	1.23%	1.14%	1.47 %	0.45% - 2.04%	0.9% - 1.3% Aver. 1.12%
16 (b) Net Reprod. Cost of Exist. Structures only, or Gross Reproduction Plus Abandonments, less ½ Total Depreciation, divided by Average Age.	26.2/18 = 1.46%	7.5/16 = 0.47%	26.2/20 = 1.31 %	16.7/12 = 1.39%	28.5/26 = 1.10 %	1.23%	25.3/11 2.3%	0.66%	30/18.3 1.64 %	18.05/13 yrs = 1.39%	1.34 %	1.28%	1.69 %	0.47% - 2.3%	1.0% - 1.4% Aver. 1.34%
17 (c) Gross Revenue during Whole Operating Period	9.6%	6.7 %	12.4 %	8.00% (x)	8.1%	11.6%	19.6%	9.3%	15.6%	6.31%	8.8%	8.6%	11.1 %	6.31% - 19.6%	8 % - 12 % Aver. 10.4%
18 (d) Per Capita (total depreciation divided by present population times aver. age	$ 0.45	$ 0.15	$ 0.57	$ 0.48	$ 0.53	$ 0.42	$ 0.48	$ 0.29	$ 0.89	$ 0.22	$ 0.33	$ 0.37	$ 0.64	$0.15 - $0.89	$0.40 - $0.50 Aver. 0.45
19 Gross Reprod. Existing and Abandoned Property	$2,731,000	$1,238,000	$11,831,943	$3,378,389	$24,957,000	$8,789,000	$703,800	$4,794,000	$421,400	$953,118	$2,174,000	$545,862	$489,500		
20 Minus ½ Combined Depreciation	317,500	44,850	1,370,737	260,850	3,110,000	809,500	78,950	319,000	54,950	79,000	175,500	59,186	64,784		
21A Aver. Net Reproduction Cost	$2,413,500	$1,193,150	$10,461,206	$3,117,539	$21,847,000	$7,979,500	$624,850	$4,475,000	366,450	874,118	$1,998,500	$486,676	$424,716		

(Y) See Notes upon this property showing effect upon depreciation record of the W.I. cement lined pipes and probable results had C.I. Pipe been used to wit:- Annual Depreciation (a) 0.98% (b) 1.08% (c) 10.4% (d) 60 ¢

(X) Figures 7.52 %. 8% believed to be a fairer figure, however L.M

(✻) Including Sullivan Reservoir.

(z) On basis of original Cost of Structures of $21,306,000, a straight-line depreciation rate of 1.25% was found to yield $6,774,000, depreciation allowance (including abandoned property) as of Dec. 31, 1913. Note that $\frac{21,306,000}{24,957,000} \times 1.25\% = 1.07\%$ an approx. check.

(+) Heavy depreciation due to use of iron cement-lined pipe.

(++) Based upon decision Indiana Public Service Commission, Mar. 15, 1917.

(+++) 14.2 years (approx.) on sinking fund basis applied to existing structures.

(W) Based upon decision of Judge H.M. Wright, Standing Master in Chancery. U.S. District Court, Northern District of California, 1917.

◉ Average Plaintiff and Defendant Engineers.

7-31-18 C.W.R.

TABLE [redacted] DEPRECIATION RECORDS OF SOME OLD WATER WORKS BY LEONARD METCALF

Exhibit P32.

Tabulation of Bemis' Abandoned Omitted Structures made by Leonard Metcalf, for comparison with Exhibit P31.

Dec. 20, 1922.

BEMIS' ABANDONED AND OMITTED STRUCTURES AND ACCRUED DEPRECIATION ALLOWANCE ON STRUCTURES ONLY.

	Cost	Depreciation	
Joint Ownership Existing	$3,677,346	1,085,988	
Abandonments	6,882	6,882	
	3,684,228	1,092,870	=29.7%
Acquackanonk W. Co. Existing	832,897	145,357	
Abandonments	244,730)	275,483	
	30,753)		
	1,108,380	420,840	=38.0%
Passaic W. Co. Existing	2,256,237	514,012	
Abandonments	1,014,541	1,014,541	
	3,270,778	1,528,553	=46.7%
Montclair W. Co. Existing	810,268	203,827	
Abandonments	25,536	25,536	
	835,804	229,363	=27.4%
East Jersey W. Co.	2,704	1,466	=54.3%
Kearney W. Co.	168,864	77,677	=46.0%

Exhibit P32

Summary

Joint Ownership		$3,684,228	1,092,870=29.7%
Acquackanonk Water	Co.	1,108,380	420,840=38.0
Passaic	" "	3,270,778	1,528,553=46.7
Montclair	" "	835,804	229,363=27.4
East Jersey	" "	2,704	1,466=54.3
Kearney	" "	168,864	77,677=46.0
		$9,070,758	3,350,769=36.9%

In the abandonments, no allowance has been made for interest during construction or overhead so far as known, though some may have been included in original cost entries. Bemis, however, did add to existing structures and interest during construction allowance not shown on books.

Exhibit P32

Dec. 20, 1922.

BEMIS' ACCRUED DEPRECIATION ALLOWANCE ON STRUCTURES.

Exhibit R1	Gross	Net	Resulting Accrued Deprec.
p-12 Joint Ownership			
Little Falls Structures	$1,274,062.00	937,373.00	
Equipment	524,868.00	310,332.00	
Filter Plant Structures	731,441.00	618,550.00	
Equipment	234,211.00	151,135.00	
Great Notch Str.	355,121.00	273,443.00	
51 Conduits Str.	548,964.00	297,632.00	
General Equipment	8,679.00	2,893.00	
	$3,677,346.00	2,591,358.00	$1,085,988
p. 13 East Jersey Water Co.	2,704.00	1,238.00	1,466
p. 14 Kearney " "	168,864.00	91,187.00	77,677
p. 15 Passaic " "	2,256,237.00	1,742,225.00	514,012
p. 16 Acquackanonk " "	832,897.00	687,540.00	145,357
p. 17 Montclair " "	810,268.00	606,441.00	203,827
	7,748,316.00	5,719,989.00	2,028,327

Exhibit P32

Dec. 20, 1922.

Abandoned and Omitted Structures shown on Exhibits R1 and R8.

			Retirements directed by Bemis not in books	Retirements said by Bemis to be carried on books omitted from property by him
	Joint Ownership			
p. 1	Reconciliation—Temporary Boiler House	$ 6,383.00		
p. 2		18.75		
p. 2		57.55		
p. 2		423.00		
		$ 6,882.30		
p. 3	Reconciliation—Acquackanonk Water Co. 1902-1921	—		
	Retirements in books of Co. (Bemis) 1902-1921			$30,753.36
	Estimated by Bemis' engrs. not recorded	$ 12,877.25		
	Unidentified Expenditures (Bemis-Matthews)	231,853.03		
			$244,730.28+	$ 30,753.36
p. 4	Reconciliation—Passaic W. Co.			
p. 4	Recorded Retirements 1911-1920 net			55,296.77
	Estimated Retirements	$ 32,325.62		
	Additional Retirement of Mains 1921	917.65		
	Stony Road Reservoir abandoned in 1918	52,132.000		
	Mains and Hydrants	54,589.88		
p. 5	Great Falls Pumping Station	100,000.00		
	Stony Road " "	65,000.00		
	Middle Reservoir	10,000.00		
	Totowa "	25,889.00		
	Unaccounted for (Bemis-Matthews)	618,390.16		
			959,244.31+	55,296.77
p. 8	Reconciliation Montclair Water Co.			
	Wells	10,488.00		
	Pumping Station	15,048.38		
			25,536.38	
	Summary			
	On Joint Ownership Property	$ 6,882.30		6,882.30
	Acquackanonk Water Co.	244,730.28+	30,753.36 =	275,483.64
	Passaic Water Co.	959,244.31+	55,296.77 =	1,014,541.08
	Montclair Water Co.	25,536.38		25,536.38
		$1,236,393.27+	86,050.13 =	1,322,443.40

Note overhead and interest during construction not included.

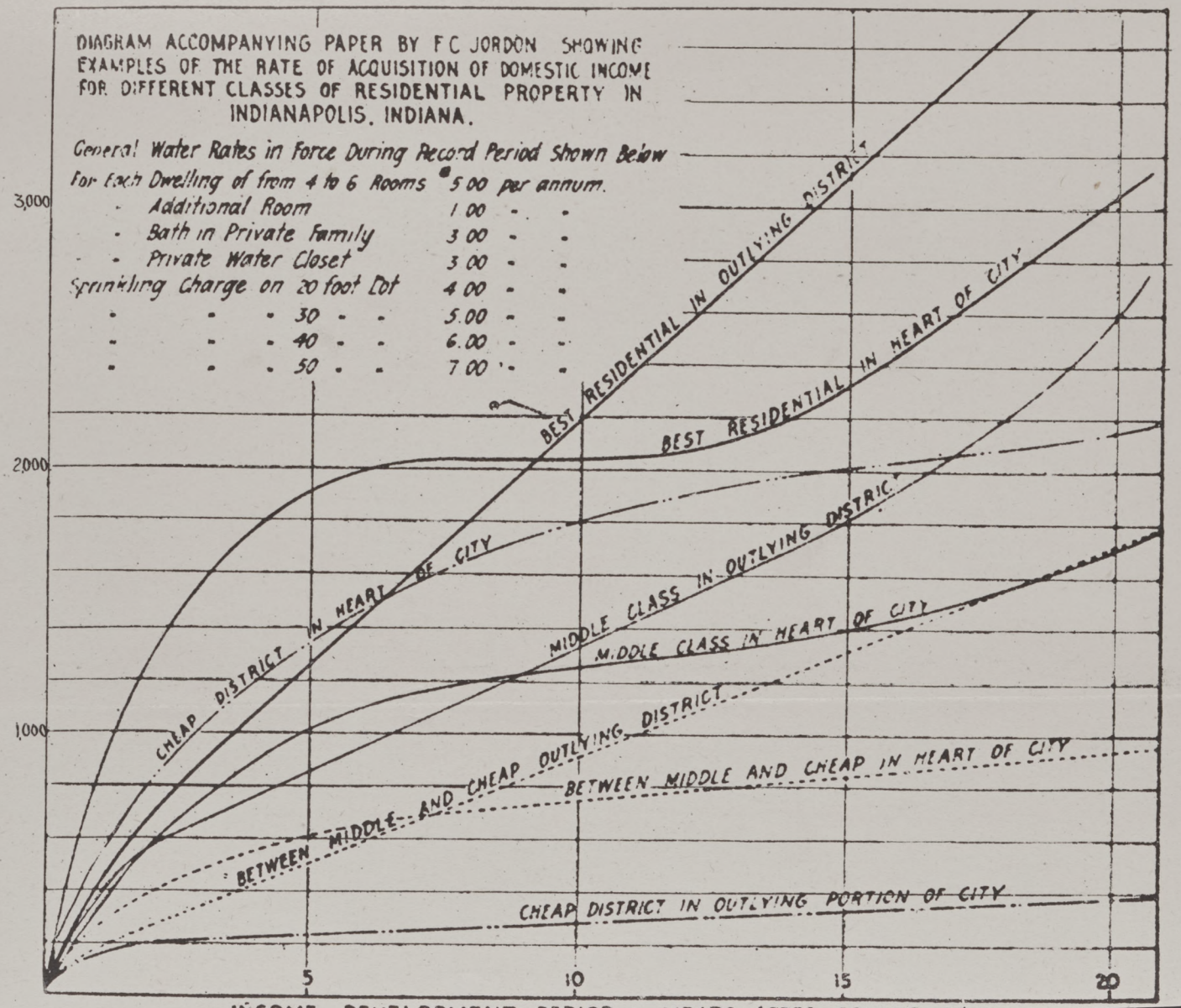
DIAGRAM ACCOMPANYING PAPER BY F C JORDON SHOWING EXAMPLES OF THE RATE OF ACQUISITION OF DOMESTIC INCOME FOR DIFFERENT CLASSES OF RESIDENTIAL PROPERTY IN INDIANAPOLIS, INDIANA.
General Water Rates in Force During Record Period Shown Below
For Each Dwelling of from 4 to 6 Rooms @ 5.00 per annum.
" Additional Room 1.00 " "
" Bath in Private Family 3.00 " "
" Private Water Closet 3.00 " "
Sprinkling Charge on 20 foot Lot 4.00 " "
" " " 30 " " 5.00 " "
" " " 40 " " 6.00 " "
" " " 50 " " 7.00 " "
BEST RESIDENTIAL IN OUTLYING DISTRICT
BEST RESIDENTIAL IN HEART OF CITY
CHEAP DISTRICT IN HEART OF CITY
MIDDLE CLASS IN OUTLYING DISTRICT
MIDDLE CLASS IN HEART OF CITY
BETWEEN MIDDLE AND CHEAP OUTLYING DISTRICT
BETWEEN MIDDLE AND CHEAP IN HEART OF CITY
CHEAP DISTRICT IN OUTLYING PORTION OF CITY
3,000
2,000
1,000
5
10
15
20
INCOME DEVELOPMENT PERIOD — YEARS AFTER

P. 33

Exhibit P33.

Leave 1 page for Exhibits

Exhibit P34.

Agreement between The Society for Establishing Useful Manufactures and Passaic Water Company, dated May 16, 1887.

This agreement provided that the Passaic Water Company should pay $300,000 to the Society for Establishing Useful Manufactures, in settlement of all claims for damages and causes of action in respect to water diversion rights up to this date, and a further sum of $700,000 for the right to divert 15,000,000 gallons of water per day for 999 years at Paterson; limited, however, to times when there should be a "surplus of water running over the dam."

It further provided that the Passaic Water Company should build certain reservoirs and storage facilities. It further provided that payment should be made by bond issue bearing 5% interest, payable in 50 years.

It further canceled contract between the parties dated March 9, 1868, with respect to water diversion rights.

The party of the first part also demised to the party of the second part certain premises on the east bank of the Passaic River at the entrance to the Falls near the iron bridge, with certain rights and uses therein described.

Exhibit P35.

Comparison of Property Excluded as not used and useful by E. W. Bemis and N. S. Hill, Jr.

TABLE NO.

COMPARISON OF COST OF REPRODUCTION OF PROPERTY NOT USED AND USEFUL AS GIVEN BY E. W. BEMIS, AND AS GIVEN BY NICHOLAS S. HILL, JR.

Item (1)	E. W. Bemis, At Appraisal of 1912 (2)	Cost of Reproduction as shown in Table No. at present values and Structures at Board of Appraisers Value, 1912 (3)
JOINT OWNERSHIP:		
Dwelling at Totowa & Great Notch	$ 3,000.	$ *
THE PASSAIC WATER COMPANY:		
Land:		
Kakeout Reservoir Site	70,450.	0.
Along 42" Paterson Extension	200.	0.
Totowa and Middle Reservoirs	129,610.	See below
Stony Road Regulator House Lot	2,160.	0.
Along Pequannock River	18,245.**	18,245.**
Stony Road Pumping Station	5,680.**	5,680.**
Reservoirs:		
Middle	10,000.)	
Totowa	25,889.)	150,000.
Stony Road	52,132.)	
Structures:		
Stony Road	17,500.	17,500.

Exhibit P35

THE MONTCLAIR WATER COMPANY:		
Land:		
Springs and Wells	7,360.	0.
Split Rock Reservoir Site	187,179.	187,179.
Wells	10,488.	0.
Dwelling at Split Rock	6,500.	*
THE EAST JERSEY WATER COMPANY:		
Land and Rights of Way along Newark Pipe Line	0.	25,682.
TOTAL	$546,393.	$ 404,286.

*No allowance made in 1912.
**Rossiter's Revised Figures as given by Bemis.

Exhibits C1 and C2.

Exhibit C1 contains a list of data required by the Board of Public Utility Commissioners, and Exhibit C-2 contains the detailed matter furnished by the Company in response thereto.

DATA ON PUMPAGE AND CONSUMPTION
FOR THE YEARS 1920, 1921 AND 1922
AS REQUESTED BY
THE BOARD OF PUBLIC UTILITY
COMMISSIONERS
IN THE MATTER OF INCREASED RATES
FOR THE EAST JERSEY AND ASSOCIATED
WATER COMPANIES

TABLE NO. 1.

TOTAL PUMPAGE AT LITTLE FALLS FOR YEARS 1920-21-22 BASED ON READINGS OF MASTER METERS

Year and Month (1)	Pumpage into 51″ Steel Conduit in Mill. Gals. (2)	Pumpage into 42″ Paterson Extension in Mill. Gals. (3)	Total Pumpage at Little Falls in Mill.Gals. (4)
1920			
January	1,351.6	503.2	1,854.8
February	1,256.6	460.6	1,717.2
March	1,186.2	438.6	1,624.8
April	1,029.0	403.9	1,432.9
May	1,064.8	422.8	1,487.6
June	1,025.4	418.2	1,443.6
July	1,113.0	414.6	1,527.6
August	1,138.8	413.2	1,552.0
September	1,193.2	397.0	1,590.2

Exhibits C1 and C2

October	1,165.5	393.2	1,668.7
November	1,005.2	367.4	1,372.6
December	1,053.4	396.8	1,450.2
Total	13,582.7	5,029.5	18,612.2
1921			
January	1,097.4	426.4	1,523.8
February	936.4	390.2	1,326.6
March	1,008.9	411.6	1,420.5
April	858.7	405.2	1,263.9
May	1,059.5	401.0	1,460.5
June	1,084.4	413.9	1,498.3
July	1,112.4	427.1	1,539.5
August	1,105.3	416.5	1,521.8
September	1,101.7	399.5	1,501.2
October	1,072.8	387.9	1,460.7
November	1,006.4	380.3	1,386.7
December	1,153.8	360.5	1,514.3
Total	12,597.7	4,820.1	17,417.8
1922			
January	1,291.7	449.4	1,741.1
February	1,186.7	383.2	1,569.9
March	1,129.8	382.3	1,512.1
April	958.5	362.6	1,321.1
May	900.7	384.0	1,284.7
June	967.7	385.2	1,352.9
July	952.3	405.6	1,357.9
August	986.6	427.7	1,414.3
September	973.5	396.1	1,369.6
October	949.4	417.0	1,366.4
November	934.1	399.8	1,333.9
December	947.2	424.2	1,371.4
Total	12,178.2	4,817.1	16,995.3

TABLE No. 2

TABLE No. 2

Quantity of Water Pumped at Little Falls for the Use of the Little Falls Water Company, the Borougr of Totowa and Filter Plant for the Years 1920, 1921 and 1922.

Year and Month (1)		Little Falls Water Co. Mill. Gals. Through 51" Steel Conduit (2)	Through Clove Road Meter From Montclair P. S. (3)	Through Hillary St. Meter Via 42" Pat. Ext. (4)	Total (5)	Boro. of Totowa Via 51" Steel Conduit Mill. Gals. (6)	Filter Plant Use Mill. Gals. Wash Water (7)	Alum Manufacturing* (8)	Cleaning Filters** (9)
		M.G.	M.G.	M.G.					
1920	January	5.37	0.10	0.43	5.90	1.66	12.78		
	February	5.64	.09	.43	6.16	1.62	11.50		
	March	4.90	.12	.49	5.51	2.17	14.28		
	April	3.73	.18	.46	4.37	1.71	11.88		
	May	4.34	.19	.43	4.96	1.78	16.90	..	
	June	3.61	.18	.39	4.18	2.28	14.72		
	July	4.10	.23	.35	4.68	1.66	19.02		
	August	3.78	.17	.33	4.28	1.56	19.35		
	September	4.10	.16	.35	4.61	1.55	17.62		
	October	5.15	.08	.31	5.54	1.65	17.42		
	November	4.36	.08	.29	4.73	1.70	11.25		
	December	4.83	.10	.33	5.26	1.78	12.44		
	Total 1920	53.91	1.68	4.59	60.18	21.12	179.16	91.5	18.0
1921	January	5.16	.07	.40	5.63	1.76	13.50		
	February	4.58	.07	.32	4.97	1.60	12.40		
	March	4.82	.13	.33	5.28	1.79	15.98		
	April	3.65	.20	.31	4.16	1.93	16.29		
	May	3.89	.19	.31	4.39	1.98	23.42		
	June	4.96	.20	.38	5.54	2.18	23.50		
	July	5.23	.27	.53	6.03	2.03	19.41		
	August	4.77	.29	.40	5.46	1.99	24.86		
	September	6.59	.40	.40	7.39	2.01	27.33		
	October	6.89	.41	.36	7.66	2.00	23.31		
	November	6.67	.41	.35	7.43	2.00	19.85		
	December	5.35	.27	.32	5.94	2.09	18.58		
	Total 1921	62.56	2.91	4.41	69.88	23.36	238.43	92.2	24.0

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1922	January	7.34	0.27	0.37	7.98	2.05	15.54		
	February	7.28	.24	.27	7.79	1.88	22.02		
	March	7.52	.30	.28	8.10	2.02	18.58		
	April	5.54	.35	.30	6.19	1.87	20.47		
	May	5.76	.37	.39	6.52	2.13	22.32		
	June	5.46	.40	.80	6.66	2.07	22.92		
	July	4.80	.37	.60	5.77	2.10	22.76		
	August	5.52	.40	.33	6.25	2.34	18.70		
	September	6.49	.47	.30	7.26	2.01	18.99		
	October	5.68	.55	.40	6.63	2.07	18.94		
	November	5.07	.51	.36	5.94	2.14	15.92		
	December	5.30	.49	.28	6.07	2.29	13.41		
	Total 1922	71.76	4.72	4.68	81.16	24.97	230.57	91.2	32.0

*1/4 M. G. per day used for Alum.
**1 M. G. used per filter for cleaning.

TABLE NO. 3

Quantity of Water Delivered Through the 20" Grove Street Meter for the Years 1920, 1921 and 1922.

Month and Amount in Mill. Gals.

Year (1)	Jan. (2)	Feb. (3)	Mar. (4)	Apr. (5)	May (6)	June (7)	July (8)	Aug. (9)	Sept. (10)	Oct. (11)	Nov. (12)	Dec. (13)	Total (14)
1920	97.76	90.04	92.02	79.95	84.21	84.54	86.26	85.18	84.92	88.04	82.77	83.72	1,039.41
1921	82.09	71.64	77.34	72.36	76.91	80.99	79.45	78.09	76.97	76.68	72.86	75.96	921.34
1922	80.28	73.02	72.26	67.96	74.35	69.64	69.06	69.80	70.02	73.94	69.21	70.40	859.94

TABLE NO. 4

Quantity of Water Delivered into the 30" Line to the South Side of Passaic for the Years 1920, 1921 and 1922.

Month and Amount in Mill. Gals.

Year (1)	Jan. (2)	Feb. (3)	Mar. (4)	Apr. (5)	May (6)	June (7)	July (8)	Aug. (9)	Sept. (10)	Oct. (11)	Nov. (12)	Dec. (13)	Total (14)
1920	84.9	73.5	97.1	79.3	65.8	67.8	84.6	107.4	96.8	99.3	96.8	97.2	1,050.5
1921	102.3	82.0	101.3	104.2	142.6	146.3	140.9	143.4	138.1	132.9	113.2	119.8	1,467.0
1922	143.9	143.4	163.6	151.1	166.7	178.2	183.6	200.6	190.1	206.3	183.3	184.0	2,094.8

TABLE NO. 5

TABLE NO. 5

Quantity of Water Delivered Through 16" Line to Bloomfield for the Years 1920, 1921 and 1922.

Month and Amount in Mill. Gals.

Year (1)	Jan. (2)	Feb. (3)	Mar. (4)	Apr. (5)	May (6)	June (7)	July (8)	Aug. (9)	Sept. (10)	Oct. (11)	Nov. (12)	Dec. (13)	Total (14)
1920	64.38	60.15	57.63	40.90	39.66	42.99	45.82	44.31	39.30	40.78	38.02	38.43	552.37
1921	39.94	35.85	39.25	40.19	44.17	46.93	48.22	47.33	46.94	48.84	45.67	49.23	532.56
1922	51.86	46.71	49.78	48.95	52.03	51.53	51.06	52.44	51.80	53.74	51.75	52.47	614.12

TABLE NO. 6

Quantity of Water Delivered From the 51" Steel Conduit to Nutley for the Years 1920, 1921 and 1922.

Month and Amount in Mill. Gals.

Year (1)	Jan. (2)	Feb. (3)	Mar. (4)	Apr. (5)	May (6)	June (7)	July (8)	Aug. (9)	Sept. (10)	Oct. (11)	Nov. (12)	Dec. (13)	Total (14)
1920	10.04	9.66	11.12	9.66	10.03	9.84	9.81	9.94	10.53	10.46	9.45	9.28	119.82
1921	9.44	8.29	9.74	9.39	10.40	12.96	12.18	11.79	11.87	11.34	10.24	10.18	127.82
1922	10.56	9.87	11.23	10.83	12.61	12.60	12.73	13.50	13.68	14.40	13.56	13.55	149.12

TABLE NO. 7

Quantity of Water Delivered to the City of Bayonne for the Years 1920, 1921 and 1922.

Month and Amount in Mill. Gals.

Year (1)	Jan. (2)	Feb. (3)	Mar. (4)	Apr. (5)	May (6)	June (7)	July (8)	Aug. (9)	Sept. (10)	Oct. (11)	Nov. (12)	Dec. (13)	Total (14)
1920	530.7	506.7	504.3	428.1	436.1	430.6	434.8	435.6	433.2	422.4	393.7	413.1	5,369.3
1921	415.2	363.4	377.5	351.6	360.8	379.0	378.0	370.6	392.7	375.7	374.4	407.0	4,537.8
1922	436.3	384.2	407.9	382.8	398.7	402.6	416.7	413.7	390.2	405.2	395.0	429.1	4,862.4

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TABLE NO. 8

Quantity of Water Delivered to the New Jersey Suburban Water Company for the Years 1920, 1921 and 1922.

Year (1)	Month and Amount in Mill. Gals. Jan. (2)	Feb. (3)	Mar. (4)	Apr. (5)	May (6)	June (7)	July (8)	Aug. (9)	Sept. (10)	Oct. (11)	Nov. (12)	Dec. (13)	Total (14)
1920	206.4	188.4	214.4	227.6	225.5	196.5	208.6	216.4	208.0	214.2	200.3	194.3	2,500.6
1921	186.4	180.5	204.3	178.1	176.0	184.4	177.5	176.5	172.7	181.7	172.5	173.6	2,164.2
1922	182.2	169.4	194.4	185.8	195.0	190.1	194.1	204.7	196.4	196.7	181.4	181.3	2,271.5

TABLE NO. 9

Quantity of Water Delivered From the 51" Steel Conduit for Reinforcing the Paterson Service for the Years 1920, 1921 and 1922.

Year (1)	Month and Amount in Mill. Gals. Jan. (2)	Feb. (3)	Mar. (4)	Apr. (5)	May (6)	June (7)	July (8)	Aug. (9)	Sept. (10)	Oct. (11)	Nov. (12)	Dec. (13)	Total (14)
1920	0.0	0.0	0.9	0.0	0.0	5.3	3.5	0.0	2.6	4.7	0.7	0.0	17.7
1921	0.0	0.0	0.0	0.0	19.9	33.4	25.0	23.4	15.0	11.9	15.6	65.9	210.1
1922	11.6	5.3	13.4	1.4	1.6	3.9	7.7	3.9	10.7	9.9	7.5	9.6	86.5

There was no water passing either way between the East Jersey Water Company line and the Newark Pipe Line for the Years 1920, 1921 and 1922.

TABLE NO. 10

Quantity of Water Delivered From Montclair to West Orange Water Company for the Years 1920, 1921 and 1922.

	Month and Amount in Mill. Gals.												
Year (1)	Jan. (2)	Feb. (3)	Mar. (4)	Apr. (5)	May (6)	June (7)	July (8)	Aug. (9)	Sept. (10)	Oct. (11)	Nov. (12)	Dec. (13)	Total (14)
1920	23.62	21.46	22.86	22.42	24.26	25.77	25.49	26.43	24.13	24.39	20.98	17.07	278.88
1921	11.98	10.21	5.58	2.10	0.80	0.42	0.00	0.00	0.18	0.00	0.00	0.00	31.27
1922	0.00	1.55	0.00	4.22	7.77	0.00	0.00	0.96	0.00	1.07	0.00	0.00	15.57

TABLE NO. 11

Quantity of Water Delivered from Montclair to Glen Ridge for the Years 1920, 1921 and 1922.

	Month and Amount in Mill. Gals.												
Year (1)	Jan. (2)	Feb. (3)	Mar. (4)	Apr. (5)	May (6)	June (7)	July (8)	Aug. (9)	Sept. (10)	Oct. (11)	Nov. (12)	Dec. (13)	Total (14)
1920	8.39	7.84	8.37	8.17	8.39	7.97	7.55	7.47	7.79	8.53	8.45	8.28	97.20
1921	8.54	7.39	8.24	7.99	8.27	8.84	8.19	7.83	2.79	0.00	0.00	0.00	68.08
1922	—	—	—	—	—	—	—	—	—	—	—	—	—

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TABLE NO. 12

Quantity of Water Delivered by the East Jersey Water Company to Bloomfield for the Years 1920, 1921 and 1922.

Month and Amount in Mill. Gals.

Year (1)	Jan. (2)	Feb. (3)	Mar. (4)	Apr. (5)	May (6)	June (7)	July (8)	Aug. (9)	Sept. (10)	Oct. (11)	Nov. (12)	Dec. (13)	Total (14)
1920	73.04	67.99	65.32	46.89	45.70	49.26	52.11	50.51	45.32	47.17	44.09	44.71	632.11
1921	45.81	41.08	44.77	45.22	49.34	53.63	54.23	53.09	52.70	54.77	50.96	54.77	600.37
1922	57.52	51.98	55.14	54.05	58.03	56.92	56.22	57.91	57.42	59.71	57.04	57.73	679.67

TABLE NO. 13

Quantity of Water Delivered by Newark to Bloomfield for the Years 1920, 1921 and 1922

Month and Amount in Mill. Gals.

Year (1)	Jan. (2)	Feb. (3)	Mar. (4)	Apr. (5)	May (6)	June (7)	July (8)	Aug. (9)	Sept. (10)	Oct. (11)	Nov. (12)	Dec. (13)	Total (14)
1920	.00	.00	8.61	27.03	26.35	21.15	16.73	15.91	19.88	21.61	21.98	24.41	203.66
1921	27.66	23.61	25.52	22.27	18.34	19.18	18.07	16.35	15.78	17.17	17.19	21.57	242.71
1922	26.00	22.48	19.92	18.42	20.44	19.45	18.56	18.93	19.54	20.46	16.18	17.16	237.54

TABLE NO. 14

Quantity of Water Delivered by the Montclair Water Company to Essex County.

Month and Amount in Mill. Gals.

Year (1)	Jan. (2)	Feb. (3)	Mar. (4)	Apr. (5)	May (6)	June (7)	July (8)	Aug. (9)	Sept. (10)	Oct. (11)	Nov. (12)	Dec. (13)	Total (14)
1920	5.22	4.54	4.29	7.06	10.67	4.02	4.36	4.82	5.06	5.47	6.04	5.29	66.84
1921	4.41	4.30	5.67	6.44	6.13	6.86	4.71	3.20	4.41	3.35	3.01	2.89	55.38
1922	2.66	2.43	2.52	2.31	2.40	2.39	2.34	2.38	2.37	2.49	2.05	2.18	28.52

Exhibits C1 and C2

TABLE NO. 15.

ESTIMATED COST OF ADDITIONAL METERS IN PLACE REQUIRED IN EACH DISTRICT FOR COMPLETE METERING

Company (1)	District (2)	Meters Required for Complete Metering Number (3)	Size (4)	Estimated Cost per Meter in Place (5)	Total Cost of Required Meters in Place (6)
Acquackanank Water Company	City of Clifton	586	5/8" x 3/4" *	$20.00	$11,720
	City of Passaic	966	5/8" x 3/4"	20.00	19,320
		1,552			$31,040
Passaic Water Company	City of Paterson	3,188	5/8" x 3/4"	20.00	63,760
		4,740			$94,800

*5/8" meter with 3/4" connection

Montclair is 100% metered.

TABLE NO. 16.

DOMESTIC METERED CONSUMPTION IN THE TOWN OF MONTCLAIR FOR THE YEARS 1920, 1921 AND 1922.

Metered Consumption in Mill. Gals.

Year (1)	High Service (2)	Low-Service (3)	Total (4)
1920	313.79	122.42	436.21
1921	306.29	131.74	438.03
1922	327.02	136.86	463.88

RESPONDENTS' EXHIBITS.

Exhibit 01.

DEED.

Assignment dated September 6, 1918, between New York and New Jersey Water Company and Mayor and Common Council of the City of Bayonne.

ASSIGNMENT BY THE NEW YORK AND NEW JERSEY WATER COMPANY TO THE MAYOR AND COUNCIL OF THE CITY OF BAYONNE.

This indenture of assignment made on the 6th day of September, 1918, between the New York and New Jersey Water Company, a corporation of the State of New Jersey, party of the first part, and the Mayor

Exhibit O1

and Council of the City of Bayonne, a municipal corporation of New Jersey, party of the second part,

WITNESSETH:

WHEREAS, a certain Ordinance was adopted by the Board of Commissioners of the City of Bayonne on May 3, 1918, and a certain contract was made, executed and delivered between the parties hereto on the 6th day of August, 1918, as authorized by the said Ordinance, providing among other things the purchase from the party of the first part, by the party of the second part, for the sum of Two Million and seventeen thousand dollars ($2,017,000) of "all the land, buildings, rights of way, pipe lines, contracts and easements belonging to the said party of the first part which are now used for supplying water to the City of Bayonne or adapted to furnish supply"; and said contract further provided that said purchase should also include an assignment to the said party of the second part of all rights of the said party of the first part in the existing agreements under which it supplies water to the City of Bayonne, for the remaining periods thereof; and contracts by which it receives water from the East Jersey Water Company, and all existing contracts by which it delivers water to consumers on the Kearny Meadows, now held by the party of the first part; as by reference to said Ordinance on May 3, 1918, and said contract of August 6, 1918, will more fully appear;

NOW, THIS INDENTURE WITNESSETH:

That in consideration of One Dollar and other valuable consideration paid by the party of the second part, the receipt whereof is hereby acknowledged, and of further consideration hereafter to be paid, as

more fully set forth in a certain deed of conveyance made, executed and delivered under this day and date by the party of the first part to the party of the second part hereto—the party of the first part hath assigned, transferred, conveyed and set over unto the party of the second part, its successors and assigns.

First. All the rights of the said party of the first part in the existing agreements under which it supplies water to the City of Bayonne for the remaining periods thereof, said agreements being as follows, viz:

1. Agreement made the sixth day of September, 1894, between W. D'H. Washington and Turner A. Beall, parties of the first part, and the Mayor and Council of the City of Bayonne, which agreement was duly signed by said individual contractors to the New York and New Jersey Water Company under date of April 20, 1895.

2. Agreement made the twenty-eighth day of June, 1904, by acceptance by the New York and New Jersey Water Company of Ordinance of the Mayor and Council of the City of Bayonne, approved June 24, 1904.

3. Agreement made October 6, 1909, by acceptance by the New York and New Jersey Water Company of resolutions adopted by the Mayor and Council of the City of Bayonne and approved October 6, 1909.

4. Agreement made October 18, 1910, by acceptance of resolutions of the Mayor and Council of the City of Bayonne, determining to acquire rights of diversion and designating Little Falls on the Passaic River as the source of the City's water supply until October

6, 1929, for the purpose of the City's contracts with the New York and New Jersey Water Company and for the use of the City of Bayonne for public water supply; and authorizing condemnation thereof under the powers of the City, but at the expense of the Water Company.

5. Agreement made December 19, 1911, by acceptance by the New York and New Jersey Water Company of resolutions adopted by the Mayor and Council of the City of Bayonne on November 21, 1911.

(A copy of each said Agreements is hereunto annexed.)

Second. The rights and interests of said party of the first part in the contract between it and the East Jersey Water Company, dated July 12, 1895, and right of renewal thereof provided for in said contract, and the rights and interests of said party of the first part in the later amendments of and supplements to the said contract (being dated respectively September 1, 1899; May 29, 1902; October 13, 1902; July 1, 1903; December 13, 1907 and May 18, 1911) so far as the same relate to the diversion, filtration, pumping and delivery unto the pipe lines leading from Kearny to Bayonne of a supply of water for the uses and purposes of the City of Bayonne and of consumers who may be supplied with water from the said pipe lines upon the Kearny Meadows.

(A copy of which contract and of each of the amendments and supplements thereto is hereunto annexed.)

Third. All the rights and interests of the party of the first part in existing contracts now held by the said party of the first part with any consumer of water supplied from the said pipe lines upon the

Kearny Meadows, as such contracts will more fully appear in the schedule hereunto annexed and made a part of this agreement, and marked Schedule A.

To have and to hold said contracts, and all the rights, title and interest therein, and all the monies, interest, benefit and advantage whatsoever, hereafter to accrue, arise or be had or made by virtue thereof, unto the said The Mayor and Council of the City of Bayonne, their successors and assigns, to their own use, benefit and behoof forever; the said The Mayor and Council of the City of Bayonne, their successors and assigns, to well and truly fulfill and perform all and singular the covenants and conditions in said contracts contained on the part of the party of the first part hereto, and to well and truly indemnify and save the party of the first part harmless therefrom.

And it is mutually covenanted and agreed that all monies due for water delivered to any person or corporation, under said assigned contracts or otherwise, by the party of the first part from the said water works, on or before the date of delivery of this instrument, shall belong to and be collected by the party of the first part; and all monies due for water thereafter delivered shall belong to and be collected by the party of the second part.

And the party of the first part does hereby constitute the said The Mayor and Council of the City of Bayonne, as attorney for the party of the first part, in its name or otherwise, but at its own costs, to take all legal measures which may be proper or necessary for the complete recovery, use and enjoyment of the assigned premises.

In Witness Whereof, the said party of the first part has caused its common seal to be hereto affixed

and these premises to be signed by its President and attested by its Secretary.

THE NEW YORK AND NEW JERSEY WATER COMPANY,

By C. A. DANA, Vice President.

(Seal.)

Attest:

F. C. EARL,
Secretary.

State of New Jersey,
County of Hudson, ss:

Be it remembered, that on this 6th day of September, nineteen hundred and eighteen, before me a Master in Chancery of New Jersey, personally appeared Frederick C. Earl, who being by me duly sworn did depose, say and prove that he is the Secretary of the corporation, grantor in the within assignment and is subscribing witness thereto; that the seal to said assignment affixed, as deponent well knows, is the corporate seal of said corporation, and that said seal was affixed and said assignment signed and delivered by Charles Dana, who at the time of such signing was Vice President of said corporation, and at his request deponent thereupon signed the same as subscribing witness. That said assignment was executed by authority and direction of a resolution passed by the Board of Directors of said corporation.

FREDERICK C. EARL.

IN WITNESS WHEREOF, the said Secretary hath set his hand to such deposition, and I have hereunto set my hand as such Master in Chancery of New Jersey, the date above written.

JAMES BENNY,
Master in Chancery of N. J.

Exhibit O1

Schedule A.

Agreement between New York and New Jersey Water Company and the Mallinckrodt Chemical works, October 8, 1908.

Agreement between New York and New Jersey Water Company and the Newark Sanitary Reduction Company, April 15, 1909.

Agreement between New York and New Jersey Water Company and The Newark Plaster Company, June 18, 1909.

Agreement between New York and New Jersey Water Company and the Trexler Lumber Company of Allentown, September 9, 1909.

Agreement between New York and New Jersey Water Company and The Snare and Triest Company, March 8, 1910.

Agreement between New York and New Jersey Water Company and The Foundation Company, July 26, 1910.

Agreement between New York and New Jersey Water Company and The Indian Refining Company, July 26, 1910.

Agreement between New York and New Jersey Water Company and the Riverside Steel Casting Company, June 7, 1911.

Agreement between New York and New Jersey Water Company and the Terry & Tench Company, Inc., June 15, 1911.

Agreement between New York and New Jersey Water Company and the Mutual Chemical Company, October 14, 1911.

Agreement between New York and New Jersey Water Company and the City of Jersey City, January 23, 1912.

Exhibit R1.

Volume entitled "Valuation of Properties, East Jersey Water Company, etc., Edward W. Bemis, Consulting Engineer."

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Exhibit R1

Paterson, New Jersey
November 27th, 1922.

To the Attorneys
Representing the Cities of Paterson
Passaic
Montclair
Bayonne
And the Towns of Bloomfield
Nutley

Gentlemen:

I herewith present my appraisal of the Historical Cost New and the Historical Cost New Less Depreciation, of the properties of the five companies owned by the New Jersey General Security Company, viz:

The East Jersey Water Company
The Kearney Water Company
The Passaic Water Company
The Acquackanonk Water Company
The Montclair Water Company

I find that the Historical Cost New is $9,572,977.19, and the Historical Cost New Less Depreciation is $7,544,658.63. Both of these figures include $1,320,000.00 for Diversion and Power Rights owned by the above companies.

Respectfully Submitted,
EDWARD W BEMIS

Exhibit R1

*2

GENERAL

In accordance with instructions received from the representatives of the cities of Paterson, Passaic, Montclair and Bayonne, and the towns of Nutley and Bloomfield, all located in the eastern part of the State of New Jersey, we have prepared an appraisal of the properties of the companies supplying water to these communities from the Passaic River at Little Falls. The properties under consideration are as follows:

Companies Supplying Water:

The Passaic Water Company
The Acquackanonk Water Company
The Montclair Water Company
The East Jersey Water Company
The Kearney Water Company

The first three companies own distribution systems and sell water at retail in Paterson, Passaic, Montclair and Clifton. The East Jersey Water Company sells water at wholesale to Bayonne, Nutley, Bloomfield, and several other communities, while the Kearney Water Company is purely a water transportation company.

All water supplied to the communities under consideration is collected, purified and pumped from the station located in Little Falls, N. J. This property is jointly owned and operated by the first four companies shown in the above table. The valuation on this property has therefore been prepared under the caption of "Joint Ownership." It includes all property located at Little Falls. The Great Notch Reservoir of 152.7 million gallons capacity, located on Garret Mountain,

and a high pressure water transmission line extending from the pumping station in a southerly direction to a point just north of the Newark Reservoir in the town of Kearney, where it connects with a transmission line owned by the Kearney Water Company. This last named line is known as the Kearney Extension and is in reality owned and operated by the East Jersey Water Company. It has, therefore, been included in this valuation as a separate item. The East Jersey Water Company also owns individually certain valves, meters, etc., which are included in a separate statement. Some of these meters and valves are located on lines they have an interest in and some of them are located in pipe lines owned entirely by other companies.

THE VALUATION HERE PRESENTED, ITS NATURE, AND HOW OBTAINED

Since most Public Utility Commissions attach great weight to the actual cost recorded or estimated where the records are lacking, there is here presented this cost. It may be termed the historical cost less depreciation. Where the word valuation is used herein, it will be understood in that sense, unless otherwise indicated.

In another exhibit, consideration will be given to other theories of valuation, to going value, etc.

In preparing the historical cost in this report, an inventory prepared by the engineers for the companies concerned was used. The inventory includes all items of physical property owned by the respective companies, and has been accepted by us as being a correct listing of the property. This inventory has been rewritten and the prices actually paid by the companies for the various

elements of property have been found in the books and records of the several companies. These books and records are very complete in every respect, excepting those of the Passaic Water Company and the Acquackanonk Water Company. The records of these companies were complete from 1902 to 1920 only, due to the fact that a fire in 1902 had destroyed many of the books of record which were in existence prior to that time.

The records where obtainable have been adhered to in all cases, but some estimates were made necessary due to the fire and due to the fact that different classes of property were included in one account prior to 1912. As an illustration of this, the construction account for mains prior to 1912 included all construction expenditures for mains and meters. The necessity for segregating these two classes of property was met by the preparation of estimates of the cost of meters included in this account which amount was deducted from the total construction expenditure in any particular period, the balance representing the cost of mains only.

The pumping station at Little Falls was built under a force account contract. This work was started in 1897 and was completed in 1899. The cost of the individual items of property such as building, etc., could not be segregated, but the total cost of all of the property was obtained from the books and records of the company.

Exhibit R1

DEPRECIATION

The method followed in arriving at the allowance for annual depreciation and in arriving at the amount of accrued depreciation to be deducted from the cost new, is what is known as the "Straight Line" of "0% Sinking Fund" method. The age of each item of physical property was obtained from the inventory prepared by the engineers of the company, and checked by the book records of the company. The total expected lives were also obtained from an appraisal prepared by the engineer for the company, which this engineer used in obtaining an accrued depreciation on the "3% Sinking Fund" method of depreciation.

It will be noticed in the body of this report that the total lives of certain classes of property are entitled "Weighted Average." This is particularly true of the "Distribution Mains and Accessories" found under the lists of property owned by the individual companies, and the structures under "Little Falls Improvements" and "Little Falls Filtration Plant." This "Weighted Average" life is due to the fact that in the case of Distribution Mains and Accessories, certain classes of property within this account will not depreciate as fast as other classes of property. For instance, Cast Iron Mains have been assumed as having a total life of 100 years, Steel or Cement Mains 50 years, and Hydrants 50 years. By applying these varying lives to the different kinds of property a "Weighted Average" was obtained. The same explanation applies to structures at Little Falls.

Exhibit R1

RECORDS OTHER THAN FINANCIAL

While determining the recorded cost of the property, visits to the pumping station and other parts of the plant were necessary. A brief description of the operating methods of the property may be of assistance at this time. Some historical and legal data about the relation of these companies have been presented in the exhibits of Hill and Metcalf. Further data relating to the history of these companies is presented elsewhere in this report.

As stated before, the water is collected at the Little Falls Pumping Station located on the Passaic River. That portion of the Passaic River above Little Falls is supplied from a watershed consisting of approximately 773 square miles. This water is backed up at Little Falls with a small dam, which provides an average head of 33.7 feet. The water is carried into the station through 12′ steel flumes and is delivered into a concrete settling basin, where it is

*4

treated with Sulphate of Alumina, which is manufactured at the station. From this settling basin the water passes through a battery of gravity sand filters, and then into a clear well located directly below the filter house, where additional settling time is provided. It is then pumped from this clear well, saturated with chlorine gas manufactured at the pumping station, and delivered to a low and a high pressure transmission line. All of the water for Paterson and part of the water for Passaic is pumped by a 20 million gallon Riedler low pressure pump which can be run by steam or water power into a 42″ steel main known as the

"Paterson Extension" from which main it is delivered to the distribution system in these cities. The balance of the water from the clear well is pumped by high pressure pumps into what is known as the "51 Line" and is delivered to the Great Notch Reservoir. Three 10 million gallon Riedler pumps which can be run by steam or water power, one 12 million steam pump, and one 13 1/2 million steam centrifugal pump are used for this service. From the Great Notch Reservoir the water is supplied through a 51″ line to several cities and towns, among them being Montclair, Bloomfield and Nutley. Water is also delivered to a line known as the 42″ Kearney Extension, which transports water for use in Bayonne and other communities.

The pumping station is primarily a steam operated plant, but is provided with water turbines for operating all of the Riedler pumps when sufficient water is available. A small water turbine driven generating unit supplies the light and power necessary for the station. This generating unit is also equipped with a steam engine for emergency use when sufficient water is not available for operating with the turbine. A curve showing the net horse power actually used by the company in the operation of these water turbines during the years 1918-1919 and 1920 is included in this report. This curve shows also the gross horse power available with the plant equipped as at present.

DETAILED DESCRIPTION OF METHODS PURSUED IN PRICING INVENTORY

A general statement regarding "Land," "General Equipment," and "Materials & Supplies" can be inserted here.

Exhibit R1

The values of the several parcels of land and rights of way as included in this report were obtained from detailed appraisals prepared by Mr. Rossiter, who was engaged by the interested companies to make these appraisals. These appraisals have been found to be fair, and were therefore accepted and used. The appraisals referred to were presented as evidence in this case at a previous hearing, and are a part of the record in this case.

The items of "General Equipment" and "Materials & Supplies" are current accounts, and are found in the books of the companies as such. For this reason, and because a detailed analysis of these accounts would consume more time than is available for the preparation of this report, we have accepted the book records of the company as being correct, and have used the costs as set up by the company.

JOINT OWNERSHIP.

The cost of each individual structure or item of equipment was built up from expenditures found in the records of the company for various years. For instance, the item of "Addition to Pump House": The total cost is shown as $30,398.64. This total is made up of expenditures as follows:

1917	$ 238.78
1919	27,209.02
1920	2,950.84
Total	$30,398.64

In this case, a very large proportion of this total expenditure was made in 1919, and for that reason an

age of one year was used in determining the accrued depreciation.

This method of obtaining the cost was followed throughout this account, and in cases where several structures were built under one contract, all of the expenditures made were added together, and applied to the group of structures built under the contract, as in the case of the total cost of a group of structures amounting to $1,053,216.00. Interest during construction was added to all items. 6% was added for those parts of the property which were constructed under "wholesale construction" conditions or in other words, under "reproduction" methods. This applies to the original construction of the pumping station structures and equipment, and the original 32 filters. 3% was added for all other items of property at the Little Falls station. The 6% assumes a construction period of two years with interest at 6%, assuming that one year was the average time all of the money was idle, or an average of one half of the money was idle all of the time.

The cost of the Great Notch Reservoir was obtained from the books, with the exception of $20,101.18. This is an estimated cost allowance for Interest During Construction, amounting to 6% of the cost new, and is based on the assumption that two years was required in constructing this reservoir.

The cost of the Fifty-One Inch Steel Conduit was taken from the books of the East Jersey Water Company, and includes expenditures made during the period from 1898 to 1912. Of the total cost of $548,963.74, the greater portion, or $430,474.44 was expended in 1899, and $82,754.38 was expended in 1900. The balance was expended in small amounts in the years following. $30,982.64 was added for Interest During Construction, and is included in the total cost of $548,963.74.

Exhibit R1

INDIVIDUAL OWNERSHIP

The East Jersey Water Company

This Company owns very little property other than its share of the Joint Ownership property. It is primarily a wholesaling company, and as such owns a large part of the 51″ steel transmission line. Under these conditions a small amount of General Equipment and Materials & Supplies are carried by this Company. The method of obtaining the cost of these items has already been explained.

The Kearney Water Company

This Company is controlled by the East Jersey Water Company, and owns a transmission main for conveying water to Bayonne and other places. The cost of this transmission main was obtained from the books of the East Jersey Water Company, and was made up of expenditures in 1895 amounting to $102,951.64, and in 1896 amounting to $69,417.62. Of this total amount, $13,063.32 was found to be for land. The cost of the main itself was then $159,305.54 to which $9,558.33 or 6% was added for Interest During Construction.

The Passaic Water Company

General

This Company owns two lines which may be classed as transmission lines. One line, the 42″ Paterson Extension delivers water from the Little Falls Pumping Station to the distribution system in Paterson, some of the water passing through that city and into the distribution system in Passaic.

The other line is known as the Dyers' Pipe Line, and delivers river water, unpurified and unfiltered, to a number of mills located in the northeast section of Paterson. This water is obtained from the river above Great Falls and is delivered by gravity to the consumers.

Three reservoirs are located within the city limits of Paterson and are the property of the Passaic Water Company. They are known as "Stony Road," "Totowa," and "Middle." The first two reservoirs are not now and have not been in use for some years. Middle reservoir was out of use for several years, but has been in use for the last few years. Nevertheless, this is used merely as a reducing valve for supplying low pressure water to a small section of Paterson, and as the cost is out of all proportion to the service rendered, we have also classed this reservoir as not used or useful.

Paterson Extension & Dyers' Pipe Line

The cost of the Paterson Extension and of the Dyers' Pipe Line was obtained from the Company's records in the same manner as all other transmission lines.

Distribution Mains & Accessories

As previously explained, the Company's records prior to 1912, did not clearly define the cost of the various elements of property. Since 1902, it has been the custom of the engineer for the company to prepare summaries of the cost of construction at the end

of each year, using as the basis for these summaries, the actual amount of work done, together with the actual cost of labor and material, as shown on records kept by himself during the year. This record was used by us in determining the quantities of mains laid each year. The cost as shown in the engineer's summaries did not include such costs as supervision, engineering, inspection, stable expense, etc. Neither did this so-called cost include the salaries of persons whose salaries were paid weekly or monthly. These further costs were added to the engineer's cost by the bookkeeping department and were called "suspense." These additional costs were placed on the engineer's summaries during all years since 1911. During the period from 1902 to 1911 inclusive, this was not done, but the differences between the engineer's costs and the records in the bookkeeping department indicated that the bookkeeping records included the item of suspense, whereas the engineer's record did not. This suspense for the total period from 1902 to 1911 inclusive was found to be 17.4% of the cost shown in the engineer's record. This percentage was obtained for the purpose of preparing estimates for mains installed prior to 1902. All costs as shown on the company's books subsequent to 1902 were used, but prior to that date, very little information as to costs could be obtained. Certain engineering record costs were found for the period from 1898 to 1901 inclusive, to which 17.4% was added for "suspense" and 5.6% for "miscellaneous." This latter percentage was determined by analyzing the records from 1902 to 1911 inclusive, in the same manner as in determining the 17.4%. For all mains laid prior to 1898, estimates were prepared, there being no record of the cost of this construction. After careful consideration of all

of the elements of cost entering into this class of construction, it was decided that the average cost of laying mains during the years 1902 to 1911 inclusive would represent a fair estimate of the cost prior to 1898. These average costs during 1902 to 1911 inclusive, were therefore used, and allowances of 17.4% for "suspense" and 5.6% for "miscellaneous" were added.

Some cement mains laid prior to 1898 are still in service. There being no recorded costs obtainable, estimates were necessary. In lieu of preparing these estimates, the unit costs as used by the Valuation Board of the State Water Supply Commission in preparing its valuation in 1912 were used. To these unit costs 12 1/2% was added for Omissions, Contingencies and Engineering. This additional cost has been included in "suspense."

*7

Certain mains now in the inventory could not be identified as to the date of installation. These have therefore been priced on the same basis as was used in pricing cement mains.

Meters, Meter Boxes & Vaults

This account was divided into two general accounts in the Company's records, namely, "Meters" and "Setting and Miscellaneous." The records of the company indicated the number, size and cost of all meters purchased each year from 1913 to 1920 inclusive. From the same records, the number, size and sale price of all meters sold was obtained. By de-

ducting the meters sold from the meters purchased, the additions to meters each year were determined. For the period prior to 1913, the records of the company were incomplete and it was therefore necessary to obtain the additions by size and number from other sources. This information was obtained from an inventory prepared by Metcalf and Eddy of Boston. These additions were then priced by applying to the quantities so determined, unit costs for the various sizes of meters. These unit costs were obtained from an analysis of the meters purchased by the company, for the period from 1902 to 1912 inclusive. For meters purchased prior to 1902, unit prices paid by the Montclair Water Co. were used.

The section of this account in which the cost of meter setting and miscellaneous is recorded, does not correspond with the additions by years for meters, due to the fact that new meters are included in the appraisal in the year in which they were purchased. In one particular year, 200 meters may have been purchased, but only 50 installed, or vice versa. The net additions to meter settings are capitalized, and we have used this cost in our appraisal, for the period from 1913 to 1920, inclusive. For the period from 1902 to 1911 inclusive, the costs from the engineer's reports were used with adjustments corresponding to the relations found in the period from 1913 to 1920.

The total cost of meters and meter settings was deducted from the main account each year, leaving a net cost of mains and appurtenances. The total cost of meters, meter setting and mains equals the cost shown in the books.

Exhibit R1

Service Pipes & Stops

Prior to 1917, the consumer paid for the entire service from the main to the house, with the exception of the corporation cock and the cost of tapping the main. No definite record of this cost to the company was available because of the fact that all such costs were charged to mains. These costs have not been deducted from the cost of mains, and in order to avoid duplication, no costs have been added in this account. In 1917, by order of the Board of Public Utility Commissioners, the company began to place and pay for all services from the main to the curb. A complete record of the cost of all additions of these services has been kept by the company and the cost of the services installed by years has proved easy of ascertainment.

General Structures

The cost of the general structures was obtained in detail from the books of the company with a few exceptions, one being the cost of the retaining wall above Great Falls. This wall was built in 1867 and the cost as shown in this report was obtained from the valuation prepared for the State Water Supply Commission in 1913.

*8

THE AQUACKANONK WATER COMPANY

Distribution Mains & Accessories

The record of costs for this construction was very complete for the period from 1912 to 1920 inclusive,

the same methods of keeping these costs prevailing in this company as in the Passaic Water Co. These costs include the items of "suspense" and "miscellaneous" as described in the text referring to the latter company.

"Engineers' records" were also available for the period from 1908 to 1911 inclusive, and a comparison between these costs and the bookkeeping records indicated that "suspense" and "miscellaneous" costs were included in the book costs. Having no "Engineers' records" available prior to 1908, and desiring to use the period from 1902 to 1911 as a basis for future estimating, it was necessary to prepare estimates for the cost of laying mains from 1902 to 1907 inclusive. This was accomplished by obtaining a relation between the costs in Paterson and Passaic. The period from 1908 to 1915 inclusive was taken, and the comparison indicated a definite relation between the costs in the two cities. This ratio was applied to the unit costs already determined for Paterson, and a unit cost applicable to construction in Passaic from 1902 to 1907 inclusive was thus obtained. By applying these unit costs to the mains laid during these years, and comparing the results thus obtained with the total recorded costs on the books, it was found that there was a difference amounting to 5% which was considered as "suspense" and miscellaneous."

As in the Passaic Water Co. the costs determined for the period from 1902 to 1911 inclusive, were used for pricing mains laid during the years prior to 1901, with an allowance of 5% for suspense and miscellaneous. The 20" Cast-Iron Main laid in 1890 was priced by estimates prepared, using labor and material prices prevailing in that year. The cost of the 30"

Steel Pipe Conduit constructed during 1908 and 1909 was taken from the books of the Company. 3% was added to the cost of both the 20″ Cast-Iron and the 30″ Steel Mains for Interest during Construction.

Cement mains and mains whose date of installation could not be ascertained were treated the same in this company as in the Passaic Water Co.

Meters, Meter Boxes and Vaults

The same methods were followed in determining the cost of meters and meter settings in this company for the period from 1902 to 1920, as were used in the Passaic Water Co. for the period from 1913 to 1920 inclusive. For meters purchased prior to 1902, the number added to the property each year was obtained from Metcalf and Eddy's Valuation of 1913, to which quantities unit costs paid by the Montclair Water Co. were applied. A similar procedure was followed in determining the cost of meter settings as was followed in the Passaic Water Co.

Service Pipes & Stops

The cost of Service Pipes and Stops for this Company was obtained in the same manner as in the Passaic Water Co.

THE MONTCLAIR WATER COMPANY

Distribution Mains & Accessories

The record of costs for this construction was very complete for the period from 1912 to 1920 inclusive, the same methods of keeping these costs prevailing

in this Company as in the Passaic Water Co. These costs include the items of suspense and miscellaneous as described in the text referring to the latter company.

*9

No "engineering records" was available for the period from 1902 to 1911 inclusive. Desiring to be consistent in the period from which "suspense" and "miscellaneous" was determined, estimates of the cost of laying mains during this period were developed from the costs of material and labor and from information obtained from the records of Passaic and Acquackanonk Water Companies. These estimates, when applied to the quantities of mains laid during this period, developed the fact that the recorded costs on the books included sufficient allowance for the items of "suspense" and "miscellaneous." This allowance amounted to 11.86% of the cost of laying mains.

During the period from 1888 to 1901, the Montclair Water Co. charged direct to construction all materials as purchased. For that reason, the yearly construction expenditures in some years indicate large amounts of money for materials and small amounts for labor, while in other years, small amounts for materials and large amounts for labor are shown. The total amount of pipe laid during this period was checked against the quantity purchased and it was found they were practically the same. We therefore used the costs for labor and material as shown on the Company's records.

Exhibit R1

Meters, Meter Boxes & Vaults.

Complete records of the cost of meters were obtained from the books of this Company. The cost of meter setting was arrived at by a method similar to that used in the Passaic Water Co.

Service Pipes and Stops

The cost of Service Pipes and Stops for this Company was obtained in the same manner as in the Passaic Water Co.

Property Not Used or Useful

All items of property which are admitted by the companies as not being used or useful, together with other items which we claim are in this class have been tabulated and appear in the last section of this report. Reference has already been made to "Middle Reservoir." Another item included in this class is the old pumping station at Stony Road. This building is now rented to an outside party, and is used as a foundry. We have considered this property as being "not used or useful for supplying water."

Exhibit R1

*10

SUMMARY

as of

DECEMBER 31, 1921

*11

SUMMARY

Property as of December 31, 1921

	Original Cost New	Annual Depreciation	Original Cost New Less Accrued Depreciation
Joint Ownership	$5,412,809.16	$ 64,152.05	$4,326,829.12
Individual Ownership			
The East Jersey Water Company	2,704.22	244.37	1,238.50
The Kearney Water Company	179,897.87	3,377.27	102,220.66
The Paissaic Water Company	2,289,991.77	36,912.78	1,775,979.77
The Acquackanonk Water Company	851,983.61	13,788.56	706,626.90
The Montclair Water Company	835,590.56	12,320.69	631,763.68
Total Individual Ownership	$4,160,168.03	$ 66,643.67	$3,217,829.51
Total	$9,572,977.19	$130,795.72	$7,544,658.63

Exhibit R1

*12

JOINT OWNERSHIP
Property as of December 31, 1921
SUMMARY

	Original Cost New	Annual Depreciation	Original Cost New Less Accrued Depreciation
Water Diversion Rights	$1,320,000.00	—	$1,320,000.00
Little Falls Improvements			
Land	$ 41,296.00*	$ —	$ 41,296.00
Structures	1,274,062.41	16,470.30	937,372.61
Equipment	524,867.96	14,808.57	310,331.80
Total Little Falls Improvements	$1,840,226.37	$31,278.87	$1,289,000.41
Little Falls Filtration Plant			
Land	$ 5,862.00*	$ —	$ 5,862.00
Structures	731,440.63	10,844.83	618,559.23
Equipment	234,211.23	6,051.48	151,134.76
Total Little Falls Filtration Plant	$ 971,513.86	$16,896.31	$ 775,555.99
Great Notch Reservoir			
Land	$ 103,375.00*	$ —	$ 103,375.00
Structures & Equipment	355,120.86	3,551.21	273,442.98
Total Great Notch Reservoir	$ 458,495.86	$ 3,551.21	$ 376,817.98
Fifty-One Inch Steel Conduit			
Land	$ 206,110.00*	$ —	$ 206,110.00
Steel Conduit	546,863.74	10,979.26	297,631.51
Total Fifty-one Inch Steel Conduit	$ 755,073.74	$10,979.26	$ 503,741.51
General Equipment	$ 8,679.40	$ 1,446.40	$ 2,893.30
	$5,353,989.23	$64,152.05	$4,268,009.19
Materials & Supplies	$ 58,819.93	—	$ 58,819.93
Total Joint Ownership	$5,412,809.16	$64,152.05	$4,326,829.12

* Present Day Value.

Exhibit R1

*13

THE EAST JERSEY WATER CO.

Paterson, N. J.

Property as of December 31, 1921

SUMMARY

	Original Cost New	Annual Depreciation	Original Cost New Less Accrued Depreciation
Individual Ownership			
General Equipment	$ 2,442.75		
Materials and Supplies	261.47		
Total	$ 2,704.22	$ 244.27	$ 1,238.50

*14

THE KEARNEY WATER CO.

Kearney, N. J.

Property as of December 31, 1921

SUMMARY

	Original Cost New	Annual Depreciation	Original Cost New Less Accrued Depreciation
Individual Ownership			
Land	$ 11,034.00		
42" Kearney Extension	168,863.87		
Total	$179,897.87	$ 3,377.27	$102,220.66

Exhibit R1

*15

THE PASSAIC WATER CO.

Paterson, N. J.

Property as of December 31, 1921

SUMMARY

	Original Cost New	Annual Depreciation	Original Cost New Less Accrued Depreciation
Individual Ownership			
Land	$ 33,755.10*		
42" Paterson Extension	156,916.39		
Dyers Pipe Line	149,809.28		
Distribution Mains and Accessories	1,488,747.02		
Meters, Meter Boxes and Vaults	233,154.03		
Service Pipes and Stops	76,608.74		
General Structures	43,666.09		
General Equipment	40,659.83		
Materials and Supplies	66,675.29		
Total	$2,289,991.77	$36,912.78	$1,775,979.77

* Present Day Value.

Exhibit R1

*16

THE ACQUACKANONK WATER CO.

Passaic, N. J.

Property as of December 31, 1921.

SUMMARY

	Original Cost New	Annual Depreciation	Original Less Accrued Depreciation
Individual Ownership			
Land	$ 19,087.00*		
Distribution Mains and Accessories	633,643.03		
Meters, Meter Boxes and Vaults	128,553.12		
Service Pipes and Stops	36,088.76		
General Structures	16,375.83		
General Equipment	8,561.98		
Materials and Supplies	9,673.89		
Total	$851,983.61	$13,788.56	$706,626.90

* Present Day Value.

Exhibit R1

*17

THE MONTCLAIR WATER CO.

Property as of December 31, 1921

SUMMARY

	Original Cost New	Annual Depreciation	Original Cost New Less Accrued Depreciation
Individual Ownership			
Land	$ 25,323.00*		
Pumping Station Structures and Equipment	71,266.40		
Standpipe	5,851.91		
Distribution Mains and Accessories	604,784.35		
Meters, Meter Boxes and Vaults	62,918.95		
Service Pipes and Stops	22,230.59		
General Structures	19,505.00		
General Equipment	8,864.28		
Materials and Supplies	14,846.08		
Total	$835,590.56	$12,320.69	$631,763.68

* Present Day Value.

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JOINT OWNERSHIP

1921 Additions

SUMMARY

	Original Cost New	Annual Depreciation	Original Cost New Less Accrued Depreciation
Little Falls Improvements	$ 6,792.29	$205.00	$ 6,792.29
Little Falls Filtration Plant	26,996.04	381.89	26,996.04
Total Joint Ownership	$33,788.33	$586.89	$33,788.33

LITTLE FALLS FILTRATION PLANT

Joint Ownership

1921 Additions

	Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Strustures							
Alum House			$ 4,751.86	0	75	$ 63.36	$ 4,751.86
Coagulating Basin, No. 2, Final Settlement with B & W Concrete Co.			4,942.18	0	75	65.90	4,942.18
Filters, J. E. Williamson payment on account of Contract and Labor			16,227.28	0	75	216.36	16,227.28
Total Structures-1921 Additions			$25,921.32			$345.62	$25,921.32
Equipment							
The Jeffrey Mfg. Company, 15″ x 18″ Junior Pulverizer	Each	1	$ 415.00	0	30	$ 13.83	$ 415.00
Dick Company 37″-8″ Belt	Each	1	69.38	0	25	2.76	69.38
Sand Separator, 36″	Each	1	450.00	0	30	15.00	450.00
Piping, Valves and Fittings			140.34	0	50	4.68	140.34
Total Equipment-1921 Additions			$ 1,074.72			$ 36.27	$ 1,074.72

Exhibit R1

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LITTLE FALLS IMPROVEMENTS

Joint Ownership

1921 Additions

	Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Accrued Depreciation
Railroad Ties and Labor			$ 1,077.15	0	52	$ 43.08	$ 1,077.15
Miscellaneous Pumping Equipment and Labor			2,351.59	0	30	78.39	2,351.59
Henley Tripple Geared Engine Lathe	Each	1	1,876.09	0	50	37.52	1,876.09
Elliot 2", Type "V" Twin Oil Strainer	Each	1	150.00	0	25	6.00	150.00
Elliot Company, Oil Grate for Henie Boiler	Each	1	23.28	0	30	.77	23.28
Oil Hose-20 Ft. lengths	Each	4	225.50	0	20	11.27	225.50
One Ton Trolley	Each	1	16.47	0	25	.65	16.47
Welding and Cutting Unit	Each	1	146.00	0	25	5.84	146.00
Pulleys, Belts, Shafting, etc.			148.30	0	25	5.92	148.30
Piping, Valves, Fittings and Labor			777.91	0	50	15.56	777.91
Total 1921 Additions			$ 6,792.29			$ 205.00	$ 6,792.29

THE PASSAIC WATER COMPANY

Patterson, N. J.

1921 ADDITIONS

Summary

	Original Cost New	Annual Depreciation	Original Cost New Less Accrued Depreciation
Land	$ 5,375.10	$	$ 5,375.10
Distribution Mains and Accessories	41,850.67	436.75	41,850.67
Meters, Meter Boxes and Vaults	11,174.62	223.72	11,174.62
Service Pipes and Stops	16,996.04	679.86	16,996.60
General Structures	2,850.00	57.00	2,850.00
Total the Passaic Water Company	$78,246.99	$1,397.33	$78,246.99

Exhibit R1

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THE PASSAIC WATER COMPANY

Patterson, N. J.

General Structures

1921 Additions

	Original Cost New	Age	Life	Annual Depreciation	Original Cost Less Less Accrued Depreciation
Switch on Side Track at E. 35th and E. 36th Streets	$2,850.00	0	50	$ 57.00	$2,850.00

Exhibit R1

*23

THE PASSAIC WATER COMPANY

PATTERSON, N. J.

Land

1921 Additions

	Original Cost New
Property bounded by the N. Y. S. & W. R. R. and E. 34th and E. 35th Streets	$5,375.10

Exhibit R1

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THE PASSAIC WATER COMPANY

Patterson, N. J.

Meters, Meter Boxes and Vaults

1921 Additions

	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Meters, Meter Boxes and Vaults	$ 6,711.64	0	30	$223.72	$6,711.64
Setting and Miscellaneous	4,462.98				4,462.98
Total-1921 Additions	$11,174.62			$223.72	$11,174.62

THE PASSAIC WATER COMPANY

PATTERSON, N. J.

Service Pipes and Stops

1921 Additions

	Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Service Connections, Main to Curb:							
3/4″	Each	759					
1″	Each	42					
1 1/4″	Each	1					
1 1/2″	Each	2					
2″	Each	6					
4″	Each	2					
Total-1921 Additions			$16,996.60	0	25	$679.86	$16,996.60

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THE PASSAIC WATER COMPANY

Patterson, N. J.

Distribution Mains and Accessories

1921 Additions

	Unit Quantity	Original Cost New	Weighted Average Age Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Additions					
30" Steel Mains & Appurtenances		$23,377.56			
6" C. I. Mains, Valves & Fittings	Lin. Ft. 1,784	2,886.41			
8" C. I. " " " "	" 2,672	5,879.51			
12" C. I. " " " "	" 2,021	5,937.30			
Miscellaneous		2,471.27			
Hydrants	Each 23	2,438.19			
Suspense (Mains)		3,285.70			
" (Hydrants)		466.45			
Total - 1921 Additions		$46,742.39		$496.45	$46,742.39

Retirements							
4″ C. I. Mains, Valves & Fittings	Lin. Ft.	20	$ 12.80				
5″ C. I. " " " "	"	45	35.55				
8″ C. I. " " " "	"	252	287.28				
12″ C. I. " " " "	"	99	173.25				
16″ C. I. " " " "	"	41	102.09				
20″ C. I. " " " "	"	631	2,063.37				
30″ C. I. " " " "	"	72	686.34				
Hydrants	Each	16	920.80				
Suspense (Mains)			450.02				
" (Hydrants)			160.22				
Total - 1921 Retirements			$ 4,891.72			$59.70	$ 4,891.72
Total - 1921 Net Additions			$41,850.67	0	96	$436.75	$41,850.67

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THE PASSAIC WATER COMPANY

Montclair, N. J.

1921 Additions

SUMMARY

	Original Cost New	Annual Depreciation	Original Cost New Less Accrued Depreciation
Distribution Mains and Accessories	$ 2,064.71	$ 23.99	$ 2,064.71
Meters, Meter Boxes and Vaults	3,162.59	82.67	3,162.59
Service Pipes and Stops	6,031.21	241.24	6,031.21
Total The Montclair Water Company	$11,258.51	$347.90	$11,258.51

THE MONTCLAIR WATER COMPANY

Montclair, N. J.

Distribution Mains and Accessories

1921 Additions

	Unit	Quantity	Original Cost New	Weighted Average Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Additions							
6" C. I. Mains, Valves, & Fittings	Lin. Ft.	988	$1,547.11				
Miscellaneous			14.52				
Hydrants	Each	3	299.71				
Suspense (Mains)			168.95				
" (Hydrants)			34.42				
Total - 1921 Additions			2,064.71	0	86	$23.99	$2,064.71

Exhibit R1

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THE MONTCLAIR WATER COMPANY

Montclair, N. J.

Service Pipes and Stops

1921 Additions

	Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Service Connections Main to Curb:							
3/4"	Each	268					
1"	Each	1					
Total - 1921 Additions			$6,031.21	0	25	$241.24	$6,031.21

THE MONTCLAIR WATER COMPANY

Montclair, N. J.

Meters, Meter Boxes and Vaults

1921 Additions

	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Meters, Meter Boxes and Vaults	$2,480.13	0	30	$82.67	$2,480.13
Setting and Miscellaneous	682.46	—	—	—	682.46
Total - 1921 Additions	$3,162.59			$82.67	$3,162.59

Exhibit R1

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THE ACQUACKANONK WATER COMPANY

Passaic, N. J.

1921 Additions

SUMMARY

	Original Cost New	Annual Depreciation	Original Cost New Less Accrued Depreciation
Distribution Mains and Accessories	$25,889.20	$ 297.00	$25,889.20
Meters, Meter Boxes and Vaults	15,785.16	328.58	15,785.16
Service Pipes and Stops	12,443.16	497.72	12,443.16
Total The Acquackanonk Water Company	$54,117.52	$1,123.30	$54,117.52

THE ACQUACKANONK WATER COMPANY

Passaic, N. J.

Meters, Meter Boxes and Vaults

1921 ADDITIONS

	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Meters, Meter Boxes and Vaults	$ 9,857.57	0	30	$328.58	$ 9,857.57
Setting and Miscellaneous	5,927.59	—	—	—	5,927.59
Total - 1921 Additions	$15,785.16			$328.58	$15,785.16

THE ACQUACKANONK WATER COMPANY

Passaic, N. J.

Service Pipes and Stops

1921 Additions

	Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Service Connections, Main to Curb:							
3/4″	Each	624					
1″	Each	30					
1 1/4″	Each	4					
1 1/2″	Each	10					
2″	Each	7					
4″	Each	5					
6″	Each	2					
Total - 1921 Additions			$12,443.16	0	25	$497.72	$12,443.16

THE ACQUACKANONK WATER COMPANY

Passaic, N. J.

Distribution Mains and Accessories

1921 Additions

	Unit	Quantity	Original Cost New	Weighted Average Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Additions							
6" C. I. Mains, Valves & Fittings	Lin. Ft.	6,140	$ 9,275.08				
8" C. I. " " " "	" "	3,270	6,435.97				
12" C. I. " " " "	" "	2,104	4,492.71				
Hydrants			3,616.87				
Suspense (Mains)			2,851.35				
" (Hydrants)			510.43				
Total - 1921 Additions			$27,182.41			$313.08	$27,182.41

Retirements							
6" Cement Mains, Valves & Fittings	Lin. Ft.	1,001					
Hydrants	Each	8	$ 850.85				
Suspense (Mains)			$ 320.00				
" (Hydrants)			106.36				
			16.00				
Total - 1921 Retirements			$ 1,293.21			$ 16.08	$ 1,293.21
Total - 1921 Net Additions			$25,889.20	0	87	$297.00	$25,889.20

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THE EAST JERSEY WATER COMPANY

Paterson, N. J.

1921 ADDITIONS

	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Meters, Meter Boxes and Vaults	$2,031.66	0	50	40.63	$2,031.66

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SUMMARY

as of

DECEMBER 31, 1920

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SUMMARY

PROPERTY AS OF DECEMBER 31, 1920

	Original Cost New	Annual Depreciation	Original Cost New Less Accrued Depreciation
Joint Ownership	$4,391,907.99	$ 63,565.16	$4,369,493.11
Individual Ownership			
The East Jersey Water Company	2,620.09	244.37	1,399.54
The Kearney Water Company	179,897.87	3,377.27	105,597.93
The Passaic Water Company	2,234,648.55	35,515.45	1,756,152.00
The Acquackanonk Water Company	798,728.09	12,665.26	666,036.64
The Montclair Water Company	823,821.60	11,972.79	631,967.51
Total Individual Ownership	$4,039,717.00	$ 63,775.14	$3,161,153.62
Total	$9,431,624.99	$127,340.30	$7,530.646.73

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Exhibit R1

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JOINT OWNERSHIP

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JOINT OWNERSHIP

PROPERTY AS OF DECEMBER 31, 1920

SUMMARY

	Original Cost New	Age	Life	Depreciation	Original Cost New Less Accrued Depreciation
Water Diversion Rights	$1,320,000.00	—	—	—	$1,320,000.00
Little Falls Improvements					
Land	$ 41,296.00*	—	—	—	$ 41,296.00
Structures	1,274,062.41	19	77	$16,470.30	953,842.91
Equipment	518,075.67	14	35	14,603.57	318,143.08
Total Little Falls Improvements	$1,833,434.08			$31,073.87	$1,313,281.99
Little Falls Filtration Plant					
Land	$ 5,862.00*	—	—	—	$ 5,862.00
Structures	705,519.31	10	67	$10,499.21	603,137.12
Equipment	233,136.51	13	39	6,015.21	156,075.25
Total Little Falls Filtration Plant	$944,517.82			$16,514.42	$ 765,074.37
Great Notch Reservoir					
Land	$ 103,375.00*	—	—	—	$ 103,375.00
Structures & Equipment	335,120.86	22	100	$ 3,551.21	276,994.19
Total Great Notch Reservoir	$ 458,495.86			$ 3,551.21	$ 380,369.19

Exhibit R1

Fifty-One Inch Steel Conduit					
Land	$ 206,110.00*	—	—	—	$ 206,110.00
Steel Conduit	548,963.74	22	50	10,979.26	308,610.77
Total Fifty-One Inch Steel Conduit	$ 755,073.74			$10,979.26	$ 514,720.77
General Equipment	$ 8,679.40	3	6	$ 1,446.40	$ 4,339.70
	$5,320,200.90			$63,565.16	$4,297,786.02
Materials and Supplies	$ 71,707.09			—	71,707.09
Total Joint Ownership	$4,391,907.99			$63,565.16	$4,369,493.11

*Present Day Value

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WATER DIVERSION RIGHTS

Joint Ownership

	Original Cost New
Power and Diversion Rights purchased from Beattie Manufacturing Company	$ 200,000.00
Diversion Rights purchased from the Society for Establishment of Useful Manufacturers and Dundee Water Power and Land Company	1,120,000.00
Total Water Diversion Rights	$1,320,000.00

Exhibit R1

*41

JOINT OWNERSHIP

Diversion and Power Rights

The East Jersey Water Company purchased part of the diversion and power rights now owned by the affiliated companies at Little Falls from the Beatty Manufacturing Company in 1895 for $330,000. This price included an amount estimated at $30,000 for certain real estate and the dam across the Passaic River at Little Falls. Since the dam and the real estate are both included elsewhere in this report they should be excluded at this point, leaving a net cost of the rights purchased in 1895 of $300,000.

In 1898 a portion of the rights purchased from the Beatty Manufacturing Company were sold for a consideration of $300,000. In 1908 the East Jersey Company transferred part of its power and diversion rights at Little Falls to the Passaic, Acquackanonk, and Montclair Water Companies in connection with the transfer of the pumping station located there.

In 1915 the balance of the power and diversion rights now owned by the affiliated companies at Little Falls were purchased from the Beatty Manufacturing Company for $200,000.

Therefore the cost of the power and diversion rights at Little Falls was $ 200,000

On January 1st, 1922 the affiliated companies purchased the right to divert 75,000,000 gallons of water daily at Little Falls from the S. U. M. and the Dundee Water Power and Land Company. The price paid was 1,120,000

Therefore the total actual cost of the water power and diversion rights now owned by the affiliated companies is $1,320,000

Exhibit R1

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JOINT OWNERSHIP

Little Falls Improvements

SUMMARY

	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Land	$ 41,296.00*	---	—	—	$ 41,296.00
Structures	1,274,062.41	19	77	$16,470.30	953,842.91
Equipment	518,075.67	14	35	14,603.57	318,143.08
Total Little Falls Improvements	$1,833,434.08			$31,073.87	$1,313,281.99

*Present Day Value.

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JOINT OWNERSHIP

Little Falls Filtration Plant

SUMMARY

	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Land	$ 5,862.00*	—	—	—	$ 5,862.00
Structures	705,519.31	10	67	$10,499.21	603,137.12
Equipment	233,136.51	13	39	6,015.21	156,075.25
Total Little Falls Filtration Plant	$944,517.82			$16,514.42	$765,074.37

*Present Day Value.

Exhibit R1

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JOINT OWNERSHIP

Great Notch Reservoir

SUMMARY

	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Land	$103,375.00*	—	—	—	$103,375.00
Structures and Equipment	355,120.86	22	100	$ 3,551.21	276,994.19
Total Great Notch Reservoir	$458,495.86			$ 3,551.21	$380,369.19

* Present Day Value.

*65

JOINT OWNERSHIP

Fifty-one Inch Steel Conduit

SUMMARY

	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Land	$206,110.00*	—	—	—	$206,110.00
Steel Conduit	548,963.74	22	50	10,979.26	308,610.77
Total Fifty-one Inch Steel Conduit	$755,073.74			$10,979.26	$514,720.77

* Present Day Value.

Exhibit R1

*66

JOINT OWNERSHIP

General Equipment

SUMMARY

	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
General Equipment	$8,679.40 *81	3	6	$1,446.40	$4,339.70

THE EAST JERSEY WATER COMPANY

Paterson, N. J.

SUMMARY

	Original Cost New	Annual Depreciation	Original Cost New Less Accrued Depreciation
Individual Ownership			
General Equipment	$2,442.75	$244.37	$1,221.40
Material & Supplies	178.14	—	178.14
Total	$2,620.89	$244.37	$1,399.54

Exhibit R1

*84

THE KEARNEY WATER CO.

Kearney, N. J.

SUMMARY

Description	Reproducing Cost New	Annual Depreciation	Reproducing Cost New Less Accrued Depreciation
Individual Ownership			
Land	$11,034.00	—	$ 11,034.00
42″ Kearney Extension	168,863.87	$3,377.27	94,563.93
Total Kearney Extension	$179,897.87	$3,377.27	$105,597.93

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THE PASSAIC WATER COMPANY

Paterson, N. J.

SUMMARY

	Original Cost New	Annual Depreciation	Original Cost New Less Accrued Depreciation
Individual Ownership			
Land	$ 28,380.00*		
42″ Paterson Extension	156,916.39		
Dyers' Pipe Line	149,809.28		
Distribution Mains & Accessories	1,446,896.35		
Meters, Meter Boxes & Vaults	221,979.41		
Service Pipes and Stops	59,612.14		
General Structures	40,816.09		
General Equipment	40,659.83		
Materials & Supplies	89,579.06		
Total Individual Ownership	$2,234,648.55	$35,515.45	$1,756,152.00

* Present Day Value.

Exhibit R1

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THE ACQUACKANONK WATER COMPANY

Passaic, N. J.

SUMMARY

	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Individual Ownership					
Land	$ 19,087.00**				
Distribution Mains & Accessories	607,753.83				
Meters, Meter Boxes and Vaults	112,767.96				
Service Pipes and Stops	23,645.60				
General Structures	16,375.83				
General Equipment	8,561.98				
Materials & Supplies	10,535.89				
Total Individual Ownership	$798,728.09			$12,665.26	$666,036.64

**Present Day Value.

Exhibit R1

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THE MONTCLAIR WATER COMPANY

Montclair, N. J.

SUMMARY

	Original Cost New	Annual Depreciation	Original Cost New Less Accrued Depreciation
Individual Ownership			
Land	$ 25,323.00*		
Pumping Station			
Structures & Equipment	71,266.40		
Standpipe	5,851.91		
Distribution Mains & Accessories	602,719.64		
Meters, Meter Boxes & Vaults	59,756.36		
Service Pipes and Stops	16,199.38		
General Structures	19,505.00		
General Equipment	8,864.28		
Materials & Supplies	14,335.63		
Total Individual Ownership	$823,821.60	$11,972.79	$631,967.51

* Present Day Value.

Exhibit R1

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PROPERTY NOT USED OR USEFUL

Summary

Description	Original Cost New	Annual Depreciation	Original Cost New Less Accrued Depreciation
Joint Ownership			
Structures	$ 3,000.00	$ 75.00	$ 750.00
Individual Ownership			
The Passaic Water Co.			
Land	226,345.00*	—	226,345.00
Reservoirs	88,021.00	880.21	52,406.97
Structures at Stony Road	17,500.00	235.71	11,842.96
Total—The Passaic Water Co.	$331,866.00	$1,115.92	$290,594.93
The Montclair Water Co.			
Land	$194,539.00*	—	$194,539.00
Wells	10,488.00	$ 262.20	1,517.55
Structures	6,500.00	157.50	3,250.00
Total—The Montclair Water Co.	$211,527.00	$ 419.70	$199,306.55
Total Property not Used or Useful	$546,393.00	$1,610.62	$490,651.48

* Present Day Value.

PROPERTY NOT USED OR USEFUL

Joint Ownership

STRUCTURES

	Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Dwelling at Totowa, near Passaic River One and one-half story, frame on brownstone foundation	Each	1	$2,000.00	30	40	$50.00	$500.00
Dwelling at Great Notch Reservoir below dam; One and one-half story frame on brownstone foundation	"	1	1,000.00	30	40	25.00	250.00
Total Structures			$3,000.00			$75.00	$750.00

Exhibit R1

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THE PASSAIC WATER COMPANY

Paterson, N. J.

Property Not Used or Useful

LAND

Description	Unit	Quantity	Cost of Reproducing New
Kikeout Reservoir Site:			
County of Morris:			
Parcel No.			
Purchased from various owners	Acres	587.08	$ 70,450.00
42" Paterson Extension:			
County of Passaic:			
Purchased from Hy. D. Ricker	Acres	4.00	200.00
Totowa and Middle Reservoir:			
Parcel No.—City of Paterson			
Purchased from John Ryle, Reuben Ryle and William Ryle. (Subject to rights of way of Soldiers Monument and trunk sewer)	Acres	7.96	40,500.00
Parcel No.—Purchased from William T. Ryle	Acres	7.36	87,570.00
Parcel No.—Purchased from William T. Ryle	Acres	0.13	1,540.00
Stony Road Regulator House Lot:			
Parcel No.—Purchased from Elizabeth P. Hoxsey	Acres	0.16	2,160.00
Along Pequannock River	Acres		18,245.00
Stony Road Pumping Station	Acres		5,680.00
Total Land			$226,345.00

THE PASSAIC WATER COMPANY

Paterson, N. J.

Property Not Used or Useful

RESERVOIRS

	Unit Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Middle Reservoir Located in the City of Paterson, near old Great Falls Pumping Station; formed by stone dam 155 ft. long, 5 ft. wide at top, with upstream batter of .06′ per foot and downstream batter of .31′ per foot. Also wing dam 50.5′ long, 6.5′ wide. Stone retaining wall 84.5′ long, 3′ average height. Dams backed up by earth embankments, slope 1 1/2:1. Capacity 12.000,000 gallons Elevation when full 167 ft.		$10,000.00	52	100	$100.00	$ 4,800.00

Totowa Reservoir Located in the City of Paterson, near Great Falls Pumping Station. It is rectangular in shape, 121′ x 152′ x 18′ deep on the inside. Constructed of stone masonry. Wall 5′ wide, backed up by earth embankment. Capacity 1,500,000 gallons	25,889.00	47	100	258.89	13,721.17
Stony Road Reservoir Located at the corner of Reservoir and Grand Streets in the City of Paterson. It is formed by a stone masonry dam constructed across a natural rock bottom basin. The dam is 213 ft. long with a maximum height of 22′ and a top width of 8.7′. A screen chamber is located on the upstream side of the dam, 36.3′ long, 14.6′ wide and 17′ high, built of a coursed ashlar masonry. Capacity 25,000,000 gallons.	52,132.00	35	100	521.32	33,885.80
Total Reservoirs	$88,021.00			$880.21	$52,406.97

THE PASSAIC WATER COMPANY
Paterson, N. J.
Property Not Used or Useful
STRUCTURES AT STONY ROAD

	Unit Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Pumping Station						
Two-story brick with one-story brick extension. Floor in main building earth, in brick extension partly wood and partly concrete. Roof over main building corrugated galvanized sheet iron on steel trusses; over brick extension tar and gravel on sheathing		$15,000.00	24	75	$200.00	$10,200.00
Brick Stack						
Connected with Pumping Station. 100 ft. high, 12 ft. square at the base and 6'-4" square at top		2,500.00	24	70	35.71	1,642.96
Brick Stack						
Located on side hill and not connected to any building						
Total Structures		$17,500.00			$235.71	$11,842.96

Exhibit R1

*191

THE MONTCLAIR WATER CO.

Montclair, N. J.

Property Not Used or Useful

LAND

Description	Unit	Quantity	Reproducing Cost New
Springs and Wells			
Parcel No.— Town of Montclair purchased from John McNamee	Acres	1.58	$ 7,360.00
Split Rock Reservoir Site			
Parcel No.— Morris County Rockland Township Purchased from Andrew L. Cobb	"	500.00	75,000.00
Parcel No.— Purchased from Monroe Howell's Executor	"	747.86	112,179.00
Total Land			$194,539.00

THE MONTCLAIR WATER COMPANY

Montclair, N. J.

Property Not Used or Useful

WELLS

	Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Circular Brick Well With frame roof, 30 ft. in diameter, 17′-6″ deep in earth, 14 ft. diameter 35′-6″ deep in rock	Each	1	$ 6,250.00	33	40	$156.25	$1,093.75
Driven Wells 5″ casing, 18′ deep, rock 87′ deep, 3″ siphon pipe, 75 ft.	"	5	2,888.00	36	40	72.20	288.80
Driven Well 8″ casing, 18′ deep, rock 157′ deep, 3″ siphon pipe, 75 ft.	"	1	1,050.00	36	40	26.25	105.00
Piping from driven well to brick well			300.00	36	40	7.50	30.00
Total Wells			$10,488.00			$262.20	$1,517.55

THE MONTCLAIR WATER COMPANY

Montclair, N. J.

Property Not Used or Useful

STRUCTURE.

Exhibit R1

	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Stone House Two-story building	$1,000.00	25	50	$ 20.00	$ 500.00
Wooden Dwelling Two-story building	2,500.00	20	40	62.50	1,250.00
Wooden Dwelling One-story building	3,000.00	20	40	75.00	1,500.00
Total structures	$6,500.00			$157.50	$3,250.00

Exhibit R2.

All companies combined operating Revenues and Expense, Taxes, Interest Payments and Net Corporate Income for the years 1920 and 1921.

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ALL COMPANIES COMBINED

OPERATING REVENUES AND EXPENSES, TAXES, INTEREST PAYMENTS AND NET CORPORATE INCOME

FOR THE YEAR 1921

	Passaic Water Co.	Acquackanonk Water Co.	Montclair Water Co.	East Jersey Water Co.	Kearney Water Co.	Total
Operating Revenues:						
Water Sales	$ 660,453.06	$ 379,626.31	$ 169,724.32	$ 435,842.17	-	$ 1,645,645.86
Miscellaneous Operating Revenues	10,188.97	4,320.64	3,202.32	-	$ 43,834.00*	61,545.93
Total Operating Revenues	$ 670,642.03	$ 383,946.95	$ 172,926.64	$ 435,842.17	$ 43,834.00	$ 1,707,191.79
Modified Operating Expenses:						
Water Supply Expenses:						
Collecting System Expenses:						
Diversion at Great Falls for Dyers' Line	$ 14,975.35	-	-	-	-	$ 14,975.35
Water Purchased from City of Newark	-	-	-	6,055.64	-	6,055.64
Other Collecting System Expenses	1,211.67	$ 1,838.79	$ 736.40	$ 11,122.15	-	14,909.01
Purification System Expenses	18,193.22	13,092.95	4,060.86	46,677.19	-	82,024.22
Pumping System Expenses	48,272.97	34,740.17	36,390.99	123,850.89	-	243,255.02
Payment to Kearney Co. for Transportation of water	-	-	-	43,834.00*	-	43,834.00
Distribution Expenses	31,659.78	11,521.08	6,138.45	5,402.53	1,365.51	56,147.33
Total Water Supply Expenses	$ 114,312.99	$ 61,192.97	$ 47,386.70	$ 236,942.40	$ 1,365.51	$ 461,200.57
Maintenance Expenses	40,564.01	16,740.23	7,562.85	34,386.73	136.69	99,390.51
General and Miscellaneous Expenses	59,837.19	43,802.58	29,163.68	18,113.16	1,578.45	152,495.07
Total Modified Operating Expenses	$ 214,714.19	$ 121,735.78	$ 84,113.23	$ 289,442.29	$ 3,080.65	$ 713,086.15
Taxes, exclusive of Federal Income Tax	$ 90,962.30	$ 49,326.00	$ 35,795.11	$ 31,409.27	$ 3,429.91	$ 210,922.59
Total Modified Operating Expenses & Taxes	$ 305,676.49	$ 171,061.78	$ 119,908.34	$ 320,851.56	$ 6,510.57	$ 924,008.74
EXCESS OF OPERATING REVENUES	$ 364,965.54	$ 212,885.17	$ 53,018.30	$ 114,990.61	$ 37,323.43	$ 783,183.05
Deduct:						
Payments for Water Diversion at Little Falls	$ 18,937.82	$ 19,087.73	$ 5,937.96	$ 69,964.87	$ -	$ 113,928.38
Provision for General Amortization	70,490.39	31,494.04	23,253.77	13,550.92	3,500.00	142,289.12
Income Tax Payments	8,478.94	9,415.23	-	5,820.60	4,328.79	28,043.56
Total Deductions	$ 97,907.15	$ 59,997.00	$ 29,191.73	$ 89,336.39	$ 7,828.79	$ 284,261.06
Net Water Operating Income	$ 247,058.39	$ 152,888.17	$ 23,824.57	$ 25,654.22	$ 29,494.64	$ 498,921.99
Non-Operating Income	3,517.03	1,352.00	4,439.32			
Gross Corporate Income	$ 270,575.42	$ 154,240.17	$ 28,245.89	$ 24,140.37	$ 29,494.64	$ 508,736.49
Deductions from Gross Corporate Income:-						
Interest Accrued on Funded Debt	$ 206,975.00	$ 73,550.00	$ 46,875.00	$ 43,750.00		$ 371,150.00
Other Interest Deductions	100.64	32.00	114.17	-	-	246.81
Total Deductions	$ 207,075.64	$ 73,582.00	$ 46,989.17	$ 43,750.00	$ -	$ 371,396.81
NET CORPORATE INCOME	$ 63,499.78	$ 80,658.17	$ 18,723.28(X)	$ 17,589.63(X)	$ 29,494.64	$ 137,339.68

* For Transportation of Water - Paid by East Jersey Co.

(X) Denotes Deduction.

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ALL COMPANIES COMBINED

OPERATING REVENUES AND EXPENSES, TAXES, INTEREST PAYMENTS AND NET CORPORATE INCOME

FOR THE YEAR 1920

	Passaic Water Co.	Acquackanonk Water Co.	Montclair Water Co.	East Jersey Water Co.	Kearney Water Co.	Total
Operating Revenues:						
Water Sales	$ 631,877.14	$ 359,440.65	$ 190,001.02	$ 525,935.08	-	$ 1,707,253.89
Miscellaneous Operating Revenues	11,642.03	3,903.91	4,966.43	-	$ 48,892.50	69,404.87
Total Operating Revenues	$ 643,519.17	$ 363,344.56	$ 194,967.45	$ 525,935.08	$ 48,892.50	$ 1,776,658.76
Modified Operating Expenses:						
Water Supply Expenses:						
Collecting System Expenses:						
Diversion at Great Falls for Dyers' Line	$ 12,033.16	-	-	-	-	$ 12,033.16
Water Purchased from City of Newark	-	-	-	5,091.50	-	5,091.50
Other Collecting System Expenses	671.96	$ 1,155.26	$ 610.29	11,871.49	-	14,309.00
Purification System Expenses	18,280.60	13,159.08	5,235.65	58,355.97	-	95,031.30
Pumping System Expenses	36,838.34	26,517.64	37,583.04	117,596.61	-	218,535.63
Payment to Kearney Co. for Transportation of water	-	-	-	48,892.50*	-	48,892.50
Distribution Expenses	33,387.81	12,612.92	6,571.23	5,736.95	$ 1,570.69	59,879.60
Total Water Supply Expenses	$ 101,211.87	$ 53,444.90	$ 50,000.21	$ 247,545.02	$ 1,570.69	$ 453,772.69
Maintenance Expenses	$ 29,833.28	17,534.68	9,535.27	47,949.15	1,529.84	106,582.22
General and Miscellaneous Expenses	51,021.96	41,946.94	30,350.19	17,937.26	1,690.45	152,946.80
Total Modified Operating Expenses	$ 192,067.11	$ 112,926.52	$ 89,985.67	$ 313,431.43	$ 4,890.98	$ 713,301.71
Taxes, exclusive of Federal Income Tax	$ 85,117.66	$ 42,350.71	$ 33,589.23	$ 27,350.82	$ 3,218.32	$ 191,626.74
Total Modified Operating Expenses & Taxes	$ 277,184.77	$ 155,277.23	$ 123,574.90	$ 340,782.25	$ 8,109.30	$ 904,928.45
EXCESS OF OPERATING REVENUES	$ 366,334.40	$ 208,067.33	$ 71,392.55	$ 185,152.83	$ 40,783.20	$ 871,730.31
Deduct:						
Payments for Water Diversion at Little Falls	$ 17,619.25	$ 16,176.17	$ 6,492.60	$ 73,049.74	$ -	$ 113,337.76
Provision for General Amortization	63,720.61	29,806.59	22,933.79	13,215.29	3,500.00	133,176.28
Income Tax Payments	7,055.40	8,965.46	553.73	4,417.40	3,733.02	24,725.01
Total Deductions	$ 88,395.26	$ 54,948.22	$ 29,980.12	$ 90,682.43	$ 7,233.02	$ 271,239.05
Net Water Operating Income	$ 277,939.14	$ 155,119.11	$ 41,412.43	$ 94,470.40	$ 33,550.18	$ 600,491.26
Non-Operating Income	4,406.16	1,352.00	4,903.99	852.99	-	11,525.14
Gross Corporate Income	$ 282,345.30	$ 154,471.11	$ 46,316.42	$ 95,333.39	$ 33,550.18	$ 612,016.40
Deductions from Gross Corporate Income:-						
Interest Accrued on Funded Debt	$ 206,699.53	$ 73,550.00	$ 46,875.00	$ 43,750.00	-	$ 370,874.53
Other Interest Deductions	175.03	53.92	162.44	-	-	392.39
Total Deductions	$ 206,875.56	$ 73,603.92	$ 47,037.44	$ 43,750.00	-	$ 371,266.92
NET CORPORATE INCOME	$ 75,469.74	$ 80,867.19	$ 721.02(X)	$ 51,583.39	$ 33,550.18	$ 240,749.48

* For Transportation of Water - Paid by East Jersey Co.
(X) Denotes Deduction.

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Exhibit R3.

Criticism of Hill Appraisal and Metcalf Appraisal by Dr. Bemis.

*1

BASES FOR CONCLUSIONS, EAST JERSEY AND AFFILIATED COMPANIES.

EDWARD W. BEMIS
Consulting Engineer

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BASES FOR CONCLUSIONS

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Exhibit R3

*2

THE 1912 APPRAISAL BROUGHT UP TO DECEMBER 1921

*3

Appraisal of the Five Water Companies Prepared by Hill and Others for the New Jersey State Water Supply Commission

As of December 31st, 1912.

Structures	$6,991,717.00	
Land and Rights of Way	1,188,063.00	
Water Rights at Little Falls	413,822.00	
Diversion Rights—50 M. G. D. Below Little Falls	472,940.00	
Preliminary and Legal Expense	148,142.00	
Reproduction Cost of Physical Property and Value of 50 million gallons per day Diversion Rights (then rented but subsequently acquired) below Little Falls		$9,214,684.00
Less Value of Diversion Rights mentioned above		472,940.00
Reproduction Cost New of Physical Property		$8,728,300.00
Fair net Present Cash Value as of Dec. 31, 1912		
Going Value		1,200,000.00
Reproduction Cost New of all property owned		$9,941,744.00
Less Depreciation on Sinking Fund Basis at 3% Interest		1,213,444.00
Fair net Present Cash Value as of Dec. 31, 1912		$8,728,444.00

Exhibit R3

*4

ADJUSTMENT TO 1912 APPRAISAL FOR DISCOUNT ON BONDS WITH RESPECT TO STRUCTURES & PRELIMINARY & LEGAL EXPENSES

In the 1912 Appraisal, Hill and his associates allowed 7½% for discount on bonds and interest at 7% thereon, or a total of 8.025% on this account out of total overheads on structures of 20.375%. Such an allowance is no longer given by Commissions and Courts, and is not included by either Mr. Hill or Mr. Metcalf in their 1920 appraisals. An adjustment taking out this discount on Bonds is here presented:

	With Overheads of 20.375%	Without any Overheads	Discount on Bonds and Interest Thereon totaling 8.025%
Structures	$6,991,717.00	$5,808,280.00	$466,114.00
Preliminary and Legal Expenses	148,142.00	123,067.00	9,876.00
Total	$7,139,859.00	$5,931,347.00	$475,990.00

Total Deduction for Bond Discount on Structures $475,990.00

Exhibit R3

*5

ADJUSTMENT TO 1912 APPRAISAL FOR OVERHEADS ON LAND AND DIVERSION RIGHTS

Overheads of 7½% were allowed for discount on Bonds, and 3% for Engineering and Legal expenses, making a total of 110.5%. To this was added 7% for Interest during Construction, or a total of 118.5%. (Appraisal of Hill and associates for 1912, page 35.)

Such overheads on Land and Diversion Rights should be omitted, leaving the 1912 Appraisal as follows:

	With Overheads	Without Overheads	Overheads
Land	$1,188,063.00	$1,004,832.00	$183,231.00
Diversion Rights at Little Falls obtained from the Beattie Co.	413,822.00	350,000.00	63,822.00
Diversion Rights of 50 M. G. D. as against riparian owners below	472,940.00	400,000.00	72,940.00
Total	$2,074,825.00	$1,754,832.00	$319,993.00

Total deduction for overheads on land and diversion rights $319,993.00

Exhibit R3

*6

ADJUSTMENTS OF 1912 REPRODUCTION COST NEW PAVING OVER MAINS

All Pavements over Mains were valued instead of the Pavements actually cut through in laying the mains—the method now almost always used by Commissions and Courts, and by both Mr. Metcalf and Mr. Hill in their valuations as of December 31st, 1920.

Mr. Metcalf uses a reproduction cost new in 1920 as follows:

The Passaic Water Company	$49,782.00	
The Acquackanonk Water Company	17,064.00	
The Montclair Water Company	1,990.00	
Total		$68,836.00
Adding Overheads of 24% as per Metcalf's Volume 1 of Exhibit P3, page 26, although considered by E. W. Bemis to be excessive		16,521.00
Total Paving New on Metcalf's unit prices which he says are about 40% above pre-war prices (See Metcalf's Exhibit P3, pages 11 to 14)		$85,357.00
Probable Reproduction Cost at prices used in 1912 by Hill and his associates		60,969.00

Assuming that all of the Paving actually cut through for laying mains was cut through before 1913—an assumption favorable to the companies—this Valuation of Metcalf may be used instead of the figures on a discarded theory used in 1912 by Hill, which were:

Paving by The Passaic Water Co. (Hill's 1912 Report page 69)	$187,148.00
Paving by The Acquackanonk Water Co. (Hill's 1912 Report page 71)	69,077.00

Exhibit R3

Paving by The Montclair Water Co. (Hill's 1912 Report page 73)	61,351.00	z
Paving by Joint Ownership (Hill's 1912 Report page 220)	3,060.00	
Total Paving as per Hill's 1912 Report		$320,636.00
Paving as per Metcalf's 1920 Appraisal adjusted to pre-war prices		60,969.00
Reduction in Paving Appraisal as of 1912		$259,667.00

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ADJUSTMENT TO 1912 APPRAISAL FOR PROPERTY NOT NOW IN USE BY THE FIVE COMPANIES

Wells at Montclair (1912 Appraisal, page 231)	$ 8,020.00	
Middle, Totowa & Stony Road Reservoirs (" " " 100)	101,344.00	
Great Falls Station (" " " 102)	25,616.00	
Total Structural Property	$134,980.00	
Less Overheads of 20.375%	22,848.00	
Total Deduction for Structural Property		$112,132.00
Split Rock Pond Site (1912 Appraisal page 25)	$187,179.00	
Wanaque River Farm (" " " 25)	15,880.00	
Pequannock River Rights (" " " 25)	10,500.00	
Kikeout Reservoir Site (" " " 25)	72,662.00	
Land at Middle and Totowa Reservoirs, at least	100,000.00	(1)
Stony Road Reservoir Site, at least	80,000.00	(2)
Total Land	$466,141.00	

Exhibit R3

Less Overheads of 18.235%	71,891.00	
Total Deduction for Land		394,250.00
Total Deductions for Structures and Land		$506,382.00

Note: The Overheads are deducted because excluded elsewhere.
(1) Appraised by Rossiter in 1912 at $149,600 (see Metcalf appraisal of 1912, page 305) but later perhaps reduced by Lambert.
(2) Appraised by Rossiter in 1912 at $89,810 (see Metcalf appraisal of 1912, page 305) but later perhaps reduced by Lambert.

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SUMMARY

Discount on Bonds on Structures and Preliminary and Legal Expenses	$475,990.00		
Overheads on Land and Diversion Rights	319,993.00		
Paving over Mains	259,667.00		
Structures and Land not now used	506,382.00		
Total Exclusions	$1,562,032.00		
Appraisal of 1912		$9,214,684.00	
Total Exclusions		1,562,032.00	
Adjusted 1912 Appraisal			$7,652,652.00
Net Additions December 31, 1912, to December 31, 1921 as per following statement			1,763,654.42
Appraisal New of 1912, brought up to date except for the exclusion of some doubtful items and going value			$9,416,306.42

Exhibit R3

Addition for Boiler House, Deane Pump, Worthington Pump and Horizontal Engine, retired on the books of the Company, but which was not included in the 1912 Appraisal	25,000.00
Addition for Water Diversion Rights included in Historical Cost as of December 31, 1921. The 1912 Appraisal places a value of $400,000 on diversion rights on 50 M. G. D. The 1921 appraisal provides for 75 M. G. D. or 50% more than 1912 appraisal. Therefore to make the two appraisals comparable $200,000 or 50% of the 1912 appraisal for water diversion rights must be added	200,000.00
Adjusted 1912 Appraisal	$9,641,306.42

*9

COMPARISON

Adjusted 1912 Appraisal	$9,641,306.42	
Historical Cost New as of Dec. 31, 1921	9,572,977.19	
Excess of 1912 Adjusted Appraisal over Historical Cost New		$68,329.23
Adjusted 1912 Appraisal is higher than Historical Cost New as of Dec. 31, 1921		0.71%

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INDIVIDUALLY OWNED PROPERTY

SUMMARY OF GROSS ADDITIONS AND DISPLACEMENTS FOR YEARS 1913 - 1921 INCLUSIVE

AS PER BOOKS

Acct. No.	Classification	1913 - 1920 Gross Additions	1913 - 1920 Displacements	1913 - 1920 Net	1921 Gross Additions	1921 Displacements	1921 Net	Net Additions 1913 - 1921
	PASSAIC WATER COMPANY							
129	Distribution Mains & Accessories	$ 322,237.36	-	$ 322,237.36	$ 43,837.75	-	$ 43,837.75	$ 336,075.11
130	Service Pipes and Stops	58,262.63	-	58,262.63	15,993.80	-	15,993.80	75,259.23
131	Meters, Meter Boxes and Vaults	115,888.78	$ 14.95	115,873.83	11,174.62	-	11,174.62	127,048.45
132	Fire Hydrants & Fire Cisterns	17,588.92	-	17,588.92	2,904.64	-	2,904.64	20,493.56
134	General Structures	15,729.09	-	15,729.09	8,225.10	-	8,225.10	24,954.19
135	General Equipment	34,345.91	7,363.10	26,982.81	6,414.08	$ 6,140.29	273.79	27,256.60
	Miscellaneous	472.39	-	472.39	-	-	-	472.39
	Installed Prior to 1913	-	69,588.27	69,588.27*	-	5,184.47	5,184.47*	74,772.74*
		$ 595,525.03	$ 76,966.32	$ 486,558.76	$ 89,552.73	$ 11,324.76	$ 78,228.03	$ 566,786.79
	MONTCLAIR WATER COMPANY							
122	Steam Power Pumping Equipment	$ 1,833.00	$ -	$ 1,833.00	$ -	$ -	$ -	$ 1,833.00
129	Distribution Mains & Accessories	94,943.45	-	94,943.45	1,730.58	-	1,730.58	96,674.03
130	Service Pipes and Stops	16,199.38	-	16,199.38	6,031.21	-	6,031.21	22,230.59
131	Meters, Meter Boxes and Vaults	15,993.89	-	15,993.89	3,162.59	-	3,162.59	20,156.48
132	Fire Hydrants & Fire Cisterns	4,102.55	-	4,102.55	334.13	-	334.13	4,436.68
135	General Equipment	7,409.63	2,009.75	5,399.88	155.00	546.33	391.33*	5,008.55
	Installed Prior to 1913	-	7,483.18	7,483.18*	-	38.00	38.00*	7,521.18*
		$ 141,481.90	$ 9,492.93	$ 131,988.97	$ 11,413.51	$ 584.33	$ 10,829.18	$ 142,818.15
	ACQUACKANONK WATER COMPANY							
129	Distribution Mains & Accessories	$ 121,321.52	-	$ 121,321.52	$ 23,055.11	-	$ 23,055.11	$ 144,376.63
130	Service Pipes and Stops	23,645.30	-	23,343.80	12,443.15	-	12,443.15	35,088.78
131	Meters, Meter Boxes and Vaults	63,274.67	-	63,274.67	15,785.16	-	15,785.16	79,059.83
132	Fire Hydrants & Fire Cisterns	20,290.45	-	20,290.45	4,127.30	-	4,127.30	24,417.75
134	General Structures	7,079.15	-	7,079.15	-	-	-	7,079.16
135	General Equipment	7,394.83	1,627.48	5,757.35	1,554.91	47.39	1,507.52	7,274.87
	Miscellaneous	173.66	-	173.66	-	-	-	173.66
	Installed Prior to 1913	-	18,099.93	18,099.93*	-	1,234.65	1,234.65*	19,334.61*
		$ 243,179.89	$ 19,727.44	$ 223,452.45	$ 56,955.64	$ 1,282.04	$ 55,383.60	$ 279,136.05

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INDIVIDUALLY OWNED PROPERTY

SUMMARY OF GROSS ADDITIONS AND DISPLACEMENTS FOR YEARS 1913 - 1921 INCLUSIVE

AS PER BOOKS

Acct. No.	Classification	1913 - 1920 Gross Additions	1913 - 1920 Displacements	1913 - 1920 Net	1921 Gross Additions	1921 Displacements	1921 Net	Net Additions 1913 - 1921
	EAST JERSEY WATER COMPANY							
129	Distribution Mains & Accessories	$ 27.50	-	$ 27.50	-	-	-	$ 27.50
131	Meters, Meter Boxes and Vaults	3,179.78	-	3,179.78	$ 2,031.66	-	$ 2,031.66	5,211.44
135	General Equipment	2,323.70	$ 1,491.70	832.00	1,394.45	$ 700.00	694.45	1,526.45
	Installed Prior to 1913	-	1,030.00	1,030.00*	-	-	-	1,030.00*
		$ 5,530.98	$ 2,521.70	$ 3,009.28	$ 3,426.11	$ 700.00	$ 2,726.11	$ 5,735.39

* Denotes Deduction.

ALL COMPANIES COMBINED

SUMMARY OF GROSS ADDITIONS AND DISPLACEMENTS FOR YEARS 1913 - 1921 INCLUSIVE

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ALL COMPANIES COMBINED

SUMMARY OF GROSS ADDITIONS AND DISPLACEMENTS FOR YEARS 1913 - 1921 INCLUSIVE

AS PER BOOKS

Acct. No.	Classification	1913 - 1920 Gross Additions	1913 - 1920 Displacements	1913 - 1920 Net	1921 Gross Additions	1921 Displacements	1921 Net	Net Additions 1913 - 1921
	JOINTLY OWNED PROPERTY							
105	Water Diversion Rights	$ 200,000.00	$ -	$ 200,000.00	$ -	$ -	$ -	$ 200,000.00
107	Impounding Dams & Reservoirs	1,540.98	-	1,540.98	-	-	-	1,540.98
114	Settling Basins	147,245.58	-	147,245.58	4,942.18	-	4,942.18	152,187.76
117	Filters	214,284.92	-	214,284.92	15,227.28	-	15,227.28	230,512.20
119	Chemical Treatment Plant	49,831.08	1,415.00	48,416.08	5,825.58	-	5,825.58	54,242.66
121	Pumping Stations	94,043.20	-	94,043.20	635.73	-	635.73	94,678.93
122	Steam Power Pumping Equipment	208,323.98	-	208,323.98	5,079.38	-	5,079.38	213,403.36
129	Distribution Mains & Accessories	10.51	-	10.51	-	-	-	10.51
134	General Structures	2,016.22	-	2,016.22	1,077.15	-	1,077.15	3,093.37
135	General Equipment	9,554.60	2,575.00	6,979.60	3,825.00	4,023.00	198.00*	5,781.60
	Miscellaneous	82.85	-	82.85	-	-	-	82.85
	Installed Prior to 1913	-	6,298.96	6,298.96*	-	225.00	225.00*	6,523.96*
	TOTAL JOINTLY OWNED PROPERTY	$ 926,933.92	$ 10,288.96	$ 916,644.96	$ 37,613.33	$ 4,248.00	$ 33,365.33	$ 950,010.29
	INDIVIDUALLY OWNED PROPERTY							
	Passaic Water Company	$ 555,525.08	$ 76,966.32	$ 488,558.76	$ 89,552.79	$ 11,324.76	$ 78,228.03	$ 566,786.79
	Acquackanonk Water Company	243,179.89	19,727.44	223,452.45	56,965.64	1,282.04	55,683.60	279,136.05
	Montclair Water Company	141,481.90	9,492.93	131,988.97	11,413.51	584.33	10,829.18	142,818.15
	East Jersey Water Company	5,530.98	2,521.70	3,009.28	3,426.11	700.00	2,726.11	5,735.39
	TOTAL INDIVIDUALLY OWNED PROPERTY	$ 955,717.85	$ 108,708.39	$ 847,009.46	$ 161,358.05	$ 13,891.13	$ 147,466.92	$ 994,476.38
	GRAND TOTAL	$ 1,882,651.77	$ 118,997.35	$ 1,763,654.42	$ 198,971.38	$ 18,139.13	$ 180,832.25	$ 1,944,486.67

* Denotes Deduction.

Exhibit R3

*13

PIPE PURCHASES OF THESE COMPANIES 1911-1920.

*14

PASSAIC WATER COMPANY

WEIGHTED AVERAGE COST PER TON—CAST IRON PIPE PURCHASED DURING THE PERIOD OF 1911-1920

Year	Total Tons	Total Amount	Weighted Average Cost per Ton
1911	729.844	$15,782.92	$21.62
1912	264.014	5,793.57	21.94
1913	604.593	14,675.47	24.27
1914	366.836	7,598.20	20.71
1915	517.725	10,225.65	19.75
1916	388.753	10,293.61	26.47
1917	419.885	15,168.35	36.12
1918	—	—	
1919	—	—	
1920	249.350	14,379.75	57.66
Total and Weighted Average 1911-20	3,541.000	$93,917.52	
Weighted Average per Ton for Period of 1911-1920			$26.52

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SINKING FUND VS. STRAIGHT LINE METHOD OF TREATING DEPRECIATION

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COMPARISON

BETWEEN

STRAIGHT LINE BASES OF DEPRECIATION

AND

3% SINKING FUND DEPRECIATION

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Acct. No.	Description	Hill's Cost New	Annual Depreciation Straight Line	Annual Depreciation 3% Sinking Fund	Accrued Depreciation Straight Line	Accrued Depreciation 3% Sinking Fund	Cost New Less Accrued Depreciation Straight Line	Cost New Less Accrued Depreciation 3% Sinking Fund
105	Water Diversion Rights	$ 1,120,000.00	-	-	-	-	$ 1,120,000.00	$ 1,120,000.00
106	Reservoirs - Kikeout Reservoir Site	72,662.00	-	-	-	-	72,662.00	72,662.00
109	Springs and Wells	19,738.00	$ 401.02	$ 236.66	$ 11,731.00	$ 10,749.00	8,007.00	8,989.00
112	Gravity Intakes and Suction Mains	110,890.00	1,796.76	679.13	28,682.06	13,511.00	82,207.94	97,379.00
115	Coagulating Basins and Equipment	351,264.00	5,202.81	1,759.92	56,940.00	20,757.00	294,324.00	330,507.00
117	Filters	493,957.00	8,046.69	2,934.83	120,121.00	57,436.00	373,846.00	436,531.00
119	Chemical Treatment Plant	9,150.00	422.50	313.37	1,786.00	1,264.00	7,364.00	7,886.00
120	Clear Water Basins	188,850.00	2,710.00	842.63	51,067.00	21,586.00	137,783.00	167,264.00
121	Pumping Station and Equipment	638,524.00	8,014.68	2,509.23	158,676.00	69,818.00	479,848.00	568,706.00
122	Steam Power Pumping Equipment	644,327.00	18,770.38	10,599.78	319,509.00	207,395.00	408,219.00	436,932.00
123	Hydraulic Power Pumping Equipment	1,118,549.00	24,544.03	6,211.43	140,493.00	86,701.00	978,156.00	1,031,948.00
126	Miscellaneous Pumping Equipment	12,137.00	413.70	263.89	5,627.00	4,248.00	6,510.00	7,889.00
127	Transmission Mains & Accessories	552,434.00	9,747.13	9,341.74	217,666.00	145,223.00	334,768.00	407,211.00
128	Storage Reservoirs, Tanks & Standpipes	879,132.00	6,559.15	1,172.44	172,976.00	47,970.00	706,156.00	831,162.00
129	Distribution Mains & Accessories	4,080,025.00	51,388.16	9,387.60	957,918.00	362,200.00	3,122,107.00	3,717,825.00
130	Service Pipes and Stops	162,519.00	4,939.84	3,101.62	35,947.00	22,391.00	126,572.00	140,128.00
131	Meters, Meter Boxes and Vaults	425,117.00	17,650.98	11,140.32	150,215.00	109,423.00	274,902.00	315,694.00
132	Fire Hydrants and Fire Cisterns	189,883.00	3,799.15	1,683.27	76,530.00	46,202.00	113,353.00	143,681.00
134	Structures at Valley Yard	144,665.00	1,619.92	634.48	37,269.00	22,878.00	107,396.00	121,787.00
135	General Equipment	49,524.00	2,059.60	1,445.10	21,436.00	17,333.00	28,088.00	32,191.00
150	Fixed Capital in Other Departments	257,869.00	720.06	258.22	16,880.00	9,000.00	240,989.00	248,869.00
151	Construction Work in Progress	7,938.00	158.76	70.37	-	-	7,938.00	7,938.00
	TOTALS	$ 11,529,264.00	$ 150,975.32	$ 64,586.03	$ 2,581,469.06	$ 1,276,085.00	$ 8,947,794.94	$ 10,253,179.00
					Per Cent Return on Investment		.07	.07
					Return on Investment		$ 626,346.00	$ 717,723.00
					Annual Depreciation		150,975.00	64,586.00
					Return on Investment and Annual Depreciation		$ 777,321.00	$ 782,309.00

NOTE:- All figures used are from Hill's 1920 Valuation, using ages and lives as used by Hill in determining accrued depreciation on Sinking Fund Basis

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Exhibit R3

*17

FLOATATION OF SECURITIES

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FLOTATION OF SECURITIES

JULY 1, 1921 - SEPTEMBER 30, 1922

COVERING ALL FLOTATIONS GIVEN IN COMMERCIAL AND FINANCIAL CHRONICLE OF NEW YORK

In the following table is given a summary of the 67 flotations of bonds and 5 of stock during the last six months of 1921, and of the 127 flotations of bonds and 17 of stock during the first six months of 1922, and the 37 flotations of bonds and 9 of stock during July, August and September, 1922.

The average yield to the bondholder and the stockholder is found for every month by dividing a yield of each security by the number of securities floated that month. The average for the six months is given by adding the total averages for the months and dividing by the number of months. There are only five sets of monthly flotations reported for the last six months of 1921, but apparently the December flotations covered those of November also.

Month	Number of Bonds		Stocks	
	Number of Flotations	Aver. Yield to Investor	Number of Flotations	Aver. Yield to Investor
July 1921	15	7.43%	-	-
August "	10	7.52	1	8.00%
September "	12	7.46	1	8.15
October "	10	7.43	1	8.00
December "	20	6.82	2	6.77
Totals and Averages (1)	67	7.33	5	7.73
January 1922	9	6.82	2	7.55
February "	19	6.84	3	7.42
March "	24	6.67	3	7.83
April "	23	6.52	3	7.01
May "	29	6.08	-	-
June "	23	6.29	6	7.09
Totals and Averages	127	6.54	17	7.38
July 1922	10	6.20	3	7.52
August "	12	6.27	2	7.57
September "	15	6.08	4	7.39
Totals and Averages	37	6.19	9	7.49

It will be seen that the average yield to the bondholder and also to the stockholder on new issues has steadily fallen as follows:

	Yield to Investor	
	Bonds	Stock
July - December 1921	7.33%	7.73%
January - June 1922	6.54	7.38
July - September 1922	6.19	7.49

Exhibit R3

*19

FLOTATION OF SECURITIES

July 1, 1921—September 30, 1922

Continued

The issues of stock were not as numerous as of bonds and hence the downward trend is more liable to deflection by a few exceptional cases in stocks than in bonds.

Details of the flotations of securities in the last three months available are given in the following pages.

(1) These are averages of the monthly averages.

Exhibit R3

*20

FLOTATION OF SECURITIES

July, 1922

According to the Commercial & Financial Chronical, August 26, 1922

Amount	Purpose of issue	Price	To Yield About %	Company and issue—offered by
$ 7,500,000	Acquisitions; other Corp. purposes	95½	6.35	Central Indiana Power Co., 1st Mtge. Coll & Ref. 6s, "A," 1947. Offered by Halsey Stuart & Co., Inc., A. B. Leach & Co., Inc., and Paine, Webber & Co.
4,000,000	Refunding; extensions, etc.	100	6.00	Cincinnati Newport & Covington Ry. 1st & Ref. 6s, 1947. Offered by W. E. Hutton & Co., First National Bank, Fifth-Third National Bank, Central Trust Co., Brighton Bank & Trust Co., Richards, Parish & Lamson, L. R. Ballinger Co., Edgar Friedlander, Cincinnati, and Security Savings Bk., Covington, Ky.
900,000	Additions & Improvements	89¾	5⅞	Cumberland County Power & Light Co. 1st & Ref. Mtge. 5s, 1942. Offered by Blodget & Co.
13,500,000	Refunding; construction	97½	6.20	Detroit City Gas Co. 1st Mtge. 6s, "A," 1947. Offered by Halsy, Stuart & Co., National City Co., Lehman Bros. and Goldman, Sachs & Co.

6.07	Havana Electric Ry. Lt. & Power Co. Gen.			
3,600,000	Refunding; additions, etc.	85		Mtge. 5s, "A," 1954. Offered by Speyer & Co. and Harris, Forbes & Co.
2,000,000	Refunding; construction	97½	6.20	New York and Richmond Gas Co. 1st Ref. (now 1st) Mtge. 6s, "A," 1951. Offered by Halsey, Stuart & Co., Inc.
2,000,000	Capital Expenditures	91½	5.74	Northern States Power Co. (Minn.) 1st Mtge. 5s, 1941. Offered by Harris, Forbes & Co., Guaranty Co. of New York, Bonbright & Co., Inc., and H. M. Byllesby & Co., Inc.

*21

FLOTATION OF SECURITIES

July, 1922 (Cont'd)

ACCORDING TO THE COMMERCIAL & FINANCIAL CHRONICAL, August 26, 1922

Amount	Purpose of issue	Price	To Yield About %	Company and issue—offered by
$ 500,000	Extensions & Additions	94½	6½	Oklahoma Gas & Electric Co. 1st & Ref. Mtge. 6s, "B," 1941. Offered by Bonbright & Co. Inc., Spencer, Trask & Co., E. H. Rollins & Sons, H. M. Byilesby & Co., Inc., and Federal Securities Corp., Chicago
6,000,000	Refunding	94	6½	Southern Colorado Power Co. 1st Mtge. 6s, "A," 1947. Offered by H. M. Byllesby & Co., Inc., and Federal Securities Corp.,

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				Chicago, Spencer Trask & Co. and Janney & Co., Philadelphia
2,000,000	General Corp. Purposes	90½	6.60	Texas Power & Light Co. Debenture 6s, "A," 2022. Bonbright & Co., Inc.
		STOCKS		
1,200,000	Acquisitions; Corp. Purposes	87	8.05	American Water Works & Electric Co., Inc., 7% Cum. 1st Pref. Offered by Dominick & Dominick and W. A. Harriman & Co.
5,666,100	Ext. improvements, etc.	93½	7½	Kansas City Power & Light Co. 1st Pref. stock "A," Cu., $7 per share. Offered by Spencer Trask & Co., Blyth, Witter & Co., and E. H. Rollins & Sons, N. Y.
583,300	General Corp. purposes	100	7.00	Milwaukee Electric Ry. & Light Co., 7% Pref. Offered by Company

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FLOTATION OF SECURITIES

August, 1922

ACCORDING TO THE COMMERCIAL & FINANCIAL CHRONICAL, September 30, 1922

Amount	Purpose of issue	Price	To Yield About %	Company and issue—offered by
$ 115,000	Corporate purposes	98.90	6.60	Central Mutual Tel. Co. of Iowa 1st Mtge. 6½s, 1942. Offered by U. S. Trust Co., Omaha, Neb.

500,000	New Equipment		5.75 6.75
725,000	New Equipment		5.50 6.50
456,500	Corporate Requirements	95	6.45
120,000	Refunding, improvements, etc.	100	6.50
3,322,000	Improvements	90	5.75
600,000	Refunding, other Corp. purposes	97.5	6.25
400,000	Extensions, improvements, etc.	Price on application	
650,000	General corporate purposes	97	7.30
2,150,000	New Equipment		5.0-6.0

Chicago, North Shore & Milwaukee R. R. Equip. Tr. 6s, 1923-32. Offered by Halsey Stuart & Co. and National City Co.

Cincinnati Traction Co. Equip. Tr. 6s, "H-1" 1923-32. Offered by Halsey, Stuart & Co.

East St. Louis & Interurban Water Co. 1st Mtge. & Ref. 6s, 1942. Offered by Halsey, Stuart & Co.

The Illinois Telephone Co. 1st Ref. Mtge. 6½s, 1947. Offered by Chicago Trust Co., Chicago

Indiana General Service Co. 1st Mtge. 5s, 1948. Offered by Dillon, Read & Co.

Iowa Falls Elect. Co. 1st Mtge. 6s, 1937. Offered by Harris Trust & Sav. Bk., Chicago

Iowa Light Heat & Pr. Co. 1st Mtge. 5s, 1946. Offered by Arthur Perry & Co., Boston

Lower St. Lawrence Pr. Co. 1st Mtge. 7s, "A" 1947. Offered by Battles & Co., Philadelphia

Philadelphia Rapid Transit Co. Equip. Tr. 6s "F," 1923-32. Offered by Dillon, Read & Co.

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FLOTATION OF SECURITIES

August, 1922 (Cont'd)

ACCORDING TO THE COMMERCIAL & FINANCIAL CHRONICAL, September 30, 1922

Amount	Purpose of issue	Price	To Yield About %	Company and issue—offered by
$ 165,000	Refunding; additions	100	6.50	Platte Valley Tel. Co. (Scottsbluff, Neb.) 1st Mtge. 6½s, 1942. Offered by United States Trust Co., Omaha, Neb.
250,000	Retire current debt; additions	Placed privately		Quincy (Mass.) Electric Light & Power Co., 1st Mtge. 5s, "A" 1947. Offered by Estabrook & Co., Boston
1,500,000	Capital expenditures	87	6.00	San Diego Consolidated Gas & Electric Co. 1st & Ref. Mtge. 5s "B" 1947. Offered by Blyth, Witter & Co., and H. M. Byllesby & Co.
487,000	Extensions & improvements	92	5.70	Wheeling Electric Co. 1st Mtge. 5s, 1941. Offered by Dillon, Read & Co.
		STOCKS		
1,144,880	Additions & Extensions	140		New Bedford Gas & Edison Light Co. Capital stock. Offered by Company to stockholders
1,000,000	Capital expenditures	95	7⅜	New York Steam Corp. 7% Cum. A Pfd. Offered by Bainbridge & Ryan, N. Y.
3,000,000	Acquisitions; retire fltg. debt, etc.	90	7.75	Tennessee Electric Pr. Co. 7% Cum. 1st Pfd. Offered by Bonbridght & Co.

FLOTATION OF SECURITIES

September, 1922

ACCORDING TO THE COMMERCIAL & FINANCIAL CHRONICLE, October 28, 1922

Amount	Purpose of issue	Price	To Yield About %	Company and issue—offered by
$1,374,000	Corporate requirements	96½	6.35	Columbus Delaware & Marion Elect. Co. 1st & Ref. M. 6s, 1937. Offered by West & Co., Phila.
5,000,000	Refunding	99½	5.50	Consolidated Gas, Elect. Lt. & Power Co. of Baltimore. 1st Ref. Mtge. 5½s, "E" 1952. Offered by Alex. Brown & Sons; Lee, Higginson & Co.; Brown Bros.; Jackson & Curtis; and Spencer Trask & Co.
100,000	Construction	81	7.10	Gary (Ind.) St. Ry. 1st Mtge. 5s, 1937. Offered by Fletcher-American Co.
21,000,000	Refunding, additions, etc.	93	5.47	Kansas City Power & Lt. Co. 1st Mtge. 5s, "A" 1952. Offered by Continental & Commercial Tr. & Sav. Bk., Chicago; Guaranty Co. of New York; Halsey, Stuart & Co.; Spencer Trask & Co.; Blyth, Witter & Co., and Harris, Forbes & Co.
3,000,000	Capital expenditures	90½	6.60	Kansas Gas & Elect. Co. Deb. 6s, "A," 2022. Offered by Bonbright & Co., Inc. New York

Amount	Purpose of issue	Price	To Yield About %	Company and issue—offered by
3,500,000	Refunding	90½	6.60	Nebraska Power Co. Deb. 6s, "A," 2022. Offered by Bonbright & Co. Inc.; W. C. Langley & Co., and Tucker, Anthony & Co.
1,725,000	New Equipment		5.5-6	Northwestern Elevated R. R. Co.—South Side Elevated R. R. Co.–The Metropolitan West Side Elevated Ry. Co. Equip. Trust 6s, 1923-32. Offered by Halsey, Stuart & Co., Inc.

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FLOTATION OF SECURITIES

September, 19 22 (Cont'd)

ACCORDING TO THE COMMERCIAL & FINANCIAL CHRONICLE, October 28, 1922

Amount	Purpose of issue	Price	To Yield About %	Company and issue—offered by
$7,000,000	Capital Expend; add'l construction	92.75	5.50	Pennsylvania Power & Light Co. 1st & Ref. Mtge. 5s "B" 1952. Offered by Guaranty Co. of New York; Harris Forbes & Co.; Halsey, Stuart & Co., Inc., and Brown Bros. & Co.
2,500,000	Additions	96	6.30	Portland Ry. Lt. & Power Co. 1st Lien & Ref. Mtge. 6s "B" 1947. Offered by National City Co. and Halsey, Stuart & Co. Inc.
2,000,000	Capital expenditures	95	6.30	San Diego County Water Co. 1st Mtge. 6s "A" 1962. Offered by Blyth, Witter & Co.

200,000	Capital expenditures	99½	6.05	San Francisco-Sacramento R. R. 1st Mtge. 6s, 1940. Offered by M. H. Lewis & Co. and Drake, Riley & Thomas, Los Angeles
1,111,500	General corporate purposes	104½	5.65	Shawinigan Water & Power Co. 1st Ref. Mtge. 6s "B" 1950. Offered by Brown Bros. & Co. Lee, Higginson & Co.; Alex. Brown & Sons, and Jackson & Curtis
340,000	Additions and betterments	95½	6.00	Southern Counties Gas Co. 1st Mtge. 5½s, 1936. Offered by Blyth, Witter & Co.
2,134,000	Refunding; corp. expenditures	96½	6.30	Springfield (Mass.) Street Ry. Ref. & Genl. 6s, 1940. Offered by Harris, Forbes & Co.
600,000	General corporate purposes	90½	5.75	Western New York Utilities Co. Inc. 1st Mtge. 5s, 1946. Offered by Janney & Co., Phila.

New Jersey State Library

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FLOTATION OF SECURITIES

September, 1922 (Cont'd)

ACCORDING TO THE COMMERCIAL & FINANCIAL CHRONICLE, October 28, 1922

Amount	Purpose of issue	Price	To Yield About %	Company and issue—offered by
		STOCKS		
$2,400,000	Additions, etc.	96	7.30	Kansas City Power & Lt. Co. 1st Pref. stock, Series A (Cum. $7 per share). Offered by Spencer Trask & Co. and Blyth, Witter & Co.
1,000,000	Additions, extensions, etc.	92½	7.57	Kansas City Elect. Pr. Co. 7% Cum. Pref. Offered by U. C. Langley & Co., N. Y.
3,625,000	General corporate purposes	94	7.40	Ohio Public Service Co. 7% Cum. Pref. Series A. Offered by A. B. Leach & Co., Inc. and Bodell & Co.
2,200,000	Extensions, additions, etc.	96	7.29	Utah Pr. & Lt. Co. 7% Cum. Pref. Offered by Electric Bond & Share Co. and Hayden, Stone & Co. N. Y.

Exhibit R3

*27

PROFITS IN 1921 COMPARED WITH A 7% RETURN ON HISTORICAL COST

*28

PROFITS IN 1921 COMPARED WITH A 7% RETURN ON THE HISTORICAL COST LESS DEPRECIATION

Historical Cost Less Depreciation as of December 31, 1920	$7,530,646.73
Historical Cost Less Depreciation as of December 31, 1921	7,544,658.63
Average Cost for 1921	$7,537,652.68
Excess of Operating Revenue above Operating Expenses in 1921, before paying for Diversion Rights, General Amortization or the Federal Income Tax	$ 783,183.05
Less Annual Depreciation According to Exhibit R1, Page 37	127,340.30
Adjusted Operating Income	$ 655,842.75
Ratio of this income to Historical Cost Less Depreciation for 1921 of $7,537,652.68 of all the Companies	8.70%
A 7% profit would be	$ 527,635.69
Excess of Actual Profit Above 7%	$ 128,208.06

Exhibit R3

*29

GOING VALUE

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GOING VALUE.

An extensive, although not yet quite completed, study of the earnings and investment of the Companies has not shown any early losses not made up by later gains.

Following what I believe to be the opinions of the U. S. Supreme Court in the Des Moines Gas and Galveston Electric Light cases, I have considered that the allowances shown on the books for overheads covers all the Going Value contemplated by the U. S. Supreme Court where there are no early losses not made up by later gains.

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HISTORICAL NOTES

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HISTORICAL

In order to present with this appraisal a brief description of the development of such company, recourse has been had to the report made by Metcalf & Eddy on the Passaic Water Company and Associated Companies, dated July 15, 1913, and much of the data here given has been taken directly therefrom, supplemented in some instances by data ob-

tained from contracts placed at our disposal by representatives of the Companies.

New Jersey General Security Company

This Company was incorporated February 13, 1894, under an act of the State of New Jersey, approved April 7, 1875. The Company was formed to purchase, hold, sell, assign, transfer, mortgage, pledge, or otherwise dispose of the shares of the capital stock of Water Companies, or Water Power Companies, or any other corporation or corporations; and among other powers to construct, build, purchase, own and operate water properties.

The Security Company has owned and sold different Water Supply and Electric Light and Power Companies in the middle west, and at the present time owns the waterworks properties embraced in this appraisal.

The Passaic Water Company

This Company is the oldest of the Companies under appraisal, having been incorporated on February 13, 1849, by special act of the New Jersey Legislature.

The Company was organized for the purpose of supplying water to the Town of Paterson and the Township of Manchester.

The first supply of water was taken about 1857 from the Passaic River at a point below the Great Falls in Paterson, opposite Gun Mill. It was pumped by means of a water wheel located a short distance below a low dam across the river at that point. In the year 1867 the intake was moved to a point above Great Falls, and there remained until December 7, 1899, when it was moved, to Little Falls upon the

Passaic River, the water being delivered to Paterson through a 42" steel conduit, laid in the year 1897 along the Little Falls Turnpike.

In 1875 the Passaic Water Company under an Act of the Legislature, approved April 8, 1875, purchased the Franklin Lake Company for $200,000. The latter Company had been incorporated in April 9, 1868, for the purpose of supplying the City of Paterson and the Village of Hackensack with water and had been given the power to erect and maintain water works, and divert and appropriate any waters in the Counties of Bergen and Passaic, or in the streams leading from Franklin Lake, where it runs through the County of Morris, under certain limitations and restrictions.

The Passaic Water Company has never utilized any of the waters of Franklin Lake, except as the latter are tributary to the drainage area above Little Falls. In connection with Franklin Lake, there was conveyed to the Passaic Water Company by deed of April 10, 1875, from John Ryle and Wife, title to the tract of land covered with water known as Franklin Lake, consisting of 94.15 acres, for a consideration of $250,000. In this deed there was also conveyed by Tyle to the Passaic Water Company, the rights granted to him by the Society For The Establishing of Useful Manufactures, by deed dated April 14, 1854, whereby the Society granted permission to Ryle to build a dam across the Passaic River and to use all the water he might collect above the said dam in any way he might wish, for a consideration of $5,000.

Under date of December 15, 1886, John R. Bartlett on behalf of himself and associates, purchased from John Ryle, the controlling interest in the Passaic Water Company, consisting of 10,749 shares at a par value of $25 per share, or $268,725 less a commis-

sion of $15,000. At that time Bartlett also agreed to buy an additional 2,565 shares from Ryle at a par value of $64,125. There were then outstanding in addition to the shares owned by Ryle, 3,556 shares with a par value of $88,400.

Shortly after this agreement was executed, the Society For Establishing Useful Manufactures (of which the entire outstanding stock, except seventeen shares, had been purchased by Bartlett for $1,000,000) made an agreement with the Passaic Water Company, dated May 16, 1887 wherein the Passaic Water Company agreed to pay $300,000 for damages claimed to have been sustained by the Society under the agreement of March 1868. Under this agreement of 1887 the Passaic Water Company further agreed to pay the Society $700,000 for the right to divert from the Passaic River at any point above the Great Falls, not exceeding 15,000,000 gallons in any one day, or at that rate for anyone week, for a period of 999 years. The Passaic Water Company further agreed to store in the wet seasons, above the dam, all the water which it used in the dry season. The Society also gave to the Passaic Company under this agreement, a plot of land between Spruce Street, the Passaic River and the chasm at the Falls: The Society retained the privilege of disposing of water rights in excess of the quantity sold to the Passaic Company.

By the terms of an agreement dated May 16, 1887, the West Milford Water Storage Company sold to the Passaic Company for 999 years, the right to take from their storage reservoirs such water as might be necessary to supply Paterson and Passaic with all

their future growths. In this agreement it was set forth that the West Milford Company owned about 2,000 acres of land furnishing a drainage area of about twenty square miles, including property at Oak Ridge, at Lake Macopin, at Dundee Pond, and at Mud Pond. The amount to be taken from such reservoirs was not to exceed 20,000,000 gallons in any one day, or 1,500,000,000 gallons in any one year. The consideration for this agreement was $500,000.

In the year 1890 the Passaic Water Company began to furnish water to the Acquackanonk Water Company from Great Falls in Paterson, through the Passaic distribution pipe system, and thence through meters into a 20″ main running to Passaic.

In 1896 a new pumping station was built at Stony Road, which remained in operation until the intake was moved to Little Falls in the year 1899, as previously stated.

In the year 1902 the Filtration Plant at Little Falls was completed and put into operation and since that time filtered water only has been furnished by the Passaic Water Company.

This Company on January 1, 1908 acquired a 3/8 interest in Little Falls Pumping Station and Filtration plant; in a portion of the 51″ conduit; and in the Great Notch Reservoir. They also acquired at this time a 3/8 interest in certain power and diversion rights purchased by the East Jersey Water Company in 1895 from the Beattie Manufacturing Company at Little Falls. Subsequent to the purchase in 1895, the New Jersey General Security Company sold to Patrick H. Flynn, in connection with his contract to furnish a supply of water to Jersey City, certain diversion rights on November 21, 1898, for a consideration of

$1,150,000 and to this sale the Passaic Company had given its consent.

As of January 1, 1908, when the Passaic Water Company acquired an interest in the Beattie rights at Little Falls, it received from the New Jersey General Security Company $112,500 for its share of the rights sold to Flynn in 1898.

On February 1, 1902, the Passaic Company in consideration of $1.00 obtained an agreement for the Society for Establishing Useful Manufactures, to take from the Passaic River at Little Falls, its requirements, it being the intention that storage would be provided by the Passaic Company sufficient so that the natural flow of the river at Great Falls might not be diminished during that portion of the year when the natural flow is less than the average.

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On January 1, 1908 the Passaic Company also acquired from the Dundee Water Power & Land Company, located below the Great Falls, the privilege of water diversion at Little Falls for $2.00 per million gallons. This agreement was modified on January 1, 1914, the price being reduced from $2.00 to $0.75. The reason given for such modification was that the appraisal by the New Jersey State Water Supply Commission of 1912 had shown the price of $2.00 to be considerably in excess of the reasonable sum which should be paid for such diversion. Under date of June 16, 1920, the price paid to the Dundee Company was changed back to $2.00 per million gallons, the reason stated in the agreement being that the cost of labor and coal had doubled and consequently that the original price for diversion of $2.00 per million

gallons, was a proper and reasonable price. The payment to the Dundee Company of $2.00 per million gallons continued through 1920 and 1921, and as of January 1, 1922, the Passaic Company purchased from the Dundee Company for $65,352.00 the right to divert 18,750,000 gallons of water daily at Little Falls.

The Passaic Water Company furnishes a separate water service to certain dyers located below the Great Falls. This service has continued since 1905. At that time the waters of the Passaic River below Great Falls having become more and more polluted owing to the increase in population and to the number of dye houses and factories discharging waste into the stream, negotiations were entered into with several large dyeing establishments, with a view to furnishing them with a supply of clean water drawn from the river above the Falls. As a result of these negotiations, a 48″ to 42″ steel conduit was laid from the dam just above Great Falls, to a point at the Weidmann's Silk Dyeing Plant about two miles down stream. Through this pipe since 1906 water has been supplied by gravity to various dye houses and factories located along this line.

In connection with this dyers line, the Passaic Company made an agreement in 1906 with the Society for Establishing Useful Manufactures to pay $7.50 per million gallons for the privilege of taking water from the water gates at the dam above Great Falls, not to exceed 20,000,000 gallons in twenty-four hours, and this agreement has since continued.

The Acquackanonk Water Company

This Company was incorporated by a special Act of the Legislature of New Jersey, approved April 9,

1867. It supplies water to the City of Passaic and certain parts of Acquackanonk Township.

The water supplied by this Company was obtained from the canal of the Dundee Water Power & Land Company, from 1871 to 1885, when an intake was obtained from Vreeland's Pond on Weasel Brook, Monroe Street, Passaic. In 1890 the Vreeland Pond intake was abandoned and the Company thereafter took its water from the Passaic River above Great Falls in Paterson; the water being pumped by the Passaic Water Company through a part of its distribution system into a 20″ main running through Acquackanonk Township to Passaic. The supply continued from this source until December 7, 1899, when the intake was moved to Little Falls, from which the water has since been taken. Since 1902 water has been supplied through the Little Falls Filtration Plant.

In connection with a water supply from the Passaic Water Company at Great Falls, an agreement was entered into in 1889, between the Acquackanonk Company and John R. Bartlett whereby Bartlett agreed to furnish a suitable supply of pure water up to a maximum quantity of 3,000,000 gallons per day, and to supply the necessary pipe line and appurtenances, for a consideration of $250,000.00 in cash, or for $200,000.00 in 5% General Mortgage Bonds and $52,000.00 in Capital Stock.

On January 1, 1908 this Company acquired a 2/8 interest in the Little Falls Pumping Station and Filtration Plant; in a portion of the 51″ conduit; in Great Notch Reservoir; and in the two steel conduits between the 51″ line and this reservoir. It also acquired at this time a 2/8 interest in certain powers and diversion rights purchased by the East Jersey

Company in 1895 from the Beattie Manufacturing Company at Little Falls. Subsequently its consent was given to the sale of diversion rights to Flynn in 1898, previously mentioned in connection with the Passaic Company.

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As of January 1, 1908 when the Acquackanonk Company acquired an interest in the Beattie rights at Little Falls, it received from the New Jersey General Security Company $75,000.00 for its share of the rights sold to Flynn in 1898.

On January 1, 1908 the Acquackanonk Company agreed to pay the Society for Establishing Useful Manufactures $5.00 per million gallons for all water diverted by it at Little Falls, and this arrangement continued until January 1, 1922. On the latter date the Company purchased from the Society for $163,133.00 the right to divert 14,250,000 gallons per day at Little Falls.

On January 1, 1908 the Company also acquired from the Dundee Water Power & Land Company located below Great Falls, the privilege of water diversion at Little Falls for $2.00 per million gallons. This agreement was subsequently modified on January 1, 1914 to $0.75 per million gallons, and increased in 1920 to $2.00 per million gallons, for reasons already stated in connection with the Passaic Company. This payment of $2.00 per million gallons continued through 1920 and 1921, and as of January 1, 1922 the Acquackanonk Company purchased from the Dundee Company for $49,667.00 the right to divert 14,250,000 gallons per day at Little Falls.

Exhibit R3

The Montclair Water Company

This Company was incorporated January 15, 1887, under an Act of the New Jersey Legislature for the purpose of constructing, maintaining and operating water works in the Township of Montclair (now the Town of Montclair) and supplying the said Township and its inhabitants with water.

This Company was organized by John R. Bartlett and acquired from him for a consideration of $850,000.00, a contract which he had made with the Society for Establishing Useful Manufactures, and also a contract with the Dundee Water Power & Land Company, each of which contracts granted him certain diversion rights. There was also included in this purchase reservoir sites at Great Notch, Garrett Mountain and Montville, and one-half of Split Rock Lake, with a lease covering the other half of the Lake.

Water was first supplied to the Town of Montclair and its inhabitants about the year 1888, the supply being obtained from wells located on Watchung Avenue, Montclair. This source of supply was continued until about May 1, 1892, when the Company began to receive water from the pipe line of the East Jersey Water Company, running from the Macopin Intake on the Pequannock River to the City of Newark. The Pequannock supply continued until May 24, 1904, since which time the supply has been taken from the Passaic River at Little Falls, passing on its way to the City through the Filtration Plant at Little Falls.

In 1888 this Company entered into an agreement the Railroad Company agreed to use its efforts to with the Lehigh Valley Railroad Company whereby obtain a contract to supply Newark with water, using

diversion rights owned by Montclair. In 1899 this contract with the Lehigh Valley Railroad Company was assigned to the East Jersey Water Company.

The right to divert from the Pequannock River a maximum of 50,000,000 gallons daily, was sold to the East Jersey Water Company in 1890, for $1,000,000.00 for the Newark water supply.

On January 1, 1908 this Company acquired a 1/8 interest in the Little Falls Pumping Station and Filtration Plant; in a portion of the 51″ conduit; and in the Great Notch Reservoir. They also acquired at this time a 1/8 interest in certain power diversion rights purchased by the

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East Jersey Water Company in 1895 from the Beattie Manufacturing Company at Little Falls. Subsequently the Montclair Company gave its consent to the sale of the water diversion rights to Flynn, previously mentioned in connection with the Passaic Company.

As of January 1, 1908, when the Montclair Company acquired an interest in the Beattie rights at Little Falls, it received from the New Jersey General Security Company $37,500 for its share of the rights sold to Flynn in 1898.

On January 1, 1908, the Montclair Company agreed to pay the Society for Establishing Useful Manufactures $5.00 per million gallons for all water diverted at Little Falls, and this arrangement continued until January 1, 1922, when the Montclair Company purchased from the Society for $42,929 the right to divert 3,750,000 gallons daily.

Exhibit R3

On January 1, 1908, the Montclair Company also acquired from the Dundee Water Power & Land Co. the privilege of water diversion at Little Falls for $2.00 per million gallons. This price was subsequently reduced to $0.75 per million gallons, and increased in 1920 to $2.00 contemporaneously with similar changes made by the Passaic and Acquackanonk Companies. The payment of $2.00 per million gallons continued through 1920 and 1921, and as of January 1, 1922, the Montclair Water Co. purchased from the Dundee Company for $13,071 the right to divert 3,750,000 gallons daily.

The East Jersey Water Company

This Company was incorporated August 1, 1889 under An Act of the New Jersey Legislature for the storage, sale and delivery of water and the construction and maintenance of necessary reservoirs, pipe lines and other works.

On September 24, 1889, the Company entered into a contract with the City of Newark to build a water supply system consisting of certain reservoirs lying within the Pequannock water shed and a pipe line of 50,000,000 M. G. D. guaranteed capacity connecting them with the City of Newark. These works were completed and water furnished from them to the City of Newark since January 12, 1892.

Under the agreement cited, the City of Newark was permitted to draw but 27,500,000 gallons per day from the Pequannock works. This left 22,500,000 gallons at the disposal of the East Jersey Water Company, who by contract with Jersey City, dated October 12, 1895, contracted to furnish a temporary supply of water from the Pequannock works to Jersey City.

For this purpose the East Jersey Water Company in 1895 built the Kearney Extension consisting of a 42″ steel conduit from Belleville where it connected with the 48″ pipes from the Macopin Intake to Kearney, where it was connected with the three pipes owned by Jersey City.

Water from the Pequannock works was first furnished to Jersey City through the Kearney Extension on January 10, 1896, when it was found that the works built by the Company for the City of Newark were not capable of delivering the estimated quantity of 50,000,000 gallons per day.

Accordingly, in 1896 the East Jersey Water Co. laid in additional 48″ to 42″ steel pipe from the Macopin Intake to Belleville, and an additional reservoir was constructed upon the Pequannock drainage area to supplement the Jersey City supply, which continued in full until June 29, 1898, from the Pequannock works. Thereafter the East Jersey Water Co. furnished to Jersey City a mixed supply from the Macopin Intake upon the Pequannock River and from the Passaic River above Great Falls obtained from the Passaic Water Co. until about December 1899, after which date a mixed supply was furnished from the Macopin Intake and the Passaic River at Little Falls until April 1904. Since that time Jersey City has obtained its own supply from the Boonton Reservoir on the Rockaway River, but during the past three years this supply has been augmented by a supply from Little Falls.

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In 1896 the Company contracted with the Montclair Company to deliver water at or near Brookdale for water service to Montclair, West Orange and

Bloomfield Township, for the price of $60.00 per million gallons.

In 1895 the Company purchased from the Beattie Manufacturing Co. the right to divert from the Pequannock River at the Macopin Intake 50,000,000 gallons of water daily, as and from September 24, 1889 for $25.00. Additional rights were purchased from the Beattie Manufacturing Co. in 1901 when the Company acquired for $330,000 the water rights, rights of way and tracts of land at Little Falls, including the prior right at all time as against the rights of the Beattie Company to draw from the Passaic River a quantity of water not exceeding 50,000,000 gallons daily. Under this agreement there was reserved to The Beattie Company the right to use 225 cubic feet of water per second, it being agreed, however, that their mill was only to run ordinarily about ten hours a day. The further right was reserved to the Beattie Company to use an additional 2,000,000 gallons per day for manufacturing purposes other than power.

In 1915 the East Jersey Company and the Associated Companies purchased the remaining rights of the Beattie Company in excess of 50,000,000 gallons per day, except 2,000,000 gallons reserved by the Beattie Company for manufacturing purposes, for $200,000.

Subsequent to the purchase in 1895 the New Jersey General Security Company sold to Patrick H. Flynn in connection with his contract to furnish a water supply to Jersey City, certain diversion rights on November 21, 1898, for a consideration of $1,150,000 and to this sale the East Jersey Co. had given its consent.

Exhibit R3

In 1897 the East Jersey Co. began the construction of the Little Falls Pumping Station and subsequently constructed a reservoir at Great Notch and a Filter Plant. Agreements were then entered into by the East Jersey Co. with the Passaic and Acquackanonk Companies to furnish them water from Little Falls. The Little Falls Plant was operated by the East Jersey Co. on the basis of furnishing the associated companies with water at a stated price per million gallons, until January 1, 1908, when an agreement was reached between the companies that the East Jersey Water Co. should continue to operate the Station on the basis of each Company paying its proportionate share on the basis of gallons of water delivered to them. This arrangement continued until January 1, 1911, when the operation of the Station was assumed by the Montclair Company upon the same basis for sharing the expenses.

As of January 1, 1908, the East Jersey Company sold to the Passaic, Acquackanonk, and Montclair Companies a 3/4 interest in the Beattie rights and at that time the East Jersey Company received from the New Jersey General Security Co. $75,000 for its share of the rights sold to Flynn in 1898.

On January 1, 1908, the East Jersey Co. sold to the Associated Companies an interest in the Little Falls Pumping Station and Filtration Plant; in a portion of the 51″ conduit; and in the Great Notch Reservoir, as previously explained in connection with the other three Companies.

On January 1, 1908, the East Jersey Co. agreed to pay to the Society for Establishing Useful Manufactures $5.00 per million gallons for all water diverted at Little Falls, and this payment has continued until

January 1, 1922. On the latter date, the East Jersey Co. purchased from the Society the right to divert 38,250,000 gallons at Little Falls for $437,882.

On January 1, 1908 the East Jersey Co. also agreed to pay the Dundee Water Power and Land Co. $2.00 per million gallons for all water diverted at Little Falls. This agreement was modified in 1914 by a reduction in price to $0.75 per million gallons, and was changed back again to $2.00 at which price it remained until January 1, 1922, when the East Jersey Co. purchased from the Dundee Co. the right to divert 38,250,000 gallons for $133,318.

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The Kearney Water Company

This Company was incorporated on October 18, 1886 under Act of the New Jersey Legislature for the purpose of constructing, maintaining and operating water works. The Company built new works, but on June 28, 1900 acquired by deed from the East Jersey Water Co. for $100,000 the ownership of that portion of the 51″ conduit which lies within the limits of Jorlemon Avenue and of the 42″ Kearney Extension pipe in Belleville to the corner of Kearney Avenue and the Belleville Turnpike in Kearney.

Through this extension the Kearney Water Company transports waters from the East Jersey Water Company's 51″ steel high service conduit in Belleville and delivers the water into the pipe lines of the New York and New Jersey Water Company, and of the New Jersey Suburban Water Company for the supply of Bayonne, Kearney, Harrison and East Newark and for the emergency supply of Jersey City.

Exhibit R4.

Graph showing quality of water.

Exhibit R5.

Letter from E. LeB. Gardner to Mayors of Paterson, Passaic and Clifton together with legal opinion, Mar. 6, 1921.

Exhibit R6.

Letter to E. LeB. Gardner, President, N. J. General Security Company, dated March 17, 1922.

This letter requests proposal for sale of properties to the municipalties served by the Companies.

Exhibit R7.

Letter dated March 21, 1922, by E. LeB. Gardner, to the Committee of the City of Paterson.

March 21, 1922.

Messrs. John W. Ferguson)
M. I. Fuld)
Henry F. Bell)
) Committee of the City of Paterson appointed to investigate the Water Question.

Gentlemen:

Referring to your communication of the 17th instant:

If the City of Paterson (or the cities of Paterson, Passaic and Clifton) conclude to buy the works of our associated Water Companies, and express their intention of so doing, we will issue 6% bonds equal in amount to the equity; these bonds to be a mortgage upon all the properties of the said Companies, and we will accept said bonds in payment—turning over the entire properties of the said Companies to the cities.

Exhibit R7

These 6% bonds must have a sinking fund of 2%. The actual figures will be brought up to date whenever the transfer takes place, and will probably vary somewhat from the figures indicated in the statements which we are handing you. This includes the right to divert 70 millions of gallons daily at Little Falls, as against the Society for Establishing Useful Manufacturers and the Dundee Water Power and Land Company.

There are no properties, rights or privileges, used or controlled or any way appertaining to the business or properties of our Associated Water Companies, that are not included in this proposal.

The figures mentioned in our proposal are submitted for prompt acceptance only, and without prejudice to our rights to prove present values in excess of the detailed figures thus submitted, in any proceedings that may be taken to acquire the properties by the exercise of the right of eminent domain.

It is understood that all the furniture and fixtures belonging to the New Jersey General Security Company, the Society for Establishing Useful Manufacturers, and the Dundee Water Power and Land Company, including three safes, remain the property of these Companies.

It is further understood, that all cash and accounts receivable at the time of the transfer will remain the property of the Associated Water Companies, and all bills for materials ordered and not delivered shall be paid by the City; and that all moneys paid the Dyers for diversion of water, not yet charged off, shall be paid by the City—this amount January 1st, 1922, being about $29,949.08.

Yours very truly,

(Sgd.) EDMUND LEB. GARDNER

President.

Dec. 31, 1912, State's Valuation (not including diversion rights)		$8,728,300
Additions to plant Jan. 1/13 to Dec. 31/21	$2,078,949.89	
Less Withdrawals " " " "	132,893.13	1,946,056
		10,674,356
Less depreciation " " " "	1,066,823.87	
Less depreciation on withdrawals, 20% of $132,893.13	26,578.63	1,040,245
		9,634,111

All Companies

Meters on hand Dec. 31, 1921—Cost	4,105.39	
" " " " 1912 "	5,594.43	1,489
Supplies on hand Dec. 31, 1921 cost	108,376.28	
" " " " 1912 "	56,176.72	52,200
Coal on hand Dec. 31/21 "	36,733.56	
" " Dec. 31/12 "	20,550.32	16,183
		66,894
		9,634,111
Valuation above		9,701,005

Book Value of Paterson City Properties	Dec. 31/12	78,196.00	
" " " " " "	Dec. 31/21	20,403.50	
	Sold	57,792.50	
Book Value Ryerson Farm	"	5,779.20	
" Garret Mt. Property	"	12,400.07	
" Split Rock "	"	150,494.82	
		226,466.59	226,467
			9,474,538
Value of the right to divert 70 millions of gallons of water daily as against the Society for Establishing Useful Manufacturers and the Dundee Water Power and Land Company, now owned by the Associated Water Companies at Little Falls			1,120,000
	Total Value		$10,594,538

This value is subject to the following liens:

	Issued	Due	
Passaic Water Co.			
1st Mortgage 5% Gold Bonds	1887	July 1937	$2,141,000
2nd " " " "	1896	Jan. "	500,000
Little Falls Purchase Money Mortgage 5% Gold Bonds	1908	Jan. 1958	1,200,000

Exhibit R7

Acquackanonk Water Co.			
1st Mortgage 5% Gold Bonds	Nov. 1889	Nov. 1, 1939	296,000
2nd " " " "	Jan. 1896	Jan. 1, 1939	300,000
Little Falls Purchase Money Mortgage 5% Gold Bonds	Jan. 1908	Jan. 1, 1958	800,000
Montclair Water Co.			
1st Mortgage 5% Gold Bonds	1896	Jan. 1, 1946	500,000
Little Falls Purchase Money Mortgage 5% Gold Bonds	Jan. 1908	Jan. 1, 1958	400,000
East Jersey Water Co.			
Little Falls Mtge. 5% Gold Bonds	1909	Jan. 1958	800,000
		Total	6,937,000
		Equity	3,857,538

NOTES: The 1st and 2nd mortgage bonds cover pipes & property in the cities; and the Purchase Money mortgage bonds cover Little Falls Plans, Reservoir and main pipes.

Exhibit R8.

Reconciliation of Construction Accounts, with Bemis' Appraisal of Historical Cost.

*6

ALL COMPANIES COMBINED.

Reconciliation of Construction Accounts as per Books with Bemis Appraisal.

As of December 31, 1921.

Sangster & Matthews
Chartered Accountants
New York—Chicago

40 30 20 10

ALL COMPANIES COMBINED

Reconciliation of Joint Property, as Per Books, with Bemis Appraisal

As at December 31, 1921

	Passaic Water Company	Acquackanonk Water Company	Montclair Water Company	East Jersey Water Company	Kearney Water Company	Total
Total Construction Accounts—Joint and Individually owned property	$6,709,486.20	$2,182,052.11	$1,403,687.03	$1,360,627.84	$100,010.51	$11,755,863.69
Deduct Individually Owned Property	5,030,884.30	1,062,984.19	835,911.48	5,168.86	100,010.51	7,034,959.34
Jointly Owned Property	$1,678,601.90	$1,119,067.92	$ 567,775.55	$1,355,458.98	—	$ 4,720,904.35
Consisting of:						
Interest in Little Falls Improvement	1,678,601.90	1,119,067.92	559,518.95	1,352,251.70	—	4,709,440.47
General Equipment	—	—	8,256.60	—	—	8,256.60
Construction to December 31, 1920	—	—	—	3,207.28	—	3,207.28
Total as per books	1,678,601.90	1,119,067.92	567,775.55	1,355,458.98	—	4,720,904.35
Deduct:						
Profit to the East Jersey Water Company on sale of interests in Little Falls Improvement, and on sale of Beattie Rights in 1907	234,271.25	93,951.07	16,089.05	—	—	344,311.37
Original Cost of Land:						
Conduit No. 3	—	—	—	255,669.17	—	255,669.17
Garrett Mountain Reservoir	—	—	—	105,612.47	—	105,612.47
Estimated as included in Beattie Purchase	—	—	—	15,000.00	—	15,000.00
Amount received in 1907 on sale of water rights in 1898 to Patrick H. Flynn	100,000.00	50,000.00	50,000.00	100,000.00	—	300,000.00
	334,271.25	143,951.07	66,089.05	476,281.64	—	1,020,593.01
Temporary Boiler House considered as useless by Bemis Engineers						6,383.00
Transfer of expenditure on 42" extension						3,000.00
Error in statement of General Equipment						.20
Total Deductions						1,029,976.21
Total Forward						3,690,928.14

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Exhibit R8

ALL COMPANIES COMBINED

Reconciliation of Joint Property, as per Books, With Bemis Appraisal as at December 31, 1921 (Cont'd)

	Passaic Water Company	Acquackanonk Water Company	Montclair Water Company	East Jersey Water Company	Kearney Water Company	Total
Total Forward						$3,690,928.14
Add:						
Displacements in 1920 omitted from Bemis Appraisal:						
Sale of 40'5" smoke stack	—	—	$ 6.25	$12.50	—	18.75
Sale of 37' smoke pipe	—	—	19.18	38.37	—	57.55
Transfer in 1918 from interest in Little Falls improvement to General Equipment	—	—	15.00	—	—	15.00
Displacements in 1921 of General Equipment omitted from Bemis appraisal	—	—	423.00	—	—	423.00
	—	—	463.43	50.87	—	3,691,442.44
Interest during construction allowed by Bemis Engineers (Page 79)						184,578.79
Land included by Bemis Engineers at reproduction cost (Page 12):						
Little Falls Improvement						41,296.00
Little Falls Filtration Plant						5,862.00
Great Notch Reservoir						103,375.00
51" Steel conduit						206,110.00
Materials and supplies allowed by Bemis Engineers (Page 12)						58,819.93
Diversion Rights acquired from S. U. M. and Dundee Water Power and Land Company at cost in 1922 (Page 12)						1,120,000.00
Estimated by Bemis Engineers:						
One ball and wood vertical engine, size 9x12 (Page 51)						900.00
One Venturi Meter House at Passaic Avenue (Page 78)						425.00
Total Additions						1,781,366.72
Total Appraisal by Bemis Engineers (Page 12)						$5,412,809.16

Exhibit R8 *2

40 30 20 10

40 30 20 10

ACQUACKANONK WATER COMPANY

Reconciliation of Individually Owned Property as per Books With Bemis Appraisal
As at December 31, 1921

	Total	1902-1921	1899-1901	Prior to 1899
As Per Books:				
Construction prior to January 1, 1913	$ 662,689.57	194,889.16	35,656.87	$ 432,143.54
Furniture and Fixtures	1,062.27	862.67	199.60	—
Conduit #2	99,446.89	99,446.89	—	—
Equipment and Tools	817.56	817.56	—	—
Horses, Wagons, etc.	670.90	670.90	—	—
General Equipment	7,274.87	7,274.87	—	—
Construction since 1912	291,022.13	291,022.13	—	—
Total as per books	1,062,984.19	594,984.18	35,856.47	432,143.54
Adjustments between periods by Bemis Engineers:				
Meters and Supplies on hand January 2, 1911, credited to Construction Account considered as charged to Construction prior to 1899	—	8,020.58	—	8,020.58*
Retirements of Physical Property, as recorded on books, not including General Equipment $30,753.36 less $5,357.13 in period 1912-1921	—	25,396.23	—	25,396.23*
Total, per books, adjusted	1,062,984.19	628,400.99	35,856.47	398,726.73
Deduct:				
Estimated original cost of property retired in period 1902-1911 not recorded on books, assigned by Bemis Engineers	12,877.25	—	—	12,877.25
Net addition to General Equipment in 1921 omitted in Bemis Appraisal	1,263.62	1,263.62	—	—
	1,048,843.32	627,137.37	35,856.47	385,849.48
Add: Amounts overapplied to these periods in Bemis Appraisal	1,922.50	3,301.13	1,378.63*	—
	1,050,765.82	630,438.50	34,477.84	385,849.48
Deduct: Unidentified expenditures	231,853.03	—	—	231,853.03
	818,912.79	630,438.50	34,477.84	$ 153,996.45
Add: Items not on books included in Bemis Appraisal:				
Land at Reproduction Cost	19,087.00			
Interest during Construction	4,309.93			
Materials and Supplies	9,673.89			
Total Per Bemis Appraisal—Page 11	$ 851,983.61			

* Represents deductions.

Exhibit R8
*3

PASSAIC WATER COMPANY

Reconciliation of Individually Owned Property as per Books With Bemis Appraisal
As at December 31, 1921

	Total	1902-1921	1898-1901	Prior to 1898
As Per Books:				
Construction prior to January 1, 1913	$4,090,966.70	165,108.99	228,243.61(1)	$3,697,614.10(2)
Little Falls Extension	145,034.33	—	10,905.96(1)	134,128.37(2)
Great Falls Conduit	141,329.51	141,329.51	—	—
Equipment and Tools	6,989.24	6,989.24	—	—
Horses and Wagons	1,643.78	1,643.78	—	—
Furniture and Fixtures	3,833.60	3,833.60	—	—
Construction since 1912	613,830.54	613,830.54	—	—
General Equipment	27,256.60	27,256.60	—	—
Total—As Per Books	5,030,884.30	959,992.26	239,149.57	3,831,742.47
Adjustments between periods by Bemis Engineers:				
Materials and Supplies credited to Construction in 1912 estimated as charged to Construction prior to 1898	—	24,417.15	—	24,417.15*
Recorded retirements of property 1911-1920 estimated as constructed prior to 1898 $72,791.18 less General Equipment $17,494.41	—	55,296.77	—	55,296.77*
Land deducted from Construction, considered as acquired prior to 1898	—	156,189.00	—	156,189.00*
Estimated retirements of property in 1901 considered as acquired prior to 1898	—	—	32,325.62	32,325.62*
Construction of Paterson Extension considered as in period 1898-1901	—	—	134,128.37	134,128.37*
Total Per Books—Adjusted between Periods	5,030,884.30	1,195,895.18	405,603.56	3,429,385.56
Deduct:				
Land Purchases	800.00	800.00	—	—
Expenditures on Galvanized Iron Mains	2,166.32	2,166.32	—	—
Work on Meter Shop at Great Falls	305.45	305.45	—	—
Leveling Dirt Bank	145.60	145.60	—	—
Additional retirement of Mains in 1921 per Bemis Estimate in excess of recorded displacements	917.65	917.65	—	—
Stony Road Aeservoir abandoned in 1918	52,132.00	—	—	52,132.00
Mains and Hydrants retired from service 1902-1911 not recorded on books considered as constructed prior to 1898	54,589.88	—	—	54,589.88
Add:				
Sale of Diversion Rights	2,000.00	2,000.00	—	—
Retirements of General Equipment in 1921 not deducted by Bemis	936.61	936.61	—	—
Reconstruction expenditures in 1909 and 1910 charged to Profit and Loss Account	17,865.43	17,865.43	—	—
Transfer from Jointly Owned Property to Paterson Extension	3,000.00	—	3,000.00	—
Forward	4,943,629.44	1,212,362.20	408,603.56	3,322,663.68

Exhibit R8
*4

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PASSAIC WATER COMPANY

Reconciliation of Individually Owned Property as per Books With Bemis Appraisal

As at December 31, 1921

	Total	1902-1921	1898-1901	Prior to 1898
Forward	$4,943,629.44	1,212,362.20	408,603.56	$3,322,663.68
Deduct Items Assumed to be charged to Construction but not included in Bemis Appraisal:				
Contract #173 dated May 16, 1887, with Society for Establishing Useful Manufactures for privilege of taking water at Great Falls	1,000,000.00	—	—	1,000,000.00
Contract #237 dated May 16, 1887, with West Milford Water Storage Company for privilege of taking water from drainage area near Lake Macopin	500,000.00	—	—	500,000.00
Contract #62 dated April 12, 1875, for purchase of Franklin Lake Company including all property, stock, franchises, rights, etc.	200,000.00	—	—	200,000.00
Contract #63 dated April 10, 1875, for purchase from John Ryle of property known as Franklin Lake and conveyance by Ryle of contract with Society for Establishing Useful Manufactures dated February 14, 1854	250,000.00	—	—	250,000.00
Original Cost Estimates by Bemis Engineers of following Property:				
Great Falls Pumping Station—Buildings and Equipment	100,000.00	—	—	100,000.00
Stony Road Pumping Station—Buildings and Equipment	65,000.00	—	30,307.36	34,692.64
Middle Reservoir	10,000.00	—	—	10,000.00
Totowa Reservoir	25,889.00	—	—	25,889.00
Unaccounted for	618,390.16	—	—	618,390.16
	2,174,350.28	1,212,362.20	378,296.20	583,691.88
Add—Included in Bemis Appraisal not in book figures:				
Amount allocated in excess of adjusted book figures	1,692.72	1,692.72	—	—
	2,176,043.00	1,214,054.92	378,296.20	583,691.88
Allowance for Interest during Construction	18,893.48			
Land at Reproduction Cost	28,380.00			
Materials and Supplies	66,675.29			
Total Per Bemis Appraisal—Page 11	$2,289,991.77			

Notes:

(1) These amounts are not taken from the books, but from Annual reports for this period.

(2) These amounts are not taken from the books, but were obtained from Annual report for year 1897 representing the Construction accounts at that time.

* Represents deductions.

Exhibit R8

*5

Exhibit R8

*6

EAST JERSEY WATER COMPANY

Reconciliation of Individually Owned Property as per Books with Bemis Appraisal

As at December 31, 1921

As per Books:	
Horses, Wagons and Harness	$ 42.00
Furniture and Fixtures	1,568.75
Construction since 1920	2,031.66
General Equipment	1,526.45
Total—As per Books	5,168.86
Deduct:	
Construction since 1920 omitted from Bemis Appraisal	2,031.66
Additions to General Equipment in 1921 omitted from Bemis appraisal	694.45
	2,442.75
Add:	
Materials and Supplies	261.47
Total per Bemis Appraisal—Page 11	$2,704.22

Exhibit R8

*7

KEARNEY WATER COMPANY

Reconciliation of Individually Owned Property as per Books with Bemis Appraisal

As at December 31, 1921

As per Books:	
Pipe Line	$100,000.00
Construction since 1912	10.51
Total—As per Books	100,010.51
Add:	
Loss on Kearney Extension written off on East Jersey Company's books prior to transfer to Kearney Company	72,369.26
Adjusted Book Cost	172,379.77
Deduct:	
Cost of Land and Right of Way	13,074.23
	159,305.54
Add:	
Land at Reproduction Cost	11,034.00
Interest during Construction	9,558.33
Total per Bemis Appraisal—Page 11	$179,897.87

Exhibit R8

*8

MONTCLAIR WATER COMPANY

Reconciliation of Individually owned property as per books with Bemis Appraisal

As at December 31, 1921

Books Available from 1887

As per Books:		
Construction—Prior to 1913		$655,544.84
Horses, Wagons and Harness		76.50
Office Furniture		1,970.25
Office Building and Real Estate		26,600.91
Equipment and Tools		1,379.65
Construction—Since 1912		145,330.78
General Equipment		5,008.55
Total—As per Books		835,911.48
Deduct:		
Land at cost	15,382.95	
Wells, considered by Bemis Engineers as not now used or useful	10,488.00	
Pumping station equipment retired from service but not deducted from book cost period 1887-1912	15,048.38	40,919.33
		794,992.15
Add:		
General Equipment displaced in 1921 not deducted in Bemis Appraisal		429.33
Land at Reproduction Cost		25,323.00
Materials and Supplies		14,846.08
Total Per Bemis Appraisal—Page 11		$835,590.56

Exhibit R9.

Summary Analysis of Bemis' Appraisal of Historical Cost.

This exhibit purported to show which items in Bemis' exhibits were taken from the books and which items were estimated.

10

THE EAST JERSEY AND AFFILIATED COMPANIES

ANALYSIS OF 1920 BEMIS' VALUATION

Showing Book and Estimate Costs

Edward W. Bemis, Consulting Engineer
New York Chicago

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Exhibit R9

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SUMMARY

Analysis of 1920 Bemis' Valuation
Showing Book and Estimated Costs

	Total Cost New As Used in Valuation	Land	Interest During Construction	Cost New Less Land and Interest During Construction	Estimated Cost	Book Cost
Joint Ownership	$5,391,907.99	$356,643.00	$184,578.79	$4,850,686.20	$ 1,325.00	$4,849,361.20
Individual Ownership						
The East Jersey Water Company	2,620.89			2,620.89		2,620.89
The Kearney Water Company	179,897.87	11,034.00	159,558.33	159,305.54		159,305.54
The Passaic Water Company	2,234,648.55	28,380.00	18,893.48	2,187,375.07	526,800.45	1,660,574.62
The Acquackanonk Water Company	798,728.09	19,087.00	4,309.93	775,331.16	94,976.11	680,355.05
The Montclair Water Company	823,821.60	25,323.00		798,498.60		798,498.60
Total Individual Ownership	$4,039,717.00	$ 83,824.00	$ 32,761.74	$3,923,131.26	$621,776.56	$3,301,354.70
Total	$9,431,624.99	$440,467.00	$217,340.53	$8,773,817.46	$623,101.56	$8,150,715.90
			Per Cent of	$8,773,817.46	7.102	92.898

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JOINT OWNERSHIP

Analysis of 1920 Bemis' Valuation
Showing Book and Estimated Costs

SUMMARY

Reference	Description	Total Cost New As Used in Valuation	Land	Interest During Construction	Cost New Less Land and Interest During Construction	Estimated Cost	Book Cost
Page 40	Water Diversion Rights	$1,320,000.00	$	$	$1,320,000.00	$	$1,320,000.00
	Little Falls Improvements						
" 43	Land	41,296.00	41,296.00				
" 47	Structures	1,274,062.41		68,992.58	1,205,069.83		1,205,069.83
" 52	Equipment	518,075.67		23,639.81	494,435.86	900.00	493,535.86
	Little Falls Filtration Plant						
" 54	Land	5,662.00	5,862.00				
" 58	Structures	705,519.31		29,081.43	676,437.88		676,437.88
" 60	Equipment	233,136.51		11,781.15	221,355.36		221,355.36
	Great Notch Reservoir						
" 62	Land	103,375.00	103,375.00				
" 64	Structures & Equipment	355,120.86		20,101.18	335,019.68		335,019.68
	Fifty-One Inch Steel Conduit						
" 76	Land	206,110.00	206,110.00				
" 78	Eteel Conduit	548,963.74		30,982.64	517,981.10	425.00	517,556.10
" 66	General Equipment	8,679.40			8,679.40		8,679.40
" 39	Materials and Supplies	71,707.09			71,707.09		71,707.09
" 39	Total Joint Ownership	$5,391,907.99	$356,643.00	$184,578.79	$4,850,686.20	$1,325.00	$4,849,361.20

Exhibit R9

JOINT OWNERSHIP

Analysis of 1920 Bemis' Valuation

Reference	Description	Total Cost New As Used in Valuation	Estimated Cost	Book Cost
Page 51	Little Falls Improvements	$900.00	$900.00	—
" 78	Fifty-one Inch Conduit	425.00	425.00	—

THE EAST JERSEY WATER C.
Patterson, N. J.

Analysis of 1920 Bemis' Valuation
Showing Book and Estimated Costs

Summary

Reference	Description	Total Cost New As Used in Valuation	Land	Interest During Construction	Cost New Less and Interest During Contruction	Estimated Cost	Book Cost
Page 82	General Equipment	$2,442.75	$ —	$ —	$2,442.75	$ —	$2,442.75
" 81	Material and Supplies	178.14	—	—	178.14	—	178.14
" 81	Total—The East Jersey Water Co.	$2,620.89	$ —	$ —	$2,620.89	$ —	$2,620.89

THE KEARNEY WATER CO
Kearney, N. J.

Analysis of 1920 Bemis' Valuation
Showing Book and Estimated Costs

SUMMARY

Reference		Description	Total Cost New As Used in Valuation	Land	Interest During Construction	Cost New Less and Interest During Contruction	Estimated Cost	Book Cost
TO								
Page	85	Land	$ 11,034.00	$11,034.00	$ —	$ —	—	—
"	87	Forty-two Inch Extension	168,863.87	—	9,558.33	159,305.54	—	$159,305.54
84		Total The Kearney Water Co.	$179,897.87	$11,034.00	$9,588.33	$159,305.54	—	$159,305.54

THE PASSAIC WATER CO.
Patterson, N. J.

Analysis of 1920 Memis' Valuation
Showing ook and Estimated Costs

SUMMARY

TO

Reference	Description	Total Cost New As Used in Valuation	Land	Interest During Construction	Cost New Less and Interest During Contruction	Estimated Cost	Book Cost
Page 90	Land	$ 28,380.00	$28,380.00	$ —	$ —	$ —	$ —
" 92	Forty-two Lnch Patterson Extension	156,916.93	—	8,882.06	148,034.33	—	148,034.33
" 94	Dyers' Pipe iLne	149,809.28	—	8,479.77	141,329.51	—	141,329.51
" 95	Distribution Mains & Accessories	$1,446,896.35	—	1,531.65	1,445,364.70	512,774.46	932,590.25
" 108	Meters, Meter Boxes & Vaults	221,979.441	—	—	221,979.41	—	221,979.41
" 117	Service Pipes and Stops	59,612.14	—	—	59,612.14	—	59,612.14
" 122	General Structures	40,816.09	—	—	40,816.09	14,026.00	26,790.09
" 123	General Equipment	40,659.83	—	—	40,659.83	—	40,659.83
" 89	Materials & Supplies	89,579.06	—	—	89,579.06	—	89,579.06
" 89	Total—The Passaic Water Co.	$2,234,648.55	$28,380.00	$18,893.48	$2,187,375.07	$526,800.45	$1,660,57462

Exhibit R9

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THE PASSAIC WATER COMPANY

Paterson, N. J.

ANALYSIS OF 1920 BEMIS' VALUATION

Showing Book and Estimate Costs

Distribution Mains and Accessories

Reference	Year	Total Cost New As Used in Valuation	Estimated Cost	Book Cost
Page 96	1920	$211,711.77	$ —	$211,711.77
" 96	1919	22,495.69	—	22,495.69
" 96	1918	9,712.72	—	9,712.72
" 97	1917	15,290.26	—	15,290.26
" 97	1916	19,475.08	—	19,475.08
" 97	1915	16,538.80	—	16,538.80
" 98	1914	15,949.93	—	15,949.93
" 98	1913	26,343.66	—	26,343.66
" 98	1912	20,844.58	—	20,844.58
" 99	1911	24,476.43	—	24,476.43
" 99	1910	24,669.80	—	24,669.80
" 99	1909	25,686.59	—	25,686.59
" 100	1908	25,733.79	—	25,733.79
" 100	1907	41,381.60	—	41,381.60
" 100	1906	33,687.14	—	33,687.14
" 101	1905	57,637.64	—	57,637.64
" 101	1904	62,507.24	—	62,507.24
" 101	1903	10,226.10	—	10,226.10
" 102	1902	13,168.36	—	13,168.36
" 102	1901	24,130.18	—	24,130.18
" 102	1900	50,369.32	—	50,369.32
" 103	1899	62,252.84	3,605.05	58,647.79
" 103	1898	61,409.30	1,796.51	59,612.79
" 104	Prior to 1898	542,777.32	480,484.33	62,292.99
" 105	Date Unidentified	26,888.56	26,888.56	—
Totals		$1,445,364.70	$512,774.45	$932,590.25

Exhibit R9

*8

THE PASSAIC WATER CO.

Paterson, N. J.

ANALYSIS OF 1920 BEMIS' VALUATION

Showing Book and Estimated Costs

GENERAL STRUCTURES

Reference	Total Cost New As Used in Valuation	Estimated Cost	Book Cost
Page 120	$5,400.00	$5,400.00	$ —
"	25.00	—	25.00
"	5,346.00	5,346.00	—
"	3,280.00	3,280.00	—
"	175.00	—	175.00
"	1,200.00	—	1,200.00
"	3,454.60	—	3,454.60
"	1,000.00	—	1,000.00
"	1,800.00	—	1,800.00
" 121	3,000.00	—	3,000.00
"	75.00	—	75.00
"	400.00	—	400.00
"	36.00	—	36.00
"	40.00	—	40.00
"	25.00	—	25.00
"	926.94	—	926.94
"	2,610.98	—	2,610.98
"	30.00	—	30.00
"	35.00	—	35.00
"	656.00	—	656.00
" 121	11,300.57	—	11,300.57
Total	$40,816.09	14,026.00	26,790.09

THE ACQUACKANONK WATER CO.

Passaic, N. J.

Analysis of 1920 Bemis' Valuation
Showing Book and Estimated Costs

SUMMARY

Reference	Description	Total Cost New As Used in Valuation	Land	Interest During Construction	Cost New Less Land and Interest During Construction	Estimated Cost	Book Cost
Page 126	Land	$ 19,087.00	$19,087.00	$ —	$ —	$ —	$ —
" 127	Distribution Mains and Accessories	607,753.83	—	4,309.93	603,443.90	83,976.11	519,467.79
" 141	Meters, Meter Boxes and Vaults	112,767.96	—	—	112,767.96	—	112,767.96
" 149	Service Pipes and Stops	23,645.60	—	—	23,645.60	—	23,645.60
" 151	General Structures	16,375.83	—	—	16,375.83	11,000.00	5,375.83
" 152	General Equipment	8,561.98	—	—	8,561.98	—	8,561.98
" 125	Materials & Supplies	10,535.89	—	—	10,535.89	—	10,535.89
" 125	Total—The Acquackanonk Water Co.	$798,728.09	$19,087.00	$4,309.93	$775,331.16	$94,976.11	$680,355.05

Exhibit R9

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THE ACQUACKANONK WATER CO.

Passaic, N. J.

ANALYSIS OF 1920 BEMIS' VALUATION

Showing Book and Estimated Costs

Distribution Mains and Accessories

Reference	Year	Total Cost New As Used in Valuation	Estimated Cost	Book Cost
Page 128	1920	$21,374.04	—	$21,374.04
128	1919	19,875.95	—	19,875.95
128	1918	9,439.04	—	9,439.04
129	1917	17,853.48	—	17,853.48
129	1916	16,635.59	—	16,635.59
129	1915	18,405.53	—	18,405.53
129	1914	21,916.68	—	21,916.68
130	1913	16,111,66	—	16,111.66
130	1912	32,451.93	—	32,451.93
130	1911	18,401.37	—	18,401.37
130	1910	47,690.91	—	47,690.91
131	1909	22,069.98	—	22,069.98
131	1908-1909	93,679.44	—	93,679.44
131	1908	14,326.51	—	14,326.51
131	1907	19,146.69	—	19,146.09
132	1906	8,601.40	—	8,601.40
132	1905	9,059.93	—	9,059.93
132	1904	15,273,16	—	15,273.16
132	1903	3,667.95	—	3,667.95
133	1902	12,120.09	—	12,120.09
133	1901	6,401.88	—	6,401.88

Exhibit R9

133	1900	10,757.83	—	10,757.83
133	1899	5,293.22	—	5,293.22
134	1898	8,924.92	—	8,924.92
134	1897	6,726.45	6,726.45	—
134	1896	4,102.73	4,102.73	—
134	1895	11,502.92	11,502.92	—
135	1894	3,391.24	3,391.24	—
135	1893	3,489.94	3,489.94	—
135	1892	6,632.36	6,632.36	—
135	1891	14,240.52	14,240.52	—
136	1890	58,717.30	8,728.69	49,988.61
136	1889	10,848.77	10,848.77	—
136	1888	1,321.28	1,321.28	—
136	1887	422.34	422.34	—
136	1886	1,455.06	1,455.06	—
137	1885	393.58	393.58	—
137	Prior 1885	5,105.87	5,105.87	—
138	Date Unidentified	5,614.36	5,614.36	—
Total		$ 603,443.90	$ 83,976.11	$519,467.79

Exhibit R9

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THE ACQUACKANONK WATER CO.

Passaic, N. J.

ANAILSIS OF 1920 BEMIS' VALUATION

Showing Book and Estimated Costs

GENERAL STRUCTURES.

Reeferenc	Total Cost New As Used in Valuation	Estimated Cost	Book Cost
Page 151	$5,500.00	$5,500.00	—
"	2,500.00	2,500.00	—
"	3,000.00	3,000.00	—
"	4,161.51	—	$4,161.51
"	600.00	—	600.00
"	300.00	—	300.00
"	35.00	—	35.00
"	70.00	—	70.00
"	209.32	—	209.32
Total	16,375.83	11,000.00	5,375.83

Exhibit R9

THE MONTCLAIR WATER CO.

Montclair, N. J.

Analysis of 1920 Bemis' Valuation
Showing Book and Estimated Costs

SUMMARY

Reference	Description	Total Cost New As Used in Valuation	Land	Interest During Construction	Cost New Less Land and Interest During Construction	Estimated Cost	Book Cost
Page 155	Land	$ 25,323.00	$25,323.00	$ —	$ —	$ —	$ —
	Pumping Station:						
" 159	Structures & Equipment	71,266.40	—	—	71,266.40	—	71,266.40
" 160	Standpipe	5,851.91	—	—	5,851.91	—	5,851.91
" 161	Distribution Mains & Accessories	602,719.64	—	—	602,719.64	—	602,719.64
" 173	Meters, Meter Boxes & Vaults	59,756.36	—	—	59,756.36	—	59,756.36
" 181	Service Pipes & Stops	16,199.38	—	—	16,199.38	—	16,199.38
" 183	General Structures	19,505.00	—	—	19,505.00	—	19,505.00
" 184	General Equipment	8,864.28	—	—	8,864.28	—	8,864.28
" 154	Materials & Supplies	14,335.63	—	—	14,335.63	—	14,335.63
" 154	Total—The Montclair Water Co.	$823,821.60	$25,323.00	—	$798,498.60	—	$798,498.60

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Exhibit R10.

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NEW JERSEY WATER PROPERTIES

of the

10 NEW JERSEY GENERAL SECURITY COMPANY
Going Value.

EDWARD BEMIS,
CONSULTING ENGINEER
New York—Chicago.

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NEW JERSEY WATER PROPERTIES

OF THE

NEW JERSEY GENERAL SECURITY COMPANY

STUDY OF GOING VALUE

Year Ended	Gross Operating Revenues	Operating Expenses & Taxes	Nominal Gross Income (Gross Revenue Less Operating Exp. & Taxes)	Depreciation	True Gross Income (Nominal Gross Income Less Depreciation)	Rate Base	Ratio of Gross Income Less Depreciation To Rate Base
December 31, 1900	$ 698,229.79	$ 360,689.57	$ 337,540.22	$ 65,261.55	$ 272,278.67	$ 4,542,713.70	5.994%
" 1901	933,892.77	356,643.56	577,249.21	71,883.28	505,365.93	4,872,065.92	10.373
" 1902	984,356.37	354,662.89	629,693.48	77,442.11	552,251.37	5,137,979.00	10.748
" 1903	1,493,680.54	356,636.93	1,137,043.61	82,504.61	1,054,539.00	5,241,065.16	20.121
" 1904	1,018,589.80	329,050.40	689,539.40	83,452.07	606,087.33	5,235,040.82	11.578
" 1905	815,265.17	375,677.75	439,587.42	84,655.42	354,932.00	5,276,178.61	6.727
" 1906	957,800.40	411,561.32	546,239.08	86,932.92	459,306.16	5,366,821.89	8.558
" 1907	1,019,199.41	483,449.87	535,749.54	90,229.10	445,520.44	5,439,537.92	8.190
" 1908	880,052.85	344,763.65	535,289.20	92,252.56	443,036.64	5,195,030.49	8.528
" 1909	835,598.58	325,854.71	509,743.87	95,005.19	414,738.68	5,229,965.92	7.930
" 1910	925,435.99	389,995.77	535,440.22	96,218.13	439,222.09	5,240,234.62	8.382
" 1911	1,125,955.22	314,404.95	811,550.27	98,211.98	713,338.29	5,273,326.93	13.527
" 1912	1,078,996.55	387,692.69	689,303.86	99,929.14	589,374.72	5,283,571.68	11.155
" 1913	1,135,688.61	388,884.09	746,804.52	101,015.40	645,789.12	5,325,514.45	12.126
" 1914	1,209,937.56	426,884.21	783,053.35	104,031.13	679,022.22	5,398,674.68	12.585
" 1915	1,231,424.90	455,106.00	776,318.90	106,248.26	670,070.64	5,618,982.88	11.925
" 1916	1,323,566.26	530,018.52	793,547.74	107,853.17	685,694.57	5,624,762.21	12.190
" 1917	1,419,058.79	631,887.76	787,171.03	108,686.38	678,484.65	5,643,127.15	12.023
" 1918	1,524,268.52	799,730.82	724,527.70	110,314.74	614,212.96	5,682,389.38	10.809
" 1919	1,544,078.27	840,621.44	703,456.83	112,661.34	590,795.49	5,910,823.10	9.995
" 1920	1,765,016.73	1,042,991.22	722,025.51	120,533.86	601,491.65	6,264,066.00	9.602
TOTALS					$ 12,015,552.62	$112,798,872.51	
Weighted Average Ratio of Gross Income to Rate Base					-		10.652
6% on Total Rate Base of $112,798,872.51 is					6,767,932.24		6.000
Excess Earned over and above 6% is					5,247,620.38		4.652
TOTALS	$23,918,083.08	$9,907,208.12	$14,010,874.96	$1,995,322.34	$12,015,552.62	$112,798,872.51	10.652%

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NEW JERSEY WATER PROPERTIES

OF THE

NEW JERSEY GENERAL SECURITY COMPANY

RATE BASE BY YEARS

FROM DECEMBER 31, 1900 TO DECEMBER 31, 1920

Year	Depreciable Fixed Capital as of December 31	Credits to Depreciation Reserve *	Debits to Depreciation Reserve	Balance In Depreciation Reserve as of December 31	Depreciable Fixed Capital Less Depreciation Reserve	Average Depreciable Fixed Capital Less Depreciation Reserve **	Average Investment In Land **	Average Investment in Water Rights **	Average Materials and Supplies **	Average Rate Base **
1920	$ 7,484,822.18	$ 120,533.86	$ 8,794.61	$ 1,900,978.26 (1)	$ 5,583,843.92	$ 5,440,331.76	$ 440,467.00	$ 200,000.00	$ 183,267.24	$ 6,264,066.00
1919	7,086,058.60	112,661.34	64,941.07	1,789,239.01	5,296,819.59	5,089,271.22	440,467.00	200,000.00	181,084.88	5,910,823.10
1918	6,623,241.60	110,314.74	6,311.43	1,741,518.74	4,881,722.86	4,864,747.39	440,467.00	200,000.00	177,174.99	5,682,389.38
1917	6,485,287.36	108,686.38	9,543.60	1,637,515.43	4,847,771.93	4,849,476.60	440,467.00	200,000.00	153,181.55	5,643,127.15
1916	6,389,557.92	107,853.17	35,354.96	1,538,372.65	4,851,185.27	4,852,942.52	440,467.00	200,000.00	121,352.69	5,624,762.21
1915	6,340,574.21	105,248.26	12,949.01	1,465,874.44	4,874,699.77	4,874,173.91	440,467.00	200,000.00	104,341.97	5,618,982.88
1914	6,245,223.24	104,031.13	8,983.33	1,372,575.19	4,873,648.05	4,856,000.53	440,467.00	-	99,207.05	5,395,674.68
1913	6,115,880.60	101,015.40	11,108.34	1,277,527.39	4,838,353.21	4,794,661.02	440,467.00	-	90,386.43	5,325,514.45
1912	5,938,589.15	99,929.14	21,027.00	1,187,620.33	4,750,968.82	4,756,489.81	440,467.00	-	84,614.87	5,283,571.68
1911	5,874,728.99	98,211.98	13,482.84	1,108,718.19	4,766,010.80	4,757,900.36	440,467.00	-	74,959.57	5,273,326.93
1910	5,773,778.98	96,218.13	4,668.50	1,023,989.05	4,749,789.93	4,736,956.68	440,467.00	-	62,810.94	5,240,234.62
1909	5,656,562.84	95,005.19	17,768.60	932,439.42	4,724,123.42	4,727,087.98	440,467.00	-	62,410.94	5,229,965.92
1908	5,585,255.37	92,252.56	2,214.25	855,202.83	4,730,052.54	4,694,159.55	438,860.00	-	62,010.94	5,195,030.49
1907	5,423,431.08	90,229.10	670.75	765,164.52	4,658,266.56	4,643,566.98	434,360.00	300,000.00	61,610.94	5,439,537.92
1906	5,304,473.57	86,932.92	2,601.00	675,606.17	4,628,867.40	4,574,143.95	431,467.00	300,000.00	61,210.94	5,366,821.89
1905	5,110,694.75	84,555.42	11,283.50	591,274.25	4,519,420.50	4,489,160.67	426,207.00	300,000.00	60,810.94	5,276,178.61
1904	4,976,803.17	83,452.07	23,144.08	517,902.33	4,458,900.84	4,453,682.88	420,947.00	300,000.00	60,410.94	5,235,040.82
1903	4,906,059.26	82,504.61	3,519.95	457,594.34	4,448,464.92	4,460,107.22	420,947.00	300,000.00	60,010.94	5,241,065.16
1902	4,850,359.20	77,442.11	8,480.15	378,609.68	4,471,749.52	4,357,421.06	420,947.00	300,000.00	59,610.94	5,137,979.00
1901	4,552,740.32	71,883.28	47,454.57	309,647.72	4,243,092.60	4,091,907.98	420,947.00	300,000.00	59,210.94	4,872,065.92
1900	4,225,942.36	65,261.55	31,512.47	285,219.01	3,940,723.35	3,762,955.76	420,947.00	300,000.00	58,810.94	4,542,713.70
1899	3,836,658.10	-	-	251,469.93	3,585,188.17	-	-	-	-	-
TOTALS	$124,787,722.85	$1,995,322.34	$345,814.01	$22,064,058.88	$102,723,663.97	$98,139,147.93	$9,121,233.00	$3,600,000.00	$1,938,491.58	$112,798,872.51
Brought forward from		Page 4	Page 4	Page 5	(1) Exh.R-5, Page 37		Page 7	Page 8	Page 9	
Carried forward to			Page 1							Page 1

Notes: *Computed at 1.701% of the Depreciable Fixed Capital as of January 1st
**Denotes "For the Calendar Year"

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NEW JERSEY WATER PROPERTIES

OF THE

NEW JERSEY GENERAL SECURITY COMPANY

SUMMARY OF GROSS OPERATING REVENUES AND OPERATING EXPENSES AND TAXES

PERIOD 1900 - 1921 INCLUSIVE

	Gross Operating Revenues						Operating Expenses & Taxes					
Year	The Passaic Water Company	The Acquackanonk Water Company	The Montclair Water Company	The East Jersey Water Company	The Kearney Water Company	Total	The Passaic Water Company	The Acquackanonk Water Company	The Montclair Water Company	The East Jersey Water Company	The Kearney Water Company	Total
1921	$ 660,453.06	$ 383,946.95	$ 172,926.64	$ 435,842.17	$ 43,834.00	$ 1,697,002.82	$ 333,093.25	$ 199,564.74	$ 125,846.30	$ 396,637.03	$ 10,839.36	$ 1,065,980.68
1920	631,877.14	363,344.56	194,967.45	525,935.08	48,892.50	1,765,016.73	301,859.42	180,418.86	130,621.23	418,249.39	11,542.32	1,042,991.22
1919	590,615.43	324,771.14	184,010.25	403,717.95	40,963.50	1,544,078.27	272,136.16	145,912.51	108,701.58	306,178.57	7,692.62	840,621.44
1918	608,745.77	331,299.14	175,319.07	370,522.04	38,372.50	1,524,258.52	258,883.55	144,341.08	105,170.06	286,480.92	4,855.21	799,730.82
1917	584,549.84	329,173.94	178,537.59	294,628.92	32,168.50	1,419,058.79	223,186.39	117,112.93	92,480.23	195,930.15	3,178.08	631,807.76
1916	565,859.09	312,697.47	177,733.63	240,766.07	26,510.00	1,323,566.26	195,005.81	99,220.36	84,545.16	148,649.27	2,597.92	530,018.52
1915	543,225.30	298,287.59	191,321.86	175,835.65	22,754.50	1,231,424.90	180,027.32	83,604.70	76,905.86	111,691.65	2,876.47	455,106.00
1914	535,259.47	276,947.62	218,385.01	156,028.46	23,317.00	1,209,937.56	170,577.14	76,991.40	73,816.62	102,732.20	2,766.85	426,884.21
1913	505,347.99	261,769.99	207,793.21	140,010.92	20,766.50	1,135,688.61	142,948.98	68,805.39	68,517.03	103,930.62	4,682.07	388,884.09
1912	479,406.19	244,705.25	189,021.38	142,425.23	21,438.50	1,076,996.55	141,002.47	72,115.74	67,889.34	102,765.19	3,820.01	387,592.62
1911	456,108.13	255,522.39	216,646.54	175,345.66	22,332.50	1,125,955.22	101,023.84	58,692.11	52,232.29	100,873.57	1,681.16	314,501.98
1910	445,948.36	187,586.79	149,128.85	126,836.99	15,935.00	925,435.99	163,222.56	70,779.86	63,956.20	90,728.46	1,903.69	389,990.77
1909	425,726.68	174,731.25	131,749.77	89,178.38	14,212.50	835,598.58	136,612.88	62,598.36	52,939.84	72,593.59	1,110.04	325,854.71
1908	404,400.03	159,023.50	130,172.81	172,188.51	14,268.00	880,052.85	147,905.73	74,202.55	57,299.64	64,270.35	1,085.38	344,763.65
1907	393,178.61	143,672.10	120,737.72	347,232.98	14,378.00	1,019,199.41	203,141.26	92,220.29	60,280.91	126,873.45	933.96	483,449.87
1906	377,059.74	125,571.94	101,223.29	346,173.43	7,773.00	957,800.40	168,845.03	80,549.42	55,733.64	105,792.68	640.55	411,561.32
1905	363,047.20	117,420.29	104,999.59	228,450.29	1,347.80	815,265.17	141,559.82	61,341.30	62,648.08	109,189.13	939.42	375,677.75
1904	350,966.22	114,659.37	112,945.16	438,840.70	1,178.35	1,018,589.80	131,289.93	58,413.25	57,547.02	101,077.90	722.30	329,050.40
1903	345,794.30	95,279.34	102,306.54	945,355.51	4,944.65	1,493,680.54	116,428.12	36,237.82	62,966.20	140,043.82	960.27	356,636.93
1902	327,973.97	97,602.34	97,532.06	454,899.80	6,348.20	984,356.37	130,229.38	34,126.61	53,774.56	135,827.26	705.08	354,662.89
1901	318,775.99[a]	86,329.15[a]	88,660.55	435,472.03	4,635.05	933,892.77	117,357.77[a]	22,393.00[a]	56,172.81	159,766.00	953.98	356,643.56
1900	329,886.47[a]	76,093.00[a]	83,747.40	205,276.92	3,226.00	698,229.79	144,090.73[a]	28,914.45[a]	53,816.30	132,762.26	1,105.83	360,689.37
TOTALS	$10,244,204.98	$4,760,435.11	$3,329,885.37	$6,850,963.69	$429,596.75	$25,615,085.90	$3,920,427.54	$1,848,556.73	$1,623,860.90	$3,513,143.40	$67,200.23	$10,972,188.80

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Note: a These figures were not taken from the books but from a series of annual reports for the period 1897-1901 furnished by Mr. Cook

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TO

NEW JERSEY WATER PROPERTIES

OF THE

NEW JERSEY GENERAL SECURITY COMPANY

DEPRECIABLE FIXED CAPITAL BY YEARS AND CREDITS TO DEPRECIATION RESERVE

Year	Depreciable Fixed Capital as of December 31	Adjusted Net Additions Excluding Land And Water Rights	Depreciable Fixed Capital as of January 1	Credits To Depreciation Reserve **
1920	7,484,822.18*	$ 398,763.58	$ 7,086,058.60	$ 120,533.86
1919	7,086,058.60	462,817.00	6,623,241.60	112,661.34
1918	6,623,241.60	137,954.24	6,485,287.36	110,314.74
1917	6,485,287.36	95,729.44	6,389,557.92	108,686.38
1916	6,389,557.92	48,983.71	6,340,574.21	107,853.17
1915	6,340,574.21	94,350.97	6,246,223.24	106,248.26
1914	6,246,223.24	130,342.64	6,115,880.60	104,031.13
1913	6,115,880.60	177,291.45	5,938,589.15	101,015.40
1912	5,938,589.15	63,860.16	5,874,728.99	99,929.14
1911	5,874,728.99	100,950.01	5,773,778.98	98,211.98
1910	5,773,778.98	117,216.14	5,656,562.84	96,218.13
1909	5,656,562.84	71,307.47	5,585,255.37	95,005.19
1908	5,585,255.37	161,824.29	5,423,431.08	92,252.56
1907	5,423,431.08	118,957.51	5,304,473.57	90,229.10
1906	5,304,473.57	193,778.82	5,110,694.75	86,932.92
1905	5,110,694.75	133,891.58	4,976,803.17	84,655.42
1904	4,976,803.17	70,743.91	4,906,059.26	83,452.07
1903	4,906,059.26	55,700.06	4,850,359.20	82,504.61
1902	4,850,359.20	297,618.88	4,552,740.32	77,442.11
1901	4,552,740.32	326,797.96	4,225,942.36	71,883.28
1900	4,225,942.36	389,284.26	3,836,658.10	65,261.55
TOTALS	120,951,064.75	3,648,164.08	117,302,900.67	1,995,322.34

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Note: * $7,484,822.18 Derived as follows:

			References
Historical Cost New December 31, 1920		$9,431,624.99	Exh. R-3, P.37
Less Land	$ 440,467.00		" " P.39,84,89,125,154
Less Water Rights	1,320,000.00		" " P. 8
Less Materials & Supp.	186,335.81	1,946,802.81	" " P. 39,81,89,125,154
Depreciable fixed capital as above		$7,484,822.18	

**At 1.701% of The Depreciable Investment January 1st

NEW JERSEY WATER PROPERTIES

OF THE

NEW JERSEY GENERAL SECURITY COMPANY

SUMMARY OF GROSS AND NET ADDITIONS

EXCLUSIVE OF LAND AND WATER RIGHTS

Year	Gross Additions as per Books: Joint Ownership	The Passaic Water Company *	The Acquackanonk Water Company *	The Montclair Water Company *	The E. Jersey Water Company *	Total All Companies	Adjustment to Gross Additions	Total Adjusted Gross Additions	Total Adjusted Retirements	Adjusted Net Additions
1920	$ 98,865.24	$ 251,168.99	$ 41,832.86	$ 11,685.93	$ 1,041.35	$ 404,594.37	$ 2,963.82	$ 407,558.19	$ 8,794.61	$ 398,763.58
1919	410,767.48	52,060.57	41,297.24	11,209.76	-	515,435.05	12,323.02	527,758.07	64,941.07	462,817.00
1918	10,533.66	101,624.29	24,031.19	7,184.72	700.00	144,073.86	191.81	144,265.67	6,311.43	137,954.24
1917	20,817.43	39,871.30	30,064.47	13,041.60	914.50	104,709.30	563.74	105,273.04	9,543.60	95,729.44
1916	13,298.30	30,298.79	25,719.45	11,893.89	2,743.13	83,953.56	385.11	84,338.67	35,354.96	48,983.71
1915	43,033.94	27,072.64	24,321.74	11,510.79	106.00	106,045.11	1,254.87	107,299.98	12,949.01	94,350.97
1914	30,062.75	23,229.73	27,806.68	57,302.23	26.00	138,427.39	899.58	139,325.97	8,983.33	130,342.64
1913	99,555.12	40,198.77	28,006.26	17,652.98	-	185,413.13	2,986.66	188,399.79	11,108.34	177,291.45
1912	3,051.71	19,761.57	37,465.83	15,743.00	1,568.75	77,590.86	7,296.30	84,887.16	21,027.00	63,860.16
1911	5,285.50	22,912.23	10,453.28	38,193.19	1,072.00	77,916.20	36,516.65	114,432.85	13,482.84	100,950.01
1910	13,165.02	35,089.95	53,843.40	15,480.31	-	117,578.68	4,305.96	121,884.64	4,668.50	117,216.14
1909	-	27,397.33	25,547.12	22,563.68	-	75,508.13	13,567.94	89,076.07	17,758.60	71,307.47
1908	-	33,370.04	108,178.38	22,765.43	-	164,313.85	275.31	164,038.54	2,214.25	161,824.29
1907	135.00	60,646.63	20,779.34	35,605.44	-	117,166.41	2,461.85	119,628.26	670.75	118,957.51
1906	-	154,217.16	14,097.50	22,040.30	-	190,354.96	6,024.86	195,379.82	2,601.00	193,778.82
1905	745.85	92,607.76	8,221.94	42,094.00	-	143,669.55	1,505.53	145,175.08	11,283.50	133,891.59
1904	1,396.17	58,705.21	15,395.08	18,707.76	-	94,204.22	316.23	93,887.99	23,144.08	70,743.91
1903	30,294.65	14,680.74	6,749.51	5,539.19	-	57,264.09	1,955.92	59,220.01	3,519.95	55,700.06
1902	224,979.99	27,030.71	24,860.63	16,128.90	-	293,000.23	13,068.80	306,099.03	8,480.15	297,618.88
1901	287,253.25	27.43	9,600.32	23,300.34	-	320,126.48	54,126.05	374,252.53	47,454.57	326,797.96
1900	284,461.95	47,283.03	18,468.25	338,067.58	-	383,280.81	37,515.92	420,796.73	31,512.47	389,284.26
TOTALS	1,577,703.02	$ 1,159,200.00	$ 596,840.47	$ 452,711.02	8,171.73	$ 3,796,626.24	$ 199,351.85	$ 3,993,978.09	$ 345,814.01	3,648,164.08

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Note:- * Denotes - "Individual Ownership."

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TO

NEW JERSEY WATER PROPERTIES

OF THE

NEW JERSEY GENERAL SECURITY COMPANY

SUMMARY OF RETIREMENTS

6

Year	Retirements as per Books: Joint Ownership	The Passaic Water Company	The Acquackanonk Water Company	The Montclair Water Company	The East Jersey Water Company	Total All Companies	Adjustment to Retirements	Total Adjusted Retirements
1920	$ 2,065.00	$ 4,112.40	$ 1,606.71	$ 1,010.50	$ -	$ 8,794.61	$ -	$ 8,794.61
1919	1,050.00	7,320.57	4,002.30	436.20	-	12,809.07	52,132.00	64,941.07
1918	35.00	3,180.62	2,329.47	401.84	364.50	6,311.43	-	6,311.43
1917	2,808.00	564.90	3,553.50	1,470.00	1,127.20	9,543.60	-	9,543.60
1916	1,350.00	29,162.75	2,865.40	1,246.81	730.00	35,354.96	-	35,354.96
1915	2,059.30	6,729.38	2,421.29	1,739.04	-	12,949.01	-	12,949.01
1914	5.00	6,458.51	2,202.54	317.28	-	8,983.33	-	8,983.33
1913	916.66	6,274.19	746.23	2,871.26	300.00	11,108.34	-	11,108.34
1912	894.84	8,266.07	8,895.59	2,970.50	-	21,027.00	-	21,027.00
1911	664.45	701.79	848.29	512.00	-	2,726.53	10,756.31	13,482.84
1910	125.00	-	-	-	-	125.00	4,343.50	4,468.50
1909	-	-	-	-	-	-	17,768.60	17,768.60
1908	-	-	-	-	-	-	2,214.25	2,214.25
1907	-	-	-	-	-	-	670.75	670.75
1906	-	-	-	-	-	-	2,601.00	2,601.00
1905	-	-	-	-	-	-	11,283.50	11,283.50
1904	-	-	-	-	-	-	23,144.08	23,144.08
1903	-	-	-	-	-	-	3,519.95	3,519.95
1902	-	-	-	-	-	-	8,480.15	8,480.15
1901	-	-	-	-	-	-	47,454.57	47,454.57
1900	-	-	-	-	-	-	31,512.47	31,512.47
TOTALS	11,973.25	72,791.18	29,471.32	12,975.43	2,521.70	129,732.88	216,981.13	345,814.01

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Exhibit R10

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NEW JERSEY WATER PROPERTIES
of the
NEW JERSEY GENERAL SECURITY COMPANY
Summary of Land

Year	As of January 1	Additions During Year	As of December 31	Average For the Year
1920	$440,467.00	$ —	$440,467.00	$440,467.00
1919	440,467.00	—	440,467.00	440,467.00
1918	440,467.00	—	440,467.00	440,467.00
1917	440,467.00	—	440,467.00	440,467.00
1916	440,467.00	—	440,467.00	440,467.00
1915	440,467.00	—	440,467.00	440,467.00
1914	440,467.00	—	440,467.00	440,467.00
1913	440,467.00	—	440,467.00	440,467.00
1912	440,467.00	—	440,467.00	440,467.00
1911	440,467.00	—	440,467.00	440,467.00
1910	440,467.00	—	440,467.00	440,467.00
1909	440,467.00	—	440,467.00	440,467.00
1908	437,253.00	3,214.00	440,467.00	438,860.00
1907	431,467.00	5,786.00	437,253.00	434,360.00
1906	431,467.00	—	431,467.00	431,467.00
1905	420,947.00	10,520.00	431,467.00	426,207.00
1904	420,947.00	—	420,947.00	420,947.00
1903	420,947.00	—	420,947.00	420,947.00
1902	420,947.00	—	420,947.00	420,947.00
1901	420,947.00	—	420,947.00	420,947.00
1900	420,947.00	—	420,947.00	420,947.00
1899	—	—	420,947.00	—

Carried Forward to

All figures used are reproduction costs as of 1922.

Exhibit R10

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NEW JERSEY WATER PROPERTIES
of the
NEW JERSEY GENERAL SECURITY COMPANY
Diversion and Power Rights.

The East Jersey Water Company purchased part of the diversion and power rights now owned by the affiliated companies of Little Falls from the Beattie Manufacturing Company in 1895 for $330,000.00. This price included an amount estimated at $30,000.00 for certain real estate and the dam across the Passaic River at Little Falls.

Since the dam and the real estate are both included elsewhere in this report, they should be excluded at this point, leaving a net cost of the rights purchased in 1895 of $300,000.00.

In 1898 a portion of the rights purchased from the Beattie Manufacturing Company were sold to Patrick Flynn by the New Jersey General Security Company for a consideration of $300,000.00. This money was credited to the East Jersey Water Company in 1908 by the New Jersey General Security Company.

In the same year the East Jersey Company transferred part of its power and diversion rights at Little Falls to the Passaic, Acquackanonk and Montclair Water Company in connection with the transfer of the pumping station located there.

In 1915 the balance of the power and diversion rights, now owned by the affiliated companies at Little Falls, was purchased from the Beattie Manufacturing Company for $200,000.00

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TO

NEW JERSEY WATER PROPERTIES

OF THE

NEW JERSEY GENERAL SECURITY COMPANY

SUMMARY OF MATERIALS AND SUPPLIES

Year Ended	Joint Ownership	The Passaic Water Company	The Acquackanonk Water Company	The Montclair Water Company	The East Jersey Water Company	Total	Average for Year
December 31, 1920	$71,707.09	$89,579.06	$10,535.89	$14,335.63	$ 178.14	$186,335.81	$183,267.24
" 1919	54,253.57	86,082.86	17,859.40	20,832.54	1,170.29	180,198.66	181,084.88
" 1918	29,252.46	101,921.18	21,395.85	28,231.32	1,170.29	181,971.10	177,174.99
" 1917	12,147.91	100,987.45	29,366.85	28,676.39	1,200.29	172,378.89	155,181.55
" 1916	21,952.35	68,794.53	25,838.65	16,198.39	1,200.29	133,984.21	121,352.69
" 1915	23,500.21	51,064.23	16,503.71	17,444.87	208.14	108,721.16	104,341.97
" 1914	14,942.30	49,316.68	16,510.98	18,949.82	243.00	99,962.78	99,207.05
" 1913	18,371.49	52,057.02	12,118.38	15,661.44	243.00	98,451.33	90,368.43
" 1912	17,214.88	42,182.31	11,609.36	11,026.98	288.00	82,321.53	84,614.87
" 1911	18,897.51	46,251.76	9,675.84	11,795.10	288.00	86,908.21	74,959.57
" 1910	18,908.21	24,417.15	8,485.58	11,200.00	-	63,010.94	62,810.94
" 1909	18,908.21	24,417.15	8,485.58	10,800.00	-	62,610.94	62,410.94
" 1908	18,908.21	24,417.15	8,485.58	10,400.00	-	62,210.94	62,010.94
" 1907	18,908.21	24,417.15	8,485.58	10,000.00	-	61,810.94	61,610.94
" 1906	18,908.21	24,417.15	8,485.58	9,600.00	-	61,410.94	61,210.94
" 1905	18,908.21	24,417.15	8,485.58	9,200.00	-	61,010.94	60,810.94
" 1904	18,908.21	24,417.15	8,485.58	8,800.00	-	60,610.94	60,410.94
" 1903	18,908.21	24,417.15	8,485.58	8,400.00	-	60,210.94	60,010.94
" 1902	18,908.21	24,417.15	8,485.58	8,000.00	-	59,810.94	59,610.94
" 1901	18,908.21	24,417.15	8,485.58	7,600.00	-	59,410.94	59,210.94
" 1900	18,908.21	24,417.15	8,485.58	7,200.00	-	59,010.94	58,810.94
" 1899	18,908.21	24,417.15	8,485.58	6,800.00	-	58,610.94	

Carried Forward to Page 2

Note: 1911 to 1920 inclusive as per books

1910 assumed to be same amount as transferred from construction in 1911, when both operations and construction were credited with "Materials & Supplies"

1899 to 1909 inclusive assumed to be same as in 1910, except for Montclair Water Co. which was assumed to have increased $400.00 per year.

NEW JERSEY WATER PROPERTIES

OF THE

NEW JERSEY GENERAL SECURITY COMPANY

SUMMARY OF ADJUSTMENTS TO ADDITIONS AND RETIREMENTS

Year	Adjustments to Additions: Joint Ownership	The Passaic Water Company	The Acquackanonk Water Company	The Montclair Water Company	The East Jersey Water Company	Total Adjustments To Additions	Adjustments to Retirements: Joint Ownership	The Passaic Water Company	The Acquackanonk Water Company	The Montclair Water Company	The East Jersey Water Company	Total Adjustments To Retirements
1920	$ 2,963.82	$ -	$ -	$ -	$ -	$ 2,963.82	$ -	$ -	-	$ -	$ -	$ -
1919	12,323.02	-	-	-	-	12,323.02	-	52,132.00	-	-	-	52,132.00
1918	191.81	-	-	-	-	191.81	-	-	-	-	-	-
1917	563.74	-	-	-	-	563.74	-	-	-	-	-	-
1916	385.11	-	-	-	-	385.11	-	-	-	-	-	-
1915	1,254.87	-	-	-	-	1,254.87	-	-	-	-	-	-
1914	898.58	-	-	-	-	898.58	-	-	-	-	-	-
1913	2,986.66	-	-	-	-	2,986.66	-	-	-	-	-	-
1912	175.00	7,121.30	-	-	-	7,296.30	-	-	-	-	-	-
1911	1.05	17,295.85	8,020.58	11,199.17	-	36,516.65	-	2,641.35	600.00	7,514.96	-	10,756.31
1910	782.40	3,923.56	-	400.00*	-	4,305.96	-	2,481.00	2,062.50	-	-	4,543.50
1909	-	13,965.87	2.07	400.00*	-	13,567.94	-	7,768.60	-	10,000.00	-	17,768.60
1908	-	7.15	117.54	400.00*	-	275.31*	-	2,214.25	-	-	-	2,214.25
1907	8.10	162.98	2,690.77	400.00*	-	2,461.85	-	670.75	-	-	-	670.75
1906	-	6,424.86	-	400.00*	-	6,024.86	-	2,601.00	-	-	-	2,601.00
1905	44.75	1,860.78	-	400.00*	-	1,505.53	-	10,976.50	307.00	-	-	11,283.50
1904	83.77	-	-	400.00*	-	.316.23*	-	18,815.08	4,329.00	-	-	23,144.08
1903	2,555.92	-	-	400.00*	-	1,955.92	-	1,109.95	2,410.00	-	-	3,519.95
1902	13,498.80	-	-	400.00*	-	13,098.80	-	5,311.40	3,168.75	-	-	8,480.15
1901	22,200.43	32,325.62	-	400.00*	-	54,126.05	-	43,692.57	-	3,762.00	-	47,454.57
1900	37.915.92	-	-	400.00*	-	37,515.92	-	20,656.97	367.50	10,488.00	-	31,512.47
TOTAL	98,633.75	83,087.97	10,830.96	6,799.17	-	199,351.85	-	171,071.42	13,244.75	31,764.96	-	216,081.13

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*Denotes Credit

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Exhibit R10

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NEW JERSEY WATER PROPERTIES
of the
NEW JERSEY GENERAL SECURITY COMPANY
Summary of Adjustments to Additions and Retirements Joint Ownership.

Year	Adjustments to Additions: Interest During Construction Added	Adjustments to Additions: Total Adjustments	Adjustments to Retirements: Total Adjustments
1920	$ 2,963.82	$ 2,963.82	—
1919	12,323.02	12,323.02	—
1918	191.81	191.81	—
1917	563.74	563.74	—
1916	385.11	385.11	—
1915	1,254.87	1,254.87	—
1914	898.58	898.58	—
1913	2,986.66	2,986.66	—
1912	175.00	175.00	—
1911	1.05	1.05	—
1910	782.40	782.40	—
1909	—	—	—
1908	—	—	—
1907	8.10	8.10	—
1906	—	—	—
1905	44.75	44.75	—
1904	83.77	83.77	—
1903	2,355.92	2,355.92	—
1902	13,498.80	13,498.80	—
1901	22,200.43	22,200.43	—
1900	37,915.92	37,915.92	—
Totals	$98,633.75	$98,633.75	—
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NEW JERSEY WATER PROPERTIES

OF THE

NEW JERSEY GENERAL SECURITY COMPANY

SUMMARY OF ADJUSTMENTS TO ADDITIONS AND RETIREMENTS

THE PASSAIC WATER COMPANY

	Adjustment to Additions					Adjustment to Retirements			
Year	Reconstruction Work Charged To Profit and Loss Added	Material And Supplies Inventory Adjustments *	Credit to Construction Considered as Retirement	Interest during Construction Added	Total Adjustments	Stony Road Reservoir **	Equipment, Etc. Sold	Mains & Hydrants Retired	Total Adjustments
1920	$ -	$ -	$ -	$ -	$ -	-	$ -	$ -	$ -
1919	-	-	-	-	-	$52,132.00	-	-	52,132.00
1918	-	-	-	-	-	-	-	-	-
1917	-	-	-	-	-	-	-	-	-
1916	-	-	-	-	-	-	-	-	-
1915	-	-	-	-	-	-	-	-	-
1914	-	-	-	-	-	-	-	-	-
1913	-	-	-	-	-	-	-	-	-
1912	-	7,121.30	-	-	7,121.30	-	-	-	-
1911	-	17,295.85	-	-	17,295.85	-	-	2,641.35	2,641.35
1910	3,923.56	-	-	-	3,923.56	-	-	2,481.00	2,481.00
1909	13,941.87	-	-	24.00	13,965.87	-	-	7,768.60	7,768.60
1908	-	-	-	7.15	7.15	-	-	2,214.25	2,214.25
1907	-	-	-	162.98	162.98	-	-	670.75	670.75
1906	-	-	-	6,424.86	6,424.86	-	-	2,601.00	2,601.00
1905	-	-	-	1,860.78	1,860.78	-	-	10,976.50	10,976.50
1904	-	-	-	-	-	-	-	18,815.08	18,815.08
1903	-	-	-	-	-	-	-	1,109.95	1,109.95
1902	-	-	-	-	-	-	-	5,311.40	5,311.40
1901		-	32,325.62	-	32,325.62	-	32,325.62	11,366.95	43,692.57
1900	-	-	-	-	-	-	-	20,656.97	20,656.97
TOTALS	$17,865.43	$34,417.15	$32,325.62	$8,479.77	$83,097.97	$52,132.00	$32,325.62	$86,613.80	$171,071.42

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Note: *The credits to construction in 1911 and 1912 for Materials & Supplies are here considered as applicable to the period prior to 1900

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NEW JYRSEY WATER PROPERTIES

OF THE

NEW JERSEY GENERAL SECURITY COMPANY

SUMMARY OF ADJUSTMENTS TO ADDITIONS AND RETIREMENTS

THE ACQUACKANONK WATER COMPANY

Year	Adjustment to Additions: Materials & Supplies Inventory Adjustment	Adjustment to Additions: Interest During Construction Added	Adjustment to Additions: Total Adjustments	Mains & Hydrants Retired	Total Adjustments
1920	*	-	-	-	-
1919	-	-	-	-	-
1918	-	-	-	-	-
1917	-	-	-	-	-
1916	-	--	-	-	-
1915	-	-	-	-	-
1914	-	-	-	-	-
1913	-	-	-	-	-
1912	-	-	-	-	-
1911	$8,020.58	-	$8,020.58	$600.00	$600.00
1910	-	-	-	2,062.50	2,062.50
1909	-	$ 2.07	2.07	-	-
1908	-	117.54	117.54	-	-
1907	-	2,690.77	2,690.77	-	-
1906	-	-	-	-	-
1905	-	-	-	307.00	307.00
1904	-	-	-	4,329.00	4,329.00
1903	-	-	-	2,410.00	2,410.00
1902	-	-	-	3,168.75	3,168.75
1901	-	-	-	-	-
1900	-	-	-	367.50	367.50
TOTALS	$8,020.58	$2,810.38	$10,830.96	$13,244.75	$13,244.75

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Note * The Credits to Construction in 1911 for Materials and Supplies are here considered as applicable to the period prior to 1900.

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NEW JERSEY WATER PROPERTIES

OF THE

NEW JERSEY GENERAL SECURITY COMPANY

SUMMARY OF ADJUSTMENTS TO ADDITIONS AND RETIREMENTS

THE MONTCLAIR WATER COMPANY.

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Year	Adjustment to Additions: Material And Supplies Inventory Adjustments	Adjustment to Additions: Total Adjustments	Adjustment to Retirements: Pumping Station Retirements	Adjustment to Retirements: Wells	Adjustment to Retirements: Total Adjustments
1920	#-	-	-	***	-
1919	-	-	-	-	-
1918	-	-	-	-	-
1917	-	-	-	-	-
1916	-	-	-	-	-
1915	-	-	-	-	-
1914	-	-	-	-	-
1913	-	-	-	-	-
1912	-	-	-	-	-
1911	$11,199.17	$11,199.17	$7,514.96	-	$7,514.96
1910	400.00*	400.00*	-	-	-
1909	400.00*	400.00*	10,000.00	-	10,000.00
1908	400.00*	400.00*	-	-	-
1907	400.00*	400.00*	-	-	-
1906	400.00*	400.00*	-	-	-
1905	400.00*	400.00*	-	-	-
1904	400.00*	400.00*	-	-	-
1903	400.00*	400.00*	-	-	-
1902	400.00*	400.00*	-	-	-
1901	400.00*	400.00*	-	-	-
1900	400.00*	400.00*	3,762.00	-	3,762.00
			-	$10,488.00	10,488.00
TOTALS	$6,799.17	$6,799.17	$21,276.96	$10,488.00	$31,764.96

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NOTE ** The Credit to Construction in 1911 for Materials and Supplies is here considered as applicable to the entire past life of the company from 1888 to 1910 and is spread here at the rate of $400.00 a year.

*** Not Used or Useful.

* Denotes Deduction.

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Exhibit R11.

Early Profits and Recent Going Value Decisions.

East Jersey and Affiliated Companies

Edward W. Bemis
Consulting Engineer
New York—Chicago

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Profits Before 1900	*2
Going Value 1897 to 1899	" *3
Depreciable Fixed Capital and Credits to Depreciation Reserve—1897-1899	" *4
Going Value Decisions, Jan. 1, 1901 to Nov. 30, 1922	" *6
Going Value New Jersey Water Cases—1922	" *7

*1

EARLY PROFITS

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NEW JERSEY WATER PROPERTIES
of the
NEW JERSEY GENERAL SECURITY COMPANY

PROFITS BEFORE 1900

In the exhibit on Going Value the profits since 1899 have been presented. The figures for the first two years of that period, 1900 and 1901, were taken from the reports of Mr. Fischer to Mr. Gardner, introduced in evidence December 19, 1922. There are here pre-

sented, in the two following tables, the profits taken from the same source for the previous three years, being the last years during which the Passaic, Acquackanonk and Montclair Companies were not burdened with the large investment of Little Falls and were drawing unfiltered water from the Passaic River at Great Falls and the wells at Montclair.

The profits during those three years, before allowing for depreciation, exceeded 16%. Although many old records of these companies antedating the Paterson fire in 1902 have been found in the company's office at Paterson, my examination of these records has not disclosed failure on the whole of the three companies then in existence to earn, throughout their history, a fair return on their investment after amortizing property retired during that time.

It is hardly conceivable that the early losses, if there were any, could have been equal to the profits of over $5,000,000 in excess of 6% that have been earned since 1899, as shown in my exhibit on Going Value.

The rate base for 1897 has been shown in the following tables to be $1,184,076. Even if it had been as high as that during every previous year of the operation of any one of the three companies, or say for 40 years back to 1857, and if the companies had earned nothing aside from operating expenses during those 40 years, then 6% a year during that time, (or an equivalent of 240% for one year) would amount even on that extravagant basis, to only $2,841,782 of early losses, or about half as much as the $5,247,620 earned in excess of 6% since 1899, as shown on Page 1 of my exhibit on Going Value.

Exhibit P29-A

NEW JERSEY WATER PROPERTIES
of the
NEW JERSEY GENERAL SECURITY COMPANY

GOING VALUE
1897 to 1899

Year Ended	True Gross Operating Revenue	True Operating Expenses and Taxes	True Gross Nominal Gross Income	Depreciation	Gross Income	Rate Base	Ratio of True Gross Income to Rate Base
1897	$425,131.49	$176,056.72	$249,074.77	$ 21,620.41	$227,454.36	$1,184,076.01	19.21%
1898	438,640.19	177,359.32	261,280.87	22,487.92	238,792.95	1,254,000.89	19.04%
1899	461,888.61	205,361.28	256,527.33	24,735.93	231,791.40	1,390,128.64	16.67%

NEW JERSEY WATER PROPERTIES
of the
NEW JERSEY GENERAL SECURITY CO.

Depreciable Fixed Capital and Credits to Depreciation Reserve by Years
1897 to 1899

Year Ended	Depreciable Fixed Capital December 31	Adjusted Net Additions Excluding Land and Water Rights	Depreciable Fixed Capital January 1	Credits to Depreciation Reserve	Debits to Depreciation Reserve	Depreciable Fixed Capital Less Depreciation Reserve	Average Depreciable Fixed Capital Less Depreciation Reserve	Average Investment In Land	Average Investment in Water Rights	Average Materials and Supplies	Average Rate Base	Balance in Depreciation Reserve As of Dec. 31
1899	$1,530,232.26*	$ 76,032.77	$1,454,199.49	$24,735.93	$10,488.00	$1,278,762.33	$1,297,869.91	$52,756.00	—	$39,502.73	$1,390,128.64	$251,469.93
1898	1,454,199.49	132,158.58	1,322,040.91	22,487.92	—	1,216,977.49	1,162,142.16	52,756.00	—	39,102.73	1,254,000.89	237,222.00
1897	1,322,040.91	50,999.50	1,271,041.41	21,620.41	—	1,107,306.83	1,092,617.28	52,756.00	—	38,702.73	1,184,076.01	214,734.08
1896	1,271,041.41	—	—	—	—	1,077,927.74	—	—	—	—	—	193,113.67

* This item represents depreciable Fixed Capital—December 31, 1899, as shown on page 2 of Going Value report, $3,836,658.10 afterdeducting $2,306,425.84 for Joint Property and Kearney Extension placed in operation on that date.

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Exhibit R11

RECENT GOING VALUE DECISIONS

NEW JERSEY WATER PROPERTIES
of the
NEW JERSEY GENERAL SECURITY COMPANY

Going Value Decisions of Commissions Digested in Public Utility Reports January 1, 1901-November 30, 1922

Some public utility decisions do not make it clear whether allowance was included for going value or not. It is believed that the following table summarizes all the cases digested in the well-known Public Utility Reports for 1921 and 1922 up to December 1st, where any clear reference is made to allowances for going value. A percentage is computed of the allowance to the rate base before the going value allowance was added. Where going value was allowed it was often stated that it was because of early losses not made up by later gains.

On the other hand, where no direct allowance was made for going value, allowance was made for general overheads such as engineering, superintendence, taxes and interest during construction, being items which the U. S. Supreme Court in the DesMoines gas case considered as a proper allowance for going value when there was no proof of early losses not made up by later gains.*

Exhibit R11

Allowances for Going Value in addition to allowance for overheads, 1921-2.

Percentage allowed	Number of States	States
0 -20%	1	New Jersey
7½-15%	2	Indiana, Illinois
4½-10%	3	Missouri, Louisiana, Utah
2½-10%	2	West Virginia, Idaho
0 -10½	3	Michigan, No. Dakota, Montana
0	5	New York, Wisconsin, California, Oregon, Texas

If a numerical average were made of the allowances during the two years by the Public Service Commissions in these sixteen states, this average would be under 5% and due in most cases to evidence of early losses not made up by later gains.

No decisions were digested during the past two years in the Public Utility Reports from Massachusetts which has never allowed any going value and that state has had the longest experience, to-wit, since 1884, in the state regulation of public utilities.

*The "going value" of a long established and successful gas company was sufficiently taken into account in determining the value of the company's property for the purpose of testing the reasonableness of gas rates fixed by municipal ordinance where the valuation is based upon a plant in actual and successful operation, and overhead charges were allowed for promotion, organization and development expenses. (DesMoines Gas Co. vs. City of DesMoines, June 14, 1915. Sup. Ct. Rep. Vo. 35, Page 811.

THE NEW JERSEY WATER PROPERTIES
and
THE NEW JERSEY GENERAL SECURITY CO.

Going Value New Jersey Water Cases, 1922.
Properties Exceeding $200,000.00

Company	Date of Decision	Rate Base Before Adding Going Value	Going Value	Ratio of Going Value to Rate Base Before Adding Going Value	Base For Allowance of Going Value	Ratio of Return
Somerville Water Company	Jan. 27	$ 308,808	$ 0	0%	—	7.25%
Commonwealth Water Company	Feb. 1	2,011,404*	104,000	5	Early losses	7.25
Elizabethtown Water Company	Mar. 15	4,237,010	412,990	10	—	7.25
Monmouth Water Company	Apr. 1	548,388	55,000	10	Early losses	6.30
Hackensack Water Company	June 30	12,331,986*	471,941	4	Early losses	7.30
		$19,437,596	$1,043,931			
Arithmetical Average				5.8		7.07
Weighted Average				5.4		

* Based on appraisal of 1917 plus additions.
** Based on pre-war unit costs plus 20% plus additions since beginning of war.

Exhibit R12

Mr. Hill's memorandum from which he testified as to accrued depreciation.

Mr. Hills' Memoranda from Which He Testified on December 28th.

Mr. Hills' Total Allowance for Depreciation:

Vol. 1 Original Report, Table No. 16, pages 91 and 92 and Table No. 8, page 27

Gross Cost of Reproduction—10 year average basis—all property (Table No. 8)		$13,677,959
Add Working Capital (Table No. 16)		300,000
Add Organization		150,000
Add Going Cost		1,510,000
Grand Total		$15,637.959

Deductions to Get Fair Value:

Fixed capital in other departments, a/c 150	$ 342,317	
Decretion of depreciable items, 3% sinking fund basis	1,547,146	
Special depreciation on Dist. Reservoirs	150,000	
General reductions to reduce to Fair Value	598,496	
Total deductions or depreciation		2,637,959
Depreciated or Fair Value used		$13,000,000
Accrued depreciation in % $\frac{2637959}{15637959} =$		16.87%

Average Age and Life:

Bemis gives cost $9,572,977.19 and annual straight line depreciation = $130,795.72

Exhibit R12

Therefore this gives average life of 9,572,977÷ 130,795.72			= 73.2 years as of Dec. 31, 1921
Bemis gives accrued depreciation $2,028,318.56 and annual straight line depreciation			= $130,795.75
Therefore this gives average age of $2,028,318.56÷ 130,795.72			= 15.5 years as of Dec. 31, 1921
Therefore as of Dec. 31, 1920, life was 73.2 years and age 14.5 years			
Annuity at 3% to produce accrued depreciation of $2,637,959 in 14.5 years (at $56.07 per $1,000)			$147,910.00
Gross Reproduction Cost of Depreciable Property			
Used and Useful 1st Report	page 48	$10,853,779	
	a/c ♯150	53,983	
		$10,907,762	$10,907,762
Annuity in % of Depreciable Property		147910 / 10907762	= 1.356%

Exhibit R13.

Documents relating to purchase by Bayonne from the New York & New Jersey Water Company.

SUMMARY OF REPORT OF NICHOLAS S. HILL, Jr.

July 1, 1913.

Hon. Matthew T. Cronin, Mayor,
Bayonne, New Jersey.

Dear Sir:

I herewith beg to transmit copy of my report upon the property, franchises and rights of the New York and New Jersey Water Company.

The data upon which my valuation is based are those obtained from the City of Bayonne and the New York and New Jersey Water Compny. So far as I know, and so far as I have been able to check these data, they are reliable.

We were furnished with a certified statement from the Comptroller of Bayonne with relation to the quantities of water used and the amounts paid thereof for the past five years.

We have made field inspections to check up the physical data furnished.

We have also received copies of the various contracts between Bayonne and the New York and New Jersey Water Company, and the New York and New Jersey Water Company and the East Jersey Water Company, copies of which are submitted in the Appendix No. 1 Page 93. The unit prices paid for water as given in the Comptroller's certified statement check with those given in the Bayonne contract. As the payments to the East Jersey Water Company here-

in given are based on the quantities named in the Comptroller's certified statement and at the prices named in the East Jersey contracts, the figures used for these payments are approximately correct.

It has been necessary for us to make estimates of the operating expenses, depreciation and of some other items, which are correct within such close limits as to preclude the possibility of any material error.

Following the report will be found schedules of the physical properties and estimates of the intangible values.

In arriving at the physical values, we have used reasonable unit prices in all cases and, at the same time, we have given due weight to the special difficulties encountered which tend to increase unit costs.

The intangible values have been arrived at from an assumption of reasonable interest rates, which we have deemed will correspond with reasonable rates for municipal bonds at this date.

Summary and Conclusions.

1. It will be provident and wise to purchase the plant of the New York and New Jersey Water Company, except as hereinafter noted.

2. There is no available means, even assuming Bayonne's contractural relationship with the New York and New Jersey Water Company were nullified and the City were free to act in the premises, by which it could obtain cheaper water.

3. The contract between the New York and New Jersey Water Company and the East Jersey Water Company is a valuable contract to possess, as it will afford Bayonne, through its right of condemnation,

the privilege of a permanent and adequate source of supply without sustaining costs for condemnation, which the East Jersey Water Company assumes.

4. The elements considered in the valuation are as follows:

A. Physical Value.
   1. Plant and Equipment.
   2. Lands, Rights of Way and Easements.

B. Intangible Value.
   1. Franchise Value.
   2. Source of Supply Value.

C. Value of Contracts with other Municipalities Acquired by Purchase.

5. The total value of the property, franchises, rights and contracts to be acquired is as follows:

Physical Value	$1,024,839.00
Franchise Value	419,445.00
Source of Supply Value	738,518.00
Value of Contract Obtained by Purchase	71,886.00
Total Value	$2,254,688.00

6. Physical values are based on the cost of reproduction at current market prices.

7. The franchise value is based on present net earnings with no allowance for the incremental value of franchise due to future increased earnings.

8. Source of supply value is based on the difference in cost of securing water from other available sources as compared with the cost of obtaining water through the purchase of the New York and New Jersey Water Company.

Exhibit R13

9. The value of the contracts obtained by purchase is based upon the present worth of net profits derived from the sale of water under the terms of and for the life of these contracts and based upon the sales of 1912.

10. The period considered in estimating the value given is from 1914 to 1929, inclusive.

11. The average price of water, for the period above mentioned which will be secured by the purchase of the New York and New Jersey Water Company at $2,254,688.00 is $51.63, as compared with $55.15 per million gallons under the terms of the existing contract.

12. The average price of $51.63 per million gallons is cheaper than the price at which Bayonne can obtain water from any other suitable, practical and permanent source of supply.

13. The accumulated profits from 1914 to 1929, which will be realized by purchasing the plant at the price named will be equivalent to the interest return on $275,360.00 invested now at 4 1/2 per cent.

14. The price named is a fair value to the seller and to the purchaser.

15. The profits which will be derived by purchase subsequent to 1929, and which will increase with years, have not been included in the valuation.

16. The future appreciated value of the source of supply, as such, has not been considered.

17. The valuation herein placed upon the plant of the New York and New Jersey Water Company includes all property, franchises and rights which they

Exhibit R13

own or possess, except the Belleville pipe line from the Passaic River to North Arlington,

18. The purchase of the Essex Pumping Company and the Belleville pipe line is not recommended.

19. The physical value of the Essex Pumping Company's plant, plus the cost of the Belleville pipe line, which is to all intents and purposes part and parcel of that plant and useless without it as at present constructed is $188,759.00.

20. We estimate that the plant equipped to furnish water of the same quality and to give service equivalent to the supply from Little Falls will be $526,530.00.

21. The quantity of water which may be ultimately derived from the Belleville wells is uncertain and the present development will not be sufficient to meet the future demands of Bayonne.

22. The water derived from the wells is hard and will have to be softened in order to make it comparable with Little Falls supply.

Respectfully submitted,

NICHOLAS S. HILL, JR.

Exhibit R13

SUMMARY OF REPORT OF CORNELIUS C. VERMUELE

CIVIL ENGINEER

203 Broadway

New York, June 7, 1913.

To the Honorable, the Mayor and City Council of Bayonne, N. J.

Gentlemen:

In accordance with your instructions I have appraised the property of the New York and New Jersey Water Company. As suggested by you, I have conferred from time to time with Mr. Nicholas S. Hill, Jr., who was also instructed by you to make an appraisal. These conferences have related to the principles and methods to be adopted in arriving at a valuation of the property. Inasmuch as I expect shortly to leave the City for a period, it becomes necessary for me to submit my report forthwith. Without assuming to pass upon the legal status of contracts or easements, which of course, is not in my province, I have reached the following conclusions:

1. The value of the plant and business of the New York and New Jersey Water Company from its connection with the East Jersey Water Company at Arlington to and through the City of Bayonne and not including the Belleville Pumping Station and North Arlington pipe lines is $2,304,323.

2. If Bayonne shall purchase the property at the above price, you will be able to pay all interest, main-

tenance, operation and taxes and make all necessary betterments to the plant out of the sum which you would otherwise pay to the New York and New Jersey Water Company under its contract during the remainder of the term, or until 1929, and in addition thereto to accumulate from the savings a sinking fund which in 1929 will amount to $526,923.

3. The foregoing valuation of $2,304,323 includes the benefits which Bayonne will derive from the contract between the New York and New Jersey Water Company and the East Jersey Water Company until 1929, but it does not include any allowance for the value of said contract after 1929. If the City of Bayonne shall continue to enjoy the advantages of this contract for ten years thereafter, or from 1929 to 1939, the additional value thereof will be material. I believe that after the expiration of the present contract you must expect to pay not less than $60 per million gallons, and at this price, the saving through an assignment of the contract with the East Jersey Water Company, during ten years, if invested in the sinking fund previously referred to, will increase the same from $526,923 to $3,295,411 and since the total cost for plant and betterments will be only $2,927,708 the resul- savings will entirely pay for the same and create a reserve in addition of 367,703.

For the foregoing reasons, due weight should be attached to the value of an assignment of the contract between the New York and New Jersey Water Company and the East Jersey Water Company, as it will entitle you to a reduction of 65 per cent, in the prices paid for water. Nevertheless, as stated, I have added nothing to the value of the plant and business, because of the advantages accruing therefrom subsequent to

1929. I limit it to this period not entirely because it happens to be the period during which the contract appears to continue in force, but partially for that reason and partially for the reason that it seems a reasonable period in the future for which to estimate the value. I believe, however, that all of the advantages which may remain in the assignment of the East Jersey contract from and after 1929 should accrue to and be secured to the City of Bayonne without any additional payment over and above my estimated value, in case it shall decide to purchase at that price.

5. I have allowed no consideration for the cancellation of the present contract between the City of Bayonne and the New York and New Jersey Water Company, because I have assumed that that cancellation will be voluntary on the part of both parties to the contract. I have estimated only the value accruing to the City of Bayonne through an assignment of the contract between the two water companies and the substitution of the lower price, which will be payable to the East Jersey Water Company thereafter. I have allowed this value for only sixteen years as before stated, that happening to be the period during which the contract between the City and the New York and New Jersey Water Company appears to continue in force, but if said contract shall expire earlier than 1929, my valuation will not be less, for the reason that this is in any case a reasonable future period, and because the advantages accruing from the assignment of the East Jersey contract can only be secured either by voluntary assignment from the New York and New Jersey Water Company or possibly by condemnation.

6. I find that the cost to reproduce the plant at

Exhibit R13

Belleville and North Arlington after the same shall been fully completed, will be $277,244. There may be additional value in this plant, to purchasers who need the water, and who cannot obtain it at the low price of the contract with the East Jersey Water Company. Bayonne, however, must take its whole supply or none from the East Jersey Water Company, and can procure it in that way cheaper than from Belleville; therefore, I do not find this Belleville and North Arlington property sufficiently necessary or useful to the City of Bayonne to enable me to attach a substantial value thereto for your use or to advise you to purchase it.

SUMMARY OF VALUE.

Bringing together the foregoing estimates, we have the following summary of the value of that part of the plant lying between the corner of Belleville and Kearney Avenues in Kearney and the City of Bayonne, and not including the Belleville Pumping Station and North Arlington Pipe line, as follows:

Cost of Reproduction of Physical Plant	$1,256,489.00
Value of possession of plant and the East Jersey Contract until 1929	1,351,765.00
Present worth of business outside of Bayonne	71,886.00
	$2,680,140.00
Deduct present worth of accrued depreciation in 1929	375,817.00
Net present worth of plant and business not including Belleville and North Arlington property	$2,304,323.00

Respectfully submitted,

CORNELIUS C. VERMEULE,

Consulting Engineer.

Exhibit R14.

	1920	1920		1921		1922	
			M. Gal.				
51″ Pipe line—total quantity			13,582.7		12,597.7		12,1782
Little Falls		53.91		62.56		71.76	
Totowa		21.12		23.36		24.97	
Wash Watetr etc. at filter plant		288.66		354.63		353.77	
20″ Grove St. Meter		1,039.41		921.34		859.94	
30″ Meter at Acq. & Passaic		1,050.5		1,467.0		2,094.8	
Nutley		119.62		127.82		149.12	
Bayonne		5,369.3		4,537.8		4,862.4	
Suburban W. Co.		2,500.6		2,164.2		2,271.5	
Bloomfield		632.11		600.37		679.67	
Total			11,075.43		10,259.08		11,367.93
Difference			2,507.27		2,338.62		810.27
High to Low		17.7		210.1		86.5	
			2,489.57		2,128.52		723.77
Used by Jersey City		2,675.70		2,228.36		831.13	
Deficiency			— 186.13		— 99.84		— 107.36
20″ Grove St. Meter			1,039.41		921.34		859.94
West Orange		278.88		31.27		15.57	
Glen Ridge		97.20		68.08			
Essex County		66.84		55.38		28.52	
Little Falls—Clove Rd.		1.68		2.91		4.72	
Montclair		436.21		438.03		463.88	
Total used			880.81		595.67		512.69
Excess & Surplus			158.60		325.67		347.25
42″ Pipe line—quantity pumped			5,029.5		4,820.1		4,817.1
Transferred 51″ to 42″			17.7		210.1		86.5
Total used			5,047.2		5,030.2		4,903.6
Little Falls		4.59		4.41		4.68	
Quantity of water used, Paterson & Passaic					5,042.61	5,025.79	4,898.92

Exhibit R15.

WATER PURCHASED FROM THE EAST JERSEY WATER CO. BY JERSEY CITY.

Million Gallons.

	1920	1921	1922
January	367.5	261.7	352.73
February	343.7	164.1	313.90
March	225.3	176.6	148.00
April	80.2	101.7	16.50
May	122.9	185.4	——
June	163.6	183.5	——
July	227.0	192.1	——
August	219.9	189.5	——
September	281.7	187.6	——
October	256.8	171.1	——
November	190.3	184.8	——
December	196.7	230.26	——
	2,675.6	2,228.36	831.13

TABLE 1

Average Flow and Power Available on the Wheel Shaft from the Passaic River at Great Falls (Paterson) and Dundee (Passaic) Dams on Basis of 90-ft. Combined Fall and 80% Efficiency; and Per Cent of Available Power Corresponding to 75 mgd. and 100 mgd. Diversion. Weeks Arranged in Order of Wetness. Average Flow Based on 23-Year Record at Great Falls from 1898-1920.

Weeks in Order of		Recorded Flow c. f. s. at Great Falls Aver. 23 yrs. 1898-1920	Ditto incldg. 24 mgd.= 37 c. f. s. Diverted at Little Falls Average	C. f. s. usable with wheel capacity of 1250 c. f. s. actually Installed	Capacity Great Falls & Dundee Installation. HP on 90-ft. fall and 80% efficiency (=8.1687 HP per c. f. s. Total on Usable on Col. (4) Col. (5) By Slide Rule		Per Cent Diversion of 75 mgd. 116 c. f. s. 948 HP	100 mgd. 155 c. f. s. 1263 HP
Wetness	Deepness							
1	2	3	4	5	6	7		
					571,240	340,479		
Totals		68,019	69,943	41,680	10,986	6,547		
Averages		1,308	1,345	802	10,987	6,551		
If diversion	75 mgd. =	116 c. i. s. / 802	116 = 14.5% = 1/7 =	(usable)	947.6 HP		14.5%	19.3%
	100 mgd. =	155 c. f. s. / 802	155 = 19.3% = 1/5 =	(	1263.4 HP		(34.5% for 6 dry months) 31.6% for 7 dry months	46.0% for 6 dry months 42.1% for 7 dry months 37.7% for 8 driest months

NEW JERSEY GENERAL SECURITY COMPANY

Payments by Water Companies for Water Diverted

Year	Total Million Gallons	Million Gallons per Day	Total Net 24-hr. HP at 80% efficiency	Total Payment Annual $	Per Mg.	Per HP $
1	20	21	22	23	24	25
1912	21,125,581	57.8	653.9	87,408.69	4.14	133.7
1913	19,577,524	53.6	599.6	79,344.10	4.05	132.1
1914	22,335,863	61.6	689.4	81,935.41	3.67	118.9
1915	22,203,968	60.9	689.5	82,105.68	3.70	119.0
1916	25,575,051	70.0	780.5	92,807.69	3.63	118.9
1917	27,935,592	76.5	846.6	99,093.99	3.55	117.1
1918	30,342,814	83.0	906.2	105,073.43	3.47	116.0
1919	29,871,900	81.9	882.0	100,410.31	3.36	113.9
1920	35,331,841	96.7	1030.7	125,787.80	3.56	122.0
1921 (pro rated on 9 mos. record)	31,815,526	87.1	949.9	125,062.92	3.94	132.0
Totals	266,115,690	729.1	8028.3	979,030.02	37.07	1223.6
Ave.	26,611,569	72.9		97,903.00	3.68	121.9

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ALL COMPANIES COMBINED

RECONCILIATION OF JOINT PROPERTY, AS PER BOOKS, WITH BEMIS APPRAISAL

AS AT DECEMBER 31, 1921

	Passaic Water Company	Acquackanonk Water Company	Montclair Water Company	East Jersey Water Company	Kearney Water Company	Total
Total Construction Accounts - Joint and Individually owned property	$6,709,486.20	$2,182,052.11	$1,403,687.03	$1,360,627.84	$100,010.51	$11,755,863.69
Deduct Individually Owned Property	5,030,884.30	1,062,984.19	835,911.48	5,168.86	100,010.51	7,034,959.34
Jointly Owned Property	$1,678,601.90	$1,119,067.92	$ 567,775.55	$1,355,458.98	-	$ 4,720,904.35
Consisting of:-						
Interest in Little Falls Improvement	1,678,601.90	1,119,067.92	559,518.95	1,352,251.70	-	4,709,440.47
General Equipment	-	-	8,256.60	-	-	8,256.60
Construction to December 31, 1920	-	-	-	3,207.28	-	3,207.28
Total as per books	1,678,601.90	1,119,067.92	567,775.55	1,355,458.98	-	4,720,904.35
Deduct:						
Profit to the East Jersey Water Company on sale of interests in Little Falls Improvement, and on sale of Beattie Rights in 1907	234,271.25	93,951.07	16,089.05	-	-	344,311.37
Original Cost of Land:						
Conduit No. 3	-	-	-	255,669.17	-	255,669.17
Garrett Mountain Reservoir	-	-	-	105,612.47	-	105,612.47
Estimated as included in Beattie Purchase	-	-	-	15,000.00	-	15,000.00
Amount received in 1907 on sale of water rights in 1898 to Patrick H. Flynn	100,000.00	50,000.00	50,000.00	100,000.00	-	300,000.00
	334,271.25	143,951.07	66,089.05	476,281.64	-	1,020,593.01
Temporary Boiler House considered as useless by Bemis Engineers						6,383.00
Transfer of expenditure on 42" extension						3,000.00
Error in statement of General Equipment						.20
Total Deductions						1,029,976.21
Total Forward						3,690,928.14

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ALL COMPANIES COMBINED

RECONCILIATION OF JOINT PROPERTY, AS PER BOOKS, WITH BEMIS APPRAISAL

AS AT DECEMBER 31, 1921 (Cont'd)

	Passaic Water Company	Acquackanonk Water Company	Montclair Water Company	East Jersey Water Company	Kearney Water Company	Total
Total Forward						$3,690,928.14
Add:						
Displacements in 1920 omitted from Bemis Appraisal:						
Sale of 40'5" smoke stack	-	-	$ 6.25	$ 12.50	-	18.75
Sale of 37' smoke pipe	-	-	19.18	38.37	-	57.55
Transfer in 1918 from interest in Little Falls improvement to General Equipment	-	-	15.00	-	-	15.00
Displacements in 1921 of General Equipment omitted from Bemis appraisal	-	-	423.00	-	-	423.00
	-	-	463.43	50.87	-	3,691,442.44
Interest during construction allowed by Bemis Engineers (Page 79)						184,578.79
Land included by Bemis Engineers at reproduction cost (Page 12):						
Little Falls Improvement						41,296.00
Little Falls Filtration Plant						5,862.00
Great Notch Reservoir						103,375.00
51" Steel conduit						206,110.00
Materials and supplies allowed by Bemis Engineers (Page 12)						58,829.93
Diversion Rights acquired from S.U.M. and Dundee Water Power and Land Company at cost in 1922 (Page 12)						1,120,000.00
Estimated by Bemis Engineers:						
One ball and wood vertical engine, size 9x12 (Page 51)						900.00
One Venturi Meter House at Passaic Avenue (Page 78)						425.00
Total Additions						1,721,366.72
TOTAL APPRAISAL BY BEMIS ENGINEERS (Page 12)						$5,412,809.16

*Represents deductions.

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ACQUACKANONK WATER COMPANY

RECONCILIATION OF INDIVIDUALLY OWNED PROPERTY AS PER BOOKS WITH BEMIS APPRAISAL

As at December 31, 1921

	Total	1902-1921	1899-1901	Prior to 1899
As Per Books:				
Construction prior to January 1, 1913	$ 662,689.57	194,889.16	35,656.87	$432,143.54
Furniture and Fixtures	1,062.27	862.67	199.60	-
Conduit #2	99,446.89	99,446.89	-	-
Equipment and Tools	817.56	817.56	-	-
Horses, Wagons, etc.	670.90	670.90	-	-
General Equipment	7,274.87	7,274.87	-	-
Construction since 1912	291,022.13	291,022.13	-	-
Total as per books	1,062,984.19	594,984.18	35,856.47	432,143.54
Adjustments between periods by Bemis Engineers:				
Meters and Supplies on hand January 2, 1911 credited to Construction Account considered as charged to Construction prior to 1899	-	8,020.58	-	8,020.58*
Retirements of Physical Property, as recorded on books, not including General Equipment $30,753.36 less $5,357.13 in period 1912-1921	-	25,396.23	-	25,396.23*
Total, per books, adjusted	1,062,984.19	628,400.99	35,856.47	398,726.73
Deduct:				
Estimated original cost of property retired in period 1902-1911 not recorded on books, assigned by Bemis Engineers	12,877.25	-	-	12,877.25
Net addition to General Equipment in 1921 omitted in Bemis Appraisal	1,263.62	1,263.62	-	-
	1,048,843.32	627,137.37	35,856.47	385,849.48
Add: Amounts overapplied to these periods in Bemis Appraisal	1,922.50	3,301.13	1,378.63*	-
	1,050,765.82	630,438.50	34,477.84	385,849.48
Deduct: Unidentified expenditures	231,853.03	-	-	231,853.03
	818,912.79	630,438.50	34,477.84	$153,996.45
Add: Items not on books included in Bemis Appraisal:				
Land at Reproduction Cost	19,087.00			
Interest during Construction	4,309.93			
Materials and Supplies	9,673.89			
Total Per Bemis Appraisal - Page 11	$851,983.61			

*Represents deductions.

PASSAIC WATER COMPANY

RECONCILIATION OF INDIVIDUALLY OWNED PROPERTY AS PER BOOKS WITH BEMIS APPRAISAL

As at December 31, 1921

	Total	1902-1921	1898-1901	Prior to 189
As Per Books:				
Construction prior to January 1, 1913	$4,090,936.70	165,108.99	$328,243.61 (1)	$3,597,614.10
Little Falls Extension	168,034.33	-	10,908.96 (1)	134,128.37
Great Falls Conduit	141,329.51	141,329.51	-	-
Equipment and Tools	6,989.24	6,989.24	-	-
Horses and Wagons	1,643.78	1,643.78	-	-
Furniture and Fixtures	3,833.60	3,833.60	-	-
Construction since 1912	613,830.54	613,830.54	-	-
General Equipment	27,256.60	27,256.60	-	-
Total - As Per Books	5,030,884.30	959,992.26	239,149.57	3,831,742.47
Adjustments between periods by Bemis Engineers:				
Materials and Supplies credited to Construction in 1912 estimated as charged to Construction prior to 1898	-	24,417.15	-	24,417.15
Recorded retirements of property 1911-1920 estimated as constructed prior to 1898 $72,791.18 less General Equipment $17,494.41	-	55,296.77	-	55,296.77
Land deducted from Construction, considered as acquired prior to 1898	-	156,189.00	-	156,189.00
Estimated retirements of property in 1901 considered as acquired prior to 1898	-	-	32,325.62	32,325.62
Construction of Paterson Extension considered as in period 1898-1901	-	-	134,128.37	134,128.37
Total Per Books - Adjusted between Periods	5,030,884.30	1,195,895.18	405,603.56	3,429,385.56
Deduct:				
Land Purchases	800.00	800.00	-	-
Expenditures on Galvanized Iron Mains	2,166.32	2,166.32	-	-
Work on Meter Shop at Great Falls	305.45	305.45	-	-
Leveling Dirt Bank	145.60	145.60	-	-
Additional retirement of Mains in 1921 per Bemis Estimate in excess of recorded displacements	917.65	917.65	-	-
Stony Road Reservoir abandoned in 1918	52,132.00	-	-	52,132.00
Mains and Hydrants retired from service 1902-1911 not recorded on books considered as constructed prior to 1898	54,589.88	-	-	54,589.88
Add:				
Sale of Diversion Rights	2,000.00	2,000.00	-	-
Retirements of General Equipment in 1921 not deducted by Bemis	936.61	936.61	-	-
Reconstruction expenditures in 1909 and 1910 charged to Profit and Loss Account	17,865.43	17,865.45	-	-
Transfer from Jointly Owned Property to Paterson Extension	3,000.00	-	3,000.00	-
forward	4,943,629.44	1,212,362.20	408,603.56	3,322,663.68

Represents deductions.

PASSAIC WATER COMPANY

RECONCILIATION OF INDIVIDUALLY OWNED PROPERTY AS PER BOOKS WITH BEMIS APPRAISAL

As at December 31, 1921

	Total	1902-1921	1898-1901	Prior to 1898
Forward	$4,943,629.44	1,212,362.20	408,603.56	$3,322,663.68
Deduct Items Assumed to be charged to Construction but not included in Bemis Appraisal:				
Contract #173 dated May 16, 1887 with Society for Establishing Useful Manufactures for privilege of taking water at Great Falls	1,000,000.00	-	-	1,000,000.00
Contract #237 dated May 16, 1887 with West Milford Water Storage Company for privilege of taking water from drainage area near Lake Macopin	500,000.00	-	-	500,000.00
Contract #62 dated April 12, 1875 for purchase of Franklin Lake Company including all property, stock, franchises, rights, etc.	200,000.00	-	-	200,000.00
Contract #63 dated April 10, 1875 for purchase from John Ryle of property known as Franklin Lake and conveyance by Ryle of contract with Society for Establishing Useful Manufactures dated February 14, 1854	250,000.00	-	-	250,000.00
Original Cost Estimates by Bemis Engineers of following Property:				
Great Falls Pumping Station - Buildings and Equipment	100,000.00	-	-	100,000.00
Stony Road Pumping Station - Buildings and Equipment	65,000.00	-	30,307.36	34,692.64
Middle Reservoir	10,000.00	-	-	10,000.00
Totowa Reservoir	25,889.00	-	-	25,889.00
Unaccounted for	618,390.16	-	-	618,390.16
	2,174,350.28	1,212,362.20	378,296.20	583,691.88
Add - Included in Bemis Appraisal not in book figures:				
Amount allocated in excess of adjusted book figures	1,692.72	1,692.72	-	-
	2,176,043.00	1,214,054.92	378,296.20	583,691.88
Allowance for Interest during Construction	18,893.48			
Land at Reproduction Cost	28,380.00			
Materials and Supplies	66,675.29			
Total Per Bemis Appraisal - Page 11	$2,289,991.77			

NOTES:

(1) These amounts are not taken from the books, but from Annual reports for this period.

(2) These amounts are not taken from the books, but were obtained from Annual report for year 1897 representing the Construction accounts at that time.

* Represents deductions.

EXHIBITS REQUIRED BY THE BOARD.

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EXHIBIT P-6-A1, 2, AND 3

Volume II

SUMMARY TABLES AND INVENTORY

OF

PROPERTY AND PLANT

OF

THE ACQUACKANONK WATER COMPANY
THE EAST JERSEY WATER COMPANY
KEARNEY WATER COMPANY
THE MONTCLAIR WATER COMPANY
THE PASSAIC WATER COMPANY

Summary Tables of Present Value Printed.
Balance Omitted.

TABLE NO.

COST OF REPRODUCTION OF PRO

JOINT OWNER SHI

	Schedule (1)	Base Cost of Reproduction (2)	Contingencies Errors and Omissions (3)	Net Cost of Reproduction (2) + (3) (4)	Adm trat Lega Gen Expe (
105	WATER DIVERSION RIGHTS	$1,120,000.	$ 0.	$1,120,000.	$
112	GRAVITY INTAKES AND SUCTION MAINS:				
	Structures	110,890.	5,544.	116,434.	
115	COAGULATING BASINS:				
	Structures	341,964.	17,098.	359,062.	
	Equipment	9,300.	465.	9,765.	
117	FILTERS:				
	Land	5,862.	0.	5,862.	
	Structures	288,872.	14,444.	303,316.	
	Equipment	199,233.	9,962.	209,195.	
119	CHEMICAL TREATMENT PLANT:				
	Structures	4,940.	247.	5,187.	
	Equipment	4,210.	210.	4,420.	
120	CLEAR WATER BASINS:				
	Structures	188,850.	9,442.	198,292.	
121	PUMPING STATIONS:				
	Land and Rights of Way	20,644.	0.	20,644.	
	Structures	582,181.	29,109.	611,290.	
122	STEAM POWER PUMPING EQUIPMENT	550,578.	27,529.	578,107.	
123	HYDRAULIC POWER PUMPING EQUIPMENT:				
	Land and Rights of Way	20,652.	0.	20,652.	
	Water Power Rights	500,000.	0.	500,000.	
	Releases from Damage	436.	0.	436.	
	Structures	466,410.	23,320.	489,730.	
	Machinery and Equipment	131,151.	6,558.	137,709.	
	Carry Forward	$4,546,173.	$143,928.	$4,690,101.	$5

NO. 2

PROPERTY AND PLANT

SHIP PROPERTY

	Miscellaneous Construction Expenditures					
	Administrative, Legal and General Expenses (5)	Engineering and Superintendence (6)	Taxes during Construction (7)	Total (4) + (5) + (6) + (7) (8)	Interest during Construction (9)	Gross Cost of Reproduction (8) + (9) (10)
,000.	$ 0.	$ 0.	$ 0.	$1,120,000.	$ 0.	$1,120,000.
,434.	1,747.	5,822.	1,164.	125,167.	7,510.	132,677.
,062.	5,386.	17,953.	3,591.	385,992.	23,160.	409,152.
,765.	146.	488.	49.	10,448.	313.	10,761.
,862.	88.	176.	147.	6,273.	941.	7,214.
,316.	4,550.	15,166.	3,033.	326,065.	19,564.	345,629.
,195.	3,138.	10,460.	2,092.	224,885.	13,493.	238,378.
,187.	78.	259.	26.	5,550.	166.	5,116.
,420.	66.	221.	22.	4,729.	142.	4,871.
,292.	2,974.	9,915.	1,983.	213,164.	12,790.	225,954.
,644.	310.	619.	516.	22,089.	3,313.	25,402.
,290.	9,169.	30,564.	6,113.	657,136.	39,428.	696,564.
,107.	8,672.	28,905.	2,891.	618,575.	18,557.	637,132.
,652.	310.	620.	516.	22,098.	3,315.	25,413.
,000.	7,500.	15,000.	12,500.	535,000.	80,250.	615,250.
436.	7.	13.	11.	467.	70.	537.
,730.	7,346.	24,486.	4,897.	526,459.	31,588.	558,047.
,709.	2,066.	6,885.	689.	147,349.	4,420.	151,769.
,101.	$53,553.	$167,552.	$40,240.	$4,951,446.	$259,020.	$5,210,466.

TABLE NO.

COST OF REPRODUCTION OF

JOINT OWNER

Schedule (1)		Base Cost of Reproduction (2)	Contingencies Errors and Omissions (3)	Net Cost of Reproduction (2) + (3) (4)
	Brought Forward	$4,546,173.	$143,928.	$4,690,101.
126	MISCELLANEOUS PUMPING EQUIPMENT	10,767.	538.	11,305.
127	TRANSMISSION MAINS AND ACCESSORIES:			
	Little Falls Connection:			
	Rights of Way	2,468.	0.	2,468.
	Mains and Appurtenances	75,055.	2,252.	77,307.
	51″ Steel Conduit:			
	Land and Rights of Way	24,029.	0.	24,029.
	Mains and Appurtenances	207,028.	6,211.	213,239.
128	STORAGE RESERVOIRS, TANKS AND STANDPIPES:			
	Land	102,415.	0.	102,415.
	Structures	470,837.	23,542.	494,379.
129	DISTRIBUTION MAINS AND ACCESSORIES			
	51″ Steel Conduit:			
	Land and Rights of Way	146,516.	0.	146,516.
	Mains and Appurtenances	532,357.	15,971.	548,328.
151	CONSTRUCTION WORK IN PROGRESS	7,938.	397.	8,335.
	TOTAL USED AND USEFUL PROPERTY	$6,125,583.	$192,839.	$6,318,422.
150	FIXED CAPITAL IN OTHER DEPARTMENTS	3,000.	150.	3,150.
	GRAND TOTAL	$6,128,583.	$192,989.	$6,321,572.
	OVERHEAD ALLOWANCES IN PER CENT OF BASE COST OF USED AND USEFUL PROPERTY	100.00	3.15	103.15

NO.
OF
NER

2 (CONTINUED)

PROPERTY AND PLANT

SHIP PROPERTY

st of ction (3)		Miscellaneous Construction Expenditures					
		Administrative, Legal and General Expenses (5)	Engineering and Superintendence (6)	Taxes during Construction (7)	Total (4) + (5) + (6) + (7) (8)	Interest during Construction (9)	Gross Cost of Reproduction (8) + (9) (10)
,101.		$53,553.	$167,552.	$40,240.	$4,951,446.	$259,020.	$5,210,466.
,305.		170.	565.	0.	12,040.	0.	12,040.
2,468.		37.	74.	62.	2,641.	396.	3,037.
,307.		1,160.	2,319.	773.	81,559.	4,894.	86,453.
4,029.		360.	721.	601.	25,711.	3,857	29,568.
3,239.		3,199.	6,397.	2,132.	224,967.	13,498.	238,465.
2,415.		1,536.	3,072.	2,048.	109,071.	13,089.	122,160.
4,379.		7,416.	24,719.	3,708.	530,222.	23,860.	554,082.
6,516.		2,198.	4,395.	3,663.	156,772.	23,516.	180,288.
8,328.		8,225.	16,450.	5,483.	578,486.	34,709.	613,195.
8,335.		125.	417.	0.	8,877.	0.	8,877.
8,422.		$77,979.	$226,681.	$58,710.	$6,681,792.	$376,839.	$7,058,631.
3,150.		47.	158.	8.	3,363.	50.	3,413.
1,572.		$78,026.	$226,839.	$58,718.	$6,685,155.	$376,889.	$7,062,044.
03.15		1.27	3.70	0.96	109.08	6.15	115.23

TABLE NO.

PRESENT VALUE OF PRO

JOINT OWNER SHI

Schedule (1)		Base Present Value (2)	Contingencies, Errors and Omissions (3)	Net Present Value (2) + (3) (4)	Adm tra Lega Gen Exp (
105	WATER DIVERSION RIGHTS	$1,120,000.	$ 0.	$1,120,000.	$
112	GRAVITY INTAKES AND SUCTION MAINS:				
	Structures	97,379.	4,869.	102,248.	
115	COAGULATING BASINS:				
	Structures	322,141.	16,107.	338,248.	
	Equipment	8,366.	418.	8,784.	
117	FILTERS:				
	Land	5,862.	0.	5,862.	
	Structures	266,280.	13,314.	279,594.	
	Equipment	164,389.	8,219.	172,608.	
119	CHEMICAL TREATMENT PLANT:				
	Structures	4,523.	226.	4,749.	
	Equipment	3,363.	168.	3,531.	
120	CLEAR WATER BASINS:				
	Structures	167,264.	8,363.	175,627.	
121	PUMPING STATIONS:				
	Land and Rights of Way	20,644.	0.	20,644.	
	Structures	515,570.	25,778.	541,348.	
122	STEAM POWER PUMPING EQUIPMENT	375,933.	18,797.	394,730.	
123	HYDRAULIC POWER PUMPING EQUIPMENT:				
	Land and Rights of Way	20,652.	0.	20,652.	
	Water Power Rights	500,000.	0.	500,000.	
	Releases from Damage	436.	0.	436.	
	Structures	429,301.	21,465.	450,766.	
	Machinery and Equipment	81,559.	4,078.	85,637.	
126	MISCELLANEOUS PUMPING EQUIPMENT	6,999.	350.	7,349.	
	Carry Forward	$4,110,661.	$122,152.	$4,232,813.	$4

NO. 3

PROPERTY AND PLANT

SHIP PROPERTY

	Miscellaneous Construction Expenditures					
	Administrative Legal and General Expenses (5)	Engineering and Superintendence (6)	Taxes during Construction (7)	Total (4) + (5) + (6) + (7) (8)	Interest during Construction (9)	Gross Present Value (8) + (9) (10)
00.	$ 0.	$ 0.	$ 0.	$1,120,000.	$ 0.	$1,120,000.
48.	1,534.	5,112.	1,022.	109,916.	6,595.	116,511.
48.	5,074.	16,912.	3,382.	363,616.	21,817.	385,433.
84.	132.	439.	44.	9,399.	282.	9,681.
62.	88.	176.	147.	6,273.	941.	7,214.
94.	4,194.	13,980.	2,796.	300,564.	18,034.	318,598.
08.	2,589.	8,630.	1,726.	185,553.	11,133.	196,686.
49.	71.	237.	24.	5,081.	152.	5,233.
31.	53.	177.	18.	3,779.	113.	3,892.
27.	2,634.	8,781.	1,756.	188,798.	11,328.	200,126.
44.	310.	619.	516.	22,089.	3,313.	25,402.
48.	8,120.	27,067.	5,413.	581,948.	34,917.	616,865.
30.	5,921.	19,736.	1,974.	422,361.	12,671.	435,032.
52.	310.	620.	516.	22,098.	3,315.	25,413.
00.	7,500.	15,000.	12,500.	535,000.	80,250.	615,250.
36.	7.	13.	11.	467.	70.	537.
66.	6,761.	22,538.	4,508.	484,573.	29,074.	513,647.
37.	1,285.	4,282.	428.	91,632.	3,749.	94,381.
49.	110.	367.	0.	7,826.	0.	7,826.
13.	$46,693.	$144,686.	$36,781.	$4,460,973.	$236,754.	$4,697,727.

TABLE NO.

PRESENT VALUE OF

JOINT OWNER

Schedule (1)		Base Present Value (2)	Contingencies, Errors and Omissions (3)	Net Present Value (2) + (3) (4)
	Brought Forward	$4,110,661.	$122,152.	$4,232,813.
127	TRANSMISSION MAINS AND ACCESSORIES:			
	Little Falls Connection.			
	Rights of Way	2,468.	0.	2,468.
	Mains and Appurtenances	55,864.	1,676.	57,540.
	51″ Steel Conduit.			
	Land and Rights of Way	24,029.	0.	24,029.
	Mains and Appurtenances	150,980.	4,529.	155,509.
128	STORAGE RESERVOIRS, TANKS AND STANDPIPES:			
	Land	102,415.	0.	102,415.
	Structures	447,096.	22,355.	469,451.
129	DISTRIBUTION MAINS AND ACCESSORIES:			
	51″ Steel Conduit.			
	Land and Rights of way	146,516.	0.	146,516.
	Mains and Appurtenances	388,233.	11,647.	399,880.
151	CONSTRUCTION WORK IN PROGRESS	7,938.	397.	8,335.
	TOTAL USED AND USEFUL PROPERTY	$5,436,200.	$162,756.	$5,598,956.
150	FIXED CAPITAL IN OTHER DEPARTMENTS	750.	38.	788.
	GRAND TOTAL	$5,436,950.	$162,794.	$5,599,744.
	OVERHEAD ALLOWANCES IN PER CENT OF BASE COST OF USED AND USEFUL PROPERTY	100.00	2.99	102.99

3 (CONTINUED)

PROPERTY AND PLANT

SHIP PROPERTY

	Miscellaneous Construction Expenditures					
	Administrative Legal and General Expenses (5)	Engineering and Superintendence (6)	Taxes during Construction (7)	Total (4) + (5) + (6) + (7) (8)	Interest during Construction (9)	Gross Present Value (8) + (9) (10)
13.	$46,693.	$144,686.	$36,781.	$4,460,973.	$236,754.	$4,697,727.
68.	37.	74.	62.	2,641.	396.	3,037.
40.	863.	1,726.	575.	60,704.	3,642.	64,346.
29.	360.	721.	601.	25,711.	3,857.	29,568.
09.	2,333.	4,665.	1,555.	164,062.	9,844.	173,906.
15.	1,536.	3,072.	2,048.	109,071.	13,089.	122,160.
51.	7,042.	23,473.	3,521.	503,487.	22,657.	526,144.
16.	2,198.	4,395.	3,663.	156,772.	28,516.	180,288.
80.	5,998.	11,996.	3,999.	421,873.	25,312.	447,185.
35.	125.	417.	0.	8,877.	0.	8,877.
56.	$67,185.	$195,225.	$52,805.	$5,914,171.	$339,067.	$6,253,238.
88.	12.	39.	2.	841.	13.	854.
44.	$67,197.	$195,264.	$52,807.	$5,915,012.	$339,080.	$6,254,092.
99	1.24	3.59	0.97	108.79	6.24	115.03

TABLE

COST OF REPRODUCTION

THE ACQUACKA

Schedule (1)		Base Cost of Reproduction (2)	Contingencies Errors and Omissions (3)	Net Cost of Reproduction (2) + (3) (4)
129	DISTRIBUTION MAINS AND ACCESSORIES:			
	Land and Rights of Way	$ 5,962.	$ 0.	$ 5,962.
	Mains and Appurtenances	898,930.	26,968.	925,898.
130	SERVICE PIPES AND STOPS	49,250.	1,478.	50,728.
131	METERS, METER BOXES AND VAULTS	115,359.	3,461.	118,820.
132	FIRE HYDRANTS AND FIRE CISTERNS	54,996.	1,650.	56,646.
134	GENERAL STRUCTURES:			
	Land	13,125.	0.	13,125.
	Structures	22,978.	1,149.	24,127.
135	GENERAL EQUIPMENT	8,562.	428.	8,990.
	TOTAL USED AND USEFUL PROPERTY	1,169,162.	35,134.	1,204,296.
	OVERHEAD ALLOWANCES IN PER CENT OF BASE COST OF USED AND USEFUL PROPERTY	100.00	3.00	103.00

NO. 5

OF PROPERTY AND PLANT

NONK WATER COMPANY

Miscellaneous Construction Expenditures						
Administrative, Legal and General Expenses (5)	Engineering and Superintendence (6)	Taxes during Construction (7)	Total (4) + (5) + (6) + (7) (8)	Interest during Construction (9)	Gross Cost of Reproduction (8) + (9) (10)	
$ 89.	$ 179.	$ 149.	$ 6,379.	$ 957.	$ 7,336.	
13,888.	27,777.	9,259.	976,822.	58,609.	1,035,431.	
761.	1,522.	254.	53,265.	1,598.	54,863.	
1,782.	3,565.	594.	124,761.	3,743.	128,504.	
850.	1,699.	283.	59,478.	1,784.	61,262.	
197.	394.	164.	13,880.	1,041.	14,921.	
362.	1,206.	92.	25,787.	580.	26,367.	
135.	0.	0.	9,125.	0.	9,125.	
18,064.	36,342.	10,795.	1,269,497.	68,312.	1,337,809.	
1.55	3.11	0.92	108.58	5.84	114.42	

TABLE

PRESENT VALUE OF

THE ACQUACKA

Schedule (1)		Base Present Value (2)	Contingencies, Errors and Omissions (3)	Net Present Value (2) + (3) (4)
129	DISTRIBUTION MAINS AND ACCESSORIES:			
	Land and Rights of Way	$ 5,962.	$ 0.	$ 5,962.
	Mains and Appurtenances	852,958.	25,589.	878,547.
130	SERVICE PIPES AND STOPS	44,224.	1,327.	45,551.
131	METERS, METER BOXES AND VAULTS	87,927.	2,638.	90,565.
132	FIRE HYDRANTS AND FIRE CISTERNS	45,921.	1,378	47,299.
134	GENERAL STRUCTURES:			
	Land	13,125.	0.	13,125.
	Structures	15,370.	768.	16,138.
135	GENERAL EQUIPMENT	5,565.	278.	5,843.
	TOTAL USED AND USEFUL PROPERTY	1,071,052.	31,978.	1,103,030.
	OVERHEAD ALLOWANCES IN PER CENT OF BASE COST OF USED AND USEFUL PROPERTY	100.00	2.99	102.99

NO. 6

PROPERTY AND PLANT

NONK WATER COMPANY

Miscellaneous Construction Expenditures					
Administrative Legal and General Expenses (5)	Engineering and Superintendence (6)	Taxes during Construction (7)	Total (4) + (5) + (6) + (7) (8)	Interest during Construction (9)	Gross Present Value (8) + (9) (10)
$ 89.	$ 179.	$ 149.	$ 6,379.	$ 957.	$ 7,336.
13,178.	26,356.	8,785.	926,866.	55,612.	982,478.
683.	1,367.	228.	47,829.	1,435.	49,264.
1,358.	2,717.	453.	95,093.	2,853.	97,946.
709.	1,419.	236.	49,663.	1,490.	51,153.
197.	394.	164.	13,880.	1,041.	14,921.
242.	807.	61.	17,248.	388.	17,636.
88.	0.	0.	5,931.	0.	5,931.
16,544.	33,239.	10,076.	1,162,889.	63,776.	1,226,665.
1.54	3.10	0.94	108.57	5.95	114.52

TABLE

COST OF REPRODUCTION

THE EAST JERSEY

Schedule (1)		Base Cost of Reproduction (2)	Contingencies Errors and Omissions (3)	Net Cost of Reproduction (2) + (3) (4)
129	DISTRIBUTION MAINS AND ACCESSORIES:			
	Land	$ 6,400.	$ 0.	$ 6,400.
131	METERS, METER BOXES AND VAULTS	14,900.	447.	15,347.
135	GENERAL EQUIPMENT	2,443.	122.	2,565.
	TOTAL USED AND USEFUL PROPERTY	23,743.	569.	24,312.
150	FIXED CAPITAL IN OTHER DEPARTMENTS:			
	Land and Rights of Way	25,675.	0.	25,675.
	GRAND TOTAL	$ 49,418.	$ 569.	$ 49,987.
	OVERHEAD ALLOWANCES IN PER CENT OF BASE COST OF USED AND USEFUL PROPERTY	100.00	2.40	102.40

NO. 8

OF PROPERTY AND PLANT

WATER COMPANY

Miscellaneous Construction Expenditures: Administrative, Legal and General Expenses (5)	Engineering and Superintendence (6)	Taxes during Construction (7)	Total (4) + (5) + (6) + (7) (8)	Interest during Construction (9)	Gross Cost of Reproduction (8) + (9) (10)
$ 96.	$ 192.	$ 96.	$ 6,784.	$ 611.	$ 7,395.
230.	460.	77.	16,114.	483.	16,597.
38.	0.	0.	2,603.	0.	2,603.
364.	652.	173.	25,501.	1,094.	26,595.
385.	770.	514.	27,344.	3,281.	30,625.
$ 749.	$ 1,422.	$ 687.	$ 52,845.	$ 4,375.	$ 57,220.
1.53	2.74	0.73	107.40	4.61	112.01

TABLE

PRESENT VALUE OF

THE EAST JERSEY

Schedule (1)		Base Present Value (2)	Contingencies, Errors and Omissions (3)	Net Present Value (2) + (3) (4)
129	DISTRIBUTION MAINS AND ACCESSORIES:			
	Land	$ 6,400.	$ 0.	$ 6,400.
131	METERS, METER BOXES AND VAULTS	10,565.	317.	10,882.
135	GENERAL EQUIPMENT	1,588.	79.	1,667.
	TOTAL USED AND USEFUL PROPERTY	18,553.	396.	18,949.
150	FIXED CAPITAL IN OTHER DEPARTMENTS:			
	Land and Rights of Way	25,675.	0.	25,675.
	GRAND TOTAL	$ 44,228.	$ 396.	$ 44,624.
	OVERHEAD ALLOWANCES IN PER CENT OF BASE COST OF USED AND USEFUL PROPERTY	100.00	2.14	102.14

NO. 9

PROPERTY AND PLANT

WATER COMPANY

	Miscellaneous Construction Expenditures					
	Administrative Legal and General Expenses (5)	Engineering and Superintendence (6)	Taxes during Construction (7)	Total (4) + (5) + (6) + (7) (8)	Interest during Construction (9)	Gross Present Value (8) + (9) (10)
	$ 96.	$ 192.	$ 96.	$ 6,784.	$ 611.	$ 7,395.
	163.	326.	54.	11,425.	343.	11,768.
	25.	0.	0.	1,692.	0.	1,692.
	284.	518.	150.	19,901.	954.	20,855.
	385.	770.	514.	27,344.	3,281.	30,625.
	$ 669.	$ 1,288.	$ 664.	$ 47,245.	$ 4,235.	$ 51,480.
	1.53	2.79	0.81	107.27	5.14	112.41

TABLE

COST OF REPRODUCTION

KEARNEY

Schedule (1)		Base Cost of Reproduction (2)	Contingencies Errors and Omissions (3)	Net Cost of Reproduction (2) + (3) (4)
129	DISTRIBUTION MAINS AND ACCESSORIES:			
	42″ Kearney Extension.			
	Rights of Way	$ 10,040.	$ 0.	$ 10,040.
	Mains and Appurtenances	201,572.	6,047.	207,619.
131	METERS, METER BOXES AND VAULTS	7,250.	218.	7,468.
	TOTAL USED AND USEFUL PROPERTY	218,862.	6,265.	225,127.
	OVERHEAD ALLOWANCES IN PER CENT OF BASE COST OF USED AND USEFUL PROPERTY	100.00	2.86	102.86

NO. 11

OF PROPERTY AND PLANT

WATER COMPANY

Miscellaneous Construction Expenditures					
Administrative, Legal and General Expenses (5)	Engineering and Superintendence (6)	Taxes during Construction (7)	Total (4) + (5) + (6) + (7) (8)	Interest during Construction (9)	Gross Cost of Reproduction (8) + (9) (10)
$ 151.	$ 301.	$ 151.	$ 10,643.	$ 958.	$ 11,601.
3,114.	6,229.	1,038.	218,000.	6,540.	224,540.
112.	224.	37.	7,841.	235.	8,076.
3,377.	6,754.	1,226.	236,484.	7,733.	244,217.
1.54	3.09	0.56	108.05	3.53	111.58

TABLE

PRESENT VALUE OF

KEARNEY

Schedule (1)		Base Present Value (2)	Contingencies, Errors and Omissions (3)	Net Present Value (2) + (3) (4)
129	DISTRIBUTION MAINS AND ACCESSORIES:			
	42″ Kearney Extension.			
	Rights of Way	$ 10,040.	$ 0.	$ 10,040.
	Mains and Appurtenances	136,465.	4,094.	140,559.
131	METERS, METER BOXES AND VAULTS	5,144.	154.	5,298.
	TOTAL USED AND USEFUL PROPERTY	151,649.	4,248.	155,897.
	OVERHEAD ALLOWANCES IN PER CENT OF BASE COST OF USED AND USEFUL PROPERTY	100.00	2.80	102.80

NO. 12

PROPERTY AND PLANT

WATER COMPANY

	Miscellaneous Construction Expenditures					
	Administrative Legal and General Expenses (5)	Engineering and Superintendence (6)	Taxes during Construction (7)	Total (4) + (5) + (6) + (7) (8)	Interest during Construction (9)	Gross Present Value (8) + (9) (10)
	$ 151.	$ 301.	$ 151.	$ 10,643.	$ 958.	$ 11,601.
	2,108.	4,217.	703.	147,587.	4,428.	152,015.
	79.	159.	26.	5,562.	167.	5,729.
	2,338.	4,677.	880.	163,792.	5,553.	169,345.
	1.54	3.09	0.58	108.01	3.66	111.67

New Jersey State Library

TABLE

COST OF REPRODUCTION

THE MONTCLAIR

Schedule (1)		Base Cost of Reproduction (2)	Contingencies Errors and Omissions (3)	Net Cost of Reproduction (2) + (3) (4)
109	SPRINGS AND WELLS:			
	Land	$ 6,000.	$ 0.	$ 6,000.
	Structures	13,738.	687.	14,425.
121	PUMPING STATIONS:			
	Land	7,360.	0.	7,360.
	Structures	28,339.	1,417.	29,756.
122	STEAM POWER PUMPING EQUIPMENT	93,749.	4,687.	98,436.
126	MISCELLANEOUS PUMPING EQUIPMENT	1,370.	68.	1,438.
128	STORAGE RESERVOIRS, TANKS AND STANDPIPES:			
	Land	2,000.	0.	2,000.
	Standpipe	6,676.	334.	7,010.
129	DISTRIBUTION MAINS AND ACCESSORIES:			
	Land and Rights of Way	5,130.	0.	5,130.
	Mains and Appurtenances	743,427.	22,303.	765,730.
130	SERVICE PIPES AND STOPS	23,381.	701.	24,082.
131	METERS, METER BOXES AND VAULTS	74,489.	2,235.	76,724.
132	FIRE HYDRANTS AND FIRE CISTERNS	37,424.	1,123.	38,547.
134	GENERAL STRUCTURES:			
	Land	9,000.	0.	9,000.
	Structures	22,475.	1,124.	23,599.
	Carry Forward	1,074,558.	34,679.	1,109,237.

NO. 14

OF PROPERTY AND PLANT

WATER COMPANY

Miscellaneous Construction Expenditures						
Administrative, Legal and General Expenses (5)	Engineering and Superintendence (6)	Taxes during Construction (7)	Total (4) + (5) + (6) + (7) (8)	Interest during Construction (9)	Gross Cost of Reproduction (8) + (9) (10)
$ 90.	$ 180.	$ 90.	$ 6,360.	$ 572.	$ 6,932.
216.	721.	72.	15,434.	463.	15,897.
110.	221.	110.	7,801.	702.	8,503.
446.	1,488.	149.	31,839.	955.	32,794.
1,477.	4,922.	374.	105,209.	2,367.	107,576.
22.	72.	0.	1,532.	0.	1,532.
30.	60.	15.	2,105.	95.	2,200.
105.	350.	8.	7,473.	56.	7,529.
77.	154.	128.	5,489.	823.	6,312.
11,486.	22,972.	7,657.	807,845.	48,471.	856,316.
361.	722.	120.	25,285.	759.	26,044.
1,151.	2,302.	384.	80,561.	2,417.	82,978.
578.	1,156.	193.	40,474.	1,214.	41,688.
135.	270.	112.	9,517.	714.	10,231.
354.	1,180.	90.	25,223.	568.	2,579.
16,638.	36,770.	9,502.	1,172,147.	60,176.	1,232,323.

TABLE

COST OF REPRODUCTION

THE MONTCLAIR

	Schedule (1)	Base Cost of Reproduction (2)	Contingencies Errors and Omissions (3)	Net Cost of Reproduction (2) + (3) (4)
	Brought Forward	$1,074,558.	$34,679.	$1,109,237.
135	GENERAL EQUIPMENT	8,864.	443.	9,307.
	TOTAL USED AND USEFUL PROPERTY	1,083,422.	35,122.	1,118,544.
	FIXED CAPITAL IN OTHER DEPARTMENTS	193,679.	0.	193,679.
	GRAND TOTAL	1,277,101.	35,122.	1,312,223.
	OVERHEAD ALLOWANCES IN PER CENT OF BASE COST OF USED AND USEFUL PROPERTY	100.00	3.24	103.24

NO. 14 (CONTINUED)

OF PROPERTY AND PLANT

WATER COMPANY

	Miscellaneous Construction Expenditures					
	Administrative, Legal and General Expenses (5)	Engineering and Superintendence (6)	Taxes during Construction (7)	Total (4) + (5) + (6) + (7) (8)	Interest during Construction (9)	Gross Cost of Reproduction (8) + (9) (10)
37.	$16,638.	$36,770.	$9,502.	$1,172,147.	$60,176.	$1,232,323.
07.	140.	0.	0.	9,447.	0.	9,447.
44.	16,778.	36,770.	9,502.	1,181,594.	60,176.	1,241,770.
79.	2,905.	5,810.	4,842.	207,236.	31,085.	238,321.
23.	19,683.	42,580.	14,344.	1,388,830.	91,261.	1,480,091.
24	1.55	3.39	0.88	109.06	5.55	114.61

TABLE NO.

PRESENT VALUE OF PRO

THE MONTCLAIR WA

Schedule (1)		Base Present Value (2)	Contingencies, Errors and Omissions (3)	Net Present Value (2) + (3) (4)	Adm tra Leg Ger Exp
109	SPRINGS AND WELLS:				
	Land	$ 6,000.	$ 0.	$ 6,000.	$
	Structures	2,989.	149.	3,138.	
121	PUMPING STATIONS				
	Land	7,360.	0.	7,360.	
	Structures	25,132.	1,257.	26,389.	
122	STEAM POWER PUMPING EQUIPMENT	60,999.	3,050.	64,049.	
126	MISCELLANEOUS PUMPING EQUIPMENT	890.	44.	934.	
128	STORAGE RESERVOIRS, TANKS AND STANDPIPES:				
	Land	2,000.	0.	2,000.	
	Standpipe	3,418.	171.	3,589.	
129	DISTRIBUTION MAINS AND ACCESSORIES:				
	Land and Rights of Way	5,130.	0.	5,130.	
	Mains and Appurtenances	699,026.	20,971.	719,997.	1
130	SERVICE PIPES AND STOPS	19,684.	591.	20,275.	
131	METERS, METER BOXES AND VAULTS	48,282.	1,448.	49,730.	
132	FIRE HYDRANTS AND FIRE CISTERNS	26,645.	799.	27,444.	
	Carry Forward	907,555.	28,480.	936,035.	1

NO. 15

PROPERTY AND PLANT

WATER COMPANY

	Miscellaneous Construction Expenditures					
	Administrative Legal and General Expenses (5)	Engineering and Superintendence (6)	Taxes during Construction (7)	Total (4) + (5) + (6) + (7) (8)	Interest during Construction (9)	Gross Present Value (8) + (9) (10)
	$ 90.	$ 180.	$ 90.	$ 6,360.	$ 572.	$ 6,932.
	47.	157.	16.	3,358.	101.	3,459.
	110.	221.	110.	7,801.	702.	8,503.
	396.	1,319.	132.	28,236.	847.	29,083.
	961.	3,202.	243.	68,455.	1,540.	69,995.
	14.	47.	0.	995.	0.	995.
	30.	60.	15.	2,105.	95.	2,200.
	54.	179.	4.	3,826.	29.	3,855.
	77.	154.	128.	5,489.	823.	6,312.
	10,800.	21,600.	7,200.	759,597.	45,576.	805,173.
	304.	608.	101.	21,288.	639.	21,927.
	746.	1,492.	249.	52,217.	1,567.	53,784.
	412.	823.	137.	28,816.	864.	29,680.
	14,041.	30,042.	8,425.	988,543.	53,355.	1,041,898.

TABLE NO.

PRESENT VALUE OF PRO

THE MONTCLAIR WA

Schedule (1)		Base Present Value (2)	Contingencies, Errors and Omissions (3)	Net Present Value (2) + (3) (4)	Adm tra Lega Gen Exp (
	Brought Forward	$907,555.	$28,480.	$936,035.	$1
134	GENERAL STRUCTURES:				
	Land	9,000.	0.	9,000.	
	Structures	21,306.	1,065.	22,371.	
135	GENERAL EQUIPMENT	5,762.	288.	6,050.	
	TOTAL USE AND USEFUL PROPERTY	943,623.	29,833.	973,456.	1
150	FIXED CAPITAL IN OTHER DEPARTMENTS	190,479.	0.	190,479.	
	GRAND TOTAL	1,134,102.	29,838.	1,163,935.	1
	OVERHEAD ALLOWANCES IN PER CENT OF BASE COST OF USED AND USEFUL PROPERTY	100.00	3.16	103.16	

NO. 15 (CONTINUED)

PROPERTY AND PLANT

WATER COMPANY

Miscellaneous Construction Expenditures					
Administrative Legal and General Expenses (5)	Engineering and Superintendence (6)	Taxes during Construction (7)	Total (4) + (5) + (6) + (7) (8)	Interest during Construction (9)	Gross Present Value (8) + (9) (10)
$14,041.	$30,042.	$8,425.	$988,543.	$53,355.	$1,041,898.
135.	270.	112.	9,517.	714.	10,231.
336.	1,119.	85.	23,911.	538.	24,449.
91.	0.	0.	6,141.	0.	6,141.
14,603.	31,431.	8,622.	1,028,112.	54,607.	1,082,719.
2,857.	5,714.	4,762.	203,812.	30,572.	234,384.
17,460.	37,145.	13,384.	1,231,924.	85,179.	1,317,103.
1.55	3.33	0.91	108.95	5.79	114.74

TABLE NO.

COST OF REPRODUCTION OF

THE PASSAIC WA

	Schedule (1)	Base Cost of Reproduction (2)	Contingencies Errors and Omissions (3)	Net Cost of Reproduction (2) + (3) (4)
106	RESERVATIONS			
	Land	$ 72,662.	$ 0.	$ 72,662.
127	TRANSMISSION MAINS AND ACCESSORIES:			
	42″ Paterson Extension			
	Land and Rights of Way	620.	0.	620.
	Mains and Appurtenances	245,931.	7,378.	253,309.
128	STORAGE RESERVOIRS, TANKS AND STANDPIPES:			
	Land	134,404.	0.	134,404.
	Structures	162,800.	8,140.	170,940.
129	DISTRIBUTION MAINS AND ACCESSORIES:			
	Dyers' Pipe Line			
	Land	2,080.	0.	2,080.
	Structures	20,085.	1,004.	21,089.
	Mains and Appurtenances	131,617.	3,949.	135,566.
	Excluding Dyers' Pipe Line			
	Land	2,160.	0.	2,160.
	Mains and Appurtenances	1,658,921.	49,768.	1,708,689.
130	SERVICE PIPES AND STOPS	89,888.	2,697.	92,585.
131	METERS, METER BOXES AND VAULTS:			
	On Dyers' Pipe Line	10,560.	317.	10,877.
	Excluding those on Dyers Pipe Line	224,709.	6,741.	231,450.
	Carry Forward	2,756,437.	79,994.	2,836,431.

NO. 17

OF PROPERTY AND PLANT

WATER COMPANY

Miscellaneous Construction Expenditures					
Administrative, Legal and General Expenses (5)	Engineering and Superintendence (6)	Taxes during Construction (7)	Total (4) + (5) + (6) + (7) (8)	Interest during Construction (9)	Gross Cost of Reproduction (8) + (9) (10)
$1,090.	$2,180.	$1,817.	$77,749.	$11,662.	$89,411.
9.	19.	11.	659.	69.	728.
3,800.	7,599.	1,571.	266,279.	9,985.	276,264.
2,016.	4,032.	1,788.	142,240.	11,379.	153,619.
2,564.	8,547.	718.	182,769.	4,569.	187,338.
31.	62.	26.	2,199.	165.	2,364.
316.	1,054.	80.	22,539.	507.	23,046.
2,033.	4,067.	515.	142,181.	3,199.	145,380.
32.	65.	65.	2,322.	418.	2,740.
25,630.	51,261.	21,359.	1,806,939.	135,520.	1,942,459.
1,389.	2,778.	463.	97,215.	2,916.	100,131.
163.	326.	54.	11,420.	343.	11,763.
3,472.	6,944.	1,157.	243,023.	7,291.	250,314.
42,545.	88,934.	29,624.	2,997,534.	188,023.	3,185,557.

TABLE NO.

COST OF REPRODUCTION OF

THE PASSAIC WA

Schedule (1)		Base Cost of Reproduction (2)	Contingencies Errors and Omissions (3)	Net Cost of Reproduction (2) + (3) (4)	Adm tra Leg Ge Exp
	Brought Forward	$2,756,437.	$79,994.	$2,836,431.	$ 4
132	FIRE HYDRANTS AND FIRE CISTERNS:				
	On Dyers' Pipe Line	551.	17.	568.	
	Excluding those on Dyers' Pipe Line	96,912.	2,907.	99,819.	
134	GENERAL STRUCTURES:				
	Land	24,840.	0.	24,840.	
	Structures	52,247.	2,612.	54,859.	
135	GENERAL EQUIPMENT	40,660.	2,033.	42,693.	
	TOTAL USED AND USEFUL PROPERTY	2,971,647.	87,563.	3,059,210.	4
150	FIXED CAPITAL IN OTHER DEPARTMENTS:				
	Land	24,090.	0.	24,090.	
	Structures	37,100.	1,855.	38,955.	
	GRAND TOTAL	3,032,837.	89,418.	3,122,255.	4
	OVERHEAD ALLOWANCES IN PER CENT OF BASE COST OF USED AND USEFUL PROPERTY	100.00	2.95	102.95	

NO. 17 (CONTINUED)

OF PROPERTY AND PLANT

WATER COMPANY

Miscellaneous Construction Expenditures						
Administrative, Legal and General Expenses (5)	Engineering and Superintendence (6)	Taxes during Construction (7)	Total (4) + (5) + (6) + (7) (8)	Interest during Construction (9)	Gross Cost of Reproduction (8) + (9) (10)	
$ 42,545.	$ 88,934.	$ 29,624.	$2,997,534.	$ 188,023.	$3,185,557.	
9.	17.	3.	597.	18.	615.	
1,497.	2,995.	499.	104,810.	3,144.	107,954.	
373.	745.	373.	26,331.	2,370.	28,701.	
823.	2,743.	274.	58,699.	1,761.	60,460.	
640.	0.	0.	43,333.	0.	43,333.	
45,887.	95,434.	30,773.	3,231,304.	195,316.	3,426,620.	
361.	723.	301.	25,475.	1,911.	27,386.	
584.	1,948.	148.	41,635.	937.	42,572.	
46,832.	98,105.	31,222.	3,298,414.	198,164.	3,496,578.	
1.54	3.21	1.04	108.74	6.57	115.31	

TABLE NO.

PRESENT VALUE OF PRO

THE PASSAIC WA

Schedule (1)		Base Present Value (2)	Contingencies, Errors and Omissions (3)	Net Present Value (2) + (3) (4)
106	RESERVATIONS:			
	Land	$ 72,662.	$ 0.	$ 72,662.
127	TRANSMISSION MAINS AND ACCESSORIES:			
	42″ Paterson Extension.			
	Land and Rights of Way	620.	0.	620.
	Mains and Appurtenances	175,947.	5,278.	181,225.
128	STORAGE RESERVOIRS, TANKS AND STANDPIPES:			
	Land	134,404.	0.	134,404.
	Structures	141,829.	7,091.	148,920.
129	DISTRIBUTION MAINS AND ACCESSORIES:			
	Dyers' Pipe Line.			
	Land	2,080.	0.	2,080.
	Structures	17,630.	882.	18,512.
	Mains and Appurtenances	112,076.	3,362.	115,438.
	Excluding Dyers' Pipe Line.			
	Land	2,160.	0.	2,160.
	Mains and Appurtenances	1,551,656.	46,550.	1,598,206.
130	SERVICE PIPES AND STOPS	76,220.	2,287.	78,507.
131	METERS, METER BOXES AND VAULTS:			
	On Dyers' Pipe Line	8,667.	260.	8,927.
	Excluding Those on Dyers' Pipe Line	170,818.	5,125.	175,943.
	Carry Forward	2,466,769.	70,835.	2,537,604.

NO. 18

PROPERTY AND PLANT

WATER COMPANY

	Miscellaneous Construction Expenditures					
	Administrative Legal and General Expenses (5)	Engineering and Superintendence (6)	Taxes during Construction (7)	Total (4) + (5) + (6) + (7) (8)	Interest during Construction (9)	Gross Present Value (8) + (9) (10)
62.	$ 1,090.	$ 2,180.	$ 1,817.	$ 77,749.	$ 11,662.	$ 89,411.
20.	9.	19.	11.	659.	69.	728.
25.	2,718.	5,437.	1,124.	190,504.	7,144.	197,648.
04.	2,016.	4,032.	1,788.	142,240.	11,379.	153,619.
20.	2,234.	7,446.	625.	159,225.	3,981.	163,206.
80.	31.	62.	26.	2,199.	165.	2,364.
12.	278.	926.	70.	19,786.	445.	20,231.
38.	1,732.	3,463.	439.	121,072.	2,724.	123,796.
60.	32.	65.	65.	2,322.	418.	2,740.
06.	23,973.	47,946.	19,978.	1,690,103.	126,758.	1,816,861.
07.	1,178.	2,355.	393.	82,433.	2,473.	84,906.
27.	134.	268.	45.	9,374.	281.	9,655.
43.	2,639.	5,278.	880.	184,740.	5,542.	190,282.
04.	38,064.	79,477.	27,261.	2,682,406.	173,041.	2,855,447.

TABLE

PRESENT VALUE OF

THE PASSAIC

	Schedule (1)	Base Present Value (2)	Contingencies Errors and Omissions (3)	Net Present Value (2) + (3) (4)
	Brought Forward	$2,466,769.	$ 70,835.	$2,537,604.
132	FIRE HYDRANTS AND FIRE CISTERNS:			
	On Dyers' Pipe Line	467.	14.	481.
	Excluding Those on Dyers' Pipe Line	70,648.	2,119.	72,767.
134	GENERAL STRUCTURES:			
	Land	24,840.	0.	24,840.
	Structures	38,146.	1,907.	40,053.
135	GENERAL EQUIPMENT	26,429.	1,321.	27,750.
	TOTAL USED AND USEFUL PROPERTY	2,627,299.	76,196.	2,703,495.
150	FIXED CAPITAL IN OTHER DEPARTMENTS:			
	Land	24,090.	0.	24,090.
	Structures	32,367.	1,618.	33,985.
	GRAND TOTAL	2,683,756.	77,814.	2,761,570.
	OVERHEAD ALLOWANCES IN PER CENT OF BASE COST OF USED AND USEFUL PROPERTY	100.00	2.90	102.90

NO. 18 (CONTINUED)

PROPERTY AND PLANT

WATER COMPANY

	Miscellaneous Construction Expenditures					
	Administrative Legal and General Expenses (5)	Engineering and Superintendence (6)	Taxes during Construction (7)	Total (4) + (5) + (6) + (7) (8)	Interest during Construction (9)	Gross Present Value (8) + (9) (10)
	$ 38,064.	$ 79,477.	$ 27,261.	$2,682,406.	$ 173,041.	$2,855,447.
	7.	14.	2.	504.	15.	519.
	1,092.	2,183.	364.	76,406.	2,292.	78,698.
	373.	745.	373.	26,331.	2,370.	28,701.
	601.	2,003.	200.	42,857.	1,286.	44,143.
	416.	0.	0.	28,166.	0.	28,166.
	40,553.	84,422.	28,200.	2,856,670.	179,004.	3,035,674.
	361.	723.	301.	25,475.	1,911.	27,386.
	510.	1,699.	129.	36,323.	817.	37,140.
	41,424.	86,844.	28,630.	2,918,468.	181,732.	3,100,200.
	1.55	3.21	1.07	108.73	6.81	115.54

EARLE B. PHELPS, sworn on behalf of municipalities.

DIRECT EXAMINATION BY MR. TREACY:

Q. Professor, what is your business? A. Consulting engineer.

Q. Will you please state what your experience in that line has been? A. I graduated from the Massachusetts Institute of Technology in 1899 Five years with the Massachusetts State Board of Health in experimental work on water and sewage purification. The next ten years in charge of sanitary research laboratory at the Massachusetts Institute, engaged in experiments upon sewage purification, treatment of industrial waste and allied matters. Six years professor of chemistry at the Hygienic Laboratory United States Public Health Service at Washington, in charge of stream pollution investigations, sewage disposal and water supply studies. And throughout the latter ten years of that period and during the past three years also in private consulting practice.

Mr. Wherry: May it please the Board, I would like to know what the purport of this witness' testimony is to be, because it seems to me that what Judge Treacy is going to attempt to do here is reopen a question in regard to the quality of the water.

Commissioner Osborne: I suspected as much from the qualification of the witness.

Mr. Wherry: Yes. That was subject to a hearing before the Board of Health and the Commission on Conservation and Development and their report was made within a

year. It has always been the practice of this Commission, this Board, to separate service complaints from rate complaints. It seems to me if there is to be a complaint regarding the quality of the water, and we claim there has been some change in regard to it since the last investigation, it should be taken up in a separate and distinct hearing so we can meet it at that hearing, so it will not be interjected in this case.

Mr. Treacy: Your Honor, the quality of the water is a question to be considered in the value of the service and the rate of return to this company. In the first case that Mr. Wherry had before this Board, the Hackensack Water case in 1913, when I was a member of the Board, Mr. Wherry himself introduced testimony to show the quality of the water, and testimony was introduced by the other side for the very purpose of showing what the value of the service was and whether the water was good or bad and how it would affect the rate. I ask that the witness be permitted to testify.

Mr. Wherry: May it please the Board, Judge Treacy appears to me to be in error in his recollection because the Hackensack case—there were two hearings, they were carried on parallel, in which the Board separated the complaint in regard to service and the complaint in regard to rates and continued two separate and distinct hearings. That is the procedure I had in mind when I said that was the practice before the Board.

Commissioner Osborne: Why is not the question of the quality of the service material to the fixing of a rate?

Mr. Wherry: The theory of a rate is that the service of the company for which the rate is asked is proper, adequate and reasonable service that the company is required to give. Now if there is a question in regard to the service, the remedy is to direct the company to remedy that.

Commissioner Osborne: How can we direct you to remedy something which may not be possible for you to remedy?

Mr. Wherry: That is a question, whether it is reasonable.

Commissioner Osborne: You can't do more than you have done to purify this water.

Mr. Wherry: No.

Commissioner Osborne: You can't get this volume of water from any other source. Why aren't we reduced to the question of determining whether, in view of the fact admittedly this is the best you have to offer, whether you ought to charge more or less for it according to its quality? I think the question whether it is proper to put in testimony of this kind in a case of this kind, rests within the discretion of the Board, whatever the precedent may have been in the past. I am never too much in favor of being slavishly bound by precedents, and usually disregard them when I think it is wise to do so. It seems to me that it may be proper to take this testimony. At any rate, I will take it, subject to conference with my fellow Commissioners on such an important aspect of the case.

Q. Will you proceed, Professor? A. During my service with the Government, I was Consulting

Sanitary Engineer with the International Joint Commission, a body composed of American and Canadian members, having jurisdiction over all matters that might come into dispute relating to the boundary waters between the United States and Canada. In that connection I made an investigation, extending over three years, of the pollution of boundary waters and wrote a report, with recommendations, as to the limitation of that pollution.

Q. Will you state whether or not you are familiar with the method of filtration at the Little Falls plant of the East Jersey and its affiliated companies? A. I am quite familiar with that matter in general and—

Q. And with the Little Falls plant itself? A. I haven't been there for several years. I used to go there quite frequently; I know the character and type of plant and method of operation quite well.

Q. How about the water shed? A. I am quite familiar with the water shed.

Q. What study have you made of it? I had occasion to study quite extensively some years ago the Rockaway River portion of the Passaic Water shed in connection with the Jersey City water supply and a year or so ago I had to take the matter up afresh in connection with the application of the City of Montclair before this Board, I believe. I am quite familiar with the whole situation of the Passaic water shed as one becomes familiar with it through careful observation and study.

Q. What examination have you made of the records of the company showing the result of the filtration and purification processes? A. I have

had opportunity within the past week to go over the summaries of operating data. These summaries showing monthly average statistics of all the operating factors, including bacteriology and chemical analysis, this covering a range of ten years. In several special cases where interesting facts appeared to develop, I have studied the daily operating results of the same character, these all being the company's data.

Q. What have you to say with reference to whether or not there is any polluting matter entering the steam above the intake of the East Jersey and its affiliated companies at Little Falls?

Mr. Wherry: Just a moment, please. You mean to-day, or is this—are you asking, under present conditions or conditions back two years ago when he says he was on the water shed?

Mr. Treacy: Let him state what time.

Commissioner Osborne: Let him state.

Q. Do you know the conditions as of today? A. Yes.

Q. Or the recent past? A. Yes.

Mr. Wherry: May I ask a question?

By Mr. Wherry:

Q. Do I understand you to say your latest investigation at the plant, the filtration plant was two or three years ago? A. Yes.

Q. And that was in connection with that hearing which was held in which the quality of the water was subject to investigation by the State. A. No; previous to that.

Q. Previous to that? A. Yes.

Q. You haven't visited it since then? A. Not inside the filter plant, no.

Q. How about the water shed? A. I visited the water shed frequently since that time.

Q. How lately? A. This summer.

Q. This summer? A. Yes, sir.

Mr. Treacy: All right. Will you proceed, Professor?

A. Passaic River above little Falls is seriously polluted with sewage. That is evident by the bacteriological examinations made by the water company and is evident to any one familiar with such matters by a mere physical examination of the stream above the Little Falls plant, and by knowledge of what enters that stream in the way of sewage and treated sewage effluents from cities located on the Passaic River, or on its tributaries, I should say, above Little Falls.

Mr. Wherry: May I ask one question here for the purpose of raising an objection.

By Mr. Wherry:

Q. Is this the same condition that obtained prior to the investigation by the State to which you have referred? A. It was essentially—

Q. Has there been any change? A. Essentially the same, as far as I am aware.

Q. Essentially the same? A. Yes.

Mr. Wherry: I object to this testimony. It has already been covered and is res adjudicata by the State Board of Conservation. The

entire issue between the City of Montclair and the company, the whole question whether this was proper water was disposed of.

Commissioner Osborne: What did they decide?

Mr. Wherry: They decided it was potable water and practically all right.

Commissioner Osborne: They decided it was fit to drink?

Mr. Wherry: Yes.

Mr. Treacy: They didn't decide anything of the kind.

Mr. Wherry: I think their report should be put in evidence in this case as decisive on the issue as to what the quality of the water is.

Commissioner Osborne: What do you say?

Mr. Treacy: The only question there was as to whether Jersey City owned or could own Split Rock Pond. Mr. Potts can state as to that.

Commissioner Osborne: I don't see as it makes any difference. Suppose they decided it was drinkable and it wouldn't kill you, that wouldn't mean it was worth as much as nice, pure, spring water that wasn't purified sewage.

Mr. Wherry: I think their report though is conclusive as to the quality of the water and their report could be put in evidence to show that.

Commissioner Osborne: You may put it in evidence as part of your case in rebuttal.

Mr. Wherry: I object to the testimony.

(Informal discussion.)

(Objection overruled.)

By Mr. Treacy:

Q. You have stated you are familiar with the filtration process at Little Falls plant. Do you consider that supply of water furnished by these companies as a satisfactory one for domestic use? A. No, sir.

Q. Do you consider it healthy or safe for domestic use? A. I consider this water occupies the position—if I may use an illustration—of a fire hazard. The fact that it is not causing disease day by day is no indication of the narrowness of the margin of safety between what is being produced—

Commissioner Osborne: That don't answer the question. Just read the question.

Q. (Question read.) A. As it is being produced day by day, now, yes.

Q. Is it safe?

Commissioner Osborne: He said so.

A. Well, there are two significances of the word "safe." I would like to explain it.

By Mr. Treacy:

Q. I would like the Professor to be allowed to explain.

Commissioner Osborne: I am not stopping him.

Mr. Wherry: The question can be answered yes or no; he answered it "yes."

Commissioner Osborne: You put your question in double form. You asked him whether it was healthy or safe and he said "yes."

Mr. Treacy: You wouldn't let him explain. You insisted on his answering the question.

Commissioner Osborne: He was not answering the question he was asked. He was giving the margin of safety as that of a fire hazard. The fact it could be answered "yes" was evidenced by the fact it was answered "yes" when I put the question, so it was susceptible of that kind of an answer.

Q. Will you please explain?

Mr. Wherry: I object to his explaining.

Commissioner Osborne: We will wait until we see what he wants to explain.

Mr. Treacy: The Professor was proceeding to explain why he didn't consider that this was a proper supply or a satisfactory supply of water, as I understand it, while he said as it is now being produced, with the processes, it may be safe. I want him now to show why it is not a satisfactory, potable supply.

Mr. Wherry: It seems to me that is exactly the point I make in regard to a service case. If the water now produced is perfectly safe and healthy, then it comes within the requirements of being a reasonable and proper and adequate supply and the rate is based on that. If there is any objection at any time or criticism that comes up on a complaint before the Board to find out why

it is not being treated as it should be treated and as it is treated today. The question which may arise in the future—

Commissioner Osborne: You see, it may be chemically safe, that is to say, it may be so treated by chemicals as to destroy any germs —I have forgotten what you call them—coli bacillus. I attended a conference last year of the Health Society and heard the whole subject discussed. It may be that it is chemically pure in the sense that all the deletorious bacteria may be destroyed by the process to which it is subjected. That might not make it a very desirable beverage.

Q. Does the process to which it is subjected, chlorination process, get rid of all the bacteria? A. No; it does not.

Q. You were going to say something as to the margin of safety between this supply and an epidemic. A. Sanitary engineers recognize it is not a sufficient criteria of safety or healthfulness that—

Mr. Wherry: I object to what Sanitary engineers recognize. He can state his own opinion and his own experience.

Commissioner Osborne: I understand it is coincident with that.

Mr. Treacy: We will take his own opinion. I guess there isn't a better authority in the United States than Professor Phelps.

Commissioner Osborne: If he will state his opinion perhaps he will see that all other first class sanitary engineers agree with him, will you not?

Witness: Yes, I think so. It is my opinion it is no criterion of safety that the daily output of a plant analyzes safe if that plant is operating under such a minimum margin of safety and with water, raw water, of so dangerous a character that those variations, which are unescapable in ordinary plant operation, may at any time give us a dangerous water.

Q. Is this a plant of that kind? A. In my opinion, this plant has practically reached its maximum load and has reduced its margin of safety to almost nothing. That fact is evidenced by the fact that it is necessary to resort to the very last factor that we have in reserve, a chlorine treatment, in order to produce a water that would pass the ordinary standard specifications. A few years ago, without chlorine, which we have now —it is a new method of treatment—this water as it is filtered and before chlorination would not pass the ordinary legal requirements. There is nothing more known to the profession. We have used up the last resource.

Commissioner Osborne: Judge, why do you continue to use this water if it is so bad? Why don't you get the water some where else?

Mr. Treacy: They are trying to unload; Jersey City is leaving them; Bayonne has a contract for a new supply; Paterson and Passaic have tried to buy them out with a view of getting a new supply from the Wanaque.

Commissioner Osborne: Well, as long as they continue to use it they must pay for it.

Mr. Treacy: Yes.

Commissioner Osborne: Notwithstanding it may not be as nice as they would like to have it.

Mr. Treacy: Yes.

Commissioner Osborne: Perhaps you could shorten this aspect of the case considerably by applying a little bit of reasoning to it and saying they are using the water.

Mr. Treacy: Yes.

Commissioner Osborne: You don't want them to turn it off because it isn't good.

Mr. Treacy: No. We don't want to pay to the same extent for it.

Commissioner Osborne: You must pay to get it. You have got to pay; you have got to pay what it costs to produce it and you have got to pay a reasonable return on the amount of money invested to produce it, the full value, as long as you want it.

Mr. Treacy: Yes.

Commissioner Osborne: That is all there is in this case, anyhow.

Mr. Treacy: The reasonable amount of return that a company which supplies the best product should be certainly greater and different than the return to the company that supplies a poor product.

Commissioner Osborne: Well, I don't know what this company has been earning in the past.

Mr. Treacy: That is all a matter of judgment for the Commission, of course.

Commissioner Osborne: It occurs to me that this water situation up there is so well known, so well settled, that we ought not

have to waste very much time about it. If it is unsatisfactory that is the best they can get and the best they can give and you want it until you make some other arrangement.

Mr. Treacy: Yes.

Commissioner Osborne: I think they will admit that the intake isn't as it should be. The fact they are chlorinating it indicates that. They are doing the best they can with it and producing a chemically pure water.

Mr. Treacy: We have this condition at any rate.

Commissioner Osborne: We might take testimony for a week and we would reach that same point.

Mr. Treacy: We have this situation: We have the City of Bayonne leaving; we have the City of Montclair condemning this water supply there and leaving; we have Paterson and Passaic trying to break away.

Commissioner Osborne: Pretty soon they will have to have a higher rate.

Mr. Treacy: Your Honor anticipates, with your usual keenness of judgment, my thought. Suppose this system is reduced by the leaving of these various municipalities to only a fraction of what it was; suppose in the end it will only be supplying the cities of Kearny, Harrison and East Newark. Shall the value of this entire plant be charged against those people, the entire capitalization?

Commissioner Osborne: No. Only so much as used and useful in those cities.

Mr. Treacy: Yes. Now then, you have these cities leaving on this account and still their

claim is that this plant is just as valuable as if it were supplying a first class product which would retain its customers.

Commissioner Osborne: I suppose it costs them just as much to produce poor water as good water.

Mr. Treacy: You are talking about cost now, but I am talking about rate of return they ought to get. We have decided it; we decided it in the Middlesex Water case here.

Commissioner Osborne: Of course, if a company is selling poor gas it ought not to expect to earn as much as if it were selling good gas. My point is this: When everybody admits what the condition is, why take time to testify to it?

Mr. Treacy: All right; I am satisfied. My only reason for introducing it is to claim that was a factor to be considered in fixing the rate of return for this company. All right; I am satisfied.

Commissioner Osborne: You don't contend when taking this water from the river it is pure, good, healthy water to drink, do you?

Mr. Wherry: Without the treatment?

Commissioner Osborne: Yes.

Mr. Wherry: I contend there is very little water in this State that is pure, that is satisfactory to drink—

Commissioner Osborne: I am talking about this water. I know that is true. You wouldn't go along in the woods and premiscuously drink from any stream?

Mr. Wherry: I think Professor Phelps will tell you there are about five hundred places here where they chlorinate.

Commissioner Osborne: You chlorinate this water and you sell a water that is chlorinated.

Mr. Wherry: Yes.

Commissioner Osborne: And as far as health is concerned it is—what shall I say? —chemically pure.

Mr. Wherry: Safe and potable. The witness has said it; safe and healthy. There may be some sentimental reason for not wanting to—

Mr. Treacy: The sentimental reason is it is sewerage.

Commissioner Osborne: I think you might use a different expression than "sentimental objection."

Mr. Wherry: I mean, it appeals to the emotion and not the reason. You may be able to reason yourself—

Commissioner Osborne: You may be able to reason yourself into drinking it on the theory you are satisfied it may be chemically pure although—

Mr. Wherry: There is no reasonable or rational reason for not drinking a water if it is safe, as delivered by the water company, but there may be sentimental or emotional—

Commissioner Osborne: Not a chemical reason.

Mr. Treacy: That is not a chemical reason, perhaps.

Mr. Wherry: Nor a bacteriological.

Commissioner Osborne: Can't you gentlemen agree?

Mr. Wherry: I want to put the report of the State Board of Health in, because it states

what the water is and compares it with other sources in this State.

Commissioner Osborne: Have you seen it?

Mr. Treacy: I haven't seen it.

Commissioner Osborne: Suppose you look at it.

Mr. Wherry: You are familiar with the report of the State Board of Conservation.

Witness: I am not.

Mr. Wherry: The McGowan report.

Commissioner Osborne: Have you it here?

Mr. Herrmann: I think the Board has a copy on file. I think Colonel Betts has.

Commissioner Osborne: In any previous case.

Mr. Betts: Not in any previous case.

Commissioner Osborne: My interruption, Judge, was merely for the purpose of suggesting a method for shortening the examination, that is all. If my suggestion isn't valuable to that end, you may go on.

Mr. Treacy: I am satisfied. I have got in what I want, except I was going to ask the Professor if the minimum of safety had been reached, and I think he said it had.

Commissioner Osborne: He said it had.

Mr. Treacy: All right.

Mr. Wherry: I would like to know on what he bases that. He hasn't seen it for two years.

Mr. Treacy: He said he saw it this summer, the water shed.

Witness: I have seen the analytical results up to date.

Mr. Wherry: You base it entirely on the analytical results?

Witness: No.

Mr. Wherry: You don't base it on the analytical results?

Witness: No.

Q. How long do you think it can be continued to be used in its present state? A. I wouldn't want to say, not indefinitely, certainly.

Commissioner Osborne: It depends on the resistance of the people.

Witness: It depends on the rapidity of growth on the water shed, the population growth.

Mr. Wherry: I am not prepared to admit it has reached its maximum load or margin of the margin of safety. I would like to—

Mr. Treacy: What is that ?

Commissioner Osborne: He don't admit it has reached its maximum load or markin of safety.

Mr. Treacy: I don't care what Mr. Wherry says.

Commissioner Osborne: He is merely indicating he don't want to be bound.

Mr. Treacy: I want to know what the witness' views are in regard to it.

Commissioner Osborne: He has told you.

Mr. Wherry: I want to wait until he has finished his direct.

Commissioner Osborne: You have finished?

Mr. Treacy: Yes.

CROSS EXAMINATION BY MR. WHERRY:

Q. You say, Professor Phelps, you mentioned the legal requirements; what are the legal re-

quirements you refer to? A. I had in mind the standard which has been adopted by the Treasury Department for use of water or interstate carriers and that standard has been made official, the semi-official standard by many state boards of health in states.

Q. Well, that is not a legal requirement, but a standard adopted by the Interstate Commerce Commission? A. It is legal as far as the use of water by common carriers is concerned and legal in states like Minnesota, which has adopted it as a standard.

Q. What is that standard? A. That standard relates to purified water. The water must not contain in five samples of ten cubic centimeters each, not more than two shall regularly show the presence of bacillus coli.

Q. Will you give me that again? Must not contain in five samples what? A. In five samples of ten cubic centimeters each not more than two shall, on the average—

Commissioner Osborne: Two samples?

Witness: Two samples shall not on the average show the presence of bacillus coli.

Commissioner Osborne: At all?

Witness: At all, yes, sir. That is a plus or minus test. That is all we apply.

Q. Do you know whether there are any waters in the State of New Jersey that comply with that test?

Mr. Treacy: Will you read that question?

Q. (Question read.) A. I don't know of my own knowledge. I don't know whether there are.

I don't know they do not comply. I don't know about them at all.

Q. So that all there is to the test is a test for B. Coli bacteria? A. No; there are some other requirements.

Q. What are the requirements? A. I can't give the entire regulations of the Treasury Department. There is a requirement, I think, there is not over one hundred total bacteria per cubic centimeter.

Q. Are you sure of that? A. No, not quite sure. It is in those terms; I am not sure of the figure. I think that is the figure.

Q. Not over one hundred total bacteria per cubic centimeter? A. Yes.

Q. Did you say you were familiar with the Rockaway Water? A. The Rockaway water shed.

Q. Are you comparing this water with that Rockaway water shed? A. No. I haven't compared it.

Q. Do you know what the bacteria count of the water which goes into the Rockaway water plant from that shed there at Boonton is? A. I don't recall the figures. I haven't had occasion to look them over.

Q. Are there any other specifications that you say that this water should conform to to meet the legal requirements that you mention? A. No. There aren't many legal standards that have been adopted and this one I refer to merely covers those two points.

Q. That is after the water is purified? A. Yes.

Q. There are different methods of purifying? A. Yes.

Q. Chlorination is one of the most common? A. Yes.

Q. Most efficient? A. Yes.

Q. Do you know how many places there are in New Jersey where they have filtration plants, filtration plants using this method? A. I don't know the exact number.

Q. Do you know about Hackensack? A. Yes.

Q. They have a plant there? A. Yes.

Q. And how about the Elizabethtown Water Company? A. I don't know about that.

Q. The same system there? A. I don't know about that.

Q. Do you know where else they use it? A. Filtration?

Q. Yes.

Commissioner Osborne: Filtration did you say?

Witness: Yes.

Q. How many plants there are in New Jersey. Practically five hundred places?

Commissioner Osborne: Chlorination or filtration?

Mr. Wherry: Filtration by chlorination.

A. Chlorination is not filtration.

Commissioner Osborne: I notice he was talking about filtration. He spoke of filtered water.

Q. Don't many of these plants filter these waters in New Jersey? A. I don't know how many there are, how many of those you mention. Hackensack filters it.

Q. By chlorination and filtration both you have a higher purified water than if you don't? A. Yes, chlorination picks up the imperfections of the filtration.

Q. Would you say this plant, when you examined it, was functioning as well as any modern plant would function? A. One couldn't tell by examination. The analytical figures show it physically about—

Commissioner Osborne: Is it a modern plant?

Witness: Yes.

Commissioner Osborne: Are the processes which are used there for the purification of the water modern processes?

Witness: I think so; probably the very best.

Commissioner Osborne: From the test you made did you find the water below the standard?

Witness: I haven't made those tests personally. I have inspected it on test.

Commissioner Osborne: In any test which you observed, on any test did you observe that?

Witness: I think not, in the data I have looked over, the final treated water I don't think has been below that Treasury Department standard; although I am not certain of that on certain days, not for long periods certainly.

Commissioner Osborne: Does their plant include the process of filtration and chlorination?

Witness: Yes.

Commissioner Osborne: Is that a double process?

Witness: It includes both.

Commissioner Osborne: Are both processes common to water plants?

Witness: Yes. Chlorination is more common now.

Commissioner Osborne: What?

Witness: Chlorination is more common now.

Commissioner Osborne: Chlorination is the passing of the water through a chemical?

Witness: Substituting an additional chemical gas to the water.

Commissioner Osborne: To the water?

Witness: Yes.

Commissioner Osborne: And those chemicals attract the impurities?

Witness: Simply kill the bacteria.

Commissioner Osborne: Then the result is filtered, is taken up by the filters?

Witness: No. Chlorination follows filtration.

Commissioner Osborne: Just explain the process briefly.

Witness: The process employed at Little Falls is first a treatment with alum which fluctuates and coagulates and gathers up the dirt, the larger, coarse material and many of the bacteria into masses large enough to be filtered out on sand. Then it is, after a slight period of sedimentation where some of that material settles in tanks it goes to the sand filters and passes through fine sand. In this case at a rather rapid rate, which is known as the rapid sand filters; and then the clear

water coming from that filter is given a dose of chlorine gas which just kills the remaining bacteria which had come through.

Commissioner Osborne: These bacteria which have escaped the alum process and filtration process are killed?

Witness: They have run the gauntlet of chlorination. They don't kill them all; they get a percentage of them. My point is that is the last word of the latest refined process we have. It is used as a reserve, and at Little Falls they are using the reserve all the time. Without that they couldn't get by at all.

Q. You mean they use chlorine all the time? A. Yes.

Q. They use that at Hackensack all the time? A. Yes.

Q. They use that in all modern plants; they have filtration, don't they? A. Not all.

Q. That is your margin of safety? A. It is held in reserve.

Q. You think— A. That is the margin of safety, yes.

Q. As I understand it you remove all bacteria first by this treatment, which is alum in the settling bed? A. Not all.

Q. All you can? A. Remove all you can.

Q. There may be a few left and in order to be sure that there will not be enough left to be dangerous in any way you treat it with chlorine, is that right? A. Exactly.

Q. The greater portion of them are taken out? A. In your case there are a large number left before chlorination, that is just the point.

Q. I mean, by this process of filtration the larger portion of the bacteria are taken out? A. Ninety per cent.

Q. Ninety per cent? A. Yes.

Q. Don't you call that a large percentage? A. No, that is not large for water companies.

Q. The balance, say, of ten per cent is treated by your chlorine? A. Yes.

Q. What do you base that percentage on? On the company's own tests? A. Yes.

Q. On the records they have? A. Yes.

Q. What records during the last few years? A. I have looked over the records for ten years, I think from 1912 to 1913.

Q. When you stated that the plant had reached its maximum load to produce the margin of safety, do you mean it always had to chlorinate or there would be some bacteria in there? A. Not always during that ten years, but during recent years, during the last year or so.

Q. What I had in mind was, when you said it had reached its maximum load you mean that all filters are in use, and it had no reserve filters where the chlorination will not be effective? A. Where the entire treatment will fail.

Q. When is that saturation reached? Isn't all the water that goes off the water shed, while there is population on the water shed, isn't that always polluted to some extent? A. Yes.

Q. What is the usual percentage of bacteria in the water that has to be purified? Give me the standard of what your Commission used, one hundred bacteria per cubic centimeter? A. You want the standard for all water?

Q. The standard for all water in treatment? A. In the case of the International Commission we

had that question before us and had it come up for decision. The Commission called together a Board of six engineers ,three from each country and those engineers were given that question as you ask me today.

Q. Did they make a decision? A. They made a decision.

Q. Is that based on experiments? A. That is based on their own experience of years as sanitary engineers and that standard has been adopted for the particular case to which it applies, international waters and also upper lands, of five b. coli per cc., per cubic centimeter.

Commissioner Osborne: Five B. Coli?

Witness: Five B. Coli per cubic centimeter. That is the standard by which we base our recommendations for purification work on international waters and those works are being built to comply with that specification.

Q. You mean, if there are less than five per cc., yon don't have to filter? A. No. That is the limit for raw water that is to be purified for domestic use.

Q. Do you mean to say that it is impossible to purify water containing more than five B. Coli per centimeter? A. I think the thought is—

Q. I am asking you whether it is or isn't. A. It is impossible to purify and guarantee we shall at all times have a safe water.

Commissioner Osborne: If they didn't boil it?

Witness: Yes. That is, in the first place.

Commissioner Osborne: You mean by some practical method of handling large quantities of water for public consumption?

Witness: Yes, certainly.

Q. Do you know what the raw water for the Jersey City system is and the number of B. Coli per centimeter? A. No. I don't recall the figure.

Q. Isn't it a fact that sometimes there are as many as one hundred and fifty thousand B. Coli in water that is treated and when they get through there are no B. Coli in the water that is purified? A. I doubt it very much. That would be practically raw sewage.

Q. Do you know whether any experiments have been made to determine what the limit of chlorination is; how many B. Coli there has to be in the water before you can eliminate them all? Have you ever made any experiments yourself of that sort? A. How many B. Coli you would have to have before you do what?

Q. No. The question is: Have you made any experiments to determine how large a percentage of B. Coli there can be in water treated by this chlorination process and yet have it come of the chlorination process so as to meet your test, this proposed test? Have you ever made any such experiments? A. I have made a great many experiments with chlorine treatment of water and sewage, with chlorine gas. I don't think your question is capable of being answered.

Q. You don't mean with five B. Coli per cc. you can't treat it by the chlorination process and have it so after you treat it, have so few B. Coli you can't find a trace of them? A. Answering

your question: I mean to say such water cannot be treated so it will always be safe or free—

Q. Can it be treated so sometimes? A. Yes, sometimes.

Q. You mean sometimes you can't get them all out? A. Yes. We have to allow for variation.

Q. Don't that depend on the way in which it is treated? A. It depends on that. Yet the best treatment recognizes variations from day to day. Your own figures show tremendous variations in quality.

Q. When did you last take any samples of the water that goes into that filtration plant? A. I haven't taken any samples.

Q. Do you know what percentage of B. Coli there is in the water treated there? A. Only your own figures.

Mr. Treacy: You have their own figures?

Witness: Yes, a graph.

Mr. Treacy: What do their records show?

Mr. Wherry: I think the records are the best evidence of that.

Mr. Treacy: We have it there.

Mr. Wherry: One of our records?

Witness: This is a transcript of the data which was furnished by your books.

Q. Is that something you prepared? A. Prepared by Mr. Potts or somebody.

Mr. Wherry: I object to that being put in evidence; our books are the best record and we would rely on our books. We will produce the books and see what they show.

Commissioner Osborne: Is it a copy of their records?

Mr. Treacy: A copy of their records prepared from their books by Professor Bemis.

Commissioner Osborne: He may use it for the purpose of testifying, subject to comparison with your original records.

Mr. Wherry: Is it a copy from the books? He says it is a graph.

Commissioner Osborne: Let us know what it is so we can rule on it.

Witness: It is a graph or chart showing monthly summaries of the B. Coli, the average number of B. Coli monthly for the period 1910 to 1922, up to date, inclusive. I understand, I am informed it has been prepared from the data submitted by the water company, from their own records.

Commissioner Osborne: Now, if you wish to prove what that is and the use of it—

Mr. Treacy: All right. We will put Professor Bemis on the stand.

EDWARD W. BEMIS, resumes the stand on behalf of municipalities.

Witness: This was prepared at my request by my staff.

Mr. Wherry: I object to it.

Witness: They took it direct from the records of the company at my request. I told them to do so.

BY MR. TREACY:

Q. They were the same assistants that you had that did the rest of the work? A. Yes, certainly.

Mr. Treacy: Your Honor, we are not required to follow the strict legal rules of law that some Court of law would require. If it it incorrect Mr. Wherry has all the opportunity in the world to show it is incorrect. Otherwise let them bring their books here.

Commissioner Osborne: This is a graph compiled from original data in the possession of the water company, is that right?

Witness: Yes, and we got the data and prepared the graph and had it blueprinted.

Commissioner Osborne: Have you that data?

Witness: I haven't it in this room at this moment. It is in our Paterson working papers.

Commissioner Osborne: So it can be produced and compared with the original?

Witness: Yes.

Commissioner Osborne: What do you want this witness to testify to regarding this?

Mr. Wherry: They were cross examining him on the amount of coli bacillus in this water. Professor Phelps stated if there were more than five B. Coli it was more than the standard. I wanted to show what the coli bacillus were in this company.

Commissioner Osborne: Let it be marked. You object to it?

Mr. Wherry: Yes.

Commissioner Osborne: Let it be marked for identification at this time. You can produce the underlying data.

Mr. Wherry: We can check it and maybe we won't have any objection.

(Graph as to quality of water marked R-4 for identification.)

Mr. Wherry: I can't check it here. I have to check it from the records.

EARLE B. PHELPS resumes the stand.

Commissioner Osborne: You produced this paper marked Exhibit R-4 for identification and were about to refer to it. What was the reference you wanted to make?

BY MR. TREACY:

Q. What is the greatest number of bacillus coli shown on that chart? A. This chart shows for certain months in this period over nine; the maximum is nine and a half per cubic centimeter. The monthly minimum is as low as one. The greater part of the chart appears to be over five, particularly in the years up to 1918.

Commissioner Osborne: Do you know whether that is before or after chlorination?

Witness: This is river water before treatment of any kind.

Q. River water? A. Yes. We are referring now to the river standard.

Q. Do I understand there was a percentage of bacillus coli that got through the chlorination? A. Yes. This chart shows also the bacillus coli in the delivered water.

Q. In what water? A. In the delivered water. That is, water after treatment and chlorination as delivered to the consumers.

Q. What does it show as to that? A. The scale is too small to read with great accuracy, but it shows in many months during that period more than one-tenth. That is, more than one B. Coli in ten cubic centimeters; and seldom over two in ten.

By Mr. Wherry:

Q. That is the delivered water? A. The delivered water, yes, sir.

Q. At the top line it shows the number in the raw river water we treat? A. Yes.

Q. So there are some instances in that where it exceeded five coil? A. Yes. Here is five (indicating).

Q. How many in the water that was delivered? A. Approximately one in every twenty cubic centimeters.

Q. One-half of one in ten? A. Yes.

Q. So it is perfectly possible to treat this raw river water that has more than five B. Coli per centimeter to meet the test which you say is the legal test? A. Yes, it can be done.

Mr. Wherry: All right.

By Mr. Treacy:

Q. But it is dangerous, nevertheless? A. It is dangerous.

Mr. Treacy: All right.
Commissioner Osborne: Is that all?
Mr. Wherry: Yes.

By Mr. Wherry:

Q. What it comes to is your opinion, when you stated that it has reached the maximum load and reduced the margin of safety to nothing; you didn't mean the company did something or omitted to do something that would make that water that comes from that water shed potable and safe? A. No.

Q. When it gets over five B. Coli per cubic centimeter in your judgment it isn't safe to treat that water with this process? A. That is true.

Q. As I understand, you mean whenever it gets over five B. Coli per cubic centimeter, if that continues over a long period of time there might be some occasion when the treatment wouldn't get all the bacteria and there might be excessive B. Coli in the water delivered? That is what you meant, didn't you? A. Yes.

By Mr. Treacy:

Q. If there were nine B. Coli in the raw water there would likely be more than some occasions; a good many occasions when some bacillus would get through the chlorination? A. Yes.

Q. The greater number of bacillus in the unfiltered water the greater number that would get through chlorination and to the public for consumption? A. That is approximately true, yes.

Commissioner Osborne: I understand you to say there is no danger to health unless this condition of an excessive number continues for some time.

Witness: No; it isn't a question of the continuance of an excessive number. The danger to health is rather a menace to health. It is the possibility of a break in the treatment process, which may occur at any time; they are so near the danger line. The water isn't dangerous in one sense, but it is a menace.

Q. Professor, would you drink this water yourself? A. I wouldn't if I could help it.

Mr. Wherry: I object to that.

Commissioner Osborne: I don't think that is competent. He is here as an expert. It is hardly fair to ask an expert to qualif on his own experience.

Mr. Wherry: Is that marked for identification?

Witness: Yes.

Mr. Wherry: Let me check that up. Furnish me a copy of it.

Q. Couldn't these companies do something to clear up the water shed or the cesspools and sewerage along the line? A. Well, when I answered Mr. Wherry's question that there was not anything they could do, I had reference to what they could do in the filter plant. Of course, I really have no knowledge of what it might be possible for them to do in the matter of clearing up the water shed.

Q. If they wanted to spend money enough to construct an intercepting sewer and police the watershed or get rid of the outhouses along the banks and stop the bathing. A. Yes.

Commissioner Osborne: And you wanted to pay the bills; that is what it comes to in the last analysis.

Mr. Treacy: It woudln't cost much to police it.

Commissioner Osborne: I have no doubt they would be glad to do it if your municipalities would pay a rate that would permit it.

Mr. Treacy: We are not talking about probabilities; we are talking about what you have to decide. It isn't what may happen if they did it, but it is what will happen as the condition is today.

Commissioner Osborne: What will happen apparently is they are going to lose their customers and they won't have anybody left to sell water to.

By Mr. Wherry:

Q. But it would be necessary to condemn a great deal of property there, wouldn't it, to clean up that watershed? A. I don't think it would be necessary to actually condemn much valuable property.

Q. Do you know? A. I think that entire summer colony ought to be condemned.

Q. Condemn that? A. Yes.

Q. Do you know how valuable it is? A. No.

By Mr. Treacy:

Q. Couldn't the company go above this polluted territory and get pure water? A. Well, I really haven't given any thought to the engineering possibilities of it. Those are possibilities, the question of policing; it is the sort of thing that has been done in other places and is generally regarded as necessary and, of course, the supply might be taken from a higher point, assuming there is a water source at a higher point; but I am not certain about that.

Mr. Treacy: All right.

Commissioner Osborne: Then you won't want this witness again?

Mr. Wherry: No.

Commissioner Osborne: I presume it will be necessary to fix another day if you gentlemen don't want to come here on Friday.

Mr. Treacy: There is one thing I would like to mention just now and that is that Mr. Potts has had a moving picture taken of this water shed, with all the life along the banks and in the stream.

(Informal discussion.)

Mr. Treacy: We ask the liberty of exhibiting that.

Commissioner Osborne: When do you want to exhibit it and where?

Mr. Treacy: We can set it up in this room at the end of the next hearing day.

Commissioner Osborne: How soon will your witness be ready with his exhibits? Mr. Wherry said he didn't want to cross examine him until those exhibits were prepared, or Doctor Bemis.

Mr. Treacy: We will be ready whenever Mr. Wherry is ready for cross examination. If he will state what day he will be ready, Doctor Bemis will be ready.

Mr. Wherry: Examine on this exhibit put in today?

Mr. Treacy: Yes, and the others.

Mr. Wherry: Within ten days.

Mr. Treacy: I suppose you can conclude all your testimony in one more day. We can conclude our testimony in one day.

(Informal discussion.)

Mr. Treacy: I think December 21st is satisfactory to me.

Commissioner Osborne: That gives a little more time than you asked for, but we better be safe then have you come in and arrange another adjournment.

Mr. Treacy: I am wondering, your Honor, if this case has to be decided by January 1st, after the 21st Mr. Wherry will probably want to introduce some rebuttal.

Commissioner Osborne: It don't have to be now under the arrangement made yesterday. It only has to be decided now in time to put whatever rate is decided on in effect before the March bills go out.

Mr. Wherry: March 1st is the date.

GEORGE A. JOHNSON, sworn on behalf of the Petitioners.

DIRECT EXAMINATION BY MR. WHERRY:

Mr. Wherry: On this question of the quality of water, I have here the annual report for the year ending June 30, 1920, of the Department of Conservation and Development, published by the State in 1920 and offer in evidence the portion of that report beginning on page 65, entitled "In the matter of the application of the Town of Montclair for the approval of its plans for a new water supply from Split Rock Pond and Beaver Brook."

Commissioner Autenreith: What is the purpose, of it, Mr. Wherry?

Mr. Wherry: It is on the question of the quality of the water.

Commissioner Autenreith: Has that been challenged here?

Mr. Wherry: Yes, they put in evidence—

Commissioner Autenreith: I may have missed some of the evidence.

Mr. Wherry: Yes, sir. They put in evidence a witness to prove the water shed, the water supply was polluted. Here is a decision of a State Board, May, 1920, after long hearings on the question of whether this was a proper water supply or not; it is on the application by Montclair for leave to get a new supply from Split Rock Pond and Beaver Brook, and the State Conservation Commission had to go into the question of whether the present supply was a proper one or not, so they had hearings on that issue.

Commissioner Autenreith: Do you think their determination is evidential?

Mr. Wherry: This is their determination on it.

Commissioner Autenreith: Any objection to it?

Mr. Treacy: I do not think it is evidential.

Commissioner Autenreith: Why?

Mr. Treacy: I think this Board is bound by what appears in evidence in this case.

Commissioner Autenreith: The only thing is, you cannot cross examine that report. I do not know what is in it. But it is a document that speaks for whatever it contains.

Mr. Wherry: Certainly; it is a decision, an adjudication on the subject by a State Board that had jurisdiction at that time.

Commissioner Autenreith: With none of these parties interested.

Mr. Wherry: Yes, Montclair was a party; it is a proceeding in rem.

Commissioner Autenreith: I am not inclined to accept it as evidential of its contents. If you say its contents are to the effect that the water supply is not polluted or is a sufficient, proper supply, I do not think the finding itself is evidential of the situation at this time, particularly.

Mr. Wherry: This was as late as 1920. You say you refuse to permit it to be received in evidence?

Commissioner Autenreith: Yes.

Mr. Wherry: I take an exception, please.

Q. Colonel Johnson, will you please tell me what your profession is and what your business is?

A. I am a hydraulic engineer and sanitary expert with offices at 150 Nassau Street, New York.

Q. How long have you been engaged in this profession? A. Continuously since 1895 I have been engaged on work intimately related to water supply, water purification, sewerage and sewerage disposal.

Q. During that time have you maintained a biological and pathological laboratory? A. The first five years, beginning with 1895 I spent continuously at the laboratory bench doing bacteriological, biological, pathological, and chemical work.

Q. You had experience in the actual operation of water and sewerage plants? A. About 1900 I began to devote myself more particularly to the operation of water and sewerage work.

Q. Will you state some of the communities you served in connection with that? A. In all, up to the present time I have served about one hundred communities in America and foreign countries, more notably the cities of New York, Philadelphia, St. Louis, Boston and Cambridge, Massachusetts; Pittsburg, Columbus and Cincinnati, Ohio; Kansas City, Quebec, Montreal.

Q. Any in New Jersey? A. Trenton, Jersey City and Bayonne, New Jersey, also the Passaic Valley Sewerage Commission. And the Bronx Valley Sewerage Commission.

Q. This work was of what character, briefly? A. It was of general character, embracing all phases of water supply, water purification, sewerage and sewerage disposal work.

Q. Did you also do any work of that character abroad? A. I spent an entire year abroad in 1904 and 1905 investigating and report upon

water and sewerage works in Japan, China, the Strait Settlements, Ceylon, India, Egypt, France, Germany and England.

Q. I believe you did some work of that character during the war for the Government? A. I did. I was for two years connected with the Construction Division of the army and my job was the technical management of all of the utilities in all of the army establishments coming under the jurisdiction of the War Department; there were some six hundred and forty-eight of those in all.

Q. You are a member of the usual engineering association? A. Yes, sir. I am a member of the American Society of Civil Engineers, the American Institute of Consulting Engineers, the American Society of Mechanical Engineers, the Society of American Military Engineers, the American Public Health Association, the American Water Works Association, the Engineering Institute of Canada, and some six or eight others.

Q. Colonel Johnson, are you the Colonel Johnson that wrote the report on the operation and maintenance of utilities at army camps and cantonments? A. I am, yes, sir.

Q. You are also the author of other similar reports and studies in your professional line? A. Outside of actual reports I have written perhaps fifty or seventy-five monographs on these subjects, yes, sir.

Q. What connection have you had with the filtration plant of the East Jersey Water Company at Little Falls? A. I have been familiar with the filter plant of the water company at Little Falls since the summer of 1902 when it was nearing completion. When it was placed in operation in the fall of that year I was given the charge of

its operation during what was known as the tuning up period and remained in charge of the operation of these works until the following February when I resigned and turned the plant over to the present operator, Mr. Frank W. Green.

Q. Have you been in touch with it since that time? A. I have. I have been familiar with it since it was built twenty years ago and I have studied the records of operation from time to time, so that I may say I am thoroughly familiar with the plant in all of its phases and with its operation and the results obtained from it during the past twenty years.

Mr. Wherry: I offer in evidence this paper which was furnished to my by Doctor Bemis as a transcript of the record of the Chemical Analysis of the water from the Little Falls plant, which was referred to in the testimony of Mr. Phelps and made the basis of his testimony.

Mr. Treacy: We put it in evidence.

Mr. Wherry: No, you did not put it in. It was given me to check, taken from the books of the company.

(Statement of Chemical Analysis of water, Little Falls, N. J., received and marked Exhibit P-30.)

Q. Colonel Johnson, have you seen this exhibit I have just put in evidence, or are you familiar with the records of the company themselves in regard to the bacteriological contents of the Passaic River water at Little Falls? A. I have seen this exhibit and I am familiar with the bacteriological contents of the Passaic River water at Little Falls both unfiltered and filtered.

Q. In your opinion is the Passaic River water above Little Falls seriously polluted with sewerage; is it as bad as it was in years past? A. All of the analytical records, including the exhibit which has just been placed in evidence show with positive certainty that the water has not become worse in recent years. There are a number of reasons for this, but probably one main reason exists in the construction of the Boonton dam whereby the waters of the Rockaway River, one of the main feeders of the Passaic River, are impounded. Prior to 1904 the waters of the Rockaway River already badly polluted, so seriously polluted in fact that as discharged into the existing Boonton reservoir they are dengerous and unfit in their raw state for human consumption, flowed directly down the river bed into the Passaic and naturally, in the course of time, to the filter plant at Little Falls. Now, the waters of the polluted Rockaway River enter the Boonton reservoir, which has a capacity of several billions of gallons and a storage period theoretically amounting to something over one hundred days. It naturally follows that the storage of the water in the Boonton reservoir must and does effect a material purification so that the waters when they leave the reservoir, even those flowing over the spillway are very much purer than when they entered the reservoir. This must and does have a beneficial effect on the sanitary quality of the Passaic River water at Little Falls.

Q. Does the record of the company of the unfiltered water, the raw water that is treated, show a diminution or an increase in pollution? A. The analysis which are in evidence show that for the past ten or a dozen years the raw river water at Little Falls contain diminishing numbers of

B-Coli, the organism commonly found in sewerage. For the four years ending 1917 the mean number of B-Coli in the raw water, by the partial test which it is the custom to make in the laboratory at the filter plant was about six per cubic centimeter, while the four years ending with 1921 the mean number of B-Coli was about four per cubic centimeter. There has been, therefore, a diminution in the number of B-Coli in the raw water going to the filter plant.

Q. From your experience would you consider the number of four, a mean number of four B-Coli in raw water is serious, dangerous? A. No, I would not.

Q. Why not? A. If, in the first place there is a competent method of purification, as there always should be when surface waters are designed for domestic use, that filter plant is perfectly capable under modern methods of operation of rendering a water so polluted perfectly safe and wholesome and consistently so through three hundred and sixty-five days in every year. The question of just how polluted the water might be or should be or should be allowed to be before it should be excluded from the purification plant and necessarily from use by municipalities, is a matter which has been under discussion for some years and is, as yet, undetermined.

Q. Would you say that the filter plant at Little Falls of this system has reached its maximum rate and reduced its margin of safety almost to nothing? A. I have heard mention made of the so-called margin of safety in connection with the Little Falls filter plant and the raw water supply it receives. I am not sure that I or anybody

else knows what is meant by this so-called margin of safety. Water filter plants of this type are capable, as everyone knows, of operating at a much higher rate, at least for short periods, then they are designed to operate under. I know that the Little Falls plant has been operated for months at a time at rates at least fifty per cent in excess of their rated capacity.

Mr. Treacy: I did not get that. Fifty per cent in excess of what?

Witness: In excess of its rated capacity, and the analyses of the filtered water and the health records of the communities receiving water from this plant, show with definiteness that the water has always been safe and wholesome and that would seem to indicate with positiveness that the factor of safety, whatever that may mean, has not yet been reached.

Q. Would you say that the chlorine treatment was the last reserve of that filtration plant? A. The chlorine treatment which came into use in 1908, when I first recommended its use in connection with the filter plant of the Union Stock Yard & Transit Company of Chicago—

Q. Is that Bubbly Creek? A. Yes, sir. —was later given great publicity by reason of the so-called Jersey City water case. This case was heard for several years and the testimony of a great many of the leading sanitarians of America was heard and published, with the result that following 1908 this process of sterilization was adopted very widely throughout the country, so that today there are very few water works man-

aged in an up to date manner that do not contain the chlorine treatment as an adjunct to its purification treatment. It is used at Little Falls, not as a last resort as some have claimed it is being used, but as a discretionary measure, as is the case in a great many other water works. It is a cheap and reliable method of destroying the last fraction of one percent of bacteria which may remain in the filtered water, and since it is cheap and easy of application and positive in its action, no up to date community would be without it, and very few of them actually are.

Q. In your opinion is the water which is delivered by the filters of this company good water? A. It is, decidedly.

Q. High grade? A. Yes, sir, it stands in the first rank.

Q. From your experience do you know how the Passaic River compares, the raw water compares with raw waters successfully treated by filtration systems at other places? A. I know by personal experience with a great many raw waters that the raw Passaic water at Little Falls is far less polluted than for example the raw water supply of the City of Albany or of Pittsburgh or of Philadelphia or dozens of others that I could mention, with which I have had personal experience.

Q. Any in New Jersey? A. Well, I am not dead certain about Trenton, but I think it is about the same as Trenton, perhaps, and probably a little better; it is a different kind of water. I know it is a great deal better than the Rahway water supply.

Q. Do you remember at the hearing before the State Department of Health a comparison of the

different raw waters treated in New Jersey? A. I remember such a comparison was made; I do not recall what I said about it.

Q. Do you know anything about it from your own personal experience as to how this water ranks in comparison with others? A. I know it is a great deal better than some. I am not thoroughly familiar with this comparison you are referring to. I do not consider the Passaic River water at Little Falls to be what is known as a badly polluted water.

Q. Is it possible to prevent any surface water from being entirely free from pollution?

Mr. Treacy: I beg your pardon?

Mr. Wherry: I asked whether it was possible to prevent, entirely prevent pollution of any surface water.

A. All surface water supplies constituting the bulk of water used in communities in this country, are derived from surface sources and as such are necessarily and unavoidably polluted and unfit in their raw state for human consumption. They are all of them potentially dangerous, some of them more than others, all of them require purification.

Q. After they are purified and treated by such a filtration system as at Little Falls, are they dangerous? A. I think not, decidedly, and the records show how markedly the typhoid fever death rate has diminished in the years since the filtration of water became popular.

Q. What is this B-Coli bacteria that is spoken of? What kind of bacteria is it? A. The bacillus coli is an organism inhabiting the intestines of man and some domestic animals, most domestic

animals, I think I might say, some wild animals, and occasionally fish, harmless in itself to the human organism, so far as is known, but when it is found in water it is indicative of sewerage pollution because its habitat is in the faeces of man and domestic animals. When it is found it gives circumstantial evidence that that water has been contaminated by sewerage. It may be excrementitious matter, coming from human beings or it may come from the excrement of cattle, come from fertilized fields and the like. The evidence furnished by the presence of this organism in water is, as I have said, purely circumstantial. It is not itself harmful, but it shows there may be—

Mr. Treacy: I object to this witness stating whether or not it is harmful. He is not a physician and not qualified to state whether B-Coli in water is dangerous to health or not.

Q. What is the bacteria that is dangerous to health? A. The typhoid bacillus.

Q. That is associated with the B-Coli? A. I have made tests on animals with both colon bacillus and typhoid bacillus to determine their pathogenic properties.

Q. Do you know from those tests whether or not the B-Coli bacillus is dangerous? A. The mere fact that it is the regular inhabitant of the human intestines of every human being would be sufficient proof that it is not injurious to man.

Mr. Treacy: It is not injurious while in there, but it is injurious when it comes out and you swallow it again.

Q. Did your laboratory pathogenic tests show whether it was or was not injurious? A. It will kill sometimes white mice, but it does not often kill guinea pigs.

Q. Are you familiar with the water supply sources which might be available near the Passaic River? A. Water is getting to be mighty scarce up around this neck of the woods and if what you are driving at is to ascertain whether there is another available supply which could be substituted for the Passaic River at Little Falls, I would say that there is none.

CROSS EXAMINATION BY MR. TREACY:

Q. Did you read Professor Hazen's report to the City of Paterson recently, which recommended that a canal could be built to the Pompton River and that source of supply tapped for the City of Paterson? A. Yes, sir.

Q. So there is another source of supply that this system could get. A. I am referring to a practical source.

Q. If there is a source there, a canal could be built to it, wouldn't it be practical? A. You can go also to the Great Lakes.

Q. Well, is Pompton as far away as the Great Lakes? A. No, sir.

Q. About two miles and a half, isn't it? A. Well, I am just wondering whether it would be possible for the water company to get another water supply from any of these sources you are mentioning. It strikes me that the State authorities would have something rather pertinent to say about that.

Q. Assuming that to be a fact; you say there is no other supply. A. I mean available supply.

Q. Then you mean there are other supplies, but in your judgment the East Jersey and its affiliated companies might not be able to get the consent of the State to them, is that it? A. That is precisely what I mean to convey.

Q. You stated, Colonel, that a mean number of four B-Coli in water is not dangerous in any way to health. Suppose there are nine B-Coli in the raw water, what would you say as to that? A. I think as a matter of fact the raw water of the Passaic River at Little Falls does show at times as many as nine B-Coli per cubic centimeter, but that does not mean anything to me, because for many years sanitarians and engineers have endeavored to fix a standard, a limit to which raw water might permissibly be polluted before purification.

Q. The Government Commission reported not higher than five B-Coli, did it not, and found that standard? A. Well, an engineering committee advising the international joint commission dealing with the boundary waters between Canada and the United States did attempt to set up such a standard.

Q. Do you agree with them? A. No, sir.

Q. Do you think it could be nine or more? A. They do themselves by their own admission in their report.

Q. Although they recommended a standard of five. A. Yes, sir. What they say in their report which was published in 1919; you will find the closing sentence in paragraph 4, page 14, which reads as follows—or, perhaps to make this clear

Q. By the same parties that are interested here. A. Absolutely.

Q. And you testified in that case, did you not? A. I did.

Q. Did you testify in that case that the treatment by chlorine which was offered by the company in lieu of the diversion of the sewers was an effective treatment at that place? A. I did.

Q. Did you say in that testimony as follows: "Q. Is this method (that is the chlorine method) in your opinion, reliable? A. Yes, sir. Q. Is it safe? A. Thoroughly. Q. Is it uniformly effective in its action? A. Yes, sir, always. Q. In your opinion is this method suitable or otherwise to be applied to Jersey City water supply, for the purpose of rendering it safe and potable at Jersey City? A. I think it is in all ways thoroughly suitable and safe. Q. Is this method in your judgment a practical method for continuous use, to keep this water pure? A. Yes, sir. It is. Q. Is it as simple as would be a filtration plant, or as easily handled? A. Why, it is much simpler to manage than a mechanical filter plant or a sand filter plant." Did you testify to that effect? A. That sounds very natural and very familiar.

Q. Did you three years later in the same case upon an application of Jersey City appear as a witness for Jersey City and testify exactly to the contrary? A. I am going to answer that—

Q. I ask you to say yes or no and explain afterwards. A. Yes.

Q. You did. A. Yes. Now—

Q. Wait a moment. A. I have got to qualify that because it needs an explanation.

Q. I think your lawyer can bring that out. Did you advise Jersey City three years later not to

Q. You think it can run from zero up to ten and still be safe? A. Oh, yes, decidedly.

Q. You think it is safe water with ten B-Coli in it, in the raw water? A. If it is properly purified afterwards.

Q. If properly purified? A. Yes, sir.

Q. Now, then, the purification system consists of the filtration and the chlorine treatment? A. Well, it is coagulation, sedimentation, filtration and sterilization.

Q. It is the chlorine treatment in the last analysis that eliminates the bacteria. A. It polishes off the filtered water and tends to destroy the last vestage of danger, potential danger which it may possess.

Q. If you have nine or ten B-Coli in your raw water, is it physically possible to eliminate every vestage of bacteria with your chlorine treatments; will not some escape even your chlorine treatment? A. I think, undoubtedly.

By Mr. Record:

Q. Colonel Johnson, you have appeared in litigations concerning the water that flows down to this Little Falls reservoir, have you not, in years past? A. Yes, sir.

Q. Did you appear and were you familiar with the litigation brought by Jersey City when it took over its plant constructed by the East Jersey for Mr. Flynn, wherein the City tried to hold the company to building a diverting sewer on the ground that the water was polluted above the dam? A. Yes, sir.

Q. You were familiar with that. You were retained as a witness in that, were you not? A. I was.

Q. By the same parties that are interested here. A. Absolutely.

Q. And you testified in that case, did you not? A. I did.

Q. Did you testify in that case that the treatment by chlorine which was offered by the company in lieu of the diversion of the sewers was an effective treatment at that place? A. I did.

Q. Did you say in that testimony as follows: "Q. Is this method (that is the chlorine method) in your opinion, reliable? A. Yes, sir. Q. Is it safe? A. Thoroughly. Q. Is it uniformly effective in its action? A. Yes, sir, always. Q. In your opinion is this method suitable or otherwise to be applied to Jersey City water supply, for the purpose of rendering it safe and potable at Jersey City? A. I think it is in all ways thoroughly suitable and safe. Q. Is this method in your judgment a practical method for continuous use, to keep this water pure? A. Yes, sir. It is. Q. Is it as simple as would be a filtration plant, or as easily handled? A. Why, it is much simpler to manage than a mechanical filter plant or a sand filter plant." Did you testify to that effect? A. That sounds very natural and very familiar.

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Q. I ask you to say yes or no and explain afterwards. A. Yes.

Q. You did. A. Yes. Now—

Q. Wait a moment. A. I have got to qualify that because it needs an explanation.

Q. I think your lawyer can bring that out. Did you advise Jersey City three years later not to

rely upon this process, which you said was thoroughly safe and reliable, but in lieu thereof to insist upon getting a diverting sewer? A. When I testified—

Q. Did you recommend Jersey City to do that? A. I did. I want to qualify that answer too.

Q. You either did or did not. A. That is all right, but there are reasons why I did.

Q. Then the reasons are another proposition. I am not asking about that. When you appeared for the East Jersey testifying as to the efficacy of this chlorine process at the Boonton dam, do you remember testifying as follows: "You would not advise the city to expend money in keeping out this pollution from Dover hereafter, would you? A. I do not think that any gets in." Did you so testify? A. I did, for reasons.

Q. Did you testify in the other case that the waters of the Rockaway River as they enter the Boonton reservoir are always fouly polluted and have been continuously so in the state since 1908? A. I could not say. If you are reading the testimony I will take it that is so.

Q. I am reading the testimony, I am reading from a printed copy. Did you testify for Jersey City in 1912, at the same time that you reversed your testimony before, did you say as follows: "The water supply of these towns (meaning Montclair and Glenridge) comes from the Passaic River and ordinarily is effectually filtered and afterwards sterilized with chlorine, but due to abnormal water consumption in January (that was 1918) the filtered supply was augmented by mixing with it unfiltered but sterilized Passaic River water. Sterilization of this unfiltered water could not have been complete because of the sus-

pended matters which the unfiltered water contained. A sharp epidemic of intestinal disorders promptly made its appearance in Montclair and Glenridge, following the consumption by the citizens of these communities of the mixed supply, over two thousand persons being so affected.

This circumstance still further strengthens my conviction that this sterilizing process is unreliable as a safeguard against water borne diseases, particularly when the water contains suspended matter washed into it from the water shed and during extreme cold weather periods. The conditions described as applying to Montclair and Glenridge, with respect to the unsafe use of unfiltered water which has been treated with chlorine, obtains in the Jersey City supply when conditions on the water shed and in the Boonton reservoir are at their hygienic worst and during extreme cold weather periods. Experience at the Boonton reservoir sterilization plant and at other sterilization plants of the same character has shown that in the management of this process the operator is obliged to follow a hit or miss program, always endeavoring to add constantly more of the germicide than is required, but of which requirement he has no definite knowledge or assurance because of the fluctuating character of the untreated water." Did you so testify? A. Yes, sir.

Q. Are you familiar with the condition of this stream in the summer time on Saturdays and Sundays? A. I am.

Q. Above the intake, have you ever been there? A. Very many times.

Q. Have you been there this summer? A. Yes, sir.

Q. How many thousand people have you seen in the space of a couple of miles in that stream? A. I never took a census.

Q. What do you say? A. I could not say.

Q. Do you say fifteen thousand is a high number? A. I should say that was a very high number.

Q. What would you say was a fair number? A. I could not say, I have seen quite a number.

Q. Do you consider the presence of several thousand people in that stream on Saturdays and Sundays is liable to give rise to pollution? A. I think it is almost bound to give some pollution, but the facts are that the records show the water to be better in the summer than in the winter.

Q. Then you consider that their being in there adds to the purity of the water, do you? A. No, I do not; I did not say that.

Q. I am asking you what would you consider about those people being in that stream; is it a good thing or a bad thing? A. I consider you cannot prevent it.

Q. I did not ask you that. A. That is what I think about it.

Q. I did not ask that. I do not care what you think about it. I want to know what you think about the effect on the water of those people bathing it it to the extent of thousands of people. A. I have said a great many times I would rather have them out, but you cannot prevent it.

Q. Why? A. Because as has been said before, in the case of ordinary waters that are impounded, but before they are filtered, boys and girls, sometimes men will bathe in them. They bathe in the public supplies of Massachusetts just the same as they do in the Passaic River raw water supply

at Little Falls, but you cannot stop them. It is better to keep them out.

Q. I am asking why it is a bad thing? A. Because quite necessarily—hardly perhaps necessarily, but naturally they will excrete urine and that is undesirable æsthetically, anyway.

Q. Isn't it undesirable from other reasons than æsthetically? A. Well, a great deal of importance is placed upon this particular phase of pollution, because it is obvious, it comes directly beneath the public eye.

Q. It is also a fact, and common sense, isn't it, where thousands of people pollute a stream like that, that any slip in the administration of this chlorine and sterilization process might let the pollution through to the damage of the people that use the water; that is so, isn't it? A. I think you are pulling a pretty long bow, but it is possible.

Q. Didn't it happen so in the case of Montclair where two thousand people you say were taken with an intestinal disease? A. That was due to a Federal order that the water company could not overlook or fail to carry out.

Q. But you did not say so when you so testified. You testified that was a direct, natural process, characteristic of the process, didn't you? A. As soon as you permit me to answer—

Q. Didn't you? A. As soon as you permit me to answer your question the way I should answer it and all of these questions, which I have answered many times in the past ten years, I will give you a correct answer, a complete and satisfactory answer.

Q. Did you, when you testified for Jersey City and against the East Jersey state that the two

thousand cases of sickness were due to an order of the United States Government? A. I could not say. You have the testimony before you. You can tell better than I.

Q. Isn't it a fact that from what I have just read you, which you acknowledge to be true, that you charged that epidemic not to the fault of the United States Government, but to the direct inherent defect of this process; isn't that so? A. I am not sure. It is in the testimony. That will stand for itself.

REDIRECT EXAMINATION BY MR. WHERRY:

Q. Colonel Johnson, what were the facts in regard to the occasion when the filtered water was mixed with unfiltered water that you referred to? A. This occasion was during the heavy winter of 1917 and 1918 when a shortage of water caused the Federal Government to issue orders to the water company to open the raw water valve and permit raw water, chlorinated so far as was possible and guarded so far as was possible against the admission of disease germs, into the mains and so permit a large volume of raw water to mix with the filtered water and pass on to the consumers. The water company did that and so far as they could through the sterilization treatment, which everybody knows and has known for a dozen years is unreliable when treating raw water, was unable to properly sterilize the water, so that some intestinal germs, the exact kind nobody knows yet, did get through and presumably caused the illness of these people in Montclair.

Q. Is this sterilization that you speak of one part of the process that is carried on there at

Little Falls? A. That is only a part, and that was applied as the sole treatment of this additional quantity of raw water used in the emergency.

Q. So what you referred to in your testimony was that sterilization without the other treatments that go with it at the plant there was not sufficient it itself to get rid of the germs? A. The sterilization is not complete and sufficient in itself to treat raw water satisfactorily so as to guard against the presence of possible disease germs in that way. I have stated that many times, dating back as far as 1910 and the reason why I changed my views with respect to the character of the water supply and the efficacy of the sterilization treatment was that I have found these things out since I testified in 1908 and made those facts all public as fast as I found them.

Q. In 1908 you testified, did you, that sterilization was sufficient? A. At that time based on all the evidence available it was sufficient, or we so judged it to be. As it became more commenly used around the country there developed shortcomings and as fast as those shortcomings came to light I investigated them as far as I could and published the evidence bearing on those shortcomings.

Q. Will you refer to the papers where that data was published? A. The first statement of that sort which I made appeared in the Journal of the American Public Health Association and is a transcript of a speech I delivered before that Association in Milwaukee in September, I think it was, 1910. That is when I called attention to the danger of relying on the sterilization treatment to

destroy bacteria in raw water, but that does not refer to its efficacy when treating filtered waters.

Q. This plant is both filtered and sterilized? A. Yes, sir.

Q. Do you consider that that is a distinction you want to draw out? A. Positively.

Q. Is there anything you want to add to that explanation? A. I think not. It seems to me that is complete enough, but there is always this confusion of raw water and filtered water when speaking of the application of hypochloride to it or chloride compounds for sterilization purposes.

Q. That Jersey City case they were going to use the raw water and sterilize it and not filter it? A. That was exactly it.

Q. Here is a plant that both filters and sterilizes? A. That is true.

Q. In the three years between the two occasions you testified in the Jersey City litigation you discovered some new facts? A. We discovered some new facts and as fast as we found them we made them public. But I want to call particular attention to another thing here and that is that I did not change my opinion because I went on the city's side as distinguished from the water company's side. I was following the property; I was not following a client or changing from one client to another. I was still interested in the property itself and I was testifying on it.

Q. You were basing your opinion on the facts as they developed during the period? A. Absolutely, regardless by whom I was employed.

Q. In the case of that Boonton dam, when you testified in regard to the Boonton dam, what was

the explanation you wanted to make in regard to that? Is that also a sterilization case; is that the same thing? A. That is the same thing.

Q. There was some reference made to some question which I could not quite get, in regard to sewerage from Dover and its effect upon the pollution. What was the explanation of that? A. In the early days close inspection of the water shed above Boonton did not disclose the presence of sewer outlets; we could not find evidences of sewerage pollution along the stream. That is why I made the statement that I did, that Mr. Record referred to. Now later, when the property changed hands, I was engaged by Jersey City to make an investigation of the water shed and at that time this investigation did show numerous places where sewerage was entering the stream and it showed the character of the raw water to be very much worse than it had been in 1908 or previous to that.

Q. The Bubbly Creek water was not filtered or purified for human use, was it? A. The Bubbly Creek water was purified for stock watering and stream raising uses only.

Q. What does the test of the Bubbly Creek plant in operation show as to the possibility, as to the possible limitation of purification of raw water? A. That showed this: That this plant at the stock yard, taking the Bubbly Creek water, which is in itself composed of three-quarters lake water and one-quarter sewerage, was purified by coagulation, sedimentation, filtration and sterilization with chlorine compounds, so that the final product of this foully polluted stream containing many hundreds of coli per cubic centimeter in its raw state,

was purified so as to be safer for human consumption actually than the raw water supply of Lake Michigan, from Lake Michigan, which is the present supply of the City of Chicago.

Commissioner Autenreith: Mr. Wherry, you will need another day, I take it.

Mr. Wherry: I am through with this witness.

Commissioner Autenreith: We cannot sit any longer now.

Mr. Wherry: I am through with this witness.

Commissioner Autenreith: There may be some redirect.

Mr. Wherry: Do you want this witness returned?

Mr. Record: I just wanted a couple of questions, that is all. If he will come back I will ask him when he comes back.

Commissioner Autenreith: We have gone long past the time I figured on.

Mr. Wherry: I just wanted to know whether I should have him come back or not, Mr. Record.

Mr. Record: I don't take but two minutes.

Q. (By Mr. Record.) When you testified in 1909 that this chlorine process was effective and an absolute protection, was that testimony based upon experience in the operation of chlorine? A. It was based upon the experience obtained at Chicago and at the Boonton plant only. That is all we had.

Q. But you said at that time that it was an absolute protection. Do you mean to admit that you testified that way without the proper knowledge to determine whether or not it was an absolute protection? A. The records of our work going over several months showed that it was just what I say it was.

Q. But were those records sufficient to justify you in making such an unqualified statement? A. Well, I am willing to admit now that later developments have shown to the contrary that they were not sufficient.

(Adjourned until Thursday, December 28th, 1922, at the Kinney Building, Newark, N. J., at 10:45 o'clock A. M.)

BOARD OF CONSERVATION AND DEVELOPMENT

IN THE MATTER

of

The Application of the Town of Montclair for the Approval of its Plans for a New Water Supply from Split Rock Pond and Beaver Brook.

DECISION.

Dated May 24, 1920.

Offered in evidence on page 1 of the testimony of George A. Johnson (p. 75 appendix) and rejected and an exception taken (p. 76 appendix).

Decision.

(Dated May 24, 1920.)

IN THE MATTER

of

THE APPLICATION OF THE TOWN OF MONTCLAIR FOR THE APPROVAL OF ITS PLANS FOR A NEW WATER SUPPLY FROM SPLIT ROCK POND AND BEAVER BROOK.

Offered in evidence on page 1 of the testimony of George A. Johnson (p. appendix) and rejected and an exception taken (p. appendix).

Before the Board of Conservation and Development.

The Town of Montclair on December 22 1919, filed its application for the approval of this Board of its plan in said application set forth of obtaining a new water supply from Split Rock Pond and the outflow, Beaver Brook, in Morris County, for the inhabitants of said town.

The application includes the usual prayer for the Board's approval of the Town's exercise of the right of eminent domain to acquire the necessary land, water rights, appurtenances and right of way, and of the proposed diversion of the waters of said pond and brook.

Notice of the application was given and hearings held, as provided by law, at which all parties interested were given opportunity to be heard.

The applicant appeared by its officials and counsel on behalf of the application: the cities of Jersey City and Bayonne, the Montclair Water

Company, and the Morris Canal Banking Company appeared by counsel in opposition thereto.

Testimony being voluminous and a number of hearings being required for the presentation of their respective evidence and argument, all parties waived upon the record the statutory requirement that decision be rendered within ninety (90) days.

The fact that this Board is charged with general supervision over all sources of potable and public water supply, to the end that they may be economically and prudently developed; the importance to the State of such a development of its waters; the limited amount of potable water in the northern part of the State as compared with the constantly increasing requirements; and the realization that the decision on this application will necessarily have an important effect upon many other communities, have all impelled the Board to examine and weigh the evidence and the rights of all interested parties with care.

The Town of Montclair is now supplied by the Montclair Water Company with water taken from the Passaic River at Little Falls, after treatment, which, in belief, comprises sedimentation, filtration and chlorination, the same water being furnished fourteen (14) other municipalities, including Paterson, Passaic and Bayonne. The amount supplied in 1919 averaged 44,000,000 gallons daily, Montclair's proportion being only about three (3%) per cent. of the whole—a fact somewhat significant in the consideration of the principal ground urged by Montclair in support of its application; that is, the unfitness of the water from the sanitary standpoint.

Decision.

It was admitted by the applicant that the present supply is sufficient in quantity to meet all needs, but strongly urged that the waters of the Passaic River about Little Falls are so grossly polluted as not to be fit for home use even though filtered and sterilized before delivery; that such pollution is increasing in amount and will continue to increase; that upon at least one occasion an epidemic of intestinal disease resulted from the use of such waters; and finally, that by reason of the treatment given, chemical compounds of the water are formed which attack the pipes, making necessary frequent repairs to plumbing.

There can be no doubt that the sources of such pollution as exist are for the most part extremely obvious, somewhat localized within a comparatively short distance of the intake, and so situated and of such character as to be apparent to all who travel the roads in that vicinity, and that as a result a strong sentiment exists in the Town of Montclair against the use of this water, even after its treatment.

The Board recognizes that a widespread public sentiment of this character constitutes a natural objection to the use of water thus affected and that where some other source of supply can be obtained without injury to other municipalities and without conflict with the principals controlling the prudent and economical development of the State's water resources, it might safely support the finding of "public necessity" for a new supply.

It must be recognized, however, that unlimited supplies of potable water do not exist within reasonable reach of the metropolitan districts; that water supplies ideal in all respects cannot probably be obtained for all communities of Northern

New Jersey; and that, particularly in view of rapidly increasing population, and the comparatively limited water supply sources, it is practically inevitable that so long as the water can be made wholesome and safe, the Passaic River must continue to supply a considerable part of that portion of the State.

It is, therefore, evident that sentimental objection to the present supply may better be overcome by removing those obvious forms of pollution which are most offensive, rather than by abandonment of the supply.

Nor can the Board ignore the fact that the applicant has made no attempt, either by itself, or in co-operation with the Water Company or State Department of Health, to abate any of the conditions of which it complains, even where abundant statutory authority exists.

It is not germane to this decision, but may be appropriately noted in connection with the present case, that the Board is strongly of the conviction that additional powers and increased appropriations should be given the State Department of Health, through which better sanitary regulation may be exercised over public supply sources. Promiscuous bathing in close proximity to intakes should be prohibited, and every effort made by all parties in interest to prevent the pollution of all water supplies.

The continued development and prosperity of the metropolitan district unquestionably depends upon an adequate supply of safe and attractive water which can be furnished only by the protection, conservation, development and equitable distribution of present supplies.

Decision.

In our opinion, however, the degree and effects of the pollution of the Passaic water are unwarrantably exaggerated by the applicant. There is undisputed testimony to the effect that insistence upon the extraordinarily high standards for raw water advocated by the applicant's several experts, would compel the abandonment of raw waters which, as now treated, produce wholesome supplies, and would leave large sections of Northern New Jersey practically without water.

It further appears beyond question that this water, before treatment, is of better quality than numerous other raw waters which are successfully treated and safely used for drinking purposes, the stream receiving less sewage effluent, showing a lower bacterial count, and draining a region with considerably less pollution, per square mile, than several of the other approved public water supplies of the State.

The Little Falls filtration plant is of a highly approved type and efficiently operated, the chlorine gas treatment there employed being recognized as the best form of sterilization in use. The treatment given effectively removes all but occasional and minute traces of pollution. The epidemic referred to, if due to the water, was presumably due to the admixture of unfiltered water during a time of national emergency when the supply of filtered water was insufficient. Despite the fact that the applicant was but one of fifteen municipalities using this water, there does not appear to have been any marked occurrence of intestinal disorders at this time except in a limited area supplied by a part of the distribution system. On the contrary, the testimony of the health officials of several of the municipalities using this water, is

to the effect that there was no serious occurrence of intestinal disorders in their respective communities at the time. Since that time the capacity of the filter plant has been increased 33 per cent.

Further, health records of Montclair, as well as of all other cities supplied with this water, show an exceptionally low typhoid fever death rate and an absence of diseases commonly accepted as resulting from the use of impure water.

The statistics and testimony furnished by Dr. R. B. Fitz Randolph of the State Department of Health are obviously entitled to the highest degree of confidence and are to the effect that this water not only compares most favorably with the public supplies of other cities, but that, after treatment, it is of a high degree of purity and entirely safe for use.

In view of the foregoing, the principal question in this case is whether the proposed taking will unduly interfere with the opportunity of other municipalities to obtain a needed supply.

The proposed plan contemplates the diversion of water from Split Rock Pond. This pond with the territory draining into it is an integral part of the Rockaway watershed, the pond itself covering 315 acres and the drainage area above the proposed intake being 6.7 miles—something over 1/20 of the entire watershed of the Rockaway River above the Boonton Reservoir which supplies Jersey City.

By the construction of a dam, the flow line of the pond can be raised 5 feet and a reservoir created with storage capacity of about 800,000,000 gallons, from which the applicant claims that 4,000,000 gallons per day can be drawn without any interference with the present normal dry-weather flow of the stream below.

Although the cost of such construction is without particular bearing upon the question involved, it may be noted in passing that the applicant's estimate, $1,319,329, included no item of cost of right of way, 88,000 feet, more or less, from the pond to Montclair; was dated January, 1918, and presumably based upon prices then prevailing; and appears open to criticism for probable inaccuracy.

The Board believes that generally speaking, a sound and logical policy of water development requires provision for the present and reasonably anticipated future needs of communities within a watershed before permitting the withdrawal of waters therefrom by a community located elsewhere.

It appears from the evidence in this proceeding and is, in fact, a generally recognized principle that good enginering practice in planning public water supplies requires provision for a period extending into the future from twenty-five to thirty years, which principle is recognized by the applicant in its plans for diversion of 4,000,000 gallons, although presently requiring but 1,330,000 gallons.

The Town of Montclair is not located within the Rockaway watershed, within which are situate the municipalities of Wharton, Dover, Boonton and Rockaway, having public water supplies, surface and underground, which draw upon it. These communities now use 1,466,000 gallons per day and it is credibly estimated that, by the year 1945, their daily needs will approximate 3,000,000 gallons.

The City of Jersey City, previous to the passage of the Water Supply Act of 1907, although not

located in this watershed, had acquired under legal authority certain rights therein and constructed a pipe line and reservoir capable of furnishing 50,000,000 gallons per day.

The present average daily draft by Jersey City from this reservoir is approximately 54,000,000 gallons, and at times its needs considerably exceed this amount, so that on occasion it is necessary to purchase emergency supplies of as much as 10,000,000 gallons per day from the Montclair or associated water companies. The undisputed estimates of Jersey City's experts are that said city's need will be 70,00,000 gallons per day by the year 1930, and 100,000,000 gallons per day by the year 1950.

The city's present reservoir and pipe line are, therefore, at the present time steadily taxed above their fairly estimated capacity, and it is clear that a permanent additional supply is presently necessary and must be provided in the near future. The construction of a new pipe line has, in fact, already been initiated as the first step to this end.

The additional supply may be obtained either: (1) by raising the dam at Boonton Reservoir to furnish more storage; (2) by constructing other reservoirs at appropriate places in the watershed; or (3) by going to another watershed.

The Board finds that in view of Jersey City's prior acpuisition of diversion rights against private riparian owners, and its large investment in the existing reservoir and pipe line under statutory authority, the economical and prudent development of this watershed demands that the reasonably anticipated future needs of that city be given preference over the needs of a community

Although the cost of such construction is without particular bearing upon the question involved, it may be noted in passing that the applicant's estimate, $1,319,329, included no item of cost of right of way, 88,000 feet, more or less, from the pond to Montclair; was dated January, 1918, and presumably based upon prices then prevailing; and appears open to criticism for probable inaccuracy.

The Board believes that generally speaking, a sound and logical policy of water development requires provision for the present and reasonably anticipated future needs of communities within a watershed before permitting the withdrawal of waters therefrom by a community located elsewhere.

It appears from the evidence in this proceeding and is, in fact, a generally recognized principle that good enginering practice in planning public water supplies requires provision for a period extending into the future from twenty-five to thirty years, which principle is recognized by the applicant in its plans for diversion of 4,000,000 gallons, although presently requiring but 1,330,000 gallons.

The Town of Montclair is not located within the Rockaway watershed, within which are situate the municipalities of Wharton, Dover, Boonton and Rockaway, having public water supplies, surface and underground, which draw upon it. These communities now use 1,466,000 gallons per day and it is credibly estimated that, by the year 1945, their daily needs will approximate 3,000,000 gallons.

The City of Jersey City, previous to the passage of the Water Supply Act of 1907, although not

Boonton, this estimate being based on an extremely dry year when the rainfall amounted to only 31.63 inches as against the average of 44.09 inches. This estimate per square mile is accepted by Mr. Knight, expert for Montclair.

From measurements made at the Boonton Reservoir during 1918-1919, Mr. Critchlow estimated a maximum yield from the watershed for that dry period at 90,000,000 gallons daily, with complete storage, but it was shown that the rainfall was twenty (20%) per cent. greater than for the period of most extreme drought.

Further, all of these estimates are based upon the assumption that the water now drawn from the Rockaway watershed by the Morris Canal will be available for use in the shed. If the canal is maintained as a waterway, the amount of water available for potable purposes will be less than the above figures. Accordingly, the Board finds that the maximum yield of the Rockaway watershed in dry years will probably not substantially exceed 90,000,000 gallons, and that in periods of extreme drought it may fall considerably short of such amount.

A comparison of the yield with the present and prospective needs of the several municipalities deemed to have preferential claims show that their combined demands will equal the capacity of the watershed in less than twenty-five years.

The Board accordingly finds that there is no surplus water in the Rockaway watershed which can be allotted to Montclair, and that the proposed plan will therefore unduly interfere with other municipalities now dependent upon that source by taking water necessary for their use.

The plan submitted by the Town of Montclair is accordingly disapproved and permission to take a new supply from the proposed source is denied.

In testimony whereof, we a majority of the members of the Board of Conservation and Development, do hereto set our hands and cause the official seal of the Board to be affixed hereto and attested by its Secretary, this 24th day of May, 1920.

SIMON P. NORTHRUP,
President.

HENRY CROFUT WHITE,
W. EDWIN FLORANCE,
J. L. KUSER,
WILLIAM J. KRAFT,
PERCIVAL CHRYSTIE,
Members of the Board of Conservation and Development.

Attest:
ALFRED GASKILL,
Secretary.

EXHIBIT F

CHEMICAL ANALYSIS
LITTLE FALLS,

Bacillus Coli—Number of P[illegible]sitives
(Three S[illegible]amples

Year	January		February		March		April		May		June		July	
	River	Delvd.	River	Delvd.	River	Delvd.	River	Delvd.	River	Delvd.	River	Delvd.	River	Delvd.
1922	3.7	.024	5.0	0	3.5	0	4.7	0	3.0	0	5.0	0	5.0	0
1921	5.8	0	6.8	0	3.1	0	6.1	0	1.7	0	.44	0	2.0	0
1920	5.3	0	6.7	.059	2.7	.103	3.1	.028	4.6	0	2.6	0	4.1	.003
1919	6.7	.053	1.7	.01	1.6	0	2.1	0	3.2	.05	1.3	0	2.1	.01
1918	5.8	.141	2.9	.004	1.2	0	1.5	0	1.86	0	1.3	0	1.85	0
1917	7.8	.067	6.8	.149	7.1	.055	6.45	.007	5.1	0	6.1	.092	6.2	.031
1916	8.5	.082	8.2	.08	6.93	.10	6.19	.021	7.5	.15	6.6	.038	5.85	.05
1915	9.6	.02	7.1	0	7.4	0	8.6	0	9.4	0	4.1	0	5.0	.04
1914	8.3	.03	9.0	.05	8.3	0	7.9	0	5.6	.01	4.0	0	4.8	.04
1913	9.3	.06	9.6	0	8.1	0	6.7	.03	8.1	.03	6.7	.02	.7	.05
1912	9.7	0	7.8	.14	5.5	.02	8.6	.05	6.6	.02	6.4	.05	5.5	.12
1911	6.0	0	4.9	0	6.9	0	3.9	0	2.3	.05	4.0	.02	3.0	.03
1910														

* Smith Tubes with Lactose Broth and Litmus Lactos
Index—Per Cent Positives

Amount of Sample.

HIBIT P-30
ANALYSIS OF WATER
TLE FALLS, N. J.

er of P sitives—Index per 1 C. C.*
Three S amples.)

July		August		September		October		November		December		Average	
River	Delvd.	River	Delvd.	River	Delvd.	River	Delvd.	River	Delvd.	River	Delvd.	River	Delvd.
5.0	0	3.7	0	5.2	0	2.1	0					4.1	.0024
2.0	0	2.3	0	2.7	0	2.8	0	3.2	0	7.8	0	3.7	0
4.1	.003	.9	.006	1.0	.003	1.2	0	3.2	0	5.2	.021	3.3	.018
2.1	.01	3.2	0	2.1	.05	3.0	.028	3.8	0	6.2	0	3.0	.017
1.85	0	1.1	0	3.0	.021	.8	0	2.5	.047	5.27	.024	2.3	.019
6.2	.031	4.4	.016	5.1	.044	4.1	.02	.69	.08	7.8	.084	5.5	.053
5.85	.05	2.8	.01	3.7	.04	3.4	.053	2.5	.04	7.3	.152	5.2	.063
5.0	.04	7.4	.04	7.1	.08	7.9	.10	7.7	.01	7.7	.04	7.4	.027
4.8	.04	.4	.12	4.1	.02	3.1	0	5.2	.09	8.5	.04	5.8	.033
.7	.05	.7	0	4.5	.02	7.6	0	7.7	.02	9.0	0	6.6	.019
5.5	.12	.4	.04	4.9	.04	5.3	.09	9.4	0	9.4	.03	6.5	.050
3.0	.03	4.4	.05	3.8	.03	7.5	0	6.6	0	8.0	.03	5.1	.017
				1.4	.05	2.7	.04	6.2	.05	8.1	.03	4.6	.042
												4.8	.027

Litmus Lactose Agar used in making the analysis.

Exhibit R-1.

Supporting Tables.

NOTE: The main tables and discussion contained in this Exhibit are printed in State of the Case, Vol. III, p. 1245 to p. 1307

The following tables contain all the supporting data except the real estate, which was listed on pp. 43, 44, 54, 62, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 85, 90, 126, 155.

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1 STRUCTURES—Cont'd.
2 Addition to Boiler House
3 One story brick building. Size 54′ x 72′. Con-
4 crete floor, slate roof on steel trusses, also
5 Addition to Coal Shed
6 One story concrete building. Size 72′ x 17′.
RB Dirt floor, concrete roof
HFD Addition to Pump House
TO One story brick building on stone masonry
AB foundation. Size 67′ x 32.5′ Concrete floor, slate roof on steel trusses
Oil Pump House
One story frame building on concrete foundation. Wood floors, green slate surface, shingle roof
Railroad Siding
6483 ft. long, exclusive of grading
Store House
One story frame building. Size 49′ x 29.6′. Wood and concrete floor
Telephone line including wire lines on cedar and concrete poles, carried partly on electric power line poles
Dam across Passaic River
Concrete and rubble masonry, arch construction, 370 ft. long, 8.5′ to 12.5′ high above rock bottom, 5′ 0″ wide at top with a batter on both the upstream and downstream faces
Piping and Appurtenances
Feeder for Penstoc, Nos. 1, 2, & 3
Riveted steel pipe, 90″ diameter
120″ "
132″ "
144″ "

Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Each	1	$ 62,878.86	1	75	$ 838.38	$ 62,040.48
"	1	30,398.64	2	75	405.31	29,588.02
"	1	843.10	0	35	24.08	843.10
"	1	3,824.00	21	75	50.98	2,753.42
"	1	2,016.22	0	35	57.61	2,016.22
		609.00	20	40	15.22	304.60
"	1	16,540.98	43	100	165.41	9,428.35
Lin. Ft.	55					
"	40					
"	15					
"	35					

New Jersey State Library

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RB
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	Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
STRUCTURES—Cont'd.							
Feeder for Penstock No. 4							
Riveted Steel Pipe 132″ diameter	Lin. Ft.	50					
144″ "	"	190					
Penstocks, Nos. 1, 2, & 3,							
Riveted Steel Pipe, 78″ diameter	"	33.75					
Penstock No. 4, Riveted Steel Pipes, 72″ diameter	"	5.					
78″ "	"	18.75					
Penstock for McCormick Turbine							
Riveted Steel Pipe, 36″ diameter	"	80					
Double steam geared gates 72″	Each	4					
Gear gates with floor stand 36″	"	1					
Gate valves on blow-offs, 6″	"	5					
Valve Vaults, Brick with cast iron manhole frame and cover	"	4					
Steel connections between penstocks and water wheels	Lbs.	25,000					
Pipe Supports, W. I. Pipe 6″ diameter	Lin. Ft.	70					
Pipe Vaults, 8″ cast iron pipe including ventilating caps							
TOTAL PIPING AND APPURTENANCES—Included in Miscellaneous Expenditures							
Superintendent's Dwelling, Two story concrete block construction, stucco finish, wood floor, shingle roof, steam heat, also	Each	1					
Garage, at superintendent's dwelling, one story, concrete construction. Size 20.2′ x 22.1′, 13′ high, concrete floor, shingle roof	"	1	$ 13,640.85	12	50	$ 272.81	$ 10,367.13
Miscellaneous expenditures on company's books which cannot be allocated	Group	1	21,102.18	21	50	422.04	12,239.31
			$1,205,069.83			$15,583.68	$902,828.02
Interest during Construction			68,992.58			886.62	51,014.89
TOTAL STRUCTURES			$1,274,062.41			$16,470.30	$953,842.91

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LITTLE FALLS IMPROVEMENTS
JOINT OWNERSHIP

1 EQUIPMENT	Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
2 Heine horizontal water tube boilers, 250 HP each.							
3 Equipped with regulators and coal grate	Each	5	$ 31,709.50	21	50	$ 634.19	$ 18,391.51
4 Edgemoor horizontal water tube boiler, 500 HP.							
5 Equipped with Foster Superheater and regulator,							
6 Treadwell improved grates and oil burners and							
RB Edgemoor soot blower	"	1	11,278.52	5	50	225.57	10,150.67
EJB Babcock & Wilcox horizontal water tube boilers,							
TO 500 HP each. Equipped with Foster Super-							
AB heaters and regulators. Treadwell improved grates and oil burners and Diamond soot blowers	"	2	38,202.53	1	50	764.05	37,438.47
Breeching for Edgemoor and Babcock & Wilcox boilers. Asbestos on steel frame	"	1	5,338.08	1	30	177.94	5,160.14
Green Fuel Economizers, 52 sections, consisting of 8 4″ tubes per section	"	1	5,763.00	21	30	192.10	1,728.90
Crocker Wheeler Motor, 5 HP, operating Green Economizer	"	1	195.00	21	30	6.50	58.50
Green 4′ fan double inlet full housing driven by Westinghouse reduction gear, 3585-1195 r.p.m.	"	1	3,324.00	1	30	110.80	3,213.20
Heine radial brick chimney 10′ diameter, 175′ high, including foundation and concrete tunnel	"	1	11,738.81	1	70	167.70	11,571.11
American Steam Jet Ash Conveyor, 8″ flanged cast iron pipe, 405′ long with equipment	"	1	3,477.65	1	30	115.92	3,361.73
Portable Scoop Conveyor, Size 12″ x 24″ with chute and gasoline engine	"	1	662.00	1	30	22.07	639.93
Portable Scoop Conveyor, Size 12″ x 24″ with electric motor	"	1	630.50	0	30	21.02	630.50
Columbia recording thermometers, type 300	"	3	229.15	2	25	9.17	210.81
Hays C02 Recorders with low efficiency alarm	"	2	646.75	1	25	25.87	620.88
Riedler horizontal cross compound duplex, crank and fly wheel, condensing pumping engines. Capacity 10 M.G.D. each equipped with Dickson horizontal Francis water turbines 667 HP. each	"	3	159,244.25	21	40	3,981.11	75,640.94

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1		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
2	EQUIPMENT—Cont'd.							
3	Riedler horizontal cross compound duplex crank and fly wheel, condensing pumping engine.							
4	Capacity 20 M. G. D. Equipped with Dickson							
5	horizontal Francis water turbine 700 HP.	Each	1	$53,414.75	21	40	$1,335.37	$25,371.98
6	Oiling System for Riedler Pump including:							
RB	Gardner duplex single acting steam pump,							
EJB	type AA-6	"	1					
TO	Simplex double acting Richardson Phoenix pump							
AB	with	"	1					
	Richardson Phoenix oil filter, size 5, capacity							
	100-200 gal. per hr. driven by	"	1					
	Western Electric Co. motor 0.5 HP	"	1					
	Drum Tank 4′ x 4′ x 2.5′. Capacity 300 gallons	"	1					
	Horizontal galvanized iron overhead oil tank,							
	3′ diam. 8.5′ long. Capacity 450 gal.	"	1					
	Piping for Oiling System including valves and							
	specials	Group	1					
	TOTAL OILING SYSTEM			$3,046.20	3	25	$121.85	$2,680.65
	Holly horizontal double acting cross compound							
	duplex crank and fly wheel condensing pump-							
	ing engines, capacity 5 M. G. D. each	Each	2	$16,020.00	21	30	$534.00	$4,806.00
	Foundations for Holly Pumps	"	2	950.00	21	30	31.67	284.93
	Worthington horizontal single stage centrifugal							
	pump with 18″ double suction. Capacity 12							
	M. G. D. driven by	"	1					
	Westinghouse high condensing steam turbine,							
	1000 HP. through	"	1					
	Westinghouse reduction gear 3900-1150 r. p. m.	"	1	12,271.40	5	30	409.04	10,226.20
	Worthington horizontal simple, duplex, direct							
	acting non-condensing pumps. Size 10″ x 6′-							
10, 11	10″. Capacity 250 gallons per minute	"	2	982.00	6	25	39.28	746.32

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LITTLE FALLS IMPROVEMENTS
JOINT OWNERSHIP

1	EQUIPMENT—Cont'd.	Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
2	Allis Chalmers, split case, double suction hori-							
3	zontal shaft centrifugal pumps connected in							
4	series. Capacity 13.5 M. G. D. driven by	Each	2					
5	Kerr Economy Multi-Stage Steam Turbine 1200							
6	HP. through	"	1					
RB	Kerr Reduction Gear 3600-1200 r.p.m.	"	1					
AJB	Schutte and Koerting barometic condenser No.							
TO	38½ Multi-Jet, low head type, 830 HP.	"	1	$ 23,340.65	1	30	$ 778.02	$ 22,562.63
AB	Bulkley Siphon Condensers for Riedler pumps							
	and Ball and Wood Engines	"	2	3,000.00	21	25	120.00	480.00
	Lea Courtney 3" double suction volute pump.							
	Capacity 150 gal. per min. driven by	"	1					
	Star direct current shunt wound motor, 10 HP.	"	1	664.80	1	25	26.59	638.21
	Norwalk Compound Air Compressor, driven by							
	Crocker Wheeler Motor, 10 HP. and	"	1					
	Norwalk Compound Air Compressor steam driven	"	1	1,620.00	21	25	64.80	259.20
	Electric Crane, 15 tons capacity, including one							
	1 HP. and two 2 HP. motors	"	1	4,663.00	21	25	186.52	746.08
	Blake and Knowles horizontal simplex, direct							
	acting boiler feed pumps, size 16" x 10" x 18"	"	2	1,800.00	1	25	72.00	1,728.00
	Cochrane feed water heater, 2000 HP.	"	1	1,358.95	1	30	45.30	1,313.65
	Venturi Meter (two throats 3' x 1½", type M,							
	register indicator	"	1	929.00	1	50	18.58	910.42
	Sturtevant Blowers 8' diam. run by either	"	2					
	Crocker Wheelers Motors, type C, 25 HP. or	"	2					
	Westinghouse Junior Engine, 100 HP.	"	1	3,674.00	21	30	122.47	1,102.13
	Crocker Wheeler Motor, 25 HP. disconnected	"	1	310.00	21	30	10.33	93.07
	Drainage Pumping Equipment: Lawrence hori-							
	zontal single stage centrifugal pump, driven by	"	1					
12, 13,	Crocker Wheeler Motor 4 HP.	"	1	290.00	21	30	9.67	86.93

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LITTLE FALLS IMPROVEMENTS
JOINT OWNERSHIP

		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	EQUIPMENT—Cont'd.							
2	Lawrence horizontal single stage centrifugal							
3	pump, driven by	Each	1					
4	Lawrence Vertical Engine	"	1	$ 574.00	21	30	$ 19.13	$ 172.27
5	Generator, General Electric Co. 160 K.W. direct							
6	connected to Ball and Wood Vertical Engine;							
RB	size 18" x 18", including switchboard and							
HFD	equipment	"	1	6,645.10	21	25	265.80	1,063.30
TO	Ball Vertical Engine; size 90" x 12"	"	1	900.00	21	21	.....	.....
AB	Steel Oil Storage Tanks, 30' diam. 23' high. Capacity 121,600 gallons each	"	2	9,790.23	1	50	195.80	9,594.43
	Horizontal Oil Tank, 7' diam. 35' long. Capacity 10,300 gallons	"	1	973.54	0	25	38.94	973.54
	Worthington Horizontal Simple Simplex, direct connected non-condensing pumps. Size 5¼"- x 4¾" x 5"	"	1	313.60	0	25	12.54	313.60
	Fairbanks Morse Horizontal Simple Duplex, direct acting non-condensing pumps. Capacity 300 gallons per minute	"	2	500.00	1	25	20.00	480.00
	Fuel Oil Heaters, 10" x 66" cylinders and strainers	"	2	259.24	1	50	5.18	254.06
	Metropolitan Inspectors, Model, 14½ O	"	5	406.21	2	25	16.25	373.71
	Winelow Recording Gauge	"	1	29.40	0	25	1.17	29.40
	Iron Oil Tanks, 39" diam. 60" high. Capacity 300 gallons each	"	2	6,464.01	0	25	258.56	6,464.01
	Iron Oil Tank, 39" diam. 44" high. Capacity 200 gallons	"	1					
	Auxiliary Oil Burning Equipment		....					
	Steam Air, water and fuel oil piping, fittings, valves covering and all appurtenances	Group	1	11,298.84	13	50	225.96	8,361.36
	Crocker Wheeler D. C. Generators, 80 K. W. driven by	Each	2					
14, 15,	McCormick horizontal water turbine 240 HP	"	1	3,700.00	21	40	92.50	1,757.50

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1 EQUIPMENT—Cont'd.
2 Lombard Type F. governor and connections
3 Manning Maxwell and Moore power lathe with
4 regulator equipment
5 Fairbanks horizontal power saw, 18″ long
RB Crocker Wheeler Motor, 5 HP
HFD Cost of following equipment is included in
TO Miscellaneous Expenditures:
AB Lawrence horizontal, single stage, centrifugal pump, 6″ discharge, driven by
Westinghouse Standard Engine
Portable Machine for Operating 72″ gate with 5 HP motor
Power Grindstone, 33″ diam. 4¾″ thick
Snyder Power Drill Press
Coal Scale—Hunt & Co. 5′ x 27″ plate
Industrial Railroad
Shafting, pulleys and belting
Shop and Stable Equipment
Miscellaneous Expenditures on Company's books which cannot be allocated

Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Each	1	$600.00	4	40	$15.00	$540.00
"	1	755.00	21	60	12.58	490.82
"	1	147.37	0	25	5.89	147.37
"	1	130.00	21	60	2.17	84.43
Each	1					
"	1					
"	1					
"	1					
"	1					
"	1					
Lin. Ft.	850					
Group	1					
"	1					
		50,174.84	8*	21*	2,389.28	31,060.60
		$494,435.86			$13,956.25	$305,014.09
		23,639.81			647.32	13,128.99
		$518,075.67			$14,603.57	$318,143.08

Interest during Construction

TOTAL EQUIPMENT

*Weighted Average

15, 16, 17,

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		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
0								
1	STRUCTURES							
2	Note—The following structures were built under							
3	contract and the cost of each is impossible							
4	of segregation. The total cost is therefore							
5	shown at the end of this list of structures							
6	Coagulating Basin No. 1—Concrete rectangular							
RB	construction, 130′ x 42′ x 43′ deep. Located un-							
EJB	der the main part of filter building. Capacity							
TO	1,750,000 gallons. Contains one reinforced con-							
AB	crete stand pipe 10′ inside diameter, 43′ high							
	and two reinforced concrete mixing tanks 16′							
	inside diameter, 17′ deep. Capacity 25,000 gal-							
	lons each; all supported on seven reinforced							
	concrete columns	Each	1					
	Filter Building—One story concrete with two 1							
	story concrete filter galleries. Size 46′ x 132′							
	main building, galleries 30′ x 140′ each. Rein-							
	forced concrete floor, slate and tile roof sup-							
	ported on steel trusses	Each	1					
	Filter Tanks—Reinforced concrete rapid sand							
	filter. Size 15′ x 24′ x 8′ deep. Total capacity							
	at 125 M.G.D. Per acre 33 M.G.D.	Each	32					
	Cleaning up, grading, sodding and rolling							
	grounds, roads, paths, etc.	Group	1					
	Clear Water Basin—Concrete rectangular con-							
	struction, located under filters and pipe gal-							
	lery, adjoining coagulating basin No. 1. Two							
	compartments, each 124′ x 58′ x 29′ deep inside.							
	Capacity 3,500,000 gallons	Each	1					
	Suction line from clear water basin to pumping							
	station. Steel riveted pipe, 66″ diameter	Lin. Ft.	781					
	Cross-Connection from Holly pump suction to							
	above 66″ line. Steel riveted pipe, 36″ diameter	Lin. Ft.	105					

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LSS

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RB
TO

	Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
STRUCTURES—Cont'd.							
Suction line to Holly pumps. Steel riveted pipe. 48″ diameter	Lin. Ft.	100					
Steam piping outside of Chlorine feed house. Cypress Brine Tanks, 58″ diameter. 45′ deep on concrete piers	Each	2					
Cypress Brine Tank, located on above tanks, 52″ diameter, 48″ deep	Each	1					
Steam piping to Filter Building, including three manholes							
Cypress Brine Tank, 32″ diameter, 80″ deep, on I beams and cast iron columns	Each	1					
Cypress Brine Tank, 44″ diameter, 32″ deep, on wood piers	Each	1					
Effluent piping to Basin No. 1. Riveted steel pipe, 84″ diameter	Lin. Ft.	187					
TOTAL ABOVE STRUCTURES			$ 292,027.00	19*	72*	$ 4,055.93	$214,964.33
Coagulating Basin No. 2. Concrete, rectangular construction 330′ long, 105′ wide, 20′ deep inside, Consisting of two compartments and a mixing chamber. Capacity 5,250,000 Gal.	Each	1					
Screen House, over coagulating Basin No. 2. One story, concrete with stucco finish, 19′ x 23.5′ Reinforced concrete floor, concrete roof	Each	1					
Screen with Hydraulic Hoists	Each	2					
Shafting, Pulleys, Hangers and Leather belting							
Water piping including fittings and valves							
Steam and Water piping outside of Screen House							
TOTAL ABOVE STRUCTURES			$ 147,245.58	6*	74*	$ 1,989.81	$135,306.72

*Weighted Average.

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		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	STRUCTURES—Cont'd.							
2	Addition to Filter Building, extension of one of							
3	the filter galleries. One story concrete,							
4	30′ x 100′	Each	1					
5	Steel Riveted pipe to Filters, 36″ & 84″ diameter	Lin. Ft.	219					
6	Special Steel pipe to Filters, 16″ nozzles.							
RB	Hydraulicly operated gate valves							
EJB	Filter Tanks, Reinforced concrete, rapid sand							
TO	filter, Size 14.5′ x 24′ x 8′ deep. Total Capacity							
AB	at 125 M.G.D. Per acre 10 M.G.D.	Each	10					
	Wash Water Tank, Reinforced concrete, Capacity 71,000 gallons	Each	1					
	Iron Lined Tanks, 6′ x 6′	Each	2					
	Cypress Tank, Lead lined, 6′ diameter, 5′ high, Capacity, 1,000 gallons	Each	1					
	Equipment for 10 Filter Tanks, including inside piping, machinery, sand, gravel, etc.							
	TOTAL ABOVE STRUCTURES			$ 214,284.92	2*	60*	$ 3,571.41	$207,142.10
	Alum Manufacturing House, Two story, brick with stucco finish. Size 30′ x 80′. Concrete floor on I beams and steel columns. Roof—asbestos shingles on sheathing, including steam and water piping	Each	1	$ 9,765.49	3	50	$ 195.30	$ 9,179.59
	Chlorine Feed House (old gate house)—One story artificial brownstone building on concrete foundation, Concrete floor, Size 10.5′ x 17.5′	Each	1	916.00	19	50	18.32	567.92
	Chlorine Manufacturing House, Two story brick with stucco finish, 30′ x 25′. Concrete floor, first story, wood floor second story, including water and chlorine piping inside of the building and water and steam piping outside of the building	Each	1	3,358.69	1	50	67.17	3,291.52

4-5 *Weighted Average.

LITTLE FALLS FILTRATION PLANT
JOINT OWNERSHIP

95
112422

KG

6,

			Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	STRUCTURES—Cont"d.							
2	Alum Dry Feed and Storage House.	Two story						
3	hollow tile building Size 65′ x 25′.	Concrete						
4	floor, roof asbestos shingles on	sheathing.						
5	Steam heated		Each 1	$ 8,840.20	0	50	$ 176.80	$ 8,840.20
				$ 676,437.88			$ 10,074.74	$579,292.38
RB	Interest During Construction			29,081.43			424.47	23,844.74
EJB								
TO	TOTAL STRUCTURES			$ 705,519.31			$ 10,499.21	$603,137.12
AB								

LITTLE FALLS FILTRATION PLANT
JOINT OWNERSHIP

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0		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	EQUIPMENT							
2	Pelton Waterwheels, type E, Size 12″	Each	2	$ 250.82	1	20	$ 12.54	$ 238.28
3	Savage Dry Chemical Feeders, No. 14-8	Each	2	1,691.52	1	20	84.57	1,606.95
4 5 6 RB	Ingersoll Rand air Compressor, Type E-R-1, size 7″ x 6″ with receiver tank 30″ diam. 6′ long, belt driven by General Electric D. C. motor, type R.C. 10 H.P.	Each	1	919.03	2	25	36.76	845.51
EJB TO	Steadman Mixer, five feet belt, driven by Westinghouse D.C. motor, 10 H.P.	Each	1	1,002.50	2	25	40.10	922.30
AB	Single Roll Crusher, Size 18″ x 18″, belt driven by Westinghouse D.C. motor, 20 H.P.	Each	1	965.09	1	25	38.60	926.49
	Electric Elevator, run by 3 H.P. motor	Each	1	1,375.00	0	30	45.83	1,375.00
	Fairbanks Platform Scale, Capacity 100 lb.	Each	1	30.00	10	40	.77	22.30
	Air and Water Piping in Alum Manufacturing House, including fittings and valves			1,197.08	2	50	23.94	1,149.20
	Acid Storage Tanks, Outside of Alum Manufacturing House. Steel tanks on concrete foundation. Size 6′ diameter. 28′-6″ long, Capacity 6,000 gallons each	Each	2	2,030.00	3	10	203.00	1,421.00
	Alum Feed Piping From Filter Building, including hard rubber pipe, soft rubber hose, rubber lined iron pipe, concrete posts, iron pipe supports and wooden trough			351.03	4	50	7.02	322.95
	Equipment for 32 Filter Tanks, including inside piping, machinery, sand, gravel, etc.			171,350.00	19	50	3,427.00	106,237.00
	Office Equipment			234.00	14	40	5.85	152.10
	Wallace & Tiernan manual control, solution feed chlorinator, type B	Each	1	843.20	0	10	84.32	843.20
	Wallace & Tiernan manual control, solution feed chlorinator, type B	Each	1	756.37	2	10	75.64	605.09
7-8	Cypress Tank—175 gallons	Each	1	18.38	4	30	.61	15.94

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112422

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LITTLE FALLS FILTRATION PLANT
JOINT OWNERSHIP

		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	EQUIPMENT—Cont'd.							
2	Hanson and Van Winkle dynamo, 12500 watts							
3	direct connected to	Each	1					
4	General Electric shunt wound, type R. C. form							
5	A 30, D. C. motor, 20 HP	"	1	$ 1,680.96	4	25	$ 67.23	$ 1,412.04
RB	Nelson electrolytic cells, 500 amperes, 10 poles.							
EJB	Size 13.5" wide, 18" high, 5' long	"	2	750.00	5	10	75.00	375.00
TO	Nelson electrolytic cells, 500 amperes, 10 poles.							
AB	Size 13.5" wide, 18" high, 5' long		2	750.00	4	10	75.00	450.00
	Nelson electrolytic cells, 500 amperes, 10 poles. Size 13.5" wide, 18" high, 5' long	"	2	500.00	2	10	50.00	400.00
	Cost of following equipment is included in miscellaneous expenditures:							
	Shafting, pulleys and hangers							
	Portable platform scales, 50 lbs. and 100 lbs.	"	2					
	Venturi Meter Indicator, type D, complete with piping and valves							
	Crocker Wheeler resistance controller	"	1					
	Switchboard 3' x 5', one ampere meter, one voltmeter, etc.	"	1					
	Miscellaneous expenditures on company's books which cannot be allocated			34,660.38	4*	25*	1,386.41	29,114.74
				$ 221,355.36			$ 5,740.19	$148,435.09
	Interest During Construction			11,781.15			275.02	7,640.16
	TOTAL EQUIPMENT			$ 233,136.51			$ 6,015.21	$156,075.25

*Weighted Average

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111722

KG

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GREAT NOTCH RESERVOIR
JOINT OWNERSHIP

1		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
2	STRUCTURES							
3	Reservoir:							
4	Capacity 152.7 million gallons. Consists of							
5	earth dam 500′ long, 60′ high above concrete							
6	foundation and 16′ wide at top. It has con-							
RB	crete corewall 5′ wide at top. Both faces of							
KG	the dam are protected by heavy riprap paving.							
TO	Spillway 425′ high built of stone masonry.							
AB	Brownstone gate house located on upstream face of dam	Each	1					
	Attendant's House:							
	Two story frame building; wood floor and shingle roof	"	1					
	Stable House							
	One and one half stories high, frame with shingle roof	"	1					
	Wagon Shed							
	Adjoins stable; frame with open end		1					
	Tool House							
	One story frame with shingle roof		1					
	Pump House							
	One story brick		1					
	Outside Toilet		1					

GREAT NOTCH RESERVOIR
JOINT OWNERSHIP

95
112422

KG

0		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	EQUIPMENT							
2	Fairbanks Unit consisting of							
3	Pumps:		1					
4	2″ Suction, size 5″ x 6″ 1½″ discharge, geared							
5	to	Each						
RB	Vertical Gasoline Engine Size 4″ x 7″, 2 HP	"	1					
EJB	Piping from pump to Attendant s House							
TO	1½″ W. I. pipe with specials	Lin. Ft.	350					
				$ 335,019.68	22	100	$ 3,350.20	$261,315.28
AB	Interest During Construction			20,101.18			201.01	15,678.91
	TOTAL STRUCTURES AND EQUIPMENT			$ 355,120.86			$ 3,551.21	$276,994.19

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111722

KG

FIFTY-ONE INCH STEEL CONDUIT
JOINT OWNERSHIP

0		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	Steel Pipe: 48″ diameter, ¼″ thick	Lin. Ft.	3,463.1					
2	48″ " ⅜″ "	"	943.9					
3	51″ " ¼″ "	"	13,539.3					
4	51″ " 5/16″ "	"	11,429.3					
5	51″ " ⅜″ "	"	11,821.4					
6	51″ " 7/16″ "	"	5,286.0					
RB	60″ " ⅜″ "	"	346.7					
EJB	Steel Pipe Specials	Lbs.	41,262					
TO	Cast Iron Pipe 8″ diameter	Lin. Ft.	204					
AB	10″ "	"	60					
	12″ "	"	60					
	16″ "	"	144					
	Flanges and Spigot Nipples	Lbs.	8,000					
	Sleeves	"	5,480					
	Flanged Gate Valves 6″	Each	2					
	8″	"	16					
	10″	"	6					
	12″	"	6					
	16″	"	96					
	48″ (with by-pass)	"	2					
	Air Valves—10″	"	18					
	Manholes (buried)	"	47					
	Air Valve Vaults, Brick and Concrete with frame and cover	"	18					
	Morris Canal Crossing	Lin. Ft.	300					
	Other Stream Crossings	"	50					
	Highway Crossings	Each	22					
	TOTAL FOR ABOVE STRUCTURES AND EQUIPMENT			$ 514,348.82	22	50	$ 10,286.97	$288.035.48

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112422

KG

FIFTY-ONE INCH STEEL CONDUIT
JOINT OWNERSHIP

0		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	Passaic River Crossing							
2	Consisting of three 48″ steel pipes surrounded							
3	by concrete		Included in Cost of 42″ Paterson Extension					
4	Venturi Meter House							
5	Passaic Ave. concrete foundation, brick roof	Each	1	$ 425.00	22	50	$ 8.50	$ 238.00
RB	6″ Trident Crest Compound Meter	"	2	1,100.00	4	50	22.00	1,012.00
EJB	16″ Meter Vault	"	1	665.93	4	50	13.32	612.65
TO	Recording Apparatus			400.00	4	50	8.00	368.00
AB	30″ Venturi Meter	"	1	1,041.35	4	50	20.82	959.67
				$ 517,981.10			$ 10,359.61	$291,225.80
	Interest During Construction			30,982.64			619.65	17,384.97
	TOTAL 51″ CONDUIT			$ 548,963.74			$ 10,979.26	$308,610.77

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JOINT OWNERSHIP
INTEREST DURING CONSTRUCTION

0 Description	Interest %	Cost New Amount	Cost New Interest	Annual Depreciation Amount	Annual Depreciation Interest	Original Cost New Less Accrued Depreciation Amount	Original Cost New Less Accrued Depreciation Interest
1 Little Falls Improvement							
2 Structures	3	$ 110,386.67	$ 3,311.60	$ 1,613.41	$ 48.40	$ 105,159.58	$ 3,154.79
3 "	6	1,094,683.16	65,680.98	13,970.27	838.22	797,668.44	47,860.10
4							
5 Total Structures		$1,205,069.83	$ 68,992.58	$ 15,583.68	$ 886.62	$ 902,828.02	$ 51,014.89
RB Equipment	3	$ 200,878.26	$ 6,026.35	$ 6,335.34	$ 190.06	$ 172,395.10	$ 5,171.85
EJB "	6	293,557.60	17,613.46	7,620.91	457.26	132,618.99	7,957.14
TO							
AB Total Equipment		$ 494,435.86	$ 23,639.81	$ 13,956.25	$ 647.32	$ 305,014.09	$ 13,128.99
Little Falls Filtration Plant							
Structures	3	$ 383,494.88	$ 11,504.85	$ 6,049.49	$ 180.01	$ 363,760.13	$ 10,912.80
"	6	292,943.00	17,576.58	4,074.25	244.46	215,532.25	12,831.94
Total Structures		$ 676,437.88	$ 29,081.43	$ 10,074.74	$ 424.47	$ 579,292.38	$ 23,844.74
Equipment	3	$ 50,005.36	$ 1,500.15	$ 2,313.19	$ 69.40	$ 42,198.09	$ 1,265.94
"	6	171,350.00	10,281.00	3,427.00	205.62	106,237.00	6,374.22
Total Equipment		$ 221,355.36	$ 11,781.15	$ 5,740.19	$ 275.02	$ 148,435.09	$ 7,640.16
Great Notch Reservoir							
Structures and Equipment	6	$ 335,019.68	$ 20,101.18	$ 3,350.20	$ 201.01	$ 261,315.28	$ 15,678.91
Fifty-one Inch Steel Conduit	3	$ 3,207.28	$ 96.22	$ 64.14	$ 1.92	$ 2,952.32	$ 88.57
"	6	514,773.82	30,886.42	10,295.47	617.73	288,273.48	17,296.40
Total Fifty-one Inch Steel Conduit		$ 517,981.10	$ 30,982.64	$ 10,359.61	$ 619.65	$ 291,225.80	$ 17,384.97
TOTALS		$ 3,450,299.71	$184,578.79	$ 59,064.67	$ 3,054.09	$ 2,488,110.66	$128,692.66

THE KEARNEY WATER COMPANY
KEARNEY, N. J.
FORTY-TWO INCH EXTENSION

95
112422

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0		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	Steel Pipes, 48″ diameter, ⅜″ thick	Lin. Ft.	14.6					
2	42″ " ¼″ "	"	2,895.4					
3	42″ " 5/16″ "	"	4,059.8					
4	42″ " ⅜″ "	"	1,767.7					
5	Manholes on 42″ pipes	Each	24					
RB	River Crossings, Passaic River							
LED	W. I. Pipe	Lin. Ft.	5,040					
TO	Thimbles, flanged gates, bolts etc.							
HFD	Main Line Gates, 48″	Each	1					
	42″	"	1					
	Air Valves, 8″ Cluster Valves	"	3					
	Blow-Offs (4) 8″ gates	"	8					
	8″ elbows	"	8					
	8″ thimbles	"	4					
	8″ C. I. pipes	Lin. Ft.	500					
	Gate Vault Near Kearney Avenue, Contains two 16″ double gated connections, 8′-6″ x 12′-0″ inside dimensions. Stone masonry construction. Roof of brick arches between 8″ I beams	Each	1					
	Vault at Cross-Connection in Turnpike, with 36″ C. I. pipe. Stone masonry and brick construction	Each	1					

THE KEARNEY WATER COMPANY
KEARNEY, N. J.
FORTY-TWO INCH EXTENSION
Continued

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112422

LSS

0		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	Vault at Cross-Connection, with Bayonne Line,							
2	17′-6″ x 8′-6″ inside, 7′-0″ high. Stone							
3	masonry and brick construction	Each	1					
4	16″ Connections,							
5	42″ x 16″ Thimbles	"	23					
RB	16″ Pipe	Lin. Ft.	60					
EJB	Flanged Nipples, C. I. Sleeves, etc.							
TO	8″ Connections,							
AB	48″ x 8″ Thimbles	Each	2					
	8″ Flanged Gates	"	4					
	Steam R. R. Crossing,							
	Erie R. R. (Single Track)	Each	1					
	Street R. R. Crossings (Single Track)	"	2					
				$ 159,305.54	22	50	$ 3,186.11	$ 89,211.12
	Interest During Construction			9,558.33	22	50	191.16	5,352.81
	TOTAL FORTY-TWO INCH EXTENSION			$ 168,853.87			$ 3,377.27	$ 94,563.93

THE PASSAIC WATER COMPANY
PATERSON, N. J.
FORTY-TWO INCH PATERSON EXTENSION

95
111722

KG

0		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	Steel Pipe: 42″ diam. 5/16″ thick	Lin. Ft.	18,029.3					
2	42″ " 3/8″ "	"	470.3					
3	48″ " 3/8″ "	"	258.7					
4	Steel Pipe Specials	Lbs.	15,420					
5	Cast Iron Pipe							
RB	Bell and Spigot 6″ diameter	Lin. Ft.	14					
HFD	8″ "	"	205					
TO	10″ "	"	532					
AB	12″ "	"	66.5					
	16″ "	"	583					
	Valve Boxes 6″	Each	2					
	8″	"	13					
	10″	"	2					
	12″	"	3					
	16″	"	13					
	Gate Valves 42″	"	2					
	16″	"	13					
	12″	"	5					
	10″	"	3					
	8″	"	13					
	6″	"	3					
	Air Valves 8″	"	2					
	6″	"	6					
	Gate Vaults							
	Brick and concrete construction with C. I. manhole frame and cover	"	2					
	Air Valve Vaults							
	Brick and concrete masonry with C. I. frame and cover	"	8					
	Passaic River Crossing	"	1					
	Pecham River Crossing	"	1					
	Culverts	"	2					

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THE PASSAIC WATER COMPANY
PATERSON, N. J.
FORTY-TWO INCH PATERSON EXTENSION

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112422

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0		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	Venturi Meter,							
2	42″ x 58′-8″ with Type D register	Each	1					
3	Venturi Meter Throat Vault,							
4	Brick and concrete construction, with C. I.							
5	manhole frame and cover	Each	1					
RB	Meter Pit,							
TO	At Hillary St. Brick and concrete construction,							
HD	with C. I. frame and cover	Each	1					
	Manhole Vaults,							
	Brick and concrete construction with C. I. man-							
	hole frame and cover	Each	2					
	Corporation Cosks—2″	Each	86					
				$ 148,034.33	23	50	$ 2,960.68	$ 79,938.69
	Interest During Construction			8,882.06	23	50	177.64	4,796.34
	TOTAL FORTY-TWO INCH PATERSON EXTENSION			$ 156,916.39			$ 3,138.32	$ 84,735.03

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112322

KG

0		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	Rack and Intake							
2	Located in S. U. M. Dam above Great Falls							
3	Pumping Station. Rack is 6′ high, 9′-4″ wide							
4	and is made of ½″ x 3″ bars. Intake inlet							
5	chamber consists of two steel pipes 36″ and							
RB	33″ diam. connected with 48″ steel pipe, laid							
TO	below the dam. There is a steel truss bridge							
W	supported by concrete piers, leading to the rack.							
	Screen House							
	One story brick, 18.8′ x 28.7′ built over concrete screen well. Reinforced concrete floor, slate roof.							
	Screen Well							
	Concrete, 15.5′ x 25.5′ x 18.7′ deep, inside dimensions.							
	Equipment in Screen Well							
	Including cast iron drain pipe, waste pipe, sluice gates, overflow door, iron ladders, screens, hydraulic lifts, air pipes, gates, etc.							
	Steel Pipe, 42″ diam. x ¼″ thick	Lin. Ft.	8,238.5					
	42″ " x ¼″ "	"	345.4					
	48″ " x ¼″ "	"	1,847.0					
	48″ " x ⅜″ "	"	632.7					
	Cast Iron Pipe, 8″ diameter	"	63					
	Iron body valves, bronze angle valves, coffin air valves, geared, flanged single disc gate valves							
	Air Valve Vaults							
	6′ x 7′ x 6.5′ to 10′ inside dimensions, concrete walls, floor and roof, with manhole frames and double covers	Each	6					

1, 2,

THE PASSAIC WATER COMPANY
PATERSON, N. J.
DYERS' PIPE LINE

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112422

LSS

0		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	Blow-off Pipes, Valves, etc.							
2	Passaic River Crossing,							
3	Steel Pipe, 43″ diameter	Lin. Ft.	250					
4	Cast Iron Pipe 16″ diameter	"	150					
5	Trolley Crossings.							
RB	Venturi Meter,							
LED	With Type M. register and recorder, 48″ x 17″	Each	1					
TO	Venturi Meter Vault,							
HFD	Brick with manhole frame and cover, 10′ x 3′ x 17′ deep	Each	1					
	Venturi Meter House, One story concrete with arched roof	Each	1					
	Corporation Cocks—1-½″	Each	6					
	Dampers On Air Line	Each	6					
				$ 141,329.51	14*	52*	$ 2,717.87	$103,279.33
	Interest During Construction			8,479.77			163.06	6,196.75
	TOTAL DYERS' PIPE LINE			$ 149,809.28			$ 2,880.93	$109,476.08

*Weighted Average.

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112422

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RB
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THE PASSAIC WATER COMPANY
PATERSON, N. J.
DISTRIBUTION MAINS & ACCESSORIES
SUMMARY

		Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Mains, Hydrants & Suspense						
Year	1920	$ 211,711.77	0	52	$ 4,069.32	$ 211,711.77
	1919	22,495.69	1	92	248.54	22,247.15
	1918	9,712.72	2	80	122.07	9,468.58
	1917	15,290.26	3	96	159.47	14,811.85
	1916	19,475.08	4	88	220.61	18,632.64
	1915	16,538.80	5	88	188.75	15,595.05
	1914	15,949.93	6	94	170.26	14,928.37
	1913	26,343.66	7	93	281.98	24,369.80
	1912	20,844.58	8	90	230.96	18,997.86
	1911	24,476.43	9	92	267.05	22,072.88
	1910	24,669.80	10	92	266.96	22,000.20
	1909	25,686.59	11	90	285.91	22,541.58
	1908	25,733.70	12	88	292.46	22,224.27
	1907	41,381.60	13	91	456.38	35,448.66
	1906	33,687.14	14	88	380.79	28,356.08
	1905	57,637.64	15	89	650.02	47,887.34
	1904	62,507.24	16	92	685.20	51,544.04
	1903	10,226.10	17	90	113.75	8,292.35
	1902	13,168.36	18	94	140.46	10,640.08
	1901	24,130.18	19	94	256.83	19,250.41
	1900	50,369.32	20	87	579.05	38,788.32
	1899	62,252.84	21	89	698.14	47,591.90
	1898	61,409.30	22	94	649.89	47,111.72
Prior to	1898	542,777.32	30	93	5,808.82	368,512.72
Date Unidentified		26,888.56			605.42	11,999.34
		$ 1,445,364.70			$ 17,676.35	$ 1,155,024.96
Interest During Construction		$ 1,531.65			$ 16.29	$ 1,173,27
TOTAL DISTRIBUTION MAINS & ACCESSORIES		$ 1,446,896.35			$ 17,692.64	$ 1,156,198.23

A

THE PASSAIC WATER COMPANY
PATERSON, N. J.
DISTRIBUTION MAINS & ACCESSORIES

95—OL
11/1/22

KG

0		Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
	1920							
1	6" C. I. Pipe, Valves & Fittings	Lin. Ft.	1,584	$ 2,331.66				
2	8" " " " "	"	3,176	8,253.86				
3	12" " " " "	"	338	1,045.53				
4	30" Steel " " "	"						
5	(Under Const. Dec. 31, 1920)			193,337.22				
RB	Miscellaneous Construction			59.56				
TO	Hydrants	Each	32	3,884.71				
	Suspense (Mains)			2,101.06				
	" (Hydrants)			698.17				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 211,711.77	0	52	$ 4,096.32	$211,711.77
	1919.							
	4" C. I. Pipe, Valves & Fittings	Lin. Ft.	351	$ 405.17				
	6" " " " "	"	2,920	3,876.37				
	8" " " " "	"	7,807	11,895.32				
	12" " " " "	"	141	352.01				
	Miscellaneous Construction			154.36				
	Hydrants	Each	24	2,359.14				
	Suspense (Mains)			3,039.61				
	" (Hydrants)			413.71				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 22,495.69	1	91	$ 248.54	$ 22,247.15
	1918.							
	4" C. I. Pipe, Valves & Fittings	Lin. Ft.	84	$ 114.58				
	6" " " " "	"	2,344.	3,223.21				
	8" " " " "	"	886	1,983.71				
	Miscellaneous Construction			41.58				
	Hydrants	Each	21	2,330.21				
	Suspense (Mains)			1,855.03				
	" (Hydrants)			164.40				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 9,712.72	2	80	$ 122.07	$ 9,468.58

THE PASSAIC WATER COMPANY

THE PASSAIC WATER COMPANY
PATERSON, N. J.
DISTRIBUTION MAINS & ACCESSORIES

95-OL
11/1/22

KG

		Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
0	1917.							
1	4″ C. I. Pipe, Valves & Fittings	Lin. Ft.	25	$ 42.23				
2	6″ " " " "	"	6,409	7,439.68				
3	8″ " " " "	"	2,368	3,193.97				
4	12″ " " " "	"	261	647.48				
5	Miscellaneous Construction			111.87				
RB	Hydrants	Each	7	530.50				
TO	Suspense (Mains)			3,197.67				
N	" (Hydrants)			126.86				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 15,290.26	3	96	$ 159.47	$ 14,811.85
	1916.							
	4″ C. I. Pipe, Valves & Fittings	Lin. Ft.	38	$ 30.60				
	6″ " " " "	"	7,813	6,822.54				
	8″ " " " "	"	2,893	3,767.63				
	12″ " " " "	"	1,984	3,603.46				
	Miscellaneous Construction			167.77				
	Hydrants	Each	33	2,049.34				
	Suspense (Mains)			3,498.80				
	" (Hydrants)			535.48				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 19,475.08	4	88	$ 220.61	$ 18,632.64
	1915.							
	4″ C. I. Pipe, Valves & Fittings	Lin. Ft.	162	$ 139.28				
	6″ " " " "	"	4,588	3,805.77				
	8″ " " " "	"	5,464	5,344.14				
	12″ " " " "	"	1,192	1,661.61				
	Miscellaneous Construction			118.90				
	Hydrants	Each	31	1,820.40				
	Suspense (Mains)			3,135.06				
	" (Hydrants)			515.64				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 16,538.80	5	88	$ 188.75	$ 15,595.05

1, 2,

THE PASSAIC WATER COMPANY
PATERSON, N. J.
DISTRIBUTION MAINS & ACCESSORIES

95-OL
11/1/22

KG

		Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
0	1914.							
1	6" C. I. Pipe, Valves & Fittings	Lin. Ft.	4,435	$ 3,131.58				
2	8" " " " "	"	5,662	5,258.47				
3	12" " " " "	"	1,393	2,190.39				
4	Miscellaneous Construction			16.08				
5	Hydrants	Each	14	766.94				
RB	Suspense (Mains)			4,276.91				
TO	" (Hydrants)			309.56				
W	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 15,949.93	6	94	$ 170.26	$ 14,928.37
	1913.							
	6" C. I. Pipe, Valves & Fittings	Lin. Ft.	7,185	$ 5,146.84				
	8" " " " "	"	12,203	12,845.85				
	12" " " " "	"	1,254	1,867.79				
	Miscellaneous Construction			344.87				
	Hydrants	Each	18	1,035.84				
	"	"	11	Incl. with Mains				
	Suspense (Mains & Hydrants)			5,102.47				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 26,343.66	7	93	$ 281.98	$ 24,369.80
	1912.							
	4" C. I. Pipe, Valves & Fittings	Lin. Ft.	231	$ 135.24				
	6" " " " "	"	8,933	6,123.82				
	8" " " " "	"	5,199	5,393.43				
	12" " " " "	"	2,824	4,848.22				
	Miscellaneous Construction			44.62				
	Hydrants	Each	11	633.05 (E)				
	"	"	19	Incl. with Mains				
	"	"	4	236.59				
	Suspense			3,429.61 (1)				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 20,844.58	8	90	$ 230.96	$ 18,997.86

(E) Estimated
(1) Est. $111.65

2, 3,

(1) Est. $111.65

2, 3,

THE PASSAIC WATER COMPANY
PATERSON, N. J.
DISTRIBUTION MAINS & ACCESSORIES

95-OL
11/1/22

KG

		Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
0	1911.							
1	4″ C. I. Pipe, Valves & Fittings	Lin. Ft.	372	$ 241.17				
2	6″ " " " "	"	10,869	7,245.99				
3	8″ " " " "	"	9,632	8,020.01				
4	12″ " " " "	"	2,652	4,032.17				
5	Miscellaneous Construction			1,309.41				
RB	Hydrants	Each	33	Incl. with Mains				
TO	Suspense			3,627.68				
HD	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 24,476.43	9	92	$ 267.05	$ 22,072.88
	1910.							
	4″ C. I. Pipe, Valves & Fittings	Lin. Ft.	490	$ 282.17				
	6″ " " " "	"	9,911	7,601.05				
	8″ " " " "	"	6,345	6,636.22				
	12″ " " " "	"	3,286	5,096.13				
	Miscellaneous Construction			1,397.89				
	Hydrants	Each	30	Incl. with Mains				
	Suspense			3,656.34				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 24,669.80	10	92	$ 266.96	$ 22,000.20
	1909.							
	6″ C. I. Pipe, Valves & Fittings	Lin. Ft.	9,660	$ 7,241.12				
	8″ " " " " "	"	9,814	10,700.44				
	12″ " " " " "	"	702	1,093.40				
	12″ " " " "	"	1,268	1,973.08				
	Miscellaneous Construction			871.51				
	Hydrants	Each	43	Incl. with Mains				
	Suspense			3,807.04				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 25,686.59	11	90	$ 285.91	$ 22,541.58

3, 4,

THE PASSAIC WATER COMPANY
PATERSON, N. J.
DISTRIBUTION MAINS & ACCESSORIES

95-OL
11/1/22

KG

		Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
0	1908.							
1	6″ C. I. Pipe, Valves & Fittings	Lin. Ft.	9,386	$ 6,572.52				
2	8″ " " " "	"	7,664	8,501.36				
3	10″ " " " "	"	8	Incl with Mains				
4	12″ " " " "	"	3,110	4,897.96				
5	Miscellaneous Construction			1,947.91				
RB	Hydrants	Each	52	Incl with Mains				
TO	Suspense			3,814.04				
HD	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 25,733.79	12	88	$ 292.46	$ 22,224.27
	1907.							
	6″ C. I. Pipe, Valves & Fittings	Lin. Ft.	11,284	$ 10,573.20				
	8″ " " " "	"	8,375	11,257.57				
	12″ " " " "	"	5,887	12,001.41				
	Miscellaneous Construction			1,416.20				
	Hydrants	Each	63	Incl with Mains				
	Suspense			6,133.22				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 41,381.60	13	91	$ 456.38	$ 35,448.66
	1906.							
	4″ C. I. Pipe, Valves & Fittings	Lin. Ft.	60	$ 34.07				
	6″ " " " "	"	8,864	7,416.43				
	8″ " " " "	"	9,624	11,192.17				
	12″ " " " "	"	1,640	2,985.54				
	12″ " " " "	"	102	Incl. with Mains				
	16″ " " " "	"	2,037	5,437.42				
	16″ " " " "	"	32	Incl. with Mains				
	Miscellaneous Construction			1,628.70				
	Hydrants	Each	65	Incl. with Mains				
	Suspense			4,992.81				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 33,687.14	14	88	$ 380.79	$ 28,356.08

4, 5,

THE PASSAIC WATER COMPANY

THE PASSAIC WATER COMPANY
PATERSON, N. J.
DISTRIBUTION MAINS & ACCESSORIES

95-OL
11/1/22

KG

		Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
0	1905.							
1	6" C. I. Pipe, Valves & Fittings	Lin. Ft.	10,124	$ 8,118.92				
2	6" " " " "	"	805	Incl. with Mains				
3	8" " " " "	"	11,128	12,628.09				
4	8" " " " "	"	208	Incl. with Mains				
5	10" " " " "	"	40	52.94				
RB	12" " " " "	"	9,123	15,347.43				
TO	16" " " " "	"	2,521	6,750.47				
HD	2-12" River Crossings at W. 28th St.							
	12" Unversal Pipe	"	830					
	12" C. I. Pipe	"	78	3,957.45				
	16" C. I. Pipe	"	544					
	Miscellaneous Construction			2,239.79				
	Hydrants	Each	109	Incl. with Mains				
	Suspense			8,542.55				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 57,637.64	15	89	$ 650.02	$ 47,887.34
	1904.							
	4" C. I. Pipe, Valve & Fittings	Lin. Ft.	196	$ 145.56				
	6" " " " "	"	18,770	14,671.61				
	8" " " " "	"	9,801	10,096.99				
	12" " " " "	"	9,951	17,381.55				
	12" " " " "	"	126	Incl. with Mains				
	16" " " " "	"	3,703	8,348.30				
	Miscellaneous Construction			2,598.30				
	Hydrants	Each	89	Incl. with Mains				
	Suspense			9,264.28				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 62,507.24	16	92	$ 685.20	$ 51,544.04
	1903.							
	6" C. I. Pipe, Valves & Fittings	Lin. Ft.	6,929	$ 5,434.72				
	8" " " " "	"	1,294	1,444.67				
	Miscellaneous Construction			1,831.09				
	Hydrants	Each	17	Incl. with Mains				
	Suspense			1,515.62				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 10,226.10	17	90	$ 113.75	$ 8,292.35

6, 7,

THE PASSAIC WATER COMPANY
PATERSON, N. J.
DISTRIBUTION MAINS & ACCESSORIES

95-OL
11/1/22

KG

		Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
0	1902.							
1	4″ C. I. Pipe, Valves & Fittings	Lin. Ft.	24	$ 24.94				
2	6″ " " " "	"	7,445	5,471.32				
3	8″ " " " "	"	2,556	3,244.77				
4	12″ " " " "	"	884	1,556.55				
5	Miscellaneous Construction			919.08				
RB	Hydrants	Each	13	Incl. with Mains				
TO	Suspense			1,951.70				
HD	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 13,168.36	18	94	$ 140.46	$ 10,640.08
	1901.							
	4″ C. I. Pipe, Valves & Fittings	Lin. Ft.	519	$ 284.13				
	6″ " " " "	"	11,697	9,682.19				
	8″ " " " "	"	2,209	3,620.64				
	12″ " " " "	"	2,309	4,677.60				
	16″ " " " "	"	533	805.60				
	16″ " " " "	"	70	Incl. with Mains				
	Miscellaneous Construction			1,483.66				
	Hydrants	Each	23	Incl. with Mains				
	Suspense			3,576.36				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 24,130.18	19	94	$ 256.83	$ 19,250.41
	1900.							
	4″ C. I. Pipe, Valves & Fittings	Lin. Ft.	276	$ 231.68				
	6″ " " " "	"	23,248	22,689.11				
	8″ " " " "	"	1,348	1,705.29				
	10″ " " " "	"	579	961.92				
	12″ " " " "	"	5,706	13,033.05				
	16″ Regulator & Pipe		151	1,283.90				
	Miscellaneous Construction			369.60				
	Hydrants	Each	79	Incl. with Mains				
	Regulator House at Stony Road			2,744.00 (E)				
	Suspense			7,350.77 (1)				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 50,369.32	20	87	$ 579.05	$ 38,788.32

(E) Estimated
(1) Est. $343.00

7, 8,

THE PASSAIC WATER COMPANY
PATERSON, N. J.

(E) Estimated
(1) Est. $343.00

7, 8,

THE PASSAIC WATER COMPANY
PATERSON, N. J.
DISTRIBUTION MAINS & ACCESSORIES

95
112422

LSS

		Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
0	1899.							
1	4″ C. I. Pipe, Valves & Fittings		283	$ 117.76				
2	6″ C. I. " " " "	"	29,739	23,869.06				
3	8″ C. I. " " " "	"	4,448	5,887.32				
4	10″ C. I. " " " "	"	300	248.74				
5	12″ C. I. " " " "	"	9,415	12,084.89				
RB	16″ C. I. " " " "	"	990	2,030.66				
JED	4″ C. I. " " " "	"	476	304.64 (E)				
TO	6″ C. I. " " " "	"	3,029	2,392.91 (E)				
HFD	10″ C. I. " " " "	"	72	91.44 (E)				
	12″ C. I. " " " "	"	161	281.75 (E)				
	*16″ Regulator & Vault with Main	"	260	2,351.31				
	Miscellaneous Construction			3,365.79				
	Hydrants	Each	85	Incl. with Mains				
	Suspense			9,226.57 (2)				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 62,252.84	21	89	$ 698.14	$ 47,591.90
	1898.							
	4″ C. I. Pipe, Valves & Fittings	Lin. Ft.	260	$ 235.44				
	6″ C. I. " " " "	"	19,616	14,903.72				
	8″ C. I. " " " "	"	4,119	4,042.76				
	10″ C. I. " " " "	"	934	1,086.90				
	12″ C. I. " " " "	"	14,177	23,870.90				
	16″ C. I. " " " "	"	1,559	4,730.22				
	4″ C. I. " " " "	"	132	84.48 (E)				
	6″ C. I. " " " "	"	547	432.13 (E)				
	8″ C. I. " " " "	"	511	582.54 (E)				
	10″ C. I. " " " "	"	312	396.24 (E)				
	16″ C. I. " " " "	"	14	34.86 (E)				
	Miscellaneous Construction			1,907.56				
	Hydrants	Each	53	Incl. with Mains				
	Canal Crossings, West Paterson		1	Incl. with Mains				
	Suspense			9,101.55 (3)				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 61,409.30	22	94	$ 649.89	$ 47,111.72

(E) Estimated.
(2) Est. $534.31
(3) Est. $266.26
*900′-16″ Cost $2,030.66, or $2.05 per ft.
260′ at $2.05 = $533.00

95
112422

KG

0
1
2
3
4
5
RB
TO
HD

	Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
PRIOR TO 1898							
4″ C. I. Pipe, Valves & Fittings	Lin. Ft.	7,915	$ 5,065.60				
6″ " " " "	"	253,684	200,410.36				
8″ " " " "	"	17,591	20,053.74				
10″ " " " "	"	2,965	3,765.55				
12″ " " " "	"	28,270	49,472.50				
16″ " " " "	"	7,470	18,600.30				
20″ " " " "	"	4,683	14,935.20				
24″ " " " "	"	21,678	91,297.73				
30″ " " " "	"	3,000	25,110.00				
36″ " " " "	"	700	10,003.00				
Miscellaneous Construction			16,652.61				
Hydrants	Each	564	Incl. with Mains				
River Crossings, 24″ C. I. pipe (Van Houten)	"	1	2,976.00				
" " 20″ " " " (Prospect)	"	1	4,900.00				
Bridge over Passaic River near S. U. M. Dam	"	1	5,019.00				
30″ C. I. Pipe crossing near S. U. M.	"	1	530.00				
Suspense			73,985.73				
TOTAL MAINS, HYDRANTS & SUSPENSE			$ 542,777.32	30	93	$ 5,808.72	$368,512.72
DATE UNIDENTIFIED							
River Crossings							
6″ C. I. Pipe Crossing at Hudson St.	Each	1	$ 1,500.00	25	100	$ 15.00	
16″ " " " " Dyers Line to Gun Mill Yard	Each	1	1,950.00	25	100	19.50	
12″ C. I. Pipe Crossing below S. U. M. Dam at Great Falls	"	1	960.00	21	100	9.60	
16″ C. I. Pipe Crossing at Lowe St	"	1	2,976.00	25	100	29.76	
Regulators & Vaults—16″ Regulators (Ross)	"	1	750.00	25	50	15.00	
16″ " (Union)	"	1	960.00	25	50	19.20	
24″ " (Ross)	"	1	1,000.00	25	50	20.00	
Regulator Vaults—Grand & Spruce	"	1	34.00	25	50	68	
On Falls Grounds	"	1	133.00	25	50	2.66	
Mains—6″ Cement Pipe	Lin. Ft.	2,528	2,148.80	45	50	42.97	
12″ " "	"	1,825	3,193.75	45	50	63.87	
16″ " "	"	725	1,631.25	45	50	32.62	

10, 11,

10, 11,

THE PASSAIC WATER COMPANY
PATERSON, N. J.
DISTRIBUTION MAINS & ACCESSORIES

95-OL
11/2/22

KG

		Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
0	DATE UNIDENTIFIED (Cont'd)							
1	Mains							
2	¾" W. I. Pipe	Lin. Ft.	1,147	$ 247.75	13	25	$ 9.92	
3	¾" " "	"	4,414	1,456.29	4	25	58.24	
4	1" " "	"	8,271	2,074.67	19	25	83.00	
5	1" " "	"	375	138.75	6	25	5.56	
RB	1¼" " "	"	2,085	583.80	14	25	23.36	
TO	1¼" " "	"	1,096	460.32	10	25	18.40	
HD	1½" " "	"	3,415	1,051.82	19	25	42.08	
	2" " "	"	1,427	519.43	18	25	20.76	
	2" " "	"	104	55.12	7	25	2.20	
	2½" " "	"	126	80.64	0	25	3.24	
				2,983.17	25	44	67.80	
	Suspense							
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 26,888.56	25	44	$ 605.42	$ 11,999.34

95
112422

KG

THE PASSAIC WATER COMPANY
PATERSON, N. J.
DISTRIBUTION MAINS & ACCESSORIES

		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
0								
1								
2								
3								
4								
5	Interest During Construction							
RB	24″ C. I. Main through Paterson							
EJB	(Cost New—$51,055.02)			$ 1,531.65	22	94	$ 16.29	$ 1,173.27
TO								
AB								

95
112022

KG

THE PASSAIC WATER COMPANY
PATERSON, N. J.
METERS, METER BOXES AND VAULTS
SUMMARY

0			Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1 METERS	Year	1920	$ 120.00	0	30	$ 4.00	$ 120.00
2		1919	145.25	1	30	4.84	140.41
3		1918	40,183.75	2	30	1,339.46	37,504.83
4		1917	6,995.06	3	30	233.17	6,295.55
5		1916	7,601.30	4	30	253.37	6,587.82
RB		1915	1,722.87	5	30	57.43	1,435.72
TO		1914	1,905.20	6	30	63.51	1,464.14
HD		1913	8,030.40	7	30	267.68	6,156.64
		1912	4,477.00	8	30	149.23	3,283.16
		1911	3,845.08	9	30	128.17	2,691.55
		1910	5,451.80	10	30	181.73	3,634.50
		1909	5,328.20	11	30	177.61	3,374.49
		1908	3,693.00	12	30	123.10	2,215.80
		1907	4,375.21	13	30	145.84	2,479.29
		1906	3,928.20	14	30	130.94	2,095.04
		1905	4,069.70	15	30	135.66	2,034.80
		1904	2,539.00	16	30	84.63	1,184.92
		1903	3,346.60	17	30	111.55	1,450.25
		1902	4,501.40	18	30	150.04	1,800.68
		1901	3,972.60	19	30	132.42	1,456.62
		1900	3,578.80	20	30	119.29	1,193.00
		1899	8,023.00	21	30	267.43	2,406.97
		1898	4,381.80	22	30	146.06	1,168.48
	TOTAL METERS		$ 132,215.22			$ 4,407.16	$92,174.66

THE PASSAIC WATER COMPANY
METERS, METER BOXES AND VAULTS
PATERSON, N. J.
SUMMARY

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112022

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		Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
METER SETTING						
Year	1920	$ 4,977.87				$ 4,977.87
	1919	6,154.84				6,154.84
	1918	31,243.62				31,243.62
	1917	4,442.92				4,442.92
	1916	2,499.35				2,499.35
	1915	2,042.58				2,042.58
	1914	2,458.72				2,458.72
	1913	2,315.62				2,315.62
	1912	2,239.06				2,239.06
	1911	1,478.24				1,478.24
	1910	2,038.98				2,038.98
	1909	2,339.85				2,339.85
	1908	1,661.55				1,661.55
	1907	1,303.96				1,303.96
	1906	1,378.84				1,378.84
	1905	1,769.04				1,769.04
	1904	1,352.35				1,352.35
	1903	1,854.84				1,854.84
	1902	1,873.40				1,873.40
	1901	1,968.89				1,968.89
	1900	2,026.48				2,026.48
	1899	3,683.78				3,683.78
	1898	2,566.32				2,556.32
Total Meter Settings		$ 85,671.10				$ 85,671.10
Meters, Meter Boxes and Vaults		4,093.09	9*	30*	$ 136.44	2,865.13
TOTAL METERS, METER BOXES AND VAULTS		$ 221,979.41			$ 4,543.60	$ 180,710.89

*Weighted Average

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THE PASSAIC WATER COMPANY
PATERSON, N. J.
METERS, METER BOXES AND VAULTS

95
112022

KG

0		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	1920.							
2	Hersey Detector, 3″	Each	1	$ 120.00	0	30	$ 4.00	$ 120.00
	Setting and Miscellaneous Material	"	559	4,977.87				4,977.87
3	TOTAL METERS AND METER SETTINGS			$ 5,097.87			$ 4.00	$ 5,097.87
4	1919.							
5	Trident Disc. 2″	"	1	$ 55.25				
RB	Hersey " 3″		1	90.00	1	30	$ 4.84	$ 140.41
TO	Setting and Miscellaneous Material	"	608	6,154.84				6,154.84
N	TOTAL METERS AND METER SETTINGS			$ 6,300.09			$ 4.84	$ 6,295.25
	1918.							
	Trident Disc. 5/8″ x 3/4″	Each	4,250	$ 40,183.75	2	30	$ 1,339.46	$ 37,504.83
	Setting and Miscellaneous Material	"	3,387	31,243.62				31,243.62
	TOTAL METERS AND METER SETTINGS			$ 71,427.37			$ 1,339.46	$ 68,748.45
	1917.							
	Hersey Detector, 6″	"	1	$ 400.00				
	" Torrent 3″	"	2	300.00				
	" Disc. 3″	"	1	153.00	3	30	$ 233.17	$ 6,295.55
	Trident " 2″	"	8	426.66				
	" " 5/8″ x 3/4″	"	697	5,715.40				
	Setting and Miscellaneous Material	"	553	4,442.92				4,442.92
	TOTAL METERS AND METER SETTINGS			$ 11,437.98			$ 233.17	$ 10,738.47
	1916.							
	Protectors 6″		1	$ 550.00				
	Trident Disc. 2″	"	1	47.30	4	30	$ 253.37	$ 6,587.82
	" " 5/8″ x 3/4″	"	940	7,004.00				
	Setting and Miscellaneous Material	"	460	2,499.35				2,499.35
	TOTAL METERS AND METER SETTINGS			$ 10,100.65			$ 253.37	$ 9,087.17

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THE PASSAIC WATER COMPANY
PATERSON, N. J.
METERS, METER BOXES AND VAULTS

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112022

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	Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1915.							
Trident Disc. 2″	Each	1	$ 65.00				
“ “ 1″	“	1	11.98	5	30	$ 57.43	$ 1,435.72
“ “ ⅝″ x ¾″	“	249	1,645.89				
Setting and Miscellaneous Material	“	461	2,042.58				2,042.58
TOTAL METERS AND METER SETTINGS			$ 3,765.45			$ 57.43	$ 3,478.30
1914.							
Trident Disc. 2″	Each	2	$ 110.00				
“ “ ⅝″ x ¾″	“	272	1,795.20	6	30	$ 63.51	$ 1,464.14
Setting and Miscellaneous Material	“	334	2,458.72				2,458.72
TOTAL METERS AND METER SETTINGS			$ 4,363.92			$ 63.51	$ 3,922.86
1913.							
Trident Compound 4″	Each	1	$ 200.00				
“ “ 2″	“	3	156.00				
“ Disc. 2″	“	4	172.00				
“ “ 1½″	“	7	238.00				
“ “ 1″	“	17	257.60	7	30	$ 267.68	$ 6,156.64
“ “ ¾″	“	22	211.20				
“ “ ⅝″ x ¾″	“	1,006	6,639.60				
“ “ ⅝″	“	26	156.00				
Setting and Miscellaneous Material	“	420	2,315.62				2,315.62
TOTAL METERS AND METER SETTINGS			$ 10,346.02			$ 267.68	$ 8,472.26
1912.							
Trident Disc. 1″	Each	11	$ 184.80				
“ “ ⅝″ x ¾″	“	616	4,065.60				
“ “ ⅝″	“	19	121.60	8	30	$ 149.23	$ 3,283.16
Trident No. 3 1½″	“	3	105.00				
Setting and Miscellaneous Material	“	595	2,239.06				2,239.06
TOTAL METERS AND METER SETTINGS			$ 6,716.06			$ 149.23	$ 5,522.22

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THE PASSAIC WATER COMPANY
PATERSON, N. J.
METERS, METER BOXES AND VAULTS

0		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
	1911							
1	Trident Disc. 1½″	Each	4	$ 140.00				
2	" " 1″	"	4	64.28				
3	" " ⅝″ x ¾″	"	538	3,550.80	9	30	$ 128.17	$ 2,691.55
4	Trident No. 3 2″	"	1	55.00				
5	" No. 3 1½″	"	1	35.00				
RB	Setting and Miscellaneous Material	"	590	1,478.24				1,478.24
TO	TOTAL METERS AND METER SETTINGS			$ 5,323.32			$ 128.17	$ 4,169.79
HD	1910							
	Trident Compound 4″	Each	1	$ 250.00				
	" " 2″	"	2	130.00				
	" Disc. 2″	"	4	220.00				
	" " 1½″	"	8	280.00	10	30	$ 181.75	$ 3,634.50
	" " 1″	"	13	234.00				
	" " ⅝″ x ¾″	"	633	4,177.80				
	" " ⅝″	"	25	160.00				
	Setting and Miscellaneous Material	"	740	2,038.98				2,038.98
	TOTAL METERS AND METER SETTINGS			$ 7,490.78			$ 181.73	$ 5,673.48
	1909							
	Trident Crest 3″	Each	1	$ 90.00				
	" Disc. 2″	"	5	275.00				
	" " 1½″	"	11	385.00				
	" " 1″	"	5	90.00	11	30	$ 177.61	$ 3,374.49
	" " ¾″	"	11	138.60				
	" " ⅝″ x ¾″	"	628	4,144.80				
	" " ⅝″	"	32	204.80				
	Setting and Miscellaneous Material	"	665	2,339.85				2,339.85
4, 5,	TOTAL METERS AND METER SETTINGS			$ 7,668.05			$ 177.61	$ 5,714.34

THE PASSAIC WATER COMPANY
PATERSON, N. J.
METERS, METER BOXES AND VAULTS

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1		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
2	1908							
3	Trident Disc. 2″	Each	1	$ 55.00				
4	" " 1″	"	6	108.00				
5	" " ¾″ x 1″	"	1	12.80				
RB	" " ¾″	"	38	478.80	12	30	$ 123.10	$ 2,215.80
TO	" " ⅝″ x ¾″	"	440	2,904.00				
HD	" " ⅝″	"	21	134.40				
	Setting and Miscellaneous Material	"	486	1,661.55				1,661.55
	TOTAL METERS AND METER SETTINGS			$ 5,354.55			$ 123.10	$ 3,877.35
	1907							
	Trident Crest 4″	Each	3	$ 480.00				
	" " 3″	"	3	270.00				
	" Disc. 2″	"	7	394.31				
	" " 1½″	"	15	405.00				
	" " 1″	"	7	126.00	13	30	$ 145.84	$ 2,479.29
	" " ¾″	"	13	163.80				
	" " ⅝″ x ¾″	"	196	1,244.60				
	" " ⅝″	"	210	1,291.50				
	Setting and Miscellaneous Material	"	480	1,303.96				1,303.96
	TOTAL METERS AND METER SETTINGS			$ 5,679.17			$ 145.84	$ 3,783.25
	1906							
	Trident Disc. 1½″	Each	2	$ 54.00				
	" " 1″	"	15	270.00				
	" " ¾″	"	25	315.00				
	" " ⅝″ x ¾″	"	441	3,175.20	14	30	$ 130.94	$ 2,095.04
	" " ⅝″	"	2	14.00				
	" " 1½″	"	2	100.00				
	Setting and Miscellaneous Material	"	462	1,378.84				1,378.84
5, 6,	TOTAL METERS AND METER SETTINGS			$ 5,307.04			$ 130.94	$ 3,473.88

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THE PASSAIC WATER COMPANY
PATERSON, N. J.
METERS, METER BOXES AND VAULTS

	Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1905							
Trident Compound 4"	Each	1	$ 160.00				
" Crest 3"	"	5	450.00				
" Disc. 1½"	"	1	27.00				
" " 1"	"	13	169.00				
" " ¾" x 1"	"	5	51.00	15	30	$ 135.66	$ 2,034.80
" " ¾"	"	18	180.00				
" " ⅝" x ¾"	"	453	2,944.50				
" " ⅝"	"	14	88.20				
Setting and Miscellaneous Material	"	484	1,769.04				1,769.04
TOTAL METERS AND METER SETTINGS			$ 5,838.74			$ 136.66	$ 3,803.84
1904							
Trident Disc. 1"	Each	3	$ 39.00				
" " ¾" x 1"	"	5	51.00				
" " ¾"	"	6	60.00	16	30	$ 84.63	$ 1,184.92
" " ⅝" x ¾"	"	353	2,294.50				
" " ⅝"	"	15	94.50				
Setting and Miscellaneous Material	"	400	1,352.35				1,352.35
TOTAL METERS AND METER SETTINGS			$ 3,891.35			$ 84.63	$ 2,537.27
1903							
Trident Disc. 1"	Each	10	$ 168.00				
" " ¾" x 1"	"	7	89.60				
" " ¾"	"	22	277.20	17	30	$ 111.55	$ 1,450.25
" " ⅝" x ¾"	"	325	2,795.00				
" " ⅝"	"	2	16.80				
Setting and Miscellaneous Material	"	483	1,854.84				1,854.84
TOTAL METERS AND METER SETTINGS			$ 5,201.44			$ 111.55	$ 3,305.09

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THE PASSAIC WATER COMPANY
PATERSON, N. J.
METERS, METER BOXES AND VAULTS

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0		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	1902							
2	Trident Disc. ¾″ x 1″	Each	3	$ 38.40				
3	" " ¾″	"	39	491.40				
4	" " ⅝″ x ¾″	"	454	3,904.40	18	30	$ 150.04	$ 1,800.68
5	" " ⅝″	"	8	67.20				
RB	Setting and Miscellaneous Material	"	506	1,873.40				1,873.40
TO	TOTAL METERS AND METER SETTINGS			$ 6,374.80			$ 150.04	$ 3,674.08
HD	1901							
	Trident Disc. 1″	Each	1	$ 16.80				
	" " ¾″ x 1″	"	17	217.60				
	" " ¾″	"	2	25.20	19	30	$ 132.42	$ 1,456.62
	" " ⅝″ x ¾″	"	421	3,620.60				
	" " ⅝″	"	11	92.40				
	Setting and Miscellaneous Material	"	481	1,968.89				1,968.89
	TOTAL METERS AND METER SETTINGS			$ 5,941.49			$ 132.42	$ 3,425.51
	1900							
	Trident Disc. 1″	Each	4	$ 67.20				
	" " ¾″ x 1″	"	3	38.40				
	" " ¾″	"	7	88.20	20	30	$ 119.29	$ 1,193.00
	" " ⅝″ x ¾″	"	375	3,225.00				
	Torrent " 4″	"	1	160.00				
	Setting and Miscellaneous Material	"	438	2,026.48				2,026.48
7, 8	TOTAL METERS AND METER SETTINGS			$ 5,605.28			$ 119.29	$ 3,219.48

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112122

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THE PASSAIC WATER COMPANY
PATERSON, N. J.
METERS, METER BOXES AND VAULTS

		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	1899							
2	Trident Disc. 1″	Each	19	$ 319.20				
3	" " ¾″ x 1″	"	27	345.60				
4	" " ¾″	"	126	1,587.60	21	30	$ 267.43	$ 2,406.97
5	" " ⅝″ x ¾″	"	671	5,770.60				
RB	Setting and Miscellaneous Material	"	956	3,683.78				3,683.78
TO	TOTAL METERS AND METER SETTINGS			$ 11,706.78			$ 267.43	$ 6,090.75
HD	1898							
	Trident Disc. ⅝″ x ¾″	Each	415	$ 3,569.00				
	" " 1″	"	12	201.60				
	" " ¾″ x 1″	"	32	409.60	22	30	$ 146.06	$ 1,168.48
	" " ¾″	"	16	201.60				
	Setting and Miscellaneous Material	"	666	2,566.32				2,566.32
8,	TOTAL METERS AND METER SETTINGS			$ 6,948.12			$ 146.06	$ 3,734.80

THE PASSAIC WATER COMPANY
PATERSON, N. J.
METERS, METER BOXES AND VAULTS

95
112422

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1		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
2	METER BOXES							
3	Ford	Each	238	$ 1,880.20				
4	McWayne	Each	30	165.60				
5	Clark	Each	20	109.00				
RB	Trident	Each	17	280.50				
JED	METER VAULTS							
TO	Class A Vaults	Each	12	336.00				
HFD	" B "	Each	3	195.00				
	" C "	Each	5	255.00				
	" D "	Each	4	72.00				
	" E "	Each	1	9.00				
	" F "	Each	2	234.00				
	" G "	Each	1	102.00				
	Suspense 12½%			454.79				
	TOTAL METER BOXES AND METER VAULTS			$ 4,093.09	9*	30*	$ 136.44	$ 2,865.13

*Weighted Average

THE PASSAIC WATER CO.
PATERSON, N. J.
SERVICE PIPES & STOPS
SUMMARY

95
112422

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0	Description	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	Service Pipes and Stops					
2	Year 1920	$ 20,584.96	0	25	$ 823.40	$ 20,584.96
3	1919	15,477.15	1	25	619.08	14,858.07
4	1918	10,049.09	2	25	401.96	9,245.17
5	1917	12,151.43	3	25	486.04	10,693.31
RB	Corporatiin Cocks					
EJB	1916	474.73	4	50	9.50	436.73
TO	1915	372.65	5	50	7.46	335.35
AB	1914	502.13	6	50	10.04	441.89
	TOTAL SERVICE PIPES & STOPS	$ 59,612.14			$ 2,357.48	$ 56,595.48

THE PASSAIC WATER CO.
PATERSON, N. J.
SERVICE PIPES & STOPS

95
112422

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0	Description	Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	1920							
2	Service Connections Main to Curb ¾"	Each	660					
3	" " " " " 1"	"	45					
4	" " " " " 1¼"	"	5					
5	" " " " " 1½"	"	8					
RB	" " " " " 2"	"	11					
EJB	" " " " " 4"	"	2					
TO	TOTAL SERVICE PIPES & STOPS			$ 20,584.96	0	25	$ 823.40	$ 20.584.96
	1919.							
AB	Service Connections Main to Curb ¾"	Each	638					
	" " " " " 1"	"	52					
	" " " " " 1¼"	"	7					
	" " " " " 1½"	"	6					
	" " " " " 2"	"	14					
	" " " " " 4"	"	2					
	TOTAL SERVICE PIPES & STOPS			$ 15,477.15	1	25	$ 619.08	$ 14,858.07
	1918.							
	Service Connections Main to Curb ¾"	Each	419					
	" " " " " 1"	"	41					
	" " " " " 1¼"	"	13					
	" " " " " 1½"	"	1					
	" " " " " 2"	"	10					
	TOTAL SERVICE PIPES & STOPS			$ 10,049.09	2	25	$ 401.96	$ 9,245.17
	1917.							
	Service Connections Main to Curb ¾"	Each	655					
	" " " " " 1"	"	88					
	" " " " " 1¼"	"	10					
	" " " " " 1½"	"	4					
	" " " " " 2"	"	6					
	" " " " " 2½"	"	1					
	" " " " " 4"	"	5					
	TOTAL SERVICE PIPES & STOPS			$ 12,151.43	3	25	$ 486.04	$ 10,693.31

THE PASSAIC WATER CO.
PATERSON, N. J.
SERVICE PIPES AND STOPS

95
112422

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0	Description	Reproducing Cost New	Age	Life	Annual Depreciation	Reproducing Cost New Less Accrued Depreciation
1	Corporation Cocks					
2	Construction Charge 1916	$ 474.73	4	50	$ 9.50	$ 436.73
3	" " 1915	372.65	5	50	7.46	335.35
4	" " 1914	502.13	6	50	10.04	441.89
5	TOTAL CORPORATION COCKS	$ 1,349.51				
RB EJB TO	Additional charges to construction for corporation cocks included in miscellaneous items "Distribution Mains and Accessories."					
AB	TOTAL SERVICE PIPES AND STOPS	$ 59,612.14				

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THE PASSAIC WATER COMPANY
PATERSON, N. J.
GENERAL STRUCTURES

95
112322

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0		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	Meter Repair and Testing House, One story brick							
2	19.7′ x 42.8′ Concrete floor, slate roof	Each	1	$ 5,400.00	10	50	$ 108.00	$ 4,320.00
3	Toilet, Wooden frame, wooden floor, slate roof	Each	1	25.00	8	40	.62	20.04
4	Meter Store House, Two story brick, concrete							
5	flors, slate roof	Each	1	5,346.00	15	50	106.92	3,742.20
RB	Greenhouse, One story frame, masonry floors,							
TO	¼ shingle and ¾ glass roof	Each	1	Charged to Operation				
HD	Retaining Wall, Cut brownstone in cement mortar	Each	1	3,280.00	53	75	43.73	962.31
	Fence, Chicken wire on iron posts, two gates, 1″ W. I. pipe on top of posts	Each	1	175.00	8	40	4.38	139.96
	Office Building & Hydrant Repair Shop, One story frame, 21.3′ x 35.7′, wood floors, tin roof	Each	1	1,200.00	20	50	24.00	720.00
	Storage Pump House, One story frame, 12.3′ x 28′, wood floors, tin roof	Each	1					
	Storage House, Two story frame, 27.2′ x 37.2′, Concrete floors, heavy tar slag roof	Each	1	3,454.60	12	30	115.15	2,072.80
	Garage and Storage House, Two story frame, 20.3′ x 30.2′, with one story lean-to 7′ x 20.3′, concrete and wood floors, shingle roof	Each	1	1,000.00	12	30	33.33	600.04
	Stable, Two story frame, 22.2′ x 54.4′, wood floors, tar slag roof	Each	1	1,800.00	12	30	60.00	1,080.00
	Manure Pit, Concrete, 5′ x 13′ x 6′ deep, wooden cover	Each	1					

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THE PASSAIC WATER COMPANY
PATERSON, N. J.
GENERAL STRUCTURES

95
112322

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0		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	Wagon Shed and Carpenter Shop, Two story							
2	frame, 20′ x 81.2′, wood, earth and concrete							
3	floors, tar paper and shingle roof,	Each	1	$ 3,000.00	15	30	$ 100.00	$ 1,500.00
4	Lantern Store House, One story frame, 12.3′ x							
5	12.3′, plank floor, shingle roof	Each	1	75.00	12	30	2.50	39.00
RB	Pipe and Cement Shed, One story frame, 17.2′ x							
TO	28.8′, Floors: In pipe room—plank; In cement							
HD	room—earth; tin roof	Each	1	400.00	12	30	13.33	240.04
	Hydrant Sheds,							
	One story frame, 4′ x 4′, tin roofs	Each	4	36.00	12	30	1.20	21.60
	Chicken Coop,							
	One story wood frame, 8.2′ x 12.1′, Tar slag roof	Each	1	40.00	12	30	1.33	24.04
	Wagon Scales,							
	Wooden platform, 8.2′ x 14′ Over concrete pit	Each	1	25.00	12	30	.83	15.04
	Oil and Paint House,							
	One story brick, 14′x26′, concrete floor, tar slag roof	Each	1	926.94	7	75	12.36	840.42
	Auto Repair Shop,							
	One story brick, 30′x44′, concrete floor, tar slag roof	Each	1	2,610.98	7	75	34.81	2,367.31
	Water Closet,							
	Wood frame, 4.3′ x 4.1′, tar slag roof	Each	1	30.00	12	30	1.00	18.00
	Gasoline Tank at Auto Repair Shop,	Each	1	35.00	7	75	.47	31.71
	Storage House,							
	One story wooden frame, 20.2′ x 38.7′, brick							
	floor, tar slag roof	Each	1	656.00	12	30	21.87	393.56

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THE PASSAIC WATER COMPANY
PATERSON, N. J.
GENERAL STRUCTURES

0		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1 2	Garage, One story brick, 24′ x 83.3′, concrete floor; tar slag roof	Each	1					
3 4 5	Blacksmith Shop, One story brick, 24′ x 37′, 2/3 concrete and 1/3 plank floor, tar slag roof	"	1	$ 11,300.57	2	75	$ 150.67	$ 10,999.23
RB TO HD 4,	TOTAL GENERAL STRUCTURES			$ 40,816.09			$ 836.50	$ 30,147.30

THE PASSAIC WATER COMPANY
PATERSON, N. J.
GENERAL EQUIPMENT

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0		Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	Tools and Equipment	$ 7,581.96				
2	Horses, Wagons, etc.	2,146.46				
3	Furniture & Fixtures	3,948.60				
4	General Equipment	26,982.81				
5	TOTAL GENERAL EQUIPMENT	$ 40,659.83	5	10	$ 4,065.98	$ 20,329.93

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PASSAIC, N. J.
DISTRIBUTION MAINS & ACCESSORIES
SUMMARY

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		Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Mains, Hydrants & Suspense						
Year	1920	$ 21,374.04	0	80	$ 267.81	$ 21,374.04
	1919	19,875.95	1	90	219.95	19,656.00
	1918	9,439.04	2	87	108.73	9,221.58
	1917	17,853.48	3	89	201.42	17,249.22
	1916	16,635.59	4	88	188.32	15,882.31
	1915	18,405.53	5	87	210.72	17,351.93
	1914	21,916.68	6	89	246.40	20,438.28
	1913	16,111.66	7	92	175.57	14,882.77
	1912	32,451.93	8	93	349.08	29,659.29
	1911	18,401.37	9	99	186.14	16,744.11
	1910	47,690.91	10	98	487.62	42,814.71
	1909	22,069.98	11	98	224.53	19,600.15
	1909	93,679.44	11	50	1,873.59	73,069.95
	1908	14,326.51	12	76	187.70	12,074.11
	1907	19,146.69	13	98	194.41	16,619.36
	1906	8,601.40	14	93	92.74	7,303.04
	1905	9,059.93	15	91	99.84	7,562.33
	1904	15,273.16	16	93	163.65	12,654.76
	1903	3,667.95	17	95	38.78	3,008.69
	1902	12,120.09	18	95	127.08	9,832.65
	1901	6,401.88	19	92	69.90	5,073.78
	1900	10,757.83	20	92	116.39	8,430.03
	1899	5,293.22	21	91	49.02	4,263.80
	1898	8,924.92	22	87	103.10	6,654.52
	1897	6,726.45	23	96	70.21	5,111.62
	1896	4,102.73	24	93	43.96	3,047.69
	1895	11,502.92	25	93	123.32	8,640.42
	1894	3,391.24	26	91	37.27	2,422.22
	1893	3,489.94	27	93	37.41	2,479.87
	1892	6,632.36	28	92	72.21	4,610.48
	1891	14,240.52	29	92	155.42	9,731.34
	1890	58,717.30	30	99	582.22	40,938.70
	1899	10,848.77	31	91	118.56	7,173.41
	1888	1,321.28	32	100	13.22	1,178.24
	1887	422.34	33	100	4.22	283.08
	1886	1,455.06	34	100	14.55	960.36
	1885	393.58	35	100	3.94	255.68
Prior to	1885	5,105.87	36	50	102.12	1,429.55
Date Unidentified		5,614.36	15	71	96.36	4,138.06
		$ 603,443.90			$ 7,477.24	$ 503,822.13
Interest During Construction		4,309.93	15	60	71.17	3,242.82
TOTAL DISTRIBUTION MAINS & ACCESSORIES		$ 607,753.83			$ 7,548.41	$ 507,064.95

				$ 603,443.90				$ 7,477.24		$ 503,822.13
	Interest During Construction			4,309.93	15	60		71.17		3,242.82
	TOTAL DISTRIBUTION MAINS & ACCESSORIES			$ 607,753.83				$ 7,548.41		$ 507,064.95

THE ACQUACKANONK WATER CO.
PASSAIC, N. J.
DISTRIBUTION MAINS & ACCESSORIES

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		Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
	1920.							
	6" C. I. Pipe, Valves & Fittings	Lin. Ft.	2,786	$ 4,617.29				
	8" " " " " "	"	3,410	8,646.67				
	12" " " " " "	"	188	612.47				
	Hydrants	Each	35	4,698.13				
	Suspense (Mains)			2,091.40				
	" (Hydrants)			708.08				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 21,374.04	0	80	$ 267.81	$ 21,374.04
	1919.							
	4" C. I. Pipe, Valves & Fittings	Lin. Ft.	96	$ 124.41				
	6" " " " " "	"	3,999	5,835.84				
	8" " " " " "	"	3,805	8,109.50				
	12" " " " " "	"	584	1,415.09				
	16" " " " " "	"	108	717.87				
	Hydrants	Each	16	1,932.82				
	Suspense (Mains)			1,553.72				
	" (Hydrants)			186.70				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 19,875.95	1	90	$ 219.95	$ 19,656.00
	1918.							
	6" C. I. Pipe, Valves & Fittings,	Lin. Ft.	2.094	$ 2,580.77				
	8" " " " " "	"	447	1,701.04				
	12" " " " " "	"	1,171	1,766.56				
	16" " " " " "	"	186	Included in 12"				
	Hydrants	Each	11	1,076.16				
	Suspense (Mains)			1,946.29				
	" (Hydrants)			368.22				
1, 2,	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 9,439.04	2	87	$ 108.73	$ 9,221.58

THE ACQUACKANONK WATER CO.
PASSAIC, N. J.
DISTRIBUTION MAINS & ACCESSORIES

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0		Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	1917.							
2	6″ C. I. Pipe, Valves & Fittings	Lin. Ft.	3,890	$ 3,590.14				
3	8″ " " " " "	"	2,675	2,736.86				
4	12″ " " " " "	"	3,390	6,007.31				
5	Hydrants	Each	21	1,814.09				
RB	Suspense (Mains)			3,230.01				
TO	" (Hydrants)			475.07				
HD	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 17,853.48	3	89	$ 201.42	$ 17,249.22
	1916.							
	6″ C. I. Pipe, Valves & Fittings,	Lin. Ft.	7,419	$ 5,804.79				
	8″ " " " " "	"	3,958	3,431.37				
	12″ " " " " "	"	1,572	2,460.82				
	Hydrants	Each	26	1,782.18				
	Suspense (Mains)			2,741.21				
	" (Hydrants)			415.22				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 16,635.59	4	88	$ 188.32	$ 15,882.31
	1915.							
	6″ C. I. Pipe, Valves & Fittings,	Lin. Ft.	9,258	$ 5,711.69				
	8″ " " " " "	"	7,576	6,121.25				
	12″ " " " " "	"	620	977.25				
	Miscellaneous Construction			220.50				
	Hydrants	Each	32	2,208.09				
	Suspense (Mains)			2,707.89				
	" (Hydrants)			458.86				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 18,405.53	5	87	$ 210.72	$ 17,351.93
	1914.							
	6″ C. I. Pipe, Valves & Fittings,	Lin. Ft.	9,265	$ 6,083.21				
	8″ " " " " "	"	3,388	2,866.35				
	12″ " " " " "	"	4,228	7,539.79				
	16″ " " " " "	"	684	Included in 12″				
	Hydrants	Each	32	2,335.93				
	Suspense (Mains)			2,704.06				
	" (Hydrants)			387.34				
2, 3, 4	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 21,916.63	6	89	$ 246.40	$ 20,438.28

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THE ACQUACKANONK WATER CO.
PASSAIC, N. J.
DISTRIBUTION MAINS & ACCESSORIES

DISTRIBUTION MAINS & ACCESSORIES

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1		Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
	1913.							
2	6″ C. I. Pipe, Valves & Fittings	Lin. Ft.	12,558	$ 7,879.52				
3	8″ " " " " "	"	4,747	4,067.91				
4	Miscellaneous Construction			168.99				
5	Hydrants	Each	23	1,429.62				
RB	Suspense (Mains)			2,551.68				
TO	" (Hydrants)			13.94				
HD	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 16,111.66	7	92	$ 175.57	$ 14,882.77
	1912.							
	6″ C. I. Pipe, Valves & Fittings,	Lin. Ft.	14,766	$ 9,676.81				
	8″ " " " " "	"	10,126	9,088.54				
	12″ " " " " "	"	321	385.63				
	16″ " " " " "	"	3,000	8,102.55				
	Miscellaneous Construction			1,040.99				
	Hydrants	Each	31	2,325.59				
	"	"	23	Included with Mains				
	Suspense (Mains)			1,700.66				
	" (Hydrants)			131.16				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 32,451.93	8	93	$ 349.08	$ 29,659.29
	1911.							
	6″ C. I. Pipe, Valves & Fittings,	Lin. Ft.	12,073	$ 6,854.68				
	8″ " " " " "	"	4,607	3,655.01				
	12″ " " " " "	"	1,444					
	16″ " " " " "	"	1,941	6,623.73				
	6″ " " " " "	"	1,091					
	Hydrants	Each	9	Included with Mains				
	"	"	9	391.69				
	Suspense & Misc. (Mains)			856.68				
	" " " (Hydrants)			19.58				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 18,401.37	9	99	$ 186.14	$ 16,744.11
	1910.							
	6″ C. I. Pipe, Valves & Fittings,	Lin. Ft.	17,288	$ 13,070.55				
	8″ " " " " "	"	9,462	9,783.82				
	12″ " " " " "	"	2,387	3,919.87				
	16″ " " " " "	"	7,384	17,626.70				
	Hydrants	Each	30	Included with Mains				
	"	"	17	1,018.97				
	Suspense & Misc. (Mains)			2,220.05				
	" " " (Hydrants)			50.95				
4, 5, 6,	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 47,690.91	10	98	$ 487.62	$ 42,814.71

THE ACQUACKANONK WATER CO.
PASSAIC, N. J.
DISTRIBUTION MAINS & ACCESSORIES

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1		Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
2	1909.							
3	6″ C. I. Pipe, Valves & Fittings	Lin. Ft.	16,256	$ 12,947.66				
4	8″ " " " " "	"	8,137	7,706.95				
5	Hydrants	Each	56	Included with Mains				
RB	"	"	5	364.42				
TO	Suspense & Misc. (Mains)			1,032.73				
HD	" " " (Hydrants)			18.22				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 22,069.98	11	98	$ 224.53	$ 19,600.15
	1908-1909							
	30″ Steel Pipe Conduit—Includes 30″ Venturi Meter, Venturi Meter House, Venturi Meter Throat Vault, Cross Connection Vault, Two (2) 24″ Gate Valve Vaults, Canal Railroad, Conduit and Brook Crossings, Valves, Specials etc.	Lin. Ft.	16,268	$ 93,679.44	11	50	$ 1,873.59	$ 73,069.95
	1908.							
	6″ C. I. Pipe, Valves & Fittings,	Lin. Ft.	7,212	$ 7,010.45				
	8″ " " " " "	"	2,208	2,402.52				
	Hydrants	Each	22	Included with Mains				
	"	"	68	4,231.32				
	Suspense & Misc. (Mains)			470.65				
	" " " (Hydrants)			211.57				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 14,326.51	12	76	$ 187.70	$ 12,074.11
	1907.							
	4″ C. I. Pipe, Valves & Fittings	Lin. Ft.	24	$ 16.32				
	6″ " " " " "	"	8,679	6,873.77				
	8″ " " " " "	"	348	431.17				
	12″ " " " " "	"	5,985	10,635.68				
	Hydrants	Each	7	280.00				
	Suspense & Misc. (Mains)			897.75				
	" " " (Hydrants)			14.00				
6, 6A, 7	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 19,146.69	13	98	$ 194.41	$ 16,619.36

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THE ACQUACKANONK WATER CO.

THE ACQUACKANONK WATER CO.
PASSAIC, N. J.
DISTRIBUTION MAINS & ACCESSORIES

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0		Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	1906.							
2	6″ C. I. Pipe, Valves & Fittings	Lin. Ft.	9,590	$ 6,971.93				
3	8″ " " " " "	"	532	579.88				
4	Miscellaneous Construction							
5	Hydrants	Each	16	640.00				
RB	Suspense & Misc. (Mains)			377.59				
TO	" " " (Hydrants)			32.00				
HD	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 8,601.40	14	93	$ 92.74	$ 7,303.04
	1905.							
	6″ C. I. Pipe, Valves & Fittings,	Lin. Ft.	11,286	$ 7,403.62				
	8″ " " " " "	"	416	337.79				
	12″ " " " " "	"	5	7.10				
	Miscellaneous Construction							
	Hydrants	Each	22	880.00				
	Suspense & Misc. (Mains)			387.42				
	" " " (Hydrants)			44.00				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 9,059.93	15	91	$ 99.84	$ 7,562.33
	1904.							
	6″ C. I. Pipe, Valves & Fittings,	Lin. Ft.	14,735	$ 8,472.63				
	8″ " " " " "	"	5,577	4,879.88				
	12″ " " " " "	"	108	153.36				
	Hydrants	Each	26	1,040.00				
	Suspense & Misc. (Mains)			675.29				
	" " " (Hydrants)			52.00				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 15,273.16	16	93	$ 163.65	$ 12,654.76
	1903.							
	6″ C. I. Pipe, Valves & Fittings,	Lin. Ft.	3,079	$ 1,912.06				
	8″ " " " " "	"	876	803.29				
	12″ " " " " "	"	407	577.94				
	Hydrants	Each	5	200.00				
	Suspense & Misc. (Mains)			164.66				
	" " " (Hydrants)			10.00				
8, 9,	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 3,667.95	17	95	$ 38.78	$ 3,008.69

THE ACQUACKANONK WATER CO.
PASSAIC, N. J.
DISTRIBUTION MAINS & ACCESSORIES

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		Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	1902.							
2	6″ C. I. Pipe, Valves & Fittings	Lin. Ft.	9,445	$ 5,487.54				
3	12″ " " " " "	"	3,870	5,495.40				
4	Hydrants	Each	14	560.00				
5	Suspense & Misc. (Mains)			549.15				
RB	" " " (Hydrants)			28.00				
TO								
HD	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 12,120.09	18	95	$ 127.08	$ 9,832.65
	1901.							
	6″ C. I. Pipe, Valves & Fittings,	Lin. Ft.	9,465	$ 5,537.03				
	Hydrants	Each	14	560.00				
	Suspense & Misc. (Mains)			276.85				
	" " " (Hydrants)			28.00				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 6,401.88	19	92	$ 69.90	$ 5,073.78
	1900.							
	6″ C. I. Pipe, Valves & Fittings,	Lin. Ft.	13,241	$ 8,646.37				
	8″ " " " " "	"	804	799.18				
	Hydrants	Each	21	840.00				
	Suspense & Misc. (Mains)			430.28				
	" " " (Hydrants)			42.00				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 10,757.83	20	92	$ 116.39	$ 8,430.03
	1899.							
	4″ C. I. Pipe, Valves & Fittings	Lin. Ft.	60	$ 26.46				
	6″ " " " " "	"	6,442	3,510.89				
	12″ " " " " "	"	1,300	1,079.00				
	Hydrants	Each	13	520.00				
	Suspense & Misc. (Mains)			130.87				
	" " " (Hydrants)			26.00				
10, 11,	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 5,293.22	21	91	$ 58.38	$ 4,263.80

THE ACQUACKANONK WATER CO.
PASSAIC, N. J.
DISTRIBUTION MAINS & ACCESSORIES

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0		Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	1898.							
2	4″ C. I. Pipe, Valves & Fittings	Lin. Ft.	636	$ 289.38				
3	6″ " " " " "	"	3,784	2,130.39				
4	8″ " " " " "	"	6,174	4,760.15				
5	Hydrants	Each	33	1,320.00				
RB	Suspense & Misc. (Mains)			359.00				
TO	" " " (Hydrants)			66.00				
HD	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 8,924.92	22	87	$ 103.10	$ 6,654.52
	1897.							
	6″ C. I. Pipe, Valves & Fittings,	Lin. Ft.	6,026	$ 4,079.60				
	8″ " " " " "	"	670	646.55				
	12″ " " " " "	"	800	1,400.00				
	Hydrants	Each	7	280.00				
	Suspense & Misc. (Mains)			306.30				
	" " " (Hydrants)			14.00				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 6,726.45	23	96	$ 70.21	$ 5,111.62
	1896.							
	6″ C. I. Pipe, Valves & Fittings,	Lin. Ft.	5,358	$ 3,627.37				
	Hydrants	Each	7	280.00				
	Suspense & Misc. (Mains)			181.36				
	" " " (Hydrants)			14.00				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 4,102.73	24	93	$ 43.96	$ 3,047.69
	1895.							
	6″ C. I. Pipe, Valves & Fittings,	Lin. Ft.	11,859	$ 8,028.54				
	8″ " " " " "	"	2,411	2,326.62				
	Hydrants	Each	15	600.00				
	Suspense & Misc. (Mains)			517.76				
	" " " (Hydrants)			30.00				
21, 13, 14,	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 11,502.92	25	93	$ 123.32	$ 8,640.42

THE ACQUACKANONK WATER CO.
PASSAIC, N. J.
DISTRIBUTION MAINS & ACCESSORIES

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		Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
0								
1	1894.							
2	6″ C. I. Pipe, Valves & Fittings	Lin. Ft.	4,298	$ 2,909.75				
3	Hydrants	Each	8	320.00				
4	Suspense & Misc. (Mains)			145.49				
5	" " " (Hydrants)			16.00				
RB TO HD	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 3,391.24	26	91	$ 37.27	$ 2,422.22
	1893.							
	6″ C. I. Pipe, Valves & Fittings,	Lin. Ft.	2,702	$ 1,829.25				
	8″ " " " " "	"	1,300	1,254.50				
	Hydrants	Each	6	240.00				
	Suspense & Misc. (Mains)			154.19				
	" " " (Hydrants)			12.00				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 3,489.94	27	93	$ 37.41	$ 2,479.87
	1892.							
	6″ C. I. Pipe, Valves & Fittings,	Lin. Ft.	8,503	$ 5,756.53				
	Hydrants	Each	14	560.00				
	Suspense & Misc. (Mains)			287.83				
	" " " (Hydrants)			28.00				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 6,632.36	28	92	$ 72.21	$ 4,610.48
	1891.							
	6″ C. I. Pipe, Valves & Fittings,	Lin. Ft.	16,491	$ 11,164.40				
	8″ " " " " "	"	1,200	1,158.00				
	Hydrants	Each	31	1,240.00				
	Suspense & Misc. (Mains)			616.12				
	" " " (Hydrants)			62.00				
15, 16	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 14,240.52	29	92	$ 155.42	$ 9,731.34

THE ACQUACKANONK WATER CO.
PASSAIC, N. J.
DISTRIBUTION MAINS & ACCESSORIES

95
112222

IJ

0		Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	1890.							
2	4″ C. I. Pipe, Valves & Fittings	Lin. Ft.	1,234	$ 676.23				
3	6″ " " " " "	"	10,040	6,797.08				
4	8″ " " " " "	"	335	323.28				
5	Hydrants	Each	13	520.00				
RB	20″ C. I. Pipe, Valves & Fittings	Lin. Ft.	14,150	44,431.00				
TO	Suspense & Misc. (Mains			5,943.71				
HD	" " " (Hydrants)			26.00				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 58,717.30	30	99	$ 592.62	$ 40,938.70
	1889.							
	4″ C. I. Pipe, Valves & Fittings	Lin. Ft.	254	$ 139.19				
	6″ " " " " "	"	8,461	5,728.10				
	8″ " " " " "	"	3,632	3,504.87				
	Hydrants	Each	24	960.00				
	Suspense & Misc. (Mains)			468.61				
	" " " (Hydrants)			48.00				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 10,848.77	31	91	$ 118.56	$ 7,173.41
	1888.							
	4″ C. I. Pipe, Valves & Fittings	Lin. Ft.	521	$ 285.51				
	6″ " " " " "	"	1,437	972.85				
	Suspense & Miscellaneous			62.92				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 1,321.28	32	100	$ 13.22	$ 1,178.24
	1887.							
	4″ C. I. Pipe, Valves & Fittings	Lin. Ft.	734	$ 402.23				
	Suspense & Miscellaneous			20.11				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 422.34	33	100	$ 4.22	$ 283.08
	1886.							
	4″ C. I. Pipe, Valves & Fittings	Lin. Ft.	142	$ 77.81				
	6″ " " " " "	"	1,932	1,307.96				
	Suspense & Miscellaneous			69.29				
17, 18, 19	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 1,455.06	34	100	$ 14.55	$ 960.36

THE ACQUACKANONK WATER CO.
PASSAIC, N. J.
DISTRIBUTION MAINS & ACCESSORIES

95
112222

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0		Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	1885.							
2	4″ C. I. Pipe, Valves & Fittings	Lin. Ft.	684	$ 374.84				
3	Suspense & Miscellaneous			18.74				
4	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 393.58	35	100	$ 3.94	$ 255.68
5	Prior 1885.							
RB	Cement Mains							
TO	12″ Cement Pipe	Lin. Ft.	450	$ 262.50	36	50	$ 5.25	$ 73.50
HD	8″ “ “	“	930	976.50	36	50	19.53	273.42
	6″ “ “	“	3,683	3,130.55	36	50	62.61	876.59
	4″ “ “	“	260	169.00	36	50	3.38	47.32
	Suspense			567.32	36	50	11.35	158.72
19, 20,	TOTAL MAINS & SUSPENSE			$ 5,105.87	36	50	$ 102.12	$ 1,429.55

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THE ACQUACKANONK WATER CO.
PASSAIC, N. J.
DISTRIBUTION MAINS & ACCESSORIES

0	Date Unidentified	Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	Wrought Iron Pipe							
2	2″ W. I. Pipe	Lin. Ft.	1,000	$ 364.00	25	50	$ 7.28	$ 182.00
3	1½″ " "	"	1,352	416.42	25	50	8.33	208.17
4	1¼″ " "	"	737	206.36	25	50	4.13	103.11
5	1″ " "	"	810	199.26	25	50	3.99	99.51
RB	Regulators		2	Inc. in 30″ Line				
TO	16″ Ross Regulator	Each	1	750.00	11	50	15.00	585.00
HD	12″ " "	"	1	400.00	11	50	8.00	312.00
	12″ Union "	"	1	660.00	11	50	13.20	514.80
			2	Inc. in 30″ Line				
	Regulator Vaults	Each	2	346.00	11	50	6.92	269.88
	Regulator Vault Monroe St.	"	1	244.00	11	50	4.88	190.32
	Gate Vaults	"	6	180.00	11	50	3.60	140.40
	Canal Crossings							
	Dundee Canal at Monroe St. 12″	Lin. Ft.	90	360.00	15	100	3.60	306.00
	" " at Passaic St. 12″	"	90	180.00	15	100	1.80	153.00
	" " at Ackerman Ave. 8″	"	176	352.00	15	100	3.52	299.20
	" " at Jefferson St. 6″	"	95	332.50	15	100	3.32	282.70
	Suspense			623.82	15*	71*	8.79	491.97
	TOTAL MAINS, VAULTS, CROSSINGS & SUSPENSE			$ 5,614.36			$ 96.36	$ 4,138.06

*Weighted Average.

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THE ACQUACKANONK WATER COMPANY
PASSAIC, N. J.
DISTRIBUTION MAINS & ACCESSORIES

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112422

LSS		Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
0	Interest During Construction					
1	1890					
2	20″ C. I. Main on Main Street					
3	(Cost New—$49,984.88)	$ 1,499.55	30	100	$ 14.96	$ 1,050.75
4	1909					
5	30″ Steel Pipe Conduit					
RB	(Cost New—$93,679.44)	2,810.38	11	50	56.21	2,192.07
EJB						
TO						
AB						
	TOTAL INTEREST DURING CONSTRUCTION	$ 4,309.93	15	60	$ 71.17	$ 3,242.82

THE ACQUACKANONK WATER COMPANY
PASSAIC, N. J.
METERS, METER BOXES AND VAULTS
SUMMMARY

95
112022

LSS

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RB
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HD

		Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Year	1920	$ 11,254.85	0	30	$ 375.16	$ 11,254.85
	1919	7,199.12	1	30	239.97	6,959.15
	1918	4,386.60	2	30	146.22	4,094.16
	1917	4,453.54	3	30	148.45	4,008.19
	1916	2,669.40	4	30	88.98	2,313.48
	1915	861.74	5	30	28.72	718.14
	1914	5,495.28	6	30	183.18	4,396.20
	1913	7,421.05	7	30	247.37	5,689.46
	1912	2,940.60	8	30	98.02	2,156.44
	1911	2,232.60	9	30	74.42	1,562.82
	1910	2,667.20	10	30	88.91	1,778.10
	1909	2,006.20	11	30	66.87	1,270.63
	1908	1,086.00	12	30	36.20	651.60
	1907	2,400.50	13	30	80.01	1,360.37
	1906	368.00	14	30	12.27	196.22
	1905	135.48	15	30	4.51	67.83
	1904	.....	..	..	.....	.....
	1903	16.80	17	30	.54	7.62
	1902	8,510.00	18	30	283.67	3,403.94
	1901	4,065.60	19	30	135.52	1,490.72
	1900	2,318.40	20	30	77.28	772.80
	1899	67.20	21	30	2.24	20.16
	1898	33.60	22	30	1.12	8.96
TOTAL METERS		$ 72,589.76			$ 2,419.63	$ 54,181.84

THE ACQUACKANONK WATER COMPANY
PASSAIC, N. J.
METERS, METER BOXES AND VAULTS
SUMMARY

95
112022

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0	METER SETTING			Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1		Year	1920	$ 4,139.68				$ 4,139.68
2			1919	4,456.39				4,456.39
3			1918	3,251.86				3,251.86
4			1917	2,568.91				2,568.91
5			1916	2,119.68				2,119.68
RB			1915	2,701.88				2,701.88
TO			1914	1,651.01				1,651.01
HD			1913	2,643.36				2,643.36
			1912	1,211.68				1,211.68
			1911	1,111.81				1,111.81
			1910	1,449.60				1,449.60
			1909	1.071.36				1,071.36
			1908	911.81				911.81
			1907	644.47				644.47
			1906	201.00				201.00
			1905	278.73				278.73
			1904	884.36				884.36
			1903	816.28				816.28
			1902	324.32				324.32
			1901	2,009.83				2,009.83
			1900	3,007.36				3,007.36
			1899	227.34				227.34
			1898	73.21				73.21
	Total Meter Setting			37,755.93				37,755.93
	Meter Boxes and Vaults			2,422.27	8*	30*	$ 80.74	1,776.35
	TOTAL METERS, METER BOXES AND VAULTS			$ 112,767.96			$ 2,500.37	$ 93,714.12

S-2 *Weighted Average

THE ACQUACKANONK WATER COMPANY
PASSAIC, N. J.
METERS, METER BOXES AND VAULTS

95
112022

LSS

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1		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
2	1920							
3	Trident Disc. 2″	Each	1	$ 60.00				
4	" " ⅝″ x ¾″	"	1030	11,194.85	0	30	$ 375.16	$ 10,879.69
5	Setting and Miscellaneous Material	"	472	4,139.68				4,139.68
RB	TOTAL METERS AND METER SETTINGS			$ 15,394.53			$ 375.16	$ 15,019.37
TO	1919							
HD	Trident Disc. 2″	"	2	$ 120.00				
	" " 1″	"	1	14.80				
	" " ¾″	"	6	67.32	1	30	$ 239.97	$ 6,959.15
	" " ⅝″ x ¾″	"	650	6,917.00				
	Hersey 3″	"	1	80.00				
	Setting and Miscellaneous Material	"	559	4,456.39				4,456.39
	TOTAL METERS AND METER SETTINGS			$ 11,655.51			$ 239.97	$ 11,415.54
	1918							
	Trident Compound 4″	Each	1	$ 330.00				
	" Disc. 1″	""	4	67.60	2	30	$ 146.22	$ 4.904.16
	" " ⅝″ x ¾″	"	375	3,989.00				
	Setting and Miscellaneous Material	"	356	3,251.86				3,251.86
	TOTAL METERS AND METER SETTINGS			$ 7,638.46			$ 146.22	$ 7,346.02
	1917							
	Trident Crest 4″	Each	1	$ 185.00				
	" " 3″	"	1	84.35				
	" Disc. 2″	"	2	119.70				
	" " 1″	"	7	103.55	3	30	$ 148.45	$ 4,008.19
	" " ¾″	"	12	127.44				
	" " ⅝″ x ¾″	"	425	3,833.50				
	Setting and Miscellaneous Material	"	353	2,568.91				2,568.91
	TOTAL METERS AND METER SETTINGS			$ 7,022.45			$ 148.45	$ 6,577.10

THE ACQUACKANONK WATER COMPANY
PASSAIC, N. J.
METERS, METER BOXES AND VAULTS

95
112022

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		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
	1916							
2	Trident Crest 4″	Each	1	$ 185.00				
3	" " 3″	"	1	80.00				
4	" " 2″	"	1	47.30	4	30	$ 88.98	$ 2,313.48
5	" Disc. 1″	"	6	88.30				
RB	" " ⅝″ x ¾″	"	320	2,268.80				
TO	Setting and Miscellaneous Material	"	359	2,119.68				2,119.68
HD								
	TOTAL METERS AND METER SETTINGS			$ 4,789.08			$ 88.98	$ 4,433.16
	1915							
	Trident Disc. 1″	Each	2	$ 28.90				
	" " ¾″	"	12	123.84	5	30	$ 28.72	$ 718.14
	" " ⅝″ x ¾″	"	100	709.00				
	Setting and Miscellaneous Material	"	395	2,701.88				2,701.88
	TOTAL METERS AND METER SETTINGS			$ 3,563.62			$ 28.72	$ 3,420.02
	1914							
	Trident Crest 6″	Each	1	$ 350.00				
	" Compound 2″	"	2	111.80				
	" Disc. 1″	"	2	28.80	6	30	$ 183.18	$ 4,396.20
	" " ¾″	"	59	608.88				
	" " ⅝″ x ¾″	"	620	4,395.80				
	Setting and Miscellaneous Material	"	424	1,651.01				1,651.01
	TOTAL METERS AND METER SETTINGS			$ 7,146.29			$ 183.18	$ 6,047.21
	1913							
	Trident Compound 2″	Each	1	$ 47.30				
	" Disc. 1″	"	8	120.30				
	" " ¾″	"	45	487.20	7	30	$ 247.37	$ 5,689.46
	" " ¾″ x ⅝″	"	950	6,766.25				
	Setting and Miscellaneous Material	"	981	2,643.36				2,643.36
3-4	TOTAL METERS AND METER SETTINGS			$ 10,064.41			$ 247.37	$ 8,332.82

THE ACQUACKANONK WATER COMPANY
PASSAIC, N. J.
METERS, METER BOXES AND VAULTS

95
112122

LSS

0		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
	1912.							
1	Hersey 3″	Each	1	$ 80.00				
2	Trident Disc. 2″	"	1	55.00				
3	" " 1½″	"	3	105.00	8	30	$ 98.02	$ 2,156.44
4	" " ⅝″ x ¾″	"	350	2,625.00				
5	" " ¾″	"	6	75.60				
RB	Setting and Miscellaneous Material	"	437	1,211.68				1,211.68
TO	TOTAL METERS AND METER SETTINGS			$ 4,152.28			$ 98.02	$ 3,368.12
HD	1911.							
	Trident Disc. 2″	Each	1	$ 55.00				
	" " ¾″	"	15	189.00				
	" " ⅝″	"						
	" " ⅝″ x ¾″	"	250	1,875.00	9	30	$ 74.42	$ 1,562.82
	" " 3″	"	1	80.00				
	" " 1″	"	2	33.60				
	Setting and Miscellaneous Material	"	242	1,111.81				1,111.81
	TOTAL METERS AND METER SETTINGS			$ 3,344.41			$ 74.42	$ 2,674.63
	1910.							
	Trident Disc. 1½″	Each	1	$ 35.00				
	" " ⅝″	"						
	" " ⅝″ x ¾″	"	325	2,437.50				
	" " 1″	"	3	49.60	10	30	$ 88.91	$ 1,778.10
	Worthington ⅝″	"	3	22.50				
	" 2″	"	2	110.00				
	" ¾″	"	1	12.60				
	Setting and Miscellaneous Material	"	336	1,449.60				1,449.60
5-6	TOTAL METERS AND METER SETTINGS			$ 4,116.80			$ 88.91	$ 3,227.70

THE ACQUACKANONK WATER COMPANY
PASSAIC, N. J.
METERS, METER BOXES AND VAULTS

95
112222

KG

0		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	1909.							
2	Trident Crest 4″	Each	1	$ 185.00				
3	" Disc. 1½″	"	2	70.00				
4	" " ⅝″ x ¾″	"						
5	" " ⅝″	"	210	1,540.00	11	30	$ 66.87	$ 1,270.60
RB	" " 1″	"	5	76.00				
TO	" " ¾″	"	2	25.20				
HD	" " 2″	"	2	110.00				
	Setting and Miscellaneous Material	"	246	1,071.36				1,071.36
	TOTAL METERS AND METER SETTINGS			$ 3,077.56			$ 66.87	$ 2,341.96
	1908.							
	Trident Disc. 1½″	Each	2	$ 60.00				
	" " ⅝″	"						
	" " ⅝″ x ¾″	"	120	900.00	12	30	$ 36.20	$ 651.60
	" " 1″	"	7	126.00				
	Setting and Miscellaneous Material	"	274	911.81				911.81
	TOTAL METERS AND METER SETTINGS			$ 1,997.81			$ 36.20	$ 1,563.41
	1907.							
	Trident Disc. ¾″	Each	25	$ 337.50				
	" " 1″	"	8	145.00				
	" " 2″	"	1	38.00				
	" " 1½″	"	9	180.00				
	" " ⅝″ x ¾″	"			13	30	$ 80.01	$ 1,360.37
	" " ⅝″	"	160	1,175.00				
	" Crest 3″	"	3	240.00				
	Gem 3″	"	1	100.00				
	" 4″	"	1	185.00				
	Setting and Miscellaneous Material	"	215	644.47				644.47
6, 7,	TOTAL METERS AND METER SETTINGS			$ 3,044.97			$ 80.01	$ 2,004.84

THE ACQUACKANONK WATER COMPANY
PASSAIC, N. J.
METERS, METER BOXES AND VAULTS

	Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1906.							
Trident Disc. 1″	Each	1	$ 18.00				
" " 6″	"	1	350.00	14	30	$ 12.27	$ 196.22
Setting and Miscellaneous Material	"	75	201.00				201.00
TOTAL METERS AND METER SETTINGS			$ 569.00			$ 12.27	$ 397.22
1905.							
Trident Crest 4″	Each	1	$ 106.88				
" " 1″	"	2	28.60	15	30	$ 4.51	$ 67.83
Setting and Miscellaneous Material	"	91	278.73				278.73
TOTAL METERS AND METER SETTINGS			$ 414.21			$ 4.51	$ 346.56
1904.							
Setting and Miscellaneous Material	Each	319	$ 884.36				$884.36
TOTAL METERS AND METER SETTINGS			$ 884.36				$884.36
1903.							
Trident Disc. 1″	Each	1	$ 16.80	17	30	$ .54	$ 7.62
Setting and Miscellaneous Material	"	271	816.28				816.28
TOTAL METERS AND METER SETTINGS			$ 833.08			$ .54	$ 823.90
1902.							
Trident Disc. 5/8″ x 3/4″	Each	550	$ 4,730.00				
" " 5/8″	"	450	3,780.00	18	30	$ 283.67	$ 3,403.94
Setting and Miscellaneous Material	"	172	324.32				324.32
TOTAL METERS AND METER SETTINGS			$ 8,834.32			$ 283.67	$ 3,728.26

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112222

KG

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THE ACQUACKANONK WATER COMPANY
PASSAIC, N. J.
METERS, METER BOXES AND VAULTS

		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	1901.							
2	Trident Crest 5/8" x 3/4"	Each						
3	" " 5/8"	"	484	$ 4,065.60	19	30	$ 135.52	$ 1,490.72
4	Setting and Miscellaneous Material	"	491	2,009.83				2,009.83
5								
RB	TOTAL METERS AND METER SETTINGS			$ 6,075.43			$ 135.52	$ 3,500.55
TO	1900.							
W	Trident Disc. 5/8"	Each						
	" " 5/8" x 3/4"	"	276	$ 2,318.40	20	30	$ 77.28	$ 772.80
	Setting and Miscellaneous Material	"	650	3,007.36				3,007.36
	TOTAL METERS AND METER SETTINGS			$ 5,325.76			$ 77.28	$ 3,780.16
	1899.							
	Trident Disc. 1"	Each	4	$ 67.20	21	30	$ 2.24	$ 20.16
	Setting and Miscellaneous Material	"	59	227.34				227.34
	TOTAL METERS AND METER SETTINGS			$ 294.54			$ 2.24	$ 247.50
	1898.							
	Trident Disc. 1"	Each	2	$ 33.60	22	30	$ 1.12	$ 8.96
	Setting and Miscellaneous Material	"	19	73.21				73.21
	TOTAL METERS AND METER SETTINGS			$ 106.81			$ 1.12	$ 82.17

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112422

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THE ACQUACKANONK WATER COMPANY
PASSAIC, N. J.
METERS, METER BOXES AND VAULTS

		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
0								
1	METER BOXES							
2	Ford	Each	33	$ 260.70				
3	Clark	Each	1	5.45				
4	McWayne	Each	98	540.96				
5	METER VAULTS							
RB	Class A Vaults	Each	3	84.00				
JED	" B "	Each	3	195.00				
TO	" C "	Each	2	102.00				
HFD	" E "	Each	1	9.00				
	" F "	Each	5	585.00				
	" G "	Each	1	102.00				
	" H "	Each	9	252.00				
	" I "	Each	1	17.02				
	Suspense 12½%			269.14				
	TOTAL METER BOXES AND METER VAULTS			$ 2,422.27	8*	30*	$ 80.74	$ 1,776.35

*Weighted Average

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112422

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RB
EJB
TO
AB

THE ACQUACKANONK WATER CO.
PASSAIC, N. J.
SERVICE PIPES & STOPS
SUMMMARY

Description		Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Year	1920	$ 9,042.78	0	25	$ 361.71	$ 9,042.78
	1919	5,399.40	1	25	215.97	5,183.43
	1918	4,260.16	2	25	170.41	3,919.35
	1917	4,943.26	3	25	197.73	4,350.07
TOTAL SERVICE PIPES & STOPS		$ 23,645.60			$ 945.82	$ 22,495.63

THE ACQUACKANONK WATER CO.
PASSAIC, N. J.
SERVICE PIPES & STOPS

95
112422

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0		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	Description							
2	1920.							
3	Service Connections, Main to Curb ¾"	Each	462					
4	" " " " " 1"	"	13					
5	" " " " " 1½"	"	2					
RB	" " " " " 2"	"	7					
EJB	" " " " " 2½"	"	1					
TO	TOTAL SERVICE PIPES & STOPS			$ 9,042.78	0	25	$ 361.71	$ 9,042.78
AB	1919.							
	Service Connections, Main to Curb ¾"	Each	346					
	" " " " " 1"	"	8					
	" " " " " 1¼"	"	3					
	" " " " " 1½"	"	6					
	" " " " " 2"	"	5					
	TOTAL SERVICE PIPES & STOPS			$ 5,399.40	1	25	$ 215.97	$ 5,183.43
	1918.							
	Service Connections, Main to Curb ¾"	Each	201					
	" " " " " 1"	"	10					
	" " " " " 1¼"	"	1					
	" " " " " 1½"	"	1					
	" " " " " 2"	"	3					
	TOTAL SERVICE PIPES & STOPS			$ 4,260.16	2	25	$ 170.41	$ 3,919.35
	1917.							
	Service Connections, Main to Curb ¾"	Each	330					
	" " " " " 1"	"	9					
	" " " " " 1¼"	"	1					
	" " " " " 1½"	"	3					
	" " " " " 2"	"	5					
	TOTAL SERVICE PIPES & STOPS			$ 4,943.26	3	25	$ 197.73	$ 4,350.07

Corporation Cocks
Charges to construction for corporation cocks included in Miscellaneous Expenditures,
Distribution Mains and Accessories.

THE ACQUACKANONK WATER COMPANY
PASSAIC, N. J.
GENERAL STRUCTURES

95
111822

LSS

0		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1 2	Residence and Store Room, One story brick 30′ x 60′. Wood floor, asphalt roof	Each	1	$ 5,500.00	48	75	$ 73.33	$ 1,980.16
3 4	Shop, One story brick 22.5′ x 31′. Wood floor, asphalt roof	Each	1	2,500.00	48	75	33.33	900.16
5 RB	Stable, One story brick 31′ x 25.5′. Wood floors, asphalt roof	Each	1	3,000.00	48	75	40.00	1,080.00
TO HD	Garage, One story brick 24′ x 37′. Concrete floor, asphalt roof	Each	1					
	Gasoline Tank in Garage	Each	1	4,161.51	1	75	55.49	4,106.02
	Store House, One story frame covered with corrugated sheet iron	Each	1	600.00	12	30	20.00	360.00
	Shed, One story frame, covered with corrugated sheet iron	"	1	300.00	12	30	10.00	180.00
	Small Rough Open Shed, Adjoining Main Shed, two sides boarded in, third side adjoining Main Shed. Tar slag roof	Each	1	35.00	15	20	1.75	8.75
	Manure Pit, Built of brick and concrete, Wooden cover, 8′ x 10′ x 6′ deep inside	Each	1	70.00	20	50	1.40	42.00
	Picket Fence, 200′ long x 7.5′ high and 55′ long x 4.5′ high, with two leaf gates	Each	1	209.32	1	25	8.37	200.95
	TOTAL GENERAL STRUCTURES			$ 16,375.83			$ 243.67	$ 8,858.04

THE ACQUACKANONK WATER COMPANY
PASSAIC, N. J.
GENERAL EQUIPMENT

95
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LSS		Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
0	Tools and Equipment	$ 911.46				
1	Horses, Wagons, etc.	820.90				
2	Furniture & Fixtures	1,062.27				
3	General Equipment	5,767.35				
4						
5	TOTAL GENERAL EQUIPMENT	$ 8,561.98	3	6	$ 1,426.99	$ 4,281.01

RB
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THE MONTCLAIR WATER COMPANY
MONTCLAIR, N. J.
PUMPING STATION

95
112022

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0		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	STRUCTURES							
2	Boiler House, One story brick, concrete floor							
3	slate roof	Each	1					
4	Steel Flue,			$ 10,707.00	27	75	$ 14.28	$ 10,321.44
5	42″ diameter, 18′ long	Each	1					
RB	Holly Pump Room, One story brick, wood floor,							
EJB	slate roof	Each	1	5,135.49	20	75	68.47	3,766.09
TO	Allis-Chalmers Pump Room,							
AB	One story brick, wood floor, slate roof	Each	1					
	Boiler Blow-off Pit, Reinforced concrete, 35.4′ x 4.8′ x 5.5′ deep, concrete floor and roof			3,301.54	9	75	44.02	2,905.36
	Scale Room, One story brick, 9.3′ x 7.0′, Concrete floor, slate roof	Each	1	180.00	11	75	2.40	153.60
	Toilet Room, Brick; wooden floor, roof formed by brick arch supporting smoke flue	Each	1	150.00	8	75	2.00	134.00
	Store House and Blacksmith Shop, One story wood frame with flat roof	Each	1	672.00	18	50	13.44	430.08
	Sewer, 6″ Vitrified pipe	Lin. Ft.	408	326.00	18	50	6.52	208.64
	Manhole:	Each	1	60.00	18	50	1.20	38.40
	Brook Crossing	Each	1	30.00	18	50	.60	19.20
	Condensed Water Drain, 6″ Vitrified pipe	Lin. Ft.	315	252.00	18	50	5.04	161.28
	Concrete Grease Trap, 6′-4″ x 3′-0″ x 5′-0′ deep, Concrete cover	Each	1	160.00	18	50	3.20	102.40
	Blow-off Pit Drain, 6″ Vitrified pipe	Lin Ft.	80	64.00	18	50	1.28	40.96

1-2

THE MONTCLAIR WATER COMPANY
MONTCLAIR, N. J.
PUMPING STATION

95
112022

LSS

0		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	EQUIPMENT							
2	Smith Sons horizontal water tube boilers, set in							
3	battery, complete with regulators; 250 H. P.	Each	2	$ 1,984.00	24	30	$ 66.13	$ 396.88
4	Leslie Elliott horizontal water tube boilers, set							
5	in battery, complete with regulators; 250 H. P.	Each	2	2,143.18	9	30	71.44	1,500.22
RB	Steel Stack, 42″ diameter, 90′ high, brick base							
EIB	and concrete foundation	Each	1	1,230.00	4	30	41.00	1,066.00
TO	Worthington, horizontal, double acting, tandem							
AB	compound, duplex, direct acting non-condensing							
	pumping engine. Capacity 0.5 M. G. D.	Each	1	920.00	27	40	23.00	299.00
	Snow Pumping Equipment, Consisting of: Snow, horizontal, double acting, tandem compound, duplex, direct acting, condensing pumping engine. No. 1 piston packed. Capacity 1.5 M. G. D.	Each	1					
	Surface Condenser—24″ x 6″	Each	1					
	Snow Duplex Boiler Feed Pump	Each	1					
	Single Cylinder Condensing Pump	Each	1					
	Feed Water Heater	Each	1	11,897.99	21	49	297.45	3,866.84
	Snow, horzontal, double acting, tandem compound, duplex, direct acting, condensing pumping engine, No. 2 piston packed. Capacity 10 M. G. D.	Each	1					
	Surface Condenser—20″ x 7″	Each	1					
	Single Cylinder Condensing Pump	Each	1					
	Feed Water Heater	Each	1					

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3-4

THE MONTCLAIR WATER COMPANY
MONTCLAIR, N. J.
PUMPING STATION

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1		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
2	EQUIPMENT—Cont'd.							
3	Holly horizontal, double acting cross compound,							
4	duplex, crank and flywheel condensing pumping engine. Capacity 3.0 M.G.D.	Each	1					
5	Surface Condenser	Each	1	$ 12,073.04	24	40	$ 297.45	$ 4,934.24
RB	Condensing Pumps	Each	1					
EJB	Feed Water Heater	Each	1					
TO	Allis-Chalmers, horizontal, double acting, cross							
AB	compound, duplex, crank and flywheel condensing pumping engine. Capacity 4.0 M.G.D.	Each	1					
	Surface Condenser	Each	1	18,185.00	9	40	454.63	7,273.88
	Double Condensing Pump	Each	1					
	National Feed Water Heater	Each	1					
	New York Air Company, compound air compressor	Each	1	158.09	8	25	6.32	107.53
	Single Air Compressors, locomotive type	Each	1	80.00	18	25	3.20	22.40
	Steel Flue, 42″ diameter, 48′ long	Each	1	150.00	27	75	2.00	96.00
	Ejectors:							
	1¼″	Each	1					
	2″	Each	1	45.00	18	25	1.80	12.60
	10″ Altitude Gage	Each	1	43.00	2	25	1.72	39.56
	Electric Lighting Plant including the following:							
	General Electric Company, continuous current generator, 4 K.W.	Each	1					

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4-5

Unit

THE MONTCLAIR WATER COMPANY
MONTCLAIR, N. J.
PUMPING STATION

95
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LSS

		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
0	EQUIPMENT—Cont'd.							
1	Electric Plant—Continued:							
2	General Electric Company Marine Engine,							
3	4½″ x 4″	Each	1					
4	Switchboard Panel,							
5	4′-0″ x 1′-6″, with rheostat volt and ampere							
RB	meter	Each	1					
EJB	Distributing Switchboard,							
TO	2′-0″ x 1′-6″, 5 K.W.	Each	1					
AB	Total for Electrical Equipment			$ 732.78	8	25	$ 29.31	$ 498.30
	Piping and Appurtenances:							
	Steam, air and water piping, fittings, valves, covering and all appurtenances. Capacity of Main Pumping Units—10 M.G.D.			586.29	19	40	14.66	307.75
	TOTAL PUMPING STATION			$ 71,266.40			$ 1,472.56	$ 38,702.65

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THE MONTCLAIR WATER COMPANY
MONTCLAIR, N. J.
TANKS AND STANDPIPES

	Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Steel Standpipe, uncovered, 40′-0″ diameter, 30′-0″ high. Capacity—282,744 gallons. Concrete foundation	Each	1	$ 5,851.91	33	50	$ 117.04	$ 1,989.59

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THE MONTCLAIR WATER CO.
MONTCLAIR, N. J.
DISTRIBUTION MAINS & ACCESSORIES
SUMMARY

			Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	MAINS, Hydrants & Suspense						
2		Year 1920	$ 3,032.11	0	88	$ 34.53	$ 3,032.11
3		1919	163.97	1	100	1.64	162.33
4		1918	845.83	2	100	7.55	829.91
5		1917	6,955.32	3	98	70.90	6,742.62
RB		1916	8,537.27	4	91	93.68	8,162.55
TO		1915	9,294.04	5	91	102.44	8,781.84
		1914	55,871.50	6	99	563.61	52,489.84
		1913	14,345.96	7	90	159.72	13,227.92
		1912	12,429.43	8	91	136.05	11,341.38
		1911	13,775.93	9	91	150.86	12,418.19
		1910	14,513.24	10	92	158.22	12,931.04
		1909	18,734.50	11	94	199.11	16,544.29
		1908	10,142.88	12	89	113.89	8,776.20
		1907	16,736.32	13	96	173.33	14,470.03
		1906	19,398.92	14	65	204.99	16,529.06
		1905	43,336.93	15	98	444.37	36,671.38
		1904	20,389.17	16	96	211.70	17,001.97
		1903	6,497.59	17	91	71.40	5,283.79
		1902	12,745.84	18	94	134.91	10,317.46
		1901	9,020.06	19	88	102.85	7,065.91
		1900	23,451.03	20	98	237.92	18,692.63
		1899	2,974.45	21	88	33.90	2,254.37
		1898	3,014.32	22	100	38.14	2,975.24
		1897	41,432.34	23	99	419.65	31,730.39
		1896	8,102.79	24	92	87.73	5,997.27
		1895	9,673.48	25	92	105.28	7,041.48
		1894	6,444.55	26	92	69.65	4,633.65
		1893	21,757.69	27	95	229.18	15,569.83
		1892	14,387.48	28	88	162.11	9,848.40
		1891	32,178.20	29	98	327.04	22,694.05
		1890	7,962.72	30	85	93.14	5,168.52
		1889	9,024.88	31	94	96.20	6,277.28
		1888	112,790.80	32	95	1,191.14	74,674.32
	(Organization Expense)	1888	11,958.10	32	95	125.87	7,930.26
	TOTAL DISTRIBUTION MAINS & ACCESSORIES		$ 602,719.64			$ 6,352.70	$ 478,317.51

THE MONTCLAIR WATER CO.
MONTCLAIR, N. J.
DISTRIBUTION MAINS & ACCESSORIES

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0	Description	Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	1920.							
2	6″ C. I. Pipe, Valves and Fittings	Lin. Ft.	1,137	$ 1,191.81				
3	12″ " " " " "	"	357	869.59				
4	Miscellaneous			113.25				
5	Hydrants	Each	6	351.04				
RB	Suspense (Mains)			436.19				
EJB	" (Hydrants)			70.23				
TO								
AB	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 3,032.11	0	88	$ 34.53	$ 3,032.11
	1919.							
	Miscellaneous			$ 144.45				
	Suspense			19.52				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 163.97	1	100	$ 1.64	$ 162.33
	1918.							
	4″ C. I. Pipe, Valves & Fittings	Lin. Ft.	395	$ 449.53				
	6″ " " " " "	"	136	301.03				
	Suspense			95.27				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 845.83	2	100	$ 7.55	$ 829.91
	1917.							
	4″ C. I. Pipe, Valves & Fittings	Lin. Ft.	412	$ 429.71				
	6″ " " " " "	"	331	440.23				
	12″ " " " " "	"	2,397	4,306.05				
	Miscellaneous Construction			416.60				
	Hydrants	Each	2	115.25				
	Suspense & Misc. (Mains)			1,227.61				
	" " " (Hydrants)			19.87				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 6,955.32	3	98	$ 70.90	$ 6,742.62

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THE MONTCLAIR WATER CO.
MONTCLAIR, N. J.
DISTRIBUTION MAINS & ACCESSORIES

0	Description	Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	1916.							
2	4″ I. C. Pipe, Valves & Fittings	Lin. Ft.	42	$ 40.64				
3	6″ " " " " "	"	7,043	5,674.89				
4	12″ " " " " "	"	509	907.09				
5	Miscellaneous Construction			64.51				
RB	Hydrants	Each	13	721.02				
TO	Suspense & Misc. (Mains)			1,019.24				
	" " " (Hydrants)			109.88				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 8,537.27	4	91	$ 93.68	$ 8,162.55
	1915.							
	4″ C. I. Pipe, Valves & Fittings	Lin. Ft.	3	Inc. in Fol.				
	6″ " " " " "	"	5,562	$ 3,938.88				
	8″ " " " " "	"	3,250	3,402.21				
	Miscellaneous Construction			26.59				
	Hydrants	Each	9	610.48				
	Suspense & Misc. (Mains)			1,215.18				
	" " " (Hydrants)			100.70				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 9,294.04	5	91	$ 102.44	$ 8,781.84
	1914.							
	4″ C. I. Pipe, Valves & Fittings	Lin. Ft.	240	$ 174.38				
	6″ " " " " "	"	1,166	866.65				
	8″ " " " " "	"	3,736	4,192.62				
	12″ " " " " "	"	4,138	6,627.01				
	24″ Steel Main	"	7,334	41,437.72*				
	Miscellaneous Construction			343.91				
	Hydrants	Each	6	429.23				
	Suspense & Misc. (Mains)			1,738.83				
	" " " (Hydrants)			61.15				
2, 3,	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 55,871.50	6	99	$ 563.61	$ 52,489.84

*Includes Suspense for 24″ Main

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0	Description	Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	1913.							
2	6″ C. I. Mains, Valves & Fittings	Lin. Ft.	8,179	$ 7,113.54				
3	8″ " " " " "	"	2,128	2,223.39				
4	12″ " " " " "	"	162	}				
5	16″ " " " " "	"	648	} 2,484.75				
RB	Miscellaneous Construction			23.83				
TO	Hydrants	Each	22	1,513.70				
	Suspense & Misc. (Mains)			874.95				
	" " " (Hydrants)			111.80				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 14,345.96	7	90	$ 159.72	$ 13,227.92
	1912.							
	6″ C. I. Mains, Valves & Fittings	Lin. Ft.	6,330	$ 8,639.15				
	8″ " " " " "	"	5,083	1,984.30				
	24″ " " " " "	"	70	Inc. in 24″ Steel Main Cost in 1914				
	Miscellaneous Construction			26.57				
	Hydrants	Each	22	1,105.55				
	Suspense & Misc. (Mains)			604.59				
	" " " (Hydrants)			69.27				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 12,429.43	8	91	$ 136.05	$ 11,341.38
	1911.							
	4″ C. I. Mains, Valves & Fittings	Lin. Ft.	60	$ 37.02				
	6″ " " " " "	"	9,067	6,909.05				
	8″ " " " " "	"	4,767	4,194.96				
	Hydrants	Each	20	1,171.00				
	Suspense & Misc. (Mains)			1,324.67				
	" " " (Hydrants)			139.23				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 13,775.93	9	91	$ 150.86	$ 12,418.19
	1910.							
	4″ C. I. Mains, Valves & Fittings	Lin. Ft.	12	$ 8.33				
	6″ " " " " "	"	11,839	10,146.02				
	8″ " " " " "	"	1,507	1,645.64				
	Hydrants	Each	20	1,171.00				
	Suspense & Misc. (Mains)			1,403.02				
	" " " (Hydrants)			139.23				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 14,513.24	10	92	$ 158.22	$ 12,931.04

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					Weighted Average			
	Description	Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 14,513.24	10	92	$ 158.22	$ 12,931.04

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112422

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0	Description	Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	1909.							
2	6″ C. I. Pipe, Valves & Fittings	Lin. Ft.	7,286	$ 6,229.53				
3	8″ " " " " "	"	8,988	9,284.60				
4	Hydrants	Each	21	1,229.55				
5	Suspense & Misc. (Mains)			1,844.63				
RB	" " " (Hydrants)			146.19				
TO	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 18,734.50	11	94	$ 199.11	$ 16,544.29
	1908.							
	6″ C. I. Pipe, Valves & Fittings	Lin. Ft.	5,313	$ 4,255.71				
	8″ " " " " "	"	3,198	3,696.89				
	Hydrants	Each	19	1,112.45				
	Suspense & Misc. (Mains)			945.56				
	" " " (Hydrants)			132.27				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 10,142.88	12	89	$ 113.89	$ 8,776.20
	1907.							
	4″ C. I. Pipe, Valves & Fittings	Lin. Ft.	115	$ 99.82				
	6″ " " " " "	"	9,934	10,639.31				
	8″ " " " " "	"	2,467	3,685.70				
	Hydrants	Each	13	533.00				
	Suspense & Misc. (Mains)			1,715.12				
	" " " (Hydrants)			63.37				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 16,736.32	13	96	$ 173.33	$ 14,470.03
	1906.							
	6″ C. I. Pipe, Valves & Fittings	Lin. Ft.	11,979	$ 11,775.36				
	8″ " " " " "	"	2,998	3,942.37				
	12″ " " " " "	"	360	635.76				
	Hydrants	Each	24	984.00				
	Suspense & Misc. (Mains)			1,944.43				
	" " " (Hydrants)			117.00				
6, 7,	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 19,398.92	14	65	$ 204.99	$ 16,529.06

THE MONTCLAIR WATER CO.
MONTCLAIR, N. J.
DISTRIBUTION MAINS & ACCESSORIES

95
112422

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0	Description	Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	1905.							
2	4″ C. I. Pipe, Valves & Fittings	Lin. Ft.	300	$ 215.70				
3	6″ " " " " "	"	9,590	8,515.92				
4	8″ " " " " "	"	5,697	5,583.06				
5	12″ " " " " "	"	13,269	23,433.05				
RB	Hydrants	Each	24	984.00				
TO	Suspense & Misc. (Mains)			4,488.20				
	" " " (Hydrants)			117.00				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 43,336.93	15	98	$ 444.37	$ 36,671.38
	1904.							
	4″ C. I. Pipe, Valves & Fittings	Lin. Ft.	527	$ 205.68				
	6″ " " " " "	"	12,629	9,812.73				
	8″ " " " " "	"	7,109	7,507.10				
	Hydrants	Each	17	697.00				
	Suspense & Misc. (Mains)			2,083.79				
	" " " (Hydrants)			82.87				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 20,389.17	16	96	$ 211.70	$ 17,001.97
	1903.							
	6″ C. I. Pipe, Valves & Fittings	Lin. Ft.	5,343	$ 4,493.46				
	8″ " " " " "	"	668	739.48				
	Hydrants	Each	14	574.00				
	Suspense & Misc. (Mains)			622.40				
	" " " (Hydrants)			68.25				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 6,497.59	17	91	$ 71.40	$ 5,283.79
	1902.							
	6″ C. I. Pipe, Valves & Fittings	Lin. Ft.	11,789	$ 9,254.36				
	8″ " " " " "	"	1,390	1,440.04				
	Hydrants	Each	17	697.00				
	Suspense & Misc. (Mains)			1,305.86				
	" " " (Hydrants)			48.58				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 12,745.84	18	94	$ 134.91	$ 10,317.46

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THE MONTCLAIR WATER CO.
MONTCLAIR, N. J.
DISTRIBUTION MAINS & ACCESSORIES

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Description	Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Description							
1901.							
6″ C. I. Pipe	Lin. Ft.	4,864	$ 1,784.65				
12″ " "	"	402	471.79				
Valves, Fittings etc.			2,323.90				
Labor, Hauling etc.			2,213.64				
Hydrants	Each	27	1,107.00				
Suspense & Misc. (Mains)			962.63				
" " " (Hydrants)			156.45				
TOTAL MAINS, HYDRANTS & SUSPENSE			$ 9,020.06	19	88	$ 102.85	$ 7,065.91
1900.							
4″ C. I. Pipe	Lin. Ft.	757	$ 276.54				
6″ " "	"	4,069	1,606.49				
12″ " "	"	422	449.60				
20″ " "	"	3,797	8,572.96				
Valves, Fittings, etc.			5,671.70				
Labor, Hauling, etc.			5,752.59				
Hydrants	Each	8	328.00				
Suspense & Misc. (Mains)			781.89				
" " " (Hydrants)			11.26				
TOTAL MAINS, HYDRANTS & SUSPENSE			$ 23,451.03	20	98	$ 237.92	$ 18,692.63
1899.							
4″ C. I. Pipe	Lin. Ft.	2,011	$ 409.14				
6″ " "	"	1,133	312.99				
Valves, Fittings, etc.			70.90				
Labor, Hauling, etc.			1,463.97				
Hydrants	Each	10	410.00				
Suspense & Misc. (Mains)			302.53				
" " " (Hydrants)			4.92				
TOTAL MAINS, HYDRANTS & SUSPENSE			$ 2,974.45	21	88	$ 33.90	$ 2,254.37

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THE MONTCLAIR WATER CO.
MONTCLAIR, N. J.
DISTRIBUTION MAINS & ACCESSORIES

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IJ

0	Description	Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	1898.							
2	4″ C. I. Pipe	Lin. Ft.	266					
3	8″ " "	"	180					
4	12″ " "	"	123	$ 276.64				
5	16″ " "	"	120					
RB	Valves, Fittings, Etc.			864.18				
EJB	Labor, Hauling etc.			1,061.94				
TO	Suspense			1,611.56				
AB								
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 3,814.32	22	100	$ 38.14	$ 2,975.24
	1897.							
	4″ C. I. Pipe	Lin. Ft.	2,496	$ 521.87				
	6″ " "	"	9,691	2,603.98				
	12″ " "	"	1,529	1,351.76				
	20″ " "	"	12,900	18,674.24				
	Valves, Fittings, etc.			6,216.48				
	Labor, Hauling, etc.			10,059.06				
	Hydrants	Each	13	533.00				
	Suspense & Misc. (Mains)			1,452.82				
	" " " (Hydrants)			19.13				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 41,432.34	23	99	$ 419.65	$ 31,780.39
	1896.							
	4″ C. I. Pipe	Lin. Ft.	3,011	$ 746.21				
	6″ " "	"	7,254	2,388.73				
	8″ " "	"	300	116.13				
	Valves, Fittings, etc.			883.25				
	Labor, Hauling, etc.			2,673.00				
	Hydrants	Each	15	615.00				
	Suspense & Misc. (Mains)			624.67				
	" " " (Hydrants)			55.80				
11,	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 8,102.79	24	92	$ 87.73	$ 5,997.27

THE MONTCLAIR WATER CO.

THE MONTCLAIR WATER CO.
MONTCLAIR, N. J.
DISTRIBUTION MAINS & ACCESSORIES

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0	Description	Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	1895.							
2	4″ C. I. Pipe	Lin. Ft.	4,022	$ 993.48				
3	6″ " "	"	8,728	2,894.42				
4	Valves, Fittings etc.			1,301.02				
5	Labor, Hauling etc.			3,284.20				
RB	Hydrants	Each	20	820.00				
TO	Suspense & Misc. (Mains)			344.94				
	" " " (Hydrants)			35.42				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 9,673.48	25	92	$ 105.28	$ 7,041.48
	1894.							
	4″ C. I. Pipe	Lin. Ft.	2,025	$ 492.99				
	6″ " "	"	5,094	1,908.93				
	8″ " "	"	600	302.88				
	12″ " "	"	316	303.59				
	Valves, Fittings, etc.			792.36				
	Labor, Hauling, etc.			1,718.85				
	Hydrants	Each	12	492.00				
	Suspense & Misc. (Mains)			398.31				
	" " " (Hydrants)			34.64				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 6,444.55	26	92	$ 69.65	$ 4,633.65
	1893.							
	4″ C. I. Pipe	Lin. Ft.	2,230	$ 636.71				
	6″ " "	"	8,218	3,115.30				
	8″ " "	"	5,880	3,140.90				
	12″ " "	"	2,804	3,056.15				
	Valves, Fittings, etc.			3,156.79				
	Labor, Hauling, etc.			6,536.69				
	Hydrants	Each	13	533.00				
	Meter Vaults		2	602.15				
	Suspense & Misc. (Mains)			975.00				
	" " " (Hydrants)			25.00				
12,	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 21,757.69	27	95	$ 229.18	$ 15,569.83

THE MONTCLAIR WATER CO.
MONTCLAIR, N. J.
DISTRIBUTION MAINS & ACCESSORIES

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	Description	Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
	1892.							
3	4″ C. I. Pipe	Lin. Ft.	2,856	$ 962.77				
4	6″ " "	"	9,311	4,125.88				
5	Valves, Fittings etc.			1,756.74				
RB	Labor, Hauling etc.			4,795.97				
TO	Venturi Meter Vault			238.82				
	Venturi Meters & " Fittings			482.30				
	Hydrants	Each	25	1,025.00				
	Suspense & Misc. (Mains)			924.00				
	" " " (Hydrants)			76.00				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 14,387.48	28	88	$ 162.11	$ 9,848.40
	1891.							
	4″ C. I. Pipe	Lin. Ft.	5,010	$ 1,240.49				
	6″ " "	"	8,558	3,489.51				
	12″ " "	"	1,265	1,476.71				
	16″ "	"	8,255	13,192.46				
	Valves, Fittings, etc.			2,113.86				
	Labor, Hauling, etc.			9,594.74				
	Venturi Meter Vault			24.50				
	Hydrants	Each	12	492.00				
	Suspense & Misc. (Mains)			545.64				
	" " " (Hydrants)			8,29				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 32,178.20	29	98	$ 327.04	$ 22,694.05
	1890.							
	4″ C. I. Pipe	Lin. Ft.	1,990	$ 662.44				
	6″ " "	"	5,724	2,341.98				
	Valves, Fittings, etc.			385.79				
	Labor, Hauling, etc.			2,212.88				
	Hydrants	Each	28	1,148.00				
	Suspense & Misc. (Mains)			1,008.08				
	" " " (Hydrants)			203.55				
13,	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 7,962.72	30	85	$ 93.14	$ 5,168.52

THE MONTCLAIR WATER CO.
MONTCLAIR, N. J.
DISTRIBUTION MAINS & ACCESSORIES

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0	Description	Unit	Quantity	Original Cost New	Weighted Average Age	Weighted Average Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	1889.							
2	4″ C. I. Pipe	Lin. Ft.	1,466	$ 456.53				
3	6″ " "	"	8,501	3,505.22				
4	8″ " "	"	96	41.99				
5	12″ " "	"	63	70.54				
RB	Valves, Fittings etc.			984.06				
TO	Labor, Hauling etc.			2,221.71				
	Hydrants	Each	15	615.00				
	Suspense & Misc. (Mains)			950.75				
	" " " (Hydrants)			79.08				
	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 9,024.88	31	94	$ 96.20	$ 6,277.28
	1888.							
	4″ C. I. Pipe	Lin. Ft.	20,544	$ 8,446.48				
	6″ " "	"	70,853	37,115.08				
	8″ " "	"	8,500	5,476.06				
	12″ " "	"	9,665	13,330.13				
	Valves, Fittings, etc.			12,312.05				
	Labor, Hauling, etc.			29,787.00				
	Hydrants	Each	186	6,324.00				
	Suspense (Organization Expense)			.....				
14,	TOTAL MAINS, HYDRANTS & SUSPENSE			$ 112,790.80	32	95	$ 1,191.14	$ 74,674.32

THE MONTCLAIR WATER COMPANY
MONTCLAIR, N. J.
METERS, METER BOXES AND VAULTS
SUMMARY

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	Year	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
	1920	$ 1,970.94	0	30	$ 65.69	$ 1,970.94
	1919	1,596.00	1	30	53.20	1,542.80
	1918	1,685.00	2	30	56.17	1,572.66
	1917	2,612.62	3	30	87.09	2,351.35
	1916	1,279.79	4	30	42.66	1,109.15
	1915	449.23	5	30	14.97	374.38
	1914	2,510.13	6	30	83.67	2,008.11
	1913	2,027.94	7	30	67.60	1,554.74
	1912	55.00	8	30	1.83	40.36
	1911	1,737.94	9	30	57.93	1,216.57
	1910	375.00	10	30	12.50	250.00
	1909	2,854.00	11	30	95.13	1,807.57
	1908	525.00	12	30	17.50	315.00
	1907	3,062.50	13	30	102.08	1,735.46
	1906	2,620.00	14	30	87.33	1,397.38
	1905	1,745.00	15	30	5.82	1,657.70
	1904	179.20	16	30	5.97	83.68
	1903	62.00	17	30	2.07	26.81
	1902	3,902.00	18	30	130.07	1,560.74
	1901	1,876.00	19	30	62.53	687.93
	1900	4,642.20	20	30	154.74	1,547.40
	1899	4,750.20	21	30	158.34	1,425.06
	1898	6,034.80	22	30	201.16	1,608.84
	1897	1,272.20	23	30	42.42	297.14
	1896	498.29	24	30	16.61	99.65
	1895	597.12	25	30	19.90	99.62
	TOTAL METERS	$ 50,920.70			$ 1,645.08	$ 28,341.04

THE MONTCLAIR WATER COMPANY
MONTCLAIR, N. J.
METERS, METER BOXES AND VAULTS

THE MONTCLAIR WATER COMPANY
MONTCLAIR, N. J.
METERS, METER BOXES AND VAULTS
SUMMARY

95
112422

KG

0			Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	Meter Settings	Year 1920	$ 494.18				$ 494.18
2		1919	411.90				411.90
3		1918	218.69				218.69
4		1917	336.78				336.78
5		1916	248.27				248.27
RB		1915	285.85				285.85
		1914	363.25				363.25
TO		1913	506.46				506.46
		1912	243.60				243.60
		1911	344.84				344.84
		1910	369.84				369.84
		1909	383.60				383.60
		1908	225.40				225.40
		1907	282.80				282.80
		1906	277.20				277.20
		1905	366.80				366.80
		1904	245.00				245.00
		1903	180.60				180.60
		1902	177.80				177.80
		1901	214.20				214.20
		1900	425.60				425.60
		1899	813.40				813.40
		1898	826.00				826.00
		1897	57.40				57.40
		1896	78.40				78.40
		1895	126.00				126.00
		1894	121.80				121.80
		1893	57.40				57.80
		1892	49.00				49.00
		1891	22.40				22.40
		1890	33.60				33.60
		1889	33.60				33.60
		1888	14.00				14.00
		Total Meter Settings	$ 8,835.66				$ 8,835.66
S 2,	TOTAL METERS, METER BOXES AND VAULTS		$ 59,756.36			$ 1,645.08	$ 37,176.70

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KG

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THE MONTCLAIR WATER COMPANY
MONTCLAIR, N. J.
METERS, METER BOXES AND VAULTS

		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	1920.							
2	Trident Disc. 5/8"x3/4"	Each	182	$ 1,970.74	0	30	$ 65.69	$ 1,970.74
3	Setting and Miscellaneous Material	"	141	494.18				494.18
4								
5	TOTAL METERS AND METER SETTINGS			$ 2,464.92			$ 65.69	$ 2,464.92
RB	1919.							
EJB	Trident Disc. 5/8"x3/4"	Each	150	$ 1,596.00	1	30	$ 53.20	$ 1,542.80
TO	Setting and Miscellaneous Material	"	229	411.90				411.90
AB	TOTAL METERS AND METER SETTINGS			$ 2,007.90			$ 53.20	$ 1,954.70
	1918.							
	Trident Disc. 5/8"x3/4"	Each	125	$ 1,330.00				
	" " 2"	"	1	55.00	2	30	$ 56.17	$ 1,572.66
	" Crest 2"	"	5	300.00				
	Setting and Miscellaneous Material	"	63	218.69				218.69
	TOTAL METERS AND METER SETTINGS			$ 1,903.69			$ 56.17	$ 1,791.35
	1917.							
	Trident Disc. 2"	Each	1	$ 47.30				
	" " 3/4"	"	1	10.32				
	" " 5/8" x 3/4"	"	250	2,255.00	3	30	$ 87.09	$ 2,351.35
	" Crest 2"	"	6	300.00				
	Setting and Miscellaneous Material	"	160	336.78				336.78
	TOTAL METERS AND METER SETTINGS			$ 2,949.40			$ 87.09	$ 2,688.13

THE MONTCLAIR WATER COMPANY
MONTCLAIR, N. J.
METERS, METER BOXES AND VAULTS

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KG

0		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	1916.							
2	Trident Disc. ¾″ x 1″	Each	1	$ 13.60				
3	" " ¾″	"	2	25.44	4	30	$ 42.66	$ 1,109.15
4	" " ⅝″ x ¾″	"	175	1,240.75				
5	Setting and Miscellaneous Material	"	203	248.27				248.27
RB								
TO	TOTAL METERS AND METER SETTINGS			$ 1,528.06			$ 42.66	$ 1,357.42
	1915.							
	Trident Disc 1½″	Each	1	$ 30.10				
	" " 1″	"	2	30.50				
	" " ¾″	"	2	27.04	5	30	$ 14.97	$ 374.38
	" " ⅝″ x ¾″	"	51	361.59				
	Setting and Miscellaneous Material	"	204	285.85				285.85
	TOTAL METERS AND METER SETTINGS			$ 735.08			$ 14.97	$ 660.23
	1914.							
	Trident Disc. 1″	Each	1	$ 14.45				
	" " ⅝″ x ¾″	"	352	2,495.68	6	30	$ 83.67	$ 2,008.11
	Setting and Miscellaneous Material	"	162	363.25				363.25
	TOTAL METERS AND METER SETTINGS			$ 2,873.38			$ 83.67	$ 2,371.36
	1913.							
	Trident Crest 6″	Each	1	$ 300.00				
	" Disc. 1″	"	2	26.00				
	" " ¾″	"	2	20.64	7	30	$ 67.60	$ 1,554.74
	" " ⅝″ x ¾″	"	230	1,651.20				
	" " 1½″	"	1	30.10				
	Setting and Miscellaneous Material	"	209	506.46				506.46
1, 2,	TOTAL METERS AND METER SETTINGS			$ 2,534.40			$ 67.60	$ 2,061.20

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KG

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THE MONTCLAIR WATER COMPANY
MONTCLAIR, N. J.
METERS, METER BOXES AND VAULTS

		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	1912.							
2	Trident Disc. 2″	Each	1	$ 55.00	8	30	$ 1.83	$ 40.36
3	Setting and Miscellaneous Material	"	174	243.60				243.60
4								
5	TOTAL METERS AND METER SETTINGS			$ 298.60			$ 1.83	$ 283.96
RB	1911.							
EJB	Trident Disc. 1″	Each	1	16.80				
TO	" " ⅝″ x ¾″	"	226	1,695.94	9	30	$ 57.93	$ 1,216.57
AB	" " ¾″	"	2	25.20				
	Setting and Miscellaneous Material	"	233	344.84				344.84
	TOTAL METERS AND METER SETTINGS			$ 2,082.78			$ 57.93	$ 1,561.41
	1910.							
	Trident Disc. ⅝″x¾″	Each	50	$ 375.00	10	30	$ 12.50	$ 250.00
	Setting and Miscellaneous Material	"	268	369.84				369.84
	TOTAL METERS AND METER SETTINGS			$ 744.84			$ 12.50	$ 619.84
	1909.							
	Trident Compound 4″	Each	2	$ 500.00				
	" Disc. 1″	"	7	114.00				
	" " ⅝″ x ¾″	"	296	2,220.00	11	30	$ 95.13	$ 1,807.57
	" " 1½″	"	1	20.00				
	Setting and Miscellaneous Material	"	274	383.60				383.60
	TOTAL METERS AND METER SETTINGS			$ 3,237.60			$ 95.13	$ 2,191.17

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KG

THE MONTCLAIR WATER COMPANY
MONTCLAIR, N. J.
METERS, METER BOXES AND VAULTS

		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
	1908.							
	Trident Disc. 5/8"x3/4"	Each	70	$ 525.00	12	30	$ 17.50	$ 315.00
	Setting and Miscellaneous Material	"	161	225.40				225.40
	TOTAL METERS AND METER SETTINGS			$ 750.40			$ 17.50	$ 540.40
	1907.							
	Trident Disc. 5/8"x3/4"	Each	370	$ 2,562.50				
	Nash " 6"	"	1	500.00	13	30	$ 102.08	$ 1,735.46
	Setting and Miscellaneous Material	"	202	282.80				282.80
	TOTAL METERS AND METER SETTINGS			$ 3,345.30			$ 102.08	$ 2,018.26
	1906.							
	Trident Disc. 5/8"x3/4"	Each	250	$ 2,250.00				
	" Crest 4"	"	2	370.00	14	30	$ 87.33	$ 1,397.38
	Setting and Miscellaneous Material	"	198	277.20				277.20
	TOTAL METERS AND METER SETTINGS			$ 2,897.20			$ 87.33	$ 1,674.58
	1905.							
	Trident Disc. 5/8"x3/4"	Each	250	$ 1,745.00	15	30	$ 5.82	$ 1,657.70
	Setting and Miscellaneous Material	"	262	366.80				366.80
	TOTAL METERS AND METER SETTINGS			$ 2,111.80			$ 5.82	$ 2,024.50
	1904.							
	Trident Disc. 3/4" x 1"	Each	14	$ 179.20	16	30	$ 5.97	$ 83.68
	Setting and Miscellaneous Material	"	175	245.00				245.00
	TOTAL METERS AND METER SETTINGS			$ 424.20			$ 5.97	$ 328.68

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THE MONTCLAIR WATER COMPANY
MONTCLAIR, N. J.
METERS, METER BOXES AND VAULTS

95
112322

KG

0		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	1903.							
2	Trident Disc. 1″	Each	2	$ 32.00				
3	" " 1½″	"	1	30.00	17	30	$ 2.07	$ 26.81
4	Setting and Miscellaneous Material	"	129	180.60				180.60
5								
RB	TOTAL METERS AND METER SETTINGS			$ 242.60			$ 2.07	$ 207.41
EJB	1902.							
TO	Trident Disc. 1″	Each	2	$ 32.00				
AB	" " ⅝″ x ¾″	"	450	3,870.00	18	30	$ 130.07	$ 1,560.74
	Setting and Miscellaneous Material	"	127	177.80				177.80
	TOTAL METERS AND METER SETTINGS			$ 4,079.80			$ 130.07	$ 1,738.54
	1901.							
	Nash Disc.	Each	1	$ 500.00				
	Trident Disc. ⅝″x¾″	"	160	1,376.00	19	30	$ 62.53	$ 687.93
	Setting and Miscellaneous Material	"	153	214.20				214.20
	TOTAL METERS AND METER SETTINGS			$ 2,090.20			$ 62.53	$ 902.13
	1900.							
	Trident Disc. 1″	Each	3	$ 50.00				
	" " ⅝″ x ¾″	"	531	4,566.60	20	30	$ 154.74	$ 1,547.40
	" " ¾″	"	2	25.20				
	Setting and Miscellaneous Material	"	304	425.60				425.60
	TOTAL METERS AND METER SETTINGS			$ 5,067.80			$ 154.74	$ 1,973.00
	1899.							
	Trident Disc. ⅝″x¾″	Each	525	$ 4,515.00				
	" " ¾″	"	2	25.20	21	30	$ 158.34	$ 1,425.06
	" " ⅝″	"	25	210.00				
	Setting and Miscellaneous Material	"	581	813,40				813.40
4, 5,	TOTAL METERS AND METER SETTINGS			$ 5,563.60			$ 158.34	$ 2,238.46

THE MONTCLAIR WATER COMPANY
MONTCLAIR, N. J.
METERS, METER BOXES AND VAULTS

95
112322

KG

0		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	1898.							
2	Trident Disc. 5/8"x3/4"	Each	690	$ 5,934.00				
3	" " 1"	"	3	50.40				
4	" " 3/4"	"	2	25.20	22	30	$ 201.16	$ 1,608.84
5	" " 5/8"	"	3	25.20				
RB	Setting and Miscellaneous Material	"	590	826.00				826.00
TO	TOTAL METERS AND METER SETTINGS			$ 6,860.80			$ 201.16	$ 2,434.84
	1897.							
	Trident Disc. 5/8"x3/4"	Each	148	$ 1,272.80	23	30	$ 42.42	$ 297.14
	Setting and Miscellaneous Material	"	41	57.40				57.40
	TOTAL METERS AND METER SETTINGS			$ 1,330.20			$ 42.42	$ 354.54
	1896.							
	Trident Disc. 5/8"x3/4"	Each	54	$ 464.40				
	" " 1"	"	2	33.89	24	30	$ 16.61	$ 99.65
	Setting and Miscellaneous Material	"	56	78.40				78.40
	TOTAL METERS AND METER SETTINGS			$ 576.69			$ 16.61	$ 178.05
	1895.							
	Trident Disc. 1"	Each	1	$ 25.90				
	" " 3/4" x 1"	"	2	25.48				
	" " 5/8" x 3/4"	"	62	533.20	25	30	$ 19.90	$ 99.62
	" " 3/4"	"	1	12.54				
	Setting and Miscellaneous Material	"	90	126.00				126.00
	TOTAL METERS AND METER SETTINGS			$ 723.12			$ 19.90	$ 225.62
	1894.							
	Setting and Miscellaneous Material	Each	87	$ 121.80				$ 121.80

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THE MONTCLAIR WATER COMPANY
MONTCLAIR, N. J.
METERS, METER BOXES AND VAULTS

95
112322

KG

0

		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	1893.							
2	Setting and Miscellaneous Material	Each	41	$ 57.40				$ 57.40
3	1892.							
4	Setting and Miscellaneous Material	"	35	49.00				49.00
5	1891.							
RB	Setting and Miscellaneous Material	"	16	22.40				22.40
EJB	1890.							
TO	Setting and Miscellaneous Material	"	24	33.60				33.60
AB	1889.							
	Setting and Miscellaneous Material	"	24	33.60				33.60
	1888.							
	Setting and Miscellaneous Material	"	10	14.00				14.00

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THE MONTCLAIR WATER CO.
MONTCLAIR, N. J.
SERVICE PIPES & STOPS
SUMMARY

Description		Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
Year	1920	$ 3,714.50	0	25	$ 148.58	$ 3,714.50
	1919	5,972.60	1	25	238.90	5,733.70
	1918	3,177.44	2	25	127.09	2,923.26
	1917	3,334.84	3	25	133.39	2,934.67
TOTAL SERVICE PIPES & STOPS		$ 16,199.38			$ 647.96	$ 15,306.13

2
RB
EJB
TO
AB

THE MONTCLAIR WATER CO.
MONTCLAIR, N. J.
SERVICE PIPES & STOPS

95
112422

IJ

0	Description	Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	1920.							
2	Service Connections, Main to Curb ¾"	Each	153					
3	" " " " " 1"	"	1					
4	" " " " " 2"	"	9					
5	TOTAL SERVICE PIPES & STOPS			$ 3,714.50	0	25	$ 148.58	$ 3,714.50
RB	1919.							
EJB	Service Connections, Main to Curb ¾"	Each	274					
TO	" " " " " 1"	"	1					
AB	TOTAL SERVICE PIPES & STOPS			$ 5,972.60	1	25	$ 238.90	$ 5,733.70
	1918.							
	Service Connections, Main to Curb ¾"	Each	133					
	" " " " " 2"	"	1					
	TOTAL SERVICE PIPES & STOPS			$ 3,177.44	2	25	$ 127.09	$ 2,923.26
	1917.							
	Service Connections, Main to Curb ¾"	Each	172					
	" " " " " 1"	"	5					
	TOTAL SERVICE PIPES & STOPS			$ 3,334.84	3	25	$ 133.39	$ 2,934.67
	Corporation Cocks							
	Charges to Construction for Corporation Cocks included in Miscellaneous Items "Distribution Mains and Accessories"			.....	..	..	.....	.....

THE MONTCLAIR WATER COMPANY
MONTCLAIR, N. J.
GENERAL STRUCTURES

95
111822

LSS

0		Unit	Quantity	Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
1	Office Building,							
2	One story brick 24.83′ x 87.0′. Wood floors,							
3	tar and gravel roof	Each	1					
4	Shop and Meter Testing Room,							
5	One story brick 23.7′ x 23.83′. Concrete floor,							
RB	tar and gravel roof	Each	1					
TO	Water Shed,							
	One story brick 30.0′ x 23.83′. Wood floor,							
	gravel roof	Each	1					
	Garage,							
	One story brick 33.1′ x 23.83′. Concrete floor,							
	gravel roof	Each	1					
	Stable,							
	Two story brick 38.0′ x 20.0′, gravel roof	Each	1					
	TOTAL GENERAL STRUCTURES			$ 19,505.00	12	75	$ 260.07	$ 16,384.16

THE MONTCLAIR WATER COMPANY
MONTCLAIR, N. J.
GENERAL EQUIPMENT

95
112422

LSS		Original Cost New	Age	Life	Annual Depreciation	Original Cost New Less Accrued Depreciation
0	Tools and Equipment	$ 1,417.65				
1	Horses, Wagons, etc.	76.50				
2	Furniture & Fixtures	1,970.25				
3	General Equipment	5,399.88				
4						
5	TOTAL GENERAL EQUIPMENT	$ 8,864.28	3	6	$ 1,477.38	$ 4,432.14

RB
EJB
TO
AB

New Jersey Court of Errors and Appeals.

ACQUACKANONK WATER COMPANY, EAST JERSEY WATER COMPANY, KEARNEY WATER COMPANY, MONTCLAIR WATER COMPANY and PASSAIC WATER COMPANY, Prosecutors-Appellants, VS. BOARD OF PUBLIC UTILITY COMMISSIONERS, Defendants-Respondents.	On Certiorari. On Appeal from the New Jersey Supreme Court.

BRIEF FOR THE COMPANIES.

This case brings up for review the judgment of the Supreme Court, affirming the report and order of the Board of Public Utility Commissioners, dated March 27, 1923 (pp. 14 to 61 inclusive), which fixed the value of the properties of the five companies, now consolidated into Passaic Consolidated Water Company, and prescribing a schedule of rates to be charged throughout the territory. Three writs were sued out, one by the five Companies then owning the properties (p. 1), one by the City of Bayonne (p. 2), and one by the Town of Montclair (p. 3). Two appeals have been taken, one by the Companies (p. 1) and the other by the City of Bayonne (p. 4). The appeal of the Companies raises questions (p. 5) solely relating to the valuation and gross revenue. The Companies believe that all questions as to distribution of the rates were disposed of by this court on December 7, 1922, in affirming the judgment of the Supreme Court (Record, pp. 118-119). 118 Atl. 535; affd. 119 Atl. 679.

New Jersey State Library

This brief will be confined to questions as to the valuation of the property and the failure of the Board to allow sufficient net return by excluding the Federal income tax from operating expenses.

As to Federal income taxes, the Supreme Court below overruled the Companies' contention that they should be included in operating deductions. In making this ruling, the court below relied upon the opinion of the United States Supreme Court in *Galveston Electric Company* v. *Galveston,* 258 U. S. 388. Since then the *Galveston* case has been construed by the United States Supreme Court, and the same Justice who wrote the opinion in the former case has held that "the Federal corporate income tax should be allowed as a proper operating charge in fixing the rate to be allowed by a public utility necessary to return a proper income". Headnote, *Georgia Railways Power Company* v. *Railroad Commission of Georgia,* United States Supreme Court, October Term, 1923, Adv. Op., page 728.

See Point I below.

The court below affirmed the finding of the Board that the total value of the property of these Companies for rate-making purposes was $11,500,000.

We concede that if there is sufficient evidence in the record to sustain this finding, the case should be affirmed, except that a sum must be added to the rates to take care of Federal income taxes.

But we contend that there is no evidence in the record to sustain this finding as to the value of the property.

The evidence in the record showed that the property was worth not less than $13,000,000.

POINT I.

The Federal income tax must be included in the operating expenses. The action of the board in excluding them from the operating expenses was error.

Georgia Railway & Power Company v. *Railroad Commission of Georgia,* October Term, 1923, Adv. Op., 67 U. S. (L. Ed.), page 728.

There would have been no question about this Point if it had not been for the ambiguity in Justice Brandeis' opinion in the case of *Galveston Electric Company* v. *Galveston,* 258 U. S. 388. That case has been variously cited in support of the contention that Federal income taxes must be included in operating expenses, and also in support of the contention that they must be excluded. Justice Brandeis, who wrote the opinion, has set the matter at rest in the *Georgia Railway & Power Company* case, *supra.* In that case he says:

> "The Companies contend that there was error also in estimating the amount of the probable net income. One objection relates to the Federal corporate income tax (10%) assumed to be $45,364. The Commission treated the tax as a proper operating charge. The court disallowed it, and thus increased its estimate of probable net income. In this the court erred. *Galveston Electric Company* v. *Galveston, supra.*"

This is the rule in other jurisdictions.

Ohio Bell Telephone Co. v. *Public Utility Commission of Ohio,* decided by the Supreme Court of Ohio December 26, 1922.

Judge Jones, writing the opinion, says:

> "The finding of the Commission permits the deduction of local taxes, but not the Federal income tax. It is difficult to conceive why one is not as much a charge upon its property and a burden upon its revenues, as the other. The one enters as much into the company's cost of service as the other. No authority has been cited by counsel for the commission, in their brief imposing this particular cost of operation upon the individual

> investor's return, except the case of *Galveston Electric Co.* v. *Galveston,* decided by the United States supreme court on April 10, 1922, a case upon which counsel for the utility also relies."

Then follows a discussion of the *Galveston* case, and the court concludes:

> "Construing the decision of the United States Supreme Court as favoring the inclusion of the federal income tax, the order of the commission will be reversed, with instructions to include that tax as part of the expenses of operation, which should be deducted from the gross income in making up a net return available for interest and dividends." (Citing cases.)

This is the practice which should be followed here.

POINT II.

Original or historical cost is not competent evidence of present value, unless the cost was incurred at prices and under conditions substantially identical with those prevailing at the date of the inquiry.

1.

We would not consider it necessary to cite a vast number of authorities on this proposition had it not been for the confusion introduced into the subject by the concurring opinion of Justice Brandeis in the *Southwestern Bell Telephone Company* case and the dicta contained in the opinion of the same Justice in the *Georgia Railway & Power Company* case.

Both of those cases hold that the law is settled that present value is the value which must be found in a rate case. This proposition was settled for the State of New Jersey by this court in *Public Service Gas Company* v *Board of Public Utility Commissioners,* 84 N. J. Law, 463, affirmed 87 N. J. Law, 58.

2.

Since present value is that which must be determined, it necessarily follows as a corollary that any method of ascertaining this value which does not take into account the prices and conditions prevailing at the date of the inquiry would not be competent evidence of present value.

Says the United States District Court, for the Middle District of Alabama:

> "In all cases the question to be solved is the present reasonable value of the property. The present reasonable market value is the test which is ordinarily adopted, but where there is no established reasonable market value for any reason, the Court must resort to such other methods of arriving at a just conclusion as may be available; and in determining this question much, little or no light may be obtained from an inquiry as to what the owner actually paid for the property, according to circumstances. If the purchase has been recent and made in the ordinary course of dealings, it may serve to throw doubt upon the insistence of the plaintiff that the reasonable value of the property was much greater than the purchase price, or upon the insistence of the defendant that it is much less; *but if the purchase was made at a remote period when the conditions were greatly different from those prevailing at the time of the inquiry, the original cost of the property is of little or no evidential value.*"

Mobile Gas Company v. *Alabama Public Service Commission,* United States District Court, for the Middle District of Alabama, decided October 31, 1923, not yet reported.

This was emphasized in the case of *Louisville & Nashville R. R. Co.* v. *Railroad Commission* (196 Fed. 800), where at page 820 of the opinion the court said:

> "In reference to the question of value with a view of rate regulation, the most reliable test ordinarily is the cost of the reproduction of the road as it exists. * * * The original cost of a road may in some cases reflect light on, or even determine, the present value, as when it is of very recent construction. But ordinarily it is of little assistance in that regard, since many items

of value may be donations by the government or by individuals, as in the case of the South and North, or the road may have been built long before the period of inquiry at greatly less or greatly higher prices than those prevailing at the time of the inquiry. Or its original cost might be involved in obscurity, and may include the cost of abandoned or destroyed portions of the property, which should not figure in the inventory for the present time, or the road may have been bought at a forced sale in times of a panic at a nominal price or in inflated times at a corresponding price; or the road, costing little originally, may have developed from many contributing causes into being property of great value. And in every case, after finding the original cost, when possible to be done, the question would still have to be solved as to whether such original cost is the same as the present value, which would involve the determination of the present value for such comparison independent or original cost, and in no other or better way than on reproduction values."

In the *Minnesota Rate Case* (184 Fed. 765), the court, in discussing evidence of original cost as reflecting value, said (p. 803):

"The Master found the original cost of the acquisition and construction of the entire railroad systems of each of the companies and the proportion thereof assignable on a track mileage basis to Minnesota. The amounts thus found prove to be much less than the values ultimately found by the Master, and for this very good reason: These railroads were pioneers; they were built in large part over the prairies of Minnesota before they were settled and before many of the existing towns, villages and cities along their lines came into existence. A large part of the right of way of the Northern Pacific Company was granted to it by the nation. *The cost of rights of way from five to forty years ago through wild lands, and through towns and villages whose population and the value of the property in which have since multiplied by from two to ten is obviously no criterion of the value of those rights of way in 1908,* when they were used under these fares and rates and when agricultural lands in Minnesota were worth from $35 to $100 an acre, and rights of way and lands for yards and sites for stations in cities like St. Paul and Duluth have wonder-

> fully increased in value. It is a fair return upon the reasonable value of their Minnesota property in 1908 to which these companies were entitled, and the cost of that property at times varying from five to forty years ago may be some evidence; but it is certainly no criterion of its value in that year. *In view of these facts the Master rightly decided that the cost of reproducing this property new was a more rational and reliable measure of its real value than the original cost of its acquisition and construction or the market values of the stocks and bonds of the companies, and upon that basis he made his findings.*" (Italics ours.)

In the case of *State* v. *Minnesota & St. Louis R. R. Co.* (83 N. W. pp. 60, 65), the investment cost method of determining value was in terms specifically condemned. We quote from the opinion in that case:

> "One other suggestion in respect to defendant's failure of proof in rebuttal of the order. The rule laid down in the *Steenerson* Case for ascertaining and determining whether the rates fixed are reasonable, and not confiscatory, was wholly ignored. Defendant's counsel did show what the road had cost up to June 1st, 1899. This included every item of expenditure from the start. Cost of construction, repairs, equipment, additions and all other items were included. But not a particle of proof was presented as to present value or cost of reproduction."

We think it settled beyond argument that investment cost is not only not the ultimate fact to be found, but that evidence of such original cost is not competent for any purpose unless it assists in the measurement of present fair value. Obviously it can only so assist when such costs have been incurred under conditions and at prices substantially identical with those of the date of the inquiry, whether recent or remote in point of time.

Mr. Justice Hughes, in the opinion in the *Minnesota Rate* Case, 230 U. S. 352, 454, June 9, 1913, expresses the thought in this way:

> "It is clear that in ascertaining the present value we are not limited to the consideration of the amount of

> the actual investment. If that has been reckless or improvident, losses may be sustained which the community does not underwrite. As the company may not be protected in its actual investment, if the value of its property be plainly less, *so the making of a just return for the use of the property involves the recognition of its fair value if it be more than the cost.* The property is held in private ownership and it is that property, and not the original cost of it, of which the owner may not be deprived without due process of law."

In the case of *Wilcox* v. *Consolidated Gas Co.,* 212 U. S. 19, page 52 of the opinion, Mr. Justice Peckham says:

> "And we concur with the court below in holding that the value of the property is to be determined as of the time when the inquiry is made regarding the rates. If the property which legally enters into the consideration of the question of rates has increased in value since it was acquired, the company is entitled to the benefit of such increase. This is at any rate the general rule."

The language of the United States Supreme Court just quoted approves the language by the lower court in the same case. Therefore, we quote in connection with the case last cited the language of the opinion by Judge Hough in the case of *Consolidated Gas Co.* v. *City of New York,* 157 Fed. 849, 856, decided December, 1907:

> "The so-called 'money value' of real or personal property is but a conveniently short method of expressing present potential usefulness, and 'investment' becomes meaningless if construed to mean what the thing invested in cost generations ago. Property, whether real or personal, is only valuable when useful. Its usefulness commonly depends on the business purposes to which it is or may be applied. Such business is a living thing, and may flourish or wither, appreciate or depreciate; but, whatever happens, its present usefulness, expressed in financial terms, must be its value.
>
> "As applied to a private merchant or manufacturer, the foregoing would seem elementary; but some difference is alleged to exist where the manufacturer transacts his business only by governmental license—whether called a franchise or by another name. Such license, however, cannot change an economic law, unless a differ-

> ent rule be prescribed by the terms of the license, which is sometimes done. No such unusual condition exists here, and, in the absence thereof, it is not to be inferred that any American Government intended, when granting a franchise, not only to regulate the business transacted thereunder, and reasonably to limit the profits thereof, but to prevent the valuation of a purely private property in the ordinary economic manner, and the property now under consideration is as much the private property of this complainant as are the belongings of any private citizen. *Nor can it be inferred that such government intended to deny the application of economic laws to valuation of increments earned or unearned, while insisting upon the usual results thereof in the case of equally unearned, and possibly unmerited, depreciation.*"

The case of *Joplin and Pittsburgh Ry. Co.* v. *Public Service Commission of Missouri,* 267 Fed. 584, 587, in discussing the proper basis for determining present value, says:

> "It would manifestly be out of place here to disapprove the methods and standards adopted by the commission and its experts; but it may be pointed out that it appears upon the face of the report that great, if not undue emphasis, was laid upon the original cost of the property thus somewhat arbitrarily assigned to intrastate passenger traffic at a period greatly antedating that with which this investigation must deal; nor can we say that the present period of high prices is so temporary or abnormal that it may practically be disregarded in arriving at the value of complainant's properties. No one can say what degree of depression may ultimately come, but it is reasonably certain that the cost of the properties now under consideration will never again approximate figures prevailing in the years before the war."

This case was decided in 1919 and is a very late judicial expression to the effect that present value and original cost have little or no relationship.

In the case of *Public Utilities Commission of Illinois ex rel. City of Springfield* v. *Springfield Gas & Electric Company,* 125 N. E. 891, 902, the Illinois Supreme Court had occasion to pass upon the action of the Public Service Commission of Illinois in valuing a public utility upon the basis of original cost,

less depreciation. The Commission is criticized by the court for the amount of consideration given to original cost, and states with great clearness what it conceives to be the true rule. We quote from the opinion:

> "A fair consideration of the record shows that no element was considered, except the original cost of construction, less depreciation. In this the Commission was in error. A fair present value of a public utility cannot be determined without full and proper consideration being given to the cost to reproduce new. As was said by the Supreme Court of the United States in *Lincoln Gas and Electric Light Company* v. *City of Lincoln,* 250 U. S. 256: 'It is a matter of common knowledge that, owing principally to the world war, the cost of labor and supplies of every kind has greatly advanced since the ordinance was adopted, and largely since this cause was last heard in the court below; and it is equally well known that annual returns upon capital and enterprise the world over have materially increased, so that what would have been a proper rate of return for capital invested in gas plants and similar public utilities a few years ago furnishes no safe criterion for the present or for the future'. The commission must in its final decision in all such cases determine (1) the present value of the property for rate making purposes; (2) the rate of return to which the utility is entitled; and (3) the fair and reasonable rate to be charged for the service."

The court will note that in this case, upon authority of the *Lincoln Gas* case, courts look forward rather than backward to determine the propriety of the use of present prices and conditions in determining fair value.

In the reading of these cases which have been cited, and others to which attention will be called, it must be noted that reproduction cost new, less depreciation, is stated to be the fairest method of determining value, and that present day prices and conditions should prevail in the making of such reproduction cost estimates.

The principle is well expressed in *Consolidated Gas Company* v. *City of New York,* 157 Fed. 849. We quote from page 855 as follows:

> "* * * What the court should ascertain is the 'fair value of the property being used'. *Smythe* v. *Ames,* 169

U. S. at p. 546. The 'present', as compared with 'original' cost; what complainant 'employs for the public convenience' (169 U. S. at p. 547); and it is also the 'value of the property at the time it is being used'. *San Diego Land Co.* v. *National City,* 174 U. S. at p. 757, and see also *Stanislaus Co.* v. *San Joaquin Co.,* 192 U. S. 201. It is impossible to observe this continued use of the present tense in these decisions of the highest court without feeling that the *actual or reproductive value at the time of the inquiry is the first and most important figure to be ascertained,* and these views are amplified by *San Diego Land Co.* v. *Jasper,* 110 Fed. at p. 714, and *Cotting* v. *Kansas City Stock Yards,* 82 Fed. at p. 854, where the subject is more fully discussed."

3.

A review of the cases, beginning with *Smythe* v. *Ames,* demonstrates that cost of reproduction at prices and under conditions as of the date of the inquiry, less depreciation, is the controlling factor, to be considered in determining the value, and that original cost is immaterial, unless incurred under conditions similar to those existing at the date of the inquiry.

A. In the case of *Smythe* v. *Ames,* 169 U. S. 466, the question of the justice or injustice of railroad rates was in issue.

The Legislature of Nebraska had enacted a statute fixing rates, based on a valuation of the railroad made by a State Board. It was necessary for the court to consider the question of value and how value should be determined.

Mr. Justice Harlan in the course of the opinion states the various factors which may be considered in determining value. We quote (p. 546):

> "We hold, however, that the basis of all calculations as to the reasonableness of rates to be charged by a corporation maintaining a highway under legislative sanction must be the fair value of the property being used by it for the convenience of the public. And in order to ascertain that value, the original cost of construction, the amount expended in permanent improvements, the amount and market value of its bonds and stock, *the present as compared with the original cost of construc-*

> *tion,* the probable earning capacity of the property under particular rates prescribed by statute, and the sum required to meet operating expenses are all matters for consideration, and are to be given such weight as may be just and right in each case. We do not say that there may not be other matters to be regarded in estimating the value of the property. What the company is entitled to ask is a fair return upon the value of that which it employs for the public convenience."

Here is an early, perhaps the earliest, judicial expression of the elements which may be considered in determining the fair value of a public utility property.

The opinion, however, quotes with approval the valuation of the railroads made by the State Board, and the opinion further exhibits the method which the State Board did use in finding the value of the property. We quote again from this case (p. 549):

> "After a careful and quite thorough investigation of the question of freight rates in Nebraska, which has occupied much time, and has taken a wide range, the State Board of Transportation has arrived at the conclusion that the rates now in force in this state cannot be generally reduced without doing violence to the business interests of the state, and at the same time injuring the shipping and producing classes. We have come to this conclusion, *not by taking the cost of construction and equipment, nor the amount of stock or bonds used per mile, but by making our computations upon the basis of what it would cost to duplicate the property at the present time.* It has been our endeavor to deal fairly and justly with the question and in arriving at a conclusion we have been governed only by the evidence, statements and facts produced for our consideration."

In this early case, it will be observed, therefore, that the valuation was in fact based upon the cost of reproduction, or duplication method, to the exclusion of some of the factors suggested in the opinion as being proper for consideration.

It is usually recognized that the cost of reproduction method of finding present value had its inception in this case.

The case of *San Diego Land Co.* v. *Jasper,* 189 U. S. 439;

1903, is a case which arose in California, where the question of the value of property devoted to public use was in issue. In this case we begin to observe the elimination by the court of some of the factors named in the *Smythe* case. We quote from the opinion (p. 442):

> "The main object of attack is the valuation of the plant. It no longer is open to dispute that under the constitution 'what the company is entitled to demand, in order that it may have just compensation, is a fair return upon the reasonable value of the property at the time it is being used for the public'. That is decided, and is decided *as against the contention that you are to take the actual cost of the plant, annual depreciation, etc., and to allow a fair profit on that footing over and above expenses.*"

Here we have a direct expression of judicial opinion, that present value is the ultimate fact to be determined, rather than original cost, which may or may not represent present value.

It will be observed in a study of these earlier cases that the factor of original or historical cost was gradually eliminated at the instance and insistence of municipalities rather than the utilities. In many of the earlier cases the original cost, incurred during the period following the Civil War, was higher than the fair value at the date of consideration. The rule of law that the present value, regardless of original cost or value of securities, should be the basis in both sale and rate cases was formulated at the instance of municipalities.

In the case of *Stanislaus Co.* v. *San Joaquin Co.*, 192 U. S. 201 (1904), the proper factors to be taken into account in the valuation of utility property are considered. In this case original cost is practically repudiated as a factor in determining value, and the court declares the principle that a fair return based upon the present value of the property is not confiscatory, notwithstanding the fact that such return may yield a very small per cent. upon the original cost. We quote from the opinion (pp. 213, 214):

> "It is not confiscation, nor a taking of property without due process of law, nor a denial of the equal protection of the laws to fix water rates so as to give an income of 6 per cent. upon the then value fo the property actu-

> ally used for the purpose of supplying water as provided by law. Even though the company had prior thereto been allowed to fix rates that would secure to it 1½ per cent. a month income upon the capital actually invested in the undertaking * * *. There is nothing in the nature of confiscation about it. The original cost may have been too great; mistakes of construction, even though honest, may have been made, which necessarily enhanced the cost. * * * Other circumstances may exist which would show the original rates much too large for fair or reasonable compensation at the present time."

This case quotes with approval the *Smythe* and the *San Diego* cases, and then reiterates the opinion that the reasonable value of the property at the time it was being used in service is the real question for determination.

The case of *City of Knoxville* v. *Knoxville Water Co.*, 212 U. S. 1 (1909), is a leading one on questions of valuation. The evidence was taken by a Master who used as his method of finding the value of the property the cost of reproducing the property at the date of the ordinance, adding thereto a sum which he considered fair for going concern value, but making no subtraction for accrued depreciation. We quote from the opinion showing the method used by the Master in arriving at the value of the property (p. 9):

> "This valuation was determined by the master by ascertaining what it would *cost, at the date of the ordinance, to reproduce the existing plant as a new plant.*"

Mr. Justice Moody in the opinion criticizes this method of finding present value upon the sole ground that the Master failed to subtract from the value thus determined accrued depreciation. We quote further from the opinion (pp. 9, 10):

> *"The cost of reproduction is one way of ascertaining the present value of the plant like that of a water company,* but that test would lead to obviously incorrect results, if the cost of reproduction is not diminished by the depreciation which has come from age and use. * * *"

As shown by the Master's report in this case, the method of valuation insisted upon by the companies in the case at bar

was adopted, except that in the *Knoxville* case no depreciation was charged against the reproduction cost new of the property.

The next case to which we call attention is *Wilcox* v. *Consolidated Gas Company,* 212 U. S. 19 (1909). This case cannot be well understood without considering it in connection with the same case reported as *Consolidated Gas Co.* v. *City of New York,* 157 Fed. 849.

The question under consideration was the value of the property of the Gas Company located in the City of New York. The matter of determining value was referred to a Master. His report was reviewed by the District Judge.

We quote from the language of the opinion concerning the method of valuation adopted by the Master in order to properly understand the language afterwards used by the United States Supreme Court (p. 854):

> *"In every instance, however, the value assigned in the report is what it would cost presently to reproduce each item of property in its present condition and capable of giving service neither better nor worse than it now does.* As to all the items enumerated, therefore, from real estate to meters, inclusive, the complainant demands a fair return upon the reproductive value thereof, which is the same thing as the present value properly considered. To vary this statement: Complainant's arrangement for manufacturing and distributing gas are reported to be worth the amounts above tabulated if disposed of (in commercial parlance) 'as they are'. Upon authority, I consider this method of valuation correct. What the court should ascertain is the 'fair value of the property being used': (Quoting authorities); the 'present' as compared with 'original' costs; what complainant 'employs for the public convenience' (quoting authority); and it is also the 'value of the property at the time it is being used' (quoting authorities). It is impossible to observe this continued use of the present tense in these decisions of the highest court without feeling that the actual or reproductive value at the time of the inquiry, is the first and most important figure to be ascertained, and these views are amplified by (quoting authorities). Upon reason, it seems clear that in solving this equation the plus and minus quantities should be euqally considered, and appreciation and depreciation treated alike. Nor can I conceive of a case to which this

> procedure is more appropriate than the one at bar. The complainant by itself and some of its constituent companies has been continuously engaged in the gas business since 1823. A part of the land in question has been employed in that business for more than two generations, during which time the value of land on Manhattan Island has increased even more rapidly than its population. So likewise the construction expense not only of buildings, but of pipe systems under streets now consisting of continuous sheets of asphalt over granite, has enormously advanced. The value of the investment of any manufacturer in plant, factory or goods, or all three, is what his possessions would sell for upon a fair transfer from a willing vendor to a willing buyer, and it can make no difference that such value is affected by the efforts of himself or others, by whim or fashion, or, (what is really the same thing) by the advance of land values in the opinion of the buying public. It is equally immaterial that such value is affected by difficulties of reproduction. If it be true that a pipe line under the New York of 1907 is worth more than was a pipe line under the city of 1827, then the owner thereof owns that value, and that such advance arose wholly or partly from difficulties of duplication created by the city itself is a matter of no moment. * * * The so-called 'money value' of real or personal property is but a conveniently short method of expressing present potential usefulness, and 'investment' becomes meaningless if construed to mean what the thing invested in cost generations ago. * * * Such business is a living thing, and may flourish or wither, appreciate or depreciate; but, whatever happens, its present usefulness, expressed in financial terms, must be its value."

Here is a plain, clear declaration that the cost of reproduction, at prices and under conditions as of the date of inquiry, less depreciation, is the controlling factor, to be considered in determining value. Original cost is immaterial, unless incurred under conditions similar to those obtaining at date of the inquiry.

The court expressly disposed of the theory that peculiar principles or methods of valuation should be applied to property engaged in the public service, saying at page 856:

> "* * * it is not to be inferred that any American Government intended, when granting a franchise, not

> only to regulate the business transacted thereunder, and reasonably to limit the profits thereof, but to prevent the valuation of purely private property in the ordinary economic manner, and the property now under consideration is as much the private property of this complainant as are the belongings of any private citizen. Nor can it be inferred that such Government intended to deny the application of economic laws to valuation of increments earned or unearned while insisting upon the usual results thereof in the case of equally unearned, and possibly unmerited, depreciation. *I think the method of valuation applied by the report to land, plant, mains, service and meters lawful.*"

This opinion holds, therefore, that there is not one economic law for a water property and another economic law governing the valuation of a farm. It is just as unreasonable and inequitable to value a farm in 1922 at the value which it may have had in 1880 as it is to thus attempt to determine the value of a water plant.

This case came before the Supreme Court of the United States where the action of the lower court in approving the report of the Master was considered. Concerning the action of the court below, Mr. Justice Peckham says (212 U. S. 19) at page 52:

> "And we concur with the court below in holding that the value of the property is to be determined as of the time when the inquiry is made regarding the rates. If the property, which legally enters into the question of rates, has increased in value since it was acquired, the company is entitled to the benefit of such increase."

The Supreme Court does reduce the valuation of certain franchises owned by the company, but as to the real estate and physical property, the views of the lower court are fully concurred in and approved by the Supreme Court.

Here we have many cases holding that the reproduction method under prices as of the date of inquiry is the most equitable method yet found for valuing public utility property. The other factors enumerated in the *Smythe* v. *Ames* case have disappeared. It is not what the property cost; whether that be more or less; it is not the value of the stocks and bonds

outstanding; it is the present value of the property itself which is to be found, and no other method is so satisfactory as is the method of reproduction cost new under conditions and at prices existing at the date of inquiry, less a just subtraction for accrued depreciation, and plus a reasonable allowance for going concern value.

Prior to the rise in prices due to the World War it was firmly established by the decisions of the Supreme Court of the United States that the reproduction cost new less depreciation method of valuing public utility property offered the soundest and fairest standard of measurement.

B. It is now important to discover what effect, if any, the rise in prices has had upon the trend of judicial opinion upon this subject.

It must be remembered that a generation ago utilities were compelled to accept the reproduction cost new less depreciation method of finding value, at a time when original costs incurred following the Civil War were very much higher. Now what have the courts to say concerning the proper method of finding value at a time when the cost of reproduction new, at present prices, is in many instances higher than original cost? The authorities are numerous and consistent.

The case of *Joplin & Pittsburgh Railway Co.* v. *Public Service Commission of the State of Missouri,* U. S. Circuit Court, Eighth District, was decided in 1919 (267 Fed. 584, 587).

Here the court dealt with the action of a Public Service Commission which had refused to accept existing price conditions and had used some method of historical cost, depreciated, to determine a rate base. The Court held this confiscatory. We have already quoted from the opinion disapproving this method (*supra*).

The case of *Public Utilities Commission of Illinois ex rel. City of Springfield* v. *Springfield Gas & Electric Co.,* 125 N. E. 891, was decided in 1920. In an extended opinion in this case the Supreme Court of Illinois reviews the action of the Public Service Commission of that State in using original cost as its method of determining the rate base upon which rates should be predicated, and condemns that method (*supra*).

In a case in the United States District Court, Southern District of New York, *The Consolidated Gas Co.* v. *Charles D. Newton et al.*, 267 Fed. 231, 234, 236, *et seq.*, Judge Learned Hand held that the method of averaging prices over a period of years was wrong in determining the value of the property. We quote from the opinion at considerable length:

> "The defendants wish me for this reason to take an average over the whole period both for the cost of production and capital valuation. Now whatever may be the proper method, that certainly is wrong. The case is not one in which an average can safely be made, because the variations in prices which the whole period covers are not normally recurrent. Averages presuppose that the resulting figure will cover variations, which, though certain or nearly certain within the period taken, are impossible of exact predication in their occurrence. They may, therefore, be spread over a period precisely as an insurance loss is spread. The recent rise in prices is not of this kind, because there is no reason whatever to suppose that during the next period of say five years, which is long enough to justify some present action, the same causes will operate in reverse as have operated in the past. An average would be therefore meaningless. Either the evidence of the last three years is sufficient basis for a forecast, or it is not. If not, *antebellum* values should be used merely for lack of any better; if so, the average of the last three years is the proper basis. * * *
>
> "With deference it appears to me to be merely an abandonment of any attempt to deal intelligibly with the question to say that cost of reproduction and the original cost are each elements to be considered. That statement can mean nothing whatever unless it is accompanied by a constitutive rule which will establish some standard in the ascertainment of which these may be used. *It would be understandable to say that the two estimates should be averaged, but such a rule could obviously command no support, because it would correspond to no relevant considerations of policy. Merely to leave the question with a caution that several elements are to be considered is to abandon any effort to solve it.*
> * * * * * * *
>
> "Moreover, a profit, based upon the enhanced value of the capital, adds nothing in truth at all to the company's wealth. Though its capital be measured in more

dollars and so, too, its profit, that profit is still paid in the fallen dollar and has no greater buying power than it had before. The increased valuation of the capital will for the years of the depreciated dollar, leave the company exactly as it was; it will merely prevent its being compelled to share its putative fair profit with its customers, which by hypothesis it should not be asked to do. The company gains nothing, the customers lose nothing.

* * * * * * *

"There is a natural enough reluctance to a continuous reappraisal of plants, and properly so. It must, of course, appear that the variation in prices is not transitory and the period of probation, before a company is allowed relief, is precisely to insure against that possibility. The chance of loss during that period such companies must endure, and there is an inevitable 'lag' in readjustments in each direction. But once it appears that the new price levels are not transitory, it is no answer to the company's complaint to say that at some future time prices may fall. When that time comes, if it does, the property must again be revalued; but meanwhile they are entitled to some protection, and, since, these have become questions for the courts, to the protection of the courts. * * *

I am, of course, aware that the present cost of a plant, and especially of a putative standard plant, is hard to prove, but that is no answer."

This opinion was approved by the Supreme Court in an opinion handed down by Mr. Justice McReynolds, March 6, 1922 (258 U. S. 165).

The case of *Elizabethtown Gas Light Co.* v. *Board of Public Utility Commissioners,* 111 Atl. 729, 95 N. J. L. 18, was handed down August, 1920. Here the court deals directly with the propriety of using present day prices for determining the value of public utilities in no uncertain terms. We quote from that decision (p. 729):

"I think it entirely clear that the failure to allow for prices at the time to which the rates apply, July 1st, 1919, was an error. It is not denied that prices were very much higher in 1919, and are very much higher now than the average for the years 1911 to 1916. So notorious is this that the Supreme Court of the United

States has referred to it in an opinion as a matter of common knowledge. (*Lincoln Gas Company* v. *Lincoln*, 250 U. S., 256, at page 268). In that case, on its own responsibility, the court suggested that in its opinion the decree ought to be modified to permit the complainant to make another application to the courts for relief. It would be manifestly unjust to apply to a gas company a standard of value different from that applied to others. To what extent the increase in prices may be due to inflation of the currency, or to any particular cause, we do not know. What we do know is that the dollar of 1919 and the dollar of 1920 is worth less than the dollar of 1916 and still less compared with the dollar of the average year from 1911 to 1916. If it were proposed to value the property of the gas company in one hundred cent dollars and allow them a return only on that, while other values were on the basis of fifty cent dollars and just double in number, everyone would see the injustice; so far as the increase in prices is due to inflation of the currency the illustration is a perfect one. There is another consideration which has also worked against the gas light company. In the year 1919 the rate of interest had increased so that on securities of undoubted value, such as United States Government bonds, the rate of interest, instead of being 3 per cent or perhaps less, has gone up to the neighborhood of 6 per cent. Obviously, in such a situation an 8 per cent return in an active business in which the risks and hazards had been increased, was much less than a rate of 8 per cent in 1913 when the *Passaic* case was decided. No allowance seems to have been made for this increase in the rate of interest. It is attempted to justify the scaling down of valuation and return to the gas company, upon the theory that its invested capital was small, but the par value of the stock and the par value of the outstanding bonds by no means measures the investment in a plant that has been built up through sixty years of successful management by reinvesting in the property much of the income and thus increasing the capacity of the prosecutors to render the public service which they were incorporated to render. This suffices to show that the amount of return allowed to the companies would probably be insufficient under present circumstances to attract capital to the business, and this was one of the important tests of the justice and reasonableness of the rate as decided in the *Passaic* case."

In the case of *St. Joseph Railway, Light, Heat & Power Co.* v. *Public Service Commission* (268 Fed. 267, 269) the Railway Company applied for an injunction to restrain the Public Service Commission of Missouri from enforcing a street car fare theretofore made by that body. The question involved was one of property valuation; the Company contending for reproduction cost; the Commission for historical cost or for averaged pre-war prices. We quote from the opinion of Judge Van Valkenburgh:

> "It is my judgment that the great weight of authority is against the adoption of a standard of original cost as a controlling basis for determining present value. The present fair value is the object to be attained. Nor do I think it permissible, substantially, to restrict the inquiry to a period antedating present cost prices. In *Joplin & P. R. Co.* v. *Public Service Commission,* 267 Fed. 584, in this same division of this Court, before Stone, Circuit Judge, Wade, District Judge, and the writer of the opinion we said:
>
> "'It appears upon the face of the report (of the Commission) that great, if not undue, emphasis was laid upon the original cost of the property * * * at a period greatly antedating that with which this investigation must deal; nor can we say that the present period of high prices is so temporary or abnormal that it may practically be disregarded in arriving at the value of complainant's properties. No one can say what degree of depression may ultimately come, but it is reasonably certain that the cost of the property now under consideration will never again approximate figures prevailing in the years before the World War' * * *
>
> "In the very recent case of *United States ex rel. Kansas City Southern R. R. Co.* v. *Interstate Commerce Commission,* 252 U. S. 178, it appears that Congress has given legislative recognition to this same principle, and the court ordered the Commission to make its valuation in compliance with the act of Congress. While the decision in that case was predicated upon the express provisions of the act, nevertheless we find in it a recognition, both by Congress and by that Court, of the necessity of adapting the standard of rate making bodies to conditions existing at the time the power is to be exercised.
>
> "It follows that the method of valuation adopted by

> the Commission in the case at bar was wrong, and that the resulting computation necessarily reduced the total valuation of complainant's property so substantially as to make the rates based thereon inadequate and practically confiscatory. * * *"

The case of *Landon et al.* v. *Court of Industrial Relations of the State of Kansas, et al.* (269 Fed. 433, 443) Judge Booth, in discussing the method of valuation used, says in the course of the opinion:

> "* * * It is not the province of this court to determine what valuation should be placed upon the property of the Wyandotte County Gas Co., but it should be pointed out that the method used by the Engineer of the Court of Industrial Relations in arriving at his figures is not the method generally approved, either by the Federal Courts in this circuit or elsewhere. The controlling basis of his valuation is original cost less theoretical accrued depreciation. * * *
>
> "It seems from the evidence that the Court of Industrial Relations, in determining what would be a reasonable rate, based its computation upon valuations arrived at by a wrong method, which was sure to result in figures far below fair present value. Rates based upon such valuations would almost certainly be non-compensatory and practically confiscatory.
>
> "While, as stated before, it is not the province of this court to fix the valuation, yet it may not be amiss to say that in my judgment cost of reproduction new, at the present time and at prevailing prices, should not be rejected, but carefully considered, together with the other elements, in reaching a 'reasonable judgment, having its basis in a proper consideration of all relevant facts'."

The case of *Alton Water Company* v. *Illinois Commerce Commission, et al.*, decided April 10, 1922 (279 Fed. 869), was a suit for injunction by the Alton Water Company against the Illinois Commerce Commission, whereby the Water Company sought to enjoin the Commission from its action in suspending a new schedule of rates proposed by the Water Company.

The adjudication of the question presented turned upon two points: (*a*) Did the Commission have power to indefinitely

suspend a schedule of rates proposed by a public utility; (*b*) Should the property value be based upon original or historical cost, or present value.

The present fair cash value of the property was found to be $1,177,935. The Commission found that the original cost of the property was $538,196. Upon the question of correct method of valuation the Court, in the opinion, page 872, says:

> "A material question sought to be developed on the hearing by the defendants was that there was a vast difference between the original or historical cost of the complainant's property and its fair present value as a going concern. * * *
>
> "The Illinois Supreme Court in construing the Utility Commission Act has followed the United States Supreme Court in holding that the fair present value of a utility property as a going business must be considered in determining fair and reasonable rates (citing numerous authorities). Original investment of actual cost could have no great bearing upon the question of rates unless the actual cost was incurred under conditions and prices which are substantially the same as conditions and prices prevailing at the date of the inquiry (citing numerous authorities)."

In its discussion of this case the Court makes the important point that if a valuation is made at a time when prices are high the power of the State to regulate rates is continuous, and should prices become lower, the State, in the exercise of its policy power, has continuous opportunity to revise and lower rates to meet a changed economic condition.

We quote further from the opinion (p. 873):

> "In determining the present value of the water company's property as a going concern, it is probable that the high prices of labor, material and supplies incident to the extraordinary economic situation existing throughout the country during the years 1919 and 1920 were reflected to a certain extent in the survey and appraisement of the Complainant's engineers. This, to the extent that the Commission hereafter in determining the reasonableness of rates then being or to be charged by the complainant, should be given consideration."

The case of *Potomac Electric Power Co. et al.* v. *Public Utilities Commission of the District of Columbia, et al.* (276 Fed. 327), decided November 7, 1921, is an important contribution to the law upon the subject of valuation. The Public Utilities Commission of the District of Columbia valued the property. They made their valuation by taking as a base the fair value of the property as of July 1, 1914. The Commission then added the net additional expenditures on the property subsequent to that date, but entirely ignored the evidence as to the increase in the value of the property forming the basis of the valuation of July 1, 1914.

The Commission in its report used the following language (p. 329):

> "Claims by the company for greater allowances in the reproduction estimate of the physical property were based largely upon the difference in prices created by extraordinary conditions which arose subsequent to July 1, 1914."

In the opinion upon this question the Court says (p. 329):

> "The trial court was of the view that the rule adopted by the Commission was correct. We are unable to concur in that view.
>
> "The principal object of valuation, of course, is to provide a rate base, and the statute clearly contemplates that the Commission shall ascertain the value as of 'the time of said valuation', and not as of some anterior date. It has been ruled many times that there must be a fair return to a public utility 'upon the reasonable value of the property at the time it is being used for the public', *San Diego Land & Town Co.* v. *National City,* 174 U. S. 739, 757; *Minnesota Rate Cases,* 230 U. S. 352, 434. In the present case the Commission, in effect, declined to find the present value of the property because not satisfied as to how long existing conditions would continue. In assuming this position the Commission must have overlooked paragraph 9 of the statute, authorizing it at any time, of its own initiative, to make a revaluation of the property of any public utility. In our view, it was the duty of the Commission to have considered and given due weight to the evidence as to the then value of the property. As conditions changed and values were substantially affected, it would

have been the further duty of the Commission to exercise its discretion and revalue the property. The conditions existing were world wide, and, while their duration and future effect were problematical, there was no immediate prospect of a return to normal conditions. It may be suggested, although the point was not raised in the opinion of the Commission, that practical difficulties would have been encountered in an attempt to ascertain the increase in value of the property between July 1, 1914, and December 31, 1916. But there was substantial evidence before the Commission as to the rise in values, and a brief investigation would have enabled the Commission to determine, with substantial accuracy, how much in fairness should be added to the earlier valuation.

"Much reliance was placed by the trial court upon the language of former Justice Hughes, as referee, in the case of *Brooklyn Borough Gas Co.* v. *Public Service Commission* (July 24, 1918), but we find nothing in the report, as we read it, justifying the action of the Commission here in entirely ignoring the evidence as to value at the time the finding actually was made. The contention there was that the rates should be based 'upon a plant valuation simply representing a hypothetical cost of reproduction' at a time of abnormally high prices due to exceptional conditions. There is a very substantial difference between considering the present cost of reproduction as one of the essential and important elements in the determination of present value, and the acceptance, as conclusive evidence of such value, of mere expert estimates of present cost of reproduction.

"We are of the view, therefore, that the present cost of reproduction is one of the necessary elements for consideration, along with other relevant facts, in fixing the fair and reasonable value of the property. The law deals with existing conditions and not with abstract theories.

"It follows that the decree must be reversed. and the cause remanded for further proceedings not inconsistent with this opinion."

The case of *Galveston Electric Company* v. *City of Galveston, et al.,* was decided by Judge Hutcheson in the United States District Court (272 Fed. 147), and affirmed Apr. 10, 1922, upon appeal to the United States Supreme Court (258 U. S. 388).

The value of the property was an important feature of the case and the valuation of the property was based upon the reproduction cost new less depreciation method, arrived at, however, according to a method not usually adopted.

The testimony in this case was taken at a time when war prices were at their peak in the summer of 1920. The case was decided at a later period when prices were rapidly declining from the peak which existed at the time of the taking of the testimony before the master. The municipality contended that the historical cost less a subtraction for depreciation should be taken as a rate base. The utility contended that to the agreed historical cost should be applied a fair factor to bring the valuation in line with the existing price conditions. The master arrived at his rate base by adding 33⅓% to the agreed historical cost, and the action of the master in thus arriving at present day value was approved by the District Judge and the Supreme Court of the United States.

The language used by the District Judge with reference to price conditions which obtained at the time of this valuation has, we think, great force in support of our position. We quote from pages 156, 157, of the opinion:

> "It was the view of the master, and I adopt it, that the prices obtaining at the time of the valuation were transitory, or, to use the language of the Supreme Court in the *Lincoln* case, it was his view that they were not 'likely to continue thereafter'. It was his view, and I concur with him, that a price level of about one-third above the agreed cost submitted to him could reasonably be assumed to have sufficient permanency to base a finding on.
>
> "The Supreme Court has, in 1919, stated that it was a matter of common knowledge that costs of labor and supplies of every kind have greatly advanced. I think it is equally a matter of common knowledge that all of these costs are on the decline, and just as in the last half of 1919 and the first half of 1920 the phenomenon of higher and yet higher prices was of worldwide scope and universal experience, now the phenomenon of lowering and ever lowering prices is equally manifest.
>
> "In the hearing before me supplementary to that before the master, the evidence as to price trends was marked. Indices on commodity prices furnished by the

> Bureau of Labor Statistics showed a decline from September, 1920, which were the figures obtainable when the master made his report, from 250 to 189 on all commodities, with an accelerating drop for each ensuing month, and the testimony sustained this view. Since that time, the current financial news of the world, which I think is a matter which this court can take judicial knowledge of, as shown in standard financial publications, is to the effect that the process of deflation has not been completed; that there are still many channels in which the price reductions recorded are inadequate to meet the requirements for a return to stable conditions; that these reductions are not only coming in materials, but necessarily in the labor which enters into their production, increased and hastened by the great increase in unemployment, the shutting down of plants, and the resumption of such as do resume on wage reductions."

In the *Galveston* case the testimony was taken, as we have said, at a time when prices were at their very peak. The decision was rendered February 10, 1921, at a time when prices were rapidly declining from their peak. The Court declined to accept the extreme peak prices upon the ground that they were fugitive and transitory and not likely to continue thereafter, but did accept and approve a price level which was more consistent with the view of the Court as being likely to continue thereafter.

In fact the prices actually taken by the master and approved by the Court were about those which were current at the date of the decision.

We do not understand that the Court in the *Galveston* case intended that the value of a public utility property could always be obtained by adding 33⅓% to its original or historical cost. Conditions, since the decision of the District Court was rendered in the *Galveston* case, have materially changed and the evidence in this case shows that the prices as of January 1, 1922, more than three years after the end of the World War, were lower than at any time since. In short, the "process of deflation", referred to by the Court, has been completed and conditions have become stable.

We submit that the *Galveston* Case fully sustains our views, that the reproduction cost at prices prevailing January

1, 1922, less accrued depreciation, will result in finding the minimum fair present value of the property for rate making purposes.

The views stated in the cases heretofore cited are strongly re-enforced by the language of the Supreme Court of the United States, in the case of *Lincoln Gas Company* v. *Lincoln* (250 U. S. 256). The Court said, at page 268:

> "In our opinion the decree ought to be modified so as to permit complainant to make another application to the courts for relief against the operation of the ordinance hereafter, if it can show, as result of its practical test of the dollar rate since May 1, 1915, or upon evidence respecting values, costs of operation, and the current rates of return upon capital as they stand at the time of bringing suit and are likely to continue thereafter, that the rate ordinance is confiscatory in its effect under the new conditions. It is a matter of common knowledge that, owing principally to the world war, the costs of labor and supplies of every kind have greatly advanced since the ordinance was adopted, and largely since this cause was last heard in the court below. And it is equally well known that annual returns upon capital and enterprise the world over have materially increased, so that what would have been a proper rate of return for capital invested in gas plants and similar public utilities a few years ago furnishes no safe criterion for the present or for the future."

The recent case of *Petersburg Gas Co.* v. *City of Petersburg* (Sup. Ct. of Appeals of Va.) (110 S. E. 533), contains an excellent expression of judicial opinion upon the method of finding fair value. This case is quoted with approval in the *Minneapolis Gas Light* case (*infra,* p. 43). In this case the Corporation Commission of Virginia, in the valuation of the utility property, took the historic, or investment cost of the property as a rate base, and upon appeal to the Virginia Supreme Court of Appeals, that Court took occasion to discuss the cases upon the subject, nearly all of which have been cited in this brief. The Court expressly condemns the use of pre-war prices in determining present reproduction cost of the property of the Petersburg Gas Company, and holds that the present era of prices are not "abnormal" and that a sufficient length of time,

during which high prices have been in effect, has elapsed to furnish a basis of calculating reproduction cost upon that level. The opinion is too long to quote at length, but the following language very well expresses the mind of the Court (p. 538):

> "Three years have elapsed since the close of the war, and neither labor nor materials have declined to anything like pre-war prices. When, if ever, they will, no one can foretell. It would seem that time enough had elapsed to furnish a basis for calculating reproduction costs."

The latest expression of the United States Courts upon this subject, which we have found, is the case of *City of Minneapolis* v. *Alonzo T. Rand, et al., Receivers of Minneapolis Gas Light Co.,* decided in the United States Circuit Court of Appeals, 8th District, in the December Term, 1923 (285 Fed. 818).

In this case and the other cases which are joined for appeal and judgment, the question at issue was that of fair value and fair rate of return to apply to the years 1920 to 1923, inclusive. These questions were referred to a master. It appears from the opinion that the master ascertained the value of the property by taking the present agreed value of the real estate and the approximate investment cost of the other physical property, and adding 25% thereto, after subtracting for depreciation.

The Court, after referring to the master's discussion of the difficulties of applying the then prevailing prices to the property to ascertain its value, remarks:

> "The difficulties of the situation thus pointed out by the master are obvious, but the every-day transactions of business are founded upon values existing at the time of the transactions. In valuations of public utilities, there has been some doubt expressed by courts and commissions having the duty in charge, as to what importance is to be given to prices as affected by conditions resulting from the war, as may be seen in a review of many cases in a note to *Petersburg Gas Co.* v. *City of Petersburg,* 2 A. L. R. 542, but the rule established by the decisions of the Supreme Court of the United States, which have been cited, is that the fair value at the time in question must be taken, and this rule has been applied, although the war and its results have advanced prices far beyond the ordinary prices existing before the war."

The Court also emphasizes the fact that the fair value at the time of the inquiry should be taken, consideration, however, being given to probable future price trends for a reasonable period. We quote again from the opinion:

> "The gas company is entitled to the fair value of its property, even though that value has been increased as a result of the war, just as the laborer, the merchant, the manufacturer, the owner of land and the lender of money may require the prevailing prices for what they furnish. We recognize the practical difficulty in fixing this fair value to apply to the years 1920 to 1923 inclusive, if occasion requires the valuation to continue so long, inasmuch as the value fixed by the witnesses as fair for January 1, 1920, may prove not to be the fair price thereafter. The valuation to be made is in part based upon experience and observed prices and in part upon prophecy of the range of prices for several years thereafter. We are authorized to take notice that no marked rescession of prices has taken place since the time this case was heard by the master and that there is no present appearance of an assured reduction."

The Court concluded that the master's increase of the undepreciated cost price by 25% was too low, and that the undepreciated valuation of the physical property should have been determined by adding 50% to the approximate investment cost.

Bluefield Water Works & Improvement Co. v. *Public Service Commission of West Virginia,* United States Supreme Court, decided June 11, 1923.

In that case the Supreme Court held confiscatory an order of the West Virginia Commission because proper consideration had not been given to the higher cost of construction in 1920 over that of 1915 and before the War; and held that the tribunal below had failed to give due weight to the cost of reproduction less depreciation on the basis of 1920 prices, or to the testimony of the Company's valuation engineer based on present and past cost of construction.

Missouri ex rel. Southwestern Bell Telephone Co. v. *Public Service Commission,* decided May 21, 1923, not yet officially reported, P. U. R. 1923-C, 193; 67 Law Ed. 619.

In that case the Supreme Court of the United States held confiscatory a valuation of the Missouri Commission, because that Commission failed to allow for this change in the level of values. The valuation of the Commission in the case last mentioned was $20,400,000, which included going value (or value of the established business) of some $5,000,000 over and above the total plant and equipment, that is to say, over and above the depreciable property. The Supreme Court of the United States added 25% to the Commission's valuation for underestimate of the depreciable property. The court said:

> "Obviously, the Commission undertook to value the property without according any weight to the greatly enhanced costs of material, labor, supplies, etc., over those prevailing in 1913, 1914 and 1916. As matter of common knowledge, these increases were large. Competent witnesses estimated them as 45 to 50 per centum.
>
> "In *Wilcox* v. *Consolidated Gas Co.,* 212 U. S. 19, 41, 52, this court said:
>
> > " 'There must be a fair return upon the reasonable value of the property at the time it is being used for the public. * * * And we concur with the court below in holding that the value of the property is to be determined as of the time when the inquiry is made regarding the rates. If the property, which legally enters into the consideration of the question of rates, has increased in value since it was acquired, the company is entitled to the benefit of such increase.' "
>
> "In *The Minnesota Rate Cases,* 230 U. S., 352, 454, this was said:
>
> > " 'The making of a just return for the use of the property involves the recognition of its fair value if it be more than its cost. The property is held in private ownership and it is that property, and not the original cost of it, of which the owner may not be deprived without due process of law.'
>
> "See also *Denver* v. *Denver Union Water Co.,* 246 U. S. 178, 191; *Newton* v. *Consolidated Gas Co. of New York,* 258 U. S. 165 (March 6, 1922), and *Galveston*

Electric Co. v. *City of Galveston,* 258 U. S. 388 (April 10, 1922).

"It is impossible to ascertain what will amount to a fair return upon properties devoted to public service without giving consideration to the cost of labor, supplies, etc., at the time the investigation is made. An honest and intelligent forecast of probable future values made upon a view of all the relevant circumstances is essential. If the highly important element of present costs is wholly disregarded such a forecast becomes impossible. Estimates for tomorrow cannot ignore prices of today."

In addition, see the following recent cases not yet reported:

Elizabeth vs. *Elizabethtown Water Company,* affirmed by this court January, 1924.

In this case the appraisal of the Commission was affirmed by the court. It was based on a reproduction appraisal with an addition for appreciation to cover the increase in the level of prices. It also included 10% for going value.

Public Service Railway Company v. *Board of Public Utility Commissioners,* United States District Court, District of New Jersey, Master's Report, June, 1923.

In this case the Master adopted as the fair value of the property the "cost of reproduction new less depreciation at substantially present prices".

New York & Queens County Gas Company v. *New York Public Service Commission,* United States District Court, Southern District of New York, February, 1924.

Pennsylvania Gas Company v. *Public Service Commission of Pennsylvania and City of Erie,* Supreme Court of Pennsylvania, January 7, 1924.

In this case the Supreme Court of Pennsylvania criticized Justice Brandeis' "prudent investment theory", and held that present value, being the "basis on which all bargains and sales are conducted, from the purchase of the smallest article to the sale of gigantic steel mills", was the proper criterion, and used reproduction new less depreciation at current prices.

Mobile Gas Company v. *Alabama Public Service Commission*, District Court of the United States, Middle District of Alabama, October 31, 1923.

In that case the court said, as to historical cost:

> "I am constrained to believe that the light which it throws upon the subject is uncertain and would alone constitute but an unsafe guide."

Arkansaw Water Company v. *City of Little Rock*, United States District Court, for the Eastern District of Arkansas, July 11, 1923.

In this case the court adopted the value found by the Master, which was reproduction new at current prices prevailing in 1922. The discussion in this case is particularly illuminating.

> "The actual investment theory cannot be applied to fixing the value of property of public utilities. The value of such property must rise or fall as the purchasing power of the dollar rises or falls. The value of the Arkansaw Water Company's plant for rate-making purposes is the present reproduction cost new, less a proper amount for accrued depreciation.
>
> "Those cases which appeared to adopt a different rule did so upon the theory that prices were abnormally high and would greatly decline during the period for which the rates were being established. The difficulty in many cases has been to fix the cost of reproduction new as affected by the trend of prices for the period to be covered by the rates. All hold the present value is the value to be found, but that, since much of the evidence is speculative or prophetic, great latitude should be allowed the investigator.
>
> "The speculative nature of the evidence of present reproduction cost new in some cases has led to a consideration of various other means and methods of arriving at the present value of utility property, but the fact that the present reproduction cost new, less depreciation, is difficult to ascertain in some cases does not make it necessary to abandon that theory in a case where such cost can be ascertained with a reasonable degree of certainty. If the prices of labor and materials are fairly stable and cannot be expected to decline materially for

some time to come, the present cost of reproduction new is 'the present fair value' of the property and should be used as a rate base.

"I believe that the prices of labor and materials prevailing as of January 1, 1922, are prices which may reasonably be expected to continue for sometime in the future, and that the reproduction cost new of the property of the Arkansaw Water Company as of that date, less accrued depreciation, will give a correct rate base or present fair value for determining whether the rates sought to be enjoined are confiscatory.

"To fix a valuation as of pre-war time when a dollar, measured by what it would buy, was worth much more than now, and allow only the present prevailing rate of income upon such valuation, is in effect to confiscate plaintiff's property when we know, in fact, that all other property has increased in value when measured in dollars. Plaintiff's property, when measured in dollars, would be the same as it was before the war but, when measured in the amount of other commodities for which it could be exchanged, it would be depreciated. Its income would buy much less cotton or labor than its income did in 1913.

"It is my conclusion of law that the value of the property of the Water Company, used and useful in serving the public in Little Rock and North Little Rock, is properly found by finding the present cost of reproduction new of its property, less accrued depreciation. I think this principle is supported by all the decisions of the United States Supreme Court, from *Smythe* v. *Ames*, 169 U. S. 466, to the latest decisions upon this subject."

From all the foregoing cases, it is clear that the Supreme Court, having determined in *Smythe* v. *Ames, supra*, that present value must be the basis of rates, has consistently adhered to that doctrine, even unto the last case which has come before it. It is also clear that in many well-reasoned authoritative cases, the courts have determined that the safest method of ascertaining "present value" is by the reproduction new less depreciation method. On these decisions capital has been invested and rates have been fixed for almost half a century in all parts of the country. This method has been used when prices were falling and the method apparently reacted against the

interests of the corporations, as well as when prices were rising and the method enured to their benefit.

No other method has been devised which has satisfied the courts as being as reliable or safe a criterion of value. The Supreme Court has not held that no other method could be used, but it has, in many cases, expressly held that other methods suggested in *Smythe* v. *Ames,* were not available under the circumstances, because the prices and other conditions had so changed that those methods would not be competent evidence. This is especially true with respect to cost and the historical cost method of appraisal.

4.

In fact, the Supreme Court of the United States has, in affirming the case of *Des Moines Gas Company* v. *Des Moines,* 238 U. S. 153 (1915) expressly approved, a holding that the historical cost method was not competent evidence of value.

In the case last mentioned the report was made by Judge Robert Sloane as Master. The case introduced some confusion which has since been settled by many later decisions. This confusion related to going value and is not material to the point we are now discussing. In that case the Master, whose appraisal was approved by the court, used the reproduction method of valuing the property, and held that historical cost was not competent evidence.

We quote a portion of the Master's report, as reported in the opinion of the Supreme Court (p. 168):

> "It is through this method (reproduction estimate) we reach the present value of this plant new, and then when it is properly depreciated, according to the condition, life and age of its various parts, we reach the present value of the plant in its present condition. It is not a perfect method, but it is the best method therefor and results as nearly as possible in giving the present value of the plant. *No other method known has proved so satisfactory.*"

The Master in the *Des Moines* case had before him an estimate made by the same witness who appeared before the Board in the case at bar, Dr. Edward W. Bemis, who, in the *Des Moines*

case, gave similar testimony to that which he gave in the case at bar. Concerning his testimony the Master in the *Des Moines* case said (Volume I, Record, p. 67):

> "There are very few men who through investigation have gained more information in relation to the operation of public utilities of the character in question than Prof. E. W. Bemis, and he is an experienced man in water works. He is undoubtedly a very valuable man to assist in the case like the one at bar, *but he is not a qualified expert upon values.*" (Italics ours.)

After further discussion of Dr. Bemis' testimony, the court said in regard to his estimate in reference to value:

> "In my judgment he is not a competent witness thereon, and hence not considered upon that question."

POINT III.

There was no evidence to sustain the finding of value made by the Board and affirmed by the Supreme Court.

Three witnesses testified as to value. The Company called Mr. Leonard Metcalf and Mr. N. S. Hill, who had made the appraisals, and testified as to the present fair value of the property. This was the only evidence on present fair value of the property.

The Cities called Dr. Edward W. Bemis as a witness on their behalf. Dr. Bemis did not attempt to make an appraisal of the property. He submitted two Exhibits, R-1 and R-3, which did not purport to be present fair value. Dr. Bemis stated with reference to Exhibit R-3:

> "I am not giving you in this report a fair value" (p. 530).

What he said in regard to Exhibit R-3 is equally true as to Exhibit R-1. The latter purports to be an estimate of "historical cost" (p. 1246). It omits many items which must be included to give historical cost (Mathews, pp. 596-656, inc.),

and further deducted an arbitrary and theoretical depreciation from every item.

The two appraisals of present value were respectively as follows:

Mr. Metcalf appraised the property as of December 31, 1920, at $14,144,000; Mr. Hill, as of the same date, at $13,000,000. The Board made certain adjustments to these reports by deducting property that had been sold or was disallowed by the Board as being not yet used or useful. Their appraisals, as readjusted, are thus stated by the Board (p. 31):

Metcalf's valuation, as adjusted, Appendix A, page 53, line 10	$14,110,460
Hill's valuation, as adjusted, Appendix B, page 54, line 32	$12,961,559

These two appraisals were amply sustained by testimony of the two engineers, and their supporting data, and included all the elements of value, tabulated in the method approved by the courts in the vast number of cases in which values have been determined in rate cases. The two appendices to the Board's report contain accurate summaries of these two valuations.

The valuation which the Board found and which the court below affirmed is a lump sum of $11,500,000. The Board did not state what elements were excluded in reaching this sum, and it is impossible to determine from an examination of the report how the figure was arrived at.

The inventory made by Mr. Metcalf, and used by both him and Mr. Hill, was not disputed. The land values used by Mr. Metcalf and Mr. Hill were accepted by the cities. There was no serious dispute as to the water diversion rights, and the court below has held that the Board included these rights at the full value taken by Mr. Hill in his report, which was the cost thereof. There was no dispute as to the working capital in the form of materials and supplies. There was no dispute as to the amount of cash working capital, although the Cities claimed it should not be included. There was no conflict of testimony as to the going value, though Mr. Hill appraised this item at less than Mr. Metcalf did.

Dr. Bemis, for the Cities, contended that no allowance should be made for this item.

The court below held that the Board did include this item of value and that it should be included is settled beyond controversy by many decisions.

As to the structural items, it was admitted that there was an increase in the level of prices. That this increase amounted to 40% above pre-war levels, was established by Exhibits P-3-A (p. 868 and Fig. 1, facing p. 870) and Exhibit P-6 (pp. 998 and 999). There was no evidence to contradict this.

If, therefore, all these elements of value were proper to be included in the fair value of the property, the appraisals of Mr. Hill and Mr. Metcalf establish that the value of the property was in excess of $11,500,000, namely, at least $12,927,000.

Obviously, therefore, the Board's finding of $11,500,000 omits some elements of value.

The only matter admitted in evidence which could account for this difference between the finding of the Board and the appraisals of fair present value were the exhibits of Dr. Bemis. As we have above pointed out, neither of these exhibits was, or purported to be, fair present value.

The Board made certain adjustments in Exhibit R-3 of Dr. Bemis, and pointed out that neither of his estimates of historical cost included *going value,* or anything for *appreciation in values* due to the increase in price levels. (See decision of the Board, p. 29, lines 2 and 3.)

As pointed out in the preceding point, the decisions establish that historical cost estimates, without these two elements of value which are essential to translate them into conditions and prices prevailing at the time of the inquiry, are not evidence of value.

In the *Elizabethtown Water Company* case, affirmed by this court at the last Term, but not yet reported, the appraisal included an addition for appreciation and 10% for going value.

Notwithstanding this, the Board accepted those estimates of Dr. Bemis and used them as the basis of their finding. (See decision of the Board, p. 32, lines 1 and 2.)

If it were desired to use Dr. Bemis' estimates as a check on the appraisals of present value, it would be necessary to

add thereto an item to cover appreciation and an item for going value.

As to the item of going value, the least that should be added is $1,500,000, as established by the evidence in the case. Both Mr. Metcalf and Mr. Hill gave carefully-reasoned opinions as to the value of this element of these properties (Metcalf, pp. 202 to 216, Exhibits P-3-A, p. 894, and p. 25, and pp. 712 to 718, Exhibit P-33; Hill, p. 256, Exhibit P-6, Star paging 20 to 31). Mr. Hill appraised this element at $1,150,000; Mr. Metcalf at $2,062,000 (Decision, p. 26).

Dr. Bemis gave no estimate of going value, but claimed that it should be entirely excluded. He did exclude it (p. 29).

In 1912 the State Board of Appraisers, who appraised the then properties of these Companies, fixed this element of value at $1,200,000 (see Decision, p. 25).

As has been frequently pointed out, the decisions of the Boards in water cases have allowed for going concern value from 10% to 12% of the value of the physical properties.

In the *Elizabethtown Water* Case, *supra,* 10% was used.

Water Cases.

	Going Value Allowance
Gloucester Water Supply Co. *v.* Gloucester, 179 Mass. 365, 384 (1908)	14.3%
Galena Water Co. *v.* Galena (Kansas), 87 Pac. 735 (1906)	25 %
Newburyport Water Co. *v.* Newburyport, 168 Mass. 541, 555 (1907)	17 %
National Water Works *v.* Kansas City, 62 Fed. 853 (1894)	17.8%
C. H. Venner *v.* Urbana Water Works, 174 Fed. 349 (1909)	16.3%
Des Moines Water Co. *v.* Des Moines, 192 Fed. 193, 197 (1911)	10 %
Omaha *v.* Omaha Water Co., 218 U. S. 180 (1910)	9.9%
Knoxville *v.* Knoxville Water Co., 212 U. S. 1 (1908)	11.1%
Denves *v.* Denver Union Water Co., 246 U. S. 178 (1918)	7.5%
Hill *v.* Antigo Water Co., 3 Wis. R. Com. Rep. 623 (1909)	10.2%

	Going Value Allowance
Fond du Lac Water Company, 5 Wis. R. Com. Rep. 482 (1912)	12.1%
Chicago *v.* E. Chicago & Indiana Water Co., P. U. R. 1922-A, 193, 213 (1922)	9.4%
Indianapolis Water Co.—Rate—Indianapolis Commission, January 2, 1923, not yet reported	9.5%
Public Service Gas Co. *v.* Board, 84 N. J. Law, 463, affirmed 87 N. J. Law, 581	27.9%
Pioneer Telephone Co. *v.* Westenhaven, 29 Okla. 429; 118 Pac. 354	20 %
People *v.* Willcox, 141 N. Y. Supp. 681, affirmed 210 N. Y. 479	30 %
Bonbright *v.* Geary, 210 Fed. 44, 51-54	30 %
Love *v.* Atchison, T. & S. F. Ry. Co., 177 Fed. 493, 496; affirmed 185 Fed. 321.	
Metropolitan Trust Co. *v.* Houston, etc. R. R., 90 Fed. 683, 687.	

The value of this item should, therefore, have been from $1,510,000 to $2,062,000. The Company, in testing the fairness of its own rate, took Mr. Hill's figure as being the minimum.

We therefore take the minimum of $1,510,000, as the amount to be added to Dr. Bemis' estimates as the amount of going value.

In order to test the fair present value of the property by Dr. Bemis' exhibit, we would therefore have to add this amount thereto. His estimate, Exhibit R-3, as adjusted by the Board in Appendix D (p. 61), without any item for appreciation or going value, is $10,249,230. Adding to this $1,500,000 for going value, we have $11,749.230. This corresponds very closely with the value found by the Board. It omits entirely any allowance for the appreciation of the property installed prior to 1912, or any increase in value of structural items for the increase in the level of prices.

To it must be added an item to cover this element of value.

The least which should be added for appreciation is $2,457,571, because the testimony shows that the present level of prices is 40% higher than pre-war costs. Exhibit R-3 of Dr. Bemis contains a statement showing that the amount of physi-

cal property, exclusive of land owned in 1912, valued at prices as of that date, was $6,143,928, made up as follows:

Page 1311, line 13, as of December 31, 1912, Page 1311, line 14, Structures		$6,991,717
Deductions are claimed as follows:		
Page 1312, line 25, Bond Discount	$475,990	
Page 1315, line 12, Paving over Mains	259,667	
Page 1315, line 31, Disused Property	112,132	847,789
Net Structures still in use as of 1912 prices		$6,143,928

40% of $6,143,928 is $2,457,571.

In order to test the fair present value of the property by Dr. Bemis' exhibit, we therefore would have the following:

Dr. Bemis' estimate, Exhibit R-3, as adjusted by the Board, in Appendix D, page 61, but without any item for appreciation or going value		$10,249,230
Additions:		
Appreciation of 40% on property installed prior to 1912 (see above)		2,457,571
Going value, taking the minimum established by the evidence (see above)		1,510,000
Making a total fair value of		$14,210,801
The same adjustment made to Bemis' Exhibit R-1, would be $483,658 less (p. 61, line 29), or		$13,727,143

Thus instead of the table on page 31 of the Board's decision we have the following comparison of present values:

Metcalf's valuation as adjusted	$14,110,460
Hill's valuations as adjusted	12,927,000
Bemis' valuation based on 1912 appraisal, adjusted by the Board (Appendix D) plus appreciation and going value	14,210,801
Bemis' Historical Cost, as adjusted in the same way	13,727,143

This clearly demonstrates that the Board's valuation of $11,500,000 is too low, and is arrived at by omitting essential elements of value as shown by the evidence in this case.

The Board's valuation is at least $1,500,000 less than that

established by the evidence. Two elements of value correspond to this amount. Going value, $1,500,000 (see above); water rights, $1,533,822 (Metcalf, pp. 216 to 227, Exhibit P-26 and P-27-A, pp. 228 to 230; Hill, p. 238, Exhibit P-6-A). (See Report, pp. 29 to 30.) The court below has held that both of these elements of value were included by the Board in their valuation. There is, therefore, some other element of value which is omitted. It is clear that the Board did not take into consideration or give full effect to the increase in values due to the increase in the level of prices. As the Supreme Court of the United States, in the *Southwestern Bell Telephone Company* case, *supra,* said:

> "Obviously, the Commission undertook to value the property without according any weight to the greatly enhanced costs of material, labor, supplies, etc., over those prevailing in 1913, 1914 and 1916."

The case at bar should be sent back to the Board to have this element of value added, just as that case was.

See also:

Elizabethtown Gas Light Company v. *Public Utility Commissioners,* 95 N. J. L. 18, *supra.*

POINT IV.

The so-called offer of sale was not an admission of value and should not have been considered by the Board.

The use of the offer by the Board is attempted to be justified on the following theory:

> "An offer to sell for a named price involves an estimate of value by the owner, and hence may be counted as an admission against him."

This is not true where the owner either expressly states in making the offer that it is not an estimate of value, or where the circumstances under which the offer is made shows it was not intended as an estimate of value. In this case the offer con-

tained an express statement by the owner that it was not intended as an estimate of value.

> "The figures mentioned in our proposition are submitted for prompt acceptance only and without prejudice to our right to prove present value in excess of the detailed figures just submitted in any proceeding that may be taken to acquire the property by the exercise of the right of eminent domain" (p. 1355, line 18).

By this statement it appears that the owner claimed that the present value was higher than the figures mentioned in the proposal. He expressly disclaimed that he was putting a value on the property.

The offer also comes within the cases illustrating the other branch of the rule, because at the time it was made the holding Company, which made it, was confronted with prolonged litigations. The facts in respect to this matter are that on August 27, 1921, the Town of Montclair petitioned for the condemnation of a portion of the property of these Companies, and that matter is still pending (Record, p. 779). The Companies were confronted with the litigation over this condemnation of a part of these properties, and at the same time with the necessity of increasing revenues by amending the rate schedules, which would be bitterly contested and involved further litigation. With this litigation in prospect the holding Company received from the municipalities a request to name a figure which it would take for the entire properties. In response the New Jersey General Security Company submitted an offer (Exhibit R-7) to sell the entire properties for $10,500,000 of Six Per Cent. Bonds, which were to be assumed by the municipalities. The letter contained the above statement that the figures were "without prejudice to our right to prove present value".

At the same time, Mr. Cook, as representative of the said Company, had an interview with Mr. Bell and the Mayor of Clifton, representing the committee in charge of the negotiations for the Cities, in which the following took place, as Mr. Bell, the witness called for the municipalities in this case, testified:

> "You remember Mr. Cook stating that the property was worth more than the offer? A. I think that the Mayor of Clifton asked Mr. Cook the question as to how

> we would best get at a termination of our negotiations and Mr. Cook stated that we had better start condemnation proceedings, because they would get more for the property under condemnation proceedings than the amount they offered to sell it to us for" (p. 595).

When this proposition of the Company was offered in evidence by the municipalities, the Companies raised the objection (pp. 511 to 516) that it was not evidential on question of value; that it was an effort on the part of the holding Company to buy its peace, and represented merely what it was willing to take to get out of the endless litigation confronting it. The evidence was nevertheless received, and used by the Board in forming its judgment as to the value of the properties (p. 31, line 41). This was error.

West v. *Smith,* 101 U. S. 263, page 273. Here the court said:

> "By all, or nearly all, the cases, the rule as established is not that an admission made during or in consequence of an effort to compromise is admissible, but that an offer to do something by way of compromise, as to pay sums of moneys, allow certain prices, * * * and the like, shall be excluded. These cannot be called admissions, as they were made to avoid controversy and to save the expense of vexatious litigation. * * * The rule in general, both in England and the United States, is that the offer will be presumed to have been made without prejudice if it was plainly an offer of compromise."

Miller v. *Halsey,* 14 N. J. Law, 48, 51;
Somerville Water Company v. *Somerville,* 78 N. J. Eq. 199, 202;
Wrege v. *Westcott,* 30 N. J. Law, 212;
Crowther v. *Lloyd,* 31 N. J. Law, 395;
White v. *Old Dominion S. S. Co.,* 102 N. Y. 660;
Bowers v. *Hanna,* 101 Iowa, 660;
Indianapolis Northern Traction Co. v. Dunn, 37 Indiana App. 248.

Testimony as to the amount which an owner of property would take for it is not admissible as evidence of the value of the property.

Conant v. *Jones,* 120 Ga. 568, 572.

The fact that the reservation contained in the offer mentioned the taking of the property through eminent domain does not weaken the force of the statement. A rate proceeding is analogous in all respects to a proceeding under the power of eminent domain. The only difference is that in the one case the State is seeking to take the title of the property, and in the other the use of it.

In *Regan* v. *Farmers' Loan & Trust Co.,* 154 U. S. 362, the fact that the two proceedings were identical was clearly brought out in the following language (p. 410):

> "If the State were to seek to acquire the title to these roads under its power of eminent domain, is there any doubt that constitutional provisions would require the payment to the corporation of just compensation,—that compensation being the value of the property as it stood in the markets of the world and not as prescribed by an act of the Legislature? Is it any less a departure from the obligations of justice to seek to take not the title but the use for the public benefit at less than its market value?"

In *San Diego Land Co.* v. *San Diego,* 118 Cal. 546, a rate case, the court said (p. 567):

> "The question of what is a just compensation in such a case is in all respects analogous to the question which arises in every case of appropriation under the power of eminent domain, and it may be reduced to the formula that the public must pay the actual value of that which it appropriates."
>
> Approved in *San Diego Land Co.* v. *National City,* 174 U. S. 739.

The use which is made by the Board of this offer in this case illustrates the danger and the injustice of permitting the offer to be received in evidence.

POINT V.

The judgment of the court below should be reversed and the matter remitted to the Board for the addition of an item to cover the Federal income taxes which the company must pay, and for the addition to the value of the property of such elements of value as the Board has heretofore omitted.

What the omitted items are does not appear from the report of the Board, but that substantial items have been omitted appears from the foregoing.

The Board, by the general statement that it has given weight to, considered and included all elements, cannot "immunize its report against attack".

> "It is the duty of the court to determine the rate base from the evidence before it * * * and neither presumption nor express statement by the Commission that it has given such weight can prevail against the contrary inference required by the proof."
>
> *Monroe Gaslight & Fuel Company* v. *Michigan,* Public Utilities Commission, decided July 3, 1923, United States District Court.

The judgment must be remitted to the Board to have the omitted items added.

Pennsylvania Gas Company v. *Public Service Commission of Pennsylvania and the City of Erie,* decided by the Supreme Court of Pennsylvania, January 7, 1924, but not yet reported, is the latest illustration of this principle.

In the *Pennsylvania Gas Company* case the court carefully considered the report of the Commission, which contained a statement similar to the one in the report in the case at bar, to the effect that "all elements which may and should properly

be considered" had been taken into consideration and an express statement that going concern value had been included. The Pennsylvania court, however, was unable to find that this item had been included, notwithstanding this statement of the Commission. As to this, we quote from the opinion as follows:

> "Did the commission give any consideration to going-concern value, fixed by the utility at $1,742,000? The report with respect to this item says 'Taking into consideration all the elements which may and should properly be considered, including a proper deduction for accrued depreciation, we are of opinion and determine that the * * * property attributable to Pennsylvania has a fair value for rate making purposes of $14,380,000. In reaching this conclusion we have given due consideration to going-concern value.' Utilities are entitled to going-concern value where it appears in the evidence. *Ben Avon Boro.* v. *Ohio Valley Water Co.*, 68 Pa. Superior Ct., 561, 587; S. c. 271 Pa. 346, 354."
> * * *
>
> "If going-concern value was included in the figures introduced by the commission, it is difficult to see where it has been placed. The report does not justify itself on this item. The company is entitled to an amount to be determined by the commission.

Having determined that the item was omitted, the court then takes up the question as to whether it is found by the finding of the Commission, asserting that going value was included in the lump sum. With respect to this they say:

> "Lump sum or partial lump sum values are unfair both to the public and the utility where they represent the composite of a number of items entering into it. The commission's findings need not set forth the value of each separate piece of property, but there are standard classifications entering into the rate base recognized in the many decisions of the Supreme Court of the United States, particularly noted in the dissent in the *Southwestern Bell* Case. With the engineering force and assistance at hand, we see no reason, when facts are presented and determined, why they should not appear under the different classifications at least with sufficient clarity that the courts may know the parties vitally

interested have not been unfairly dealt with. Citing *Monroe Gas, Light & Fuel Co.* v. *Michigan Public Utilities Co., supra.*

The Supreme Court of Pennsylvania thereupon sent the case back to the court below, with instructions that it should be remitted to the Public Service Commission to "revise its findings, in accordance with the views expressed" by the Supreme Court.

See

Minneapolis v. *Rand, supra;*
Elizabethtown Gas Light Company v. *Board of Public Utility Commissioners, supra.*

In the case at bar, just as in the cases last cited, it is apparent that the finding of the Board with respect to value, is too low, because it has omitted some substantial element of value, and that instead of the general revision of the rate base there should be added to it some further sum. We believe that the item omitted in the case at bar is the increase in the value of the property due to the increase in all level of prices We believe nothing has been added in this case for that item. In the *Rand* case, 25% had been added by the Master, and the court held that this was too low and that it should have been 50%, and added the difference, namely, $3,242,888, and then adopted the Master's report with that addition to avoid confiscation of the property through undervaluation.

In the *Elizabethtown Gas Light Company* case, the matter was remanded to the Commission "for rehearing to determine how much additional should be allowed", and in that case Swayze, *J.*, says:

> "The Companies were allowed an increase in rates which I think inadequate. If, however, I set aside the order the old rates would be restored, and this would work the very injustice that these proceedings are intended to correct. I see no reason, however, why I may not render a judgment sustaining the present order as far as it goes and remanding the case to the Commission for rehearing to determine how much additional should be allowed. That will be the judgment."

We submit that in the case at bar this same practice should be followed.

Dated, February 18, 1924.

Respectfully submitted,

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New Jersey Court of Errors and Appeals

CITY OF BAYONNE, Prosecutor-Appellant, *v.* BOARD OF PUBLIC UTILITY COMMISSIONERS, Defendant-Respondent.	On Certiorari. On Appeal from Supreme Court.

BRIEF FOR CITY OF BAYONNE.

Statement.

The City of Bayonne prosecuted the writ below to review a decision of the defendant-respondent increasing the rates for water to that city 300 per cent.

As stated in the brief of the East Jersey Water Company and the other companies associated with it, which brief will hereinafter be referred to as the "Companies' brief," three writs of certiorari were sued out; one by the Companies; one by the City of Bayonne, and one by the Town of Montclair. The Companies' writ raised the question as to the insufficiency of the valuation of the companies' property made by the Board and the failure to allow the Federal income tax as an operating expense. Bayonne's writ raised the questions of the excessiveness of the valuation of the companies' property made by the Board; the excessiveness of the return fixed thereon by the Board and the excessiveness of the rates allowed as against Bayonne. There is in the case, as bearing upon the excessiveness of the rates, the question

of Bayonne's right under a contract for water which is discussed under Point Seven of this brief. The writs were consolidated, thus making this a triangular contest; the companies seeking to increase the valuation and rates allowed by the Board; the City of Bayonne endeavoring to reduce said valuation and the rates for water fixed by the Board for that City, and the Board contending that its findings as set forth in its report should remain undisturbed. The Supreme Court rejected the contentions of both, the Companies and the City of Bayonne, and affirmed the order of the Board. Thus the case comes up to this court in the same posture as it was before the court below.

POINT ONE.

The determination of the Board which included Federal taxes in the rate of return was not erroneous.

The first point raised by the Companies' brief is that the Board adopted an improper method of treating the Federal Income tax.

There were two methods by which the Board could take care of Federal taxes. One was by including them in operating expenses—the other by providing for them in the rate of return. It pursued the latter course, and made the rate of return high enough (excessive, as we contend) to cover Federal taxes (p. 33). It allowed $900,000 return on $11,500,000 valuation, approximately 8 per cent.—the highest rate of return ever allowed a water company in this State. If it allowed the Federal tax as an operating charge the rate of return would be about 7½%. The Companies demand that it be allowed twice as an operating

expense and also in the rate of return. There is no case holding this, and the proposition appears so repugnant to reason that the statement of it would seem to be its own refutation. The Board treated the Federal tax as the United States Supreme Court did in the case of *Galveston Elec. Co.* v. *Galveston,* 42 Sup. Ct. Rep., 351. In that case the Court says, page 399:

> "The Company assigns as error that the master allowed, but the court disallowed, as a part of the operating expenses for the year ending June 30, 1920, the sum of $16,254, paid by the company during that year for federal income taxes. The tax referred to is presumably that imposed by Act Feb. 24, 1919, c. 18, S. 230-238, 40 Stat. 1057, 1075-1080 (Comp. St. Ann. Supp. 1919, S. 6336 1/8 nn. 6336 1/8 rr.), which for any year after 1918 is 10 per cent. of the net income. In calculating whether the 5 cent fare will yield a proper return, it is necessary to deduct from gross revenue the expenses and charges; and all taxes which would be payable if a fair return were earned are appropriate deductions. There is no difference in this respect between state and federal taxes or between income taxes and others. But the fact that it is the federal corporate income tax for which deduction is made, must be taken into consideration in determining what rate of return shall be deemed fair. For under section 216, the stockholder does not include in the income on which the normal federal tax is payable dividends received from the corporation. This tax exemption is therefore, in effect, part of the return on the investment."

The quotation from the case of *Georgia Railway and Power Co.* v. *Railroad Commission,* 67 U. S. (L. Ed.), 728, cited in the companies' brief, is not all that the Court said in that case upon the question. We give the statement of the Court in full.

> 'The companies contend that there was error, also, in estimating the amount of the probable net income. One objection relates to the Federal corporate income tax (10 per cent) assumed to be $45,364. Commission treated the tax as a proper operating charge. The Court disallowed it, and thus increased its estimate of probable net income. In this the Court erred. Galveston Elec. Co. *v.* Galveston, *supra.* Its estimate of "$424,150. as the probable income per year under the new rate, with no allowance made for increased consumption or reduced cost of production that seem quite probable," should therefore be reduced to about $380,000. This is the amount indicated by the commissions' findings.'

In other words, in that case the commission had allowed an income (net return on capital) of $380,000 which was approved, and the finding of the district court which would increase that figure to $424,150 by adding the Federal tax to income or net return was disapproved.

See also

N. Y. & Queens Gas Co. v. *Newton,* 269 Fed., 277.

POINT TWO.

Original or historical cost plus an appreciation equivalent to the difference between present prices and cost but with depreciation deducted is the most reliable method of ascertaining value and is to be preferred to hypothetical reproduction cost.

The second point of the companies' brief is a discussion of historical or construction cost and reproduction value.

We think the writer of the companies' brief is

under a misapprehension (1) that the Board adopted historical cost as the value of the companies' property; (2) that the City contends that mere historical cost is the value of that property.

In the first place, the Board did not adopt historical cost as the value of the companies' property. If it did, it would have found the value to be $7,544,000, the amount shown to be the historical cost by the City's Exhibit R-1 (p. 1265), instead of the figure of $11,500,000, which the Board did fix.

In the second place, the City does not contend that historical cost only, and standing by itself, is the value of the companies' property for the purpose of rate-making. But the City does contend that historical cost plus a percentage which cannot exceed the difference between present prices and the construction cost, and with the depreciation deducted, is the soundest method of valuing property for that purpose. And when there is before the Board, as there was in this case, the historical cost, with the known percentage of increase in present prices over cost, the Board should have taken the historical cost as the basis of its valuation, and after deducting depreciation therefrom, added an amount for appreciation, to ascertain the true present value, rather than the hypothetical reproduction value submitted by the companies. This is discussed in greater detail under Point III *infra*.

This being our position, the cases cited in the companies' brief to prove that the historical cost is not necessarily the present value are beside the question.

It is noteworthy, however, that in none of the cases cited in that brief in any court of last resort was there a rejection of historical cost as the basis

of valuation, where allowance was made for appreciation.

It is also to be noted that no case in the United States Supreme Court or our own courts is cited to show that a valuation must be based upon a hypothetical replacement cost in preference to historical cost plus appreciation.

Indeed, the cases in the United States Supreme Court from *Smyth* v. *Ames*, 169 U. S., 466, down to the present have consistently held that the original cost of construction, which when prudently made is the same as historical cost is an element which must be considered in fixing the value of the property of a utility. The language of Judge Harlan, page 546, is:

> "We hold, however, that the basis of all calculations as to the reasonableness of rates to be charged by a corporation maintaining a highway under legislative sanction must be the fair value of the property being used by it for the convenience of the public. *And in order to ascertain that value the original cost of construction, the amount expended in permanent improvements,* the amount and market value of its bonds and stock, the present as compared with the original cost of construction, the probable earning capacity of the property under particular rates prescribed by statute, and the sum required to meet operating expenses are all matters for consideration, and are to be given such weight as may be just and right in each case. We do not say that there may not be other matters to be regarded in estimating the value of the property. What the company is entitled to ask is a fair return upon the value of that which it employs for the public convenience."

That statement has been quoted in *Simpson* v. *Shepherd* (Minnesota rate case), 230 U. S., 362, 435, and in many other United States Supreme Court cases.

And here, we may note what the Court says in the Minnesota rate case about the reproduction cost theory of valuation which is contended for by the companies:

> "The cost of reproduction method is of service in ascertaining the present value of the plant when it is reasonably applied, and when the cost of reproducing the property may be ascertained with a proper degree of certainty. But it does not justify the acceptance of results which would depend upon mere conjecture."

In *Brooklyn Borough Gas Company* v. *Public Service Commission* (New York Supreme Court), Public Utility Reports (1918), F., 355, former Justice Charles E. Hughes, Referee (347), said:

> "While it is important to consider the cost of reproduction in determining the fair value of a plant for rate-making purposes, it cannot be said that there is a constitutional right to have the rates of a public service corporation based upon the estimated cost of the reproduction of its property, at a particular time regardless of circumstances."

In *Southwestern Bell Telephone Co.* v. *Missouri U. S. Supreme Court,* 67 L. Ed., 619, Justice Brandies, commenting on hypothetical reproduction cost, says, page 627:

> "At first reproduction cost was welcomed by commissions as evidence of present value. Perhaps it was because the estimates then indicated values lower than the actual cost of installation. For, even after the price level had begun to rise, improved machinery and new devices tended for some years to reduce construction costs. Evidence of reproduction costs was certainly welcomed, because it seemed to offer a reliable means of performing the difficult task of fixing, in obedience to Smyth *v.* Ames, the value of a new species of

property to which the old tests—selling price or net earnings—were not applicable. The engineer spoke in figures,—a language implying certitude. His estimates seemed to be free of the infirmities which had stamped as untrustworthy the opinion evidence of experts common in condemnation cases. Thus, for same time, replacement cost, on the basis of prices prevailing at the date of the valuation, was often adopted by state commissions as the standard for fixing the rate base. But gradually it came to be realized that the definiteness of the engineer's calculations was delusive; that they rested upon shifting theories; and that their estimates varied so widely as to intensify, rather than to allay, doubts. When the price levels had risen largely, and estimates of replacement cost indicated values much greater than the actual cost of installation, many commissions refused to consider valuable what one declared to be assumptions based on things that never happened, and estimates requiring the projection of the engineer's imagination into the future, and methods of construction and installation that have never been and never will be adopted by sane men. Finally, the great fluctuation in price levels incident to the World War led to the transfusion of the engineer's estimate of cost with the economist's prophecies concerning the future price plateaus. Then, the view that these estimates were not to be trusted as evidence of present value was frequently expressed. And state utility commissions, while admitting the evidence, in obedience to Smyth *v.* Ames, failed, in ever-increasing numbers, to pay heed to it in fixing the rate base. The conviction is widespread that a sound conclusion as to the actual value of a utility is not to be reached by a meticulous study of conflicting estimates of the cost of reproducing new the congerie of old machinery and equipment, called the plant, and the still more fanciful estimates concerning the value of the intangible elements of an established business."

And in the footnote to that case a list of cases is given in which valuations were made for rate-making in the years 1920, 1921 and 1922 showing that in only five of them was the reproduction value at present prices adopted while in 27 cases the historical cost was used, while in 126 cases either actual cost or historical cost (which is actual cost less abandoned and unused property) was used as the basis of valuation. This shows the overwhelming preponderance of support of the historical cost method as against the hypothetical reproduction method contended for by the companies.

In the latest case in the United States Supreme Court on public utility rates and valuation, the Court says:

> *"The refusal of the commission and of the lower court to hold that, for rate-making purposes, the physical properties of a utility must be valued at the replacement cost, less depreciation, was clearly correct."*
>
> *Georgia Railway & Power Co.* v. *Railroad Commission,* October, 1923, 67 U. S. (L. Ed.), 728.

In that case the companies' contention was the same as in the instant case, viz., the rule to be applied in valuing the property is reproduction cost at the time of the inquiry. The commission refused to adopt reproduction cost as the measure of value.

In view of this latest expression of opinion by the United States Supreme Court, we deem it unnecessary to discuss the many decisions of lower United States Courts and commissions cited in the companies' brief in the effort to prove that reproduction cost should have been adopted by the Board in the valuation of the properties in the case at bar.

POINT THREE.

There was no evidence before the Board reasonably to support its finding of value.

The appraisal of Dr. Bemis as to the value of the companies' property was the best evidence of the value of the property.

Under Point III, the companies' brief first attacks Dr. Bemis' historical cost of $7,544,659, Exhibit R-1, and then essays to prove that that figure makes the property worth $13,727,143.

The brief of the company is built upon the primary assumption that Hill and Metcalf, witnesses for the company, testified as to what constituted fair value, upon the reproduction theory, and Dr. Bemis testified only as to what constituted the original cost of the property now in use and the reproduction value as of pre-war conditions of the property now in use without attempting to state what constituted fair value; that therefore the Commission had no evidence presented to it other than that of Hill and Metcalf upon which they could base any findings of fair value. The cities maintain that the witness should confine himself before a judicial body to a statement of facts, and should not usurp the judicial prerogatives of the body before which he is appearing, by attempting to dictate to the Court the decision which the Court should render. In direct line with this policy, Dr. Bemis testified and presented exhibits, as is admitted by the company in their brief, showing (1) what the actual cost was of the property now in use and also showing (2) the reproduction value of the property by taking the pre-war reproduction value established by an arbitration board, and bringing it down to date—an arbitration board appointed by the State in 1912, whose

finding was based upon the appraisals then made by the same two men, who in the present case testified for the companies—Messrs. Metcalf and Hill.

He ascertained the original cost of construction as required by *Smyth* v. *Ames*, 169 U. S., 466. That was fully presented in the City's Exhibits R-1 and R-9, giving the original cost of the property now in use, together with the depreciation, which in the *Knoxville Water* case, 212 U. S., 1, was also declared to be a vital factor. These elements may be called an appraisal or a valuation or one of the bases for determining the fair value—the name is immaterial. It is a far more accurate means of determining value than the methods adopted by the companies.

In addition to the original cost of the property now in use, Dr. Bemis submitted another Exhibit R-3, setting out the State valuation made in 1912 by Hill, one of the companies' two experts in this case, and agreed to by Metcalf, the other expert for the companies in this case, and which was used by the experts of the companies in this case, as one of their bases for determining value. His purpose was to show that even upon that valuation brought up to date it was impossible to arrive at a finding of $13,000,000 value which was contended for by the companies.

Here we wish to note that the companies' brief fails to correctly interpret R-3. It says that Exhibit R-3 as adjusted by the Board (p. 32) without any item for appreciation or going value is $10,-249,230. R-3 is the exhibit which brings the 1912 appraisal down to date. By reference to R-3, page 1317, it will be seen that the State appraisal of 1912 brought down to date would be $9,641,306.42 *new and without deduction for depreciation.* The Board erred in taking this undepreciated figure as the basis of any calculation. If, however, it is

taken it should not be appreciated as depreciation would probably offset appreciation. The Board's report (p. 32) also set up the historical cost *new* $9,765,572 instead of the depreciated cost $7,725,804 as shown in the Appendix C, page 60. Therefore, the basis for the computations on page 42 of the companies' brief is a false one in so far as they are claimed to be made on Dr. Bemis' Exhibits R-1 and R-3.

As has been stated before, the whole theory behind the Bemis appraisal of actual cost, as contained in Exhibit R-1, was to determine what the actual cost was of the different elements of property going to make up the composite whole, as contained in the exhibits filed by Hill and Metcalf. As to the 93% of cost taken from the companies' records there was no chance of error. The only chance for error comes in those items whose cost has to be estimated, that is, for which no records of cost were obtainable. The total amount of property thus estimated, as stated by Dr. Bemis in his Exhibit R-9, amounts to $623,101.56. This amount was estimated, as testified to by Dr. Bemis, by taking the inventory items, concerning which a great deal of information was available as to the date of its installation, and estimating what actual cost was incurred by the different companies for this property at the time it was installed, at the prices then existing. In the case of mains only, the prices from 1902 to 1911 were used as the basis for net cost. In the case of meters, hydrants and other items of property, the actual cost incurred by the Montclair Company, or other records of cost found in the possession of the company, were used. It should be borne in mind that the basis used in the pricing of this portion of the inventory was the actual cost to the companies of similar structures, containing all items of cost. For example, if no

record could be found of what it cost for material supplied to one of the five companies at a certain date, and a record was found of what it cost another of the companies, Dr. Bemis used that as the price paid by the former company also. It should further be borne in mind that this estimate was made with the knowledge of the actual price fluctuations of the past. Certainly such an estimate can be made with far greater accuracy than one which discounts the unknown elements of the future, as was done by both Hill and Metcalf, the companies' expert witnesses, in their determination of what they are pleased to call "fair value."

To illustrate the unreliability of the reproduction cost method pursued by the companies' experts, Mr. Hill appraised 42,025 tons of cast iron pipe at $32.50 a ton, which he claimed was the ten-year average of the prices paid by the Associated Companies, F. O. B. cars, at point of delivery (P-6a, p. 960), but Dr. Bemis showed that 3,541 tons, bought 1911-20 by the Passaic Water Company, cost only $26.52 per ton (R-3, p. 1323). Therefore knowing the actual prices paid by one of the affiliated companies for cast iron mains it is certainly to be assumed that the other companies paid the same prices. This difference of about $6.00 per ton means a difference in that one item alone of $251,310 on the 42,025 tons, which sum the companies' expert makes a present of to the companies in his "estimate," as contrasted with the actual amounts paid by the company. This illustrates the difficulties of "estimating" cost. A total figure, such as the City's is, *in which only 7% is estimated,* is sure to represent the true cost of the property far more accurately than will any estimated reproduction cost, where the whole 100% *is estimated,* as is the case with Mr. Hill's and Mr. Metcalf's appraisals.

It is said in the companies' brief that Matthews' testimony and Exhibit R-8 indicate that Dr. Bemis' Exhibit R-1 omitted items of property that should have been included. Matthews was not dealing with the cost of the property *now in use,* all of which—outside of land and some mains—has been installed during the last 25 years. With regard to that property, there are no discrepancies between the cities' exhibits and the companies' books. Mr. Matthews was more particularly dealing with the early books which transmit entries from still older and no longer existing records. In these earliest existing books there appear assets and liabilities purporting to refer to prior transactions and indicating changes on the books for property no longer in use and for water rights that have ceased to possess a value. All this does not show that the cost of the properties *now in use,* no mattter how old, has been incorrectly stated in the exhibits of Dr. Bemis. Exhibit R-8 relates not only to existing property but to property now in the scrap heap. The property may not have cost any such sums as were copied into the later—the existing books. It is well known that many irregularities crept into the early capitalization of public utilities.

If there was an honest and prudent investment in property and rights that have long since disappeared, there is no evidence that the earnings prior to 1900 were not sufficient to amortize them. It was shown in Exhibit R-11, that the profits during the three years preceding 1900, and so far as appears, in earlier years, were very large. However, it is clearly shown in Exhibit R-10 on going value that on any property known to be in use, since 1920, the company has earned $5,247,000 above 6%. An examination of the last three columns on pages 1382, 1383 and a few computations

therefrom will show the Court that the companies could have amortized $3,000,000 additional since 1900 and still have earned over 6%. This $3,000,000 would cover any possible holdover of legitimate investment from the early days not cared for by large earnings prior to 1900.

The Board erred in fixing a value of $11,500,000 upon the properties of the companies.

We contend that the Board should have based its valuation upon the depreciated historical cost of the property now in use as shown in the Cities' Exhibit R-1 (p. 1265), and upon the State valuation brought down to date, as shown in the Cities' Exhibit R-3. As 40 per cent. of the property was installed at war prices and present prices, that is, since 1915, only the other 60 per cent. of it should be appreciated. The total historical cost was $7,544,000. Deducting 40 per cent. leaves approximately $4,500,000 to be appreciated. The appreciation heretofore allowed by the Board in the three important rate cases decided by it since the war, viz., Public Service Railway Co., Commonwealth Water Company and Elizabethtown Water Company, was approximately 20 per cent. In the Galveston Elec. Co. case the lower court had allowed 33 1/3 per cent., and it was approved in the United States Supreme Court, although the company demanded a sixty per cent. appreciation. That case was decided in the lower court shortly after the war, when prices were at their peak. If 33 1/3 per cent. was fair then, 20 per cent. would seem to be as much as the companies are entitled to for appreciation now. 20 per cent. of $4,500,000 (the amount of pre-war property) is $900,000. Adding this sum to the total historical cost of $7,544,000 makes a total appreciated cost of $8,444,000. But if 33 1/3 per cent. which was allowed in

the Galveston case should be allowed in this case upon the pre-war property, it would result in an increase of the total to $9,050,000, and even an appreciation of 40 per cent. which the companies' witnesses Metcalf and Hill testified (Record, pp. 140-144, 175, 286) was the average over pre-war prices, would only bring the total value to $9,340,-000.

The 1912 Appraisal Brought up to Date.

The historical cost is confirmed by the State appraisal of 1912 (Exhibit R-3, pp. 1311, 1317).

Starting with the reproduction cost of all the physical property and diversion rights, amounting to $9,214,684 outside of going value as agreed upon by Hill and his associates in the State appraisal, December 31, 1912, no one disputed the accuracy of Dr. Bemis' exclusion of $1,562,032 for paving mains, discount on bonds, certain overheads and abandoned structures and land, no one of which items should be included today. No one, furthermore, has denied the accuracy of Dr. Bemis' net additions from December 31, 1912, to December 31, 1921, of $1,763,654.42, nor certain other minor adjustments by him, making the Hill appraisal new of 1912, brought up to date, $9,641,-306.42 (R-3, pp. 1316, 1317).

The only question raised by the company as to the accuracy of this result, which is within 1 per cent. of the undepreciated historical cost shown in R-1, is that it does not include an allowance for going value or for the increase in prices since 1912. This increase, however, is fully taken care of with respect to all land, to all property added since 1915, and nearly all diversion rights as will be elsewhere shown.

With respect to property in use at the time of the valuation as of December 31, 1912, Justice

Hughes just after he left the United States Supreme Court, as referee for the New York Supreme Court in the Brooklyn Borough Gas case in 1918 (P. U. R. 1918 F. 335) held that an appraisal made by the New York Public Service Commission before the war and brought down to date was a proper method of reaching a rate base. To be sure, the appraisal in 1912 was not made by the present New Jersey Public Service Commission, but was made for another State Commission, the Water Conservation Commission of the State. One of the three engineers who made this valuation in December, 1912, is now the engineer for the companies, and the other witness for the companies, Mr. Metcalf, has accepted his appraisal of 1912 as a proper base on which to build in the present case.

This appraisal, as of December 31, 1912, brought up to date, and the historical cost new as of December 31, 1921, being almost precisely alike, should be depreciated to the same degree.

Both the historical cost appraisal and the State appraisal were depreciated 21.24 per cent.

The State appraisal brought down to date is $9,641,307.42 undepreciated and $7,593,492.94 depreciated; that is, within $54,000 of the historical cost. If to that amount either 20 per cent. as is the Board's custom, or 33 1/3 per cent. as was allowed in the Galveston Elec. Co. case be added for appreciation of the pre-war property, that is, the plant and structures ($4,500,000), the total as before stated does not exceed $9,000,000. This we contend is the fair value of these properties for rate-making purposes. We assert that these two appraisals founded upon the records and history of the companies, are the proper bases upon which to fix a valuation for rate making. The Board should have accepted Dr. Bemis'

appraisals, which were based upon certainty and fact, in preference to that of Metcalf, whose hypothetical reproduction estimate is based upon prophecy. He says (p. 139):

> "I have sought to put upon these properties such a value as we might in the light of subsequent knowledge put upon them in retrospect * * * in other words, it is such a value as in the future, looking back, we would admit as a fair value for this property."

And Mr. Hill, the other expert witness for the company, stated (p. 406) in answer to the question:

> "Q. Is reproduction cost, either pre-war or post-war, a true criterion of value? A. Not necessarily. It is helpful."

And while these two experts were testifying that the value of the companies' properties was $13,000,000, the companies were offering to sell them for $10,500,000 (p. 405)! Further comment on such appraisals would seem to be useless.

The Board erred in making an allowance for going concern value.

We have not been able to ascertain from the Board's report the exact amount allowed for this item, but the companies' brief before the Court below states that the Board fixed it at $1,510,000. Going concern value has been variously defined. One theory is that it represents "the necessary expenditures and forbearance of financial return on property, and money prudently invested, that is associated with the early development of the enterprise." *In re Penobscot Water Co.* (Me.) P. U. R. 1923, B 779. It is a capitalization of past deficits and is known as the Wisconsin rule. If there are no past deficits there is no going concern value. There were no past

deficits in this case. Dr. Bemis showed Ex. R. 10 (p. 1383), R. 11 (p. 1396), that the companies had earned a sufficient sum above a fair return in the past to amortize such deficits.

Another definition of "going value" is: an allowance made to cover the difference between an inert plant and an operating system; the component parts of the plant and the system as a physical going concern.

Where in the cost to reproduce the physical property, the overheads, through the expenditure of which the component parts of the property are tied into an operating system, including organization, administration, contingencies, engineering, supervision, interest, taxes, law expenditures, injuries and damages during construction are taken into account, the requirement of allowance for "going value" is fully met.

On page 40 of the companies' brief a number of cases are cited upon going value.

We think it is not necessary to consider any cases cited in the companies' brief on going value except those in the U. S. Supreme Court.

The companies' brief quotes three U. S. Supreme Court decisions, two of them before 1911 and one in 1918, and omits two other and later decisions.

In the first case, *Knoxville Water Company,* 212 U. S., 1, 1908, the Court expressly refused to decide the question of going value, but for purposes of computation allowed it to remain in that case. Referring to an item of $10,000 for "organization, promotion, etc.," and $60,000 for "going concern," the Court states, "We express no opinion as to the propriety of including these two items in the valuation of the plant for the purpose for which it is valued in this case, but leave that question to be considered when it necessarily arises."

In the next case, *Omaha* v. *Omaha Water Co.*, 218 U. S., 180 (1910), it was expressly stated that that was a purchase case, and it was strongly implied that if it had been a rate case the precedent refusing to allow going value in *Wilcox Consolidated Gas Co.*, 212 U. S., 19, would have been followed. The Court stated: "That there is a difference between even the cost of duplication, less depreciation, of the elements making up the water company plant, and the commission value of the business as a going concern is evident. * * * No such question was considered in either *Knoxville* v. *Knoxville Water Co.*, 212 U. S., 1, * * * or in *Wilcox* v. *Consolidated Gas Co., supra.* Both cases were rate cases and did not concern the ascertainment of value under contracts of sale."

The third and last Supreme Court case quoted by the company was *Denver* v. *Denver Union Water Co.*, 246 U. S., 178 (1918). In this case a going value of 7.5% was allowed but there had been ample evidence of early losses exceeding this amount that had not been made up by later gains. Supreme Court Record in that case, 27-8, 42, 49, 68, 71-5, 80-4, 89-90, 96, 98, 104, 107, 112, 118, 122, 124, 429, 960-1, 964-6, shows this to be the fact.

There are two other decisions of the United States Supreme Court, however, besides those mentioned in the companies' brief.

(a) *Des Moines Gas Company* v. *Des Moines*, 238 U. S., 153 (1915). In this case, following the decision in the Cedar Rapids gas case where going value had not been allowed, the Court decided that in the *absence of evidence of early losses, the Master had given sufficient attention to going value by allowing the overheads of engineering, interest during construction, taxes, etc.*, which attend the construction of a plant. The Master had allowed what is usually known as a physical

valuation with the usual overheads and then had added $300,000 for going value. The latter item the Court cut out and added, "When, as here, a long established and successful plant of this character is valued for rate-making purposes, and the value of the property fixed as the Master certifies upon the basis of a plant in successful operation, and overhead charges have been allowed for the items and in the sums already stated, it cannot be said, in view of the facts in this case, that the element of going value has not been given the consideration it deserves, and the appellant's contention in this behalf is not sustained."

In other words, the Court determined that the going value of a long established company was sufficiently taken into account in determining a value of the company's property where it was in actual and successful operation, and included overhead charges.

The Supreme Court thus limited the item for allowance of "going value" to the cost of establishing the system as a physical going concern or the cost of converting the inert plant into an operating system. The requirement of allowance for going value is met where, in addition to the cost to reproduce the physical property, there is taken into account the overheads through the expenditure of which the component parts of the property are tied into a system including organization, administration, contingencies, engineering, supervision, interest, taxes, law expenses, injuries and damages during construction. The Court indicates that beyond this it is not requisite that an allowance for going value be made, and particularly does it indicate that the requirement of an allowance of going value does not include the element of expenses incurred in building up or developing the business, in securing patronage and developing the system into a financially successful concern.

(b) *The Galveston Electric Company* v. *Galveston* (42 Sup. Ct. Rep., 351, 1922). In this case the Court held that past losses should not be considered in deciding the rate base, and denied that the profitableness of the enterprise or development cost should be considered. No going value is allowed; no going value has ever been allowed by the Supreme Court, except for purposes of computation in the Knoxville case, unless past losses have been shown.

Justice Brandeis for the Court said: "The most important of these items is $520,000 for 'development cost.' The item is called by the Master also 'going concern value,' or 'values of plant in successful operation.' He could not have meant by this to cover the cost of establishing the system as a physically going concern, for the cost of converting the inert railway plant into an operating system is covered in the agreed historical value by items aggregating $202,000. Those included, besides, engineering, supervision, interest, taxes, law expenses, injuries and damages during construction, the sum of $73,281 for the expenses of organization and business management. The going concern value for which the Master makes allowance is the cost of developing the operating railway system into a financially successful concern." This going value the Court denied.

As Mr. Metcalf allowed 24 per cent. for these overheads (Exb. P3-A-26) his additional allowance of $2,062,000 for going value was without legal support. For the same reason Hill's allowance of $1,510,000 should be discarded, and the Board erred in making it, if it, as stated in the companies' brief, allowed that sum or any other sum, in addition to overheads which were included.

Allowance for Going Value by State Commissions.

No refutation has been attempted of the exhibit of Dr. Bemis (R-11, p. 140) that out of seventeen states whose decisions show, the past two years, the amount allowed for going value, six, including Massachusetts, have allowed nothing for this item, and the average of all has been under five per cent. Furthermore, the allowances where made were rarely for any cause save for early losses, not made up by later gains—a situation that does not exist in the case of the present companies.

The New Jersey Commission has allowed the following percentages in recent cases:

Hackensack Water Co., 4.85% value new, 5.33% depreciated value.
Commonwealth Water Co., 6% value new, 6½% depreciated value.
Mount Holly Water Co., 3% depreciated value.

If the highest of these, viz., 6½% were allowed in the case at bar and also the full 40% appreciation in value claimed by the companies upon plant and structures ($4,500,000) and both items added to the cost of the property now used in the service of the public $7,544,000 (Exhibit R-1) the total value would be less than $10,000,000.

POINT FOUR.

The offer of sale of the property of the companies which they made to the municipalities was evidential.

On March 21st, 1922, the companies made an offer to sell their property to Paterson and Passaic for $10,500,000. It was not stated to be an offer

of compromise and it bears none of the earmarks of such an offer. It does not refer and presumably could not refer to the proceeding by Montclair (one of the eighteen towns supplied by the companies), begun in August, 1921, for the condemnation of the distribution mains in that town, which constituted an insignificant part of the companies' entire system. Nor was the offer made to Montclair. It was made to Paterson and Passaic. It was made seven weeks after the present proceeding before the Board was instituted, but it was not in compromise of this proceeding, which is a rate proceeding, because it says it is made subject to the right to prove a higher value "in any proceeding that *may be taken to acquire the property by the exercise of the right of eminent domain.*" It was admissible before the Board under Section 25, of the Public Utility Act (Laws 1911, p. 384), which states that in the conduct of hearings and investigations the Board shall not be bound by the technical rules of evidence.

The theory upon which an offer of compromise is not admitted in evidence is that the person making the offer has been sued or is threatened with suit and he is willing to settle with the claimant and makes the offer to such claimant. The only claim that could be said to threaten the companies was that of Montclair for the condemnation of the pipelines in that town. The offer being to Paterson and Passaic was not of course in settlement of any claim against Montclair. Nor was it in settlement of any claim of Paterson or Passaic against the companies because they were asserting no claims and had none. The cases cited by the companies are therefore not applicable.

Wigmore Evidence, Section 1061.

POINT FIVE.

The rate of return allowed by the Board, viz.: $900,000 per annum, yields approximately 8 per cent. on the valuation found by the Board and is excessive.

The associated companies have outstanding approximately $7,000,000 bonds and $1,500,000 stock. The return of $900,000 annually gives the company the interest on its bonds and floating *indebtedness* and on the value of its water rights, and in addition 26% for its stockholders.

The rate of return is best determined by the cost of securing funds for actual investment in a company that is not overcapitalized. While the average return of the investor from the 67 flotations of Public Utility Bonds during the last six months of 1921 was 7.33%, it fell during the next six months to 6.54%, and during the following three months, July, August and September, 1922, to 6.19% (p. 564; R-3, pp. 1326, 1327). The Commercial and Financial Chronicle for November 25th, 1922, pages 2314-15, and for December 20th, pages 2841-2, covering the flotations of 33 issues of bonds during October and November, shows that the average return had fallen to 6 per cent. in October, and to slightly below 5.99% in November. We believe that the Court will take judicial notice of the fact that for some time past rates for money have been normal. Call money and time money range between 4½ and 4 per cent., and Utility Corporation bond issues rarely command more than 6 per cent.

It may be that during the period of war-time inflation some commission allowed a return of 8 per cent. If 8 per cent. was a fair return in 1921, 7 per cent. is an equally fair return now. That is the rate that has just been allowed by Special Mas-

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ter Haight in the Public Service Railway case in the United States District Court. When one considers that a utility is a monopoly and guaranteed under the statute, and the decisions of the courts a reasonable return, no matter how bad business conditions are, 7% would seem fair.

The following are the rates allowed for return on capital in recent cases:

Hackensack Water Co., 8 N. J. P. U. R., 463, 7%;
Commonwealth Water Co., 9 N. J. P. U. R., 423, 7 1/5%;
Elizabethtown Water Co., March, 1922, N. J. P. U. R., 7 1/5%;
Middlesex Water Co., 8 N. J. P. U. R., 155, 7%;
Somerville Water Co., 9 N. J. P. U. R., 412-417, 7%.

In this connection it should be borne in mind that a public utility is to a large degree financed by bond issues; that the bondholders receive a stipulated per cent. on their funds, which is materially below the return received by the utility.

POINT SIX.

The public utility is entitled to an opportunity to earn a fair return upon the fair value of the property employed by it in the public service; such a right, however, is qualified by the fact that the public is entitled to demand that no more be exacted of it than the service rendered is reasonably worth.

(1898) *Smyth* v. *Ames*, 169 U. S., 466.

Mr. Justice Harlan, delivering the opinion of the Court, said:

> "What the company is entitled to ask is a fair return upon the value of that which is employed for the public convenience; on the other hand, what the public is entitled to demand is that no more be exacted from it for the use of a public highway than the services rendered by it are reasonably worth."

The Court has, since this declaration was made, frequently re-adopted it, and has never qualified or departed from it.

The testimony of Professor Phelps (Appendix, pp. 44, 46, 49), Exhibit R-4, the foremost man in his line, shows that the water served by these companies is bad; that it is near the danger point when an epidemic may be caused by the use of it as a potable water. The value of the service to the consumer in such case is certainly less than if the water were good. An utility that supplies a poor service is not entitled to the same return as one which supplies a good one. Notwithstanding this proof, the Board fixed its return on value of $900,000 per annum, practically 8 per cent., the highest ever allowed a water utility in New Jersey.

The Board should have considered this fact, also, when arriving at the going value of these companies. If, as stated in the companies' brief in the Court below, the Board allowed $1,510,000 for going value (the amount claimed as the going value by the companies), it certainly allowed too much. Little, if any, going value can be attached to a concern that supplies poor service. It is worthy of note that Special Master Haight in the Public Service Railway case allows only 5 per cent. going value, although that utility admittedly supplied good service.

POINT SEVEN.

The City of Bayonne, by virtue of the assignment by the New York and New Jersey Water Company of the latter's contract with the East Jersey Water Company, is entitled to be furnished under those contracts with water until the year 1929, at the rates therein specified.

Washington and Beall, water contractors, made a contract with the City of Bayonne, Exhibit P-1 Record, p. 844, to supply that City with water as follows:

For the first 2,000,000 gallons per day, $89.00 per million.

For the third 1,000,000 gallons per day, $80.00 per million.

For the fourth 1,000,000 gallons per day $70.00 per million.

For the fifth 1,000,000 gallons per day, $55.00 per million.

For all in excess of 5,000,000 gallons per day, $40.00 per million gallons.

The Washington and Beall contract was assigned to the New York and New Jersey Water Company and later assigned by the New York and New Jersey Water Company to the City of Bayonne, September 6, 1918, the same being Exhibit O-1 (p. 1238).

The New York and New Jersey Water Company's assignment of the Washington and Beall contract (Record, p. 1238) also assigns to the City of Bayonne all the New York and New Jersey Water Company's rights under its contract with the East Jersey Water Company, which, among other things, provided that the New York and New Jersey Water Company should pay to the East Jersey Water Company 35% of the gross receipts for the resale of the water supplied under the Washington and Beall contract (Record, pp. 843, 844, Exhibit P1-6).

The Washington and Beall contract which the New York and New Jersey Water Company had acquired and that company's contract with the East Jersey Water Company for the supply of the City of Bayonne were purchased September 6, 1918, by that City for a sum in excess of $2,000,000, of which $660,663.80 (Record, p. 807) was paid for the value of these contracts. These contracts have been construed in the Court of Chancery in a suit in which the East Jersey Water Company claimed it was not bound to supply Bayonne.

Vice Chancellor Lane in the case of *Mayor and Council of the City of Bayonne* v. *The East Jersey Water Company,* 108 Atl. Rep., 121, in an exhaustive opinion deals with the obligation of the East Jersey Water Company to supply the City of Bayonne under contracts with that City, and holds that the East Jersey Water Company is bound to supply water to that City under the terms of those con-

tracts until June 21, 1929. The closing paragraph of that opinion is as follows:

> "I will advise a decree settling the rights of the parties as indicated by this opinion. I will determine that (1) Bayonne may require East Jersey to furnish water to it for its municipal purposes until June 21st, 1929, at the rates prescribed by the contracts between the Water Company and East Jersey. The method of computing the amount payable to East Jersey and the method of payment may also be settled; (2) that Bayonne may require East Jersey to furnish water to it for sale to outside concerns until September 12, 1944. The method by which the amount to be paid and the method of payment may also be settled; (3) that Bayonne may, by the exercise of the renewal option contained in the contract of July 12th, 1895, require East Jersey to furnish it with water for sale to consumers outside the City of Bayonne for continuing periods of twenty-five years each after June 12th, 1944, *ad infinitum;* (4) that Bayonne may not require East Jersey to furnish water to it for its municipal purposes subsequent to June 21st, 1929, under any contracts existing between the Water Company and East Jersey at the time Bayonne took over the Water Company's property."

Whether it be assumed that the East Jersey Water Company is a public utility or not, none of its contracts, including the one existing between it and the City of Bayonne, can be changed by either party thereto.

In the case of the *Hackensack Water Company* v. *Board of Public Utility Commissioners,* 115 Atl., 528, the Court of Errors and Appeals conceded that a contract between Hackensack Water Company and the City of Hoboken could not be altered by one party thereto without the consent of the other.

That such contracts as that of Bayonne, Mont-

clair and the other municipalities with the East Jersey Water Company are binding upon the parties thereto is well settled.

That the municipality is bound by such a contract, see:

Detroit v. *Detroit Citizens St. Ry. Co.*, 184 U. S., 369;
Cleveland v. *Cleveland City Ry. Co.*, 104 U. S., 517.

That the Water Company is bound, see:

Columbus Railway Power & Light Co. v. *Columbus* (1918), 249 U. S., 399;
Southern Iowa Elec. Co. v. *Chariton* (1921), U. S.

This being the legal situation in which the East Jersey Water Company and the City of Bayonne stood, the former applied in this proceeding to the Public Utility Commission to do for it what it could not do itself—set aside the contract which that city held, and which was binding upon the East Jersey Water Company. Although the Board was not required to, it did set aside that contract.

Our contention is that the rates fixed by the Board must be fair to the customer as well as to the utility. The utility in this case, the East Jersey Water Company, made a contract with another company, the New York and New Jersey Water Company, to supply to it all the water required for Bayonne, of which contract Bayonne, for a valuable consideration, became the owner. We maintain that the Board on the facts above outlined should have held either (1) that the East Jersey Water Company was obligated to continue to supply water under the terms of the contracts; or (2) that the City should have been allowed the amount

which it paid as the consideration of the contracts, viz., $660,000 to be applied against the rates fixed by the Board during the term that those contracts have to run—to 1929. This allowance could be made proportionately on each quarterly bill rendered by the company to June 1, 1929.

The Supreme Court recognizes the right to an equitable adjustment in such a case in *Edison Storage Battery Co.* v. *Public Utility Board,* 93 N. J. L., 301. The Court says, page 303:

> "Whether the utility commissioners are required to determine private rights, arising on contracts, in fixing rates for public good, and to discriminate between those of the public who have contracts and those who have not, and thus make a discrimination according to agreements between citizens, or whether their orders should be general as to all who are within the class affected, we are not required to pass on in this case, although inclined to the opinion that such orders should be general, leaving the contracting parties to settle their rights in an action, raising that question, in which they are parties, and not by certiorari."

The Court in that case was not required to and did not decide the rights of the parties under a private contract, because it was not made an issue before the Board. In this case it was an issue before the Board, and the Board should have made an equitable adjustment of rates in the case of Bayonne, because of the loss sustained by Bayonne by the setting aside of the contract.

The rates allowed by the Board to the East Jersey Water Company are $78 per million gallons. This rate must be paid by Bayonne. Seventy-eight Dollars is an increase of 300 per cent. over what Bayonne now pays. But as a matter of fact, Bayonne's water will cost it far in excess of $78 per

million gallons, when the $660,000 paid for the contracts of the New York and New Jersey Water Company are added, as they should be. If to the cost of $78 per million gallons there be added for the six years that those contracts have to run the proportion of the purchase price of the contracts applicable to the period of six years, the cost of water to Bayonne will be $126 per million gallons. In other words, while the other municipalities are paying $78 per million gallons, Bayonne will pay $78 plus $48, which latter sum is the amount per million gallons to be added for the cost of the New York and New Jersey Water Company contracts. If this Court holds that the Board could set the contract aside, we claim that $48 should have been allowed on the price of $78 fixed by the Board, thus making the cost to Bayonne not more than $30 to 1929.

POINT EIGHT.

The decision of the Board is erroneous in that it compels the City of Bayonne to pay rates which will yield a return upon property not owned by the East Jersey Water Company.

The Board's report (p. 57) gives the valuation of the property of each company by the companies' witness Hill. This estimate of the value of the property owned by the East Jersey Water Company is there given as $2,420,000. The East Jersey Water Company supplies Bayonne. That city has no contractual relation with the other companies which filed rate schedules. The property value upon which the City of Bayonne should pay a return should be that of the East Jersey Water Company only. But the Board by its decision com-

pels Bayonne to pay a return upon property owned by the other companies as well as that of the East Jersey Water Company. It appeared that the five companies jointly owned certain of the property in the percentages indicated in an agreement made some years ago between them (p. 857). The above sum of $2,420,000 represents the sum of the individually owned property of the East Jersey Water Company plus the portion of the jointly owned property allotted to it under the agreement. The company's witness testified, however, that the East Jersey Water Company, as a matter of fact, used the jointly owned property to a greater extent than its proportional ownership under the agreement with the other companies and that, based upon the amount of water supplied to the East Jersey Company's territory as contrasted with that supplied to the territory of other companies the East Jersey was utilizing $4,904,000 worth of property and should be permitted to charge for operating expenses and return on capital on the basis of $4,904,000. The Board took this view and allotted rates for the East Jersey Company on the basis of $4,900,000 ownership in that company instead of $2,520,000—in other words, on the basis of the alleged use of the entire system by the East Jersey Company instead of on the basis of the property owned by the East Jersey Company (p. 32).

The result of the Board's ruling is that the City of Bayonne is compelled to pay not only upon the property actually owned by the East Jersey Company but upon $2,500,000 property owned by some of the other companies. This means that some of the property of the Acquackanonk and the Passaic Water Companies is charged to the East Jersey Company's customers.

The following table will show the properties on

the basis of ownership (p. 57), as testified to by Hill:

Acquackanonk Water Company	$2,940,000
Montclair Water Company	2,010,000
Passaic Water Company	5,430,000
East Jersey Water Company	2,420,000
Kearney Water Company	200,000

The table prepared by Hill (page 1132b) shows the valuations allocated by him on the basis of use as follows:

Acquackanonk Water Company	$2,628,060
Montclair Water Company	1,576,176
Passaic Water Company	4,280,532
East Jersey Water Company	4,904,657
Kearney Water Company	246,000

An examination of the tables will show that approximately $1,200,000 of the Passaic Company's property and $300,000 of the Acquackanonk Company is charged to the East Jersey Company's customers by the Board (p. 306).

Our position is that the municipalities served by the East Jersey Water Company cannot be charged with rates upon property belonging to companies other than the one with which they have contracted and which is serving them. Rates cannot be charged to the City of Bayonne, which has a contract with corporation A based upon the value of property of corporation B, with which it has no contractual relation.

The allocation of rates against this municipality on the basis of use rather than on the basis of property owned by the company is predicated upon the assumption that the property, or part of the property, of one company can be taken for the use of another company by agreement or otherwise. Such a theory is, in our judgment, unsound, not

only for the reason above stated, but because it is illegal for the Passaic Water Company and the Acquackanonk Water Company to use or allow the use of their properties for the supply of water to municipalities other than those that they were incorporated to serve. The Passaic Water Company's charter, which is in evidence, Exhibit P-1 (Laws of 1849), stated that it is created to supply "the town of Paterson and village of Manchester with water, etc." The Acquackanonk Water Company's charter, Exhibit P-1 (Laws of 1867), provides that it is incorporated to supply "the village of Passaic with water, etc." These companies are, therefore, strictly limited by their charters to the supplying of water to the places named in their respective charters, and the properties belonging to these two companies cannot legally be used for the supply of any other places. If the Passaic Water Company or the Acquackanonk Water Company should make a contract, for instance, to supply Little Falls, Bloomfield, Kearney or Bayonne with water, such contract would be *ultra vires* and illegal. What these companies could not do themselves, the Board cannot do; that is to say, the Board cannot, by its decision, make legal the use of property of the Passaic Water Company or the Acquackanonk Water Company by other companies for the supply of municipalities not specified in the charters of the Passaic and Acquackanonk Water Companies.

That is the proposal involved in the plan suggested of charging municipalities on the basis of the use of water consumed by them. As we have above shown, approximately $300,000 of property belonging to the Acquackanonk Water Company and $1,200,000 of property belonging to the Passaic Water Company, a total of over $1,500,000 would be

illegally devoted to the use of the East Jersey Water Company. In other words, property of about $1,500,000 belonging to water companies limited by their charters to the supply of certain specified municipalities are to be devoted in violation of their charters to the use of the municipalities served by the East Jersey Water Company. Such use cannot be allocated, either by the companies themselves by agreement or by the Board. Municipalities served by the East Jersey Water Company cannot be charged with rates based upon property illegally appropriated by or given the East Jersey Water Company by the express or tacit permission of the other water companies constituting this system.

It is idle for the companies to say that this question was disposed of by Justice Swayze when he reviewed the former order of the Board declaring that the East Jersey Water Company was not a utility. The only question before Justice Swayze was whether the East Jersey Water Company was a utility. The question whether Bayonne was to be charged upon the basis of water consumption rather than property ownership was not and could not be before the Court, because there was no testimony or evidence of any kind at that time before the Board or the Court to indicate that the company claimed the right to charge some municipalities on the basis of use. That testimony was not introduced until near the end of the hearing before the Board, about six months after Judge Swayze heard and decided the question of the character of the East Jersey Water Company as a utility. The words in the judgment in that matter, "the rates shall be treated as a whole," mean nothing more than that the East Jersey Water Company must be treated by the Board as a utility and that because of the fact that it was a part owner

of certain property (pumping station filter plant, etc.) with the other companies and filed rates with them its case should be considered by the Board with the others for the expeditious and convenient disposition of the case.

We respectfully submit that the report and order of the Board should be reversed, because (1) the valuation of the properties of the companies fixed by the Board is excessive; (2) the return allowed the East Jersey Water Company is excessive; (3) the rates fixed by the Board for the City of Bayonne are excessive.

Respectfully submitted,

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New Jersey Court of Errors and Appeals

ACQUACKANONK WATER COMPANY, EAST JERSEY WATER COMPANY, KEARNY WATER COMPANY, MONTCLAIR WATER COMPANY and PASSAIC WATER COMPANY, *Prosecutors-Appellants,* *vs.* BOARD OF PUBLIC UTILITY COMMISSIONERS, *Defendant-Appellee.*	*On Appeal.*
CITY OF BAYONNE, *Prosecutor-Appellant,* *vs.* BOARD OF PUBLIC UTILITY COMMISSIONERS, *Defendant-Appellee.*	*On Appeal.*
TOWN OF MONTCLAIR, *Prosecutor-Appellant,* *vs.* BOARD OF PUBLIC UTILITY COMMISSIONERS, *Defendant-Appellee.*	*On Appeal.*

BRIEF FOR BOARD OF PUBLIC UTILITY COMMISSIONERS.

Statement.

By this appeal there is brought to this court for review a judgment of the Supreme Court, affirming the decision

and order of the Board of Public Utility Commissioners, dated March 27, 1923. The water companies filed with the Board a schedule of an increase of rates. The Board decided the East Jersey Water Company was not a utility and this decision was set aside in Acquackanonk Water Co. *v.* Board of Public Utility Commissioners in, 118 Atl. 535, and affirmed by this court in 119 Atl. 679.

The ownership and operation of the water companies being so intertwined and jointly owned by the Board determined the valuation of the properties in the aggregate and the rates, to be charged, upon the cost of supplying the various municipalities served (pp. 14-61.)

Three writs of certiorari were obtained to review the order of the Board; one by the water companies; one by the City of Bayonne and one by the Town of Montclair which resulted in the order of the Board being sustained by the Supreme Court in all three writs.

By the companies' appeal a reversal is sought on the ground that the Board failed to consider the item of Federal income tax as an operating deduction and that the valuation of the companies' properties by the Board was insufficient.

The City of Bayonne seeks a reversal on the ground that the valuation found by the Board was too high; that the rate of return allowed was excessive particularly because of a contract executed between Bayonne and one of the water companies.

The Town of Montclair alleges as grounds for reversal that the valuation found by the Board and rate of return allowed for the service rendered are excessive.

The three writs being argued together there is presented to this court for determination the general proposition where the water companies contend the valuation found by the Board is too low and the municipalities that it is too low.

One angle of the case that first presents itself to the court is the question of treating the valuation of

all the companies in the aggregate and allocating rates according to the cost of supplying the various municipalities. This was the course pursued by the Board and after reading the history of the companies (pp. 14-24(and considering the testimony; the ownerships are so intricate and operations of the water companies so inter-dependent that it will be found impossible to unscramble them.

POINT I.

Proper allowance was made for Federal income tax.

The companies in the court below and in this court insist that Federal income tax should be included by the Board in "operating expenses" and not in the "rate of return." On behalf of the Board it is contended that the Federal income tax may be included in the item of "operating expenses" or provided for in the "rate of return." The Board decided (p. 33, l. 9):

> "The Federal income tax has been excluded from operating expenses but has, however, been included in determining the net return. As a return, inclusive of Federal income taxes to the extent of approximately $52,000, the Board allows the sum of $900,000."

The valuation allowed by the Board was $11,500,000 and the sum of $900,000 the return thereon, would approximate an 8 per cent. return which of course included the item of Federal income tax. If the contention of the companies is taken this item of income tax would be twice allowed. once in the rate of return as allowed by the Board and again as an operating charge. This is both unsound in principle and unjust to the consumer.

The Supreme Court disposed of the contention about the Federal income tax in the following language (p. 10, l. 38):

> "The next point is that the Board refused to consider Federal income taxes paid as an operating deduction. But the Supreme Court of the United States in Galveston Electric Co. *v.* Galveston, 258 U. S. 388, disposed of this point contrary to the

> claim of the companies. In that case the Master allowed the Federal income tax as a cost of operation, and the District Court disallowed it, and the later action was sustained by the Supreme Court saying. 'But the fact that it is the Federal corporate income tax for which deduction is made must be taken into consideration in determining that rate of return shall be deemed fair. For under section 216 the stockholder does not include in the income on which the normal Federal tax is payable dividends received from the corporation. This tax exemption is therefore, in effect, part of the return on the investment.' "

The criticism which the appellant companies make in their brief of the decision of the United States Supreme Court in the case of *Galveston Electric Co.* v. *Galveston,* 258 U. S. 388, is not supported by the language of the decision nor the decision of the *Georgia Railway and Power Co.* v. *Railroad Commission,* 67 U. S. (L. Ed.) 728. Nor is the contention of the companies that the Federal income tax should alone be considered as an "operating expense" and not included in the "rate of return" supported by those decisions of the United States Supreme Court. The companies in their brief have taken but short excerpts from the decision referred to. To appreciate the decisions in full on this point there is hereinafter set forth, in the Galveston case, both the Federal District Court decision as well as the decision of the United States Supreme Court on appeal therefrom and also a copious reference to the Georgia Railway and Power case.

In the case of *Galveston Electric Co.* v. *Galveston,* 272 Fed. 147, Hutcheson, District Judge, said:

> "The seventh exception of the defendants goes to the allowance of income tax, and neither counsel have cited me to any decision by the Supreme Court on this point, and outside of the opinion of Judge Hand, in 267 Fed., *supra,* I have found no court expression on the subject.
>
> "It is therefore, as far as this court is concerned, an open matter, and I am of the opinion that no reasonable theory permits its allowance. Doctri-

naires and writers upon tax subjects all agree that the income tax is designed to bear directly upon the subject in such a way as that its incidence cannot be shifted to others. In view of the steadily rising complaint against these taxes as in part responsible for higher costs, because their incidence is shifted to the general public, I would be rash, where not compelled to, to undertake to decide, whether in practice the theory of the doctrinaire works out; but I think it cannot be doubted that it was the purpose of the states in adopting the amendment to the Constitution, and of Congress in imposing the tax, that the tax should operate directly as a charge against ascertained earnings, and not in any sense to be a direct tax on property, and it was anticipated and supposed that persons subject to it should have their earnings diminished to the extent of this tax. Counsel on page 47, of their brief say: 'It must be borne in mind in this connection that the Galveston Electric Company is a public service corporation, and that the Constitution guarantees it a fair return upon the value of its property.'

"This statement is wholly erroneous, and must have been made without thought. The Constitution makes no guarantee to the complainant, except to protect against legislation which would deprive the company of the right to charge rates adequate to produce a fair rate of return. If counsel's major premise that the Constitution guarantees a fixed net for return were correct, his conclusion is right, but that this proposition is unsound is manifest. Certainly the Constitution does no more than to say to the complainant that the legislature cannot force it to operate at such rates as will deprive it of a return similar to that enjoyed generally by enterprises in that community. The basis of the rate of return is arrived at by analogy to earnings of other enterprises in the community, all of which on their 8 per cent. return pay income tax. It certainly cannot be that the courts, in declaring that the right to a fair return could not be abridged intended to create a more favored class out of public utility concerns, so as to allow them to receive their 8 per cent. free of income tax, while all other per-

sons in the vicinity who receive the same per cent. have to pay it."

Mr. Justice Brandies, in 258 U. S., p. 388, delivering the opinion of the court on the appeal from the decree entered in *Galveston Electric Co.* v. *Galveston* in the court below, approved of this finding, and said:

> "The remaining item as to which the master and the court differed relates to the income tax. The company assigns as error that the master allowed, but the court disallowed as a part of the operating expenses for the year ending June 30, 1920, the sum of $16,254, paid by the company during that year for Federal income taxes. The tax referred to is presumably that imposed by the Act of February 24, 1919, Chap. 18, Secs. 230-238, 40 Stat. at L. 1057, 1075-1080, Comp. Stat., Secs. 6371-¼ a, 6336-⅛ nn, 6336-⅛ rr, which, for any year after 1918, is 10 per cent. of the net income. In calculating whether the 5-cent fare will yield a proper return, it is necessary to deduct from gross revenue the expenses and charges; and all taxes which would be payable if a fair return were earned are appropriate deductions. There is no difference in this respect between state and Federal taxes, or between income taxes and others. But the fact that it is the Federal corporate income tax for which deduction is made must be taken into consideration in determining what rate of return shall be deemed fair. For, under Sec. 216, the stockholders do not include in the income on which the normal Federal tax is payable dividends received from the corporation. This tax exemption is, therefore, in effect, part of the return on the investment."

In the case of the *Georgia Railway and Power Co.* v. *The Railroad Commission,* 67 U. S. (L. Ed.) 728, the full citation from Georgia case on this point is as follows:

> "The companies contend that there was error, also, in estimating the amount of the probable net income. One objection relates to the Federal corporate income tax (10 per cent.) assumed to be $45,364. Commission treated the tax as a proper operating charge. The court disallowed it, and thus increased its estimate of probable net income.

> In this the court erred. Galveston Elec. Co. *v.* Galveston, *supra.* Its estimate of '$424,150, as the probable income per year under the new rate, with no allowance made for increased consumption or reduced cost of production that seem quite probable,' should therefore be reduced to about $380,000. This is the amount indicated by the commissions' findings."

It will be noted from the above quoted excerpt of the decision that the net income return on capital allowed by the commission of $380,000 was approved by the United States Supreme Court and that the finding of the Federal District Court that increased this figure to $424,150 by adding the Federal income tax was not approved.

In the case of the *N. Y. & Queens Gas Co.* v. *Newton,* 269 Fed. 277 (Dist. Ct. So. Dist., N. Y.) Mayer, District Judge, said:

> "'The Federal tax on bondholders' income should not be charged as an expense.'"

It is not very material whether Federal income taxes are allowed as part of "operating expenses" or not so long as the net return is sufficient to attract new capital. In either case the final result is unchanged. The utility under normal conditions is entitled to a fair return. If from the net income which make up such return, income taxes are deducted, the remainder must still be sufficient to be compensatory to capital. In the making of an allowance of about 8 per cent. return including Federal income tax, sufficient provision was made to attract capital after the payment of the Federal income tax.

POINT II.

Original or historical cost with due consideration of present prices is relevant evidence of present value.

Point II of the water companies' brief is occasioned by a criticism of an opinion of Justice Brandies of the United States Supreme Court and concludes with a criti-

cism of the testimony of Dr. Bemis, who was a witness for the municipalities in the cases at bar. The water companies evidently misinterpreted the decision of the Board, for the Board did not give exclusive consideration to the "original" or "historical cost" method of attaining valuation but considered all of the relevant evidence of present value presented without a slavish adherence to any particular method of ascertaining value. Therefore, the lengthy citation of authorities in the companies' brief particularly of lower courts will be of little assistance in determining the appeals in the instant cases, unless the proposition of the manner in which the Board determined the present fair valuation of the companies' properties is clearly stated.

The Board in its decision after stating a minute discussion of the various items that were considered in determining a present fair value made the following statement as part of its conclusion (Case, p. 32).

> "In order to ascertain the present fair value of the property used and useful in the service of the public, *the Board has given consideration to all of the evidence introduced,* as well as the original cost of construction as far as testimony discloses it, the amount expended in permanent improvements, and the present as compared with the original cost of construction. In the determination of this matter we have taken it as established and given due consideration to the fact that what the company is entitled to ask is a sufficient sum to meet operating expenses, and a fair return upon the value of the property which is employed for the public convenience. Counsel for certain municipalities contended that the rates should be based upon the values assigned to the respective corporate properties making up the system as a whole. With this we do not agree but have allocated the values upon the basis of respective use in the various classes of service and service districts. We find the present fair value, inclusive of all elements of physical property, working capital, cost of organization, going concern and all other intangible elements, to be $11,500,000." (Italics ours.)

Metcalf, the principal witness for the companies, submitted five different valuations (Case, pp. 50-52).

(1)	Book cost	$11,382,000
(2)	Value of property on prewar value	8,771,000
(3)	Value of property on basis of present prices (1920)	18,173,000
(4)	Ten year average value	13,332,000
(5)	Fair normal value	14,007,000

Metcalf finally adopted as a fair valuation of the property as of December 31, 1920, the sum of ($13,500,000).

Hill, the other expert for the companies, classified his valuations as follows (Case, pp. 53-59):

(1)	Historical Cost capitalization	$10,823,573
(2)	Book cost (historical)	12,961,557
(3)	Cost of reproduction on basis of 1912 appraisal plus actual cost of additions since that date, depreciated	10,240,784
(4)	Cost of reproduction on basis of prewar prices	9,449,488
(5)	Cost of reproduction on basis of average prices, 1911 to 1920	13,595,632
(6)	Cost of reproduction at current prices	16,471,836
(7)	Cost of reproduction at 1920 peak prices	21,224,748

After the witness Hill had given these valuations, he adopted as his final valuation, the sum of ($13,000,000).

The municipalities produced Dr. Bemis as a witness, who submitted two valuations (Case, p. 60).

(1)	Historical cost of the presently used and useful property of the company taken from the books and records of the company, (except as to about seven per cent.) which was estimated at	$ 7,725,804

(2) Valuation based upon a reproduction cost which took as its starting point the 1912 reproduction cost made for the State Board of Water Conservation and agreed to by Messrs. Hill and Metcalf as being the fair reproduction cost to which has been added in actual prices the cost of all additions to date (Case, pp 26 and 61)..... 10,249,230

In addition to the foregoing valuations, there was before the Board an offer of the water companies to sell their properties for the sum of $10,594,538. The detail of this offer may be found in Exhibit R. 7, at pages 1354-1358.

The time the offer was made was fixed by counsel for the companies as of August 27, 1921 (p. 779). The Board therefore had before it for determination the following valuations (pp. 31-32):

(1) Net cost valuation $14,110,460
(2) Hill's valuation 12,927,000
(3) Offer of sale, Bemis' historical cost (new) depreciated 7,725,804
(4) As adjusted 9,765,572
(5) Bemis' valuation upon 1912 appraisal with additions to date.. 10,249,230

The Board in its determination did not exclusively adopt the historical or original cost valuation but instead gave "consideration to all of the evidence introduced" (p. 32) and determined a valuation of $11,500,000.

Now as to the legal authority for the Board's determination: The present fair value at the time the property is used in serving the public is the value to be taken.

Public Service Gas Co. v. *Board of Public Utility Commissioners,* 84 N. J. Law, at 475;

Elizabethtown Gas Co. v. *Board of Public Utility Commissioners,* 95 N. J. Law, p. 18.

Where the commissioners found a valuation which was above the lowest submitted in the testimony but above the assessed valuation; while not exact, was not disturbed by the Court.

Public Service Gas Co. v. *Board of Public Utility Commissioners,* 84 N. J. Law, at p. 476.

Where there was evidence which justified the results arrived at by the Board, the Court will not disturb the finding.

City of Elizabeth v. *Board of Public Utility Commissioners,* 2 N. J. Advance Reports, p. 125.

The United States Supreme Court has consistently adhered to the principals of obtaining the fair value of property as enunciated in *Smyth* v. *Ames,* 169 U. S. at 547. Notwithstanding the reference by the companies in their brief, under point two to the concurring opinion of Justice Brandies in the case of *Missouri, ex rel. S. W. Bell Teleph. Co.* v. *Public Serv. Com.,* 67 U. S. (L. Ed.), p. 620, the opinion for the court written by Justice McReynolds in that case is a reiteration of the principle of ascertaining valuation as announced by the United States Supreme Court in all preceding cases. That is to say, that book cost, original cost, historical cost, reproduction cost and replacement cost are all methods that may be considered with equal propriety in ascertaining the valuation of any property, providing proper allowance is made for depreciation and appreciation and consideration of present prices.

In the case of *Smyth* v. *Ames, supra,* Justice Harlan delivering the opinion of the Court said (p. 547):

> "We hold, however, that the basis of all calculations as to the reasonableness of rates to be charged by a corporation maintaining a highway under *legislative sanction must be the fair value of the property being used by it for the convenience of the public.* And in order to ascertain that value the original cost of construction, the amount expended in permanent improvements, the amount and market

value of its bonds and stock, the present as compared with the original cost of construction, the probable earning capacity of the property under particular rates prescribed by statute, and the sum required to meet operating expenses, are all matters for consideration; and are to be given such weight as may be just and right in each case. We do not say that there may not be other matters to be regarded in estimating the value of the property. What the company is entitled to ask is a *fair return upon the value of that which it employs for the public convenience.* On the other hand, what the public is entitled to demand is that no more be exacted of it for the use of a public highway than the services rendered by it are reasonably worth."

In the case of *San Diego Land & Town Co.* v. *National City,* 174 U. S. 739, Justice Harlan delivering the opinion of the Court said:

"The contention of the appellant in the present case is that in ascertaining what are just rates, the court should take into consideration the cost of its plant, including interest paid on money borrowed, and reasonably necessary to be used in constructing the same, the annual depreciation of the plant from natural causes resulting from its use, and a fair profit to the company over and above such charges for its services in supplying water to consumers, either by way of interest on the money it has expended for the public use or upon some other fair and equitable basis. Undoubtedly all these matters ought to be taken into consideration, and such weight be given to them, when rates are being fixed, as under all the circumstances will be just to the company and to the public. The basis of calculation suggested by the appellant is, however, defective in not requiring the real value of the property and the fair value in themselves of the services rendered to be taken into consideration. What the company is entitled to demand in order that it may have just compensation is a fair return upon the reasonable value of the property at the time it is being used for the public. The property may have cost more than it ought to have cost, and its outstanding bonds for money borrowed and which went into the plant may

> be in excess of the real value of the property. So that it cannot be said that the amount of such bonds should in every case control the question of rates, although it may be an element in the inquiry as to what is, all the circumstances considered, just both to the company and to the public."

In the case of *San Diego Land & Town Co.* v. *Jasper,* 189 U. S. 439, Justice Holmes delivering the opinion of the Court at p. 442 said:

> "The main object of attack is the valuation of the plant. It is no longer open to dispute that, under the constitution 'what the company is entitled to demand in order that it may have just compensation, is a fair return upon the reasonable value of the property at the time it is being used for the public' * * * (citation). * * * That is decided and is decided as against the contention that you are to take the actual cost of the plant, plant depreciation, etc., and to allow a fair profit on the footing over and above the expenses. * * * No doubt cost may be considered, and will have more or less importance according to the circumstances."

In the case of *Stanislaus County* v. *San Joaquin and King's River Canal and Irrigation Company,* 192 U. S. 201, Mr. Justice Peckham delivering the opinion of the Court said (p. 215):

> "In San Diego Land Company *v.* National City, 174 U. S. 739, it was held (following Smyth *v.* Ames, 169 U. S. 466, 543, 544), that what the company was entitled to demand in order that it might have just compensation was a fair return upon the reasonable value of the property at the time it was being used for the public. The appellant in that case contended that in fixing what were just rates, the court should take into consideration the cost of the plant and of its annual operation, the depreciation of the plant and a fair profit to the company above its charges for its services. It was observed by the court that undoubtedly all these matters ought to be taken into consideration and such weight be given to them, when rates are being fixed, as under all the circumstances would

> be just to the company and to the public. The same principle is reaffirmed in San Diego Land, &c. Company *v.* Jasper, 189 U. S. 439, 442."

To the same effect is *Wilcox* v. *Consolidated Gas Co.*, 212 U. S., p. 19. Also *Lincoln Gas Co.* v. *Lincoln*, 223 U. S., p. 349.

Mr. Justice Hughes reiterated in the case of *Simpson* v. *Shepard*, 230 U. S., p. 352, the doctrine of *Smyth* v. *Ames*. In the Shepard case the justice had the following to say:

> "The basis of calculation is the 'fair value of the property' used for the convenience of the public. Smyth *v.* Ames, 169 U. S. 546; 42 L. Ed. 849; 18 Sup. Ct. Rep. 418. Or as it was put in San Diego Land & Town Co. *v.* National City, 174 U. S. 757; 43 L. Ed. 1161; 19 Sup. Ct. Rep. 804: 'What the company is entitled to demand in order that it may have just compensation is a fair return upon the reasonable value of the property at the time it is being used for the public.' See also San Diego Land & Town Company *v.* Jasper, *supra;* Wilcox *v.* Consolidated Gas Co., 212 U. S. 19, 41; 53 L. Ed. 382, 395; 29 Sup. Ct. Rep. 192; 15 Ann. Cas. 1034."

And again:

> "The cost of reproduction method is of service in ascertaining the present value of the plant when it is reasonably applied, and when the cost of reproducing the property may be ascertained with a proper degree of certainty. But it does not justify the acceptance of results which would depend upon mere conjecture."

In a recent case, *Southwestern Bell Telephone Co.* v. *Missouri*, 67 U. S. (L. Ed.) 619, Justice Brandies in writing the opinion for the court cites as authority for the proper method of attaining valuation upon which to base a present fair rate of return, most of the cases above cited in this brief including the case of *Galveston Elec. Co.* v. *Galveston, supra.* In the notes at the bottom of page 628 of the Southwestern Bell Tel. Co. case appears a resume of ~~the~~ a number of cases that have been decided on

the different theories of valuation. It appears from the summary therein contained that about five of the cases decided was on the reproduction value theory. Twenty-seven cases on the historical cost theory and about one hundred twenty-six cases either actual cost or historical cost was used as the basis of valuation.

While Justice Brandies in a concurring period in this case criticised the doctrine of *Smyth* v. *Ames,* he nevertheless had the following to say about the reproduction cost method which was quite favored by the water companies in their valuation:

> "At first reproduction cost was welcomed by commissions as evidence of present value. Perhaps it was because the estimates then indicated values lower than the actual cost of installation. For, even after the price level had begun to rise, improved machinery and new devices tended for some years to reduce construction costs. Evidence of reproduction costs was certainly welcomed, because it seemed to offer a reliable means of performing the difficult task of fixing, in obedience to Smyth *v.* Ames, the value of a new species of property to which the old tests—selling price or net earnings—were not applicable. The engineer spoke in figures—a language implying certitude. His estimates seemed to be free of the infirmities which had stamped as untrustworthy the opinion evidence of experts common in condemnation cases. Thus, for some time, replacement cost, on the basis of prices prevailing at the date of the valuation, was often adopted by state commissions as the standard for fixing the rate base. But gradually it came to be realized that the definiteness of the engineer's calculations was elusive; that they rested upon shifting theories; and that their estimates varied so widely as to intensify, rather than to allay, doubts. When the price levels had risen largely, and estimates of replacement cost indicated values much greater than the actual cost of installation, many commissions refused to consider valuable what one declared to be assumptions based on things that never happened, and estimates requiring the projection of the

> engineer's imagination into the future, and methods of construction and installation that have never been and never will be adopted by sane men. Finally, the great fluctuation in price levels incident to the World War led to the transfusion of the engineer's estimate of cost with the economist's prophecies concerning the future price plateus. Then, the view that these estimates were not to be trusted as evidence of present value was frequently expressed. And state utility commissions, while admitting the evidence, in obedience to Smyth *v.* Ames, failed, in ever-increasing numbers, to pay heed to it in fixing the rate base. The conviction is widespread that a sound conclusion as to the actual value of a utility is not to be reached by a meticulous study of conflicting estimates of the cost of reproducing new the congerie of old machinery and equipment, called the plant, and the still more fanciful estimates concerning the value of the intangible elements of an established business."

There is no doubt or confusion as to the method of ascertaining a fair value. Whatever doubt might have been created by the concurring opinion of Justice Brandies in the *Southwestern Bell Telephone Co.* v. *Missouri, supra,* it certainly was expelled when the same Justice delivered the opinion of the court in the last case decided before the United States Supreme Court on this point; *Georgia Railway & Power Company* v. *Railway Commission of Georgia,* 67 U. S. (L. Ed.) 728, wherein Justice Brandies said:

> "The companies assert that the rule to be applied in valuing the physical property of a utility is reproduction cost at the time of the inquiry, less depreciation. The 1921 construction costs were about 70 per cent. higher than those of 1914 and dates, when most of the plant was installed. So much of it as was in existence January 1, 1914, was valued at an amount which was substantially its actual cost or its reproduction cost as of that date. The companies claim that it should have been valued at its replacement cost in November, 1921—the time of the rate inquiry; and that the

great increase in construction costs was ignored in determining the rate base.

The case is unlike Missouri, *ex rel.* Southwestern Bell Teleph. Co. *v.* Public Serv. Commission, No. 158, decided May 21, 1923 (U. S. , *ante*, 619, 43 Sup. Ct. Rep.). Here the commission gave careful consideration to the cost of reproduction, but it refused to adopt reproduction cost as the measure of value. It declared that the exercise of a reasonable judgment as to the present 'fair value' required some consideration of reproduction costs as well as of original costs, but that 'present fair value' is not synonymous with 'present replacement costs,' particularly under abnormal conditions.''

And again in the same case:

"The refusal of the commission and of the lower court to hold that, for rate-making purposes the physical properties of a utility must be valued at the replacement cost, less depreciation, was clearly correct. As was said in Minnesota Rate Cases (Simpson v. Shepard), 230 U. S. 352, 434, 57 L. Ed. 1511, 1555, 48 L. R. A. (N. S.) 1151, 33 Sup. Ct. Rep. 729, Ann. Cas. 1916A, 18:

'The ascertainment of that value is not controlled by artificial rules. It is not a matter of formulas, but there must be a reasonable judgment, having its basis in a proper consideration of all relevant facts.'

What these relevant facts are had been stated in Smyth *v.* Ames, 169 U. S. 466, 546, 547, 42 L. Ed. 819, 849, 18 Sup. Ct. Rep. 418:

'* * * the original cost of construction, the amount expended in permanent improvements, the amount and market value of its bonds and stocks, the present as compared with the original cost of construction, the probable earning capacity of the property under particular rates prescribed by statute, and the sum required to meet operating expenses, are all matters for consideration, and are to be given such weight as may be just and right in each case. We do not say that there may not be other matters to be regarded in estimating the value of the property. What the company is en-

> titled to ask is a fair return upon the value of that which it employs for the public convenience. On the other hand, that which the public is entitled to demand is that no more be exacted from it for the use of a public highway than the services rendered by it are reasonably worth.' "

The criticism that has been directed to Dr. Bemis in the concluding paragraph of Point II of the water companies' brief is not supported by the record in this case for the reason that Dr. Bemis fully qualified as an expert (pp. 491-493). The evidence before the Board fully justified its determination of the present fair value of property and therefore should not be disturbed. *City of Elizabeth* v. *Board, supra; Public Service Gas Co.* v. *Board, supra.*

POINT III.

The findings of value by the Board was supported by the evidence and within the statutory power of the Board.

The only statutory provisions concerning the findings of the Board and its determination may be found in Chap. 130, P. L. 1918, Sec. 38, which provides in part as follows:

> "The Supreme Court is hereby given jurisdiction to review said order of the Board and to set aside such order in whole or in part when it clearly appears that there was no evidence before the Board to support reasonably the same or that the same was without the jurisdiction of the Board. The evidence presented to the Board, together with the findings, and the order issued thereon, shall be certified by the Board to the Supreme Court as its return. No such order shall be set aside in whole or in part for any irregularity or informality in the proceedings of said Board unless such irregularity or informality tends to defeat or impair the substantial right or interest of the prosecutor in certiorari."

The Board complied fully with the statute in this case. A full and complete set of findings and considerations of the evidence may be found in the decision (Case, pp. 14 to

61 inclusive). The Board in its decision considered at great length all of the elements of value and set forth the manner in which the findings of the Board were supported by the evidence. The Board found the value of the companies' properties to be $11,500,000 and allowed a return thereon of $900,000.

Three of the valuations submitted were lower than the valuation found by the Board. See Point I of this brief. It cannot be said that the Board was arbitrary in its determination. It may be assumed that the engineers for the companies did their best for their clients in making their valuation. This reference is particularly significant for in the offer of sale of the properties made by the companies a selling price of $10,594,538 was fixed by the companies with the City of Paterson (Exhibit R. 7) p. 1357. It can be assumed that the water companies in making this offer safely presented a price that was not below the "present fair value of the properties." The valuation found by the Board was about $1,000,000 above this selling price. While the valuation taken was not the valuation testified to by Dr. Bemis, nevertheless Dr. Bemis' testimony was before the Board and his valuation depreciated was $3,774,196 less than the valuation found by the Board. Between Metcalf, a witness for the companies and Bemis, there was a difference of over $6,000,000, all of which proves that the companies' valuation was exceedingly high. The Board also had before it a valuation that was agreed upon by all the engineers as being acceptable. That is to say, the valuation made by the State Water Supply Commission in the year 1912, together with additions to date making a valuation of $10,249,230 which was $1,000,000 less than the valuation fixed by the Board. If the Board had no other evidence before it than the several valuations it would be justified under the statute in making its determination.

Sec. 38 of the Utility Act of this state as hereinbefore cited provides in substance that the findings and determination of the Board should not be set aside unless it

"clearly appears that there was no evidence before the Board to support resonably the same."

Taking the aggregate valuations made by the different engineers and the offer of sale, the Board had before it all the items of value, both of tangibles and intangibles, including going concern value and the ~~other~~ other items referred to in Point III of the companies' brief. The burden is upon the water companies to prove to this court by the record "that there was no evidence before the Board to support reasonably the same"; that is, the determination of the Board. "Commonwealth Water Co. *v.* Board, 1 N. J. Mis. Rep. 356; City of Perth Amboy, *et al. v.* Board of Public Utilities Com'rs, 118 Atl. Rep., p. 782; Board of Collingswood *v.* Water Supply Commission, 86 Atl. Rep., p. 660."

GOING CONCERN VALUE.

On this item, as well as every other item of value, the Board had the testimony of the various witnesses and had before it the exhibits and schedules from which there was presented to the Board a contention on one side that going value should be allowed to a greater extent and on the other hand that no going value should be allowed. The Board determined in regard to this item as follows (p. 31):

> "With regard to going value, working capital and cost of organization, allowances have been made for these items which, in the opinion of the Board, are fair and equitable. Going value depends not only on costs of developments but on the permanency of the present sources of water. Testimony was submitted both for and against the permanency of the present supply and we have given full consideration to these matters in arriving at a final conclusion as to value."

And on page 45:

> "(1) The fair value of this property upon which rates should be predicated, including all physical and intangible elements, working capital, going concern value, etc., is $11,500,000."

References is made in the companies' brief to going value allowances. The cases referred to are not parallel to the instant case although some of the cases cited are water companies. The financial history and development of the companies may be altogether different and then again the testimony of the companies' witnesses does not support the going concern value for which contention is made. The speculative nature of the testimony adduced by the companies is well illustrated by the following excerpts of the testimony:

Cross examination of Hill by Treacy, p. 427:

"Q You valued this property as a going concern? A Yes.

Q What did you include in the items making up your going concern value?

By Mr. Treacy.

Q Can you answer the question? A No, I cannot.

Q As a matter of fact, you have no items going to make up the going concern value in your list of valuations? A They include items of cost, of attaching the business to the property.

Q How much did you place for each item? A I placed the item as a whole.

Q You did not itemize it, you just took a lump sum? A There was no way to itemize it.

(Pages 436 and 437.)

Q Turning to your Volume 1 of your report, page 22 and the following pages, you cite a number of cases there, giving Court opinions and Commission opinions. All those cases are prior to 1913, aren't they? All the Court opinions are prior to 1913, 1914? A On page 22?

Q Yes. A Yes.

Q Why didn't you cite any Court opinions since 1913? A I have cited some since 1913.

Q Court opinions? A Court opinions?

Q Yes. A I have not looked to see.

Q Why didn't you cite the Galveston Electric Light case where no going value was allowed? A I do not remember that that was the case, but I did

not have that case before me at the time this table was prepared.

Q That is a very important recent case, isn't it? A Yes, but this table was prepared before that decision was handed down.

Q Your testimony was given long after it was handed down. Why didn't you include the case in the United States Supreme Court of Houston against Southwestern Bell Telephone Company, decided May 29, 1922? A Well, I don't know unless I happened not to run into it.

Q Do you know that in that case the opinion says, 'whether going concern value should be considered and allowed at all in determining the basis for rate making, and if allowed, what the amount of it should be depends upon the financial history of the company'? A No, I do not know that decision.

Q And, as a matter of fact, in that case nothing was allowed for going concern value? A I don't know that.

Q Isn't it the effect of both the Galveston case and that case that of the financial history of the company does not show what was expended in financing and developing the company that going concern value is not allowable? A I do not think so, in the Galveston case.

Q You have cited the case in the United States District Court of Des Moines Gas Company against the City of Des Moines as upholding your contention as to going value in 1919 Federal Reporter 204? A Yes.

Q Where the United States District Court allowed three hundred thousand dollars for going value? A Yes.

Q You did not cite the same case on appeal in 238 United States 172, which threw out the three hundred thousand dollars going value? A No."

In the testimony adduced before the Board there was no proof that there were any early losses in the development of the company. The testimony did not show ~~that was~~ what was the cost of the development of the water company.

The utility witnesses testified to various methods of speculating as to the going concern value (pp. 203-211-

216) including the Wisconsin method which was severely criticised and held insufficient to support any going concern value in the case of *Galveston Electric Co.* v. *Galveston,* Advance Opinion U. S. Reports 66 (L. Ed.), p. 383.

There being no proof before the Board of earlier losses, but rather profits, and the Board having allowed for overheads, the question of going value could have been treated by the Board as in the case of *Des Moines Gas Co.* v. *Des Moines,* 238 U. S., p. 153.

See also *Galveston Electric Co.* v. *Galveston,* cited above.

There was no evidence of financial condition presented to the Board upon which to base going value and the Board would have been justified in not allowing any going value, even to the extent it was allowed, for in *Houston* v. *Southwestern Bell Tel. Co.,* Advance Opinion U. S. Reports 66 (L. Ed.), p. 537. The opinion states at pages 539 and 540:

> "Whether going concern value should be considered and allowed at all in determining the base for rate making, and if allowed, what amount it should be, depends upon the financial history of the company."

The Board in the instant case could have very well followed the reasoning in the Houston case as well as the Galveston case, especially so if they considered the testimony of Dr. Bemis (Exhibit R. 10, p. 1383; Exhibit R. 11, p. 1398 and p. 680) where he testified with regard to going concern, which is in part as follows:

> "Q What is the conclusion that you arrived at from that study? A That so far as going value is based on evidence of early losses not made up by later gains, there is no evidence of it in the last twenty-two years, but rather an accumulation of profits sufficient to probably much more than wipe out any possible losses when the companies were much more smaller in previous years."

The speculative method of figuring going concern value by the witness Metcalf was disallowed in in *re* Telephone

Company case, Public Utility Reports, Vol. 1923B, at p. 608, where the Commission states in its opinion:

> "The accuracy of the entire theory, of course, depends upon the judgment of the witness, it being stated by him at p. 9271:
>
> 'The result which I have arrived at has no connection with the historic experience of the company.'
>
> In view of these facts, and after full consideration of all evidence relating to going value, we find the evidence in its entirety unconvincing and insufficient to establish going value."

POINT IV.

The offer of sale was an admission of value and could have been so considered by the Board.

The Utility Act, Sec. 26, Chapter 195 P. L. 1911, provides:

> "All hearings and investigations before the board or any member thereof shall be governed by rules adopted by the board, and in the conduct thereof neither the board nor such member shall be bound by the technical rules of legal evidence."

Section 38 of the same act provides in part as follows:

> "No such order shall be set aside in whole or in part for any irregularity or informality in the proceedings of said board unless such irregularity or informality tends to defeat or impair the substantial right or interest of the prosecutor in certiorari."

Bearing in mind the statutory rule, governing the Board, relating to the rules of evidence, it is well at this point to consider the nature of the offer of sale and its effect as an admission against the party making it.

An offer to sell for a named price involves an estimate of value by the owner and hence may be competent as an admission against him (22 Corpus Juris, p. 180), particularly where the offer is not made at a time too remote as in the instant case. The time of the offer, August 27,

1921, was set by a statement of counsel (p. 779). Objection is made that the offer was not evidential because it was made at a time when counsel says Montclair made an application for to exercise a right of eminent domain to purchase a part of one water company. This objection has no force as the offer was not made to Montclair but a different party entirely, that is, the City of Paterson. As to Paterson and other municipalities that are interested in this proceeding the offer was made without any suit pending; was not an offer of compromise, but an ample detailed and precise offer contining full particulars of the items to be sold, both tangible and intangible and their value. It was an offer made by a shrewd seller in an endeavor to effect a sale if possible. It was made with the barter "if you don't take it at once you will not get it." There was no reservation coupled with the offer except "to prove present values in excess of the detailed figures thus submitted in any proceedings that may be taken to acquire the properties by the exercise of the right of eminent domain." This exception cannot justly be invoked in this case as it is a "rate case," and not an eminent domain proceeding. The reservation was not to the effect that the offer could not be used as an admission of value. It was presented as the companies' estimate of the value which was agreed upon with the State of New Jersey in December, 31, 1912, plus additions and improvements depreciated to date as shown by the records of the company including the high level of prices during the war and almost up to the time of the hearing and including $1,120,000 for water rights, the same value placed on this item by the company in the instant case. The offer had a more substantial basis of valuation upon which to base a rate than speculative and theoretical values that were made by the engineers for the company in this case. The detail of the offer, the basis for the offer, and its valuation made the offer evidential and the strongest kind of evidence of what the companies considered the true value of their

properties. The detail of the offer may be found in Exhibit R. 7, at pages 1356 and 1357 of the printed case.

The cases cited on page 45 of the companies' brief have no application in the instant case as the offers in the cases cited were purely offers of compromise for the purpose of settling litigation and offered without prejudice. This condition does not prevail in the case at bar and a case more in point is *Richardson* v. *Int. Pottery Co.*, 63 N. J. Law, p. 248.

An offer to sell where the price is mentioned is evidence of value.

City of Findlay v. *Pertz*, 74 Fed., p. 681;
22 Corpus Juris, p. 180;
The Oceanica, 156 Fed. Rep. 306.

Whether the offer of sale was evidential or not is quite immaterial after all in this case, as the Board determined a valuation at least $1,000,000 above the offer of sale.

POINT V.

The decision of the Board is just and reasonable and requires Bayonne to pay a reasonable rate for the service received.

An extensive discussion of the intricate joint ownership and operation of the water companies' properties is detailed in the decision of the Board (Case, pp. 14-24, inclusive).

According to the history recited and according to the evidence in the case, including the agreements made between the water companies and their joint holdings of their transmission lines, as well as water supplies, it is almost impossible to unscramble the joint ownership and allocate any particular value to any of the companies' properties on the basis of services rendered. The only reasonable and in fact possible way to treat the subject of valuation of those companies, is the manner in which it was treated by the Board; that is to say, to treat all

of the properties of these companies as a jointly owned property and then to allocate the rates in proportion to the services rendered to each municipality. The rate for that service was allocated by the Board as appears in its decision (Case, p. 24), which reads in part as follows:

> "From the above statement it is clear that the relative corporation ownership in the jointly used facilities cannot govern in the determination of the rates which should be charged the various consumers that are ultimately supplied with water by these various companies. The valuation of the property will therefore be determined in the aggregate and it will then be allocated in proportion to the service supplied to each municipality. The rates will then be determined upon the basis of cost of supplying the various municipalities served. The intercorporate charges and their adjustment will be left to the companies unless and until it appears that misleading and erroneous information is being supplied through the annual reports of the respective companies."

The allocations made by the Board including service districts may be found in the decision (Case, pp. 33 to 45).

A better explanation cannot be made than is given in detail in the Board's decision on this point which is also an answer to the points raised in the brief of the Town of Montclair.

POINT VI.

The contracts between the municipalities and the water companies cannot prevail against an order of the Board which might effect such contracts.

The question raised under Point 7 of the brief of the prosecutor, City of Bayonne, has been decided in the case of the *Atlantic Coast Electric Co.* v. *Public Utility Board,* 92 N. J. Law, pp. 168-173;

See also 12 L. A. R. 737;

and again in the case of *Hackensack Water Company* v. *Board of Public Utility Commissioners,* 115 Atl., at p. 531.

By those decisions it is settled that a contract between a water company and municipality imposses no restriction on the sovereign power of the State to fix just and reasonable rates as subsequent conditions may make desirable. It is a contract subject to the State's sovereign power over rates, and when the State through its Board of Public Utility Commissioners exercises its sovereign power over rates, the contract rights of the parties must yield.

For the reasons stated in this brief, it is respectfully submitted that the rate fixed by the Board was just and reasonable and that this Court should not reverse the judgment of the Supreme Court either for the reasons advanced by the Utilities or the municipalities.

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