INDEX.

EXHIBITS.

Writ of Certiorari.

NEW JERSEY, to wit:

STATE OF NEW JERSEY, to: THE MAYOR AND ALDERMEN OF JERSEY CITY, in the COUNTY OF HUDSON, MICHAEL I. FAGEN, (L. S.) Director of Streets and Public Improvements thereof, and JAMES RADIGAN, City Collector thereof, GREETING:

We being willing for certain reasons to be certified of certain charges, or water rates or water rents, alleged to be arrearages shown upon the books of the City of Jersey City and its Water Department, made the basis of a certain statement alleged to show such arrearages, and filed by Michael I. Fagen, Director of Streets and Public Improvements of said City with James Radigan, City Collector, the officer charged with the duty of collecting of tax arrears, and the action of such City Collector therein, and especially of all acts or proceedings relative to a proposed sale of certain premises of Lehigh Valley Railroad Company as set forth in a Notice or Advertisement of Tax Sale known as Tax Sale No. 63 of Jersey City and first published April 17, 1926, said sale to take place May 17, 1926, we do command you, that said charges and the books containing the same, said statement, and said notice or advertisement of Tax Sale, proceedings and records, and all things touching and concerning the same, as fully and entirely as before you, and each of you, they, or any part thereof, remain, to our Justices of our Supreme Court of Judicature in Trenton,

Writ of Certiorari.

on the second day of June next, you certify and send together with this writ, that therein may be done what of right and according to the law of this State should be done.

WITNESS, WILLIAM S. GUMMERE, Chief Justice of our Supreme Court, at Trenton, this thirteenth day of May, A. D., Nineteen Hundred and Twenty-six.

(signed) EDWARD J. KELLEHER,
Clerk.

(signed) JOHN MILTON,
Attorney.

A True Copy.
JOHN MILTON,
Attorney.

Allocatur.

NEW JERSEY SUPREME COURT.

LEHIGH VALLEY RAILROAD COMPANY,
Prosecutor,

vs.

THE MAYOR AND ALDERMEN OF JERSEY CITY, MICHAEL I. FAGEN and JAMES RADIGAN,
Defendants,

WRIT OF CERTIORARI.

Returnable June 2, 1926.

John Milton, Atty.,
1 Exchange Place,
Jersey City, N. J.

I allow this writ. Let it be sealed, on condition that the Prosecutor pay the amount conceded to be due and it is further ordered that such payment shall not be a waiver of the rights of either party and that either party may take depositions on notice.

(signed) CHAS. C. BLACK,
J. S. C.

May 13, 1926.

Return.

NEW JERSEY SUPREME COURT.

LEHIGH VALLEY RAILROAD COMPANY, *et al.*, Prosecutor, *vs.* THE MAYOR AND ALDERMEN OF JERSEY CITY, *et al.*, Defendants,	On Certiorari.

To The Honorable, The Justices of the Supreme Court of the State of New Jersey:

In obedience to the command of the Writ of certiorari hereto annexed, directed to The Mayor and Aldermen of Jersey City, the undersigned, Director of Streets and Public Improvements of Jersey City, and James Radigan, City Collector of Jersey City, I do hereby certify and return under my hand to the Honorable, The Justices of the Supreme Court of the State of New Jersey, that I, Michael I. Fagen, am Director of Streets and Public Improvemets of Jersey City, and as such am the official charged with the duty of the collection of water rents therein; that on April 7, 1926, I did file with James Radigan, City Collector, the officer charged with the duty of the collection of tax arrears therein, the statement copied in his return to said writ.

That said statement is based upon unpaid charges against the Prosecutor appearing on the books of the Water Department for water supplied as ascertained by tests of the meter in use in Prosecutor's property, made by the Water Department of Jersey City, which tests were made

from September 14th, 1922, to and including September 16th, 1922; that those tests disclosed that the meter installed did not register fully the quantities of water passing through; that as a result of this discovery the same percentage of inaccuracy was applied back over the entire period covered by the charges hereinafter made and the charges below copied were by my direction entered on the books of the War Department and bills therefor rendered to Prosecutor on September 20th, 1922, and thereafter, who thereupon refused to pay the amounts as charged.

Following is a list of said charges as the same appeared on the books April 7, 1926, the date my statement was filed with the City Collector, together with the periods for which said charges are made:—

STATEMENT SHOWING AMOUNT CERTIFIED TO TAX SALE

OWED BY LEHIGH VALLEY R. R. Co. at Dec. 31, 1924
With Interest Computed to May 17, 1926—
Date of Tax Sale

The Amount listed below is all for an Inaccuracy Charge

The Current Water Charge for Same Period is Paid

From	*To*		*Amount*
1918	1922		
May 23,	August 23,	67907900 cubic feet	$50,930.93
		Interest Computed to May 17th, 1926	31,366.17
		Total Amount Certified to Tax Sale	$82,297.10

MICHAEL I. FAGEN,
Director of Streets & Public Improvements.

Return.

NEW JERSEY SUPREME COURT,

LEHIGH VALLEY RAILROAD COMPANY, *et al.*,
Prosecutor,

vs.

THE MAYOR AND ALDERMEN OF JERSEY CITY, *et al.*,
Defendants.

On Certorari

To the Honorable, the Justices of the Supreme Court of the State of New Jersey.

In obedience to the command of the writ of certiorari hereto annexed directed to The Mayor and Aldermen of Jersey City, Michael I. Fagen, Director of Streets and Public Improvements of Jersey City, and the undersigned, James Radigan, City Collector of Jersey City, I do hereby certify and return under my hand to the Honorable, the Justices of the Supreme Court of the State of New Jersey, that on April 7th, 1926, Michael I. Fagen, Director of Streets and Public Improvements, who is the official charged with the duty of the collection of water rents in Jersey City, did file with me, the officer charged with the duty of the collection of tax arrears, a statement of which the following is a copy:—

Return.

To the City Collector,
Jersey City, N. J.

Dear Sir:

Pursuant to the provisions of Section 33 of an Act of the Legislature of the State of New Jersey known as the Tax Sale Revision (Revision of 1918) and the supplements and amendments thereto, I hereby certify to you the following liens for delinquent water charges against the properties set forth herein for sale in Tax Sale No. 63, pursuant to the terms of said act.

Very truly yours,

MICHAEL I. FAGEN,
Director, Department of Streets & Public Improvements.

Dated April 7th, 1926
3:10 P. M.

Attached to said statement was a list, of which the following is a copy:—

FACTORY METERED ACCOUNTS IN TAX SALE.

Name	*Location*	*Amt. Due*	*Int.*	*Total*
Lehigh Valley R. R. Co. a/c 639a	Johnston Ave. Block 2145 Lot	$50,930.93	$14,005.00	$64,935.93

Thereafter, and on or about April 17th, 1926, I did cause to be inserted in the Jersey Journal and the Jersey Observer, official newspapers of Jersey City, an advertisement, of which the following is a copy:—

OFFICE OF THE CITY COLLECTOR,
Jersey City, New Jersey.

Return.

TAX SALE No. 63

Public Notice is hereby given that, pursuant to the provisions of an Act of the Legislature of the State of New Jersey, known as the "Tax Sale Revision", Revision of 1918, and the acts amendatory thereof, the undersigned, City Collector of Jersey City, will sell at PUBLIC AUCTION, in the Assembly Chamber in the City Hall in said City, on

MONDAY, MAY 17, 1926,

at ten o'clock in the forenoon, the several lots and parcels of land described below to such persons as will purchase the same.

Said lands will be sold to make the amounts severally chargeable against the same on the first day of July, 1925, as computed on the list of lands subject to sale on file in my office, together with interest on said amount from said first day of July, 1925, with interest to the date of sale and costs of sale.

The following is a description of the several lots and parcels of lands to be sold, the owner's name as contained on the list in my office with the total amount due as computed to the first day of July, 1925, with interest to the date of sale and costs of sale.

JAMES RADIGAN,
City Collector.

Included in said advertisement was the following item:—

Sales No.	*Block*	*Lot*	*Street*	*To Whom Assessed*	*Total Amount Due*
34562	2145	40b	Jersey Ave.	Lehigh Valley R. R.	$82,297.10

I caused the said advertisement to be continued weekly once each week until and including May 15th, 1926.

JAMES A. RADIGAN,
City Collector.

Reasons.

NEW JERSEY SUPREME COURT.

LEHIGH VALLEY RAILROAD COMPANY,
Prosecutor,

against

MAYOR and ALDERMEN OF JERSEY CITY, *et al.*,
Defendants.

The Prosecutor herein writes down the following reasons for a reversal of the action of the Director of Streets and Public Improvements of Jersey City, in making charges against Prosecutor for water alleged to have been furnished to and consumed by Prosecutor and in certifying said charges to the City Collector of Jersey City as arrearages, and also the action of the said City Collector in including the said charges in the sale advertised by him to be held May 17, 1926, of property of Prosecutor:

1. The said charges in part represent moneys claimed to be due from Prosecutor to The Mayor and Aldermen for quantities of measured water furnished by it to Prosecutor, whereas in fact no such water was furnished to or consumed by Prosecutor at the time or in the quantities shown on the return to the writ in this matter.

2. The said charges in part represent moneys claimed to be due for interest upon arrearages of moneys due from Prosecutor to The Mayor and

Reasons.

Aldermen of Jersey City, for water furnished by it to Prosecutor, whereas in fact no such arrearages existed on the dates mentioned in the said return.

3. The said charges purport to be for quantities of measured water furnished to and consumed by Prosecutor between May 23, 1918, to August 23, 1922, through a meter installed on premises of Prosecutor, whereas in fact such quantities of water, nor any part thereof, did not pass through said meter at the times and between the dates for which such charges were made.

4. Said charges are for quantities of measured water alleged to have been furnished to and consumed by Prosecutor between the dates aforesaid, through said meter, whereas in fact no such quantities, nor any part thereof, were furnished, consumed or measured.

5. Said charges were not the result of an actual measurement, but are an estimate of quantities based upon a test which was insufficient, inaccurate, and erroneous.

6. Said estimate based upon said test, is unwarranted in law, and unfounded in fact.

7. The attempt to sell the lands of Prosecutor for the cause alleged is an illegal and unconstitutional effort to deprive Prosecutor of its property without due process of law.

8. The meter referred to in the return was approved by the Mayor and Aldermen of Jersey City and during the period covered by the said charges was under its exclusive control.

Reasons.

9. The inaccuracies, if any, on which said charges are based, were due solely to the neglect of The Mayor and Aldermen of Jersey City in the performance of the duty reserved by it to itself, of inspecting and testing said meter to ascertain whether or not it accurately registered the quantities of water passing through it.

10. The Mayor and Aldermen of Jersey City is estopped from asserting a charge for water alleged to have been furnished to and consumed by Prosecutor during the period mentioned in the return.

11. The said charges cover a period of time embracing the period December 28, 1917, to March 1, 1920. During said last mentioned period the property of Prosecutor, including the property embraced in the return of the City Collector, was in possession and under the control of the United States of America and any charge for water consumed during said last mentioned period was a charge or obligation on the United States, and not upon Prosecutor.

12. The possesion and control of the United States mentioned in the last preceding reason, was paramount to any lien in favor of The Mayor and Aldermen of Jersey City for water charges.

13. The Mayor and Aldermen of Jersey City are without power to sell the lands and premises referred to in the return, to enforce payment of charges for water, supplied during the period said premises were under the control of and occupation by the United States of America.

Reasons.

14. The charges set forth in the return are excessive, unreasonable, unfair and in violation of an agreement between The Mayor and Aldermen of Jersey City and Prosecutor in that they are calculated on rates in excess of rates charged by The Mayor and Aldermen of Jersey City to other consumers of water in like quantities and for similar purposes as those furnished to Prosecutor.

15. During the period mentioned in the return Prosecutor duly paid all bills rendered to it by The Mayor and Aldermen of Jersey City. The rates charged in the bills so paid were in excess of the rates charged by Jersey City to other consumers of water in like quantities and for similar purposes as those of Prosecutor. The total excess collected by the Mayor and Aldermen of Jersey City from Prosecutor during that period is larger than the amount of the claims set forth in the return.

16. The action of the Director of Streets and Public Improvements and of the City Collector of Jersey City are in divers other respects, illegal and void.

Stipulation.

NEW JERSEY SUPREME COURT.

LEHIGH VALLEY RAILROAD COMPANY,
Prosecutor,

vs.

THE MAYOR AND ALDERMEN OF JERSEY CITY, *et al.*,
Defendants.

The parties hereto by their respective counsel stipulate the following state of facts:

1. Prosecutor is a railroad corporation of the State of Pennsylvania.

2. By lease dated June 17, 1914, the Lehigh Valley Railroad Company of N. J. (a railroad corporation of the State of New Jersey) leased its entire property to prosecutor for the term of ninety-nine years from July 1st, 1914. Prosecutor is also the owner of all the stock of the Lehigh Valley Railroad Company of New Jersey.

3. Defendant City is a municipal corporation of the State of New Jersey, a City of the first class, governed by a Board of Five Commissioners functioning under the provisions of Chapter 221 of the Laws of 1911, known as the Walsh Act and under the so-called Home Rule Act entitled "An Act Concerning Municipalities", approved March 27th, 1917, and the supplements thereto

and amendments thereof and any and all statutes applying to cities of its class.

4. Michael I. Fagen, a member of said Board of Commissioners, is the Director of the Department of Streets and Public Improvements, which Department includes the management and control of the City's water supply and distribution. Andrew B. Mauzy is Water Conservator of the City since July, 1921, and acts under the direction and control of said Michael I. Fagen.

5. Prosecutor's supply of water is furnished by defendant City and the water so supplied is used by prosecutor at its Johnston Avenue yard solely for railroad purposes.

6. The supply of water to prosecutor is furnished at various points in Jersey City, among which is the yard and terminal designated as the Johnston Avenue Yard.

7. Water furnished to said Johnston Avenue Yard prior to September, 1922, was furnished through a meter numbered 318,140 and known as a Hersey Torrent model; also known as a Current Type Meter. The matters in difference between prosecutor and defendant City are limited to charges made by said defendant on this meter only.

The said meter was sold and delivered by the manufacturer thereof—the Hersey Manufacturing Company of Boston, Mass.—in 1908, and was installed in said Johnston Avenue Yard in the month of December, 1908.

8. On September 14th, 1922, at ten o'clock in the morning defendants instituted a test of the meter above referred to, which test continued to September 16th, 1922, at ten o'clock in the forenoon. This test was made by the use of a compound meter installed by the City in tandem with prosecutor's meter above mentioned. During the said forty-eight hour test readings were taken every fifteen minutes of the registration of both meters. Copy of said readings is hereto annexed marked Exhibit I.

9. Thereafter and on September 20, 1922, defendant rendered to prosecutor a bill for alleged arrears of water charges from May 28th, 1918, to September 14th, 1922, amounting to $50,930.93 of principal, together with a letter, a true copy whereof is hereto annexed marked Exhibit II.

10. The said sum of $50,930.93 mentioned in the preceding paragraph was fixed by the City by assuming that the alleged inaccurate registration established by the forty-eight hour test in September, 1922, had been continuous since May 28, 1918, and that the quantity of water shown to have been registered during the period from May 28, 1918, to September 14, 1922, was but 53% of that which was actually consumed with an alleged consequent continuous loss to the City over the four year period of 47%; the sum of $50,930.93, being the amount in dollars which represents the alleged continuous loss of 47% for the period named, was arrived at by assigning to the known registration the alleged ascertained proportion of registration or 53%.

Stipulation.

11. The claim of defendant City is based upon the theory that the type of meter through which the water was furnished would not register accurately unless the flow of water through said meter was in excess of 300 gallons or 40 cubic feet per minute.

12. Prior to the making of the said test the prosecutor promptly paid or tendered payment to defendant City of all bills rendered by defendant City to prosecutor for water supplied to prosecutor.

13. By virtue of acts of Congress and proclamations of the President of the United States of America, the property of prosecutor on December 28th, 1917, was taken over by the Federal Government and controlled and operated by it from said date until March 1st, 1920, when possession and control was surrendered to prosecutor. An accounting and adjustment between prosecutor and the Federal Government was had on June 19, 1922, at which time prosecutor released the Government from any claim against it, and at which time prosecutor had no knowledge or information of the claim made by defendant City.

14. In the advertisement of sale referred to in the return is included an item for arrears of taxes upon the property advertised for sale. These so-called arrears are for taxes which prosecutor refused to pay, and from the assessment of which prosecutor appealed, which appeal was still pending at the time of the allowance of the writ in this cause.

Stipulation.

15. Under the rules and regulations governing the distribution of water supply of Jersey City during the period in question it is forbidden that any person except City employees shall make any tests, repairs or adjustments of water meters.

16. Under the said rules and regulations no water meter is permitted to be installed until it is first examined, tested and approved by the officials of Jersey City in charge of the water supply and distribution.

JOHN MILTON,
Attorney for Prosecutor.

THOMAS J. BROGAN,
Attorney for Defendants.

Opinion.

NEW JERSEY SUPREME COURT.

No. 245—May Term, 1927.

LEHIGH VALLEY RAILROAD COMPANY,
Prosecutor,

vs.

THE MAYOR AND ALDERMEN OF JERSEY CITY, *et al.*,
Respondents.

Argued May 5, 1927; decided August 15, 1927.

SYLLABUS.

1. A charge for water furnished by a municipality to an owner or occupant of lands is not a tax, but is the subject of a contract, the sale of a commodity, creating the relationship of seller and purchaser as between the municipality and the consumer.

2. The amount of the charge must be reached with that certainty that would warrant a recovery in an action for goods sold and delivered.

3. *Held,* that the arrears of water rents sought to be made by a sale of prosecutor's lands were arrived at by methods and calculations making the result arbitrary, inaccurate, uncertain and speculative, and, in consequence, such charges and the proceedings for collection by sale of lands must be set aside.

Opinion.

On Certiorari.

Before Justices PARKER and CAMPBELL,
For Prosecutor, JOHN MILTON.

For Respondents, THOMAS J. BROGAN and STEPHEN M. EGAN, JR.

The opinion of the Court was delivered by CAMPBELL, J.:

The writ of certiorari brings before us for review proceedings upon the part of the City of Jersey City to sell lands of the prosecutor for alleged arrears of water rents and to review the alleged charges as shown by the records of the Water Department of the City, the statement thereof certified by the City Collector and the advertisement of sale.

The Collector's return to the writ contains a copy of the statement of the Water Department certifying arrears of water rents amounting to $50,930.93 of principal and $15,000 interest, a total of $64,935.93. The amount advertised by the collector is $82,297.10 which includes an item for unpaid taxes and interest which is pending in the courts on appeal from a tax assessment. No point is made, however, of the inclusion of such taxes in the proceeding to sell.

Accepting the concession in respondents' brief that "the facts that are material to the issue—are set out in the brief for prosecutor, and, as they appear therein, are substantially correct", we quote such facts as follows:

> "On May 23, 1908, the City and prosecutor entered into a contract for a supply (of water) by the City to the Johnston Avenue Terminal Yard of prosecutor in Jersey City. Pursuant thereto prosecutor installed a meter, the regis-

tration of which, under the contract, should 'form the basis upon which bills shall be rendered to and payment made by' the prosecutor at a specified rate. On the morning of September 14, 1922, the City began a test of this meter which lasted forty-eight (48) hours, ending on the morning of September 16th. This test indicated that the meter, during the forty-eight hour period, registered but 53% of the water passing through it. Thereupon, upon the asumption that this defect had been constant during the prior period (back to May, 1918), the Director of Streets and Public Improvements, entered charges on the books of the City representing the difference between 100% and 53%, covering a period from May 23, 1918 to August 23, 1922 (four years and three months) and rendered a bill amounting to $50,930.93 of principal. Prosecutor refused to pay this bill, although it did pay a bill which included the deficiency during the test period. On this refusal the Director of Streets and Public Improvements certified the $50,930.93 plus interest to the City Collector, as an arrearage of water rents, and the latter advertised the premises for sale. Upon publication of the notice of intention of the City to sell the property of the railroad company for such alleged arrearages of water rents the company applied to the Court of Chancery for an injunction to restrain the sale upon the ground that the moneys claimed were not due and that the proceedings were otherwise irregular. The court denied a preliminary injunction because it conceived that there existed an adequate remedy at law by certiorari. Such refusal of relief was necessarily followed by an immediate application to this court for a writ of certiorari which was allowed by Mr. Justice Black. The return certifies the test, the application of the same percentage of inaccuracy to the preceding period, the entries on the

City's books, rendition of bill, and refusal to pay. * * * After the filing of the return and reasons, and the taking of depositions, under the rule had begun, the city, by stipulation, enlarged its claim by including a still earlier period (December 16, 1908 to May 28, 1918) and increasing its demand, $73,507.95 so that the record before the court discloses a claim made by the City amounting to $124,438.88 of principal, covering a period of thirteen (13) years and eight months based on a test made in 1922 lasting but forty eight (48) hours. This enlargement of the City's claim resulted from the discovery during the taking of depositions that the meter had been put in service in 1908 instead of 1918."

The reasons filed are sixteen in number and are argued under seven heads or points, as follows:

1. The theory on which the city bases its claim is unsound.

2. The so-called test is not conclusive.

(a) The testing meters were unreliable.

(b) The test was insufficient and incomplete.

3. The conclusions drawn from the test are fallacious.

4. The city is now estopped from asserting its claim.

5. The claims for interest are unjustified and erroneous.

6. The City is bound by contract to base charges on meter registration.

7. Prosecutor is not liable for charges incurred during the period of Federal control.

We have not considered any of the grounds or reasons urged under Points 4, 5, 6 and 7 because at the outset we have been confronted by the argument, which we consider substantial, that the charges for water, forming the basis of the proceeding before us, are too inaccurate, uncertain and speculative, to permit the enforcement of payment thereof.

Our conclusion is that a charge for water furnished by a municipality to an owner or occupant of lands is not a tax but is the subject of a contract, the sale of a commodity, creating the relationship of seller and purchaser as between the municipality and the consumer. *Jersey City vs. Morris Canal and Banking Co.,* 41 N. J. L. 66; *Ford Motor Company vs. Kearney,* 91 Id. 671. This seems to be universally conceded.

40 Cyc. 796, paragraph E.
19 R. C. L. 764, Sec. 69; Supp. #4, p. 1288.
27 R. C. L. 1434, Sec. 50; Supp. #3, p. 1554.
Supp. #4, p. 1796; 43 Corpus Juris, p. 70. Sec. 6 and page 183, Sec. 180.

All the cases cited under the foregoing hold that a municipality has two classes of powers:

1. Legislative and governmental by virtue of which it exercises a governmental and police power and controls its people and

2. Proprietary and business by which it acts and contracts for the private advantage of itself and its inhabitants. In the exercise of the proprietary and business powers the municipality is governed by the same rules as control an individual or business corporation under like circumstances.

This principle was asserted and the rule applied in this State in Karpinski *vs.* South River, 85 N. J. L. 208 and Olesiewicz *v.* Camden, 100 Id. 336, in holding the municipality liable for damages for negligence growing out of works and operations carried on under its business and proprietary powers.

The providing of water for extinguishing fires and electricity for lighting streets and public places are governmental functions while the distribution of water and furnishing of electricity to its inhabitants, for a price, is the exercise of private or proprietary function by the municipality and is governed by the same rules as apply to private corporations.

Our consideration of the proofs before us does not satisfy us that the amount claimed by the city approaches the point of certainty that is necessary. There is much therein that is persuasive in favor of finding that the meter installed in 1908 was out of repair, and was not accurately measuring and registering at the time of the tests made by the City. There is nothing however showing with any certainty when that condition of disrepair or inaccuracy arose. It would therefore be highly arbitrary to assume that it had existed a month or a year prior to the test and certainly much more unwarranted to carry it back to the date of installation in 1908 as the City had.

Disregarding the question of disrepair and assuming that the meter could not and never did register when the flow was small—under 300 or 400 gallons per minute—and assuming that the tests were accurately made and the testing ap-

Opinion.

paratus was accurate, the result arrived at, by the method employed by the City, would still bear the stamp, not only of inaccuracy, but of conjecture and speculation.

By the method of computation employed, accuracy in result could be reached only provided that during all times in the period from 1908 the several flows through the meter had been in accurate accord with the flows as measured during the test period. This is not shown and of course could not be because such a condition did not and could not exist.

The relationship between the City and prosecutor being one arising out of contract could a recovery in an action at law based upon any such theory be maintained? The indisputable answer must be in the negative. Dover *v.* Richardson and Boynton Co., 81 L. 278; Bayonne *v.* Standard Oil Co., Id. 717.

Our conclusion is that the amount of the charges against the prosecutor sought to be imposed and made out of its property by sale is arbitrary, inaccurate, uncertain and speculative and cannot be maintained and that there is no evidence before us of such character, as will permit a fixing and determining of the amount, if any, due from the prosecutor.

The charges and water rents and all proceedings thereunder brought up for review, are therefore set aside, with costs.

Rule for Judgment.

(Filed August 24, 1927.)

NEW JERSEY SUPREME COURT.

LEHIGH VALLEY RAILROAD COMPANY,
Prosecutor,
vs.
MICHAEL I. FAGEN, Director of Streets and Public Improvements, JAMES RADIGAN, City Collector, and THE MAYOR AND ALDERMEN OF JERSEY CITY,
Defendants.

On Certiorari.
RULE FOR JUDGMENT.

The Court having inspected the proceedings returned with the writ of certiorari in this cause, having read the depositions taken in support of said writ of certiorari and having examined the reasons for setting aside said proceedings, having heard the arguments of counsel thereon and the Court having duly considered the same and being of opinion that the claims for water alleged by the defendants to have been consumed by the prosecutor are not valid; that the moneys claimed in this proceeding by the defendants to be due from the prosecutor to The Mayor and Aldermen of Jersey City are not due and that the amount of the charges sought to be imposed against the prosecutor by the defendants is speculative and cannot be maintained;

It is thereupon ORDERED AND ADJUDGED that the claims for water alleged by the defendants to have

Rule for Judgment.

been consumed by the prosecutor are not valid; that the moneys claimed in this proceeding by the defendants to be due from the prosecutor to the Mayor and Aldermen of Jersey City are not due, and that the amount of the charges sought to be imposed against the prosecutor by the defendants is speculative and cannot be maintained, and that said proceedings to sell the property of the prosecutor be reversed, set aside, made void and for nothing holden, with costs of the prosecutor to be taxed.

Entered August 24th, 1927.

On motion of

JOHN S. MILTON,
Attorney for Prosecutor.

Notice of Appeal—Grounds of Appeal.

(Filed September 14, 1927.)

NEW JERSEY SUPREME COURT.

LEHIGH VALLEY RAILROAD COMPANY, Prosecutor, *vs.* THE MAYOR AND ALDERMEN OF JERSEY CITY, *et al.*, Respondents.	On Certiorari. NOTICE OF APPEAL. GROUNDS OF APPEAL.

To JOHN MILTON, Esq.,
Attorney for Prosecutor.

Sir:

TAKE NOTICE that the respondents appeal to the Court of Error and Appeals from the whole of the judgment entered in this cause on the following grounds:

1. That the Supreme Court erred in holding that a charge for water furnished by a municipality to an owner or occupant of lands is not a tax.

2. That the Supreme Court erred in holding that the charges for water in this case were too inaccurate, uncertain and speculative to permit the enforcement of payment thereof.

3. That the Supreme Court erred in holding that there was no evidence to permit a fixing and determining of the amount due from the prosecutor.

THOMAS J. BROGAN,
Attorney for Respondents.

Notice of Argument.

(Filed September 17, 1927.)

NEW JERSEY COURT OF ERROR AND APPEALS.

LEHIGH VALLEY RAILROAD COMPANY, Prosecutor-Appellees, *vs.* THE MAYOR AND ALDERMEN OF JERSEY CITY, *et al.*, Respondents-Appellants.	On Certiorari. NOTICE OF ARGUMENT.

To JOHN MILTON, Esq.,
Attorney of Prosecutor-Appellee.

TAKE NOTICE of the argument of the issue joined in the cause before the New Jersey Court of Error and Appeals holden at Trenton, in and for the State of New Jersey, on the third Tuesday of October, next, at eleven o'clock in the forenoon, or as soon thereafter as the said Court can attend to the same.

THOMAS J. BROGAN,
Attorney of and of Counsel
with Respondents-Appellants.

Dated, September 14th, 1927.

Exhibit I.

LEHIGH VALLEY RAILROAD COMPANY

12" HERSEY TORRENT METER No. 318140

LOCATED AT JOHNSTON AVE.

Date	*Readings Cu. Ft.*	*Consumption Cu. Ft.*
1918		
May 28th	Zero	
June 22nd	1461000	1461000
July 23rd	3186000	1725000
Aug. 23rd	4953000	1766000
Sept. 23rd	6636000	1684000
Oct. 23rd	8326000	1690000
Nov. 23rd	10034000	1708000
Dec. 23rd	11978000	1944000
1919		
Jan. 23rd	13920000	1942000
Feb. 21st	15830000	1910000
Mar. 22nd	17566000	1736000
Apr. 23rd	19624000	2058000
May 23rd	21587000	1963000
June 24th	23524000	1937000
July 23rd	25403000	1879000
Aug. 23rd	27390000	1987000
Sept. 23rd	29330000	1940000
Oct. 23rd	31082000	1752000
Nov. 22nd	32847000	1765000
Dec. 23rd	34982000	2135000

Exhibit I.

Date	*Readings Cu. Ft.*	*Consumption Cu. Ft.*
1920		
Jan. 23rd	37026000	2044000
Feb. 21st	39158000	2132000
Mar. 23rd	41593000	2435000
Apr. 23rd	43314000	1721000
May 22nd	45034000	1720000
June 23rd	47084000	2050000
July 23rd	49017000	1933000
Aug. 23rd	51037000	2020000
Sept. 23rd	53088000	2051000
Oct. 23rd	54118000	1030000
Nov. 23rd	56046000	1928000
Dec. 23rd	58328000	2282000
1921		
Jan. 22nd	59634000	1306000
Mar. 8th	61585000	1951000
Mar. 23rd	62024000	439000
Apr. 21st	62921000	897000
May 24th	63892000	971000
June 23rd	64814000	922000
July 22nd	65723000	909000
Aug. 23rd	66534000	811000
Sept. 23rd	67468000	934000
Oct. 22nd	68282000	814000
Nov. 23rd	68992000	710000
Dec. 23rd	69694000	702000
1922		
Jan. 23rd	70383500	689500
Feb. 23rd	71505000	1121500
Mar. 23rd	72496000	991000
Apr. 22nd	73287000	791000
May 23rd	74061000	774000
June 23rd	74814000	753000
July 24th	75628000	814000
Aug. 23rd	76577000	949000

Exhibit I.

Sept. 14th, 1922.

LEHIGH VALLEY R. R.

Johnston Avenue.

12″ Hersey Torrent. #318140.

Time	*Reading*	*Consumption*
10:00 A. M.	77370200	
10:15 " "	77372200	2000
10:30 " "	77373500	1300
10:45 " "	77374500	1000
11:00 " "	77375800	1300
11:15 " "	77376700	900
11:30 " "	77377600	900
11:45 " "	77378500	900
12:00 Noon	77379300	800
12:15 P. M.	77379600	300
12:30 " "	77380400	800
12:45 " "	77380800	400
1:00 " "	77381000	200
1:15 " "	77381200	200
1:30 " "	77381200	00
1:45 " "	7381200	00
2:00 " "	77381200	00
2:15 " "	77381200	00
2:30 " "	77381700	500
2:45 " "	77381700	00
3:00 " "	77382150	450
3:15 " "	77382400	250
3:30 " "	77382550	150
3:45 " "	77383000	450
4:00 " "	77383699	600
4:15 " "	77384400	800
4:30 " "	77385550	1150
4:45 " "	77386000	450

Exhibit I.

Time	*Reading*	*Consumption*
5:00 P. M.	77386450	450
5:15 " "	77387200	750
5:30 " "	77387850	650
5:45 " "	77388650	800
6:00 " "	77389850	1200
6:15 " "	77390800	950
6:30 " "	77391000	200
6:45 " "	77391000	00
7:00 " "	77391700	700
7:15 " "	77392450	750
7:30 " "	77392900	450
7:45 " "	77393600	700
8:00 " "	77394550	950
8:15 " "	77395500	950
8:30 " "	77395500	00
8:45 " "	77395500	00
9:00 " "	77396050	550
9:15 " "	77396650	600
9:30 " "	77396650	00
9:45 " "	77396700	50
10:00 " "	77398250	1550
10:15 " "	77398850	600
10:30 " "	77398850	00
10:45 " "	77398850	00
11:00 " "	77398850	00
11:15 " "	77398850	00
11:30 " "	77399100	250
11:45 " "	77399200	100
12:00 " "	77399200	00
Sept. 15:		
12:15 A. M.	77399200	00
12:30 " "	77399600	400
12:45 " "	77399900	300
1:00 " "	77400100	200
1:15 " "	77400500	400

Exhibit I.

Time	*Reading*	*Consumption*
1:30 A. M.	77400700	200
1:45 " "	77401300	600
2:00 " "	77401500	200
2:15 " "	77401850	350
2:30 " "	77401850	00
2:45 " "	77401850	00
3:00 " "	77401850	00
3:15 " "	77401850	00
3:30 " "	77402200	350
3:45 " "	77402200	00
4:00 " "	77402400	200
4:15 " "	77402450	50
4:30 " "	77402450	00
4:45 " "	77402500	50
5:00 " "	77403000	500
5:15 " "	77403000	00
5:30 " "	77403000	00
5:45 " "	77403100	100
6:00 " "	77403100	00
6:15 " "	77403100	00
6:30 " "	77403250	150
6:45 " "	77403950	700
7:00 " "	77404400	450
7:15 " "	77405150	750
7:30 " "	77406150	1000
7:45 " "	77407250	1100
8:00 " "	77407250	00
8:15 " "	77407450	200
8:30 " "	77408100	650
8:45 " "	77408100	00
9:00 " "	77408700	600
9:15 " "	77408900	200
9:30 " "	77408900	00
9:45 " "	77408900	00
10:00 " "	77408900	00

Exhibit I.

	Time	*Reading*	*Consumption*
	10:15 A. M.	77408900	00
	10:30 " "	77408900	00
	10:45 " "	77408900	00
	11:15 " "	77408900	00
	11:30 " "	77409100	200
10	11:45 " "	77409600	500
	12:00 Noon	77409600	00
	12:15 P. M.	77409600	00
	12:30 " "	77409600	00
	12:45 " "	77409600	00
	1:00 " "	77409600	00
	1:15 " "	77409600	00
	1:30 " "	77409600	00
	1:45 " "	77409600	00
	2:00 " "	77409600	00
20	2:15 P. M.	77410250	650
	2:30 " "	77410850	600
	2:45 " "	77412300	1450
	3:00 " "	77413350	850
	3:15 " "	77414550	1200
	3:30 " "	77415350	800
	3:45 " "	77415350	00
	4:00 " "	77416000	650
	4:15 " "	77416750	750
	4:30 " "	77417800	1050
30	4:45 " "	77418800	1000
	5:00 " "	77419500	700
	5:15 " "	77419950	450
	5:30 " "	77420550	600
	5:45 " "	77420700	150
	6:00 " "	77421600	900
	6:15 " "	77422950	1350
	6:30 " "	77423850	900
	6:45 " "	77424450	600
	7:00 " "	77424850	400
40			

Exhibit I.

Time	*Reading*	*Consumption*	
7:15 P. M.	77425150	300	
7:30 " "	77426000	850	
7:45 " "	77426050	50	
8:00 " "	77426050	0	
8:15 " "	77426050	0	
8:30 " "	77426050	0	10
8:45 " "	77427050	1000	
9:00 " "	77427200	150	
9:15 " "			
9:30 " "			
9:45 " "			
10:00 " "	77429250	2050	
10:15 " "	77429750	500	
10:30 " "	77429750	0	
10:45 " "	77429800	50	
11:00 " "	77430100	300	20
11:15 " "	77430200	100	
11:30 " "	77430200	0	
11:45 " "	77430200	0	
12:00 M.	77430200	0	
12:15 A. M.	77430200	0	
12:30 " "	77430550	350	
12:45 " "	77431000	450	
1:00 " "	77431350	350	
1:15 " "	77431500	150	
1:30 " "	77431600	100	30
1:45 " "	77432500	900	
2:00 " "	77433450	950	
2:15 " "	77435250	1800	
2:30 " "	77435950	700	
2:45 " "	77436300	350	
3:00 " "	77436300	0	
3:15 " "	77436300	0	
3:30 " "	77436300	0	
3:45 " "	77436300	0	
			40

Exhibit I.

Time	*Reading*	*Consumption*
4:00 A. M.	77436850	550
4:15 " "	77436850	0
4:30 " "	77436850	0
4:45 " "	77436850	0
5:00 " "	77436850	0
5:15 " "	77437200	350
5:30 " "	77437200	0
5:45 " "	77437900	700
6:00 " "	77438850	950
6:15 " "	77439800	950
6:30 " "	77440300	500
6:45 " "	77440800	500
7:00 " "	77441950	1150
7:15 " "	77442950	1000
7:30 " "	77443550	600
7:45 " "	77444250	700
8:00 " "	77445000	750
8:15 " "	77445900	900
8:30 " "	77446800	900
8:45 " "	77446800	0
9:00 " "	77447600	800
9:15 " "	77448600	1000
9:30 " "	77449050	450
9:45 " "	77449250	200
10:00 " "	77449450	200
		79,250

Exhibit I.

LEHIGH VALLEY R. R. TEST METER

6" TRIDENT COMPOUND #396031

Time 1922	*Reading* 6" Current Meter	Cons.	*Reading* 1" Disc Meter	Cons.	Total Cons.
Sept. 14					
10:00 A. M.	Zero		Zero		
10:15 " "	2400	2400	6	6	2406
10:30 " "	3730	1330	9	3	1333
10:45 " "	4750	1020	11	2	1022
11:00 " "	6110	1360	14	3	1363
11:15 " "	7050	940	15	1	941
11:30 " "	8050	1000	17	2	1002
11:45 " "	9000	950	19	2	952
12:00 " "	9960	960	21	2	962
12:15 P. M.	11060	1100	22	1	1101
12:30 " "	11630	570	25	3	573
12:45 " "	12220	590	28	3	593
1:00 " "	12750	530	29	1	531
1:15 " "	13250	500	31	2	502
1:30 " "	13770	520	32	1	521
1:45 " "	14420	650	34	2	652
2:00 " "	15020	600	36	2	802
2:15 " "	15920	900	38	2	902
2:30 " "	16250	330	40	2	332
2:45 " "	17120	870	42	2	872
3:00 " "	17600	480	43	1	481
3:15 " "	18200	600	45	2	602
3:30 " "	19050	850	47	2	852
3:45 " "	19880	830	49	2	832
4:00 " "	20700	820	51	2	822
4:15 " "	21550	850	52	1	851
4:30 " "	22800	1250	54	2	1252
4:45 " "	23600	800	57	3	803
5:00 " "	24350	750	58	1	751
5:15 " "	25250	900	60	2	902
5:30 " "	26100	850	62	2	852
5:45 " "	27150	1050	63	1	1051
6:00 " "	28550	1400	67	4	1404
6:15 " "	29550	1000	69	2	1002
6:30 " "	30200	650	71	2	652

Exhibit I.

	Time 1922	*Reading* 6″ Current Meter	Cons.	*Reading* 1″ Disc Meter	Cons.	Total Cons.
	6:45 P. M.	31070	870	73	2	872
	7:00 " "	32260	1190	75	2	1192
	7:15 " "	33310	1050	78	3	1053
10	7:30 " "	34280	970	80	2	972
	7:45 " "	35240	960	82	2	962
	8:00 " "	36250	1010	84	2	1012
	8:15 " "	37480	1230	87	3	1233
	8:30 " "	38070	590	88	1	591
	8:45 " "	38825	755	90	2	757
	9:00 " "	39810	985	92	2	987
	9:15 " "	40770	960	94	2	962
	9:30 " "	41250	480	95	1	481
	9:45 " "	42920	1670	97	2	1672
20	10:00 " "	43200	280	100	3	283
	10:15 " "	44130	930	102	2	932
	10:30 " "	44620	490	103	1	491
	10:45 " "	45010	390	104	1	391
	11:00 " "	45365	355	106	2	357
	11:15 " "	45700	335	106	0	335
	11:30 " "	46370	670	108	2	672
	11:45 " "	46725	355	109	1	356
	12:00 " "	47230	505	111	2	507
	Sept. 15					
	12:15 A. M.	47650	420	112	1	421
30	12:30 " "	48510	860	114	2	862
	12:45 " "	49270	760	116	2	762
	1:00 " "	50110	840	118	2	842
	1:15 " "	50730	620	119	1	621
	1:30 " "	51330	600	121	2	602
	1:45 " "	52110	780	122	1	781
	2:00 " "	52720	610	124	2	612
	2:15 " "	53220	500	126	2	502
	2:30 " "	53610	390	127	1	391
	2:45 " "	54060	450	129	2	452
40	3:00 " "	54510	450	130	1	451
	3:15 " "	55010	500	131	1	501
	3:30 " "	55710	700	133	2	702
	3:45 " "	56120	410	134	1	411
	4:00 " "	56670	550	135	1	551
	4:15 " "	57210	540	137	2	542

Exhibit I.

Time 1922	*Reading* 6″ Current Meter	Cons.	*Reading* 1″ Disc Meter	Cons.	Total Cons.	
4:30 A. M.	57590	380	138	1	381	
4:45 " "	58020	430	139	1	431	
5:00 " "	58800	780	141	2	782	
5:15 " "	59180	380	142	1	381	
5:30 " "	59530	350	143	1	351	10
5:45 " "	60010	480	145	2	482	
6:00 " "	60290	280	146	1	281	
6:15 " "	60710	420	147	1	421	
6:30 " "	61120	410	149	2	412	
6:45 " "	62060	940	151	2	942	
7:00 " "	63030	970	154	3	973	
7:15 " "	64180	1150	157	3	1153	
7:30 " "	65390	1210	160	3	1213	
7:45 " "	66810	1420	163	3	1423	
8:00 " "	67500	690	165	2	692	20
8:15 " "	68350	850	168	3	853	
8:30 " "	69400	1050	171	3	1053	
8:45 " "	70200	800	173	2	802	
9:00 " "	71100	900	175	2	902	
9:15 " "	71600	500	177	2	502	
9:30 " "	72050	450	178	1	451	
9:45 " "	72450	400	180	2	402	
10:00 " "	73050	600	182	2	602	
10:15 " "	73600	550	183	1	551	
10:30 " "	74050	450	184	1	451	30
10:45 " "	74350	300	186	2	302	
11:00 " "	74800	450	188	2	452	
11:15 " "	75300	500	190	2	502	
11:30 " "	76100	800	192	2	802	
11:45 " "	77300	1200	194	2	1202	
12:00 N.	77700	400	195	1	401	
12:15 P. M.	78050	350	197	2	352	
12:30 " "	78300	250	198	1	251	
12:45 " "	79100	800	200	2	802	
1:00 " "	79400	300	201	1	301	40
1:15 " "	79850	450	203	2	452	
1:30 " "	80300	450	204	1	451	
1:45 " "	80800	500	206	2	502	
2:00 " "	81250	450	207	1	451	
2:15 " "	82100	850	210	3	853	

Exhibit I.

Time 1922	*Reading* 6″ *Current Meter*	*Cons.*	*Reading* 1″ *Disc Meter*	*Cons.*	*Total Cons.*
2:30 P. M.	83150	1050	212	2	1052
2:45 " "	84650	1500	216	4	1504
3:00 " "	85500	850	218	2	852
3:15 " "	86750	1250	220	2	1252
3:30 " "	87600	850	222	2	852
3:45 " "	88200	600	223	1	601
4:00 " "	89100	900	225	2	902
4:15 " "	90100	1000	227	2	1002
4:30 " "	91300	1200	230	3	1203
4:45 " "	92350	1050	231	1	1051
5:00 " "	93200	850	233	2	852
5:15 " "	94100	900	234	1	901
5:30 " "	95200	1100	237	3	1103
5:45 " "	95950	750	238	1	751
6:00 " "	97000	1050	240	2	1052
6:15 " "	98400	1400	243	3	1403
6:30 " "	99300	900	245	2	902
6:45 " "	100100	800	247	2	802
7:00 " "	101100	1000	249	2	1002
7:15 " "	101950	850	251	2	852
7:30 " "	102900	950	253	2	952
7:45 " "	103750	850	254	1	851
8:00 " "	104600	850	256	2	852
8:15 " "	105300	700	258	2	702
8:30 " "	106100	800	259	1	801
8:45 " "	107300	1200	262	3	1203
9:00 " "	108000	700	263	1	701
9:15 " "					
9:30 " "					
9:45 " "					
10:00 " "	110900	2900	270	7	2907
10:15 " "	111650	750	272	2	752
10:30 " "	112050	400	273	1	401
10:45 " "	112350	500	274	1	501
11:00 " "	113100	550	276	2	552
11:15 " "	113600	500	277	1	501
11:30 " "	114000	400	278	1	401
11:45 " "	114500	500	280	2	502
12:00 M.	115080	580	281	1	581

Exhibit I.

Time 1922	*Reading* 6″ *Current Meter*	*Cons.*	*Reading* 1″ *Disc Meter*	*Cons.*	*Total Cons.*
Sept. 16th					
12:15 A.M.	115850	770	283	2	772
12:30 " "	116720	870	285	2	872
12:45 " "	117520	800	287	2	802
1:00 " "	118160	640	288	1	641
1:15 " "	118640	480	289	1	481
1:30 " "	119220	580	291	2	582
1:45 " "	120250	1030	293	2	1032
2:00 " "	121320	1070	295	2	1072
2:15 " "	123100	1780	299	4	1784
2:30 " "	124060	960	301	2	962
2:45 " "	124810	750	303	2	752
3:00 " "	125220	410	304	1	411
3:15 " "	125520	300	305	1	301
3:30 " "	125960	440	306	1	441
3:45 " "	126800	840	308	2	842
4:00 " "	127660	860	309	1	861
4:15 " "	128080	420	310	1	421
4:30 " "	128480	400	311	1	401
4:45 " "	128790	310	312	1	311
5:00 " "	129240	450	313	1	451
5:15 " "	129950	710	315	2	712
5:30 " "	130450	500	316	1	501
5:45 " "	131230	780	318	2	782
6:00 " "	132340	1110	321	3	1113
6:15 " "	133680	1340	323	2	1342
6:30 " "	134470	790	325	2	792
6:45 " "	135310	840	327	2	842
7:00 " "	136610	1300	331	4	1304
7:15 " "	137800	1190	333	2	1192
7:30 " "	138640	840	335	2	842
7:45 " "	139570	930	337	2	932
8:00 " "	140400	830	339	2	832
8:15 " "	141410	1010	341	2	1012
8:30 " "	142370	960	342	1	961
8:45 " "	143310	940	344	2	942
9:00 " "	144410	1100	347	3	1103
9:15 " "	145690	1280	349	2	1282
9:30 " "	146690	1000	352	3	1003
9:45 " "	147420	730	353	1	731
10:00 " "	148060	640	355	2	642
					148415

Exhibit II.

Sept. 20th, 1922.

Lehigh Valley Railroad Co.,
Superintendent's Office,
New York Division,
Jersey City, N. J.

ATTENTION of Mr. W. W. Abbott,
Superintendent

Gentlemen:—

On Sept. 14th, 15th and 16th a test was made of the 12″ Hersey Torrent Meter #318140 for the purpose of determining its accuracy.

This meter is located at the Johnston Ave. crossing and is used to measure the quantity of water taken from the supply lines of Jersey City and supplying your Company.

The test was made by inserting a 6″ accurate Compound Meter in tandem with the 12″ Hersey Torrent Meter which necessitated the passage of all water used during period of test through the 12″ Hersey Torrent Meter and the 6″ Compound Test Meter.

The test was started at 10 A. M. o'clock Sept. 14th and quarterly hour readings taken until 10 A. M. o'clock Sept. 16th, which period the 6″ Compound Test Meter showed a registration of 148,415 cubic feet. Of this quantity the 12″ Hersey Torrent Meter registered only 79,250 cubic feet or a loss of 47% in registration.

This loss has been constant to the City of Jersey City from May 28th, 1918 (date meter was set at zero) to Sept. 14th, 1922, (date installation of test meter) and we find this loss to be 67,907,900 cubic feet which at 75¢ per thousand cubic feet amounts to $50,930.93.

Exhibit II.

The reason or cause for this under-registration of the 12″ Hersey Torrent Meter is due to the fact that it is not the proper type of meter for the service for which it is being used, it being of the current or velocity type and should be of the compound type. Also it is over-sized and does not register accurately on rates of flows under three hundred gallons per minute as shown by the fifteen minute readings, also as outlined on the enclosed accuracy chart.

I am enclosing bills and statement covering the inaccuracy. Also statement showing readings taken of your meter from May 28th, 1918 (date set at zero) to Aug. 23rd, 1922 (last date of billing). Also readings and consumption of both the 12″ Hersey Torrent Meter and 6″ Compound Test Meter for period during test.

I will be pleased to call at your office any time that you may desire me to for the purpose of giving further information that may be necessary for the proper understanding of this bill.

Yours very truly,

(signed) A. B. MAUZY
Water Conservator

Depositions.

NEW JERSEY SUPREME COURT.

THE LEHIGH VALLEY RAILROAD COMPANY, Prosecutor, *vs.* THE MAYOR AND ALDERMAN OF JERSEY CITY, *et al.*, Respondents.	On Certiorari.

DEPOSITIONS ON THE PART OF THE PROSECUTOR in the above stated cause, taken pursuant to notice, this 18th day of February, 1927, at two o'clock in the afternoon, at the City Hall, Jersey City, New Jersey, before Edward O'Byrne, Supreme Court Commissioner, in the presence of John Milton, Esq., for the prosecutor, and Thomas J. Brogan, Esq., Corporation Counsel, for the respondents.

Supreme Court Commissioner.

ROBERT E. FERGUSON, sworn as a witness on the part of the prosecutor, testifies as follows:

Direct examination by Mr. Milton:

Q. You live in Boston, Massachusetts? A. Medford, Massachusetts, which is a suburb of Boston.

Q. By whom are you employed? A. The Hersey Manufacturing Company.

Robert E. Ferguson—Direct.

Q. And you have been connected with the Hersey Manufacturing Company how long? A. Practically twenty years.

Q. What is the business of the Hersey Manufacturing Company? A. They are manufacturers of water meters and sugar machinery.

Q. What is your position with the company? A. Assistant superintendent.

Q. How long have you been assistant superintendent? A. About two years.

Q. Prior to that time what were you? A. Foreman in the meter department.

Q. As foreman, what had you to do with the testing of meters? A. I had entire charge of the testing of meters.

Q. You have had charge of the testing of the various types of meters manufactured by your company for how long? A. For the last ten years.

Q. Does your ompany manufacture a type of meter known as twelve-inch current Model T? A. Yes, sir.

Q. By what name was it known in the trade? A. It used to be called an inferential meter.

Q. Is it also known as a torrent meter? A. Yes, sir; as a torrent meter—torrent current.

Q. Are you familiar with the meter that is involved in the controversy between the Lehigh Valley Railroad Company and Jersey City? A. Not with that particular meter, but that type, exactly similar, has been built and tested since I have been in the department.

Q. That particular meter was sold by your company? A. Yes, sir.

Q. And have you the shop test on that particular meter? A. Yes, sir.

Q. Will you produce it, please? A. (Witness produces a card.)

Q. Will you briefly describe the manner in which the meter works? A. The meter is constructed like a turbine wheel. The turbine wheel revolves on a phosphor-bronze spindle, which is screwed in a bronze casting known as a deflector. The water comes up through the bottom of the deflector, through the sides, and operates the turbine wheel, the water flowing out through the outside diameter of the wheel and up and out through the outlet side of the meter.

Mr. Milton: Is there any dispute that this meter is 318,140?

Mr. Brogan: No. We will stiuplate that.

Q. The card which you produce is the original record of the shop test of this particular meter, No. 318,140? A. Yes, sir.

Q. And is taken from the records of your company? A. That is the original test card made out by the man who tested it.

Mr. Milton: We offer that card in evidence.

(Marked Exhibit P-1.)

Q. What does that Exhibit P-1 show with respect to the test and the percentage of accuracy in measuring water taken through that meter, Mr. Ferguson? A. Well, under the head stream it shows 100.5 per cent. of acuracy on a one-inch flow or practically 100 gallons a minute, it is 101.2. On a half-inch orifice, or 31 gallons a minute, it shows an accuracy of 87 per cent.

Q. Have you conducted experiments yourself to establish the rate of accuracy in registration of

water on this meter? A. Not on this particular meter; no, sir.

Q. On this type of meter? A. On this type of meter; yes, sir.

Q. For what purpose have such experiments been conducted? A. To show that we are within the specifications called for by the American and New England Water Works Associations.

Q. And what rates of flow, expressed in gallons per minute, will be measured accurately by the torrent type of meter? A. You mean minimum flows?

Q. Yes. A. In the twelve-inch size?

Q. In the size in question, which is twelve inches, as I understand it. A. That will measure within three per cent. plus or minus, down to 90 or 100 gallons per minute.

Q. So that on rates of flow as low as 90 gallons a minute, allowing for a variation of three per cent. plus or minus, this type of meter of this size measures accurately? A. Yes, sir.

Q. Has your company plotted a curve for the purpose of establishing a basis of performance which your company guarantees in this type of meter? A. Yes, sir.

Q. And have you such curve with you? A. Yes.

Q. Will you produce it? A. (Produces paper.)

Mr. Milton: We offer this curve in evidence.

(Marked Exhibit P-2.)

Q. This curve shows accurate registration by this type of meter, Mr. Ferguson, up to what rate of flow expressed in gallons per minute? A. Well, up to 300 gallons per minute is 100 per cent. accuracy.

Q. So that your company guarantees, as I understand it, that this type of meter will measure accurately minimum flows as low as 300 gallons per minute? A. Yes, sir.

Q. There is a difference between the minimum flow which you state your company is willing to guarantee the performance of this type of meter and the minimum flow measured accurately according to the shop test or according to your experience; is that so?

Mr. Brogan: That is objected to. What the company is willing to guarantee is not germane to this issue, therefore it is incompetent, immaterial and irrelevant.

A. Yes, sir.

Q. What is the explanation of the difference? A. Well, the American Water Works Association and the New England Water Works Association drew up these standard specifications which we, as meter manufacturers, guaranteed to meet; but as a matter of fact in actual performance we beat that guarantee.

Q. So that in actual performance this type of meter will accurately measure minimum flows as low as between 90 and 100 gallons per minute? A. Yes, sir.

Cross-examination by Mr. Brogan:

Q. This meter in question, which is a meter in use by the Lehigh Valley Railroad Company, however, you have not examined? A. No, sir.

Q. You know nothing about its performance? A. No, sir.

Q. And this chart that you have exhibited—this curve of accuracy—is a chart made of the performance of a meter of this same type and in perfect order? A. Are you speaking of this chart, Exhibit P-2? A. Yes.

Q. The test was made under your laboratory conditions, which are somewhat ideal? A. This test, Exhibit P-2, is chart of the general performance of these meters.

Q. And this test was made in your laboratory? A. Let me get this right. This is not really a test of any one meter. It is specifications and requirements drawn up by the American and New England Water Works committees on meters.

Q. Right. Therefore, I understand that that curve or graph which you have plotted and which is known as Exhibit P-2, is an embodiment of the specifications or requirements of the Water Works Associations? A. Yes, sir.

Q. And that has nothing to do with this type of meter in the Lehigh Valley Railroad yards? A. It is the specifications that the Water Works Associations require of this type of meter.

Q. All right. Now this first exhibit of yours, Exhibit P-1, is a certificate of the accuracy of this particular meter that we are talking about that is in use by the Lehigh Valley Railroad, determined prior to its leaving your shop in Boston; is that right? A. Yes.

Q. And that test was made in your laboratory? A. Yes.

Q. Under conditions more or less ideal for the test? A. Conditions which are the same all the time; that is we did not make them especially good for this one meter.

Q. But those conditions are good, nevertheless, are they not? A. Yes.

Q. And a meter in service year in and year out, of this type, does not show the same resultant ac-

curacy? A. Naturally a meter would wear more or less.

Q. When was this meter turned out by you and sold to the Lehigh Valley Railroad Company? A. The date is on this card, July 29, 1908.

Q. Now, these flows that were projected through this measuring device when it was tested back in 1908, were those regular or fluctuating flows? A. Each test was made at certain rates.

Q. Just how would that be conducted, Mr. Ferguson? A. Each test is run separately and the rate is controlled by opening the valve certain widths.

Q. Would the pressure be uniform? A. And the length of the test—yes, sir.

Q. What pressure was that? A. At that time it would be between 40 and 45 pounds per square inch.

(At this point adjournment is taken to Friday, February 25th, at ten o'clock in the forenoon.)

NEW JERSEY SUPREME COURT.

LEHIGH VALLEY RAILROAD COMPANY, Proescutor, *vs.* THE MAYOR AND ALDERMEN OF JERSEY CITY, *et al.*, Respondents.	On Certiorari.

Further depositions of witnesses in above stated matter, taken pursuant to adjournment, this fourth day of March, 1927, at ten o'clock in the forenoon, at the City Hall, Jersey City, N. J., before Edward O'Byrne, Supreme Court Commissioner.

Appearances as heretofore.

EDWARD O'BYRNE,
Supreme Court Commissioner.

WALDO S. COULTER, sworn as a witness on the part of the prosecutor, testifies as follows:

Direct examination by Mr. Milton:

Q. You reside where? A. Brooklyn, New York.

Q. And your profession is what? A. Civil engineer.

Mr. Milton: It is stipulated that Mr. Coulter's qualifications are admitted.

Q. You have some familiarity with the Hersey Torrent water meter, Model T? A. Yes, sir.

Q. That is the type which is in dispute in this hearing? A. Yes.

Q. Will you be good enough to describe it? A. The Hersey Torrent water meter Model T is what is known as a velocity type meter, operating on the inferential principle. It consists of a hard rubber wheel revolving in a horizontal plane, attached to a hollow shaft, which is slipped over a fixed central vertical spindle. At the top of this spindle is a hard rubber ball enclosed by a housing which is attached to the wheel in such manner that when the meter is assembled, the bottom of the wheel has a very slight clearance over the casting beneath it. On the top of the wheel are two hard rubber bars about one-half to three-quarters of an inch high to act as drags or vanes to prevent spinning of the wheel when sudden changes of velocity occur. Water is admitted to the under side of the wheel through a wheel orifice, enters the wheel and passes out through the circumference of the wheel, impinging upon vanes set at a proper angle on the periphery of the wheel. The top of the wheel is attached to a train of gears which operates a registering mechanism. This type of meter is not a direct displacement device, but the wheel measures the velocity of the water which is transcribed by the registering dials into volume.

Q. Does that complete the description? A. Yes, sir.

Q. Are you familiar with the curve or graph heretofore offered in evidence and known as Exhibit P-2? A. Yes, sir.

Q. As a class, what is the lowest rate of flow that the twelve-inch current type meter may be depended upon to register in accuracy between 97 per cent. and 103 per cent., assuming the meter to be in order and in adjustment? A. 320 gallons a minute.

Q. Does that or does that not apply to the type of meter under question in this case, the Hersey Torrent, Model T? A. It does.

Q. Exhibit P-2, Mr. Coulter, represents what? A. Exhibit P-2 is an accuracy graph corresponding, for rates above 100 gallons a minute, to the specifications of the American Water Works Association and the New England Water Works Association. It represents the accuracy which the manufacturer guarantees the meter will meet upon test as sold, within three per cent. either way of the curve shown; that is, where 100 per cent. is shown upon the curve, the meter is guaranteed to register not less than 97 per cent. of the water passing through it and not more than 103 per cent.

Q. And is that variation allowable in good practice and under the specifications of the associations that you refer to? A. Yes; 97 per cent. to 103 per cent. accuracy is generally recognized. For example, the rules and regulations of the New Jersey State Board of Public Utility Commissioners state that no meter shall be placed in service or allowed to remain in service which registers less than 97 per cent. or more than 103 per cent. of the water passing through it.

Q. Have you been furnished with a tabulation or statement of readings taken by the city of Jersey City during the forty-eight hours test of the Hersey Torrent meter, Model T, in question here? A. I have.

Q. I refer to the readings which are annexed to the stipulation in this case. You have had an opportunity to study them? A. I have.

Q. Of the total volume of water registered by the Crest compound meter, which was the test meter used by Jersey City, what percentage flowed at average rates less than 320 gallons a minute? A. 22½ per cent.

Q. What have you to say as to whether or not 22½ per cent. of the total volume which flowed at rates less than 320 gallons a minute, would be measured by a twelve-inch Hersey Torrent meter in good order, according to the curve of the manufacturer? A. According to the curve of the manufacturer, the volume of water which flowed during the test at rates less than 320 gallons a minute should be 97⅓ per cent. measured by a Hersey twelve-inch Torrent meter in good order, that is, in accordance with the curve, with the allowance made for three per cent. either way.

Q. So that, according to the curve, the average accuracy percentage for the flows less than 320 gallons a minute, which in this constitutes 22½ per cent. of the total volume, would be 97 per cent., subject to the variation of three per cent? A. 97⅓ per cent.

Q. What have you to say as to whether or not this registration is within the generally recognized limits of accuracy? A. You are referring now to what—the 22½ per cent. or the 97⅓ per cent?

Q. The 97⅓ per cent. A. The 97⅓ per cent. is within the generally recognized limits of accuracy.

Q. And those limits, I think you said, are recognized by the specifications adopted by the associations to which you refer and are also recognized by the rules and regulations of the State Board of Public Utilities Commissioners? A. Yes, sir.

Q. Have you seen a certificate of the shop test of the particular meter in question here, meter No. 318,140? A. I have.

Q. That was an exhibit in this proceeding? A. It was the first exhibit.

Q. What have you to say as to whether or not the shop test on this particular meter, as represented by the certificate, indicates that the meter conformed to the requirement of the specifications of the American Water Works Association as indicated by Exhibit P-1?

Mr. Brogan: That is objected to upon the ground that it is not the best evidence.

A. The accuracies shown upon the shop test card are substantially greater than the accuracies shown upon the curve, Exhibit P-2. Whereas the curve, Exhibit P-2, shows an accuracy of 90 per cent. for a rate of 100 gallons a minute, the shop test showed an accuracy of 98.8 for a rate of 100 gallons a minute. Whereas the curve, Exhibit P-2, shows an accuracy of zero for a flow of 31 gallons a minute, the shop test card showed an accuracy of 87 per cent. for 31 gallons a minute.

Q. In other words, assuming P-2 to be a curve of what the manufacturer guaranteed the meter would do, the shop test certificate shows that in actual performance the meter gave a higher performance of efficiency in registration? A. That is correct.

Q. Assuming such accuracies to exist as the shop test certificate shows, could this particular meter, in the condition it was in when the shop test was made, have measured all the flows during the period of tests conducted by Jersey City, with an average accuracy in excess of 97 per cent?

Mr. Brogan: That is objected to upon the ground that it is apparent that the shop test of that meter took place back in 1908,

while this test conducted by the city of Jersey City took place fourteen years afterward, so that there is no parity between the condition of the meter in 1922 and the condition of the same meter in 1908.

Mr. Milton: Is the basis of the objection, that when the test was made, the meter could not have been in the same condition as when the shop test was made?

Mr. Borgan: The point is that there is nothing in the case to show that in 1922 the meter was in the same condition that it was in fourteen years previously at the time when the shop test was made.

Mr. Milton: In other words, it may have been out of order.

Mr. Borgan: Out of order; yes.

A. It could.

Q. What has your experience been as an engineer as to whether water meters, assuming them to have been selected properly as to size and type, will give satisfactory service over a period of years under ordinary conditions without some attention being paid to them? A. They may not be depended upon to operate satisfactorily when negleced over a term of years, although such a thing is, of course, possible; that is, they may possibly operate accurately over a long period of neglect, but that is not customary under ordinary conditions. In order to be assured that a meter shall remain in proper condition, it should be examined once a year and tested at least once a year, that is a meter twelve inches in size.

Q. And how general is that opinion which you state? A. It is the generally recognized opinion amongst engineers. The specifications of the

American Water Works Association state that meters larger than six inches should be tested at least once a year, and that large meters measuring unfiltered surface water should be examined annually.

Q. From the test readings of Jersey City, which are annexed to the stipulation in this case, and which readings were taken during the forty-eight hours test during September, 1922, have you prepared a table showing the average rate of flow in gallons per minute between readings during the test, showing the average percentage of such flows that was measured by the twelve-inch Hersey Torrent meter, and showing the percentage of each such average flow that would be measured by such a meter, if its accuracy corresponded to the curve shown on Exhibit P-2, assuming, of course, that the Jersey City test meter registered the flows accurately? A. I have.

Q. Will you produce that, please? A. Yes; here it is.

Mr. Milton: I offer this table in evidence. (Marked Exhibit P-3.)

Q. Referring to Exhibit P-3, will you be good enough to explain the various columns across the page of the exhibit? Column 1 is what? A. Column 1 indicates the time each reading was made.

Q. That was taken from the readings furnished by the city when the bill was sent to the company, and which readings are the ones annexed to the stipulations? A. That is correct.

Q. Now, Column 2? A. Column 2 shows the average rate in gallons per minute between the

readings; that is, column 2 is in each case an average rate for fifteen minutes, except in one instance when there were sixty minutes between two readings.

Q. How was this information obtained? A. The information was obtained from the meter readings which, by difference, gives the result in cubic feet between readings, which in turn were translated into gallons for each fifteen-minute interval and divided by fifteen to give the average rate in gallons per minute for a fifteen-minute interval.

Q. Column 3—what does that show? A. Column 3 shows the percentage of the flow measured by the test meter that was registered by the twelve-inch Hersey Torrent meter.

Q. And column 4 I guess is self-explanatory. It shows the percentage which should have been registered by the Hersey meter for the rate of flow in the second column, if the Hersey meter had been in good order? A. Yes, sir; if it had corresponded to the curve, Exhibit P-2.

Q. And column 5 is the result, I assume, of deducting column 3 from column 4? A. No. Column 5 is the percentage departure of the third from the fourth column. Where column 4 is 100 per cent it is the difference, but where column 4 is less than 100 per cent. it represents the percentage departure.

Q. Referring to column 4, Mr. Coulter, the third item from the bottom of the sheet, I see that the Hersey meter, according to your opinion, should have registered 99 per cent. of the flow indicated in the second column. What percentage did it register in fact as indicated by this exhibit? A. As reported in the statement attached to the letter from Mr. Mauzy to the Lehigh Valley Railroad

Company, it registered 128.37 per cent. of the flow measured by the test meter.

Q. So that from the readings forming part of the stipulation, taken by Jersey City during the test and furnished to the Lehigh Valley Railroad Company with the bill, it appears that in this one instance alone the Hersey meter registered 128 per cent. of the amount registered by the test meter? A. That is correct.

Q. Now, in this instance, column 5 then represents the difference between column 3 and column 4, does it not? A. No. What it represents is this: Column 4 indicates the percentage which the Hersey meter should have registered according to the curve Exhibit P-2, which is 99 per cent. Now, it actually measured, according to the figures in the stipulation, 128.37 per cent.

Q. It is the departure? A. It is the departure of 128.37 from 99.

Q. And that same explanation applies to all of the columns throughout the exhibit? A. That is correct.

Q. The exhibit containing all of these readings taken during the forty-eight hour test conducted by the city? A. That is correct.

Q. What, in your opinion, was the condition of the Hersey Torrent meter No. 318,140, during this test which was conducted by Jersey City on September 14, September 15 and September 16? A. It the test meter used by Jersey City registered accurately, then the twelve-inch Hersey Torrent meter was out of order.

Q. Upon what do you base that conclusion, assuming, of course, that the test meter registered accurately? A. The extreme variations in the accuracy of the Hersey Torrent meter for all rates of flow as shown by Exhibit P-3; the fact, for in-

stance, that at 8:45 A. M. on September 16, 1922, an average rate of 470 gallons a minute for fifteen minutes was unregistered by the Hersey meter; the fact that for rates of flow less than 300 gallons a minute, the great majority of readings indicated no measurement whatever by the Hersey; the general lack of correspondence between the percentages shown in Exhibit P-3 and those in Exhibit P-2.

Q. I want to call your attention to some of the other inconsistent registrations. At the top of the second page in this exhibit it shows the period 1.15 P. M., Thursday, September 14, where in column 2 it appears that there was an average rate of 250 gallons per minute, the percentage of flow registered by the test that was registered by the Hersey meter was 39.85; is that so? A. Yes.

Q. Immediately under it is the period of 1.30 P. M. of the same day where the rate of flow was 260 gallons a minute, and the Hersey did not register any of that flow? A. That is correct.

Q. Nor did it register any of the flow at 1.45 P. M. the same day where the flow was 325 gallons a minute? A. That is correct.

Q. Nor did it register any of the flow where the rate was 300 gallons a minute at two o'clock? A. That is right.

Q. I call your attention to the period of the same afternoon, 2.15, when the average rate of flow was 450 gallons a minute. How much of the registration on the test meter was measured by the Hersey? A. This record shows that not a gallon was measured by the Hersey.

Q. Now, it is conceded, is it not, that a meter of this type would, when in good order, measure every drop of water flowing in excess of 320 gallons a minute? A. That is correct.

Q. I call you attention to the period next following 2.15 or 2.30 of the same day, when the rate of flow was 166 gallons a minute for the fifteen minute period. That percentage of the registration on the test meter was measured by the Hersey? A. According to the record of Jersey City, 133.6 per cent. was measured by the Hersey.

Q. In other words, the Hersey meter measured 133 per cent. of the amount shown on the test meter used by Jersey City? A. That is right.

Q. Have you prepared a table showing the percentages of flow registered by the Hersey meter when the average rate for a fifteen-minute period was about 425 gallons a minute, according to the reading furnished by Jersey City? A. I have.

Mr. Milton: I offer the table in evidence.
(Marked Exhibit P-4.)

Q. This exhibit P-4 shows in the first column the time of the readings, that is the end of the fifteen-minute period which you have selected for the purposes of this table? A. That is correct.

Q. You have selected eight separate and distinct readings? A. Yes.

Q. Three of them on the 14th of September and the remaining five on the 15th of September? A. That is correct.

Q. Now, the second column shows a group of flows which most nearly correspond to each other, being approximately 425 gallons per minute average rate during the fifteen-minute period. That is right, is it? A. That is right.

Q. They run from 425 to as high as 435? A. Right.

Q. Two of them being 425, three being 426, one of them being 428, one 430 and one 435. Is that right? A. Right.

Q. Now, the last column shows the percentage of the quantity of water measured by the test meter which was registered or measured on the Hersey Torrent meter? A. Right.

Q. And that varies from zero to 93.90 per cent.? A. Correct.

Q. In two instances, the Hersey did not register at all? A. Right.

Q. And in one instance, the first one appearing on the exhibit at 3:30 P. M. the Hersey meter measured 17.61 per cent. of a rate of flow at 425 gallons per minute? A. Correct.

Q. And on the following day, at the same rate of flow, the Hersey meter measured how much per cent.? A. 76.3 per cent.

Q. Have you also prepared a table showing the percentages of flow when the average rate was about 600 gallons a minute? A. I have.

Q. Will you produce it? A. Yes; here it is.

Mr. Milton: I offer this table in evidence. (Marked Exhibit P-5.)

Q. Exhibit P-5 is gotten up in the same way as Exhibit P-4? A. Correct.

Q. For the purpose of showing the same result, this time using the factor of an approximate rate of flow of 600 gallons per minute? A. Correct.

Q. There being four illustrations, two of them at 600 gallons per minute, one at 605 and one at 615 gallons per minute? A. Correct.

Q. The variation in the percentage of flow registered by the Hersey meter as compared with the flow registered by the test meter, is expressed in the last column and runs from 77.05 to 87.20? A. Correct.

Q. Referring to Exhibit P-2, which is the curve showing the guaranteed performance by the manufacturer, what percentage of that flow of 600 gallons a minute is measured by a Hersey meter of this type in good order? A. From 97 per cent. to 103 per cent.

Q. Have you prepared a table including all of the readings made during the test by Jersey City showing the maximum, minimum and average accuracies of the Hersey meter for four different classifications of the studied or observed fifteen-minute period? A. I have.

Q. Will you produce it, please? A. Yes; here it is.

Mr. Milton: I offer this table in evidence. (Marked Exhibit P-6.)

Q. Referring to Exhibit P-6, will you be good enough to explain the meaning of this exhibit and how it is to be studied? A. In the first column is shown the range of rate of flow in gallons per minute for three different classes. Class 1 comprises all the fifteen minute periods where the average rate of flow was 500 gallons a minute and upward. The second item in column 1 indicates a rate of flow of 300, inclusive, to 500 gallons a minute, exclusive. The third item indicates 200 gallons a minute to 300 gallons per minute; and the fourth column indicates flows less than 200 gallons a minute.

Column No. 2 shows the number of readings which were made of the meter dial for each one of these classifications.

Column 3 shows the maximum percentage which was registered by the Hersey meter of the flow measured by the test meter for each one of these classifications. For instance, the first item, 100.88 indicates that for flows of 500 gallons a minute and upward, the highest observed registration by

the Hersey meter was 100.88 per cent. on the amount measured by the test meter.

Column No. 4 indicates the minimum percentage of the water measured by the test meter that was registered by the Hersey meter. For instance, the first item in column 4, which is 3 per cent. indicates that the lowest observed registration by the Hersey meter for rates of upward of 500 gallons per minute was 3 per cent.

The fifth column shows the average registration by the Hersey meter of all flows for each of the four classifications. For instance, item No. 1 in the fifth column is 76.82 per cent., which means that for all flows of 500 gallons a minute and upwards, the average registration by the Hersey meter was 76.82 per cent. of the flow measured by the test meter.

Q. In other words, Mr. Coulter, analyzing the readings taken during the test period by Jersey City and which form part of the stipulation, you find forty-two occasions when the rate of flow was in excess of 500 gallons per minute? A. 500 gallons per minute or more, correct.

Q. And you have studied the readings and you find that the highest or maximum percentage which the Hersey meter registered of the water indicated or measured by the test meter was 100.88 per cent. A. 100.88 per cent. was the highest percentage observed in any one of those forty-two readings.

Q. And the lowest for any one of the forty-two readings, expressed in percentage, which the Hersey meter measured for the flow measured or indicated by the test was 3 per cent? A. Yes.

Q. Each one of these flows was in excess of 320 gallons per minute? A. Correct.

Q. And 320 gallons per minute is the lowest flow which the manufacturers guarantee that the meter will register 100 per cent. when in good order? A. Correct.

Q. The meaning of "X" and "XX" and "XXX" is indicated by the explanatory notes shown at the foot of the exhibit? A. Right.

Q. To illustrate, in the second line which carries readings showing flows from 300 up to 500 gallons per minute, it appeared that of a total of seventy-seven readings the Hersey registered zero for sixteen of those readings? A. Right.

Q. In other words, while the maximum per cent. measured by the Hersey meter of the water measured by the test meter was 99.78, the minimum zero and the average 48.16, the fact is that out of seventy-seven instances where you find the flow from 300 to 500 gallons per minute, sixteen times the Hersey did not register at all? A. Yes, sir; the minimum occurred sixteen times.

Q. Will you say what effect a sudden change in the rate of flow has upon the accuracy of a current type of meter such as the twelve-inch Torrent Model T in question in this suit? A. If a sudden change took place in the rate of flow, occurring within one or two seconds and the change took place through a wide range of flow, the result is a temporary inaccuracy of the meter.

Q. How much does the inaccuracy amount to? A. The inaccuracy, if the rate of flow is changed repeatedly and suddenly from 1000 gallons a minute to zero, will show an over registration of about 7 to 8 per cent. If the change occurs between 1000 gallons a minute and 200 gallons a minute, suddenly and repeatedly, the over registraiton will be between 6 and 7 per cent. If the change takes place suddenly and repeatedly between 400 and

200 gallons per minute, no appreciable inaccuracy results, but in any case over registration results. I might say that for a velocity type meter, without a brake-bar or drag-bar on the top of the wheel the inaccuracy amounts to about twice as much for sudden changes as for a Torrent type like the Hersey which is equipped with drag-bars.

Q. Suppose the change in the rate of flow takes place gradually through a minute or two, what would be the effect upon the accuracy of the meter? A. There would be no appreciable effect on the accuracy of the meter.

Q. From the records of the test of the Hersey meter conducted by Jersey City in September, 1922, over the forty-eight hour period, what have you to say as to whether or not the rate of flow during the fifteen-minute period was subject or not subject to frequent, violent fluctuations? A. The records show that there were few, if any, frequent and violent fluctuations. For example, for rates of flow less than 300 gallons a minute, about 70 per cent. showed no registration whatever. Of the rates of flow less than 200 gallons per minute, 82 per cent. showed no registration by the Hersey meter whatever. Now, if when the rate of flow was less than 300 gallons per minute or 200 gallons per minute, there had been wide and constant fluctuations in the rate, the rate would necessarily have amounted, momentarily at least, to more than 300 gallons a minute, and with the meter in any sort of order, there should have been some registration. The consistency with which this condition occurred during the test shows that wide and violent fluctuations were not at all common.

Q. Leaving sudden changes out of consideration, what have you to say whether or not the

test records of the city indicate that the apparent low accuracy of the Hersey meter for numerous average fifteen minutes readings of 300 gallons a minute or more, were due to very low rates of flow during part of the fifteen-minute period when the accuracy might be less? A. Such conditions did not occur. For illustration, to take an extreme case, suppose that for a fifteen-minute period the flow was at the rate of fifty gallons a minute for ten minutes and 1,000 gallons a minute for five minutes, the average rate of flow for that fifteen-minute period would be 367 gallons a minute. Now, if the 50 gallons a minute rate was not measured at all and 100% of the 1,000 gallon rate was measured, the average percentage of accuracy for the fifteen minute period would be 91 per cent. This fails wholly to explain the numerous instances in the test records where flows as high as 40 gallons a minute were not measured at all by the Hersey meter and where rates of flow less than 300 gallons a minute were measured with rates of accuracy all the way from zero up to 30 per cent. or so. The only reasonable explanation for this common condition during the test was that the meter was out of order. Any possible variations in the rate of flow during the fifteen minute period fail utterly to explain the situation.

Q. And in what way would it be possible for a meter of this type to fail to register low rates of flow? A. The hard rubber ball at the top of the spindle might become worn to such an extent that the wheel was allowed to rest directly upon the orifice casting. In that case the wheel would not revolve until the rate of flow became sufficient to raise the wheel from the ball. The rate required to raise the wheel from the ball is about 300 gallons a minute.

Q. In what way would it be possible for a neglected twelve inch meter of this type to register the different percentages of accuracy for the same rate of flow? A. Why, it might be possible, especially with unfiltered water, for grains of sand, pipe coatings, or particles of iron rust to accumulate in and around the gear train. These particles getting in between the wheels, would stop registration until they were crushed or shaken loose. Such an occurrence would cause very erratic registration at times.

Q. Going to the illustration of September 14, at 9:45 P. M., shown on Exhibit P-3, I call your attention to the fact that in this period the average rate of flow was 834 gallons per minute, and that the percentage of the flow measured by the test meter that was registered by the Hersey meter was but 3 per cent., and I ask you whether or not this is an illustration of the effect that might be caused by the gathering of foreign matter in the gear train you have been talking about? A. Such an interruption of the action of the meter by foreign matter might possibly produce the result shown at 9:45 P. M. on September 14th.

Q. Is there any other way in which a twelve-inch Hersey meter of this type, out of order mechanically, might register erratically? A. Yes. The gear wheels of the train of gears connecting the wheel with the registering mechanism are attached to a shaft by a brass set screw. It might be possible for the set screw to become loose enough so that the gear wheel would turn on the shaft until the set screw encountered some worn or flattened place on the shaft where it would hold until some movement might shift it and cause further slippage. There are numerous ways in which a meter might become erratic.

Q. Is there anything in the test made by Jersey City which, in your judgment, should show that the meter in question was out of order prior to the installation of the test in September, 1922? A. There is nothing whatever in the test records to show that the meter was out of order prior to the tests.

Q. What have you to say as to whether or not, assuming the Hersey Torrent meter in question to be in good order, it could measure the volume of water measured by the test meter during the test period, the rates of flow being as observed, with an accuracy of 97 per cent. or more for the forty eight hour period? A. In good order the twelve-inch Hersey Torrent meter should have measured with acceptable accuracy the water which flowed through the test meter during the test.

Q. What have you to say as to whether or not it is possible, in so far as anything to the contrary has been shown by the test, that the Hersey meter in question accurately measured all water that passed through it during the years covered by Jersey City's claim back to 1918?

Mr. Brogan: That is objected to on the ground that it calls for an unwarranted conclusion, and further that the witness is now being interrogated as to a possibility.

A. In so far as anything in the test record shows, there is nothing to show that the twelve-inch Hersey Torrent meter did not fail to accurately measure all water flowing through it prior to the test.

Q. In your judgment, what bearing has the test made by Jersey City in 1922 upon the accuracy of the measurement of water by this meter in question during the years preceding the test? A. In

my opinion, the results of the test are applicable only to the period of the test and have no bearing whatever upon the period prior to the test.

Q. Have you prints, showing various studies of the result of the readings, taken by the city during the test period? A. I have.

Q. Will you please produce them? A. I will. Here they are.

Mr. Milton: I offer this print in evidence.
(Marked Exhibit P-7.)

Q. Referring to Exhibit P-7, will you be good enough to explain how this chart should be studied and analyzed? A. This chart is a comparison between the curve shown on Exhibit P-2; the shop test of the twelve-inch Torrent meter made July 29, 1908, by the Hersey Manufacturing Company; the various percentages of accuracy for fifteen-minute periods shown by the record of tests conducted by Jersey City, on September 14, 15 and 16, 1922, and an approximate line of mean accuracy of the various percentages observed during the tests by Jersey City.

Q. The percentages of accuracy of the Hersey Torrent meter, during the test, according to the test meter, are indicated by a small circle with a dot inside? A. That is correct.

Q. And the figures which are opposite these circles, in some instances, indicate the number of times that the mean accuracy for the same rate of flow occurred? A. Correct.

Q. That is to say, at the bottom of the chart between the 200 and 300 gallons per minute section, are grouped a number of such circles, opposite one of which is the numeral "7"? A. Correct.

Q. What does that numeral "7" indicate? A. The figure 7 in this case indicates that the rate of 230 gallons a minute, about, occurred seven times with an accuracy of zero by the Hersey meter.

Mr. Milton: I produce another chart and offer it in evidence.
(Chart is marked Exhibit P-8.)

Q. The second chart, which has been marked Exhibit P-8, will you be good enough to explain how that should be read? A. Exhibit P-8 has two diagrams on one sheet. The upper diagram shows the accuracy percentages of the Hersey meter for fifteen-minute periods throughout the entire test. That is a pictorial representation of the accuracies of the Hersey meter observed during the test. The portions of that upper diagram outlined in red indicate accuracies for rates of flow which were in excess of 320 gallons a minute. The portions on the upper diagram outlined in yellow indicate accuracies for rates of flow less than 320 gallons a minute.

Through the upper diagram is drawn a horizontal line showing the average accuracy for the entire test period, 53.46 per cent, according to Jersey City's test meter.

Q. That is, assuming the Jersey City test meter to have registered accurately, then the average accuracy of a Hersey meter over the entire test period was 53.6 per cent.? A. Correct.

Q. The yellow vertical line appearing in the upper diagram indicates the accuracy, expressed in percentages, of the Hersey meter, as your earlier exhibits have done, showing the amount of water measured by the Hersey meter expressed in percentage of the amount of water measured by

the Jersey City meter, the yellow being when the rate of flow was under 320 gallons per minute and the red when the rate of flow was over 320 gallons per minute? A. Correct.

Q. The lower diagram, Mr. Coulter, is a graphic illustration or picture of the rates of flow during the test period, September 14 to September 16, 1922, the red being used to indicate a rate of flow in excess of 320 gallons a minute and the yellow to represent a flow less than 320 gallons a minute? A. That is correct.

(At this point adjournment is taken to Wednesday, March 9, 1927, at ten o'clock in the forenoon.)

NEW JERSEY SUPREME COURT.

LEHIGH VALLEY RAILROAD COMPANY, Prosecutor, *vs.* THE MAYOR AND ALDERMEN OF JERSEY CITY, *et al.*, Respondents.	On Certiorari

Further examination of witnesses in above stated matter, taken pursuant to adjournment, this sixteenth day of March, 1927, at ten o'clock in the forenoon, at the City Hall, Jersey City, New Jersey, before Edward O'Byrne, Supreme Court Commissioner.

Appearances as heretofore.

EDWARD O'BRYNE,
Supreme Court Commissioner.

WALDO S. COULTER, a witness heretofore sworn on the part of the prosecutor, resumes the stand.

Cross-examination by Mr. Brogan:

Q. Where did you acquire your knowledge or familiarity with the Hersey meter, Model T? A. I have always known the design of the meter manufactured by the Hersey Manufacturing Company. I have never installed the Hersey Torrent meter, but my detailed knowledge of the meter

was obtained at the factory of the Hersey Manufacturing Company, where I dismantled a 12-inch Hersey Torrent meter and examined it closely.

Q. When did you do this work? A. Late in January or early in February, 1927? I do not remember exactly.

Q. In other words, you dismantled and assembled the various mechanisms in the Hersey meter, in the preparation of your testimony in this particular case? A. I did.

Q. And prior to that time you never had anything to do, outside of the ordinary reading you would do to keep up with types of meters—you never had anything to do with this particular model of Hersey Torrent meter? A. Never by direct examination any more than printed matter.

Q. This meter which you took down in January, 1927, what model was that, Mr. Coulter? A. That was a Hersey Torrent meter of the same model as the one in question.

Q. When was it built, do you know? A. I cannot say. It was in stock at the factory.

Q. How do you know it was the same as this one? A. It was the same in every respect as the 12-inch Hersey Torrent shown in the catalogues in my files for years, extending back to 1910 or thereabouts.

Q. You never saw this particular Hersey meter, Model T. that was used as the measuring device for the Lehigh Valley Railroad Company, did you? A. No. I tried to make an examination of that and had a search made by the railroad people. They reported to me that the meter was missing and had probably been junked.

Q. As I understand it, then, you never made any actual test of this particular type of meter, your work consisting only in the dismantling and

assembling of this particular meter at the factory? A. The tests were made at my request.

Q. By whom? A. E. Ferguson, assistant superintendent of the Hersey Manufacturing Company.

Q. Did you assist in these tests actually? A. I was not present.

Q. You were not present when they were made? A. No.

Q. So that your testimony on direct examination is founded solely on this knowledge that you acquired by dismantling and reassembling this meter in January and was predicated upon the accuracy of the tests which Ferguson made at your request? A. Also my general knowledge of the operation of meters.

Q. Yes; I assume that. Is that right? A. That is correct.

Q. You dismantled and reassembled a meter of this particular design once? A. Yes.

Q. Now, in your direct testimony, page eleven in your description of the Hersey Torrent meter, Model T, you speak of the clearance of the bottom of the wheel as a slight clearance over the casting and beneath it. What is the clearance exactly between the wheel and the deflector—that is what you mean by the casting, is it not? A. I made the statement. It is a very small fraction of an inch, measured in thousandths of an inch.

Q. As small as that? A. Yes.

Q. What is it—ten thousandths of an inch? A. I am unable to state any closer than that.

Q. It runs to the thousandths of an inch? A. Yes.

Q. Now, when you speak throughout your testimony of a Model T, Hersey Torrent meter, which type of meter do you have in mind, my question

being directed to this, that I understand that from 1905 on up to 1925, the models of this particular type of meter have been changed every so often? A. The meter I examined was the same as the one used in Johnston avenue by the Lehigh Valley Railroad Company, according to assurances I received from the Hersey Manufacturing Company.

Q. So that the Hersey people told you that this meter that you worked upon was the same kind of a meter that the Lehigh Valley Railroad Company had installed at Johnston avenue, the integrity of which is under attack here. Is that right? A. Yes.

Q. And all through your testimony then, when you referred to a Model T, Hersey Torrent Water Meter, you had in mind this meter that you used in your experimentation in January of this year as being identical with the meter under consideration? A. Yes, sir.

Q. I understood you to say—if you do not remember it, we will find the page—that 12-inch current type meters, as a class, register accurately between 97 per cent. and 103 per cent. with a flow of 320 gallons per minute? A. That is correct.

Q. Did you so testify? A. Yes.

Q. Now, when you so testified, what particular make of meter did you include? A. I refer to the Hersey Torrent meter, Model T.

Q. Does that include this 1908 model? A. It does.

Q. It does? A. Yes.

Q. Do you know the changes that have taken place in this model from 1908 to date? A. The principal change which has taken place has been the addition of guides or thrust vanes to the periphery of the wheel, that is, not attached to the wheel.

Q. Do you know why this change was made, Mr. Coulter? A. It improves on the reaction of the water against the wheel. As it leaves the wheel, it impinges against these fixed vanes, and a greater thrust is developed.

Q. By a vane you mean a blade? A. A series of curved blades.

Q. In other words, the striking of the water against these vanes controls the flow of the water as far as the mechanism is concerned and you have a more accurate registration; is that right? A. No; I would not say that. I would say it would make the wheel more delicate.

Q. Does that not make for a more accurate registration? A. It would extend the range on a given accuracy.

Q. It would increase—— A. (Interrupting) It would extend the range, say, 100 per cent. accuracy.

Q. Is this the only change that has been made in the type of Hersey Torrent meter in question down to the present time? A. I am unable to state what other changes may have been made, but I was assured that the meter which was shown me at the Hersey Manufacturing plant was the same in every respect as the meter used by the Lehigh Valley Railroad Company in question in this case.

Mr. Brogan: At this point I want to register an objection to the testimony on the ground that it is hearsay and ask that it be stricken out.

Q. To return to the question: Is there any other change of importance that has taken place in the making of these meters between the time of

the manufacture of the type in question and the present time? A. Not to my knowledge.

Q. At page 12 of your testimony you say that as a class, the 12-inch current type registers accurately between 97 per cent. and 103 per cent., when the flow is 320 gallons a minute. Upon what do you base that assertion? A. I base that upon Exhibit P-2.

Q. What is Exhibit P-2? A. Exhibit P-2 represents the curve of accuracy which the manufacturer guarantees the 12-inch Hersey Torrent meter will meet on test as sold.

Q. Therefore, in making that statement, you have based it entirely upon the guarantee that was made at the time the meter was sold? A. I also base it upon the specifications of the American Water Works Association and the New England Water Works Association which state that meters approved by the association must meet such test.

Q. How much efficiency did you give to the specifications of the water works associations and how much to the guarantee of the maker of this meter? A. I gave them the same value, because the curve of the maker is simply a graphic representation of the accuracy specifications of the American Water Works Association.

Q. When were the specifications of the American Water Works Association and the New England Water Works Association adopted? A. I belive they were adopted in 1923.

Q. Well, then, how, possibly, could the 1923 specifications enter into consideration at all concerning a meter made and sold in 1908, prior to the adoption of such specifications? A. It is well known that these specifications of the American Water Works Association were largely prepared

by manufacturers based upon manufacturers' then existing accuracy requirements.

Q. So that, however, when you speak of the specifications of the American Water Works Association and the New England Water Works Association, which specifications were not in fact promulgated until 1923, they certainly could not have had anything to do with a 1908 meter, could they? A. The Hersey Manufacturing Company in 1908 sold its meters, the 12-inch Hersey Torrent meter, with an accuracy guarantee the same as called for in the American Water Works Specifications of 1923.

Q. Therefore, you reason that the accuracy required by the American Water Works Association in 1923 having been previously written into a guarantee of the Hersey people in 1908 and attached to this meter, that therefore the 1923 Water Works Association specifications are the result of the guarantee of the Hersey people; is that right? A. They are very much affected by the accuracy guarantee of Hersey and other manufacturers. In other words, the specifications of the American Water Works Association represented merely a crystallization, to a large extent, of the standards which had been in current use among meter manufacturers for some time before these specifications were adopted.

Q. How do you know that? A. General knowledge. I know something of the deliberations which led up to the preparation of these specifications.

Q. So, therefore, in saying that this meter was as accurate as you have described the 12-inch type to be, we will have to drop out, as one of your reasons or two or your reasons, the specifications of the New England Water Works Association and the American Water Works Association, because

at the time this meter was sold in 1908, these reasons for your approval did not exist? A. No, sir; you would not have to drop that out, because this meter as made and sold in 1908 meets the specifications of the American Water Works Association as adopted in 1923. It meets a standard subsequently adopted as a high standard by a national water works association.

Q. What was the guarantee of the Hersey people in 1908; was it in writing; exactly what was it? A. The guarantee of the Hersey Manufacturing Company in 1908 was a curve similar to Exhibit P-2.

Q. When did you first become acquainted with the guarantee and its terms? A. I should say about 1915 or 1916.

Q. In what connection did you become acquainted with this guarantee? A. The Hersey Manufacturing Company at that time was trying to induce me to recommend the placing of their meters at a certain town.

Q. How did you know that this guarantee existed in 1908? A. I then was informed by the Hersey Manufacturing Company that it had been in existence for many years.

Q. You heard it from them. In other words, they said: "We have carried this guarantee for so many years", and that was back to 1908? A. They said in their shop tests that they were prepared to meet such a guarantee.

Mr. Brogan: I object to the testimony and ask that it be stricken out on the ground that it is hearsay.

Q. Was this guarantee, which you say was afterwards adopted by the American Water Works Association and others and which was so high in

the scale of guarantee, ever promulgated to the public, prior to the adoption of these specifications of the American Water Works Association? A. Not through any society.

Q. Nor through any writing? A. That I am unable to state.

Q. So that this guarantee that they speak of and which they told you in 1915 had existed for many years prior, in fact may have existed only inside their own minds, as far as the public was concerned? A. It was a guarantee offered by the various meter manufacturers—that is, some of them.

Q. How do you know that? You say it was not in writing; isn't that so? A. It is my understanding that the Hersey Manufacturing Company had regularly offered this guarantee for years before.

Mr. Brogan: I object to the answer and ask that it be stricken out it being apparent, the witness having answered it was not in writing, that he has no direct knowledge of it, except what he was told by others.

Mr. Milton: The question was how the witness knew. I submit he is qualified to state the method or manner in which he acquired his information, which may have been by word of mouth.

Q. Now, I hand you a descriptive catalogue running back as far as 1904 of the Hersey Manufacturing Company, containing, I take it, a description of all their meters. I ask you, if you will take that and find for me any such guarantee as you have testified to ? A. I do not know what they offered in 1904.

Q. I ask you to take this catalogue and look at it and see if there is any such guarantee as you

have testified to, as having been told you in 1915, existed for so many years prior thereto?

Mr. Milton: I object upon the grounds first, that it does not appear that the printed pamphlet which is offered to the wtiness was in fact issued by the Hersey Manufacturing Company, the manufacturers of the meter in question; secondly, upon the ground that it does not appear that it is a book of which such a guarantee could properly form a part; and thirdly, if the book is legally receivable in evidence, whether or not it contains a guarantee can be determined upon examination of the book; it speaks for itself.

A. No; there is not.

Q. I hand you a similar pamphlet of the same company for 1912 and for 1915, and ask you if you will look through this and see if you can find the guarantee you mention.

Mr. Milton: I object for the same reasons as urged in my objection to the previous question and in addition, these booklets appear to be mere advertisements of meters with a price list.

A. The guarantee is not mentioned in that book. The guarantee is not mentioned in the book published today.

Q. Refer for the moment to Exhibit P-7, taking the center line, the center curve, is it your testimony that this curve with its legend, "Guarantee curve, Hersey Manufacturing Company," that it is the curve of accuracy according to which this meter of the Lehigh Valley would perform,

or is that what the meter which is being made today, of this type, by the Hersey people, will do? A. That curve marked "Guarantee curve, Hersey Manufacturing Company," on Exhibit P-7, represents accuracy performances of 12-inch Torrent meters, Model T, as a class. The dotted line beyond it on the left represents the shop test and represents specifically the meter in question in this case.

Q. Then, this curve of accuracy which we spoke about first, is a composite curve, is it? A. No; it is distinctly a curve which the manufacturer guarantees the meter will meet.

Q. Did the manufacturer guarantee that the particular meter we are talking about would meet that curve? A. I am told that he did, but I know nothing regarding this particular and specific transaction.

Q. Mr. Coulter, which is the higher accuracy on Exhibit P-7—the shop test or the middle curve? A. The shop test.

Q. Why? A. Simply because the meter tested higher than the guarantee curve.

Q. Is not the first curve on Exhibit P-7 supposed to be made up after two readings were taken? A. Three readings.

Q. Does not the broken line attached to the first curve show an assumed course of accuracy between the point marked with the first arrow to the left of Exhibit P-7 and the second point marked with the arrow? A. No; it represents an assumed curve between three points; the first one at the left marked by an arrow; the second one at the left marked by an arrow; and the third point at 600 gallons per minute, 99½ per cent.

Q. Now, as I read your testimony, Mr. Coulter, at the bottom of page 17, you said that a meter

should be examined at least once a year, and tested at least once a year, that is a meter of the 12-inch size? A. Yes.

Q. Why do you say that? A. Why, it is generally accepted now amongst water works men, and it is recommended in the specifications of the American Water Works Association.

Q. What would you say of a meter that had not been tested for ten years? A. Why, as I testified, a meter might be operated without an annual inspection, without any inspection for ten years or fifteen years, and be found in very good condition at the end of that time. But that is only "maybe". In order to be certain or to have reasonable assurance that a meter is going to remain in good condition, it should be tested annually, a meter of this size, and if it is handling unfiltered surface water, it should be cleaned annually.

Q. Now, assuming that certain tests should be made in order that the condition of the meter be ascertained, would what we call or have called in this case the shop test, be satisfactory to establish the condition of the meter? A. Only at the time of the shop test.

Q. In other words, Mr. Coulter, does the shop test contemplate the rates and kind of flow to which the meter is to be subjected? A. No.

Q. What does the shop test contemplate? A. The shop test shows the accuracy on a given controlled rate of flow.

Q. Just one kind of flow? A. No; repeated for various rates, but controlled for each rate.

Q. Do I understand that there would be fluctuations, instantaneous and rather great fluctuations or violent changes in the shop test? A. No.

Q. Is not that the kind of use to which the meter may be subjected in service? A. A certain amount

of fluctuation always occurs in practice on the line on which the meter is located, but not necessarily wide and violent fluctuations.

Q. In other words, Mr. Coulter, your shop test, then, is rather ideal in its nature, is it not? A. Yes.

Q. In other words, you have 350 gallons running for one minute, 400 gallons running for two minutes, and a lower rate of flow running for five minutes, all regulated in accordance with a preconcerted plan of time and flow? A. The shop test is made under controlled conditions.

Q. And the service conditions to which this meter will presently be put, are vastly different, are they not? A. No; not necessarily vastly different. They may be very much the same.

Q. And they may be vastly different? A. They may be. It will all depend on circumstances.

Q. How do you know, then, that the reaction of this mechanism in these meters under the ideal condition would be constant and the same as under service conditions that may be vastly unlike the shop conditions? A. I say it may be very much the same or it may be very different. It all depends on circumstances.

Q. How do you know that the reactions would be the same? You never tried it, did you? A. I don't understand your question.

Q. In other words, assuming that in the shop test the meter would register always accurately up to 320 gallons per minute; now, if that meter is taken out and put into a service which is vastly dissimilar to the one to which it was subjected in the test in the shop, how do you know that the results would be true in service as they were in the laboratory, or even proportionately true? A. They won't be the same in service as they were

in the laboratory. In service velocity-type meters are more or less affected by the distribution of the velocities.

Q. I suppose that is a rule, is it not? You are citing a principle now, are you not? A. That generally obtains more or less in practice.

Q. I say: What you have stated is a principle, an hydraulic principle, out of a book? A. No; I say it is the practice.

Q. A principle, none the less. A. It is based upon a principle; surely.

Q. What I asked you is quite different. I asked you: How do you know that the meter put into a service greatly dissimliar from the shop test service, would react truly under those changed conditions? A. Nobody could tell unless they tested it.

Q. So, you don't know. When you attempt to pedicate your testimony upon this ideal curve, Exhibit P-7, and attempt to apply it to the Lehigh Valley, not knowing the service conditions over there, it is your mere guess, is it not? A. No, sir. I said nobody knew unless a test is made. Here a test has been made, and the results of that test have been at my disposal.

Q. The results of what test? A. The results of the test made by the City of Jersey City.

Q. Which test are you talking about? A. The one made on September 14th, 15th and 16th.

Q. The so-called forty-eight hours test? A. The forty-eight hours test.

Q. You have taken that test and you have applied or attempted to apply to the consumption as registered, these ideal principles, have you not? A. Not at all. I have considered the actual measurements reported in that test.

Q. On the amounts of consumption that have been certified to you, at what intervals were the readings taken? A. At intervals of fifteen minutes, except in one instance, when there was an interval of sixty minutes.

Q. When you have a fifteen-minute reading and a certain amount is marked down on the chart, you don't know whether of that amount of water, 90 per cent. came through in half a minute or whether it all came through in fifteen minutes at a uniform rate, or whether it came through in five minutes and the rest of the time there was nothing coming through? A. I know that on the most extreme assumption that you can make—on the most violent assumption that you can make—with regard to variation of velocities, in fifteen minutes, you cannot get accuracies remotely approaching those secured with the 12-inch Hersey Torrent meter during this test.

Q. You don't know, do you, that this meter was 47 per cent. out of order at the time of the test? A. I don't know.

Q. Do you admit that this meter was 47 per cent. inaccurate at the time of the test? A. I admit that the test figures show it.

Q. You don't know for how long a time it had been inaccurate, do you? A. I do not.

Q. And your testimony here is based on a composite of ideal tests and reactions which you have made into a chart, Exhibit P-7? A. It is based upon an actual shop test, the guarantee curve of the manufacturer and upon actual test figures.

Q. To continue my question; And without any regard for this particular meter in the Lehigh Valley yard which you never saw, which may have broken down and which may have had parts miss-

ing, all of which might have existed for one or for ten years of the time that it was in there?

Mr. Milton: That is objected to because the exhibit indicates that in part it is predicated upon an actual test and actual readings furnished by the city to the consumer alleged to have resulted from that test.

A. The meter might have broken down at the time of the test. The break might have occurred a week before the test or a year before the test or during the test. I don't know.

Mr. Milton: I think we ought to have it stated on the record at this time whether the city claims the meter was broken down during the test.

Mr. Brogan: You mean at the time the test was made, the meter then and prior thereto had been out of order?

Mr. Milton: Yes.

Mr. Brogan: We make no claim whatever one way or the other.

Mr. Milton: In other words, you won't take the position that this meter was out of order or was not out of order.

Q. Do you think that this meter was in good order on September 13, 1922, the day before the test took place? A. I don't know whether it was in good order on September 13th.

Q. What do you think? A. I don't know.

Q. It is a fact, is it not, that a meter can only be accurate on flows that are within its range? A. That is correct.

Q. You have no knowledge of your own, have you, as to the actual rate of flows which this meter

in dispute was measuring or supposed to measure? A. I do not understand the question. You are asking two questions.

Q. They are both the same. A. My knowledge of the rates at which the meter was measuring is shown by the test records.

Q. What do you think about this type of installation—a 12-inch meter on an 8-inch line? A. Well, I should say that good policy would require a somewhat smaller meter.

Q. It was very much oversize for this 8-inch line, was it not? A. Larger than customary to use.

Q. The greater the oversize, the more unsatisfactory the result, as a usual thing? A. As a usual thing, there is a somewhat greater departure from guaranteed accuracy by an over-sized meter.

Q. You will admit, will you not, that this 12-inch meter on this 8-inch line would never, because it was oversize, live up to the lines which you have laid out on the first and second line of Exihbit P-7? A. The oversize of the meter is not sufficient to account in any way for the accuracies which were actually observed during the test, but an oversize meter causes some departure from guaranteed accuracy.

Q. Would you say how much? A. I am unable to say.

Q. I mean roughly, not down to the fourth decimal. A. It depends so much on the conditions, the amount of variation, the sequence of variation, I would not want to say, except to say it should not be large in a case like this.

Q. It is a fact, is it not, that the highest rate of flow ever detected through this line was about 1500 gallons a minute? A. Yes, but that does not mean anything.

A. It is a fact, is it not, that that is the highest flow we have knowledge of? A. Said to be.

Q. What do you say? Do you question it? A. I question the flow very much. It was the first reading taken after the valves were opened following installation of the meter. After the meter is installed and the consumption been shut off by a valve, which was done to place the meter in service, you have for a short time a very high rate above normal until the normal consumption requirements are satisfied, and then the velocity of flow will attain a normal rate. This was the first fifteen minute period of the test.

Q. The 1,500 gallons per minute, you say, is an abnormally high rate? A. It was not 1,500. It was 1,200 and something.

Q. You say that 1,200 gallons a minute is abnormally high? A. It would be high; yes.

Q. What would you think would be about normal? A. Why, I do not understand your question.

Q. Well, if 1,500 gallons per minute is an abnormally high rate, what would be a normal rate? A. What would be the average?

Q. Yes. A. About 384 gallons per minute was the average for this test.

Q. You have 384 gallons per minute running through a type of meter that has a capacity for measuring 8,600 gallons a minute, or twenty-five times the amount that was running through this line? A. That is true, but it also has a minimum capacity with 100 per cent. accuracy of 320 gallons a minute.

Q. That is according to your ideal or composite of ideals in test? A. 6,400 gallons per minute is also according to the guaranteed accuracy.

Q. What 6,400? A. The figure you have just mentioned.

Q. 8,600 gallons a minute is what I mentioned. You do not dispute, do you, that this 12-inch meter, even the one that was over in the Lehigh Valley Railroad Company's yard, that 8,600 gallons a minute could run through it—you do not dispute that, do you? A. I think the figure is high. My recollection is that the limit is 6,400.

Q. Well, make it 6,400. A. If the pipe is larger and carries water through the meter——

Q. How about an 8-inch pipe? A. I don't know. It depends on the conditions. It depends on the length of the pipe, the number of bends in it. There are so many factors I would not make a hazard at a guess.

Q. You, however, are going upon the assumption that this Lehigh Valley line, this leader in the Lehigh Valley line that was over there from 1908 to 1922 or 1923, that every pull on that line was 320 gallons a minute or over was accurately registered, are you not? A. I testified that it was possible——

Q. Did you or not so testify? A. I did not testify to the statement that you have just made; no, sir.

Q. As a water engineer, you would not recommend this type of service at all for this line, would you? A. Without saying anything at all as regards the effect of accuracy, I should say good policy would require a compound meter of a somewhat smaller size.

Q. The reason you say that is because you think it would not be an accurate measuring device to meet the service? A. There are certain flows during the test which were not measured with the accuracy that would be required.

Q. I would ask you to depart for the moment from the certain flows in the test. I am talking generally now. I ask you what you would do as a water engineer? A. I do not wish to offer generalities for a specific question.

Q. You have given rules from the book on hydraulics in answer to a specific question. Will you now answer one that requires a general answer? A. I have not offered any generalities at all.

Q. Would you, as a water engineer, have put this 12-inch Hersey Model T type meter on this 8-inch line for the character of service required by the Lehigh Valley Railroad Company? A. Why, knowing what I know now, following this test, I should say that a smaller size would give—

Q. (Interrupting) Before you heard about this case and before you heard of this test, you would have put this meter on this line for that service; is that right? A. No; I would not put a 12-inch meter on an 8-inch pipe.

Q. Why did you say because of this test? Do you mean that this knowledge which you have gained here has reinforced your knowledge? A. No. What I mean is this: Before this test was made no one going down and looking at that line, with no knowledge of the flows, would be able to say that the flows through that pipe at any time fell below the rate of 320 gallons a minute. The only way that I or any other engineer could know that the rate was below 320 gallons a minute would be by test. Now, if no test was made before the meter was installed, nobody could humanly say that a 12-inch Hersey Torrent meter, Model T, would not accurately measure 100 per cent. every drop of water that flowed through that main. This test shows that in point of fact there was

some time when the rate of flow fell below 320 gallons a minute with a somewhat diminished accuracy of registration.

Q. Would you say that in this Lehigh Valley line that for every minute of the day and night there would be a pull of 320 gallons a minute? A. The test shows not.

Q. I am not talking about the test. I am talking about the condition that existed there, the problem being presented to you as an engineer, and I ask you: Upon what principle of common sense would you assume that 320 gallons a minute would be going through that pipe every minute of the day and night? A. I could not make an assumption one way or the other.

Q. So, this test has nothing to do with it? A. As I said, the only reason I would put a smaller size meter there would be because of the pipe size.

Q. Is not the installation of a 12-inch meter on an 8-inch pipe somewhat incongruous? A. I would not say incongruous. I would say it would not be the best practice.

Q. It is not good practice? A. It is not the best practice.

Q. Now, in order that we may be clear upon one thing: This 320 gallons per minute flow which you say will be registered accurately, 100 per cent. registration, is that statement predicated on line 2 in this Exhibit P-7, the middle curve? A. It is based upon the shop test of this particular meter, and upon the fact that Exhibit P-2 shows that to be the case.

Q. You say the shop test of this particular meter. Do you mean by that Exhibit P-1, which is the card showing inspection and test before delivery at the factory of the Hersey Manufacturing Company? A. Yes.

Q. And Exhibit P-2 shows what? A. The guarantee curve of the manufacturer.

Q. So that this accuracy of 320 gallons a minute is predicated upon Exhibit P-1 and Exhibit P-2. Is that right? A. Also predicated upon subsequent tests which have been made at the plant of the Hersey Manufacturing Company.

Q. In other words, it is not predicated upon a subsequent test of this meter but a subsequent test of a similar meter checked by the shop test; isn't that so? A. Checked by the guarantee curve.

Q. So that the test you made was merely cumulative; it did not add any new idea to the test, did it? A. It has a value.

Q. Cumulative only; isn't that true? A. Additional.

Q. I dare say you would not hazard a guess as to when this meter became out of order, if it was out of order? A. No, sir; I would not; I have no idea.

Q. It might have gone out of order the day after it was put in there, in 1908? A. It might have gone out of order at any time.

Re-direct examination by Mr. Milton:

Q. It might not have gotten out of order until the day before the test? A. That is correct, but I don't know.

Mr. Milton: With the exception of the stipulation, that is all I have to offer at this time.

RESPONDENT'S CASE.

ANDREW B. MAUZY, sworn as a witness on the part of the respondents, testifies as follows:

Direct examination by Mr. Egan:

Q. You are employed in the Water Department of Jersey City? A. I am.

Mr. Egan: Will Mr. Mauzy's qualifications be admitted?

Mr. Milton: Yes; we admit Mr. Mauzy's qualifications.

Q. When did you first enter the city's employ? A. 1921.

Q. What was your position at that time? A. Water conservator.

Q. What were your duties generally? A. A general survey or checking up of water consumption of the various consumers.

Q. That survey was begun in 1921? A. Yes.

Q. Did it include the Lehigh Valley Railroad Company equipment for taking water? A. Yes.

Q. Are you familiar with this meter known as 318,140? A. Yes.

Q. Do you know where it is located? A. Johnston avenue.

Q. Did you ever test this meter? A. Yes.

Q. When was your first test? A. In August, 1922.

Q. What kind of a test was that? A. That test was made by inserting a two-inch corporation cock between the outlet of the meter and the outlet gate-valve and attaching to that two-inch corporation cock a two and a half inch fire hose, fifty

feet in length, and placing a two-inch disc meter on this fire hose to act as a test meter.

Q. Will you tell us what a corporation cock is? A. A corporation cock is a tap that is inserted in the line. It acts as a valve.

Q. And after you had installed the meter at the end of the fire line, you will please continue. A. A test of 500 cubic feet was run through the test meter, and the 12-inch Hersey Torrent meter did not show any registration.

Q. What did the disc meter show? A. The disc meter registered 500 cubic feet.

Q. Have you any records of that test? A. Yes.

Q. Will you produce them? A. Here it is.

Mr. Egan: I offer this in evidence.
(Marked Exhibit R-1.)

Q. Prior to the time that you made this test with this two-inch corporation cock did you not notify the Lehigh Valley Railroad Company that you were going to make it? A. Yes.

Q. Do you recall when that was done? A. Just prior to the test.

Q. Have you a copy of the letter that you wrote to the Lehigh Valley Railroad Company? A. I have, but it is not here now. I will produce it later.

Q. Do you know whether any one from the Lehigh Valley Railroad Company was present when you made this test? A. Yes.

Q. Who was there? A. Mr. Hoffman and Mr. Fisher.

Q. Did they observe this test? A. Yes.

Q. Did you make any other subsequent test? A. Yes.

Q. When? A. August 31, 1922.

Q. How was it made? A. This was made by inserting a second two-inch corporation cock between the outlet part of the meter and the outlet gate-valve and connecting two lengths of two and a half inch fire hose, each fifty feet in length, to a three-inch meter which was used as a test meter.

Q. From that test what did you find out? A. On an orifice of three inches, with a discharge of 1,000 cubic feet of water through the city test-meter, the 12-inch Hersey Torrent meter registered 990 cubic feet, or 99 per cent.

Q. Have you a chart showing that? A. Yes.

Q. Will you produce it? A. Yes; here it is.

Mr. Egan: I offer this chart in evidence.
(Chart is marked Exhibit R-2.)

Q. Previous to the making of this test had you notified the Lehigh Valley Railroad Company that you were going to make it? A. Yes.

Q. Through a letter? A. Yes.

Q. Have you a copy of that letter? A. Yes; here is a copy of that letter.

Mr. Egan: I offer the letter in evidence.
(Letter is marked Exhibit R-3.)

Q. Was anybody present representing the Lehigh Valley Railroad Company? A. Yes.

Q. Who? A. Mr. Hoffman.

Q. He was present during the entire test? A. Yes.

Q. Subsequent to this test what did you do, if anything, in the line of a test? A. We then conducted a forty-eight hour test.

Q. How was that done? A. That was done by inserting a six-inch compound meter in the line

with the twelve-inch Hersey Torrent meter, so that all water used through the Hersey Torrent meter would be registered by the city's six-inch test meter.

Q. Prior to the making of that test, did you notify the Lehigh Valley Railroad Company that the test would be made? A. Yes.

Q. How? A. By letter.

Q. Have you a copy of the letter? A. Yes.

Mr. Egan: I produce the letter and offer it in evidence.

(Letter is marked Exhibit R-4.)

Q. Was anybody from the Lehigh Valley Railroad Company present at this test? A. Yes.

Q. Who? A. Mr. Fischer and Mr. Hoffman.

Q. Now, did you make any other test? A. Yes.

Q. When? A. From May 7, 1923, to February 11, 1924.

Q. How did you come to make this test? A. Following the rendering of the bill for the inaccuracy charge from the results of our test on September 14, 15 and 16, there appeared on the bill the amount as registered by the Hersey Torrent meter, plus the inaccuracy. The railroad company objected to this method of billing where the inaccuracy appeared on the bill. We then turned the water back through the city test meter and rendered bills in accordance with the registration as shown on the test meter.

Q. Was the Hersey Torrent meter in operation at the same time? A. Yes.

Q. Have you prepared a tabulation of the results of that test? A. Yes.

Q. Have you it here? A. Yes.

Mr. Egan: The tabulation is produced and offered in evidence.

(Marked Exhibit R-5.)

Q. Referring to this tabulation, Exhibit R-5, will you tell us what it is? A. This chart shows the dates that the readings were taken, the rate and consumption as shown on the 12-inch Torrent meter.

Q. That is the second column? A. The second and third column. The fourth column shows the per cent. registered for the reading period by the Torrent meter. The fifth column shows the registration of the city's six-inch compound meter.

Q. That is the test meter? A. The test meter, on the large section of the meter.

The sixth column shows the consumption of water on the six-inch section of the city's test meter.

The seventh column shows the reading of the one-inch section of the six-inch compound test meter.

The eighth column shows the consumption as registered by the one-inch section of the six-inch test meter.

The ninth column shows the total consumption as registered by the six-inch compound test meter.

The tenth column shows the per cent. registered from start of test.

Q. That is, from May 7, 1923? A. From May 7th, for each reading period throughout the test.

Q. I notice down at the bottom there is this notation: "October 22, Could not read". What is the meaning of that? A. The pit was full of water and the meter covered.

Q. That same condition obtained December 7, 1923, as shown on the second sheet? A. Yes.

Q. On your reading of February 8th, on the second sheet, will you tell us what that interlineation means? A. That shows that the ten-inch Gem meter that was on the same service as the 12-inch Hersey Torrent meter, was removed and replaced by a new compound meter, size eight-inch.

Q. And on the second sheet, also, for February 12th, you have another notation. Will you explain what that means? A. This shows that the 12-inch Hersey Torrent meter was removed from service and replaced with a new eight-inch compound meter.

Q. Now, you say that this test was made as the result of the railroad company objecting to the inaccuracies appearing on their bills; is that so? A. Yes.

Q. Had they paid inaccuracies prior to this? A. Yes.

Q. Over what period, do you recall? A. They paid the inaccuracies as shown from the result of our test of September 14, 15 and 16.

Q. They have paid the inaccuracies that were shown on the bills rendered after the forty-eight hour test. A. The following monthly bills, yes.

Q. Have you any map or plan showing the lines in the Lehigh Valley yard and the installation? A. Yes.

Q. Will you produce them? A. Yes; here they are.

Mr. Egan: I offer this plan in evidence. (Marked Exhibit R-6.)

Q. What does Exhibit R-6 show? A. This plan shows the ten-inch Gem meter and the twelve-inch Hersey Torrent meter.

Q. Does it also show their location? A. It shows their location in the yard of the Lehigh Valley Railroad Company.

Q. Where does it show that? A. On the upper righthand corner of the exhibit, where I have marked a small cross in red.

Q. Besides location and layout, what else does this chart show? A. This shows the position of the city's test meter.

Q. Will you indicate that on the map or chart? A. I will mark that with "XX", in two places.

Q. I call your attention to Exhibit R-6, and ask you where the two-inch test corporation cock appears on this chart? A. There is one corporation cock shown between the outlet of the Hersey Torrent meter, and two shown on the outlet of the ten-inch Gem meter. This is an error. The two shown on the chart and marked with the letter "A" should be on the outlet side of the Hersey Torrent meter and marked with the letter "B" in red.

Q. Does this chart show anything else? A. This shows that the service line reduced from a twelve-inch pipe to an eight-inch pipe.

Q. Where is that shown? A. Directly on the outlet side of the——

Q. (Interrupting) That is, to the right of the hart and marked with the letter "C"? A. Yes.

Q. What does "C" show? A. It shows that the service line is reduced from twelve inches to eight inches.

Q. I call your attention to another chart which I now show you. What is this chart? A. This shows the two new compound meters, size eight inch, that replace the ten-inch Gem meter and the twelve-inch Hersey Torrent meter.

Mr. Egan: I offer this chart in evidence. (Marked Exhibit R-7.)

Q. I notice on this chart Exhibit R-7 there are two meters shown and marked on the chart "eight-inch compound meter" and "eight-inch compound meter". Are they in use now? A. There is only one of those meters in use. One is held in reserve.

Q. Which one is in use? A. They alternate.

Q. Were they ever both in use? A. Not at one time.

Q. Why? A. The consumption does not warrant the use of these two meters. In fact, it does not reach the capacity of one eight-inch meter.

Q. That is to say, this line does not reach the capacity of one-eight-inch meter? A. That is correct.

Q. And this is the line into which was inserted the twelve-inch meter; is that right? A. That is right.

Q. That is, the twelve-inch Hersey Torrent meter marked 318,140, the subject of this controversy; is that right? A. That is right.

Q. And then on the righthand corner of this exhibit is the location of these meters also; is that right? A. That shows the exact location of these meters. I have marked them with "X" in red.

Q. What is on the bottom of the chart; what does that show? A. That shows the construction of vaults to house the meter—the elevation.

Q. Now, you have said that Mr. Hoffman was present at these tests? A. Yes.

Q. Do you know who he was? A. I was informed he was the plumber for the railroad company.

Q. Are you familiar with the meter manufactured by the Hersey Manufacturing Company? A. Yes.

Q. Are you familiar with its construction? A. Yes.

Q. And the operation of it? A. Yes.

Q. Are you familiar with the meter known as Model T, in this case, also known as No. 318,140? A. Yes.

Q. Do you know whether it is the same type of meter that was advertised in the catalogue of the Hersey Manufacturing Company, the catalogue being issued in 1904?

Mr. Milton: Objected to.

A. Yes.

Q. Are you familiar with these catalogues? A. Yes.

Q. What do they contain?

Mr. Milton: I object upon the ground that they are the best evidence; also upon the ground that there is no proof that they were issued by the Hersey Manufacturing Company.

A. They are descriptive catalogues describing the construction of the meters, also the maximum rate of flow that can be taken through the various sized meters.

Q. Have you found in any of their catalogues, to see whether or not they contain anything that might be a guarantee made by this company?

Mr. Milton: Same objection.

A. I have.

Q. Have you found in any of their catalogues, beginning with 1904 and coming down to the present, anything that would resemble a guarantee of this meter?

Mr. Milton: I object upon the ground that the catalogue itself is the best evidence.

A. No.

Q. You are familiar with the requirements of the American Water Works Association, are you not? A. Yes.

Q. And the New England Water Works Association? A. Yes.

Q. You know what they ask or require of a meter? A. Yes.

Q. Do you know when these specifications were adopted? A. 1923.

Q. Do you know when this meter in dispute was manufactured and put out by this Hersey Manufacturing Company? A. It was installed in the railroad service line in 1908. I do not know when it was manufactured.

Q. This installation in Johnston avenue was in 1908? A. Yes.

Q. Do you know from the time in 1908 when this meter was installed, whether or not the Hersey Manufacturing Company have made any changes in their meters? A. They have made changes in this particular type of meter.

Q. Are you familiar with those changes? A. Yes.

Q. Will you state some of them? A. The deflector plate or casting has been changed.

Q. Do you know when that occurred, approximately? A. Some time prior to 1920.

Q. Does that change make it of a different construction than the meter had in 1908? A. Yes; prior to the change in this construction, it was necessary to remove the wheel to remove the deflector or plate. After this change was made, you can now remove the wheel and deflector.

Q. What bearing, if it has any bearing, has that on the accuracy of that meter? A. This prevents the corrosion of the casing outside of the deflector plate and therefore will help to maintain accuracy of the meter.

Q. Are there any other changes that you are familiar with? A. Yes; there are thrust vanes inserted on the outlet side of the wheel and casing.

Q. What is the effect of that change with regard to accuracy? A. This would tend to prolong the life of the accuracy of the meter, making it more sensitive.

Q. Any other change that you know of? A. I don't know of any others.

Q. Do you know the rated capacity of this particular meter as given by the manufacturer, the Hersey Manufacturing Company? A. The maximum capacity?

Q. The rated capacity, the maximum, yes. A. 8,600 gallons per minute.

Q. Now, in your tests that you made on this particular meter, do you know what the highest rate of flow that you found was? A. 1203 gallons per minute.

Q. What did you say the rate of capacity was? A. 8,600.

Q. That is, approximately? A. Approximately, 8,600.

Q. You are familiar with the pipe line itself over there, are you not? A. Yes.

Q. You know how large that line of pipe is? A. Yes.

Q. What is it? A. Twelve inches up to the outlet of the meter and then it is reduced to eight inches.

Q. From your experience as an engineer and your knowledge of the rated capacity of this meter, would you say that the meter that was installed, this twelve-inch Hersey meter, was the proper size and type of meter for this kind of service? A. It was oversized for this service.

Q. What do you mean by that? A. That the service line being reduced to eight inches, there should not have been placed on the line a meter larger than eight inches in size.

Q. Why? A. For the reason that the larger size meter will underregister on small flows to a greater extent than would a meter of a smaller size.

Q. Now, I have asked you, I think, but if not I will ask you now: After these tests were made you rendered bills to the company containing an amount that you thought was due the city because of inaccuracy; is that right? A. That is correct.

Q. These bills rendered to the company containing the statement as to inaccuracies, were they paid or not by the company? A. The claim prior to the test going back to 1918 was not paid.

Q. That is, from 1922 back to 1918? A. Yes.

Q. Not paid? A. Not paid.

Q. Were any of the bills rendered to the company, these bills containing a charge for inaccuracy, were any of them ever paid? A. Following the test there were some bills paid having inaccuracy charges.

Q. Following the test of 1922? A. Following the test of 1922.

Q. The company paid bills containing charges for inaccuracies? A. That is right.

Q. And this inaccuracy occurred on this twelve-inch Hersey meter; is that right? A. Yes.

Q. Under the conditions that obtained when this size and type of meter was installed on this particular eight-inch line, is it not a fact that this meter would be subjected to a greater percentage of low flows than it was intended to be subjected to by the manufacturer?

Mr. Milton: I object upon the ground that the witness can have no knowledge as to what the manufacturer intended with respect to the degree of low flows the meter was to be subjected to, and the question calls for a conclusion.

A. Yes.

Q. And what effect would this subjection to low flows have upon the accuracy of the meter?

Mr. Milton: Same objection.

A. The meter would underregister.

Mr. Egan: I now produce and offer in evidence letter of August 24, 1922, sent by Mr. Mauzy to John Milton, attorney for the prosecutor.

(Marked Exhibit R-8.)

(With consent of counsel cross-examination is reserved.)

PAUL LANHAM, sworn as a witness on the part of the respondents, testified as follows:

Direct examination by Mr. Egan:

Q. You are serving the city of Jersey City in these water matters? A. Yes.

Mr. Egan: Are the qualifications of Mr. Lanham admitted?

Mr. Milton: Yes; we will admit the qualifications of this witness.

Q. Have you studied the rates of flow at the Lehigh Valley yard through this eight-inch pipe on which was installed the twelve-inch Hersey Torrent meter that is in dispute in this case? A. Yes.

Q. What have you to say, after studying these rates of flow at this railroad yard on this particular line? A. That it was not properly metered with the twelve-inch meter.

Q. Why do you say that? A. Because the rates of flow, the average rates, and what momentary rates we had, showed that the capacity of the meter was much higher than necessary for this installation.

Q. Do you know the rating of this particular meter? A. Yes.

Q. What is it? A. Approximately 8,600 gallons a minute.

Q. Do you know the highest rate of flow through this meter? A. The highest rate of flow we know of is, 1,203 gallons per minute.

Q. And would you still hold the same opinion as expressed about this meter, if a shop test showed this meter accurately measured the flows considerably below the per cent. required of a

twelve-inch Hersey Torrent meter, as indicated by their guarantee curve, as they call it? A. Yes.

Q. Why? A. Because the conditions under which the meter operates are too near the low limit. The meter should be selected to keep the rates of flow away from both limits; but they have been kept too far away from high limits and too close to the guaranteed low limit of the meter.

Q. Do you consider, Mr. Lanham, in the selection of this type and size of meter for this particular installation, that there was any leeway allowed for these variations? A. No; there was no leeway allowed for the low rates of flow and there was too much leeway allowed for the high rates.

(With consent of counsel, cross-examination is deferred.)

(At this point adjournment is taken to Tuesday, March 22, 1927, at three-thirty o'clock in the afternoon.)

NEW JERSEY SUPREME COURT.

LEHIGH VALLEY RAILROAD COMPANY, Prosecutor, *vs.* THE MAYOR AND ALDERMEN OF JERSEY CITY, *et al.*, Respondents.	On Certiorari.

Further examination of witnesses in the above stated cause, taken pursuant to adjournment, this twenty-second day of March, 1927, at half-past two o'clock in the afternoon, at the City Hall, Jersey City, N. J., before Edward O'Byrne, Supreme Court Commissioner.

Appearances as heretofore.

Supreme Court Commissioner

ANDREW B. MAUZY, heretofore sworn as a witness on the part of the respondents, recalled.

Cross-examination by Mr. Milton:

Q. On Exhibit R-6 are shown two meters on the six-inch by-pass? A. That is right.

Q. One is labeled at the bottom "Six-inch test meter" and the other "Six-inch Watch Dog Meter." That is correct, is it not? A. That is correct.

Q. They are different meters? A. The two of them constitute one measuring device. There are two separate registers.

Q. In the list of meter readings for the so-called forty-eight hour tests, conducted on September 14, 15 and 16, 1922, which readings are attached to the stipulation, it is stated that the test meter used to test the twelve-inch Hersey Torrent meter was a six-inch trident compound test meter, No. 396,031. Which of the two meters shown on Exhibit R-6 is No. 396,031? A. The one marked "Six-inch test meter."

Q. And that is the one over which the "XX" is marked in red lead pencil? A. That is right.

Q. Which meter on Exhibit R-6 is referred to in Exhibit R-5, as Compound meter No. 396,031, used to test the Hersey Torrent meter in the nine months test from May 7, 1923, to February 11, 1924? A. This same combination of trident Crest meter and six-inch watch dog Compounding valve.

Q. So that the six-inch watchdog was a compounding valve? A. With a measuring device in it.

Q. A compounding valve with a measuring device in it? A. Yes.

Q. The watchdog meter is made by the Gammon Meter Company? A. That is right.

Q. And the six-inch trident Compound is made by the Neptune Meter Company? A. That is right.

Q. During the forty-eight hour test of September, 1922, you used a six-inch Crest current meter with a one-inch trident Misc meter to form a compound? A. No; the one-inch watchdog Disc meter.

Q. What did you use during the nine months test from May, 1923, to February, 1924? A. The same meters were used for the other tests.

Q. Did you use for the nine months test from May, 1923, to February, 1924, the six-inch Gammon watchdog meter and the one-inch trident Disc meter? A. No; I think the same trident Crest meter and the watchdog compounding valve.

Q. Are you certain about that, or would you prefer to check it up? A. I would like to check it up. Maybe there was a change in the test meter.

Q. How long would it take you to check it up? A. About five minutes.

Mr. Milton: Suppose we suspend the examination of the witness to permit him to make this check.

(Witness examines papers.)

Q. Have you made the necessary check to enable you to say whether there was any change? A. We never changed. We used the same meters.

Q. So that in both tests you used the same type of meter? A. Yes.

Q. Now, will you be good enough to state what that meter consisted of and briefly how it operated? A. That meter consisted of a six-inch trident Crest current meter, assembled with a six-inch watchdog compounding valve, and the operation of the combination is that small flows are registered on the compounding valve—on the registering device of the compounding valve—and large flows are registered on trident Crest meter. The total of the two registrations, on the compounding valve and on the Crest meter shows the total amount of water passing through the line.

Q. The Crest meter is a current type meter? A. Yes, sir.

Q. It operates on the same principle as the

twelve-inch Hersey Torrent meter operates? A. Yes, sir.

Q. What period of time elapsed between the test of forty-eight hours in September, 1922, and the beginning of the nine months test in May, 1923—approximately seven or eight months? A. Seven or eight months yes.

Q. Before you commenced the nine months test in May, 1923, did you take out the test meter, the Crest meter and test it? A. I do not believe so; I am not sure.

Q. So that that meter remained in the ground from the time it was installed in September, 1922, until you began your second test in May, 1923? A. Yes.

Q. And your thought or impression now is that it was not tested before the second test began? A. I do not believe it was tested.

Q. The current type meter, Mr. Mauzy, of which the Crest meter is one, has two wheels or turbine runners on a connecting shaft which operates the registering mechanism? A. Yes, sir.

Q. And in front of and preceding each wheel or turbine runner is a cup-shaped screen? A. Yes.

Q. The theory upon which the meter is designed to operate requires an equal division of the flow as between the two wheels? A. Yes.

Q. If anything should clog one of the screens, say, some debris or dirt, and the other screen remained unclogged so that water flowed through only one wheel, the water passing through the meter would not be accurately measured, would it? A. That would be impossible for any foreign matter to get on the cage or screen of the trident Crest meter.

Q. If you will be good enough, please answer my question, however impossible you might regard it for one of the screens to become clogged with some foreign substance so that water flows through one wheel only. The water that passes through the meter would not be accurately measured, would it? A. No; it would tend to have the meter over-register.

Q. It would over-register in fact? A. Yes, sir.

Q. If water flowed through only one wheel, as a matter of fact, there would be double registration? A. Yes; if one chamber was completely blocked off.

Q. Did you test the Crest meter that was used as a test meter before it was installed for the purpose of making the forty-eight hour test in September, 1922? A. Yes.

Q. But after the conclusion of that forty-eight hour test, I think you said you did not test it before the 1923-1924 test? A. I do not believe so.

Q. You testified, as I recall, on your direct examination, that in your judgment the twelve-inch Hersey Torrent meter was too large for the service. That is right? A. That is correct.

Q. Ten-inch would have been a better meter for the service? A. Four or six would have taken care of the service.

Q. But ten would have been better than the twelve? A. It would have registered more accurately on low rates.

Q. Will you look at Exhibit R-6, and tell me whether or not the meter on the ten-inch by-pass around the Hersey, marked "Present ten-inch meter" was not in position and available for use during the period covered by the city's claim? A.

That meter was found to be stopped and out of order when we went there to test it in September.

Q. In September, 1922, you found that the ten-inch meter appearing on Exhibit R-6 under the caption, "Present ten-inch meter" was topped and out of order? A. Yes.

Q. Is that the first time that you ever examined or tested or inspected that meter? A. No; I ran a test prior to the test of September, on that meter.

Q. When was that test held? A. Some time in August.

Q. August, 1922? A. August, 1922.

Q. Isn't it a fact, however, that prior to the time you conducted your test in August, 1922, this ten-inch meter had been in position and available to be used, if in good order, during all or substantially all of the period covered by the city's claim? A. Prior to the test I could not state. I did not know what the condition of that meter was.

Q. Have you any record in the city archives which will indicate when that meter was installed? A. Yes, sir.

Q. Will you be good enough to ascertain when the meter was installed? A. I think we have it right here. Here it is: September 30, 1909.

Q. Have you any record which shows any test made of the ten-inch Gem meter in question prior to August, 1922? A. No. I think the only test that was ever made on that meter was the test that was made in August.

Q. August, 1922? A. August, 1922.

Q. That ten-inch Gem meter operates on the inferential principle, the same as the twelve-inch Hersey Torrent? A. Yes.

Q. And also the same as the main line unit of test meter, the Crest? A. Yes.

Q. Assuming that an inspection had been made or a test made of the ten-inch Gem and it was determined to be in good order, if Jersey City had desired to cut out the service on the twelve-inch Hersey Torrent meter, all that would have been necessary to do would have been simply to turn a valve in this ten-inch Gem, would it not, and put it in service and cut the Hersey meter out? A. Yes.

Q. So that during all of the period for which the city now makes claim against this company, at least from September 30, 1909, down to the time of the test in 1922, there was available for use a ten-inch Gem meter in the position as indicated on Exhibit R-6? A. Yes.

Q. So far as you know, Mr. Mauzy, Jersey City never required the cutting out of the twelve-inch Hersey Torrent meter and the substitution of any other meter, up to the time you made your test in 1922? A. Not to my knowledge.

Q. And so far as you know, Jersey City never insisted upon the ten-inch Gem meter, lying alongside of the twelve-inch Hersey, being put in service in substitution of the Hersey meter? A. Not to my knowledge.

Q. I take it, it would have been a simple feasible, practicable thing to test the twelve-inch meter, the Hersey Torrent meter, at any time, without interrupting the service of the railroad company? A. Yes; that could be done.

Q. When, prior to your test of August, 1922, was the twelve-inch Hersey Torrent meter in question tested? A. I do not believe there was ever a test conducted by the city on the twelve-inch Hersey Torrent meter.

Q. So that following its installation in 1908, Jersey City allowed this meter to remain in use alongside of the ten-inch Gem meter for a period

of substantially fourteen years without having conducted any test on it? A. That is right.

Q. Nor, so far as you know, was this twelve-inch Hersey Torrent meter ever inspected or cleaned by Jersey City? A. There were some repairs made on it.

Q. When? A. On July 3, 1912, the meter was set back to zero; that is, just the register on the meter was changed.

Q. But no repairs were made at the time? A. No repairs to the interior mechanism. On October 7, 1909, the train gear was replaced with a new train. Here is another one: May 28, 1918, removed register and reset new register at zero.

Q. So that the history of this meter is approximately correctly described as follows: Installed in 1908; a new gear train put in in October, 1909; a new register put in in 1918? A. Yes, and one repair made in 1913.

Q. One repair made in 1913? A. Just on the register.

Q. Just on the register? A. Yes.

Q. Other than the minor repairs you have referred to, there were no repairs made to this meter for all of the fourteen years of its use? A. No, sir.

Q. So far as you know, during the fourteen year period of its use, from 1908 to 1922, did Jersey City ever notify the railroad company that the meter, because of its type or size or for any other reason, was unsatisfactory or inadequate? A. I can find no record in the department where the city requested the meter be changed.

Q. So far as those records or your knowledge goes, the railroad company had no reason to believe that the meter was inadequate to meet any conditions of service? A. I believe that is correct.

Q. During all the period of its use, from 1908 down to 1922, when the test was made, Jersey City regularly billed the company for water consumed through the meter, which bills were as regularly paid? A. Yes.

Q. Referring to the test of the Crest meter which you had made prior to the time of the test in September, 1922, where was that test conducted? A. At the meter laboratory.

Q. At High Service station? A. Yes.

Q. That test was conducted in the regular laboratory manner: You passed water through the Crest meter at various rates of flow, which were regulated and controlled? A. Yes, sir.

Q. During that laboratory test did you repeatedly and suddenly open and close a quick-opening valve controlling the flow through the meter in such manner that the rates of flow were changed suddenly, repeatedly and erratically through wide and varying limits? A. No, sir.

Q. As a matter of fact, your test was the regular laboratory test of controlled, regulated flows? A. That is right.

Q. I take it, therefore, that in your judgment, this test which you made in the test meter was a sufficient one to prove to you that the Crest meter could accurately measure the water under the conditions encountered on the service line? A. Yes, sir.

Q. Otherwise, of course, you would not have installed the test meter for the purpose of testing the Hersey Torrent meter—that is right, is it no? A. That is correct.

Q. So that the laboratory test that you conducted was quite satisfactory as a basis for the assumption that the Crest meter would accurately measure the water under all of the conditions

which it would be called upon to meet? A. That is correct.

Q. The Crest meter, I think you said, was of the current or turbine type? A. Yes.

Q. I mean the one that was used to test the railroad company's Torrent meter? A. Yes, sir.

Q. The principle upon which they operate is the inferential? A. That is right.

Q. What is your opinion with respect to the sudden changes in the rate of flow existing in the Johnston avenue main during the test, the forty-eight hour test? Would they be sufficient to cause a meter of the turbine or inferential type to register with appreciable inaccuracy? A. No, sir.

Q. They would not? A. No, sir.

Q. So that, therefore, the Hersey meter was not unsuitable to measure changes in the rates, was it? A. Not during the test period.

Q. Not during the test period. Of course, you have no other knowledge of conditions that prevailed there, have you? A. No, sir.

Q. Your knowledge of the conditions that prevailed is derived from the results revealed by your tests? A. That is right.

Q. And when you had the compound meter installed to test the twelve-inch Hersey Torrent meter, likewise you are of opinion, I assume, that the accuracy of the compound would not be seriously affected by changes in the rate of flow? A. It would not, no, sir.

Q. The Hersey Torrent meter had brake-bars or drag-bars on the top of the wheel to prevent spinning when the rate of flow changed suddenly? A. Yes; there were brake-bars on top of the wheel, which would stop the spinning.

Q. The Crest current meter, however, did not have any such brake-bars? A. No, sir.

Q. You understand, I believe, that a wheel without brake-bars has a tendency to spin and over-register when the rate of flow changes suddenly? A. If the Crest meter was in the line without the compounding valve, this is liable to happen, but with the compounding valve I do not believe that the Crest meter would spin with change in rate of flow.

Q. You say you do not believe, do you? A. No, sir.

Q. Are you willing to assert that as a fact, that even when the Crest meter without brake-bars or drag-bars is hooked up with the compounding valve, it would not spin and over-register? A. The compounding valve would prevent that.

Q. Are you pretty firm about that? A. Yes, that is, my experience would prove it.

Q. Your Exhibit R-1, reveals a test made on August 23, 1922, of the meter in question, when you put through the meter approximately 500 cubic feet? A. Yes, sir.

Q. This exhibit shows that the meter did not register on a two-inch stream. Have you any record as to what pressure prevailed when this test was conducted? A. No pressures were taken.

Q. How many gallons a minute passed through, or at what rate of flow was the 500 cubic feet put through? A. That was not taken.

Q. So that I gather you do not attach much importance to this particular test? A. I do not; no.

Q. Without knowledge as to the pressure prevailing when this test was made, and no observation taken as to the rate of flow, you agree that this test does not furnish much information as to the accuracy of the meter? A. It just showed that the meter did not register on the two-inch flow.

Q. It might have passed through there at rates much below the breaking point of the meter? A. I would not say that. I do not know.

Q. You do not know? A. I do not know what the rate was.

Q. You do not know what the rate of flow was? A. No, sir.

Q. You used a Disc meter for the test? A. Yes.

Q. It was a two-inch meter? A. Yes, sir.

Q. And of what type? A. Disc.

Q. Do you know the name of the manufacturer? A. Neptune Meter Company.

Q. But at what maximum rate is it possible to measure water with a two-inch Disc meter? A. That is, the capacity of the two-inch Disc meter?

Q. Yes. A. That would be determined on the pressure.

Q. And without any knowledge of the pressure—— A. (Interrupting) I do not know what the delivery would be.

Q. Do you know what the loss in pressure would be at the rate of 240 gallons a minute flowing through a 50-foot new rubber lined hose? A. Not offhand; no, sir.

Q. Would you state it is about fourteen pounds? A. Perhaps it might be.

Q. Could you measure the water through such a device, in view of the water pressure at the point where the test was made, and the size of the test meter, at more than 150 gallons approximately a minute? A. That I could not say, not knowing the pressure.

Q. You don't know? A. Not knowing the pressure, I don't know.

Q. What is your notion as to the normal pressure prevailing at the point where the test was made? A. It varies. It may be thirty or thirty-five pounds.

Q. Assuming thirty-five pounds, do you think that you could measure more than 150 gallons a minute with such a device as you used on the test shown in Exhibit R-1? A. That I don't know. I would have to calculate it.

Q. How long would it take you to calculate it? Would it not be less than 200 gallons a minute? A. That I could not say unless I calculated it.

Q. Assuming it was less than 200 gallons a minute, if you please, do you know how many times a rate of flow as low as 200 gallons a minute average was observed during your forty-eight hour test in September, 1922? A. Not offhand, I don't know.

Q. As a matter of fact, Mr. Mauzy, while I have devoted some little time to questioning you with respect to Exhibit R-1, I think you said you did not attach much importance to that test? A. No; I did not.

Q. Now, with respect to Exhibit R-2, A-2 shows the result of a test conducted August 31, 1922, and there were three registrations taken, as I understand the chart: One when 1000 cubic feet of water flowed through and consumed 14 minutes and 42 seconds, the amount registered by the Hersey meter on that test being 990 feet or 99 per cent.? A. That is right.

Q. The second illustration is when 500 cubic feet went through in 9 minutes and 19 seconds, through a two-inch orifice, none of which was registered by the Hersey, and the third illustration, when the same quantity of water went through in 8 minutes and 43 seconds, passing through an orifice two and a half inches, none of which were registered by the Hersey. That is correct, is it? A. That is right.

Q. How many gallons per minute was represented by the quantities expressed in cubic feet

which passed through in the times stated here? A. Approximately 468 gallons of two and a half inch stream. I did not take the seconds into consideration.

Q. So that in the case where the water passed through the two and a half inch orifice, which is the last one in the column, there were approximately 468 gallons a minute? A. Approximately, yes.

Q. How many were there in the case of the thousand cubic feet passing through in fourteen minutes? A. About 530, approximately. I did not take the seconds into consideration.

Q. In the case of the first illustration, when 1000 cubic feet passed through a three-inch orifive in fourteen minutes, that would be approximately at the rate of 530 gallons a minute? A. That is right.

Q. What type and size of test meter was used to make the test? A. Three-inch current meter.

Q. A three-inch current meter? A. Yes.

Q. The flows named in this Exhibit R-2, represent the water that you drew off through the Hersey meter and the test meter and discharged upon the ground? A. Yes, sir.

Q. That is correct? A. Yes, sir.

Q. So that the rate of flow through the test meter and the Hersey, I assume, was constant for each given orifice, in each given example; that is right, is it? A. That is correct.

Q. That constancy or freedom from variation or fluctuation, was the result, I suppose, of the gate in the outlet side of the Torrent meter being closed during the test? A. Yes, sir.

Q. That is correct, is it? A. Yes, sir.

Q. So that during the test shown by Exhibit R-2, no water was taken by the Lehigh Valley

Railroad Company through its meters—that is right, is it? A. That is correct.

Q. And all the water that was drawn went through the test meter? A. Yes.

Q. And through your test meter and out upon the ground? A. That is right.

Q. That being so, Mr. Mauzy, whatever inaccuracies existed in the registration of the twelve-inch Hersey Torrent meter during the test, could not have been caused by the fluctuations or variations or changes in the flow of water, could they? A. No, sir.

Q. This flow was as fixed and as constant practically as the laboratory test which you conducted on your Crest meter, was it not? A. That is correct.

Q. In other words, you produced in the field, conditions which prevailed in the laboratory? A. That is right.

Q. Now, right here, Mr. Mauzy, with rates of flow constant, unvarying, unfluctuating and unaffected by any conditions in the line, and being approximately similar to the ideal conditions prevailing in the laboratory, you have a variation in this meter where, on a rate of flow of 530 gallons a minute approximately, it registered 99 per cent., and on a rate of flow of 468 gallons a minute, it did not register anything? A. That is right.

Q. That is right, is it? A. Yes.

Q. Was the meter out of order? A. That I could not say whether it was or was not.

Q. What is your best guess? A. I could not state whether it was out of order or not.

Q. Give me your opinion? A. I cannot give you an opinion unless I take the meter apart.

Q. What do you think? A. It might have been out of order and it might not.

Q. Don't you think it was? A. That I could not state.

Q. Are you willing to say that a meter of this type, registering under conditions paralleling or corresponding to the conditions of a laboratory test, with rates of flow progressing through that meter, unaffected by fluctuations, constant and fixed and unvarying, showing such a violent change, will register 99 per cent. on 530 gallons a minute and nothing on 468 gallons a minute—are you willing to say that that meter was in good order? A. If it had been in good order, according to the manufacturer's chart, it would have registered on the two inch and two and a half inch flows.

Q. According to your knowledge, as a meter man, on this type of meter, if this meter had been in good order and not faulty, it should have registered all three flows shown on this chart, should it not? A. Yes.

Q. So that it is not a violent assumption, is it, for me to say that when you conducted your test of August 31, 1922, and got the results with a fixed constant flow of water that you did, that meter was out of order? A. Perhaps it was out of order.

Q. Of course, without the benefit of an actual examination of the insides or guts, to use the ancient and inelegant expression, of this mattter, you are not willing to say it was actually out of order? A. No, sir; I am not.

Q. But certainly, a meter of this type in good order, should have registered approximately 100 per cent. of the water flowing through it under these conditions and at the rates of flow that did go through—that is so, is it not? A. I would not say 100 per cent., but it would have registered something.

Q. How much? A. It just depends upon the condition of the meter when it was new.

Q. Assuming it was a meter in good condition? A. A perfect meter would have registered 100 per cent.

Q. A perfect meter would have registered 100 per cent. on a flow of 468 gallons a minute? A. Yes.

Q. And it would have registered 100 per cent. on a flow of 530 gallons a minute? A. Yes.

Q. Now, I take it, there is no way known to man by which it could now be told when this meter got out of order, if it was out of order—that is right, is it? A. That would be a pretty hard thing to tell, yes.

Q. The meter, after the test of 1924, was taken out and destroyed, was it not—junked, scrapped? A. I do not know what happened to the meter. It was removed by the railroad company.

Q. But you have heard that it was scrapped, sold for junk? A. So it was testified.

Q. So that, so far as you know, there is no way of finding that meter, so as to conduct a post-mortem examination of it, is there? A. No, sir.

Q. There is no record existant that you know of which shows the condition of that meter prior to the making of the test of September 14, 15 and 16, 1922, is there? A. No, sir.

Q. So that, so far as you know, there is no human way of telling just when that meter got out of order, if it was out of order—that is right? A. That is right.

Q. Mr. Mauzy, I show you Exhibit P-3 and call your attention to the entry opposite 9.45 P. M. on September 14, an average rate in gallons per minute between the fifteen minute readings of 834 gallons, and a registration by the Hersey of the flow

measured by the test of only three per cent. Would you say that this Hersey Torrent meter, or a Hersey Torrent meter of this type, in good order, would register only three per cent. of any such flow? A. Well, that might be due to the manner in which the meter reading was taken, that is, the last index on the Hersey Torrent meter was in thousand cubic feet, and the meter reader might not have read it close to the hundred feet. There was no intermediate reading taken between on the dials.

Q. Assuming the verity and the truth of your certificate of your meter readings—and this is your report, is it not? A. Yes.

Q. It is not the company's, is it? A. No.

Q. Assuming it to be true, which I have done, would you say that a Hersey Torrent meter of this type, in good order, would register only three per cent. of any such rate of flow as shown in this instance of 834 gallons? A. No; not if the reading was taken correctly.

Q. Well, referring to another illustration of meter readings taken in the test of September 14, 15 and 16, 1922, namely 8:45 A. M. on September 16th, I show you that the average rate of flow, in gallons per minute, was 470 and the Hersey did not register anything. Will you say that a Hersey Torrent meter in good order of this type on that rate of flow of gallons per minute, would not register anything? A. No; it should have shown some registration.

Q. It should have shown—and in good order from your knowledge and experience as a meter man, it should have shown substantially or approximately 100 per cent.? A. It should have been very near accurate; yes, sir.

Q. With a variation of possibly two or three per cent., that is correct, is it? A. Yes.

Q. And Exhibit R-5 is your compilation or tabulation of the test made between May 7, 1923, and February 11, 1924—that is correct, is it? A. Yes.

Q. And as you have previously said, that test was instituted between seven and eight months after the completion of the test of September 14, 15 and 16, 1922; that is right, is it? A. That is correct.

Q. You have no records of the repairing of the Hersey Torrent meter in the interval between September 16, 1922, and May 7, 1923? A. No repairs were made.

Q. So that at least the Hersey Torrent meter was in no better condition when the test shown by Exhibit R-5 was conducted when it was when the test was conducted in September, 1922? A. That is right.

Q. It might have been in worse condition? A. That I don't know; I cannot state.

Q. Since you did not disembowel the meter and look at its insides? A. That is right.

Q. But it might have been in worse condition? A. The amount of water that passed through might have caused some wearing on the bearings inside it.

Q. Do you know whether it was in the same condition or approximately the same condition? A. Yes, for the reason that there was not very much water passed through.

Q. And the result of the test which you conducted during the period of nine months from May, 1923, to February, 1924, was that you found the Hersey Torrent meter was about 49 per cent. inaccurate? A. I believe the average was 50.93.

Q. And during the prior test you found it to be what inaccurate? A. 53 per cent. inaccurate.

Q. So, is it a fair conclusion to say that if the Hersey Torrent meter was out of order in September, 1922, when your test of that period was made, it was likewise out of order in 1923-1924, when the other test was had? A. If it was out of order, certainly it would have been out of order in the later tests.

Re-direct examination by Mr. Brogan:

Q. Could the failure of accurate registration be due to a gradual deterioration in the measuring device itself? A. Yes; that would be caused by the quantity of water that had passed through the meter.

Q. Was there any particular reason why you stopped this forty-eight hour test at the end of that period? A. Yes; at the request of the railroad's representative.

Q. Who was that? A. Mr. Fisher.

Q. Who was he? A. He is the plumber for the railroad company.

Q. Is the plumber for the railroad company the man who has charge—— A. (Interrupting) He was assigned to witness this test.

Q. What passed between you and him at that time?

Mr. Milton: I object upon the ground that it is incompetent.

Mr. Brogan: Lack of authority?

Q. What conversation passed, if any? A. He stated that as far as the railroad company was concerned, we had run a sufficient test on the meter to determine its accuracy.

Re-cross-examination by Mr. Milton:

Q. Do you assert as a fact that the failure of this meter to register accurately, as you allege, was due to a partial failure of efficiency? A. Not to register accurately. It would tend to register inaccurately by the amount of water that passed through.

Q. What is your claim here—that the failure to register accurately is because of the type of the meter? A. The meter was oversize for the service it was on, and there is no question that there were large quantities of water going through without being registered.

Q. Is that because of the fact that it was a Torrent meter? A. Yes; that is correct.

Q. And was it because the mechanism wore out? A. Well, if the mechanism wore, that would cause the inaccuracy to increase.

Q. Is your position here that the mechanism wore out so as to cause the inaccuracy to increase?

Mr. Brogan: I did not ask him about that. I asked him could the failure be due to a gradual deterioration. I did not ask him to state it as a fact but just within the realm of possibility.

Q. Well, what is the claim of the city—that the inaccuracy is because of the mechanism of the measuring device wearing out through age? A. It is based on the meter being oversized for the service and also the quantity of water that has passed through the measuring device without any attention or repairs being made to the meter.

Q. So that, to some extent then, the claim of the city is based upon the deterioration in the

measuring device due to the use of the meter and the fact that it was not kept up in repair?

Mr. Brogan: He did not say that.

Mr. Milton: I am asking him to say yes or no. Whatever the fact is, I am trying to find out.

Mr. Brogan: That is not the city's claim. I will state that.

Mr. Milton: I want an answer to my question.

Mr. Brogan: He does not know.

Q. (Question repeated.) A. As I said before, it is due to oversize of the service, and not having disassembled the meter I am not in a position to state whether the interior mechanism was worn or was not worn.

Q. So that, you do not rest your claim as water conservator of the city upon the meter being oversize; is that right? A. That is one reason; yes.

Q. What are the others? A. Then, there might be some loss due to wear of the measuring mechanism.

Q. There might be? A. Yes.

Q. But you are not in a position, I take it, to state whether there has been a wear of the measuring mechanism? A. I don't know, because I never took the meter apart.

Q. Are there any other reasons or bases for this claim? A. Not that I know of, just the reasons that I recited.

By Mr. Brogan:

Q. To sum it up, your tests made at different times, one the forty-eight hour test and the other the nine months test, at the dates referred to in your tesimony, show an inaccuracy as stated by

you in your direct testimony, which has been pro jected over the period of time for which this meter was in use? A. That is right.

Q. And the result of your statement as to accuracy, as I understand it—and to clarify the situation—is a mean figure of accuracy or inaccuracy which has been taken for different periods, different reading times, divided by the number and a mean figure of accuracy or inaccuracy struck in that fashion; is that right? A. No; no. It is based on the result of the test of September 14, 15 and 16.

Q. And your nine months test? A. No; not the nine months test.

Q. What did your nine months test show? A. It showed that the meter was registering 59.93 per cent. of the water passing through it.

Mr. Milton: I have covered all I wish to by the cross-examination of Mr. Mauzy, and I will waive cross-examination of Mr. Lanham.

RESPONDENTS REST.

REBUTTAL.

ROBERT E. FERGUSON, a witness heretofore sworn on the part of the prosecutor, recalled in rebuttal and further examined as follows:

Direct examination by Mr. Milton:

Q. Mr. Ferguson, I think you have already stated the fact that you are connected with the Hersey Manufacturing Company? A. Yes, sir.

Q. Are you familiar with the performance of the Hersey Torrent meter of the type and model

which was sold to the Lehigh Valley Railroad Company and which is in question in this suit? A. Yes, sir.

Q. Have you conducted an experiment for the purpose of determining what effect upon the accuracy of registration of such meters there is in suddenly and repeatedly increasing and decreasing the rate of flow? A. Yes.

Q. Will you please tell us what the effect is upon the accuracy of such a meter of suddenly and repeatedly increasing and decreasing the rate of flow? A. It tends to make the meter over-register.

Q. What happens if the change in the rate of flow is only about double the first rate? Is there any effect? A. No, sir.

Q. And what happens if there is a very great change within two or three minutes? Is that sudden enough to cause any change? A. Not two or three minutes; no, sir.

Q. How did you acquire this knowledge? A. By actual test.

Q. Mr. Coulter, who has testified previously here for the railroad company, testified with respect to certain tests which had been conducted by the Hersey Company for him. Do you know who actually conducted those tests? A. I did.

Q. Where were they conducted? A. In our laboratory in Boston.

Q. At the request of Mr. Coulter? A. Yes.

Q. Were they made on a meter exactly like the twelve-inch Torrent meter sold in 1908 to the Lehigh Valley Railroad Company? A. The measuring mechanism was exactly the same.

Q. What changes, if any, were there in the meter, or what differences were there, if any, in the meter tested by you and the one sold to the Le-

high Valley Railroad Company? A. The container was the only change.

Q. Did that affect the reaction of the meter to the various tests imposed upon it? A. It would in a very small degree.

Q. To what extent? A. It would tend to cut down over-registration.

Q. And in that respect only? A. In that respect only.

Q. Would it affect under-registration? A. It would make a more delicate mechanism and it would register more accurately the lower flows.

Q. The meter which you used would register more accurately the lower flows? A. Yes.

Q. Now, will you describe what tests were made? A. Well, we ran a test from 1000 gallons a minute down to a complete shutdown, by opening and closing the valve quickly, and we got an over-registration of between seven and eight per cent.; and on a rate from 1000 gallons a minute down to 200 gallons a minute, we got over-registration of about between six and seven per cent.; and on a rate from about 450 gallons per minute down to 200 gallons a minute, it did not affect the registration at all.

Q. Were there any other results? A. Well, those were the results on that particular test, with the brake on the wheel.

Q. Now, when you take the brake-bars off what happens? A. You practically double the over-registration. On the first test of 1000 gallons a minute down to a complete shutdown, it over-registered about fourteen to sixteen per cent.; and from 1000 gallons down to 200 gallons a minute it over-registered from twelve to fourteen per cent.; and on the rate from 450 gallons a minute to 200 gallons a minute, on the test with the brakes

on it registered accurately, but without the brakes it registered four to six per cent. over.

Q. So, with the brakes on, there is a tendency to cut down over-registration? A. Yes.

Q. Why did you conduct the test for the purpose of showing those increasing and decreasing flows? A. To find out what effect the opening and closing of the valve would have on the registration of the meter in the field.

Q. That is, in actual service? A. Yes.

Q. What have you to say as to whether or not such great and rapid changes in the rate of flow are met with in actual service? A. I do not think so.

Q. Did you, at any time during your tests, observe the meter to measure less water than it would have, had the flow been even? A. No, sir.

Q. Did it register more or less? A. It registered more.

Q. So far as your test shows, was this the only effect of extreme distribution of valocities? A. Yes.

Q. To produce over-registration? A. Yes, sir.

Q. Do you know when the meter specifications of the American Water Works Association were adopted? A. 1923.

Q. And the curve, Exhibit P-2, does that conform to the requirements of those specifications? A. Yes, sir.

Q. What does the Hersey Company represent or guarantee with respect to the twelve-inch Torrent meters equalling the accuracy required by those specifications? A. It guarantees the meter will meet them.

Q. Does your company state that guarantee in any catalogue which it issues? A. It does in our present catalogue; yes.

Q. It does state the guarantee? A. Yes, sir; in our present catalogue.

Q. That is your catalogue of 1924? A. 1924; yes, sir.

Q. Your former catalogues, did they state the guarantee? A. No, sir.

Q. Have you any such catalogues with you? A. Yes, sir.

Q. Will you produce them, please?

Mr. Brogan: Are you calling for early or late catalogues?

Mr. Milton: Early.

A. Here is the 1907 catalogue.

Q. Is this the catalogue which was in effect in 1908 when the meter in question was sold to the Lehigh Valley Railroad Company? A. Yes.

Q. Was there any recommendation in this catalogue with respect to the class of service for which this meter was designed or intended? A. Yes, sir.

Q. Will you point it out, please? A. It was recommended for use in measuring supplies for cities, railroad standpipes, hydraulic elevators and also water cart hydrants and water motors.

Q. Did that recommendation as to class of service appear in earlier and later catalogues? A. In earlier. I would not say about the later catalogues.

Q. It has never been the practice of your company, however, as I understand you, to publish guarantees in any of your catalogues, until 1924? A. No, sir.

Q. The guarantee was given how—by letter? A. By letter or in specifications, in bids and so forth.

Q. I neglected to ask you, Mr. Ferguson, with respect to over-registration, whether or not that was the effect of suddenly changing the rate of flow? A. Yes, sir; that was from about five to seven seconds opening and closing the valve.

Q. Four or five times? A. Yes.

Cross-examination by Mr. Brogan:

Q. That statement in the catalogue, stating that this meter is good for railroad standpipes and so forth—that does not mean that it will accurately measure small rates of flows? A. Are you speaking of flows in a comparative way?

Q. Yes. A. Some flows are large in one meter, where in another meter they would be small.

Q. I am talking about this particular meter. You do not contend, as I understand, that this twelve-inch Hersey Torrent meter was the proper meter for this particular line at the Lehigh Valley Railroad yards, that it was used for, do you? A. We sold and recommended it for that service.

Q. You do not think it was oversize, do you? A. A meter is not oversize, if the rate of water going through that meter is within its degree of accuracy, no matter what size pipe it is on.

Q. So, you think that this twelve-inch Hersey Torrent meter might be set into a three-inch line and still measure accurately? A. No, sir; I do not say that, unless you had a rate going through that three-inch line that was large enough so that it was within the degree of accuracy of the twelve-inch meter.

Q. What was the diameter of this particular line in question? A. Eight-inch.

Q. Do you think that this twelve-inch Hersey Torrent meter, with the varying flows that would go through that pipe for railroad use, was the

proper meter to measure accurately all water consumed? A. When we sell a meter, we do not know——

Q. (Interrupting) Please answer the question. A. That is a general question.

Q. I am talking particularly now. A. Particularly about this meter?

Q. Yes. A. Where the conditions were an average flow of water equalling 400 gallons a minute, the meter was not too large.

Q. Assuming, as I think the test shows, that there was not an average consumption of 400 gallons a minute, do you think then that this line was properly metered by this twelve-inch Hersey Torrent meter? A. If the flows did not drop below the degree of accuracy of the twelve-inch meter.

Q. In other words, you mean, assuming there will be a constant flow on that line of 400 gallons a minute, not average but actually, that meter will actually register the consumption? A. Yes.

Q. And if it drops below for half or quarter of the time, the 400 gallons a minute, then this meter will not accurately measure? A. If it did not drop below 300 gallons a minute.

Q. Then it will not accurately measure if it is below 300 gallons a minute. That is so, is it not? A. That meter actually measured closer than that on lower flows. The minimum is 300 to 320 gallons as I remember it, within three per cent.

Q. Yes. A. But this meter in question actually registered a good deal closer than that on lower flows at the time of test.

Q. Coming back to my question: Assuming that this line has flows through it actually at less than 300 or 320 gallons a minute, this eight-inch line, will this Hersey Torrent meter, this twelve-inch

meter, accurately measure these flows? A. It is according to how much lower you are going than 300 gallons a minute.

Q. I understand. Assume it is 248. A. It will measure within three per cent., yes, sir, if the meter is in good condition.

Q. And as the flow recedes in quantity, the accuracy mounts; is that right? A. Yes.

Q. What is the number of the meter that you used in making your tests in preparation for this case? A. The meter had no number at all. The meter number is only used as a means of identification after the meter——

Q. After it leaves you? A. Yes.

Q. What is your number on this Hersey Torrent meter of the Lehigh Valley? A. I could not say right offhand, but I think it is 318 thousand and something.

Q. What attempt did you make, if any, to use a meter for your test that was identical with the meter in possession of the Lehigh Valley Railroad Company? A. The measuring mechanism is identical.

Q. The measuring mechanism? A. Yes.

Q. Had the meter that you used any parts on it that this meter had not? A. It has the container which the measuring device sits in.

Q. Was there not also another outlet after the water passes through the measuring device, which permits it to escape or get away faster? A. At the present time?

Q. No; this meter that you used. A. No, sir.

Q. What, Mr. Ferguson, in your opinion, is the life of this meter that is in the Lehigh Valley Railroad Yards as to accuracy without repair?

Mr. Milton: Objected to upon the ground that it is not proper cross-examination.

A. No man could tell that.

Q. So, you won't say that it had an average life of accuracy of five years or one year or ten years? A. It all depends on the rate that it runs.

Q. Are there any certain rates where you might say its accuracy might be broken inside of six months? A. No, sir.

Q. One year? A. I do not think that you could get any rate through there that would impair the accuracy of it——

Q. (Interrupting) Within what time? A. Within five or six years, to any great extent.

Q. What have you to say about this forty-eight hour test and the other tests that have been mentioned, showing, as they do, almost 50 per cent. inaccuracy?

Mr. Milton: Objected to upon the ground that it is not proper cross-examination.

A. I have not studied these tests.

Q. You have not seen them at all? A. No, sir.

Q. When your company sold this meter to the Lehigh Valley Railroad Company for railroad use, did your company know or make any inquiry as to the flow to which this meter would be subjected? A. Not to my knowledge.

Q. Did your company guarantee a performance in 1908 equal to the so-called American Water Works Association specification of 1923? A. No, sir.

Q. Did the meter that you tested in preparation for this case have the same capacity as the twelve-inch Hersey Torrent in the Lehigh Valley Railroad yards? A. It had the same capacity, but probably the rate was a little different in our various catalogues.

Q. What does that mean, physically? A. There was no physical change in the meter, but the catalogue ratings are probably different in the old catalouges than in the present catalogues.

Q. Would not that mean a difference physically in the parts? A. Not exactly; no, sir.

Q. Why would it not? A. Because we have probably found by experience that we should not rate them so high as we did in the past.

Q. "Rate them so high"—you mean as to accuracy? A. No, sir; as to capacity.

Q. Is there not also a difference in the casing between the meter that you now have and the old meter? A. In that respect I spoke of; there is a container.

Q. Is there not a difference in the casting of the case itself? A. The difference in the casting is caused by making the case different to take the container inside of it.

Q. Would not that have a tendency to make the meter of greater accuracy? A. No, sir.

Q. You don't think so? A. No, sir.

Q. This card, Exhibit P-1, does not say anything about pressures, does it? A. No, sir.

Q. And it does not say anything about the rate of flow in gallons per minute? A. No.

Q. And Mr. Coulter's testimony, with which I dare say you are familiar, is predicated not upon Exhibit P-1, but upon the tests which you made this year or last year in your shop in Boston on a similar meter as you say to the one under consideration? A. No, sir; it was made on Exhibit P-1.

Q. Your Exhibit P-1 does not disclose any rate of flow? A. It does by giving the size of the orifice through which the water was run.

Q. There is no pressure? A. There is no pressure there; no, sir. The pressure we know and have always known, and at various times we check up, not by computing but by stop-watch and floats; so we know the orifice is delivering these amounts.

Q. What pressure did you take as a basis in this card? A. I canont tell you now just what it was, but I knew it when it was made.

Q. How do you know the pressure at the time when Exhibit P-1 was made was the same or approximately the same as the pressure in the Lehigh Valley yard during the time of the service of this meter? A. When this card was made up there was not any comparison made between our pressure and the Lehigh Valley pressure. The delivery of the water was computed, or rather not computed but taken with a stop watch and the size of orifice from our pressure.

Q. But what was your pressure, you do not know? A. I would not say right off the bat what it was.

Q. It might have been twice what the pressure was in the Lehigh Valley yard in Jersey City during this time? A. I should say that our test was around forty to forty-five pounds.

TESTIMONY CLOSED.

Commissioner's Certificate.

STATE OF NEW JERSEY, }
COUNTY OF HUDSON. } ss.:

To the Honorable the Chief Justice and Justices of the Supreme Court.

I, EDWARD O'BYRNE, Supreme Court Commissioner, do certify to Your Honors the foregoing depositions taken before me in certain proceedings wherein Lehigh Valley Railroad Company is prosecutor and the Mayor and Aldermen of Jersey City and others are respondents.

I further certify that the witnesses produced before me were by me first duly sworn to testify to the truth, the whole truth and nothing but the truth; that the questions put to said witnesses and the answers given by them were taken down by me verbatim in shorthand notes and afterwards duly transcribed, and the foregoing is a true transcript of said shorthand notes, the signatures of the witnesses thereto being waived.

Dated March 23, 1927.

Supreme Court Commissioner.

Exhibit P-1.

Certificate of Water Meter Test.

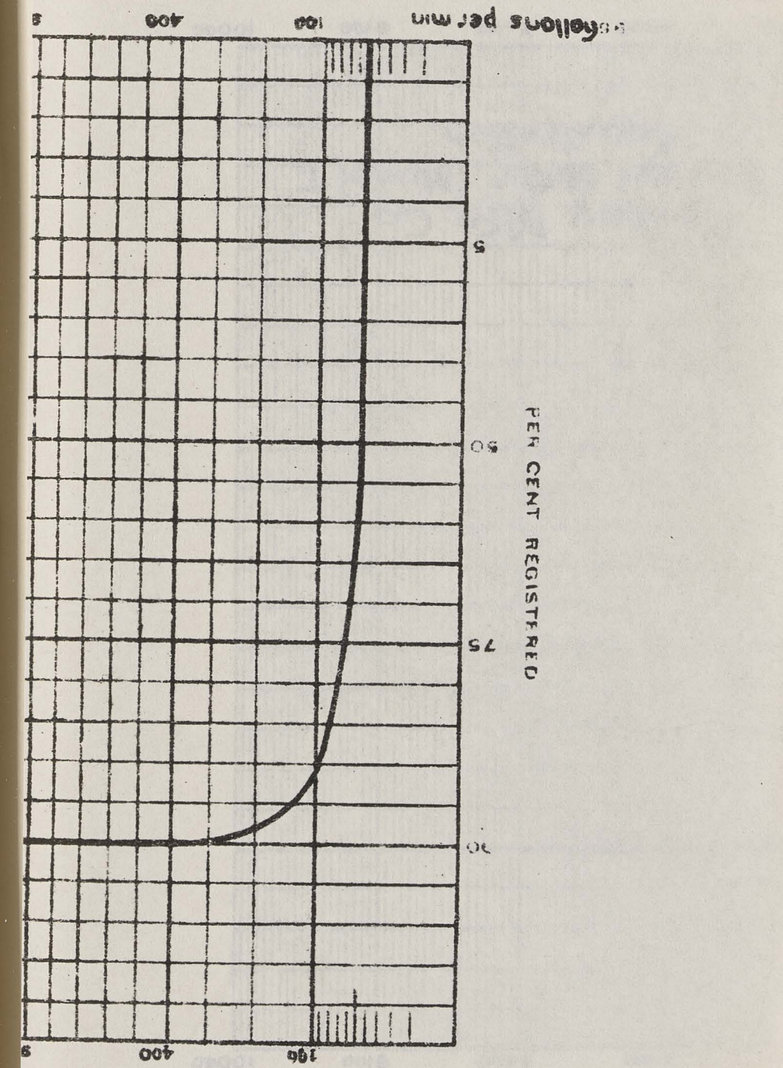
Kind of Meter Torrent Size 12" Shop No. 318,140

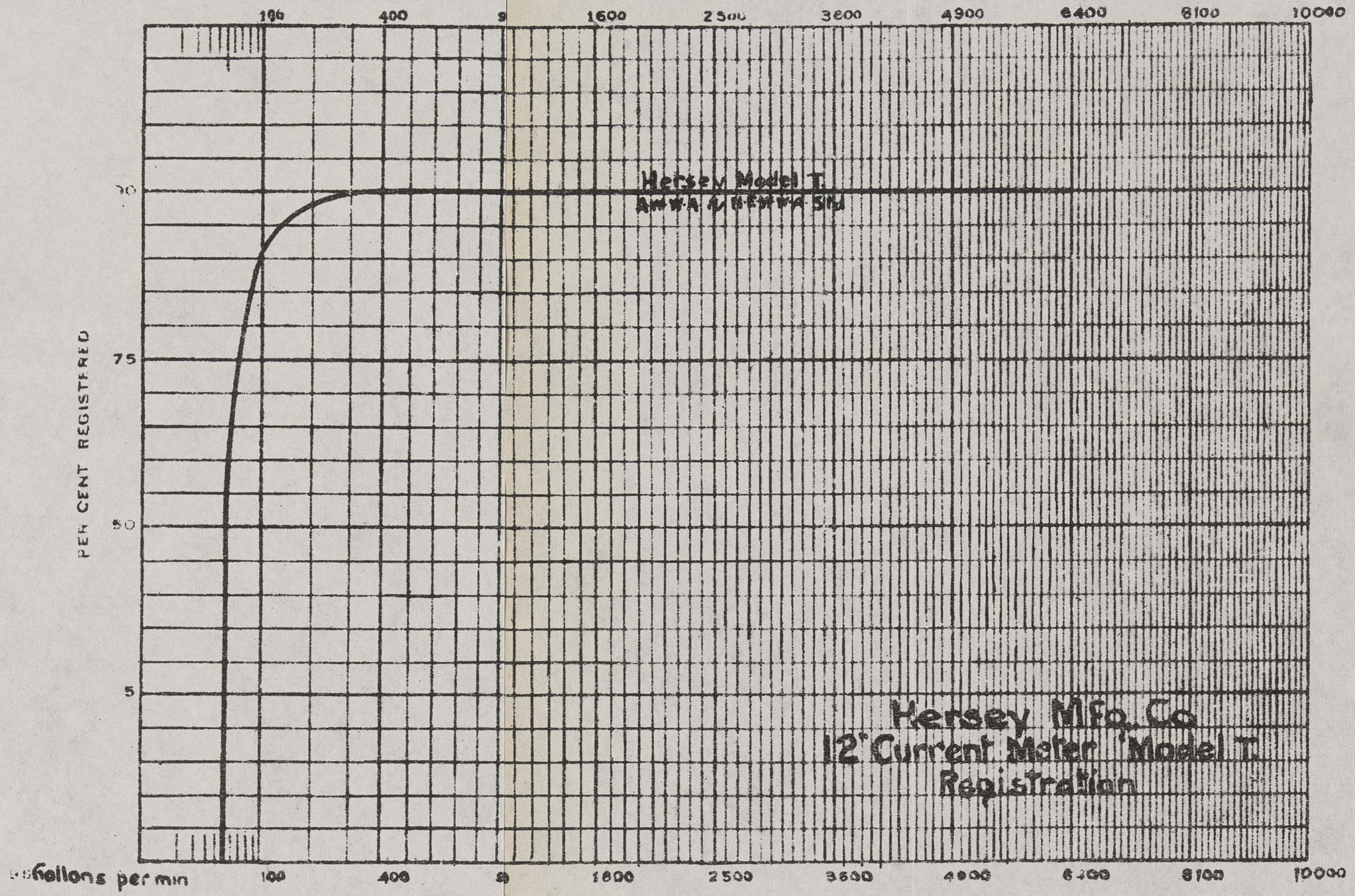
Size of Orifice	*Meter Indicates*	*Tank Indicates*
Full	100	100.5
1"	100	101.2
½"	10	11.4

Date of Test July 29-08

Hersey Manufacturing Co.
By Smith
R. E. F.

Exhibit P-3.




100
400
1600
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3600
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6400
8100
10000
Hersey Model T
AWWA Accepted
100
75
50
5
PER CENT REGISTERED
Gallons per min
100
400
1600
2500
3600
4900
6400
8100
10000
Hersey Mfg. Co.
12" Current Meter Model T.
Registration

Exhibit P-1.

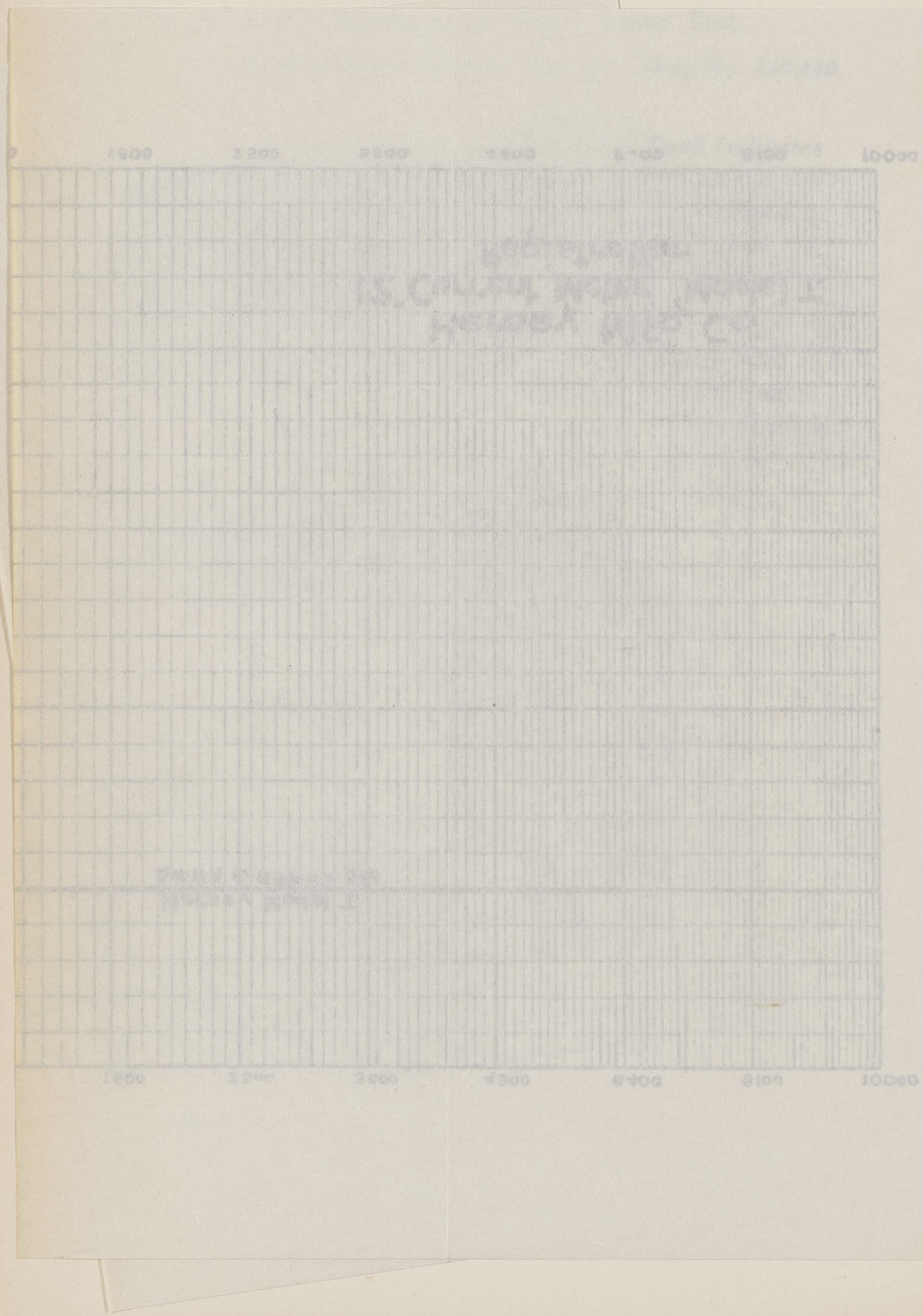


Exhibit P-3.

TABLE SHOWING (1) RATE IN GALLONS PER MINUTE, AS MEASURED BY THE 6-INCH TRIDENT COMPOUND TEST METER USED BY JERSEY CITY, and (2) THE PERCENTAGE OF THE FLOW MEASURED BY THE 6-INCH TRIDENT COMPOUND METER THAT WAS REGISTERED BY THE 12-INCH HERSEY TORRENT METER, and (3) THE PERCENTAGE OF THE FLOW THAT SHOULD HAVE BEEN MEASURED BY THE HERSEY HAD IT BEEN IN GOOD ORDER, ACCORDING TO THE A. W. W. A. ACCURACY CURVE OF THE MANUFACTURER, AND (4) THE PERCENTAGE DEPARTURE OF THE REGISTRATION BY THE TORRENT METER DURING THE TEST FROM THE "GOOD ORDER" PERCENTAGE GIVEN BY THE A. W. W. A. CURVE OF THE MANUFACTURER.

1	*2*	*3*	*4*	*5*
Time of reading.	*Average rate in gallons per min. between readings.*	*Percentage of flow measured by the test meter that was registered by the 12-inch Hersey Torrent Meter.*	*Percentage which should have been registered by the Hersey for rate of flow in 2nd column, if it had been in good order.*	*Percentage departure from 4th column*
Thursday, Sept. 14, 1922.				
A. M.				
10.15	1203	83.13	100.00	16.87
10.30	665	97.53	100.00	2.47
10.45	510	97.85	100.00	2.15
11.00	680	95.38	100.00	4.62
11.15	469	95.65	100.00	4.35
11.30	500	89.83	100.00	10.17
11.45	475	94.43	100.00	5.57
12.00 Noon	480	83.17	100.00	16.83
P. M.				
12.15	549	27.25	100.00	72.75
12.30	286	128.37	99.00	29.67
12.45	296	67.45	99.00	31.86
1.00	265	37.67	99.00	61.95

Exhibit P-3.

	1	*2*	*3*	*4*	*5*	
	Time of reading.	*Average rate in gallons per min. between readings.*	*Percentage of flow measured by the test meter that was registered by the 12-inch Hersey Torrent Meter.*	*Percentage which should have been registered by the Hersey for rate of flow in 2nd column, if it had been in good order.*	*Percentage departure from 4th column*	
10	Thursday, Sept. 14, 1922. P. M. Con.					
	1.15	250	39.85	98.50	59.24	
	1.30	260	0.00	99.00	100.00	
	1.45	325	0.00	99.00	100.00	
	2.00	300	0.00	99.00	100.00	
	2.15	450	0.00	100.00	100.00	
	2.30	166	133.60	97.00	37.73	
	2.45	435	0.00	100.00	100.00	
	3.00	240	93.56	98.50	5.02	
	3.15	300	41.53	99.00	58.05	
20	3.30	425	17.61	100.00	82.39	
	3.45	415	54.09	100.00	45.91	
	4.00	410	73.00	100.00	27.00	
	4.15	424	94.01	100.00	5.99	
	4.30	625	91.86	100.00	8.14	
	4.45	400	56.03	100.00	43.97	
	5.00	379	59.93	100.00	40.07	
	5.15	450	83.15	100.00	16.85	
	5.30	425	76.30	100.00	23.70	
	5.45	524	76.12	100.00	23.88	
	6.00	700	85.48	100.00	14.52	
	6.15	500	94.82	100.00	5.18	
30	6.30	325	30.67	100.00	69.33	
	6.45	435	0.00	100.00	100.00	
	7.00	594	58.74	100.00	41.26	
	7.15	525	71.23	100.00	28.77	
	7.30	485	46.30	100.00	53.70	
	7.45	480	72.76	100.00	27.24	
	8.00	505	93.88	100.00	6.12	
	8.15	615	77.05	100.00	22.95	
	8.30	295	0.00	99.90	100.00	
	8.45	378	0.00	100.00	100.00	
	9.00	492	55.72	100.00	44.28	
	9.15	480	62.38	100.00	37.62	
40	9.30	240	0.00	98.50	100.00	
	9.45	834	3.00	100.00	97.00	
	10.00	141	181.74	95.00	91.31	
	10.15	465	64.38	100.00	35.62	

Exhibit P-3.

	1	*2*	*3*	*4*	*5*	
	Time of reading.	*Average rate in gallons per min. between readings.*	*Percentage of flow measured by the test meter that was registered by the 12-inch Hersey Torrent Meter.*	*Percentage which should have been registered by the Hersey for rate of flow in 2nd column, if it had been in good order.*	*Percentage departure from 4th column*	
	Thursday, Sept. 14, 1922.					10
	10.30	245	0.00	98.50	100.00	
	10.45	195	0.00	97.50	100.00	
	11.00	178	0.00	97.50	100.00	
	11.15	167	0.00	97.00	100.00	
	11.30	335	37.21	100.00	62.79	
	11.45	178	28.10	97.50	71.18	
	12.00 Midnight	253	0.00	98.50	100.00	
	Friday, Sept. 15, 1922. A.M.					20
	12.15	210	0.00	97.50	100.00	
	12.30	430	46.41	100.00	53.59	
	12.45	380	39.38	100.00	60.62	
	1.00	420	23.76	100.00	76.24	
	1.15	310	64.42	100.00	35.58	
	1.30	300	33.23	99.00	66.43	
	1.45	389	76.83	100.00	23.17	
	2.00	305	32.68	99.50	67.16	
	2.15	250	69.73	98.50	29.21	
	2.30	195	0.00	97.50	100.00	
	2.45	225	0.00	98.00	100.00	
	3.00	225	0.00	98.00	100.00	
	3.15	250	0.00	98.50	100.00	30
	3.30	350	49.86	100.00	50.14	
	3.45	205	0.00	97.50	100.00	
	4.00	275	36.30	99.00	63.33	
	4.15	270	9.23	99.00	91.69	
	4.30	190	0.00	97.50	100.00	
	4.45	215	11.61	98.00	88.15	
	5.00	390	63.94	100.00	36.06	
	5.15	190	0.00	97.50	100.00	
	5.30	175	0.00	97.50	100.00	
	5.45	240	20.75	98.50	78.93	
	6.00	140	0.00	95.00	100.00	
	6.15	210	0.00	98.00	100.00	40

Exhibit P-3.

	1	2	3	4	5	
	Time of reading.	*Average rate in gallons per min. between readings.*	*Percentage of flow measured by the test meter that was registered by the 12-inch Hersey Torrent Meter.*	*Percentage which should have been registered by the Hersey for rate of flow in 2nd column, if it had been in good order.*	*Percentage departure from 4th column*	
	Friday,					
10	Sept. 15, 1922,					
	A. M. Con.					
	6.30	205	36.41	97.50	62.66	
	6.45	470	74.31	100.00	25.69	
	7.00	485	46.25	100.00	53.75	
	7.15	575	65.05	100.00	34.95	
	7.30	605	82.45	100.00	17.55	
	7.45	710	77.31	100.00	22.69	
	8.00	345	0.00	100.00	100.00	
	8.15	426	23.45	100.00	76.55	
	8.30	523	61.73	100.00	38.27	
	8.45	400	0.00	100.00	100.00	
20	9.00	450	66.52	100.00	33.48	
	9.15	250	39.85	98.50	59.54	
	9.30	225	0.00	98.50	100.00	
	9.45	200	0.00	97.50	100.00	
	10.00	302	0.00	99.00	100.00	
	10.15	275	0.00	99.00	100.00	
	10.30	225	0.00	98.00	100.00	
	10.45	153	0.00	96.00	100.00	
	11.00	225	0.00	98.00	100.00	
	11.15	250	0.00	98.50	100.00	
	11.30	400	24.94	100.00	75.06	
	11.45	602	41.66	100.00	58.40	
30	12.00 Noon	200	0.00	97.50	100.00	
	P. M.					
	12.15	175	0.00	97.50	100.00	
	12.30	126	0.00	94.00	100.00	
	12.45	400	0.00	100.00	100.00	
	1.00	152	0.00	96.00	100.00	
	1.15	225	0.00	98.00	100.00	
	1.30	225	0.00	98.00	100.00	
	1.45	250	0.00	98.00	100.00	
	2.00	225	0.00	98.00	100.00	
	2.15	426	76.21	100.00	23.79	
40	2.30	524	57.04	100.00	42.96	
	2.45	754	96.41	100.00	3.59	
	3.00	426	99.77	100.00	0.23	
	3.15	623	95.85	100.00	4.15	

Exhibit P-3.

1	2	3	4	5	
Time of reading.	*Average rate in gallons per min. between readings.*	*Percentage of flow measured by the test meter that was registered by the 12-inch Hersey Torrent Meter.*	*Percentage which should have been registered by the Hersey for rate of flow in 2nd column, if it had been in good order.*	*Percentage departure from 4th column.*	
Friday,					
Sept. 15, 1922.					10
P. M. Con.					
3.30	426	93.90	100.00	6.10	
3.45	298	0.00	99.00	100.00	
4.00	449	72.07	100.00	27.93	
4.15	501	74.86	100.00	25.14	
4.30	600	87.29	100.00	12.71	
4.45	524	95.15	100.00	4.85	
5.00	426	82.16	100.00	17.84	
5.15	449	49.95	100.00	50.50	
5.30	550	54.40	100.00	45.60	
5.45	376	19.98	100.00	80.02	20
6.00	524	85.55	100.00	14.45	
6.15	700	96.23	100.00	3.77	
6.30	449	99.78	100.00	0.22	
6.45	400	74.82	100.00	25.18	
7.00	501	39.93	100.00	60.07	
7.15	428	35.22	100.00	64.78	
7.30	475	98.83	100.00	1.07	
7.45	428	5.88	100.00	94.12	
8.00	428	0.00	100.00	100.00	
8.15	348	0.00	100.00	100.00	
8.30	400	0.00	100.00	100.00	
8.45	600	83.13	100.00	16.87	30
9.00	349	21.40	100.00	78.60	
Next reading 60 minutes later.					
10.00	364	70.52	100.00	29.48	
10.15	376	66.49	100.00	33.52	
10.30	200	0.00	97.50	100.00	
10.45	250	9.99	98.50	89.86	
11.00	274	54.35	99.00	45.10	
11.15	250	20.12	98.50	78.58	
11.30	200	0.00	97.50	100.00	
11.45	250	0.00	97.50	100.00	
12.00 Mid't	290	0.00	99.00	100.00	40

Exhibit P-3.

1	2	3	4	5
Time of reading.	*Average rate in gallons per min. between readings.*	*Percentage of flow measured by the test meter that was registered by the 12-inch Hersey Torrent Meter.*	*Percentage which should have been registered by the Hersey for rate of flow in 2nd column, if it had been in good order.*	*Percentage departure from 4th column.*
Saturday, Sept. 16, 1922.				
A. M.				
12.15	385	0.00	100.00	100.00
12.30	435	40.14	100.00	59.86
12.45	400	56.11	100.00	43.49
1.00	321	54.61	100.00	45.39
1.15	240	31.19	98.50	68.34
1.30	290	17.19	99.00	82.64
1.45	512	87.22	100.00	12.78
2.00	534	88.62	100.00	11.38
2.15	882	100.88	100.00	0.88
2.30	478	72.77	100.00	27.23
2.45	375	46.67	100.00	53.33
3.00	205	0.00	97.50	100.00
3.15	150	0.00	96.00	100.00
3.30	221	0.00	98.00	100.00
3.45	421	0.00	100.00	100.00
4.00	428	63.88	100.00	36.12
4.15	211	0.00	97.50	100.00
4.30	200	0.00	97.50	100.00
4.45	155	0.00	96.00	100.00
5.00	225	0.00	98.00	100.00
5.15	356	49.16	100.00	50.84
5.30	250	0.00	98.50	100.00
5.45	390	89.52	100.00	10.48
6.00	553	85.35	100.00	14.65
6.15	671	70.79	100.00	29.21
6.30	395	63.14	100.00	36.86
6.45	420	59.39	100.00	40.61
7.00	650	88.20	100.00	11.80
7.15	592	83.89	100.00	16.11
7.30	419	71.43	100.00	28.57
7.45	463	75.08	100.00	24.92
8.00	415	90.15	100.00	9.85
8.15	512	88.95	100.00	11.02
8.30	479	93.66	100.00	6.34
8.45	470	0.00	100.00	100.00
9.00	552	72.53	100.00	27.47
9.15	640	78.01	100.00	21.99
9.30	501	44.85	100.00	55.15
9.45	365	27.36	100.00	72.64
10.00	320	31.16	100.00	68.84

Exhibit P-4.

TABLE SHOWING PERCENTAGES OF AVERAGE RATES OF FLOW FOR 15 MINUTES (AS MEASURED BY THE COMPOUND TEST METER) WHICH WERE REGISTERED BY THE 12-INCH HERSEY TORRENT METER, WHEN SUCH AVERAGE RATES OF FLOW APPROXIMATED 425 GALLONS A MINUTE.

Time of reading. End of 15-minute period.	*Rate in gals. per minute as measured by the compound test meter.*	*Percentage registered by the 12-inch Hersey Torrent Meter.*
1.—Sept. 14, 3.30 P. M.	425	17.61
2.—Sept. 14, 5.30 P. M.	425	76.30
3.—Sept. 14, 6.45 P. M.	435	0.00
4.—Sept. 15, 12.30 A. M.	430	46.41
5.—Sept. 15, 8.15 A. M.	426	23.45
6.—Sept. 15, 2.15 P. M.	426	76.21
7.—Sept. 15, 3.30 P. M.	426	93.90
8.—Sept. 15, 8.00 P. M.	428	0.00

Exhibit P-5.

TABLE SHOWING PERCENTAGES OF AVERAGE RATES OF FLOW FOR 15-MINUTE PERIODS (AS MEASURED BY THE COMPOUND TEST METER) WHICH WERE REGISTERED BY THE 12-INCH HERSEY TORRENT METER, WHEN SUCH AVERAGE RATES OF FLOW APPROXIMATED 600 GALLONS A MINUTE.

Time of reading. End of 15-minute period.	*Rate in gals. per minute as measured by the compound test meter.*	*Percentage registered by the 12-inch Hersey Torrent Meter.*
Sept. 14, 8.15 P. M.	615	77.05
Sept. 15, 7.30 A. M.	605	82.45
Sept. 15, 4.30 A. M.	600	87.29

Exhibit P-6.

TABLE SHOWING AVERAGE PERCENTAGES OF FLOWS BY CLASSES MEASURED BY THE COMPOUND TEST METER THAT WERE REGISTERED BY THE 12-INCH HERSEY TORRENT METER.

Range of rate of flow. Gallons per minute.	*No. of readings.*	*Registration by the Hersey meter, expressed as a percentage of the flow registered by the compound test meter. Maximum*	*Minimum*	*Average*
500 and upward	42	100.88	3.00	76.82
x 300 (incl) to 500 (excl)	77	99.78	0.00	48.16
xx 200 (incl) to 300 (excl)	50	128.37	0.00	14.53
Less than 200 xxx	17	133.60	0.00	20.20

x Of a total of 77 readings under this classification, the Hersey registered zero for 16 readings.

xx Of a total of 50 readings under this classification, the Hersey registered zero for 33 readings.

xxx Of a total of 17 readings under this classification, the Hersey registered zero for 14 readings.

A flow was shown by every reading of the compound test meter.

Exhibit R-2.

LEHIGH VALLEY RAILROAD COMPANY

August 31st, 1922.

Test of 12" Hersey Torrent Meter No. 318140 in service.

Duration M. S.	*Orifice*	*Amount Reg. By City's 3" Test Meter Cu. Ft.*	*Am't Reg. by 12" Hersey Cu. Ft.*	*% Reg.*
14.42	3"	1000	990	99.
9.19	2"	500	Did Not Register	
8.43	2½"	500	" " "	

Test witnessed by Wm. Hoffman, plumber for Lehigh Valley Railroad Company, City representatives Donelon, Rowan, McEvoy and Mauzy.

Exhibit R-3.

August 29th, 1922.

Lehigh Valley Railroad Co.,
Liberty St.,
New York City.

ATTENTION Mr. A. M. King,
Division Engineer.

Gentlemen:

This is to advise that the City will conduct a test of the ten and twelve inch meters located at Johnston Ave. and through which water is supplied to your Company, on Thursday, Aug. 31st at 9 A. M.. o'clock.

The purpose of this test is to determine the accuracy of said meters. We would be pleased if you will have a representative of your Company present to witness same.

Trusting that this will meet with your approval, I am,

Yours very truly,

WATER CONSERVATOR.

Exhibit R-4.

September 13th, 1922.

Lehigh Valley Railroad Company,
Ft. of Washington Street,
Jersey City, N. J.

Attention Mr. A. M. King,
Division Engineer.

Gentlemen:—

Referring to conversation over 'phone this day with your office, beg to advise that the City will start a twenty-four (24) hour test of the ten (10″) inch and twelve (12″) inch meters located at Johnston Avenue on Thursday, September 14th, at 10.00 A. M. o'clock. I would be pleased if you will have a representative of your Company present to witness same.

Yours very truly,

WATER CONSERVATOR.

	478,150	44,935	1,254	479,404	49.46
	711,900	46,803	1,868	713,768	49.11
	247,750	47,534	731	248,481	48.97
	500,200	48,588	1,054	501,254	48.96
	490,600	49,492	904	491,504	48.81
	517,350	50,477	985	518,335	48.81
	508,200	51,473	996	509,196	48.88
	481,450	52,954	1,481	482,931	48.95
	485,700	54,339	1,385	487,085	49.13
	570,700	55,783	1,444	572,144	49.48
	468,100	56,958	1,175	469,275	49.54
	477,400	58,276	1,318	478,718	49.74
	491,800	59,641	1,365	493,165	49.65
	497,800	61,027	1,386	499,186	49.61
	530,200	62,335	1,308	531,508	49.97
	531,200	62,353	18	531,218	49.99
	553,200	62,353	Stopped	553,200	50.44
read 9,804,900 cu. ft. removed and replaced by 8″ W. D. Comp.					
558 both read ZERO					
	533,050	62,353	Stopped	533,050	50.93
	8,390	62,353	Stopped	8,390	Shut down today to allow Plumber Farrier to replace 12″ Hersey Torrent #318140. Now feeding through 8″ W. D. Comp. #874558.
6″ Trid. Gamon Compound #396031					
1 ZERO—1½″ read ZERO					
	14,485,850				
	90,327,300		220,900		46.08
Could not read—pit full of water—pump removed					
	15,197,750		301,450		42.23
	15,445,500		100,200		40.32
	15,945,700		244,750		48.83
	16,436,700		215,500		43.84
	16,953,650		253,100		48.83
	17,461,850		261,200		51.29
	17,943,300		248,400		51.44
	18,429,000		270,050		55.44
Could not read—pit full of water					
	18,999,700		319,450		55.83
	19,467,800		271,650		57.89
	19,945,200		276,050		57.66
	20,437,000		227,400		46.11
	20,934,800		238,500		47.78
	21,465,000		343,400		64.61
	21,996,200		268,500		50.54
	22,549,400		376,200		68.00
10″ AAAX GEM #497956 read 9					
#874558 bo					
	23,082,450		380,700		71.42
	23,090,840		4,700		56.02
12″ Hersey Torrent removed—Test Meter removed—6″ Tri					
Replaced by 8″ W. D. Compound #874557—8″ Read ZER					

1924
Jan. 7th
" 14th
" 21st
" 28th
Feb. 4th
" 8th
" 11th
" 11th
" 12th
" 15th
" 22nd
" 25th
" 29th
Nov. 5th
" 12th
" 19th
" 26th
Dec. 3rd
" 10th
" 17th
" 18th
" 24th
" 31st

Exhibit R-5.

LEHIGH VALLEY R. R. COMPANY JOHNSTONE AVENUE
TEST OF 12" HERSEY TORRENT METER #318140 IN TANDEM WITH CITY 6"
TRIDENT GAMON COMPOUND METER #396031

Year, Month and Date 1923	*Reading 12" Hersey Torrent Meter #318140-Cu. Ft.*	*Consumption Cu. Ft.*	*Percent Registered for Reading Periods*	*City Test Meter 6" Tri. Gamon Comp. #396031 6" Meter Reading Cu. Ft.*	*Consumption 6" Meter Cu. Ft.*	*1" Meter Reading Cu. Ft.*	*Consumption 1" Meter Cu. Ft.*	*Total Consumption As Registered By City's 6" Comp. Meter #396031 Cu. Ft.*	*Per Cent. Registered From Start Cu. Ft.*
May 7th	Test Meter Turned on at 2:00 P. M. and By-Pass Closed and Sealed								
" 7th	85,254,000			4,120,385		12,801			
July 10th	87,268,250	2,014,250	48.79	8,235,700	4,115,315	26,052	13,251	4,128,566	49.98
" 11th	87,298,250	30,000	47.05	8,299,220	63,520	26,279	227	63,747	49,95
" 12th	87,335,600	37,350	55.55	8,366,220	67,000	26,279	233	67,233	50.00
" 13th	87,370,400	34,800	51.39	8,433,690	67,470	26,751	239	67,709	50.01
" 14th	87,406,300	35,900	53.80	8,500,200	66,510	26,971	220	66,730	50.05
" 16th	87,477,800	71,500	56.77	8,625,700	125,500	27,425	454	125,954	50.14
" 17th	87,509,800	32,000	50.49	8,668,850	63,150	27,649	224	63,374	50.14
" 18th	87,542,900	33,100	49.28	8,755,900	67,050	27,767	118	67,168	50.14
" 19th	87,579,500	36,600	53.87	8,823,500	67,600	28,107	340	67,940	50.17
" 20th	87,615,100	35,600	51.92	8,891,800	68,300	28,333	226	68,526	58.18
" 21st	87,647,400	32,300	51.26	8,954,600	62,800	28,543	210	63,010	59.19
" 23rd	87,705,400	58,000	49.60	9,071,110	116,510	28,970	427	116,937	50.18
" 24th	87,732,700	27,300	47.87	9,130,000	58,890	29,196	226	59,116	50.15
" 25th	87,763,400	30,700	49.36	9,192,000	62,000	29,393	197	62,197	50.15
" 26th	87,794,800	31,400	49.75	9,254,900	62,900	29,607	214	63,114	50.15
" 27th	87,823,400	28,600	47.02	9,315,500	60,600	29,827	220	60,820	50.13
" 28th	87,854,800	31,400	50.47	9,377,500	62,000	30,048	221	62,221	50.13
" 30th	87,910,200	55,400	47.66	9,493,300	115,800	30,477	429	116,229	50.10
" 31st	87,941,500	31,300	48.67	9,557,400	64,100	30,688	211	64,311	50.09
Aug. 1st	87,970,700	29,200	48.09	9,617,900	60,500	30,906	218	60,718	50.17
" 2nd	88,006,000	35,300	52.45	9,685,000	67,100	31,112	206	67,306	49.81
" 3rd	88,038,200	32,200	46.93	9,753,400	68,400	31,322	210	68,610	50.07
" 4th	88,066,200	28,000	45.75	9,814,400	61,000	31,525	203	61,203	50.04
" 6th	88,118,000	51,800	44.39	9,930,700	116,300	31,913	388	116,688	49.97
" 7th	88,144,100	26,100	41.83	9,992,900	62,200	32,109	196	62,396	49.92
" 8th	88,176,650	32,550	47.05	10,061,900	69,000	32,312	203	69,203	49.90
" 9th	88,211,000	34,350	47.77	10,133,600	71,700	32,519	207	71,907	49.88
" 10th	88,251,000	40,000	53.92	10,207,600	74,000	32,709	190	74,190	49.91
" 11th	88,285,900	34,900	48.61	10,279,200	71,600	32,900	191	71,791	49.91
" 13th	88,342,400	56,500	48.91	10,394,300	115,100	33,314	414	115,514	49.89
" 14th	88,373,700	31,300	48.89	10,458,100	63,800	33,530	216	64,016	49.89
" 15th	88,403,800	30,100	46.85	10,522,150	54,050	33,724	194	64,244	49.87
" 16th	88,436,600	32,800	48.91	10,589,000	66,850	33,933	209	67,059	49.86
" 17th	88,472,000	35,400	53.42	10,655,050	66,050	34,127	214	66,264	49.88
" 18th	88,508,000	36,000	51.31	10,725,000	69,950	34,364	217	70,167	49.90
" 20th	88,572,200	64,200	52.36	10,847,200	122,200	34,784	420	122,620	49.92
" 21st	88,600,000	27,800	42.16	10,912,950	65,750	34,981	197	65,947	49.88
" 22nd	88,629,450	29,450	45.83	10,977,000	64,050	35,188	207	64,257	49.85
" 23rd	88,664,550	35,100	52.00	11,044,300	67,300	35,387	199	67,499	49.86
" 24th	88,701,900	37,350	55.09	11,111,900	67,600	35,580	193	67,793	49.90
" 25th	88,735,550	33,650	50.40	11,178,450	66,550	35,791	211	66,761	49.90
" 27th	88,806,300	70,750	56.13	11,304,100	125,650	36,182	391	126,041	49.97
" 28th	88,835,000	28,700	44.98	11,367,700	63,600	36,387	205	63,805	49.94
" 29th	88,867,650	32,650	49.85	11,433,000	65,300	36,580	193	65,493	49.94
" 30th	88,902,800	35,150	51.39	11,501,200	68,200	36,783	203	68,403	49.95
" 31st	88,934,450	31,650	47.88	11,567,100	65,900	36,984	201	66,101	49.94
Sept. 1st	88,967,000	32,550	50.15	11,631,800	64,700	37,192	208	64,908	49.94
" 4th	89,052,700	85,700	48.84	11,806,700	174,900	37,777	585	175,485	49.92
" 5th	89,081,000	28,300	43.93	11,870,950	64,250	37,941	164	64,414	49.89
" 6th	89,110,200	29,200	45.40	11,935,100	64,150	38,103	162	64,312	49.87
" 7th	89,141,400	31,200	46.41	12,002,150	67,050	38,285	182	67,232	49.85
" 8th	89,169,400	28,000	44.77	12,064,500	62,350	38,479	194	62,544	49.82
" 10th	89,219,100	49,700	45.15	12,174,200	109,700	38,850	371	110,071	49.78
" 11th	89,245,100	26,000	42.64	12,235,000	60,800	39,024	174	60,974	49.74
" 12th	89,274,700	29,600	43.51	12,302,850	67,850	39,207	183	68,033	49.70
" 13th	89,306,500	31,800	49.12	12,367,400	64,550	39,401	194	64,744	49.70
" 14th	89,339,500	33,000	46.56	12,438,100	70,700	39,579	178	70,878	49.68
" 15th	89,364,800	25,300	43.49	12,496,100	58,000	39,749	170	58,170	49.65
" 17th	89,424,300	59,500	49.14	12,616,850	120,750	40,092	343	129,093	49.65
" 18th	89,452,200	27,900	42.65	12,682,100	65,250	40,256	164	65,414	49.61
" 19th	89,489,850	37,650	53.05	12,752,900	70,800	40,427	171	70,971	49.63
" 20th	89,517,500	27,650	43.80	12,815,850	62,950	40,599	172	63,122	49.60
" 21st	89,548,800	31,300	47.68	12,881,300	65,450	40,790	191	65,641	49.59
" 22nd	89,579,500	30,700	48.61	12,944,300	63,000	40,948	158	63,158	49.59
" 24th	89,639,200	59,700	48.32	13,067,500	123,200	41,299	351	123,551	49.58
Oct. 1st	89,864,150	224,950	52.36	13,534,000	466,500	42,597	1,298	467,798	49.52
" 8th	90,106,400	242,250	51.02	14,007,700	473,700	43,681	1,084	474,784	49.57
" 15th	90,327,300	220,900	46.08	14,485,850	478,150	44,935	1,254	479,404	49.46
" 22nd	Could not read—pit full of water—pump removed								
" 25th	90,628,750	301,450	42.23	15,197,750	711,900	46,803	1,868	713,768	49.11
" 29th	90,728,950	100,200	40.32	15,445,500	247,750	47,534	731	248,481	48.97
Nov. 5th	90,973,700	244,750	48.83	15,945,700	500,200	48,588	1,054	501,254	48.96
" 12th	91,189,200	215,500	43.84	16,436,700	490,600	49,492	904	491,504	48.81
" 19th	91,442,300	253,100	48.83	16,953,650	517,350	50,477	985	518,335	48.81
" 26th	91,703,500	261,200	51.29	17,461,850	508,200	51,473	996	509,196	48.88
Dec. 3rd	98,951,900	248,400	51.44	17,943,300	481,450	52,954	1,481	482,931	48.95
" 10th	92,221,950	270,050	55.44	18,429,000	485,700	54,339	1,385	487,085	49.13
" 17th	Could not read—pit full of water								
" 18th	92,541,400	319,450	55.83	18,999,700	570,700	55,783	1,444	572,144	49.48
" 24th	92,813,050	271,650	57.89	19,467,800	468,100	56,958	1,175	469,275	49.54
" 31st	93,089,100	276,050	57.66	19,945,200	477,400	58,276	1,318	478,718	49.74
1924									
Jan. 7th	93,316,500	227,400	46.11	20,437,000	491,800	59,641	1,365	493,165	49.65
" 14th	93,555,000	238,500	47.78	20,934,800	497,800	61,027	1,386	499,186	49.61
" 21st	93,898,400	343,400	64.61	21,465,000	530,200	62,335	1,308	531,508	49.97
" 28th	94,166,900	268,500	50.54	21,996,200	531,200	62,353	18	531,218	49.99
Feb. 4th	94,543,100	376,200	68.00	22,549,400	553,200	62,353	Stopped	553,200	50.44
" 8th	———	——— 10" AAAX GEM #497956 read 9,804,900 cu. ft. removed and replaced by 8" W. D. Comp. #874558 both read ZERO							
" 11th	94,923,800	380,700	71.42	23,082,450	533,050	62,353	Stopped	533,050	50.93
" 11th	**94,928,500**	**4,700**	**56.02**	**23,090,840**	**8,390**	**62,353**	Stopped	8,390	Shut down **today to** allow Plumber Farrier to replace 12" Hersey Torrent #318140. Now feeding through 8" W. D. Comp. #874558.
" 12th	12" Hersey Torrent removed—Test Meter removed—6" Trid. Gamon Compound #396031 Replaced by 8" W. D. Compound #874557—8" Read ZERO—1½" read ZERO								

Exhibit R-8.

August 24th, 1922.

John Milton, Esq.,
15 Exchange Place,
Jersey City, N. J.

Dear Mr. Milton:—

Your communication of Aug. 21st received and will advise that I am now conducting rate of flow and accuracy test of the various meters and service lines through which water is supplied to the Lehigh Valley Railroad Co. for the purpose of determining the proper size of meters to replace the present meters and will take this matter up personally with you as soon as tests have been completed.

Trusting this is satisfactory, I am,

Yours very truly,

WATER CONSERVATOR.

Stipulation.

NEW JERSEY SUPREME COURT.

LEHIGH VALLEY RAILROAD COMPANY, Prosecutor, *vs.* THE MAYOR AND ALDERMEN OF JERSEY CITY, *et al.*, Defendants.	On Certiorari.

It is stipulated and agreed by and between John Milton, attorney for the Lehigh Valley Railroad Company, prosecutor, and Thomas J. Brogan, attorney for The Mayor and Aldermen of Jersey City, *et al.*, defendants, that the said defendants claim, in addition to the facts set forth in the return in this cause, that the twelve-inch Hersey Torrent meter No. 318140 was installed upon the premises of prosecutor on or about December 16th, 1908, and that said meter was in constant use from that date to and until about May 28th, 1918, the earlier date set forth in the return; on or about May 28th, 1918, the said meter was set at zero, having up to that time registered a consumption of 110,522,700 cubic feet; that in addition to the claim set forth in the return the defendants claim that this registration represents but 53% of the total amount of water which passed through the said meter from December 16th, 1908, to May 28th, 1918, and as a consequence the claim is made that 47% of the total amount of water

passing through said meter between said dates was not registered; that said 47% amounts to 98,010,600 cubic feet and defendants claim that that quantity should be paid for by prosecutor at the rate of 75¢ per thousand cubic feet, amounting in all to the sum of $73,507.95, which sum is claimed by defendants of the prosecutor.

March 29, 1927.

JOHN MILTON,
Attorney for Prosecutor.
THOMAS J. BROGAN,
Attorney for Defendants.

It is further stipulated and agreed that the additional claim of the City for the said sum of $73,507.95 is based upon the following quantities of water registered by said meter No. 318,140:

REGISTERED CONSUMPTION AND QUANTITY CLAIMED, 1908 TO 1918

Meter Reading Date	*Days Per Reading Period*	*No. of Days to Date*	*Consumption Registered as Billed*	*Quantity Claimed*
Dec. 16/08	0	0		
Dec. 22	6	6	56,600	106,800
Jan. 18/09	27	33	1,445,400	2,727,100
Feb. 26	39	72	1,783,000	3,364,300
Mar. 26	28	100	1,130,000	2,132,000
Apr. 26	31	131	844,000	1,592,400
May 26	30	161	1,388,000	2,619,000
June 26	31	192	975,000	1,850,000
July 26	30	222	904,000	1,700,000
Aug. 26	31	253	1,757,500	3,316,000
Sept. 30	35	288	1,757,500	3,316,000
Mar. 24/13	Meter turned on		Zero 7/31/12	
Apr. 24	31	319	1,551,000	2,926,400
May 23	29	348	1,551,000	2,926,400
June 23	31	379	1,529,000	2,885,000
July 23	30	409	1,496,000	2,823,000
Aug. 23	31	440	1,597,000	3,013,200
Sept. 30	31	471	1,569,000	2,809,000
Oct. 6	13	484	690,700	1,303,200

Stipulation.

	Meter Reading Date	*Days Per Reading Period*	*No. of Days to Date*	*Consumption Registered as Billed*	*Quantity Claimed*
	Apr. 1/14	Meter turned on		(Approx. date)	
	Apr. 23	23	507	1,509,000	2,847,100
	May 23	30	537	1,703,000	3,213,200
	June 23	31	568	1,455,000	2,745,300
	July 23	30	598	1,333,000	2,513,200
	Aug. 24	30	630	1,459,000	2,752,800
10	Sept. 23	30	660	1,352,000	2,532,000
	Oct. 23	30	690	1,382,000	2,626,500
	Nov. 23	31	721	1,407,000	2,654,700
	Dec. 23	30	751	1,562,000	2,947,100
	Jan. 23/15	31	782	1,695,000	3,198,000
	Feb. 23	31	813	1,820,000	3,434,000
	Mar. 23	28	841	1,599,000	2,941,300
	Apr. 23	31	872	1,726,000	3,237,700
	May 24	31	903	1,493,000	2,817,000
	June 23	30	953	1,517,000	2,862,300
	July 23	30	963	1,458,000	2,751,000
	Aug. 23	31	994	1,467,000	2,768,000
	Sept. 23	31	1025	1,655,000	3,122,600
	Oct. 23	30	1055	1,703,000	3,213,200
	Nov. 23	31	1086	1,834,000	3,460,300
20	Dec. 23	30	1116	1,855,000	3,500,000
	Jan. 22/16	30	1146	1,939,000	3,658,500
	Feb. 24	33	1179	2,109,000	3,979,200
	Mar. 23	28	1207	1,886,000	3,558,500
	Apr. 22	30	1237	1,930,000	3,641,300
	May 23	31	1268	1,742,000	3,286,800
	June 23	31	1299	1,640,000	3,094,300
	July 24	31	1330	1,776,000	3,351,000
	Aug. 23	30	1360	1,784,000	3,336,000
	Sept. 23	31	1391	1,789,000	3,375,500
	Oct. 23	30	1421	1,715,000	3,236,000
	Nov. 23	31	1452	2,033,000	3,856,000
	Dec. 23	30	1482	1,926,000	3,634,000
	Jan. 23/17	31	1513	2,081,000	3,926,400
	Feb. 23	31	1544	2,069,000	3,904,000
30	Mar. 23	28	1572	1,785,000	3,368,000
	Apr. 23	31	1603	1,903,000	3,590,000
	May 23	30	1633	1,887,000	3,560,400
	June 23	31	1664	1,995,000	3,764,100
	July 23	30	1694	1,848,000	3,468,000
	Aug. 23	31	1725	1,884,000	3,554,700
	Sept. 22	30	1755	1,771,000	3,342,000
	Oct. 28	31	1786	2,057,000	3,880,100
	Nov. 23	31	1817	1,898,000	3,580,100
	Dec. 22	29	1846	1,908,000	3,600,000
	Jan. 23/18	32	1878	1,800,000	3,396,400
	Feb. 23	31	1909	1,915,000	3,613,000
	Mar. 23	28	1937	1,863,000	3,515,000
	Apr. 23	31	1968	1,932,000	3,645,300
	May 28	35	2003	2,130,000	4,019,000
40					

Stipulation.

NEW JERSEY SUPREME COURT.

LEHIGH VALLEY RAILROAD COMPANY,
Prosecutor,

vs.

THE MAYOR AND ALDERMEN OF JERSEY CITY, *et al.*,
Respondents.

On Certiorari.

It is stipulated and agreed as follows:

Exhibit P-9 is a true copy of the contract between Prosecutor and Respondent City, under which the water supply in dispute was furnished:

EXHIBIT P-9.

WHEREAS the City of Jersey City hereinafter referred to as the party of the first part, owning and controlling water mains and supplying water to said city, has been petitioned by the LEHIGH VALLEY RAILROAD COMPANY, hereinafter referred to as the party of the second part, to supply said railroad with water within the corporate limits of Jersey City, or within such limits as may be prescribed by law, and in order to supply water as petitioned for it will become necessary for the party of the first part to lay a main from present main now owned and controlled by the party of the first part to a point distant about fourteen hundred (1400) feet therefrom:

NOW THEREFORE in consideration of the sum of One Dollar ($1.00) paid to the party of the first part and the receipt of which is hereby acknowledged and for other consideration, the

party of the first part agrees to lay such sufficient water main as is above referred to and is more particularly shown and described as marked in red on sketch attached hereto, and to maintain the same and to furnish water therefrom to the party of the second part for a period of twenty-five (25) years from date hereof; and the party of the second part for and in consideration thereof hereby agrees to connect with the main as laid and to lay such distributing mains therefrom as may be necessary for its purposes and to pay the entire cost of such connection and of such distributing mains and to take all the water required by said company at the point or points to or by which such distributing mains or connections thereof shall run or pass to the limit of the capacity of the party of the first part to deliver same and to the limit of requirements of the said party of the second part and to the exclusion of any other supply unless the party of the first part shall agree thereto, provided that if the requirements for water of the party of the second part shall exceed at any time the ability of the party of the first part to deliver, the said party of the second part shall give a thirty day notice, in writing, to the party of the first part, of the extent of such excess of requirements, and if at the expiration of such period of thirty days the party of the first part is unable to make such complete deliveries then, and only to the extent of the inability of the party of the first part to supply, the party of the second part for the period of continuation of such inability and to the extent noted may obtain, from some other source, such additional water as it may need for its requirements, but no recourse shall be had for penalty for damage by reason of such inability of the party of the first part. The party of the second part agrees to pay for all water furnished by the party of the first part at such period and in such manner as is paid to the said party of the first part by like consumers for like consumption.

It is further mutually agreed that a meter shall be placed at the end of the main herein required to be laid by the party of the first part, and that the registration of such meter shall form the bases upon which bills shall be rendered to and payment made by the party of the second part, at the rate of One Hundred Dollars ($100.00) per million gallons independent of quantity consumed. It is further mutually agreed that if at any time during the life of this agreement a lesser rate or lesser rates shall be charged to like consumers for like consumption by the party of the first part, like advantage shall be given to the party of the second part.

It is further understood and agreed that if at any time during the period of the life of this contract, the party of the first part shall fail in any of the covenants herein before set forth, it shall become liable in action at law to the extent of damage so determined.

And in like manner should the party of the second part at any time during the life of this contract, fail in any of its covenants or fail or refuse to take water from the party of the first part, except as herein before shown, without sufficient reason, the substantiality of which reason shall if disputed, be established in a court of competent jurisdiction, then the said party of the second part shall pay to the party of the first part the entire cost of the furnishing and laying of the water main described in the preamble of this agreement together with the cost of all necessary appurtenances thereof and the same shall remain the property of the party of the first part, provided that if the party of the first part shall through its proper board of authority elect to utilize said main and appurtenances for other uses than those comprehended in this agreement, then shall the party of the second part be liable for and pay to the party of the first part on such proportion of the cost of the laying of such

Stipulation.

main and of the installing of the appurtenances therefor as may be just and reasonable, in addition to compensation for such other loss or damage that shall accrue to the party of the first part by reason of the failure or refusal of the party of the second part to keep this agreement.

It is further mutually understood and agreed that the party of the first part will exercise all reasonable care to perform its contract but that it shall not be holden for accidents or other causes reasonably unavoidable or beyond its control.

In Witness Whereof the parties hereto have duly executed these presents the 23rd day of May, 1908.

City of Jersey City,
(Sig.) H. O. Wittpenn,
Mayor.

Attest:
(Sig.) M. I. Fagen,
City Clerk.
(seal)

Board of Street and Water Commissioners.
By:
(Sig.) John J. Heavey,
President.

M. B. C.
J. A. M.
(seal)

Lehigh Valley Railroad Company.
By:
(Sig.) E. B. Thomas,
President.
Attest:
(Sig.) E. A. Albright,
Assistant Secretary.

Approved as to form,
(Sig.) F. H. Janvier,
Asst. Gen'l. Solicitor.

EXHIBIT P 7

LEHIGH VALLEY R.R. CO. v. JERSEY CITY

COMPARISON OF

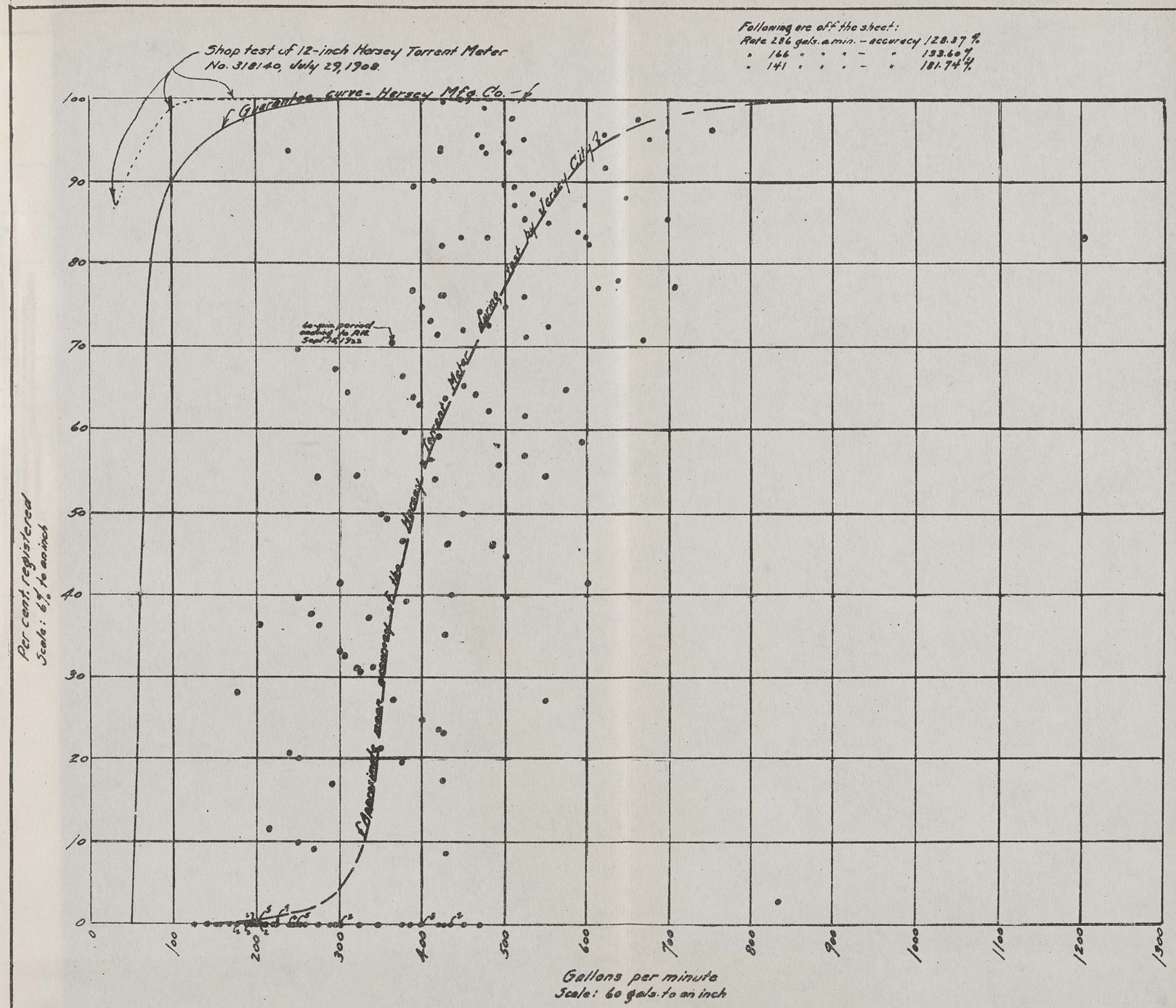
1.- Shop test of 12-inch Hersey Torrent Meter No. 318140 made by Hersey Mfg. Co., July 29, 1908.

2.- American Water Works Association accuracy curve which the manufacturer guarantees 12-inch Hersey Torrent Meters will equal within 3% either way.

3.- Accuracies of 12-inch Hersey Torrent Meter No. 318140 for each 15-minute period during a test made by Jersey City, 10 P.M. Sept. 14, 1922 to 10 A.M. Sept. 16, 1922, according to the test meter used by Jersey City. The accuracy for each 15-minute period is shown thus ⊙. Figures 2, 3, etc., indicate that the same accuracy for the same rate of flow occured 2, 3, etc., times during the test.

4.- An approximate curve of mean accuracy of 12-inch Hersey Torrent Meter No. 318140 during the test by Jersey City, according to the test meter used.

Per cent. registered
Scale: 6% to an inch



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4.- An approximate curve of mean accuracy of 12-inch Hersey Torrent Meter No. 318140 during the test by Jersey City, according to the test meter used.

EXHIBIT P 8

Per cent accuracy of 12-inch Hersey Torrent Meter No. 3/81/40 during test by Jersey City, according to test meter. 15-minute periods.

133.37 %
133.60 %
135.74 %

Average accuracy for test period = 53.46 %, according to Jersey City test meter

Readings 60 min. apart 9 P.M. to 10 P.M.

Upper Diagram

Accuracy percentages of Hersey meter during test by Jersey City.

Scales { Horizontal: 1 inch = 2 hours
Vertical: 1 inch = 10 per cent.

Rate of flow in gallons a minute for each 15 minutes during test according to Jersey City test meter.

Average rate for entire test period = 384 gallons a minute, according to Jersey City test meter.

320 Gallons a minute

Readings 60 min. apart 9 P.M. to 10 P.M.

320 Gallons a minute

Sept. 14, 1922 — Sept. 15, 1922 — Sept. 16, 1922

Lower Diagram

Rates of flow during test of Hersey according to Jersey City test meter.

Scales { Horizontal: 1 inch = 2 hours.
Vertical: 1 inch = 200 gals. a minute.

83.62 per cent. of the volume of water measured by the test meter during the test period was registered by the 12-inch Hersey Torrent Meter, for rates of flow in excess of 320 gallons a minute (incl.)

17.66 per cent. of the volume of water measured by the test meter during the test period was registered by the 12-inch Hersey Torrent Meter, for rates of flow less than 320 gallons a minute.

3.82 per cent. of the total flow during the test period was at rates less than 200 gallons a minute.

The lowest observed rate during the test was 126 gallons a minute. This rate was for the 15-minute period ending at 12.30 P.M., Sept. 15, 1922.

LEHIGH VALLEY R.R. CO. v. JERSEY CITY

Percentage of water measured by the Jersey City test meter that was registered by 12-inch Hersey Torrent Meter, Model T, No. 3/81/40, for each 15-minute period during test, 10 A.M. Sept. 14, 1922 to 10 A.M. Sept. 16, 1922

and

average rate of flow for each 15-minute period, according to measurements by the Jersey City test meter.

NOTE:

Outlining in red indicates

Upper diagram: Percentages of accuracy of the Hersey Meter for 15-minute periods when the rate of flow exceeded 320 gallons a minute.

Lower diagram: Rates of flow in excess of 320 gallons a minute.

Outlining in yellow indicates

Upper diagram: Percentages of accuracy of the Hersey Meter for 15-minute periods when the rate of flow was less than 320 gallons a minute.

Lower diagram: Rates of flow less than 320 gallons a minute.

PLAN AND SECTION SHOWING INSTALLATION OF

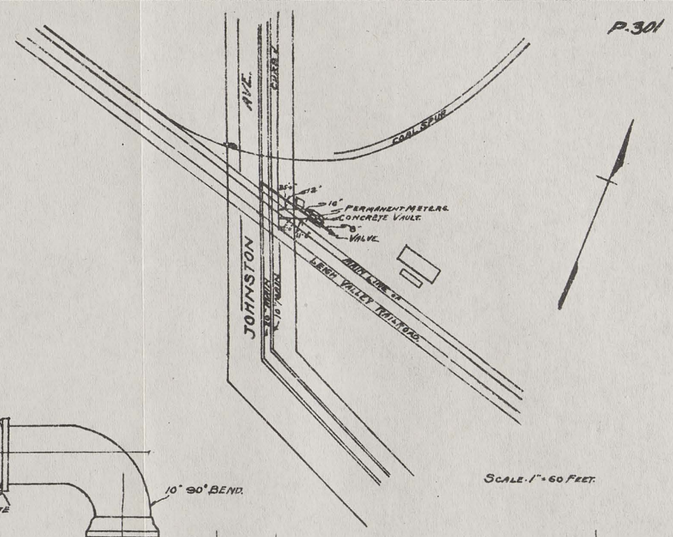
PROPOSED 8" COMPOUND METERS

FOR

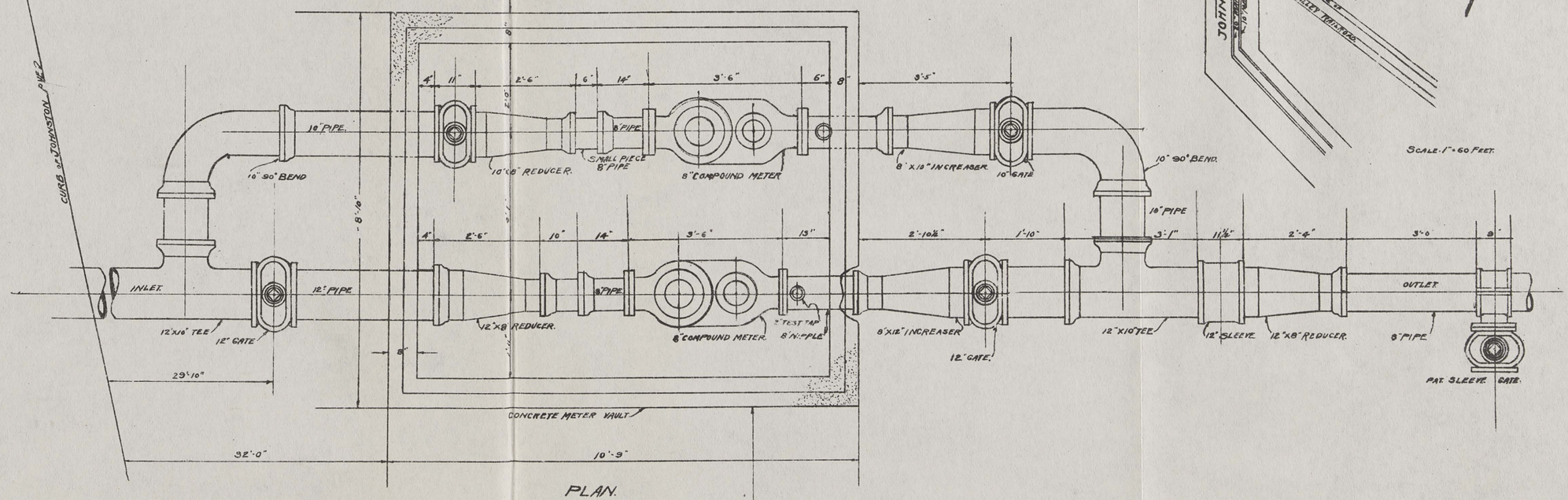
LEHIGH VALLEY R.R. CO.

AT JOHNSTON AVE. JERSEY CITY N.J.

DEPT. STRS. & PUB. IMPTS.
BUREAU OF WATER.

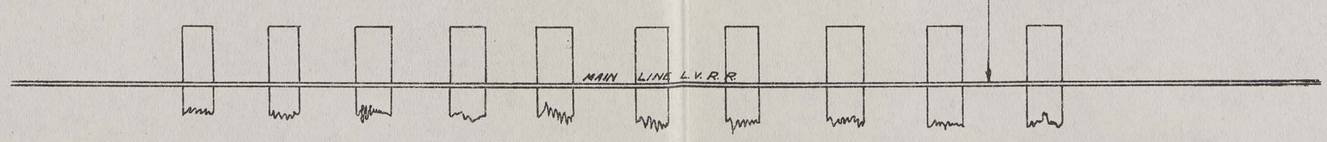


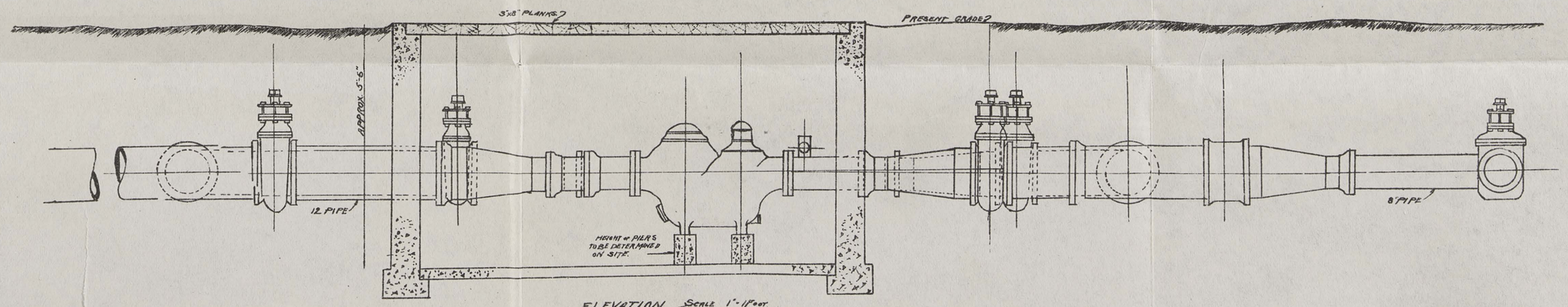
SCALE: 1" = 60 FEET.



PLAN.

SCALE - 1" = 1 FOOT.



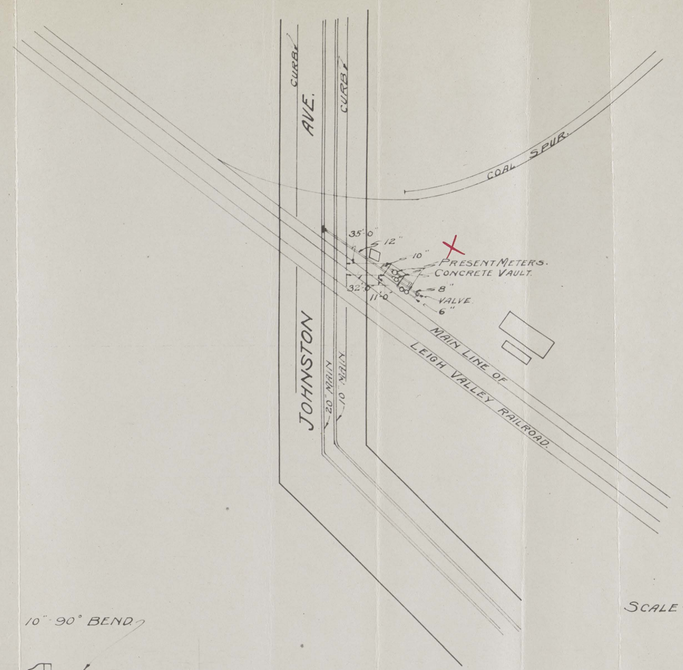


ELEVATION. SCALE 1" = 1 FOOT.

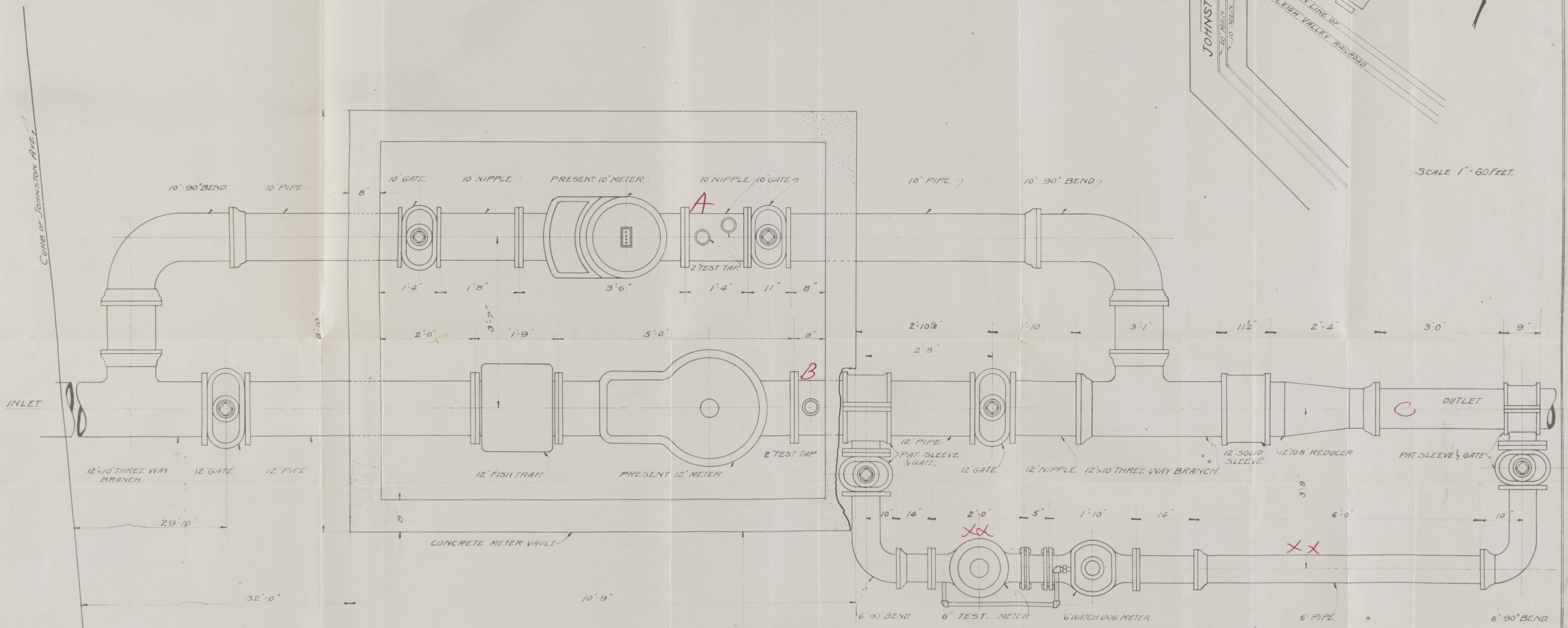
P-301-A

Ex. R-6
E. O'Byrne

PLAN SHOWING
PRESENT METERS
OF
LEHIGH VALLEY R. R. CO.
ALSO
TEMPORARY 6" COMPOUND TEST METER
AT
JOHNSTON AVE JERSEY CITY
DEPT. OF STRS. & PUB. IMPTS.
WATER BUREAU.



SCALE 1" = 60 FEET.



SCALE 1" = 1 FOOT.

MAIN LINE L.V. R.R.

PLAN SHOWING

PRESENT METERS

OF

LEHIGH VALLEY R. R. CO.

ALSO

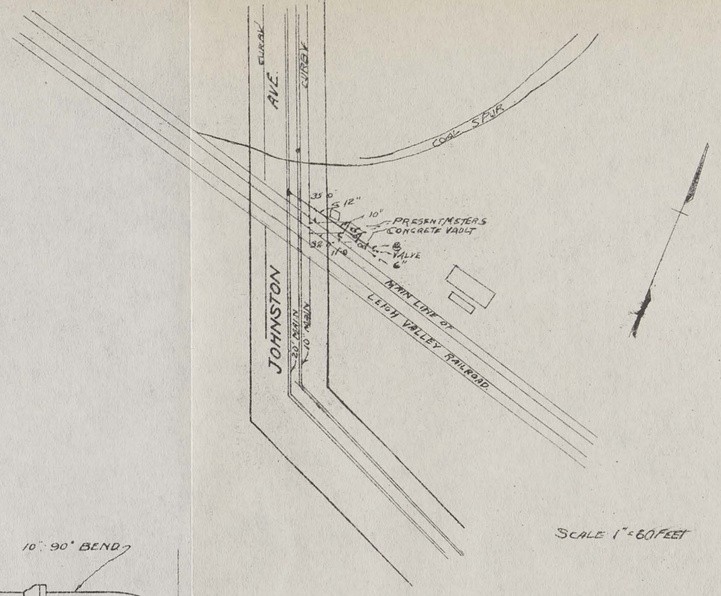
TEMPORARY 6" COMPOUND TEST METER

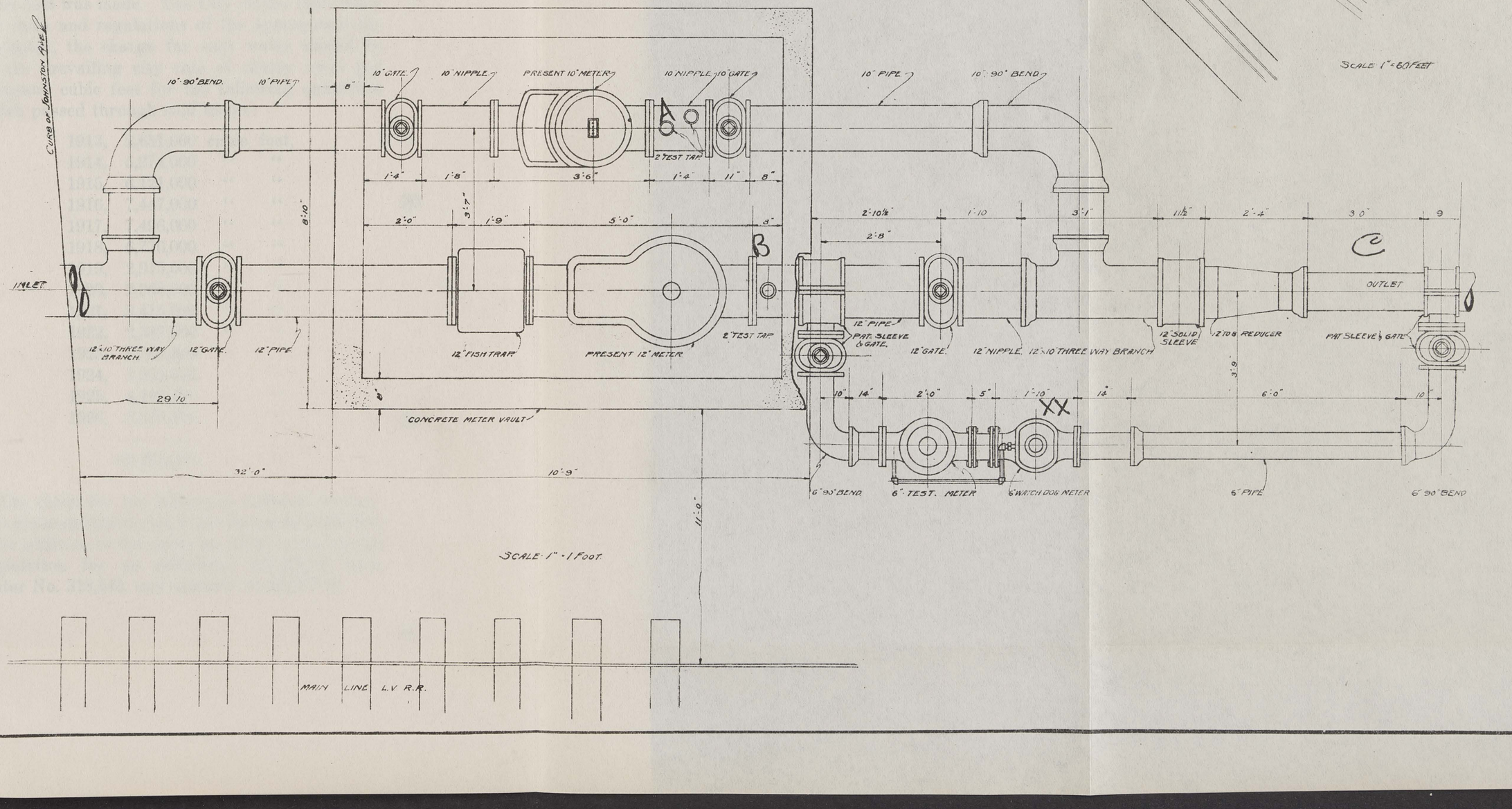
AT

JOHNSTON AVE JERSEY CITY

DEPT. OF STRS. & PUB. IMPTS.

WATER BUREAU.





Stipulation.

It is stipulated and agreed that in addition to the water supplied through meter No. 318,140, under contract dated May 23, 1908, Prosecutor also was supplied with water at its Johnston avenue coach yard through meter No. 482,624, for which a charge of seventy-five cents per thousand cubic feet was made. The City claims that under the rules and regulations of the appropriate department, the charge for such water should be at the prevailing city rate of ninety cents per thousand cubic feet for the following quantities which passed through said meter:

1913,	2,631,000	cubic	feet,
1914,	5,274,000	"	"
1915,	6,121,000	"	"
1916,	7,447,000	"	"
1917,	7,496,000	"	"
1918,	6,776,000	"	"
1919,	2,915,000	"	"
1920,	2,368,000	"	"
1921,	3,415,000	"	"
1922,	2,347,000	"	"
1923,	6,560,000	"	"
1924,	3,209,600	"	"
1925,	4,195,500	"	"
1926,	3,079,100	"	"
	63,834,200	"	"

The claim for the difference between seventy-five cents and ninety cents per thousand cubic feet is in addition to the claim set forth in the second stipulation for an additional $73,507.95 upon meter No. 318,140, and amounts to $9,577.13.

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New Jersey Court of Errors and Appeals

LEHIGH VALLEY RAILROAD COMPANY, Prosecutor-Appellee, *vs.* THE MAYOR AND ALDERMEN OF JERSEY CITY, *et al.*, Respondents-Appellants.	ON CERTIORARI. ON APPEAL FROM SUPREME COURT.

BRIEF OF APPELLANTS.

The facts that are material to the issue in this case are set out in the brief for Appellee, and as they appear therein, are substantially correct. The attention of the Court, however, is directed to the fact that while the contract between the parties for a water supply (p. 161) was entered into on May 23d, 1908, it is provided that (p. 162) "party of the second part agrees to pay for all water furnished by the party of the first part at such period and in such manner as is paid to the said party of the first part by like consumers for like consumption". Also (p. 163) it was mutually agreed that a meter should be placed at the end of the main that was required to be laid by the Railroad and "that the registration of such meter shall form the basis upon which bills shall be rendered to and payment made by party of the second part at the rate of one hundred dollars per million gallons, independent of quantity consumed."

The City during September, 1922, made a test of this meter, which test covered a period of forty-

eight hours and it was shown that the amount of water registered by the meter of the Railroad during that period was but fifty-three per cent of the water passing through the line (Stip., p. 15; Ex. 1, p. 31). Other tests were made in August, 1922 (Ex. R-2, p. 152 bottom), and again in May, 1923 (Ex. R-5, p. 155), and this latter test continued until February, 1924, a period of nine months (pp. 95-98; Ex. R-5). The results obtained from these tests showed an under registration by this meter, the twelve-inch Hersey Torrent of the Lehigh Valley Railroad, of some forty-seven per cent of water passing through it (Ex. 2, pp. 42-43). The City thereupon billed the Railroad for the period of four years and three months, *i. e.,* from May, 1918 to August, 1922, and again by stipulation between the parties (p. 158) to cover the period from December, 1908 (which is the date of installation of this twelve-inch Hersey Torrent Meter) to May, 1918, which makes up the whole term of the meter. A second claim was made predicated upon the same inaccuracy. Here is a statement of the account—December, 1908 to May, 1918—$73,507.95; May, 1918 to August, 1922—$50,930.93—Total $124,438.88. This sum was not paid by the Railroad, and thereafter the City Collector of Jersey City advertised a sale of the Railroad's property and it is this action on the part of the officials of the defendants that has been certified to the Court.

Argument.

The City at page 27 of the case sets forth three reasons for this appeal as the ground upon which the finding of the Supreme Court should be reversed. The first ground of appeal will be argued

as Point I. The second and third reasons are somewhat similar in character and will be argued at Point II.

POINT I.

The Court below erred in holding that a charge for water furnished by a municipality to an owner or occupant of lands is not a tax.

While it is true that the meter was installed in 1908 under the contract, there is nothing at all in the case to show that the City ever approved this type or kind of meter for the service on which it was used, it certainly is not true that in making and performing the contract, the City was acting in a quasi-private character. Under the present form of government under which the Mayor and Aldermen of Jersey City now function, this contract and things done under it could never partake of anything else than those of public or governmental functions. The Home Rule Act of 1917, article 32, sections 8, 11 and 12, and also the Tax Sale Revision Act of 1918 at page 883 goes further than merely to prefer a municipality to a private water company. The Statute not only changes the method of enforcing unpaid water rents, but in effect changes them in essence from a water rent to a tax, and accordingly extends the lien, and inferentially at least, by section 11, of the Home Rule Act, of 1917 puts upon the consumer the burden of repairing and testing its own water meter.

An express contract, it is true, does exist, but it is not quite true to say that the City was in substantial control, because without a request of the user, the City need not and perhaps should not

make any repairs of its own accord. Excluding all these, however, from our present consideration, there can be no question but that even though a lapse of fourteen years has occurred, the City cannot be estopped from asserting its claim. Remembering that until 1922 the City did not know that it ever had a claim, we must strictly bear in mind that the great weight of authority throughout the country is against the doctrine of estoppel as applied against the claim of the City or any other municipality. Not only is the old maxim "*nullum tempus occurritt regi*" still in full vigor, especially with relation to streets and any claim of adverse possession therein, but the doctrine has been recognized in this State in *Jersey City* vs. *The State,* 30 N. J. L. 521; *Hoboken Land Improvement Company* vs. *Hoboken,* 35 N. J. L. 540, but so too, we find the recognized authorities all in accord with the proposition that actions to recover taxes and assessments cannot be defeated by any estoppel or laches on the part of the municipality, or as has been said by Judge Dillon "it is unsafe to recognize such a principle" (See Dillon Municipal Corporations, volume III, page 1902), and cases therein cited.

It was urged by the appellee below that if the company had paid the original charge, it would still be fearful that the City would thereafter assert a further claim extending ten years further back. If neither the statute of limitations nor estoppel may be invoked against a municipality, especially in the collection of taxes and assessments, why could not the City have done just that thing? If a just claim hitherto unknown comes to the knowledge of the municipal authorities, the public right surely should prevail.

Neither laches nor estoppel, nor the statute of limitations can be invoked against this claim of

the City for unpaid water rents, because the legislature has placed an unpaid water rent in the same class and character as an unpaid tax. We have already seen that under the provisions of Article 32 of Chapter 152 of the Laws of 1917, unpaid water rents are to be collected according to the provisions of the Tax Revision Act of 1918. During the same year there was enacted Chapter 237, and this was an act which concerned "unpaid taxes, assessments and other municipal charges on real property." By it, it was provided that unpaid taxes on lands should be a lien as of a certain date, and there was a further provision for assessments for benefits. Section 8 then provided that all other municipal charges "which are liens on real property" (and a water rent is such a lien), would become liens on a date that was to be fixed by law. Section 16 of this same Act then provides that all such unpaid liens are to be enforced by a sale of property. That is to say, just as unpaid taxes were to be enforced, so too were unpaid water rents. The water rents, therefore, by act of Legislature were changed from a mere charge and became actually a tax on real property in the municipality in which the water had been supplied.

The collection of taxes is never barred by the running of time, nor by any act or omission of any municipal employee (save where an absolute duty has been put by statute on a municipal employee, *i. e.,* a certificate of search). Now since a water rent is a tax it cannot be barred, nor does estoppel apply when taxes are concerned (*Manzo* vs. *Manzo, supra*). The Legislature has gone even further than this and as a result of its action, we conclude that a water rent is a tax.

It should not require much argument to reach the conclusion that the furnishing of water by a municipality to its inhabitants is a governmental function. The statute permitting municipalities to acquire a water supply is predicated upon the proposition that same may be done whenever it shall be deemed advisable to supply water to its inhabitants. Furthermore, the statute of 1907, p. 676 (3 Comp. Stat. 3650, Secs. 677-679; also Home Rule Act, Art. 32, Sec. 3) prohibits a water supply from coming from outside of the territorial limits of the municipality without the approval of the municipal body where the municipality itself has a water supply. Plainly this indicates a duty on the part of the municipality when it has a water supply, of supplying water to its inhabitants.

Again if it was intended that laches or estoppel might be invoked, it is singular that the statute is silent upon this all important situation. The statute, if it has any effect whatever, clothes a water bill with all the virility of a tax, since it permits the collection of the water bill in identically the same manner as a real estate tax is collected, and since there is no time limited within which the statutory remedy must be invoked.

The case of the *West Jersey Railroad Company* vs. *The Board of Water Commissioners of Atlantic City,* 86 Law, p. 634, while not in point under this head, yet is eloquent on the proposition that a Water Department such as Jersey City's furnishing water to its inhabitants is not a private or even a quasi-public institution. As the late Justice Bergen, speaking for the Court of Appeals, reasoned, that the Atlantic City Commission could not do anything of its own volition but acted within its public scope for the municipality, so too, the Water Department of Jersey City is part and parcel of the municipality as such; it could neither

sue nor be sued separately; it could not spend nor receive moneys apart from the parent municipal corporation; it could not collect moneys except by authority of, and as agent for the City; it could not lay water mains, save by contract executed by the City itself, and with these attributes the Jersey City Water Department clearly comes within the principles laid down by the opinion in this case, and its functions are carried on as agent of the municipality and its actions are not invested with separate and distinct corporate powers than those of the municipality itself.

POINT II.

The Court below erred in holding that the charges for water were too inaccurate to enforce payment and that there was no evidence to determine the amount due.

A. The theory on which the City's claim is based is accurate and sound under the circumstances.

The meter in question was purchased and installed by the Railroad in 1908 (p. 50), was never the property of or under the control of the City. The City had no opportunity to inspect this particular meter before installation nor were its employees or agents ever asked about the fitness of this instrument, (twelve-inch Hersey Torrent Meter), for the use to which it was put. The meter was placed on a service line which was a twelve-inch pipe, the service line being reduced to eight inches directly on the outlet side of the meter. The meter in question is admittedly (pp. 91-92), one that was designed or intended to measure accurately only *large flows* of water. When the rate of flow falls below three hundred

and twenty gallons per minute a meter of this type ceases to measure accurately or register the water passing through the line (Ex. P-2, p. 145). The result of this is that if the flow decreases below 320 gallons per minute the accuracy also falls off.

The City in 1921 began an investigation into all of the service lines carrying water throughout the City (p. 95) and in September, 1922, (pp. 97-98) a test was made of the service line of the Railroad. The method of making this test was by the insertion of a six-inch meter (already tested and found accurate) in the line. The test ran for forty-eight hours and it was discovered that according to the accurate six-inch test meter there was an under-registration on the line of the Railroad, so that approximately fifty-three per cent of the water passing through the twelve-inch Hersey Torrent Meter was measured, and there was no registration or measurement of the other forty-seven per cent (Exs. 1-2, pp. 29-43). It was manifest then that the Railroad was not paying for forty-seven per cent of the water coming through this line. The City did not install this meter and was under the impression that it had been inserted in May, 1918, instead of 1908 and so the claim was first made for a period of four years and three months, i. e., May, 1918 to September, 1922. When the City discovered that the meter had actually been installed in 1908, the computation was carried back for the earlier years and the City's claim was increased proportionately.

During the test period, readings were taken at frequent intervals of the twelve-inch Hersey Torrent Meter and the six-inch test meter, and a comparison of the two made manifest the under-registration of the twelve-inch Torrent Meter (Ex. 1).

It was argued at great length below by counsel for the appellee that the particular meter in question had been tested for accuracy in the shop of the manufacturing company on July 29th, 1908, and an exhibit (P-1) was introduced to show the percentage of accuracy of this Torrent meter at different rates of flow. An examination of this exhibit (P-1) and a reading of the testimony of Waldo S. Coulter (pp. 54, 70, 93) and Robert Ferguson (pp. 46, 48, 50), witnesses of appellee, will show that the testimony of Ferguson dealt with various rates of flow which *do not appear at all in the exhibit* (P-1), and the testimony of Coulter also deals with rates of flow assumed to be shown on this exhibit. *There are no rates of flow in Exhibit P-1.* The Prosecutor's case falls here because there is no basis for the testimony of these witnesses.

Much stress was laid below on the testimony of Ferguson in connection with pressures and orifices but if we examine fully the testimony of Ferguson on p. 142, we find a general lack of any knowledge whatsoever of his own concerning pressures as they actually were in 1908 when Exhibit P-1 was made. Hence the testimony must be disregarded and again, since the testimony of Coulter is based on Exhibit P-1, and his knowledge of rates of flow is founded on no other basis but this exhibit, the exhibit having no probation force through Ferguson's lack of knowledge concerning it, then also must that of Coulter cease to have any effect.

> "Q. Your exhibit P-1 does not disclose any rate of flow? A. It does by giving the size of the orifice through which the water was run.
>
> Q. There is no pressure? A. There is no pressure there; no sir. The pressure we know and have always known, and at various times we check up, not by computing but by stop-watch, and floats; so we know the orifice is delivering these amounts.

Q. What pressure did you take as a basis in this card? A. I cannot tell you now just what it was, but I knew it when it was made.

Q. How do you know the pressure at the time when Exhibit P-1 was made was the same or approximately the same as the pressure in the Lehigh Valley yard during the time of the service of this meter? A. When this card was made up there was not any comparison made between our pressure and the Lehigh Valley pressure. The delivery of the water was computed, or rather not computed but taken with a stop watch and the size of orifice from our pressure.

Q. But what was your pressure, you do not know? A. I would not say right off the bat what it was.

Q. It might have been twice what the pressure was in the Lehigh Valley yard in Jersey City during this time? A. I should say that our test was around forty to forty-five pounds."

Remembering what has already been said regarding Exhibit P-1 and its lack of force, and that below, counsel argued as follows:

> "The validity of the shop test on July 29th, 1908 of the meter in question, *being thus firmly established,* it shows that the meter as sold to the prosecutor could accurately measure all rates of flow observed during the test, upon which the defendant basis its claim" (p. 14).

And again:

> "The shop test, Exhibit P-1, shows that the meter as sold measured a rate of one hundred and twenty-six gallons a minute with an accuracy in excess of 98.8 per cent." (p. 14)

"The validity" of the shop test is not established at all and in fact must stand discredited, and

therefore, since the Railroad's case seems to rest on the validity, of this test, must stand or fall with it. We have already seen that the test, Exhibit P-1, is valueless for the purpose it attempts to prove and therefore, it must follow that conclusions based upon it are equally valueless. Again:

> "These reported accuracies vary all the way from 77.05 per cent to 87.29 per cent. Likewise, the meter should have and would have registered and measured accurately all the flows shown upon the exhibit (p. 15).

This is not the fact. P-1 carries no rates of flow. There is nothing to show that this particular meter ever was accurate, or that it ever could measure any rates of flow accurately, or once again, the shop test failing, there is nothing to show accuracy or non-accuracy of this particular meter upon any particular rates of flow, and therefore, there can be no reason to say that this particular meter should have registered various rates of flow accurately.

Again it is argued—

> "The shop test of the meter showed a higher degree of accuracy than that subsequently required by the American Water Works Association or subsequently guaranteed by the manufacturer, as appears on the graph" (pp. ~~14~~ 16-17).

We submit with entire confidence the shop test shows no such thing and therefore, can have no connection with or bearing upon Exhibit P-2. All these facts destroy the three conclusions reached by the counsel (p. 17), since they all depend, (1) on a shop test that is nugatory since it shows no accuracy on rates of flow, and (2) on an exhibit, P-2, which was made from the performance

of an entirely *different type* of meter many years later, and one which was admittedly more sensitive than the meter in question (Coulter, p. 77; Ferguson, p. 140). This leads finally to the fact that here was a meter made and installed in 1908, concerning which none of the witnesses of the Railroad can testify at all in so far as the accuracy of that meter is concerned. In fact, testimony on the Railroad side is based first on a card which really shows nothing (Exhibit P-1); secondly on a graph (Exhibit P-2) which is wholly theoretical; and thirty, on a series of assumptions based on the two preceding premises, which are not proved.

The City, on the other hand, maintains that by a series of tests (Ex. 1, Ex. R-5 and pp. 98 to 101), one of which was so lengthy as to cover a period of nine months made with tested accurate meters, there was revealed a condition in this twelve inch Hersey Torrent Meter which led inevitably to its inaccuracy of registration. The meter may have been out of order when installed; it perhaps never was in order properly to measure accurately; but surely the tests and the figures derived therefrom and the testimony of the prosecutor's witnesses, Coulter (pp. 77, 92) and Ferguson (p. 139), absolutely prove that the meter was unfit for the service to which it was put, that there was a vast amount of non-registration, and that hence the Railroad is surely in debt to the City for water furnished and consumed by it and not paid for.

Much was made in counsel's brief below of the fact that according to P-3 the Hersey Meter at an average rate of flow of 470 gallons to the minute failed to register, and an attempt was made to obtain from the witness, Mr. Mauzy, a statement to the effect that necessarily such a

meter must be out of order. This line of questioning follows the same fallacious reasoning alluded to in the preceding paragraph. *If not* even the manufacturer knew the accuracy of this meter on rates of flow how can anybody say whether or not the meter was in order? The Hersey Meter representative, Ferguson, does not know. (See p. 46, bottom and p. 142). There are no rates of flow in Exhibit P. 1, ergo, there is no *proven accuracy in* their case. Service conditions and improper installation, due to lack of calibration while the meter was in place as required by the best water works practice, would equally have the same effect in causing the meter not to register accurately. In fact, the Hersey Company, which manufactured and sold this particular meter, did not give any such guarantee on it, as it now does. See Ferguson page 140. In fact the witnesses of the prosecutor disagree as to any guarantee (Ferguson 140; Coulter, p. 79).

B. The test is entirely conclusive.

(a) The tests were made by the City's Water Conservator by the insertion in the service line of meters that were previously tested and found to be in good working order and accurate. The test of the accurate meters was done in the meter laboratory of the Water Department of Jersey City. The test meters when placed were properly screened and every care was taken that their mechanical condition remained as nearly perfect as possible during the period of the test (Ex. R-6, p. 100).

(b) When it was discovered by the authorities of the City that this Hersey Torrent Meter was in a line, the service through which demanded an entirely different kind of meter, steps were at

once taken so that a proper test could be made to show if proper registration was taking place on this line. The test made in August, 1922, was merely a preliminary one, but the other tests, viz., the forty-eight hour test of September, 1922, and the nine-month test from May, 1923, till February, 1924, were according to the best water-works practice. As has been previously said, meters already tested for their accuracy under laboratory conditions were installed in the line and the results carefully noted, that during any period of this test the Hersey Torrent Meter did not register accurately, or at all, under varying rates of flow, did not and could not spoil the test, nor lessen the fact that the test meters, the mechanical condition of which had been tested and was known, did themselves register the flow of water that passed through them.

A comparison of the readings of these test meters and the reading on the Hersey Torrent Meter proved conclusively that water was passing through the line and was not measured at all, or at best very little by the twelve-inch Hersey Torrent Meter. Surely none can gainsay the fact that where two tests showed practically the same results, and one of these tests extended over the long period of nine months, the City had a right to come to the conclusion that something was radically wrong with the registration of the Hersey Torrent Meter, and that it could with security, act as it did in the premises. The test having proved an insufficient registration, the only remaining thing for the City authorities to do was to charge for the water consumed by the Railroad and not registered. This course of action was followed. In fact, the conclusiveness of this test must have become fully apparent to the Railroad Company, because as soon as the results were conveyed to

them, this faulty Hersey Torrent Meter was taken from the line by the Railroad and a type fit for the sort of service demanded on that line was installed, and this latter meter was of an entirely different type and size (Ex. R-5, Mauzy, p. 100), from the twelve-inch Torrent Meter. At that time the Railroad did not attempt to repair this Hersey Meter and was willing, it seems, to pocket its loss and install a fit meter in order to prevent any future conflict with this municipal authority.

C. The claims for interest are fully justified and should be paid.

The true figures in the claim of the City are $50,930.93 with interest of $14,005.00, as will be seen from the figures submitted by the Director of Streets and Public Improvements (p. 7). To this was added the further sum of $73,507.95, which latter sum represented the amount due as principal from 1908 to 1918 (Case, p. 153).

We will agree that interest is accurately defined in the brief of the Railroad, but we do not agree that the City is in an ordinary position that makes the definition applicable to it, nor will we subscribe to the fact that the further cases quoted have any bearing at all upon the claim of the City. It should be remembered that the City claims under a lien given to it by the provisions of Sections 8, 12 and 13 of the Home Rule Act of 1917, which is Chapter 152. The provisions of these sections give—first, the right to pass ordinances and make regulations "for imposing penalties in addition to cutting off water for non-payment thereof." By Section 12 unpaid water rents remaining in arrears are made a lien to the same extent as taxes are a lien, and "shall be collected and enforced by the same officers and in the same manner as liens for taxes are enforced and col-

lected.'' The City acting under the power delegated to it in these above quoted sections has made its rules and regulations imposed a penalty for delinquent water charges which is fixed at ten per cent. of the principal sum. The principal sum having been found to be due according to the procedure hereinbefore alluded to and described, there remained nothing more than a mere bookkeeping operation and the figures are as outlined above.

On the larger sum of $73,507.95 no interest was figured because this claim was presented under a stipulation, and while depositions were being taken in the instant case. In addition to all of the foregoing we have already seen that neither the doctrine of laches nor that of estoppel applies against the City, especially in connection with tax liens. Hence the City on discovering its proper position and ascertaining its proper claim immediately moved in its proper course, and therefore, now demands of the Prosecutors the sums hereinbefore and above mentioned.

Nor does it make any difference in this case that the claim is in dispute and its validity is denied because even where the validity of a tax was litigated for eight years, the courts have held that property owners were liable for the interest on an assessment during that period, as there was no time in which they could not have paid the assessment to the town authorities. *State ex rel. King* vs. *Marvin,* 51 N. J. L. 298. Again, penalties may be cumulative if the statute so directs, and if the taxes on the same property for several years in succession remain unpaid, it will be proper to assess a penalty for each year the default continues. *People* vs. *Wemple,* 61 Hun 53; *White* vs. *Woodward,* 44 Ohio 347.

The case of *Bayonne* vs. *Standard Oil,* 81 Law 717 strongly urged upon the court below by counsel for the Railroad is not at all in point. In that case the company had been taking water through some twenty-three meters, all of which has been installed at various places upon its property. On June 1st, 1903, the municipality installed two large meters at the intersection of some streets, which were distant more than a quarter of a mile from the nearest supply pipe running to the company's plant. These were to measure all of the water supplied to consumers of which there were seven in the territory that contained the company's plant. The City as a result of receiving some information as to the quantity of water being used by the company, and registered on their twenty-three meters, and the amount of water registered on the meters of the seven other consumers, rendered a bill for the whole of the alleged excess water to the defendant company, assuming that it had all been received and used by it. The Court maintained that no municipality and no other company could arrive at some fortuitous reckoning and because some water had gone into a certain section immediately pick one particular consumer and charge the whole of that water to it, since they had no means of checking its course, registration and consumption. In this case, however, there was but one pipe, one service and that pipe contained before the installation of the test meters, but the one meter in dispute. Hence the City when it had installed its own test meters tested and found to be accurate, could easily and did easily find the lack of proper registration on a meter that was but ten feet away from the test meters. Therefore, the City has amply and fully founded its claim—chapter 152, laws of 1917, and the Tax Revision Act of 1918 at page 873, and the rules and regulations of the proper municipal officers of Jersey City, furnish sufficient

legal methods for the enforcing of that claim, and the City having but followed its legal course, and that properly, should be sustained.

D. The City is not bound by its contract to base charges on meter registration under certain circumstances and conditions.

It is quite true that under ordinary circumstances, the working of the contract between any two parties will be the governing rule to determine any action under it, but like all generalities there are numerous exceptions to this. In the instant case, we agree that the contract said that the registration shall form the "basis" upon which bills shall be rendered and payments made. By no stretch of the imagination does this make the figures that appear on the meter the final and complete test of the amount of money to be paid by any consumer of water that has been registered or measured by this meter. It is indeed a "basis" but not final as to any amount due.

In the various cases cited on p. 42 of opposing brief, the Court will note that all but one of the cases decided are New York law. It must be remembered that by the provisions of the Charter of New York City, it was expressly said that the meter registration is conclusive and the obligation so to pay was one imposed by law. In our case it was a contract obligation and subject, therefore, to the rules governing the interpretation of contracts.

Again, the absurdity of the position stated by our adversary and, at one time, enforced under the New York City Charter, becomes readily apparent when the Court will notice that this section was amended by the laws of 1908; p. 1135, so as to provide that when the meter ceases to record water passing through it, a charge may be

made for water during the interruption of registration on the average daily registration indicated by the meter for three months subsequent to its repair and reconnecting two service pipes (*People* v. *New York,* 134 N. Y., App. Div., 951). That this amendment was necessary was brought out by the decision in the case of *People* v. *New York,* 129, N. Y. App. Div. 551, wherein it had already been held that under the existing charter laws where a meter did not register at all no charge could be made; that is, the court recognized the fact that under the original New York City Charter and, also, under the doctrine urged by the prosecutor, it was possible for the consumer of water, through design, to stop his meter from registering although he was getting water, or to profit unjustly by a mechanical defect, which had the same result. The same theory of law seems to have been in the mind of our Legislature when, by Section 11 of Article 32, Chapter 152 of the Laws of 1917, it made the owner of the meter and user of water responsible not only for all payments but for the "repair and testing of any water meter or water meters, etc.".

Indeed, it appears to the defendants that this proper theory of law has been recognized by the Railroad when it said:

> "We do not mean to be understood as urging that the meter readings are a finality under the circumstances. (Brief, p. 43 .)

That is to say, the prosecutor recognized that a meter reading may really mean nothing due to such defects in the mechanism to which meters are subject on account of wear and tear, etc. It is true that improper installation of a meter, as in this case, will produce inaccurate registration. So, also, if a meter is placed on a line to measure

water and the meter is much over sized for that line, as in this case, where a twelve inch meter was inserted upon an eight inch line, inaccuracies will also result and this fact has been recognized by the Prosecutor's witness (p. 81). So then, the Prosecutor, by its own acts, having brought about conditions which lead to incorrect registration on the meter and, therefore incorrect figures, how can it urge that it should profit by it?

In an attempt to escape this seemingly inevitable conclusion, the Prosecutor has quoted the case of *Jersey City* v. *Morris Canal,* 41 L. 66, urging upon this Court the question of "satisfactory evidence" which was mentioned in that case by Mr. Justice Depue. Not only do the New York Courts recognize subsequent readings of the meter as "satisfactory evidence," but, indeed, the *Jersey City* v. *Morris Canal* case by implication, at least, recognizes it. It is evident first that the *Morris Canal* case cited has no bearing upon the instant case, since in that case the City had placed a meter on the lands of the defendant for the City's convenience and for the purpose of measuring such water flowing through a main in the street. The defendants did not use any of the water flowing through the meter and the action was brought to recover from these defendants the price of water flowing through and measured by the meter which was furnished to and used by third persons on other premises, and the Court rightly said that there must be some satisfactory evidence that a meter measurement is erroneous before the quantity registered should be accepted as incorrect measurement, but the Court also said that that was not in point in this case and hence the Court did not hold it to be the law since this water was not furnished, taken or used by the defendants and there was no contract, expressed or implied, that they pay for it.

In the New York case cited below by counsel for appellee, the brief gave but a portion of the real decision. The entire decision was due to the effect that the correctness of the meter and, consequently, the amount due from the consumer may be disputed in an action but the reading of the meter will be held conclusive unless the evidence unquestionably shows its registration is incorrect through fraud, defect or accident. The City in this case merely extends that argument and says that if a proper test shows that a meter is not registering the water passing through the line, or is registering it incorrectly, that is satisfactory evidence that water is being used and not paid for. The Company itself agreed throughout the case that the twelve inch Hersey Torrent Meter in question was not registering properly and accurately the amount of water passing through this line. The City, therefore, says that the consumer should pay for the water used but not registered.

E. The Railroad Company is liable for charges incurred during the period of Federal control.

It is admitted that the Prosecutor, the railroad, was under Federal control until March 1st, 1920, and we will accept it as a fact that in 1922 there was an accounting and adjustment between the United States and the Prosecutor. But this has no bearing whatsoever upon the liability of the Prosecutor for these water rents.

The Act of March 21st, 1918, was provided for the operation of different railroads while under Federal control and for the compensation to the owners, and for other purposes. The following are pertinent provisions: In the third paragraph of Section 1 of that Act, which will be found at p.

758, the Federal Statutes Annotated, 1918 Supplement, we find the following words:

> "That no taxes assessed under Federal or any other governmental authority for the period of Federal control or any part thereof, either on the property used under such Federal control * * * shall be paid out of revenues from railway operations while under Federal control; that all taxes assessed under Federal or any other governmental authority for the period prior to January 1st, 1918 * * * shall be paid by the carrier out of its own funds, *or* shall be charged against or deducted from the just compensation."

In Section 10 of the said statute, we find

> "That carriers while under Federal control shall be subject to laws and liabilities as common carriers whether arising under State or Federal laws, or at common law, except insofar as may be inconsistent with the provisions of this Act or any other act applicable to such Federal control or with any order of the President."

This last has been construed in the case of *Louisville, etc. Railroad* vs. *Steele,* 202 S. W., 878, wherein the Court held that,

> "Any litigant may bring his action, notwithstanding the act and obtain judgment against the carrier, but he cannot enforce against the latter the satisfaction of the judgment when obtained by execution or similar process while the railroad is still under Federal control."

Therefore, we find that no claim of any litigant has been barred by any law during the period of Federal control and we also find that the railroad is liable for its taxes while under Federal control, and this is true of taxes for the period prior to

January 1st, 1918. The sole remaining question is one that need not concern us, for it deals with the fact of whether the railroad shall pay these taxes out of its own funds, properly so called, or out of whatsoever sum of money it may have received from the Government as adjusted compensation for the use of its road.

It has been asserted that the City collected $21,651.25 from the Railroad during the period of Federal control, and it is then urged that as this was fifty-three per cent of the amount due, that the total bill would be $40,851.41, and that therefore the Railroad would still owe $19,200.16 "for a debt which it did not contract." Whether or not the figures are correct, the Railroad Company surely must recognize its own contract of 1908, and certainly it must know that it was the railroad with whom the City was dealing when it made that contract, and therefore if there is any deficiency, whether the Railroad should have obtained it from the Federal Government or not, it must be paid by the Railroad Company.

F. The additional claims of the City are not barred by estoppel, nor by the Statute of Limitations, and should be paid.

(a) It is indeed true that by the various paragraphs of Article 32 of Chapter 152 of the Laws of 1917, water rents have been made a lien, and that if they become delinquent, the City Collector proceeds under the provisions of the Tax Revision Act of 1918 to certify the properties liable at a sale. It is true also that this amount of money representing the additional claim covers a period extending back to 1908, which sum it certainly could have charged for and properly collected yearly from 1908 if it had known that such claim existed. Whether the sums were billed six months after they had become delinquent or not makes no

difference in the present case, because it has been held in *Manzo* vs. *Manzo,* 4 N. J. Advanced Reports, 769, that a claim for taxes presented several years after the taxes became delinquent cannot be rejected by the taxpayers, whether the Collector "proceeds forthwith" as provided by statute or not, and the taxpayer cannot take advantage of such failure by the Collector. In addition to all of the foregoing, the attention of the Court is directed to what already has been said concerning any possible estoppel running against any municipality.

(b) The attention of the Court is again directed to what has been said heretofore as to the reasons why the statute of limitations cannot bar or be effective against a municipality as such, and surely this opinion is well supported by the case of *Jersey City* vs. *Morris Canal & Banking Company,* 12 N. J. Eq. 547, wherein the City having made a mistake as to its legal rights in a certain proceeding, applied to the Court of Chancery long after the mistake had been made and the Court sustained the City's contention and allowed the assertion of its right. The same line of reasoning was followed in *Manko* vs. *Chamberburgh,* 25 N. J. Eq. 168, *Jersey City* vs. *the State,* 30 N. J. Law 521, and *Cross* vs. *Morristown,* 18 N. J. Eq. 305.

Neither is the City always and necessarily in the position of a vendor when it supplies water to the inhabitants of the municipality and other consumers of that commodity within its City limits. The cases urged by counsel for appellee are not at all in point. We have already discussed the case of *Jersey City* vs. *Morris Canal & Banking Company,* 41 N. J. Law 66, under a previous heading. In *Jersey City* vs. *Harrison,* 71 N. J. Law 69, we fully agree that a contract for a water supply between two municipalities was

a contract within the operation of the statute of frauds. When we come to the case cited of *Ford Motor Company* vs. *Kearny,* 91 N. J. Law 671, we find that once again the Railroad Company does not state entirely what the Court has decided. The important and vital thing in our case as decided by the Ford case will be found at the top of p. 673, where it is said:

> "The lien given by the statute, therefore, in case of water sold by measure, must derive its vitality from the sale itself, as such; that is, from contract. Whatever the purchaser of the water had authority, express or implied, to bind by his contract, to that the lien under the statute will attach. Further than that it cannot go."

In the Ford case it was, as the Court said, an absolute stranger, a trespasser or a mere licensee, who by a contract with a municipality for water attempted to obtain a supply for use upon the land of the true owner, and again the Court well said:

> "Statutory liens upon the landlord's estate in leased real property for water rents or for water charges, for water supplied thereon to the tenant, must depend for their validity either upon the taxing power or upon contract."

The Court finally in effect decided that the sale was obviously not a tax upon the true value of the property or upon any special benefit to that property, and therefore, ordered the Town of Kearny to cancel a purported lien. To all of the propositions in that decision we agree. A third person cannot effect a lien upon one's property by his action unless authorized either expressly or impliedly. In the instant case, the prosecutor by a contract executed by its proper officers actually

contracted with the City for a supply of water, and by virtue of the lien given by Chapter 152 of the Laws of 1917 and exercised through the Tax Revision Act of 1918, it cannot escape the legal effect of its action. This is not a case wherein there was a failure of the contractual relation or one in which the lien could not properly attach to the property of the Railroad Company. There is to be found also what is called a "summing up" of this doctrine by Judge Dillon, and again the Prosecutor has failed to use the full language. The learned Judge says in the Fifth Edition of his work on Municipal Corporations at p. 1902:

> "The author cannot assent to the doctrine that as respects public rights, municipal corporations are impliedly within ordinary limitation statutes."

Counsel for the Railroad attempts to base the reason for the imposition upon the defendants of the statute of limitations on the difference between governmental and non-governmental actions and public or proprietary contracts. To agree with this would be to say that municipalities supply water to the inhabitants and the consumers therein only upon bargain and sale; that municipalities may contract or not contract with inhabitants as it may deem fit; that the inhabitants and consumers have no right in themselves to demand and receive a supply of water. The same learned Judge Dillon in his same work at p. 2204 wisely says:

> "So far as the consumption of water or light is concerned, it is immaterial to the consumer whether the supply be furnished by the municipality or by a public service corporation * * * The organization supplying water or light, whether it be a municipal or a private corporation, is under a *duty to consumers to supply* the water or light *impar-*

> *tially to all reasonably within the reach of its pipes,* mains and wires."

So, too, have our courts said in *Public Service* vs. *American Lighting Company,* 67 N. J. Eq. 122; *Washington* vs. *Washington Water Company,* 70 N. J. Eq. 254, and *Olmstead* vs. *Proprietors of the Morris Aqueduct,* 47 N. J. Law 311. Indeed, under the statutes, the duty upon a municipality to supply its inhabitants and the consumers within its limits and to supply them as a public duty becomes more apparent when we remember that not so recently a law was passed wherein and whereby no other water supply company could carry within the City limits any water and distribute it unless the invaded municipality gave its consent, 1907 Statute, *supra.* In other words, where there was a municipality with its own water supply, it could not be entered by any other water company at all, and it must therefore follow that there was an absolute duty following the effect of that law that the municipality must give water to those within its limits who desired it. And to say that any such municipality (and the City of Jersey City is one) distributes its water to consumers as a private enterprise is to employ a term that is most inopportune and futile.

In America there has been a steady tendency to enlarge the powers of municipalities to the end that in many states municipalities are real public utilities, and in many instances the municipalities have converted these public utilities into a means of gaining private profit. Of course the underlying authority for the creation of these public utilities must be whether the carrying on of such a business can be regarded as a public service, and in some states, while the utility was created to be of service, few municipalities have made it a business solely.

This is not true in the State of New Jersey and therefore cannot be true in the City of Jersey City. The State by statute and for public purposes allowed the municipality the right to acquire its water supply, and bestowed the right of Eminent Domain so that this water supply could be extended and conserved. The water distribution in the City of Jersey City is not controlled or regulated by that body which regulates public utilities which are run for a profit. Its rulers are The Mayor and Aldermen of Jersey City and its direct Superintendent is the Commissioner of the Department of Streets and Public Improvements, who is also a municipal officer. Its rates are fixed and determined by its City officials; its revenue is not taxed by any governmental agency; the salaries of those in the Water Department are exempt from taxation, since they are recognized to be municipal employees. In a word, the water supply and its distribution is a municipal and purely governmental function.

The Railroad also alleges that the claim of $9,577.13 should not be allowed to the City. This supply was not covered by the contract between the parties. This water, it must be remembered, was metered by a different meter entirely and it was used upon another service line. Through incorrect billing for years it was assumed that the water should be paid for at the contract rate of seventy-five cents per thousand cubic feet, and over a period of years this practice was carried on. The investigation of the Water Department hereinbefore alluded to brought to light the above facts and the billing was changed to ninety cents per thousand cubic feet, which is the prevailing city rate to consumers of water save those under contract.

All these being actions on behalf of the municipality, we once again direct the attention of the Court to what has heretofore been said concerning estoppel and the statute of limitations. Neither can apply. The water has been consumed and the consumers or the Prosecutor herein do not question that the ninety cents, the amount billed, is proper, is paid by other like consumers and therefore should be allowed by the City.

G. The City's claim is valid—substantiated by evidence.

There is but one correct method of determining whether or not a meter registers accurately the water which passes through the pipes to which the meter is attached. That method is by the insertion of a meter or meters which have already been tested and found accurate. This is exactly what the City did in the instant case. During the survey to which we have already alluded in order to determine the accuracy of the meters which were measuring water consumed through the various service meters, test meters were inserted on all lines which were supplying water to consumers.

During September and particularly on the days of the 14th, 15th and 16th a comparative test meter was installed in the service line of the Railroad Company. The Railroad had already been notified by letter that the test was to be made and representatives of the Railroad Company were present (pp. 86-87, 97-98). The test was made and the Prosecutor's representatives apparently were well satisfied (p. 129). Immediately thereafter the City submitted its claim for $50,933.93 (p. 42), and thus was the theory upon which the City bases its claim introduced.

The City at this particular time heard nothing from the Railroad and not having on itself any

duty (Chap. 152, Laws of 1917, Art. 32, Section 11) kept this meter under a constant observation until February, 1924, anticipating that perhaps further demonstration would be desired. The Railroad Company, during February, 1924, removed the 12″ Hersey Torrent meter and installed in its stead the exact and self same meter which the City through Mr. Mauzy had informed it was was the proper size and type for that kind of service. The removal of the old meter was made by the Railroad and since that time the meter has never been seen or heard of. The attention of the Court is at this time directed to the fact that there was no duty incumbent upon the City under the provisions of the Home Rule Act quoted above to keep this said meter in repair, nor to inform itself as to its then accuracy or inaccuracy. The City had made its test; had seen the type of meter which was installed in that line; had satisfied itself that that type of meter was not proper for the service on which it was used and that it was inaccurate, and since this water was delivered under contract it did not fall within the ordinary rules and regulations governing the distribution of water at that time.

It is the rule of law that upon the Appellee is the burden of establishing its contention, and until it has sustained this burden there should not be a verdict in his favor. Justice Parker has said in the case of *Dover* vs. *Richardson, etc., Co.,* 81 Law at page 281, in connection with a case which involves almost the same question in dispute:—it would not justify a nonsuit because unquestionably there was evidence that some water was taken, and that at least a nominal verdict was recoverable. The same learned Justice in the same case upon a point which involves a consumption of water due to the acts of a company's employ-

ees said—Under the ruling in the *Dierkes* v. *Hauxhurst Land Company,* 51 Vroom, 369, decided by the Court of Error and Appeals, the turning on of the water under the orders of these engineers and by these various employees might have been found by the jury under the evidence to have been so frequent, so habitual and extending over such a period of time as that the defendant corporation would actually in the ordinary course of affairs have become cognizant of it and have forbidden it.

In our case after a test which the representatives of the Railroad witnessed they must have been satisfied of the inaccuracy of the meter then in service because acting on the advice of municipal authorities they immediately removed it, and that too after having already paid a bill submitted to them because of the inaccuracy.

The appellants can go further than this and urge upon the Court that even the Company's witness, Coulter, admitted that the type of meter in question which had been installed by the Railroad was not the kind of meter suited for that sort of service (pp. 91-92). The City when it made its test used meters which were of the proper size and type to measure accurately the water being used in that kind of service. That this is so becomes readily apparent when we realize the Railroad Company itself installed the same kind and type of meter when the ineffective meter had been taken out of service (R. 5). This also militates against the argument of the Company that the City's test meters must have been out of order. The counsel for the appellee argued in effect below that over a forty-eight hour period the City's test meter was out of order, and yet in the self same brief it argues the fact that its own meter had never been tested and may or may not

have been out of order. On one hand we have the test meter tried and found accurate in the laboratory, and on the other hand we have a meter installed in 1908 about which and concerning which even the Company's own witnesses did not and could not know anything (pp. 47-74); they necessarily testified concerning the actions of a meter of a much later type and style (p. 134 and p. 77); they necessarily have to assume everything they said. If assumption is to be measured against fact, then fact must prevail. A type and style of meter recognized by the best practice to be that which is the proper one for the service to which it is to be put must also necessarily prevail against a type of meter entirely unsuited for the purpose for which it was used and in so far as the evidence discloses one that we do not know was good or bad from the time it left the factory.

Again, taking p. 53 the witness, Coulter, convicts himself of knowing nothing of this meter; his knowledge is confined to a meter of a later type and kind, a much improved model with which improvements he himself admitted a familiarity. Again, on p. 76, the witness, Coulter, testifies merely from "assurances that he had from the Manufacturing Company." In other words, the expert witness for the Railroad testifies merely from hearsay. On p. 78, the witness, Coulter, testifies as to "a guarantee" at the time at which this meter was sold. There is no guarantee in evidence, and if that were not sufficient, the prosecutor's witness, Ferguson, contradicts the prosecutor's witness, Coulter, as to any such guarantee.

Counsel below asserted that the City assumed that the meter in question was in good order in the sense that it would accurately register the larger flows. In no place can anyone find any such claim or assertion on the part of the City. The

City claims nothing in regard to this meter; it has no knowledge of its mechanical condition at the time of installation; and it was not until the tests, to which we have alluded, that the workings of this meter were brought forcibly to the attention of the City and a most careful scrutiny of the pages referred to by the Railroad will show this to be a fact. The Railroad nevertheless attempts to "prove" that this meter was out of order by referring, for instance, to p. 56, and what do we find? The witness, Coulter, makes a comparison of rates of flow, comparing the rate during the test period as against that shown on Exhibit P-1. We have already referred to Exhibit P-1 and found that its meaning is nothing. There are no rates of flow on the Exhibit P-1 and therefore, if the witness Coulter compares a test period with a non-existing thing, his conclusions must be nebulous. Again on p. 59 the witness, Coulter, finds something the matter with the meter. He never did know whether this particular meter could measure water accurately or not at the time it was manufactured, nor did he know of its condition at the time of its installation; he had conducted no tests on this particular meter, nor could he, because the Railroad Company had done away with this meter at the time this witness came into the case. Therefore, his conclusions go for naught.

Again, it was asserted below that the City has assumed that the meter was in good order "constantly * * * during the fourteen years' life of the meter." There is not a scintilla of evidence in this case to support any such assumption. The City did not claim and does not claim that the meter was in good order during its entire life. The City asserts and proves that its various tests showed that the meter did not register accurately

the amount of water passing through the service line, and whether this be due to improper installation or wrong type of meter, etc., does not concern the City, but the fact nevertheless remains that there was a forty-seven per cent. inaccuracy.

To refer again to p. 7 and consider the alleged assumptions, numbers 4, 5 and 6. As to number 4, the testing meters were not "assumed" to be accurate; they had been tried and tested according to the best practice of water works engineers; and insofar as any test could show, they were mechanically perfect beyond question. (5) neither does the City assume "that the water pressures and rates of flow were constantly uniform". (6) nor does it "assume" that no "debris or foreign matter clogged the pipes" (See R-6 and Mauzy, p. 113). The City has said nothing at all as to the rates of flow or water pressure, nor has it devoted one word to the matter of debris. What it did was to test this meter, and the test showed an inaccuracy of forty-seven per cent. When it had found this inaccuracy, it thereupon billed the Railroad Company.

The Railroad Company, again, trying to disprove that which it says the City has assumed, turns to p. 127. The witness was Mr. Mauzy. A careful reading of this testimony as given by this witness does not in any way bear out that for which the prosecutor contends. The witness said, and it is a fact, that this "type" of meter in good order should register accurately. Undoubtedly, that is the case, but it should be remembered that this witness has not said that this particular meter in or out of order should measure accurately; knowing nothing of its condition or mechanical fitness at the time of installation, how could the witness testify thus as to this particular meter.

The argument of counsel, below, did not resolve itself into any mathematical formula and it comes

with a peculiar effect from a prosecutor who is arguing against what it says are "assumptions", and it is based upon reasoning that he gives with a conditional. The Railroad Company says that *if* the meter registered slightly over 50% of the amount of water consumed during the test period that the inference is necessary that if it had registered little less than double the amount its record would be perfect. To that we give our full consent, limiting it however to the test period. It does not follow, however, that if the meter registered in excess of 47,000 cubic feet per day it was functioning 100% accurately prior to the test. The meter might have registered 90,000 cubic feet per day and still not be functioning properly nor registering the amount of water accurately, if the meter itself was not accurate, or if it was not the proper size and type of meter for that sort of service, a wrong registration of this quantity of water consumed could occur and the registration shown on the meter would mean nothing in so far as a measurement of quantity was concerned.

Summary.

We think at this juncture that we have demonstrated the unsoundness of the logic of the Railroad Company. In a word, its whole argument (see stipulation modifying exhibit P-1) is based upon the complete assumption that the 12″ Hersey Torrent Meter functioned accurately in 1908. The record in view of the stipulation is barren of any such proof. The testimony therefore of Ferguson and Coulter is nugatory, and has not in any way negatived the soundness of the City's position. This lack of evidence of the accuracy of the

meter when installed coupled with the fact of the repeated admissions of Coulter and Ferguson cited *supra,* that the meter was oversized and not fit for accurately measuring water passing through this size service line, further substantiates our argument that the City's claim has not been disturbed at all by the proof offered by the railroad. The rule of law places the burden of disproving the City's claim upon the Prosecutor of this Writ. We submit that burden still rests upon the Railroad's shoulders. The City's claim briefly rests on four cardinal points:

(a) A test made by a test meter which was accurate, which demonstrated the inaccuracy of the 12″ Hersey Torrent Meter under actual service conditions.

(b) Complete justification for pro-rating the demonstrated inaccuracy back to the date of the installation of this meter in 1908.

(c) An accurate computation of the City's claim.

(d) Strictly statutory procedure in the presentation and effort to collect the claim.

(a) The accuracy of the City's test meter is amply justified by the evidence of the City's witnesses and in no part of the prosecutor's proof is any attempt made to impeach its integrity. The only time any insinuation appears as to the credibility of this meter was in the appellee's brief, below, and not in its case. Talk and argument is far from proof. No success was attained by Counsel for the Railroad Company attempting to show by cross-examination or otherwise of the City's witnesses, that the 12″ Hersey Torrent Meter was not in fact 47% inaccurate. That it was inaccurate in this amount is completely established throughout the case, and is further for-

tified by the admission of the Railroad's witnesses, that they knew nothing about the accuracy of the particular meter in question, and that in all events the 12″ Hersey on this 8″ line was unsuitable and unquestionably led to inaccuracy.

The New York case which was cited above—134 N. Y. App. Div. 931, is authority for the proposition that the reading of an accurate meter may be made the basis of a charge for a period of inaccuracy. To seriously consider the Railroad's insinuation that the City's test meter may have become inaccurate during the test period, is too far fetched for serious consideration. Even the adverse witness Coulter testifies substantially that meters may be presumed accurate for a period of at least one year, since he stated that a test should be made at least once a year. If this is good practice, what does anyone think of a meter which was over-size for the service and never tested until 14 years in service had elapsed. If the integrity of the City's test meter is impeached, it would be difficult indeed for the municipality to collect on any inaccuracy, unless a new test meter was inserted daily or oftener. And following this a little further it could not count upon any fixed revenue if the consumer were to question the accuracy of any meter on any line.

(b) The City is justified in pro-rating the average inaccuracy on this meter, back to the date of its installation, because the meter was never proper for the service upon which it was used, since it was admittedly too large for accurate registration of small flows. Again the New York case just cited recognizes the impossibility of measuring water already drawn through an inaccurate meter and establishes the principle that the municipality might use the readings of an accurate meter for a subsequent period to arrive

at the average and proper charge for the entire period. Again our principle of adjustment was accepted by the Railroad when it pays for water used prior to the test period, in accordance with the inaccuracy established during the test period. It will be remembered that there was a further test lasting nine months, of which the Railroad had notice, at which its representatives attended —by reading the meter with City's man at stated intervals. During this interval the Railroad might have requested a check-up test on our test meter, or what is more to the point, it should have taken its own meter apart after this test period and prove to the City's satisfaction that its meter was out of order. If the meter had been taken apart and a vice in the mechanism discovered, or a broken part or wear and tear appeared, it would be an easy matter to judge how long the defect had existed, but the Railroad did none of these things. It was satisfied with the test and said so at the time. It should not now be heard when it attempts to depart from the position that it took at the time of the test, when there was opportunity for them to disprove the City's claim, but far from disproving it, representatives of the railroad admitted it (Case, pages 96-97, 98).

(c) That there has been an accurate computation of the claim is not disputed by the Railroad Company.

(d) The claim was billed to the Railroad Company and interest was charged beginning at a period thirty days after the actual billing, in accordance with the City's regulations governing the matter. Upon the Railroad's failure to pay, the amount was certified to the officer charged with the duty of collecting taxes, who entered same upon his books, and in strict compliance with the statute advertised the properties served by

the city water, for sale. The strict compliance with the statute which was not successfully assailed in either the case or the brief of counsel below defeats the contention of the appellee entirely. This Court on certiorari will not and cannot in our judgment, under the cases in this State go into the facts here under consideration.

It is respectfully submitted that the Writ be dismissed and that the judgment of the Supreme Court below be reversed.

THOMAS J. BROGAN,
Attorney for and of Counsel
with Respondents-Appellants.

Pandick Press, Inc., 22 Thames St., New York, U. S. A.
(2312)

118.

New Jersey Court of Errors and Appeals

LEHIGH VALLEY RAILROAD COMPANY, Prosecutor-Respondent, *vs.* THE MAYOR AND ALDERMEN of Jersey City, *et al.*, Defendants-Appellants.	ON APPEAL FROM SUPREME COURT.

BRIEF FOR PROSECUTOR-RESPONDENT.

This is an appeal from a judgment of the Supreme Court, on certiorari, setting aside an attempted sale of lands of the Railroad Company for arrears of water rents asserted by the City and the charges on the City's books upon which the claim for arrears is based.

The Facts.

On May 23rd, 1908 (p. 161), the City and Prosecutor entered into a contract for a supply by the City to the Johnston Avenue Terminal Yard of Prosecutor in Jersey City. Pursuant thereto Prosecutor installed a meter, the registration of which under the contract (p. 163) should *"form the basis upon which bills shall be rendered to and payment made by"* the Prosecutor, at a specified rate.

On the morning of September 14th, 1922, almost 14 ~~eight~~ years later (p. 15), the City began a test of this meter which lasted 48 hours, ending on the morning of September 16th (p. 15). This test indicated that the meter, during that 48 hour

period, registered but 53% of the water passing through it (p. 15). Thereupon, on the assumption that this defect had been constant during a prior period of more than four years (back to May, 1918), the Director of Streets and Public Improvements entered charges on the books of the City representing the difference between 100% and 53%, covering a period from May 23rd, 1918 to August 23rd, 1922 (four years and three months), and rendered a bill amounting to $50,930.93 of principal (p. 15).

Prosecutor refused to pay this bill (p. 5), although it did pay a bill which included the deficiency disclosed during the test period. On the refusal the Director of Streets and Public Improvements certified the $50,930.93 plus interest of $31,366.17 to the City Collector, as an arrearage of water rents, and the latter advertised the premises for sale (pp. 5, 7).

Upon publication of notice of the intention of the City to sell the property of the Railroad Company for such alleged arrearages of water rents, the Company applied to the Court of Chancery for an injunction to restrain the sale upon the ground that the monies claimed were not due and that the proceedings were otherwise irregular. The Court denied a preliminary injunction, because it conceived that there existed an adequate remedy at law by certiorari. Such refusal of relief was necessarily followed by an immediate application for a writ of certiorari which was allowed by Mr. Justice Black (p. 3).

The return (pp. 4 *et seq.*), certifies the test, the application of the same percentage of inaccuracy to the preceding period, the entries on the City's books, rendition of bill and refusal to pay. The reasons (pp. 9 *et seq.*) assigned for reversal are broad enough to include the points urged in the ensuing discussion.

After the filing of the return and reasons, and the taking of depositions under the rule had begun, the City, by stipulation (p. 158), enlarged its claim by including a still earlier period (December 16, 1908 to May 28, 1918) and increasing its demand $73,597.95, so that the record before the Court discloses a claim made by the City amounting to $124,438.88 of principal, plus interest amounting to $31,366.17, covering a period of 12 years and 8 months, *based on a test made in 1922 lasting but 48 hours.* This enlargement of the City's claim resulted from the discovery during the taking of depositions that the meter has been put in service in 1908 instead of 1918.

The judgment of the Supreme Court (Opinion at p. 18 of the Case), set aside the attempted sale and eradicated the charges on which it was founded on three grounds, which form the grounds of appeal, as follows:

1. A charge for water furnished by a municipality to an owner or occupant of lands is not a tax.
2. The charges on the books of the City were too inaccurate, uncertain and speculative to permit the enforcement of their payment.
3. There was no evidence before the Court which would permit a fixing and determination of the amount due from the Railroad Company.

Other reasons were advanced by the Company, which the Supreme Court deemed it unnecessary to consider. We advert to them hereafter, but for the purpose of the main argument, convenience, order and logical clarity will be served by following the arrangement of the decision and grounds of appeal in the following:

Discussion.

The decision of the Supreme Court should be affirmed because

1. **Charges for water rates are not taxes.**
2. **The charges here do not merit legal sanction, being inaccurate, uncertain and speculative.**
3. **The evidence is such that the Court is not intelligently apprised that any certain amount is due the City.**

I.

Charges for water rates are not taxes.

On this point we might content ourselves by inviting attention to

Jersey City vs. *Morris C. & B. Co.,* 41 N. J. L. 66;
Jersey City vs. *Harrison,* 71 N. J. L. 69; 72 N. J. L. 185;
Ford vs. *Kearny,* 91 N. J. L. 671;
Jersey City vs. *Jersey City & Bergen R. R. Co.,* 71 N. J. L. 367;
Bayonne vs. *Standard Oil Co.,* 81 N. J. L. 717;
Dover vs. *Richardson,* 81 N. J. L. 278;
21 L. R. A. 519;
12 A. L. R. 1123;
19 R. C. L. 764, Sec. 69;
27 R. C. L. 1434, Sec. 50;
27 R. C. L. 1436, Sec. 52;
R. C. L. Supp. 3, p. 1554;
R. C. L. Supp. 4, pp. 1288, 1796;

37 Cyc. 709, note 19 *tit Taxation;*
43 Corp. Jur., *tit Mun Corp.,* pp. 70, 183;
Dillon, *Mun Corp.* 5th, Ed.;
Cooley, *Taxation* Ed.

The earnestness with which the City argues to the contrary, however, evokes a courteous reaction toward discussion of the point.

In this day there can be no question that under the law a municipal corporation exercises dual functions; one governmental, as delegate of the sovereignty of the state, and the other proprietary, in providing for the individual benefit of its inhabitants. In the one case it represents (indeed is) the sovereign, who can do no wrong and is not amenable to the principles or doctrines of *Respondeat Superior* Estoppel, Limitations, etc., etc. In the other it is laden with all the legal burdens imposed on individuals and (so called) private corporations.

Thus for instance, a municipal corporation is exempt from liability for torts committed in the exercise of one class of functions, and in the other is held to strict accountability for wrongs arising out of exactly similar circumstances. This has been recognized in New Jersey in the following cases:

Bisbing vs. *Asbury Park,* 80 N. J. L. 416;
Karpenski vs. *South River,* 83 N. J. L. 149; 85 N. J. L. 208;
Olesiewicz vs. *Camden,* 100 N. J. L. 336.

This distinction needs not the development in municipal economics ascribed to it by some writers, in the enactment of laws permitting Commission Government, Home Rule, City Managers. Initiative and Referenda on Ordinances, etc. Under these acts powers have been liberated and increased, but liabilities have not been diminished,

nor characteristics altered. The sanctuary of sovereignty surrounding municipalities 200 years ago is still circumscribed, not enlarged nor broadened.

We suggest, with respect, that the contention of the City on this point arises from a confused mental state engendered by the provisions of the Home Rule Act of 1917 (Art. XXXII, Secs. 8, 11, 12, and the Tax Sale Revision Act of 1918 (p. 883, Secs. 4, 8, 17). These statutes subject lands supplied with water by a municipality to a lien similar to the lien imposed under the tax law, and to liability of sale for nonpayment.

But these enactments go no further than to give municipalities a preference in the *Method* of collecting a *Debt*. In the case of water supplied by a private Water Supply concern arrears of rates can be recovered only by suit. In the case of a municipal supply the City need not sue for arrears; it may seize and sell the land, as for an arrearage of taxes. But that fact does not change the character of the obligation. If the obligation is a debt and not a tax, the *Method* provided for its collection cannot alter its legal and inherent characteristic.

A tax is a levy, or cess: a charge for water is a debt.

> "The theory of taxation is that it is levied for public purposes; that it is an attribute essential to the exercise of government, without which it would be powerless to discharge its functions.
>
> It is the public use for it which marks it as a tax" (*Water Co.* vs. *Wade,* 59 N. J. L. 78, 81, quoting from *Baldwin* vs. *Fuller,* 39 N. J. L. 576).

Vreeland vs. *Jersey City,* 43 N. J. L. 135, affirmed 43 N. J. L. 638, expressly held (p. 136) that liability to pay water rents arises from contract, express or implied.

Van Giesen vs. *Bloomfield,* 47 N. J. L. 442, 447, is an instance of the distinction noted by the Supreme Court in the present case (p. 22) between the governmental function in *procuring* a supply, and the proprietary function of *distribution,* for a price. The one is public, the other is not.

Taylor vs. *Smith,* 50 N. J. L. 101, thus expresses the doctrine, at page 106:

> "Nothing has been better settled in this State than that the legislature has no authority to delegate the power of general taxation over persons or property, except to political divisions or corporations of the State, *and that for the sole purpose of enabling them to exercise the powers of government"* (italics ours).

There is nothing in the circumstance of a municipality delivering water to its inhabitants for a price based (as in this case) on the quantity delivered, which bears the most remote similarity to a tax, or which contains any of the attributes of a tax. It amounts to nothing more than a sale of personal property, subject to pertinent legal principles applicable thereto, *e. g.,* the Statute of Frauds, *Jersey City* vs. *Harrison,* 71 N. J. L. 69, 72 N. J. L. 185. As a matter of fact the supply in the case in hand arose out of an express contract (Exhibit P-9, p. 161). Both parties were bound by the provisions of this contract and not by any legal principles emanating from the law relating to taxation.

Taxes do not include water rates paid by private consumers for water actually used to a municipality which owns and operates a water works system, 37 Cyc. *tit. Taxation,* p. 709, note 19.

Wagner vs. *Rock Island,* 146 Ill. 139, 34 N. E. 545; 21 L. R. A. 519;

Preston vs. *Detroit,* 117 Mich. 589; 76 N. W. 92;
Jones vs. *Detroit,* 34 Mich. 273;
St. Louis Brewing Ass'n vs. *St. Louis,* 140 Mo. 419; 41 S. W. 911; 36 S. W. 525;
Silkman vs. *Yonkers,* 152 N. Y. 327; 46 N. E. 612; 37 L. R. A. 827;
Alter vs. *Cincinnati,* 56 Ohio St. 47; 46 N. E. 69; 35 L. R. A. 737.

In *Twitchell* vs. *Spokane,* 55 Wash. 86; 104 Pac. 150, 133 A. S. R. 1921; 24 L. R. A. (n. s.) 290, on a finding that water rates are not taxes, held that a municipality might fix rates which would return a profit to it which might be devoted to other public purposes.

Canavan vs. *Mechanicville,* 229 N. Y. 473, 13 A. L. R. 1123, 128 N. E. 882, expressly held that,

> "while the business of maintaining a municipal water system and supplying water to private consumers at a fixed compensation is public in its nature, and impressed with a public interest, it is not an exercise of governmental or police power; a municipal corporation in aggregating and supplying water for the extinguishment of fires, discharges a governmental function. In operating a waterworks system, distributing water for a price to its inhabitants, it acts in its private or proprietary capacity, *in which it is governed by the same rules that apply to a private corporation so acting*" (italics ours).

To the same effect is

Springfield &c. Co. vs. *Springfield,* 292 Ill. 236, 126 N. E. 739, 18 A. R. L. 929.

19 R. C. L. 764 Sec. 69; R. C. L. Supp. 4, 1288; 18 A. L. R. 929, 13:

> "It is almost universally conceded that the operation of a waterworks system, by which a supply of water is brought into a town and distributed by means of pipes to the residences and places of business of the inhabitants, is undertaken by a municipality in its private or proprietary capacity".

Citing

Omaha Water Co. vs. *Omaha,* 147 Fed. Rep., 77 C. C. A. 267, 8 Anno. Cas. 614; 12 L. R. A. (n. s.) 736;
Mount Hope Cemetery vs. *Boston,* 158 Mass. 509, 33 N. E. 695; 35 A. L. R. 515;
Huron Water Works vs. *Huron,* 7 S. D. 9, 62 N. W. 975, 50 A. S. R. 817; 38 L. R. A. 848.

27 R. C. L. 1434 Sec. 50.—R. C. L. Supp. 3, 1554; 5 A. L. R. 1123; 27 R. C. L. 1434 Sec. 72—R. C. L. Supp. 4, 1796; 13 A. L. R. 1123:

> "In supplying water for the use of the inhabitants for domestic and commercial purposes, a municipality is not in the exercise of a governmental power, but acts in the same capacity as a private corporation, although the business is carried on for the public advantage, and, being public in its nature, is impressed with a public use".

Citing

Wagner vs. *Rock Island,* 146 Ill. 139, 34 N. E. 545; 21 L. R. A. 519;
Eastern &c. School vs. *Charleston,* 271 Ill. 602, 111 N. E.; 573 L. R. A. 1916, D. 991.

27 R. C. L. 1436, Sec. 52:

> "Rents charged by a municipal corporation for water actually used by private con-

sumers are not in any just sense taxes so that persons against whom they are charged are entitled to notice and an opportunity to be heard before they are established; water rates are imposed and collected merely as the compensation or equivalent to be paid, by those who choose to receive and use the water, for the commodity thus furnished them by this City".

Citing

Wagner vs. *Rock Island, supra;*
Twitchell vs. *Spokane,* 55 Wash. 86, 104 Pac. 150; 133 A. S. R. 1021; 24 L. R. A. (n.s.) 290.

II.

The charges here are too inaccurate, uncertain and speculative to merit legal sanction.

In the first place, the theory on which the City bases its claim is unsound: secondly: the method pursued by it in building up the claim is saturated with inaccuracy and uncertainty: these two faults lead inevitably to the result that the conclusions reached are fallacious and purely speculative.

First, the City's theory is unsound. It is founded on the assumption that an inaccuracy discovered during a test lasting 48 hours must have existed *to the same degree* during a preceding period of fourteen years, the entire life of the meter.

That theory is this (pp. 42, 43):

Here is a meter designed or intended (as its name "Torrent" indicates) to measure accurately only large flows of water. When the rate of flow falls below 300 gallons a minute, the meter ceases to accurately measure the water passing through

it and a varying degree of accuracy in registration results, depending upon the extent to which the rate of flow falls or decreases below 300 gallons a minute. Having ascertained that upon two days in September, 1922, the meter registered only 53% of the water which passed through it, the same *fixed, constant rate* of consumption was assumed to have existed for the past four years (pp. 5, 42). Accordingly, by applying to the known consumption, as indicated by the registration of the meter appearing on the City's books, the constant factor of loss of 47%, the City arrived at what should have been 100% registration. In the first instance, the computation was made for the period of four years and three months, from August, 1922, back to May, 1918 (p. 42), which amounted to $50,930.93; and under the stipulation permitting the City to amend its claim, a second computation was made for the period of approximately 10 years from May, 1918, back to December, 1908 (p. 158), increasing the City's demand by seventy-three thousand and odd dollars.

The meter in question was tested by the City, not to ascertain whether or not it was in *good order,* but to substantiate the assumption that whatever loss in registration was ascertained during the test period could be related back to the date of installation of meter regardless of the period for which the meter had been in use. This assumption is erroneous, is not based upon the performance of the meter in fact, is overcome by the testimony of the Railroad Company's witnesses, and is practically conceded now by the City's experts (pp. 56, 59, 60, 114, 124, 126, 129).

The meter in question may be briefly described (pp. 46, 52) as a hard rubber wheel, revolving in a horizontal plane, on a vertical spindle, inside of a metal casing, through which the water passes in

such a manner as to cause the wheel to turn. The revolutions of the wheel are converted into a record of the volume of passing water by means of a train of gears and recording mechanism at the top of the wheel. The whole is called a current type water meter and is said to operate on the inferential principle (see Coulter, p. 52).

The prosecutor produced Robert E. Ferguson (pp. 46, 133) who has been connected with the manufacture of Hersey meters for over 20 years and whose familiarity with the operation of the type of meter in dispute is not questioned. Upon reading his testimony it will be seen that prior to 1908, and probably as early as 1904, the Hersey Company, sensing the need for a meter designed to meet the requirements of railroad use (standpipes, etc.), brought out the type in question (p. 136).

Prior to shipment from the factory to the Railroad Company, the particular meter was tested for accuracy in the shop of the Hersey Manufacturing Company on July 29, 1908, and gave the following accuracies for three different rates of flow:

Rate Per Minute	*Per Cent Registered by 12" Torrent Meter 3181410*
600	99.5
100	98.8
31	87.

(See Exhibit P-1 and testimony of Waldo S. Coulter.)

Exhibit P-1, which is the original card recording this test, states the size of the orifice used for each of the three different rates, the number of cubic feet registered by the meter, and the number of cubic feet of water actually passed through the meter by tank measurement. In meeting the criticism of the defendant that no pressure is

shown on Exhibit P-1, it is impossible to calculate the rate of flow through the orifices, and so impossible to determine the rate of flow through the meter, Ferguson at p. 142 points out that the tests were always conducted so that a certain rate of flow corresponded to a certain orifice size. Therefore, when a certain size orifice appears on a test card, the rate of flow that was used with that orifice is known in the Hersey shop having been the same in every test for an orifice of that size (p. 142):

> "Q. Your Exhibit P-1 does not disclose any rate of flow?
>
> A. It does by giving the size of the orifice through which the water was run.
>
> Q. There is no pressure?
>
> A. There is no pressure there: No, sir, the pressure we know and have always known and at various times we checked up, not by computing, but by stop-watch and floats; so we know the orifice is delivering these amounts."

The shop test of the particular meter made before shipment and recorded upon Exhibit P-1 demonstrates that upon flows as low as 100 gallons a minute, the meter registered accurately with a variation allowable in practice of 3% either side of 100%.

Exhibit P-2 which Ferguson produced is a graph or chart showing in a graphic way the manufacturer's minimum guarantee. In other words, while in the actual performance, the meter gives a higher degree of efficiency (pp. 48, 55, 83), registering accurately all flows down to 100 gallons a minute, the manufacturer limited his guarantee of accurate performance to approximately 300 gallons a minute. On the graph, the breaking point, where the horizontal line, running from right to left begins to curve downward, is between 300 and 320 gallons a minute rate of

flow. That guarantee harmonizes and conforms with the specifications later adopted by the American Water Works Association and the New England Water Works Association.

The validity of the shop test of July 29, 1908, of the meter in question being thus firmly established, it shows that the meter as sold to the prosecutor, *could* actually measure all rates of flow observed during the test upon which the defendant City bases its claim (see Exhibit P-3). The lowest rate of flow observed during that test was 126 gallons a minute at 12:30 P. M., September 15, 1922. The shop test (Exhibit P-1) shows that the meter, as sold, measured a rate of 126 gallons a minute with an accuracy in excess of 98.8%. (It is everywhere recognized and conceded that acceptable, practicable accuracy for a meter of this type is 97%—see Coulter, p. 53).

Through the aid of the witness Coulter, an engineer of many years' experience and standing, we think we have been able to demonstrate from an analysis of the meter readings taken during the 48-hour test in September, 1922, that the results which the City obtained during that test were due to the meter being out of order (pp. 56, 59). The water used by the Lehigh Valley Railroad Company during the test in question flowed, first, through the 12″ Torrent meter, and then through the testing apparatus (see Exhibit R-6). The rates of flow through the 12″ Torrent meter, and through the testing apparatus were thus the same and varied in the same manner during test. Simultaneous readings of the Torrent meter and the test meter were taken every 15 minutes throughout the test period of 48 hours, excepting one instance when a period of 60 minutes elapsed between the two readings. This is the test which is claimed by the defendant City to have shown that the company's meter registered

but 53.46% of the water measured by the test meter during the 48 hours, and it is upon this test that the claim of the defendant City is based. The results of the test are shown on Exhibit P-3, where the average rate of flow during each 15 minute period between the readings of the meters is expressed in gallons a minute.

All of the rates of flow observed during the test (see Exhibit P-3) were rates which a 12″ Torrent meter in good order should accurately measure, according to the shop test of July 29, 1908 (p. 144), yet, with rates as high as 470 gallons a minute, according to the City's test meter, there are dozens of cases where the Torrent meter apparently failed to register a single gallon (see Exhibits P-3 and P-6, pp. 145, 152).

Exhibit P-4 (p. 151) shows reported accuracies of the Torrent meter during the test upon which the defendant City's claim is based, selected from the meter readings taken when the rate of flow, according to the test meter, was about 425 gallons a minute. These accuracies vary all the way from 0 up to 93.9%. According to the shop test, this meter, if in good order, should have registered or measured 100% of all of these flows.

Exhibit P-5 (p. 151) shows some of the reported accuracies of the Torrent meter during the test of the defendant City when the rate of flow was about 600 gallons a minute. These reported accuracies vary all the way from 77.05% to 87.29%, likewise, the meter, if in good order, should have and would have registered and measured accurately all of the flows shown upon the Exhibit. Exhibits P-7 and P-8 show *graphically* the erratic and inconsistent accuracies reported for the Torrent meter during the test by the defendant.

Upon consulting P-3, it will be observed that from 8:30 A. M. to 8:45 A. M., September 16, 1922, the average rate of flow was 470 gallons a minute,

yet, the Torrent meter failed to register a single gallon during that 15 minute period. Mr. Mauzy, at page 126:

> "Q. Mr. Mauzy, I show you Exhibit P-3 and call your attention to the entry opposite 9:45 P. M. on September 14th, an average rate in gallons per minute between the 15 minute readings of 834 gallons and the registration by the Hersey of the flow measured by the test of only 3%. Would you say that this Hersey Torrent meter, or a Hersey Torrent meter of this type, in good order, would register only 3% of any such rate of flow?
>
> A. Well, that might be due to the manner in which the meter reading was taken; that is, the last indicates that the Hersey Torrent meter was in thousand cubic feet and the meter reader might not have read it close to the 100 feet. There was no intermediate reading taken between on the dials.
>
> Q. Assuming the validity and the truth of your certificate and your meter readings—and this is your report, is it not?
>
> A. Yes.
>
> Q. It is not the Company's, is it?
>
> A. No.
>
> Q. Assuming it to be true, which I have done, would you say that a Hersey Torrent meter of this type, in good order, would register only 3% of any such rate of flow as shown in this instance of 834 gallons?
>
> A. No, not if the reading was taken accurately."

Exhibit P-6 (p. 152), prepared from Exhibit P-3, shows that of 50 instances, when the rate was between 200 and 300 gallons a minute, the Torrent meter apparently failed to register a single gallon in 33 cases out of the 50. Yet, according to the shop test, the Torrent meter should have shown 99% accuracy for flows between 200 and 300 gallons a minute.

The shop test of the meter showed a higher degree of accuracy than that subsequently required

by the American Water Works Association, or subsequently guaranteed by the manufacturer as appears on the graph, Exhibit P-2. To show what a 12″ current type meter in good order should be able to do, if it did no more than conform to the requirements of the American Water Works Association, or did no more than live up to the guarantee of the manufacturer, a comparison is made in Exhibit P-3 between the accuracy of the Torrent meter during the City's test and the accuracy shown by P-2. This comparison shows three things:

1. The inaccuracy of the 12″ Torrent meter (assuming the test meter to have registered accurately) was so gross during the test that there is no escape from the conclusion that it was out of order if the test meter was correct.
2. If the Torrent meter had but developed the accuracies required by the Water Works Association for such meters, it would have measured 99.4% of all the water, or 96.4% if the allowable 3% be deducted.
3. If the Torrent meter had maintained the accuracy shown by the shop test of that meter on July 29, 1908, it would have measured upwards of 99% of all the water.

During the taking of the depositions to support this writ, it developed that the City had conducted three other tests of the meter in question (pp. 95, 98). One of those was in the month of August 1922, prior to the 48-hour test to which reference has been made, when only 500 cubic feet of water was passed through the test meter. It was conceded by the City's witness that that test was of no value (pp. 120, 122). The other two corroborate the claim of the Railroad Company that the results obtained by the 48-hour test of September

1922, cannot be relied upon as a standard or basis upon which a charge may be made for 14 years prior thereto. *These two other tests really demonstrate that the meter in question was out of order when the September test was made, and upon which test the claim of the defendant City is based.* The first of these other two tests was held on August 31, 1922, and the other from May 8, 1923 to February 23, 1924, or a period of nine months. The results obtained by the test of August 31, 1922, are shown on Exhibit R-2. This test was made prior, of course, to the 48-hour test and during it, other apparatus was used and the test was made under different conditions. The method which the defendant pursued was to close the valve on the outlet side of the Torrent meter so that no water whatever passed through it to the Railroad Company, and to a connection between the Torrent meter and its outlet valve a hose was attached leading to the test meter and on the outlet side of the test meter was a pipe with a control orifice. Water passed through the Torrent meter, thence through the hose, thence through the test meter, and was then discharged out upon the ground. For each different orifice described in Exhibit R-2 the flow was steady and as constant practically as it would be in a laboratory test. In other words, the City's test was of such a character as to exclude any condition of the Railroad Company's service from affecting the operation of the meter so that sudden demands for water, or sudden cessation in its use through the sudden opening or shutting of valves, or sudden sharp "pulls" on the line which might be said to occur during a day of service, were not present. The method that was adopted is described in Mauzy's testimony at p. 123.

This test showed that when the rate of flow was about 530 gallons a minute, the Torrent meter

registered 99% of the water passing through it; while with a rate of flow of about 468 gallons a minute, it failed to register a single gallon.

Here, then, on August 31, 1922, was made the equivalent of the shop test of the Torrent meter undertaken at Boston, July 29, 1908, and the two tests are directly comparable. Yet, whereas in 1908, flows of 468 gallons a minute were accurately measured; in 1922, the meter failed to measure a drop of water on such flows. The City's witness, Mauzy, was hard-pressed to explain the discrepancy in the performance of this meter under laboratory conditions which he produced in the field through the medium of the test conducted by him (p. 124).

"Q. This flow was as fixed and as constant practically as the laboratory test which you conducted on your Crest meter, was it not?

A. That is correct.

Q. In other words, you produced in the field conditions which prevailed in the laboratory?

A. That is right.

Q. Now right here, Mr. Mauzy, with rates of flow constant, unvarying, unfluctuating, and unaffected by any conditions in the line, and being approximately similar to the ideal conditions prevailing in the laboratory, you have a variation in this meter where on a rate of flow of 530 gallons a minute approximately, it registered 99%, and on a rate of flow of 468 gallons a minute, it did not register anything?

A. That is right.

Q. Was the meter out of order?

A. That I could not say, whether it was or was not.

Q. What is your best guess?

A. I could not state whether it was out of order or not.

Q. Give me your opinion.

A. I cannot give you an opinion—unless I take the meter apart.

Q. What do you think?

A. It might have been out of order and it might not.

Q. Don't you think it was?

A. That I could not state.

Q. Are you willing to say that a meter of this type registering under conditions paralleling or corresponding to the conditions of a laboratory test with rates of flow progressing through that meter, unaffected by fluctuations, constant and fixed and unvarying, showing such a violent change, would register 99% on 530 gallons a minute and nothing on 468 gallons a minute—are you willing to say that that meter was in good order?

A. If it had been in good order, according to the manufacturer's chart, it would have registered on the 2″ and 2½″ flows.

Q. According to your knowledge, as a meter-man, of this type of meter, if this meter had been in good order and not faulty, it should have registered all three flows shown on this chart, should it not?

A. Yes.

Q. So that it is not a violent assumption, is it, for me to say that when you conducted your test of August 31, 1922, and got the results with a fixed, constant flow of water that you did, that meter was out of order?

A. Perhaps it was out of order. . . .

Q. But certainly a meter of this type in good order should have registered approximately 100% of the water flowing through it under these conditions, and at the rates of flow that did not go through—that is so, is it not?

A. I would not say 100% but it would have registered something.

Q. How much?

A. It just depends upon the condition of the meter when it was new.

Q. Assuming it was a meter in good condition?

A. A perfect meter would have registered 100%.

Q. A perfect meter would have registered 100% on a flow of 468 gallons a minute?

A. Yes.

Q. That is right?

A. Yes.

Q. And it would have registered 100% on a flow of 530 gallons a minute?

A. Yes.''

The witness struggled as long as he could to ''get off the hook'' but finally had to admit that if the meter had been in good order, it would have registered 100% on both flows (see Mauzy's testimony, Case, p. 126).

The same witness concedes (pp. 113, 117) that no repairs were made to the meter between August 31, 1922, and September 14, 1922, when the City began the 48-hour test in question upon which the disputed amounts are predicated. Hence the conclusion would seem to be irresistible that if the meter were out of order on August 31st and no repairs were made to it in the interim, it must have been out of order when the City began its test of September 14, 1922. Likewise (p. 128) Mr. Mauzy conceded that no repairs had been made to the meter between September 16, 1922, and May 8, 1923, when the nine months' test began, and we insist that the meter must have been in the same condition of bad order when the nine months' test was commenced.

Hence we say that the results which the City obtained in the test of September, 1922, upon which it based a charge of some $124,000 against the prosecutor company were so obtained during a period when the meter in question was mechanically out of order. *No one can tell when that condition developed for the first time* (p. 126). It may have begun the day before the test of August 31st was instituted. The meter may have registered within its scope perfectly from the day of installation in 1908 down to the day before the test of August 31st when, for some cause, the pos-

sibility of which is present in turbine meters of this type, it may have gotten out of order.

The witness Mauzy, at p. 126, says:

> "Q. So that so far as you know, there is no human way of telling just when that meter got out of order—is that right?
> A. That is right."

The meter itself was junked and sold for scrap after the Railroad Company was ordered by the City to remove it from service (p. 126). Mr. Mauzy concedes (p. 125) that no one could possibly tell without an examination of the interior mechanism of the registering portion of the meter whether or not it was in good order, and if in poor condition, when that developed.

Some effort was made during the taking of depositions to discredit the shop test of the Torrent meter by attempting to show that it was made with steady and controlled rates of flow and that a similar degree of accuracy could not be obtained in a pipe line where the flows varied or fluctuated (p. 49). There is a departure from laboratory test accuracies when the rate of flow fluctuates suddenly and widely, but as tests made by Ferguson show these departures take the form of *over-registration* (pp. 133, 134), whereas the City endeavors to have it appear that the effect of changes in the rate is to cause the meter to *under-register*. This was taken as a possible basis for the claim that the accuracies of the meter in question during the period covered by the claim must have been substantially less than those developed during the shop test. However, the tests made by Ferguson show conclusively that if the rate of flow changes suddenly, widely and repeatedly at short intervals, a 12″ Torrent meter *registers more water than passes through it.* Mr. Ferguson's testimony on this point was not attacked on cross-

examination, the effort being limited to attempting to show that the meter used for the test was not exactly the same as the one in question in this case. Mr. Ferguson, however, showed there were changes in other devices and that such changes as there had been were simply in the casing, and whatever they were, their effect was to reduce the amount of *over-registration* (p. 134).

A second additional effect of variance in the rate of flow occurs when the rate falls so low that the meter cannot accurately measure it; that is, while the shop test showed that the meter could measure a rate of 600 gallons a minute with an accuracy of 99.8%, it could measure a rate of 31 gallons a minute with an accuracy of but 87%. If in service, the flow should fall at all times to 31 gallons a minute, therefore the accuracy of registration at that time would be but 87%.

The City endeavored to show that although the average rates during the 15 minute periods during the 48-hour test were as shown by P-3 (all of which are higher than the lowest flow the meter could accurately measure according to the shop test) there *might nevertheless have been* times during the 15 minute period when the rate of flow fell far below the average and was *under-registered.*

The witness Coulter, however, showed how the most extreme assumptions along this line, would fail to account for the observed inaccuracies of the meter. He testified that if it be assumed that during a 15 minute period, when the average rate of flow was 367 gallons a minute, the flow was 50 gallons a minute for 10 minutes during which no water was measured by the meter and a thousand gallons a minute for five minutes during which all the water was measured by the meter, the resulting accuracy for the 15 minute period would be

91% (pp. 67, 87). Even the most extreme variations of this character would, therefore, fail to in any way account for the inaccuracy claimed by the defendant City. For example, Exhibit P-3 shows that at 8:45 P. M., September 14, 1922, during the 48-hour test, a rate of flow of 378 gallons a minute *was not registered at all by the Torrent meter.* At 12:45 A. M., September 15, 1922, but 39.38% on a rate of 380 gallons a minute was registered by the Torrent and so on.

In any event, there is nothing whatever to show that any such variance of the rate took place during any of the 15 minute periods of the test. The test figures of the City were presented as correct and it cannot be permitted to go behind them with suspicions that they do not state the facts.

The witness Mauzy admitted (see case, p. 120) that no wide and sudden fluctuations could have taken place during the test because of the fact of the compounding valve used by Jersey City as a part of its testing apparatus.

> "Q. You understand, I believe, that a wheel without brake bars has a tendency to spin or over-register when the rate of flow changes suddenly?
>
> A. If the Crest meter was in the line without the compounding valve, this is liable to happen, but with the compounding valve, I do not believe that the Crest meter would spin with change in the rate of flow."

And again, at p. 119, he unequivocally admitted there were no changes in the rate of flow during the test by the defendant that would affect the meter.

> "Q. What is your opinion with respect to the sudden changes in the rate of flow existing in the Johnston Avenue main during the test. Would they be sufficient to cause a meter of the turbine or inferential type to register with appreciable inaccuracy?
>
> A. No, sir.
>
> Q. They would not?
>
> A. No, sir.
>
> Q. So that therefore the Hersey meter was not unsuitable to measure changes in the rates, was it?
>
> A. Not during the test period.
>
> Q. Not during the test period—of course, you have no other knowledge of conditions that prevailed there, have you?
>
> A. No, sir.
>
> Q. Your knowledge of the conditions that prevailed is derived from the results revealed by your test?
>
> A. That is right."

We submit, therefore, that there remained but one or possibly both of two explanations for the flow of the 12" Torrent meter to register accurately during the 48-hour test.

> First, the *test* meter registered inaccurately.
>
> Second, the Torrent meter was out of order during the test in question.

The City's records contain the contract, evidence of the installation of the meter in 1908 and the payment of bills monthly as rendered. No question had ever been raised by the City that the meter was not of the proper type, or that its construction was such that it was not designed to fully register flows below a certain minimum. Instead, for a period of fourteen years the parties assumed that the contract was being performed (pp. 116, 117).

At first blush, it would seem that in this proceeding, the burden is on the Prosecutor to *prove* that the City is wrong. But we submit that when it becomes apparent the claim was based upon pure assumption, then the burden was cast upon

the City to demonstrate at least that the assumption had a substantial basis of fact. What happened was that after the test, the City, knowing the type of meter under inspection and the work for which it was designed, concluded that over *any* given period it would register only 53% of the water passing through—that being the percentage of registration during the test period, entered the charges on the City's books, and proceeded to enforce a lien for arrears.

In this conclusion there were two assumptions both vital, and if untrue (as we have just demonstrated), fatal to the City's claim. In the first place, in the assumption that the meter was not designed to register accurately anything but large flows, the conclusion must have assumed that during the test period it *would* register large flows *accurately;* that is, that it was in good order to perform the work for which it was designed. Secondly, it must have assumed that this condition of good order constantly prevailed throughout the fourteen years covered by the charges.

Bayonne vs. *Standard Oil Co.,* 81 N. J. L. 717, was a suit by the City to recover water charges covering a period of two years and eight months, based upon tests covering seven and two months respectively. Defendant was taking water through twenty-three meters; the test consisted of the insertion of test meters in the City mains at distant points, deducting from the quantities registered on these meters the quantities taken by other consumers on the line, and charging the remainder to defendant. Plaintiff was non-suited at the trial and this was affirmed by the Court of Errors and Appeals on the following grounds, applicable here:

1. The City's books of account were not a record of sale and delivery of water, but of *conclusions* drawn by the water department, and such a record is *no* evidence of sale and delivery.

2. The proofs failed to show that one set of meters should be preferred to the defendant's meters, as to accuracy—no tests having been made of the latter during the disputed period.
3. Fraud will never be adjudged upon facts which are assumed, but not proved.
4. Expert opinion is valueless, and therefore inadmissible, unless it it rested upon proven or admitted facts, not assumptions of fact.
5. The fact that meters had not been repaired does not prove they were not in need of repair, particularly in the absence of proof of examination which showed them to be in apparent good order.

This case was followed by the Supreme Court in *Dover* vs. *Richardson,* 81 N. J. L. 278, in which the City sued *in tort* for unlawful diversion of a water supply. The defendant had sunk wells on the lands of its factory plant and also had an emergency connection with the City main. The allegation was that the water sued for was unlawfully abstracted from the City supply. The proof of this was evidence of two experts whose opinion testimony was rejected by the Supreme Court because it ignored the possibility of leaks and other factors, and was based on the assumption of perfect conditions during their test. The court held that while such testimony was proper as a link in a chain, yet standing alone it was worthless—"no evidence"—and the verdict being predicated thereon, was set saide.

At the time of the certification by the Water Department to the City Collector, the City's case in its entirety consisted merely in the book en-

tries—condemned in the Bayonne case—based upon the assumptions of the City's engineers—condemned in the Dover case—hence it was without any evidence or proof which would justify the certificate of arrears or the sale thereunder.

Secondly, the method pursued by the City in building up its claim was such as to lead to error, inaccuracy and uncertainty. In the first place the City's own meter by which the test was made was not reliable; and secondly, the test itself was insufficient and incomplete.

The So-Called Test Is Not Conclusive.

(a) *The testing meters were unreliable.*

The meter in dispute was a twelve inch meter known as the velocity or torrent type or Hersey Torrent Meter, Model T. The test was made by inserting in the line a compound meter consisting of six-inch Crest meter and one-inch Trident watch dog disc meter, operating in conjunction with a six-inch watch dog compounding valve. The larger Crest meter is of the turbine type, easily disarranged, resulting in a tendency to over-register (pp. 113, 114).

The main meter of the apparatus used to test the twelve-inch T. meter was a six-inch current type meter operated on the same principle as the Torrent meter (see Mauzy, p. 111). Many of the criticisms of the Torrent meter employed by the defendant City, therefore, apply with equal force to the City's own test meter. Mr. Mauzy's testimony establishes that the accuracy of the testing apparatus used by the City is open to question. The apparatus was tested at the Jersey City Laboratory before it was installed in Johnston Ave., Jersey City, to test the Torrent meter but

it was never tested afterwards. The apparatus was of a type which could develop serious inaccuracy and failure to test it upon the conclusion of the September, 1922, test, upon which the defendant's claim is based, suggests the doubt that it maintained its accuracy during the test run with the Torrent meter. The same apparatus was employed by the City for the test following the September test but it was never examined or again tested after its original installation in Johnston Ave. (see Mauzy, p. 113). Further, Mr. Mauzy admits that the six-inch current type meter used for testing the Torrent meter has two wheels or runners on a single vertical shaft each preceded by a cup shaped screen; that the theory of design and operation is such that the flow must be evenly divided between the two wheels if the apparatus is to measure water accurately; and that if one screen were to become clogged with foreign substance so completely that one wheel was blocked off and the water, as a result, flowed through one wheel, the test meter would register twice the amount of water actually passing through it. Hence, we say that the test of the twelve-inch Torrent meter was inconclusive and invalid, because the sustained accuracy of the test meter was not proved before the conclusion of the test.

(b) *The test was insufficient and incomplete.*

While the test on which the claim of the City is based lasted only forty-eight hours, it does not appear that the test meters were themselves tested for accuracy during or after the test (pp. 113, 114). Nor was the Prosecutor's meter tested before, during or after the test, to ascertain whether it performed its normal function accurately—that is, whether the larger flows which it was designed to accommodate were being fully registered (pp. 113, 117). Nor was any examination made of the

mechanism of the meter or of the condition of the pipe line feeding it, to ascertain deterioration due to wear and tear, or the possible presence of foreign matter in the pipe or meter, which would interfere with or prevent accurate registration. If either of these accidentals were present, the claim of the City fails because that would prove conclusively that the derangement was temporary in character, thereby overthrowing the theory that the inaccuracy had continued over a series of years coincident with the entire life of the meter.

Lastly, the conclusions drawn from the dual preliminary error necessarily were fallacious and speculative.

The Conclusions Drawn From the Test Are Fallacious.

The conclusions drawn by the City is that as the meter registered only 53% during the 48-hour test, it under-registered to that same degree during the preceding 14 years of its life.

The mere statement of this conclusion based on that premise should be enough to condemn it. Between the two there are too many assumptions opposed to common knowledge, some of them disproven in this case, and others unverified. A few of these assumptions are as follows:

1. That the meter in dispute would not register at all below a minimum flow per minute. Disproven (pp. 47, 53, 76, 78, 82).
2. That the meter in question was in good order, i. e., it would accurately register the larger flows. Disproven (pp. 56, 59, 124, 127, 129, 131).
3. That this good order condition constantly prevailed the 14 years' life of the meter. Doubtful and unverified.
4. That the testing meters were accurate. Doubtful and unverified.

5. That the water pressures and rates of flow were constantly uniform. Doubtful and unverified.
6. That during the test period and during the 14 years preceding, no debris or foreign matter clogged the pipes or mechanism of the meter. Doubtful and unverified.

Prior to the City's tests of the Torrent meter in question in August, 1922, it never made a test of that meter during the 14 years it had been in service. The City never cleaned the Torrent meter during all that time. Its sole attention to the meter consisted in making minor repairs to the registering mechanism at the top of the wheel *but never once was the interior mechanism inspected or repaired* (see Mauzy, p. 117). In failing to inspect, and if found necessary to repair or demand the replacement of that meter, it failed to conform to what is everywhere recognized among water works men as good practice (see Coulter, p. 56).

As a matter of fact, the table annexed to the letter transmitting the bill, page 29, shows that during the period from 1918 to March, 1921, the meter in question registered with approximate uniformity about double the quantities registered from March, 1921, down to and including the test.

This same approximation of larger quantities is carried through in the supplementary claim from December, 1908, to May, 1918.

This seems to us to be conclusive against the City. If, during the test period, the meter registered slightly over 50% of the amount consumed, it is fair to infer that if it had registered little less than double the amount, its record would be perfect. That is exactly what happened during all the period preceding March 23rd, 1921.

To put the matter in another way. If during the test period and for some time prior thereto the meter registered a consumption of 25,000 cubic feet per day and the consumption was in fact 47,000 cubic feet per day, the registration therefore would be but 53%. If prior to the test, however, for any considerable period the meter registered in excess of 47,000 cubic feet per day, the conclusion is irresistible that it was functioning 100%, Q. E. D.

III.

The evidence is such that the Court is not intelligently apprised that any certain amount is due.

> The finding of the Supreme Court (p. 24) is that, "there is no evidence before us of such character as will permit a fixing and determining of the amount, if any, due from the prosecutor."

The only evidence before the Court as to the amount claimed is that of the result of the 48 hours test and the application of that result to the preceding 14-year period. Upon this the entries in the City's books were made.

We submit as matter of law that before the City could legally enter the charges on its books, or before those entries could achieve legal sanction, there must have existed legal evidence of a competence and sufficiency to warrant a verdict by a jury in an action at law. The utmost effect that can be given to these entries under the Home Rule and Tax Sale Revision Acts is that of a verdict. But that of course would constitute the City arbiter in its own cause. The real situation is that the City by its attempted sale is seeking, by the exclusive remedy provided by those statutes, to enforce a claim which otherwise it could not establish except by action at law, as was attempted in the *Morris Canal, Ford, Standard Oil* and *Richardson* cases, *supra.*

The effect of these statutes is merely to change the situation of the parties, compelling the property owner to become the *actor* instead of the City—incidentally perhaps burdening the owner with an *onus* not proper to cast upon him.

Paragraph 11 of Article XXXII of the Home Rule Act of 1917 constitutes water rents a lien on real estate when the water is supplied by a municipality. Paragraph 12 requires that such charges, when in arrears for six months, be certified to the Collector of Taxes, upon which certification they become liens as for taxes, enforceable as such. Section 17 of the Tax Sale Revision (P. L. 1918, pp. 883, 886) requires the Collector to list such arrears as of July 1st, and (Section 18) to advertise the property for sale.

This is the method accorded to municipalities (in preference to private water companies) for the collection of moneys *claimed* to be due for water rents. But this preference in procedure does not carry with it any change in the Law of Evidence, exempting municipalities from the application of legal principles relating to contract obligations or debts arising therefrom. The writ in this case is directed not only to the attempted sale of the lands, but to the entries on the books of the Water Department and the certificate to the City Collector which resulted in the advertisement of sale.

Our insistment is that to warrant the imposition of a lien under the Home Rule Act, and the certificate to the City Collector there must have been due to the City (a) water rents, and (b) water rents overdue and in arrear. The only evidence as to either were the entries on the

City's books (condemned in the *Standard Oil* case), and the assumptions of the City Engineers (condemned in the *Richardson* case). And this was the sum and substance of the evidence before the Supreme Court.

The remaining point in the ground of appeal attacks the finding of the Supreme Court that "there is no evidence before us of such a character as will permit a fixing and determining of the amount, if any, due from the prosecutor." On this point respondent respectfully submits,

IV.

There is no evidence which warrants the finding of an amount certain to be due.

We do not hesitate to discuss the weight of the evidence on the merits, but in so doing we do not waive the point we now make, that this conclusion of the Supreme Court is a finding of fact which this court will not review on appeal. The cases on this point are so numerous as to render citation unnecessary.

We anticipate however, that the City will assume the burden of demonstrating that on the record there is evidence to sustain a finding (verdict) of some certain amount other than the amount claimed by it in the first instance. This is the position into which it is forced by this as-assignment of error (ground of appeal). The Supreme Court found (also as fact) that the amount claimed is not due; we hope we have demonstrated that this finding is correct.

If this be so the question is presented: If anything is due, how much is it? The City in its depositions and in its argument before the Supreme

Court contended for the amount entered on the books of the City, and no other, Respondent as the *actor,* could and was required to do nothing more than establish, *prima facie,* that those entries were arbitrary and unwarranted. True, in one or two instances, more satisfactory methods of test and more logical applications of the City's test, were suggested; conjectures based on such suggestions were presented, but they were avowedly nothing more than conjecture and not in any sense an admission of a certain amount due, because they were based on the correctness of the reports of the City's figures.

Having satisfactorily carried its burden, respondent was justified in resting its case, and having heard the case made by the City—a case which was merely a reiteration of the original claims and reasons therefor—was precluded by that circumstance from presenting rebuttal.

The entire effort of the City were directed to justifying the amount entered on the City's books at the time of the allowance of the writ. As the case developed the logic of its false premise drove the City into the egregious situation of increasing its claim by extending the original period covered by its fallacious assumptions, to cover the entire life of the disputed meter.

The Supreme Court properly held that no recovery could be had in an action at law on the theory advanced by the City. On the record before the Court, this theory being adhered to by the City, verdict for any amount could not be maintained—not even for nominal damages.

If the testimony before the Supreme Court had been presented at a trial before a jury at *nisi prius* there would necessarily have been a non suit or direction of a verdict for nominal damages; no other course could have been sustained, for the only proof of dereliction was confined to

the period of the 48-hour test, and the amount claimed for the period was paid.

All the other testimony in the case consisted of assumption *pro* and *con* based on that test, none of which, on either side, would justify a finding, or even approximation, of any amount due the City.

The reasons filed in the Supreme Court embraced matters of moment which the Court did not find itself called upon to consider. We, therefore, as to those matters, content ourselves with repetition of the argument below:

V.

The City is now estopped from asserting its claim.

The meter was installed in 1908 under the contract Exhibit P-9 (p. 161). It must have been approved by the City. At least the case is bare of any suggestion, that the City questioned either its accuracy or suitability (pp. 116, 117). Then for a period of 14 years readings were taken and bills rendered and paid monthly.

We insist that in making and performing the contract the City was acting in a *quasi* private character rather than performing a governmental function, and is bound as a private water company would be. True, under the Home Rule Act of 1917 (Article XXXII, Secs. 8, 11, 12) and the Tax Sale Revision Act of 1918 (p. 883, Secs. 4, 8, 17) municipalities are preferred to private water companies in that arrears of water rents are constituted municipal liens for which the property may be sold. But this preference extends only to the means of enforcing payment, and does not change the legal principles affecting the origin of the obligation to pay or the determination of the justice of the claim. The law still is, as to municipal corporations, that "the obligation to pay water rates will arise only upon a contract express or implied." *Jersey City* vs. *Morris Canal and Banking Co.*, 41 N. J. L. 66, 69.

We have here an express contract, performed on both sides for over fourteen years, without any question on either side—in fact, with the City in substantial control. Then out of a clear sky comes the claim that the City is entitled to more money than it received on its own demands every month. Those demands, because of the quantities of water represented, should have apprised the City as to whether or not this "large flow" meter was accommodating flows large enough to produce 100% registration.

Under such circumstances a private company would certainly be estopped from asserting a claim of the character now before the Court, except possibly on the ground of fraud. That feature is not even suggested here and of course will not be presumed. *Dover* vs. *Richardson,* 81 N. J. L. 278. In this situation the City is in no better position that a private concern would be.

Whatever may be said of the original claim to which this writ is directed, the City should certainly be estopped from asserting the later claim for an additional $73,507.95. The city made its test and as a result entered the original charge on its books, in September, 1922. Almost four years afterward, in 1926, it sought to enforce payment of this sum only, by sale of the lands of Prosecutor. After the writ, return and reasons were filed, and after the taking of affidavits had begun, it seeks to enlarge its original claim by almost 150%. The stipulation, of course, was without prejudice, and merely admits that the City makes the claim.

The City knew of the installation of the meter in 1908, pursuant to the contract of that year. Yet in 1922, with full knowledge of all the facts, it asserts a lien for the period beginning in 1918.

Suppose the Company had acquiesced in this original charge, and paid it. Would the City be heard thereafter to assert another claim on the same subject matter, extending ten years farther back?

At no time prior to the September test of 1922, during all the period covered by its claim representing the entire period for which the meter had been in service, did the City notify the Railroad Company or the Prosecutor that the Torrent meter in question was, for any reason, unsatisfactory or inadequate (pp. 116-117). The Railroad Company had no reason to believe that the Torrent meter was not adequate to meet all the conditions of service (see Mauzy, p. 117).

> "Q. Other than the minor repairs you have referred to, there were no repairs made in this meter for all of the 14 years of its use?
> A. No, sir.
> Q. So far as you know during the 14-year period of its use from 1908 to 1922, did Jersey City ever notify the Railroad Co. that the meter, because of its type or size, or for any other reason, was unsatisfactory or inadequate?
> A. I cannot find any record in the department where the City requested the meter be changed.
> Q. So far as those records or your knowledge go, the Railroad Company had no reason to believe that the meter was inadequate to meet any conditions of service?
> A. I believe that is correct.
> Q. During all the period of its use from 1908 down to 1922 when the test was made, Jersey City regularly billed the Company for water consumed through the meter, which bills were as regularly paid? A. Yes."

Accordingly, it will be seen that during all the period of its use from 1908 to 1922, when the tests were made by the defendant, Jersey City regularly billed Lehigh Valley Railroad Company for water taken through the Torrent meter in accordance with the readings it made on the dials of the meter, which bills were as regularly paid and payment accepted by Jersey City without protest.

V.

The claims for interest are unjustified and erroneous.

The items for interest are palpably erroneous. We submit that even correctly calculated, the items are unjustified.

The case is bare of any testimony showing how the interest charges were made up, or even which of the two amounts certified is correct. The Director of Streets and Public Improvements certifies (p. 5) that on April 7, 1926, the date his statement was filed with the City Collector, the amount due for principal was $50,930.93, that there was also due for interest, calculated to the date of sale (May 17, 1926) $31,366.17; total $82,297.10.

The City Collector certifies (p. 7) that the amounts certified to him were principal $50,930.93, interest $14,005.00, total $64,935.93. Yet he advertised the property for sale (p. 8) to make the original sum of $82,297.10. There is a palpable error in one or the other of these amounts. As stated in the beginning of this brief (p. 2) we are informed that part of the discrepancy arises from the inclusion of an interest item on a tax arrearage pending on appeal.

But assuming a correct figure to have been claimed, we insist that the circumstances of the

case bring it within that class where interest may not be awarded.

The general definition is that—

> Interest is the compensation allowed by law or fixed by the parties for the use or forbearance of money, *or as damages for its detention.*
>
> 33 C. J., 178.

Prosecutor falls, if at all, within the last clause of this definition.

> Ashurst *v.* Field, 26 N. J. Eq. 128, N. J. 315, and (*subnomine* Ashurst *v.* Potter) 29 N. J. Eq. 625, held 28 N. J. Eq. 315, 316, that one is not liable for interest before demand and refusal to pay, *"nor until he shall have reason to be satisfied that he ought to repay"* the principal.

In the present case the demand is based on the entry in the City's books. But this entry is not evidence of the debt. *Bayonne* v. *Standard Oil Co., supra.* Prosecutor was justified in withholding payment until "satisfactory evidence" was presented of the justice of the claim. That evidence, if it is such, was not uncovered until the taking of depositions in this suit. The exhaustive character of the evidence demonstrates in itself that even though the main claim of the City be established to the satisfaction of the Court, its character is such that prosecutor should not be penalized with the payment of interest as damages.

Furthermore, if interest is claimed as damages, as here, it will not be allowed "if the delay in the payment of the principal debt is the result of the neglect of the creditor to demand and enforce such payment" (33 C. J. 190).

If, in this case, a debt existed, it accrued beginning May, 1918 (or December, 1908), and

monthly thereafter. The laches and delay on the part of the City continued during all this period. If the contention of the City, first put forth in 1922, be well founded, the facts upon which it is founded were known or should have been known to the City long before the entry of the charge upon the books.

The principal here contended for was approved in *Jones* vs. *Haines,* 79 N. J. Eq. 110, 113.

We also invite attention to 33 C. J. 211, and the cases there cited, to the effect that where a claim is unliquidated interest is allowed "only after such demands shall have become merged in a judgment."

It should need no argument to demonstrate that the claim in suit here is unliquidated. The mere entry of the charge upon the books of the City did not render certain the amount due. It was necessary in addition to that for the City to establish by competent satisfactory evidence the quantity of water for which Prosecutor should pay at the rates specified in contract of 1908.

VI.

The City is bound by its contract to base charges on meter registration.

The water supply of Prosecutor was furnished under the contract of May 23rd, 1908 (p. 161) at a specified price; this contract contains the following clause:

> "It is further mutually agreed that a meter shall be placed at the end of the main herein required to be laid * * * and that the registration of such meter shall form the basis upon which bills shall be rendered to and payment made by the party of the second part."

This clause bound both the City and the Railroad Company. Under it no addition could be made by the City nor deduction claimed by the Railroad, to or from the figures indicated by the figures registered by the meter.

In *Healy* vs. *New York,* 90 App. Div., 170, 83 N. Y. Supp. 574, 85 N. Y. Supp. 750, and *Pabst* vs. *Oakley,* 115 N. Y. App. Div. 215, 100 N. Y. Supp. 794, the Appellate Division of the New York Supreme Court passed upon a similar provision of the New York City Charter of 1895, which read that when meters should be installed "the charge for water shall be determined only by the quantity of water used, *as shown by said meters.*"

In the case first above cited this charter provision was applied against the City, and in the second case against the owner, both holdings being on the ground that the meter registrations were binding.

> "It is manifest that if the meter were defective, it would be impossible to prove actually or approximately the amount of water used. The protection against defective or inaccurate meters must be found in discovery when they are out of order and requiring prompt, efficient supervision by the public authorities.
>
> It is well known that the amount of water that will pass through a faucet depends, not only in the size of the opening and the length of time the water is turned on, but upon the pressure as well.
>
> Opinions * * * are of little value and afford no basis upon which a court of equity may command that the record of the meter be corrected to show the use of only the same amount of water as was used during a prior or succeeding period, or otherwise."

In *Jersey City* vs. *Morris Canal and Banking Company,* 41 N. J. L. 66, 68, Mr. Justice Depue, speaking for the Supreme Court, *passim,* said:

> "The quantity of water used must undoubtedly be determined by the registry of the meter, and in the absence of satisfactory evidence that its measurement is erroneous, its conclusions must be accepted as the correct measurement of the quantity consumed."

The clause in the contract now before the Court differs not at all in its legal effect from the New York City Charter provision. In the case *sub judice* the contract obligations were voluntary; in the New York cases the obligations were imposed by the legislature and became part of all contracts for metered water. Although the methods differed, the legal obligations were the same.

We do not mean to be understood as urging that the meter readings are a finality under all circumstances. Erroneous registrations may occur through disorder in the mechanism of the meter, due to wear and tear, the presence of foreign matter, etc., etc. In such cases the inaccuracy may be ascertained and rectified. We do say that under the contract here, such irregularities must be limited to the period covered by the test or the other "satisfactory evidence" mentioned by Mr. Justice Depue, and not carried backward over another period in violation of the terms of the contract.

Suppose the Company had discovered, by a test lasting 48 hours, that the meter in question registered more than the quantity consumed; would it be permitted to recover on a claim alleging that the over-registration had been constant and continuous during the fourteen years prior to the test?

VII.

Prosecutor is not liable for charges incurred during Federal Control.

The stipulation (p. 16, par. 13) admits that on December 28th, 1917, the United States of America, under Acts of Congress and Presidential proclamation, took over, controlled and operated the property of Prosecutor until March 1st, 1920. That thereafter and on June 19th, 1922, an accounting and adjustment between the United States and Prosecutor was effected.

The legislation under which the Government assumed and maintained control are:—

(a) "An Act making Appropriation for the Support of the Army for the Fiscal Year Ending June 30th, 1917, and for other Purposes", approved August 29, 1916.

(b) Proclamation of the President under this Act dated December 26, 1917.

(c) "An Act to Provide for the Operation of Transportation Systems While Under Federal Control for the Just Compensation of Their Owners, and for Other Purposes", approved March 21, 1918, (40 Stat. at Large, Ph. 25, Sec. 1).

This legislation, as is well known, transferred to the United States the "possession, use, control and operation" of all the railroads of the country. Prosecutor's property was under Federal Control during the stipulated period. Under the statute last cited it is provided that all taxes assessed during that period shall be paid out of railroad earnings, to be deducted from the "just compensation" to be paid by the Government. This term is defined as "an annual sum not exceeding * * *

its average annual railway operating income" for the three years preceding June 30, 1917.

The Act further provides (Secs. 2, 3, 4) for an adjustment and determination of just compensation. This adjustment was concluded, as to Prosecutor, in June, 1922, three months prior to the original demand of the City. During the negotiations leading to the adjustment the moneys paid to the City by Prosecutor were considered accounted for, the Government released and *the Company thereby precluded from making any further claim.* After this adjustment was completed and Prosecutor foreclosed, the City presented this claim. No notice was given during the negotiations that such a claim was contemplated or might be presented.

During the Federal Control period the City collected $21,651.25. If this was 53% of the amount due, then the total bill would be $40,851.41, and Prosecutor would still owe $19,200.16 for a debt which it did not contract and of whose existence it never knew!

The Additional Claims by the City.

The writ issued to review (1) the action of the Director of Streets and Public Improvements in (a) entering the charges on the books of the City, (b) certifying those charges to the City Collector as arrears, and (2) the action of the Collector in advertising the property for sale.

The charges were entered September 20, 1922, and demand for payment made that day. They were certified to the Collector April 7, 1926, which date may be said to be that on which the City instituted its "action" to recover the amount claimed to be due.

The charges certified in the return cover the period May 23, 1918 to August 23, 1922 (p. 5), the earlier date being four years and four months prior to the entry on the Deparment books and almost eight years prior to the certification to the Collector.

After the return to the writ, and when the depositions had disclosed the age of the meter to have been ten years longer than the period fixed in the original charge, the City by stipulation (p. 158) enlarged its claim so as to include a charge of inaccuracy relating back to December 16, 1908, fourteen years and nine months prior to the entry of the original charges on the Department books, and seventeen years four months before the certification to the Collector.

To this additional claim there are two objections beside those already advanced herein to the main claim. First, estoppel and secondly, the Statute of Limitations. Neither of these objections are pleaded in the Reasons filed. Under the circumstances they could not be pleaded.

(a) *The City is estopped from making the claim.*

Waiving, for the purpose of this argument, the fact that this claim does not appear in the return, we submit that the City is estopped from making any claim beyond that certified to the Collector and advertised by him in his notice of sale.

By paragraph 11 of Article XXXII of the Home Rule Act of 1917, water rents are constituted a lien upon real estate. By paragraph 12 it is provided that when these rents are in arrears for six months, that fact shall be certified to the Collector of Taxes, whereupon the arrears become a tax lien, enforceable as such.

By Section 17 of the Tax Sale Revision (P. L. 1918, 883, 886) the Collector is required to make a

list as of July 1, which "shall be a *complete* statement of *all* municipal charges against such property" &c. Such a list was made in this case and advertised under Section 18 of the Tax Sale Revisions. That list and advertisement gave notice to all the world (including Prosecutor) that Prosecutor owed the City $50,930.93 with interest, and nothing more.

If Prosecutor had paid that sum before sale, or if the property had been sold, and bought in or redeemed by Prosecutor, it is certain that in the absence of fraud the City would have no standing to assert this claim thereafter. This situation is emphasized when it is considered that for a period of more than four years and a half after the entry of the $50,000. on the department books, Prosecutor and the City had been in negotiations looking toward a settlement, and that this was the only charge within the contemplation of both parties, not only during that entire period, but during the later period of nine months down to February, 1927, while the litigation was actually pending.

(b) *The Statute of Limitations is a bar.*

We realize the importance and the justice of the principle which renders the public (in its muicipalities) immune to the application of defences of laches, limitations and estoppel. But this immunity extends only to cases where the municipality is concerned in its sovereign, as distinguished from its proprietary, character.

In supplying water to its inhabitants a city is not performing a governmental function, but is acting as a vendor of water.

21 L. R. A. 519 and 21 R. C. L. 1434, Section 50;
12 A. L. R. 1123;
27 R. C. L. 1146, Section 52.

In *Jersey City* vs. *Morris Canal and Banking Co.* (41 N. J. L. 66, 68), Mr. Justice Depue, speaking for the Supreme Court in applying provisions of the Jersey City Charter, 1871, said that:

> "The obligation to pay water rates will arise only upon a contract express or implied. Such a contract will arise from the actual use of water by the party sought to be charged, and may be implied from the circumstances under which it was furnished, though used by others."

Further, at page 70, he said:

> "The city, if it can recover, must do so on the basis of a contract with the defendants. * * * express or implied."

In *Jersey City* vs. *Harrison,* 71 N. J. L. 69; 72 N. J. L. 185, it was held that a contract for a water supply between two municipalities was a contract for the sale of goods, wares and merchandise within the operations of the statute of frauds.

In *Ford Motor Co.* vs. *Kearny,* 91 N. J. L. 671, 672, 673, the Court of Appeals held that:

> "The sale to a consumer of water by measure at a fixed price per one thousand cubic feet, is obviously not a tax depending in amount in any way either upon the true value of the property * * * or upon any special benefit to that property.
>
> "The lien given by the statute therefore in case of water sold by measure, must derive its vitality from the sale itself, as such, that is, from contract."

In *Jersey City* vs. *Jersey City & Bergen R. R. Co.,* 71 N. J. L. 367, 368; also reported in 70 N. J. L. 360; 72 N. J. L. 383 and 78 N. J. L. 73, were all on demurrers to declarations. In the case in 71 N. J. L. the demurrer was filed by the City

to a plea of the statute of limitations and this demurrer was overruled on an express holding that such plea was a good defense under the contract there involved.

The whole matter is summed up by Judge Dillon in the Fifth Edition of his work on Municipal Corporations, as follows:

> "Upon consideration, it will perhaps appear that the following view is correct: Municipal corporations, as we have seen, are regarded as having, in some respects, a double character—one public and the other (by way of distinction) private. As respects property not held for public use, or upon public trusts, and as respects contracts and rights of a private nature, there is no reason why such corporations should not fall within limitation statutes, and be affected by them unless excluded from them."

The provision of the statute of limitations is so tied up by the circumstances of this case with the principles of estoppel and latches that there is no escape from its application. We have an express contract, a performance thereof by both parties for a period of fourteen years, charges made and bills rendered during that period by the contracting party which had the entire control of the subject matter. The Prosecutor had a right to assume that its payment of the bills rendered fully discharged its money obligations under the contract. No fraud is involved or even insinuated and of course it will not be presumed.

Still another claim injected into the case after the testimony was closed and having not the slightest connection nor analogy to the claim which formed the basis of the entries in the books, is found in the stipulation at page 165.

It appears that Prosecutor also took water through a meter in a neighboring locality for the

supply of a different area. This meter was installed after 1908. The water furnished through this meter was billed by the City from 1913 to 1926 inclusive at the rate of 75 cents per thousand cubic feet. The City claims that the water furnished through this meter was not included in the contract of 1908, and the quantities consumed should have been billed at the rate of 90 cents per one thousand cubic feet, the rate then prevailing in Jersey City to ordinary consumers.

In denial of this claim it is sufficient to point out that the amount of the claim, $9,577.13, was never entered on the books of the City, was not included in the advertisement of sale, was not contemplated by the writ, was not included in the return, and is predicated upon an entirely different state of facts.

In addition to this, we urge the question of estoppel and statute of limitations as above.

The charges upon this meter also in part are within the period of Federal control.

There is nothing in the case to indicate that the rates claimed by the City were the rates in force during the period of the claim. We believe that for a portion of the time at least the Prosecutor was entitled to the 75 cent rate.

The judgment of the Supreme Court should be affirmed.

JOHN MILTON,
Solicitor for and of Counsel with
Prosecutor-Respondent.