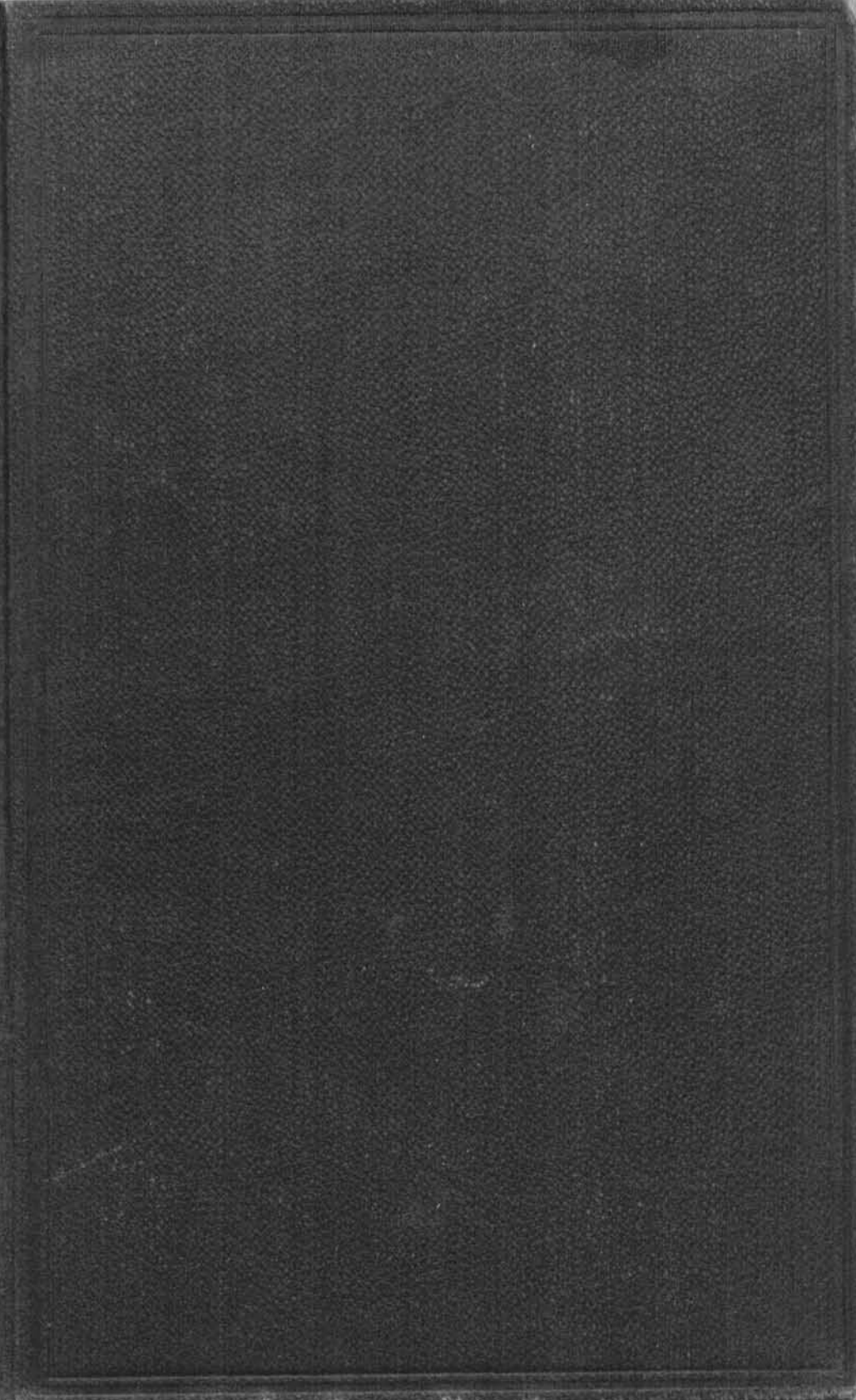






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FOURTH ANNUAL REPORT

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OF THE

BUREAU OF STATISTICS

OF

Labor and Industries

OF

NEW JERSEY,

FOR THE YEAR ENDING OCTOBER, 31st,

1881.

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NEW YORK

FOR THE YEAR ENDING 1901

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STATE OF NEW JERSEY, OFFICE OF BUREAU OF
STATISTICS OF LABOR AND INDUSTRIES, }
TRENTON, October 31st, 1881. }

To His Excellency, George C. Ludlow, Governor :

SIR—I have the honor to submit to the Senate and General Assembly, through you, the Fourth Annual Report of the Bureau of Statistics of Labor and Industries.

JAMES BISHOP,
Chief.

INTRODUCTION.

An examination of our Fourth Annual Report will show the gratifying fact that the wage-workers of the State have taken more interest in the work of the Bureau than ever before, and have answered more intelligently the questions asked in the blanks with which they were furnished. In the distribution of these blanks to the different parties, our object was not so much to obtain a large number of returns as to have accurate and intelligent replies by a few men representing the average workmen in the different occupations reported. Consequently our tables of "statistics derived from laborers," although based on returns made by only seven hundred and ninety-eight individuals, represent the average earnings, production and general condition of over *eleven thousand workmen*. We took a wider range than formerly in the questions propounded, care being taken to ascertain, as far as possible, the *quantity produced* as well as the wages received, with a view to the collection of data with which to reach a more accurate estimate of the comparative cost of labor and manufacture in the various industries in this State, as well as the relative value of labor in this and other countries.

The great strides of invention in recent times having made possible, to a great extent, the application of labor-saving machines in production, whereby radical changes in the relative condition of labor and capital has been brought about, especially in the manner of payment for work done; and it is only by the closest study of well-collected statistics that one can form an intelligent judgment of the progress we are making in the advancement of the happiness of the human family. Many of the most necessary articles of use in the economy of life, formerly made only with great skill, are now produced by machinery, which only requires overlooking by persons of comparatively little intelligence.

This substitution of machinery and steam power for muscle and skill, and the consequent great subdivision of labor, has been carried

so far that, with the exception of the foreman and those possessed of a high degree of experience and technical knowledge, the individual workman, as such, has almost ceased to exist. Piece-work is being largely substituted for time-payments, the work either being executed by one person contracting the job and furnishing his own helpers, or, as is more commonly the case, a team is formed, the several parts of the piece of work to be produced being paid for in proportion to the skill necessary in its completion.

So great are the changes wrought in labor by the potent agencies referred to, that, unless our wage-workers can be provided with schools for technical education, and be induced to take advantage of opportunities, thus offered, to become skilled mechanics, they will continue to share less and less the benefits conferred by these outgrowths of our civilization. It is painfully evident everywhere that labor has not received its proportion of these advantages, and under the present wage-system the time is far distant when it will obtain its proper share of our increased wealth.

Our public school system is educating the masses, who are acquiring new wants or desires for new comforts, which will require an increased income to supply. The inquiry on every side by wage-workers is, How can our condition be improved? This question is now commanding the attention of statesmen and philanthropists. Our work is to inquire into the condition of both labor and capital, and to report existing facts.

With regard to labor, our tables, derived from laborers themselves, among other things show that the total annual earnings of the skilled trades, so called, average \$607 to each person, while those of the workmen outside of the skilled trades, or of common laborers, are but \$374.55. Though this average may be changed as to some individual firms, who pay higher wages than others, yet, as a general average, these figures will be found nearly correct.

The officials of the United States Census Bureau, Washington, D. C., having kindly furnished us the statistics of the wealth and industry of the State compiled from the original returns of the tenth census (1880), we deemed it expedient to attempt to collect for our present report additional information only in respect to certain specific State industries, viz.: Silk, hats, pottery, brick, glass and clay. This may be found in Part IV. In Part V. are contained the tables of the census statistics, including the returns of population, productions

of agriculture and of manufactures for New Jersey. As the Census Bureau, for reasons stated in note on page 178, did not furnish the statistics of a few industries, including those of cotton (except for the city of Newark), print works, gas, glass and breweries, we have supplied the deficiency with our own estimates, with which we find the summary for the State at large to be: Total number of establishments, 6,984; capital invested, \$108,540,301; greatest number of employes, 142,240; average number of employes, 120,658, including 82,809 men, 26,231 women and 11,618 children.

A further examination of these tables shows that in 47 industries the value of the annual products turned out in each is over \$1,000,000. In 27 it amounts to over \$2,000,000 for each.

The following table has been compiled by us from the data furnished by the Census Bureau, and from it the condition of 26 of our largest industries (in 1880) may be seen at a glance, the first line giving the summary for all the industries (not including our estimates). The table shows the number of establishments; the greatest number of hands employed; the average number; the total amount of wages paid; the average wages for each employe; the total capital invested; the value of manufactures; the per cent. of the same (*i. e.*, how many dollars out of every \$100 in products) paid to labor; the net value of products after deducting cost of labor and material, and the return for or apparent (per cent.) profit on the capital invested. Of course, no calculation is here made for depreciation, wear and tear of machinery, insurance, tax and other incidental expenses which must come out of the apparent net profit of capital, and which vary in the different industries.

SELECTED INDUSTRIES.

	Number of establishments.	Greatest number of hands employed.	AVERAGE NUMBER OF HANDS EMPLOYED.				Total wages paid.	Average annual wages.	Capital invested.	Value of products.	Per cent. of products paid to labor.	Net value of products, less cost of material and labor.*	Apparent per cent. profit on capital.
			Total.	Men.	Women.	Children.							
The State.....	6,884	134,852	113,616	78,832	24,457	10,327	\$41,456,666	\$386 71	\$93,614,301	\$237,199,243	17.1	\$39,146,254	41.81
Sugar and molasses, refined.....	4	847	697	692	.....	5	476,216	683 30	2,110,000	22,841,258	2.1	1,570,081	74.41
Meat packing.....	33	759	599	587	.....	12	381,178	636 35	1,800,200	20,781,390	1.8	997,027	55.38
Silk and silk goods.....	106	13,931	12,549	4,696	5,360	2,493	4,177,745	332 91	6,952,325	17,122,230	24.4	3,252,349	46.78
Iron and steel.....	40	4,792	4,792	4,711	.....	81	1,808,448	377 15	9,099,050	10,341,886	17.5	1,977,165	21.72
Gold & silver, reduced & refined	6	343	323	320	.....	3	165,350	512 00	211,800	8,794,600	2.0	123,364	58.24
Leather, curried.....	56	1,470	1,388	1,283	27	78	762,697	549 50	1,983,746	8,727,128	8.7	876,161	44.10
Flouring & grist mill products.	481	1,168	898	892	.....	6	302,981	337 40	3,947,841	8,686,164	3.0	1,037,382	26.27
Machinery.....	136	6,844	6,004	5,670	98	236	2,554,809	425 50	4,829,750	7,454,045	35.0	1,278,399	26.46
Leather, tanned.....	55	1,397	1,299	1,226	4	69	716,499	551 60	1,810,250	6,748,094	10.6	768,848	42.47
Hats and caps.....	79	6,803	5,567	4,094	1,271	202	2,113,581	379 66	1,343,900	6,152,447	34.0	1,935,784	144.04
Boots and shoes.....	402	5,074	4,264	3,118	989	157	1,523,989	337 40	1,170,815	5,630,247	28.0	807,706	69.07
Tobacco, chewing, snuff, &c.....	6	3,627	3,165	3,990	1,994	181	923,350	291 70	1,293,000	5,063,949	18.0	687,650	53.10
Woolen goods.....	30	3,374	3,374	1,838	997	539	996,484	295 34	2,531,125	4,989,507	20.0	825,668	32.62
Clothing, men's.....	187	4,408	3,242	1,193	1,975	74	989,716	305 28	1,098,709	4,741,175	20.9	880,930	80.18
Drugs and chemicals.....	40	1,256	1,191	1,135	27	29	557,991	458 50	3,629,250	4,694,425	12.0	858,388	23.65
Sewing machines & attachments	8	3,314	3,311	2,836	75	400	1,519,947	439 05	1,152,755	4,640,852	35.0	1,636,003	141.05
Jewelry.....	69	2,602	2,238	1,785	254	189	1,116,446	498 85	2,557,399	4,084,677	27.0	1,000,177	38.77
Carpentry.....	320	4,480	2,701	2,660	6	35	1,241,686	495 71	780,865	4,028,361	30.0	693,485	88.08
Iron castings and finishing.....	51	1,923	1,692	1,585	4	103	719,439	425 20	1,928,471	3,222,288	22.0	373,322	19.30
Bread, crackers, &c.....	329	1,077	891	751	45	95	384,648	431 71	737,400	2,797,681	14.0	602,309	81.68
Stone and earthenware.....	49	3,320	3,190	2,054	458	678	1,101,505	345 30	2,057,300	2,598,757	42.3	466,654	22.41
Trunks and valises.....	15	1,860	1,723	1,313	160	250	650,822	377 73	991,800	2,453,923	26.1	453,246	45.70
Fertilizers.....	18	937	821	760	40	21	335,545	408 70	1,039,000	2,416,055	14.0	228,610	22.00
Boots and shoes (rubber).....	3	1,058	999	546	438	15	275,997	276 27	600,000	2,366,465	11.7	670,619	111.07
Shirts.....	35	4,392	3,137	443	2,480	214	688,086	219 34	519,800	2,206,069	31.2	246,654	47.45
Cotton goods (Newark).....	3	1,354	1,354	305	894	155	433,955	320 50	1,314,000	1,598,397	27.1	618,980	47.10

* Obtained by adding cost of materials, given in the census tables, to total amount paid in wages, and subtracting the sum from the value of the products.

CO-OPERATION.

The Legislature of this State, at the session of 1881, passed an act entitled "An act to encourage the organization and regulate co-operative associations of workmen," approved March 23d, 1881, (see chapter CXXXIX. of Session Laws, 1881, page 163.) The act permits seven or more persons to organize a productive or distributive co-operative association by signing articles of association, approved by the Chief of the Bureau of the Statistics of Labor and Industries, and recorded "in the office for the recording of deeds in the county where such association is established and incorporated." The members of the association (or shareholders in such corporation) and those who afterwards become such, are not individually "liable for any debt of such association," except to the amount of unpaid stock. The amount of capital stock may be small or large (not to exceed \$1,000,000), and "shall be divided into shares the par value of which shall not be more than \$50." No shareholder "shall be entitled to more than one vote," and there "shall be such distribution of the profits or earnings of such association, among the workmen, purchasers and stockholders, as shall be prescribed in the articles of association, as often at least as once in twelve months."

Under this act there have been organized, during the year, distributive co-operative associations, "grocery stores," at Newark, New Brunswick and Bloomfield. The reports from them show that all are in a flourishing condition, and at no distant period will prove a great benefit to those workmen, whether members of the association or not, who trade there.

There have been as yet no productive co-operative associations organized under the law in question, but we earnestly hope and expect that this will soon be done; and we will be very much disappointed if, in every city, town and village in the State, there is not in full operation, within the next few years, at least one good distributive co-operative association. Workmen and others who are desirous of making an attempt at such organizations, will receive all the aid and encouragement possible from this Bureau, which will furnish advice and drafts of charters or articles of association.

We shall have advanced many steps towards solution of the "labor problems" of the day, when the principle of co-operation is under-

stood and appreciated generally. It will prove to be the best answer to the question, how to increase the material happiness of our social organization, by removing the antagonism of the present social relation between capital and labor; for this is not to be accomplished simply by the reduction of the hours of labor or an increase of wages. The inevitable tendency of modern civilization is towards co-operation, of which our insurance methods, building and loan associations and joint stock companies are imperfect examples. But what is now understood by the name of "co-operation," is a far more developed system and must not be confounded with that which obtains in the ordinary joint stock associations. While the capital is accumulated in a similar way, by the sale of shares of stock, the method of division of profits is essentially different. Joint stock companies are controlled in their management by those holding a majority of stock, and all profits are divided among the shareholders in proportion to the amount of capital respectively invested. In co-operative associations, on the other hand, the invested capital receives only a certain fixed per cent. of the profits. A portion of the net profits is then devoted to the establishment of sinking (reserve) and educational funds, after which the balance is distributed among the members, who, in "productive" associations, are also the workmen, in proportion to capital invested and wages earned. In "distributive" associations, the purchasers, according to the sales made to them, also receive a share of the profits. In a word, in joint stock companies all the net profits go to capital, while in co-operative associations the workmen and consumers also share them. In "productive" co-operative associations the workman is both producer and capitalist or manufacturer; in "distributive" ("consuming") associations, the purchaser or consumer is practically his own merchant or shop-keeper.

Co-operation in this, its more limited sense, is a sudden though strong outgrowth of modern times and conditions, and has proved the surest way of improving the condition of wage-workers who have undertaken it. The few poor flannel weavers of Rochdale, Eng., as is well known, were the first who succeeded in answering the question—why, if workmen can combine successfully for a strike, should they not also co-operate for the purpose of supplying each other with good and cheap food and clothing, and dividing among themselves the profits which would otherwise be distributed among manufacturers and shop-keepers?

The success of the Rochdale institution soon caused many other similar associations to spring up in England, so that at the close of 1880, only 36 years after the first small beginning, there existed over 2,000 of these societies, distributive and productive, in Great Britain. The returns from 952 associations showed that the number of members belonging to them was 552,311; their total capital amounted to \$35,000,000, while during the year over \$105,000,000 worth of goods were sold, from which a profit of over \$9,000,000 was realized. The total assets, at the close of 1880, were valued at \$27,000,000.

But England is not the only country where co-operation has been carried out successfully. Eminent men in France, Belgium, Germany, Austria and Italy, inspired by the example of England, have undertaken to promote this system of social reform in those countries, and gratifying results have rewarded their efforts in this direction.

In this country, as yet, little has been done in the way of co-operation among workmen, who, in this respect, are far behind their brethren in Europe. But there has already been a beginning, and we are sure that in another year great advances will have been made, which we shall have pleasure in reporting. At present we shall only refer to two successful associations. The "Philadelphia Industrial Co-operative Society. Limited," was incorporated in 1875, and its seventh annual report shows that the sales for the year amounted to \$132,490.92, the gross profits from the stores having been \$8,882.95. "The Raritan Woolen Mills Co-operative Association" was organized at Raritan, N. J., under the general corporation law, by those engaged at the woolen mills at that place. This is also a distributive association, (*i. e.*, a store,) which began with a capital of \$2,810, since increased to over \$9,670. The sales for the year ending October 8th, 1880, amounted to \$95,821.39, and for the six months ending April 8th, 1881, to \$54,590.45, or \$9,095.07 per month. There has been paid on the capital stock ten per cent., while those who have traded at the store have received from five to six per cent. upon the amount of purchases.

The following is the act, referred to above, as amended by the Legislature at the session of 1882:

AN ACT to encourage the organization and regulate co-operative associations of workmen.

1. BE IT ENACTED *by the Senate and General Assembly of the State of New Jersey*, That seven or more persons, of lawful age, resident within this State, who shall hereafter associate themselves together by articles of association, in writing, for the purpose of carrying on any lawful mechanical, mining, manufacturing or trading business, or for the purpose of trading and dealing in goods, wares, merchandise or chattels, or for the purpose of buying, selling, holding, leasing, or improving lands or tenements within this State, may become a corporation under a name indicating their corporate character assumed in their articles of association, not previously adopted by any other corporation, upon their compliance with the provisions of this act.

2. *And be it enacted*, That the articles of association shall designate and set forth:

I. The name assumed to designate such association, the place or places in this State where the business of such association is to be conducted, and the objects for which the association shall be formed;

II. The total amount of capital stock of such association, the number of shares into which the same is divided, the par value of each share, the manner in which installments on such shares shall be paid, and the amount actually paid in cash on account of the same;

III. The terms of admission of members;

IV. The mode of electing the directors and other officers of the association, and their respective powers and duties;

V. How meetings shall be called, the right of voting at the same, and of making and altering the by-laws and articles of association;

VI. Whether the shares, or any number of them, shall be transferable, and in case it be determined that the same shall be transferable, provision for their transfer and registration, and for the consent of the board of directors to the transfer; and in case it be determined that the shares shall not be transferable, provision for paying to members the balance due to them on withdrawal from the association, or for paying nominees in cases hereinafter mentioned;

VII. How members may withdraw from the association;

VIII. Whether, and by what authority, any part of the capital may be invested in or on security of another association through which its products are disposed of or its supplies secured;

IX. Provision that all transactions shall be for cash, and that credit shall neither be given nor taken;

X. Provision for the audit of accounts;

XI. Mode of application of net profits, after interest at the rate of six per centum per annum shall have been paid on the sums invested as capital, and a sufficient sum shall have been appropriated for a contingent or sinking fund, which said profits shall be distributed in productive associations between the stockholders and workmen, and in distributive associations between the stockholders, workmen and purchasers; *provided*, that before the said net profits be thus distributed, a sum equal to one or more per centum of the same may be appropriated for an educational fund;

XII. Provision for the custody, use and device of the seal, which shall bear the incorporated name of the association.

3. *And be it enacted*, That the said articles of association shall be signed by the persons originally associating themselves together, and shall be acknowledged by at

least seven of them, before a commissioner, or other officer qualified to take the acknowledgment of deeds, and when so signed and acknowledged, the same, together with a copy thereof, shall be forwarded to the Chief of the Bureau of Statistics of Labor and Industries, who shall examine the same, and if the same shall be found to be in accordance with the provisions of this act, he shall endorse or certify his approval thereon, and shall return the same to the persons so associating themselves, and shall place on file in his office the said copy of the said articles of association; the same shall be recorded in the office for the recording of deeds in the county where such association is established and incorporated, and be subject to the provisions and entitled to the privileges of this act.

4. *And be it enacted*, That such association may take, hold and convey such real and personal estate as is necessary for the purpose of its organization, and may sue and be sued in its corporate name.

5. *And be it enacted*, That the business of every such association shall be managed and conducted by a board of not less than five directors, who shall respectively be stockholders therein, and shall be elected annually, at such time and place as shall be provided in the by-laws, and the persons receiving the majority of the votes cast shall be such directors; and one of such directors shall be chosen president and one of them shall be chosen treasurer of such association; and such directors and officers shall hold their respective offices until their successors are duly qualified; such association may also have such other officers, agents and factors as may be necessary to carry on its business, and choose them in the manner prescribed in the articles of association, which articles may contain any limitation upon the powers of the directors or other officers.

6. *And be it enacted*, That every association incorporated under this act shall paint or affix, and shall keep painted or affixed, its name on the outside of every office or place in which the business of the association is carried on, in a conspicuous position, in letters easily legible, and if any such association shall not paint or affix, and keep painted or affixed, its name in manner provided as aforesaid, it shall be liable to a penalty not exceeding twenty-five dollars, for not so painting or affixing its name, and for every day during which such name is not kept so painted or affixed.

7. *And be it enacted*, That every association incorporated under this act shall keep a seal, and shall have its name engraved in legible characters on its seal, and shall have its name mentioned in legible characters in all notices, advertisements, and other official publications of such association, and in all bills of exchange, promissory notes, endorsements, checks, and orders for money or goods purporting to be signed by or on behalf of such association, and in all bills of parcels, invoices, receipts and letters of credit of the association, and if any officer of such association, or any person on its behalf, uses any seal purporting to be the seal of the association, whereon its name is not engraved as aforesaid, or issues or authorizes the issue of any notice, advertisement, or other official publication of such association, or signs or authorizes to be signed on behalf of such association, any bill of exchange, promissory note, endorsement, check, order for money or goods, or issues or authorizes to be issued, any bill of parcels, invoice, receipt, or letter of credit of the association, whereon its name is not mentioned in manner aforesaid, he shall be liable to a penalty of two hundred dollars, and shall further be personally liable to the holder of any such bill of exchange, promissory note, check, or order for money or goods, for the amount thereof, unless the same is duly paid by the association.

8. *And be it enacted*, That every association incorporated under this act shall have a registered office, to which all communications and notices may be addressed, and notices in writing of the situation of such office, and if any change therein, shall be filed with the Chief of the Bureau of Statistics of Labor and Industries, and shall be recorded in the office for the recording of deeds of the county where such office is situate, and if any such association shall carry on business without having such office, it shall incur a penalty not exceeding twenty-five dollars during every day in which business is so carried on, and until notice of such situation of the office, and of any change therein as aforesaid, shall be filed and recorded as aforesaid, the association shall not be deemed to have complied with the provisions of this act.

9. *And be it enacted*, That the capital stock of such association shall be limited to any sum not exceeding one million dollars, and shall be divided into shares the par value of which shall not be more than fifty dollars, and no share shall be issued for less than its par value.

10. *And be it enacted*, That no member of such association shall be entitled to more than one vote upon any subject, which vote must be cast in person; and that the board of directors shall have the power, unless otherwise provided in the articles of association, to fix and regulate the number of shares to be held by any one member.

11. *And be it enacted*, That no certificate of shares shall be issued to any member until the shares be fully paid in cash.

12. *And be it enacted*, That any association incorporated under this act may hold in its corporate name any amount of interest in any other association so incorporated; *provided*, that such interest so held shall not exceed one-third in value authorized of the capital stock of the association so holding the same.

13. *And be it enacted*, That the board of directors shall annually make a statement, in writing, of the condition of the association, setting forth the amount of capital stock, the number of shares issued and the par value thereof, the number of stockholders, together with the greatest number of shares held by any one stockholder, the amount and character of the property of the association, and of its debts and liabilities, and said statement shall be signed and sworn to by a majority of the directors, including the treasurer, and the same shall be filed or recorded in the office for the recording of deeds, in the proper county, and immediately thereafter a copy filed in the office of the Chief of the Bureau of Statistics of Labor and Industries; the Chief of the Bureau of Statistics of Labor and Industries shall, if he has reason to doubt the correctness and truth of the statement, or upon a written request of five stockholders of such association, either in person or deputy, immediately make an examination of the books and affairs of such association and render a correct statement to its stockholders, and every member or creditor of, or any depositor in any such association, shall be entitled to receive from the secretary or treasurer of such association a copy of such annual statement, without making any payment for the same; and every such association which shall not make such statement and file the same as aforesaid in the office of the Bureau of Statistics of Labor and Industries, and of the county as aforesaid, shall incur a penalty of not less than fifty dollars nor exceeding one hundred dollars for each such offence; and every person who makes, or orders to be made, any false statement or any omission in any such return, with intent to deceive the Chief of the Bureau of Statistics of Labor and Industries, shall incur a penalty not exceeding five hundred dollars for each return so dealt with.

14. *And be it enacted*, That any member or other person having an interest in the

funds of any association incorporated under this act, may inspect the books and the names of the members, at all reasonable hours, at the office of the association.

15. *And be it enacted*, That there shall be such distribution of the profits or earnings of such association, among the workmen, purchasers and stockholders, as shall be prescribed in the articles of association, at such time as therein prescribed, as often, at least, as once in twelve months; *provided*, that no distribution shall be declared and paid until a sum equal, at least, to five per centum of the net profits, shall be appropriated for a contingent or sinking fund, until there shall have accumulated a sum equal to thirty per centum in excess of such capital stock.

16. *And be it enacted*, That any member of such association may, by a writing under his hand, delivered at the office of the association, appoint any person, being the husband, wife, father, mother, child, brother, sister, nephew or niece of such member, to whom his or her share in the association shall be transferred at his or her decease, and may, from time to time, revoke or vary such appointment by a writing similarly delivered, and such association shall keep a book wherein the names of all persons so nominated, and the number of shares to be transferred, shall be recorded, although the articles of association declare the shares to be not generally transferable; *provided, nevertheless*, that in lieu of making such transfers of shares, the association may provide for payment, to all such nominees, of the full value of the shares intended to be transferred.

17. *And be it enacted*, That any association, incorporated under this act, may be dissolved or wound up, either by the court of common pleas or voluntarily, in the manner and under the same circumstances under which and in which any other corporation may be dissolved or wound up under existing laws for winding up corporations; *provided, however*, that the court having jurisdiction in the winding up shall be the county court of the district in which the office of the association is situated.

18. *And be it enacted*, That in case of the dissolution of any such association, such association shall, nevertheless, be considered as existing, and be in all respects subject to the provisions of this act, so long and so far as any matter relating to the same remain unsettled, to the intent that such association may do all things necessary to the winding up of the concerns thereof, and that it may be sued and sue under the provisions of this act in respect to all matters relating to such associations.

19. Section repealed.

20. *And be it enacted*, That the articles of association and all amendments thereto shall bind any association incorporated under this act, and the members thereof, to the same extent as if each member had subscribed his name and affixed his seal thereto, and there were in such articles of association or amendments thereto contained, a covenant on the part of himself, his heirs, executors and administrators, to conform to such articles of association and amendments thereto, subject to the provisions of this act, and all money payable by any member of the association, of such articles of association or amendments thereto, shall be deemed a debt due from such member to the association.

21. *And be it enacted*, That the word "co-operative" shall be a part of the title of every association incorporated under this act; and that the word "society" may be used instead of the word "association."

22. *And be it enacted*, That all acts or parts of acts inconsistent with the provisions of this act, be and the same are hereby repealed, and that this act shall take effect immediately.

SILK CULTURE.

A few words more concerning a subject which is just now attracting attention, that of "American silk culture," an industry which the "Women's Silk Culture Association," No. 1328 Chestnut street, Philadelphia, has been making active efforts to promote. The special aim of this association is to introduce silk raising into rural homes, as a means of additional income for those who need to earn money and wish to earn it at home. In order to attract public attention and to enlist sympathy, the association held its first exhibition of "Silk productions of the United States," in Philadelphia, during the first week in February, 1882.

The public interest in this subject, as evinced by the 300 to 400 letters received monthly at the society's rooms, renders important the following extract from one of its circulars in regard to silk-growing :

"There are at present 200 silk mills in daily operation, weaving last year 1,599,666 pounds of imported raw silk, at a cost of about \$10,000,000. Raw silk commands from \$4 to \$8 a pound, and cocoons and floss silk 90 cents to \$1 a pound. Two hundred mulberry trees will grow well on two acres of land, which would yield about 30,000 pounds of leaves. About sixteen pounds of leaves are required to make one pound of fresh cocoons, thus making in all 1,765 pounds of fresh cocoons. These stifled would yield about 588 pounds of silk. The expenses would not exceed \$160. This deducted from \$1,176, the value of the cocoons, leaves \$1,016 as the profit on two acres of land in one month's time."

Mulberry trees can be planted from October to May—standard trees thirty feet apart, in avenues; dwarf trees four feet apart, in a hedge. Ordinary cuttings cost about \$1.50 per hundred; trees one-year old \$5 per hundred, and trees from seven to nine feet high \$15 per hundred. Silk-worm eggs cost \$1 per 1,000, or \$5 an ounce. After the middle of May, worms may be bought at \$1 a hundred. Any further information may be obtained from the Women's Silk Culture Association, No. 1328 Chestnut street, Philadelphia, and any persons who have already engaged in the business are invited to correspond with the association, giving the results obtained.

In 1880 there were imported into this country 1,599,666 pounds of raw silk, valued at about \$10,000,000, Japan furnishing most of it. The product of the Japanese cocoons in 1875, the last year for which statistics are to be obtained, was valued at \$31,000,000.

We received, lately, a letter from a gentleman at Lambertville, who

promises soon "to bring to Trenton a box of silk products." He goes on to say: "There will be some silk grown here this year, and if a premium were offered by the State, considerable quantity would be forthcoming. I was at the Silk Culture Exhibition, lately held at Philadelphia, and was well pleased with it. Let us have competition, at the State Fair, for premiums. Two premiums out of five, at the Philadelphia exhibition, were awarded to inhabitants of New Jersey. This was doing well, and if now a timely effort be made we may become as successful in silk culture as we are in silk manufacture."

The United States Consul at Lyons, B. F. Peixotto, in a late report on this subject, to the State Department at Washington, among other things points out that there are good reasons for believing that silk culture may be made an attractive and profitable one in this country. He says, among other things:

"Although labor and time are required to raise cocoons, I am convinced that the labor and time of the kind necessary will not be found more expensive in our country than in Europe, for the following reasons: The work is a home industry. It can be carried on without severe manual labor except for a few days, at the end of the season, when large crops are raised. Now, nothing is better known than that there exists in many of our states an enormous number of wives and daughters of country people of a class entirely different from any to be found elsewhere except, perhaps, to a limited extent, in England. I refer to the 'well-to-do,' but not wealthy agricultural and manufacturing classes in small villages. One or two generations ago the farmers' and mechanics' wives and daughters found plenty of work in spinning, weaving, dyeing, cutting and making the linen and clothes of the family. This has entirely ceased as a domestic industry, with the exception of the 'sewing' of the women's clothes and men's underwear. As a consequence the women of the family are condemned to idleness, or to the drudgery of the whole household work. Upon a proper occasion I think that much might be said of the evils and dangers which are likely within a short time to arise from the fact that perhaps a large majority of American women find themselves, because of the present organization of society and industry, almost unable to contribute to the family income except by going away from home, or in doing the most menial and severe labor as household workers from one end to the other of the year. I shall at present, however, only point out that in hundreds of thousands of homes in the country, an opportunity of gaining a very moderate sum in addition to the present income by the expenditure of some weeks of care and light work would be hailed as a God-send, and that, too, in families where the feeling of self-respect and the desire to keep the family together, are far too strong to permit the women to go away from home in any way to earn money."

On the first day of April, 1881, Mr. Charles H. Simmerman, with the concurrence of the Governor and Comptroller, as required by law,

succeeded Mr. Samuel C. Brown, as Secretary of the Bureau, and at once entered upon the duties of his office. Mr. Simmerman has devoted much of his time to the work of collecting and tabulating statistics from employes, and the largely increased numbers represented in the "Statistics Derived from Laborers" prove the efficiency of his work. For the preparation of the chapter on Trades Unions and Labor Organizations, as presented in Part III., Mr. Simmerman was eminently qualified by reason of many years of study as to the practical working of such associations.

I take pleasure in acknowledging the efficient services of Mr. P. T. Wood, who has been engaged in collecting statistics from such industries of the State as we had selected for tabulation, and also in superintending the work carried on at Washington, D. C., in the Census Department, through the courtesy of General F. A. Walker and Colonel C. W. Seaton.

Mr. William M. Manks, of Millville, was employed upon special work during a part of the year, and, while engaged therein, became so impressed with the advantage which would accrue to wage-workers through the establishment of Workingmen's Clubs, that he was allowed to collect the necessary statistics and assist in preparing the chapter on that subject.

PART 1.

COLLATED STATISTICS DERIVED FROM LABORERS.

Based on Blank No. 3 for Employees.

TABLE NO. 1.—GENERAL CLASSIFICATION OF TRADES AND OCCUPATIONS REPORTED:
SHOWING AVERAGE DAILY NUMBER OF HOURS WORKED IN EACH—NUMBER OF
REPORTS RECEIVED—NUMBER OF HANDS WORKING IN SUB-DIVISIONS IN FACTORIES
REPORTED—AVERAGE YEARLY EARNINGS OF EMPLOYEES—NUMBER WHO HAVE
SAVED SOMETHING DURING THE YEAR—NUMBER WHO HAVE FALLEN INTO DEBT—
LOST TIME (DAYS).

TABLE NO. 2.—DETAILED ANSWERS OF EACH EMPLOYEE REPORTING TO QUESTIONS
ASKED IN BLANK NO. 3.

ADDITIONAL STATISTICS FROM EMPLOYEES.

[BLANK No. 3, FOR EMPLOYEES.]

STATE OF NEW JERSEY,
BUREAU OF STATISTICS OF LABOR AND INDUSTRIES, }
TRENTON, N. J., July 1st, 1881.

DEAR SIR—The law creating this Bureau directs us to collect, assort, systematize and present in annual reports, "statistics" relating to all departments of labor in the State, especially in their relation to the commercial, industrial, social, educational and sanitary condition of the laboring classes.

This we are unable to do satisfactorily without the hearty and cheerful co-operation of the workmen themselves. We believe all intelligent wage workers in the State fully appreciate the importance of the work in which we are engaged, and we feel assured that all to whom these blanks are sent will esteem it a duty, as well as a privilege, to fill out the questions directly propounded, to the best of their ability, also giving any information that may be deemed important to the public or to other workmen, and returning the blank at the earliest convenience.

JAMES BISHOP,
Chief.

CHAS. H. SIMMERMAN,
Secretary.

1. Name in full?.....
2. Occupation?.....
3. Residence, including county and post office address?.....
4. By whom employed?.....
5. Are you paid by the day, week or month?..... or do you work by the piece?.....
6. Do you work by machine or by hand work?.....
7. What are the busy months in the year?..... How many hours do you work per day during those months?.....
8. What are the slack months in the year?..... How many hours do you work per day during those months?.....
9. How many hours do you work per day when on full time?.....
10. State in what subdivision of your trade (if any) you are engaged?.....
11. State the number of hands working in the department or subdivision in the factory in which you are employed?.....
12. Give the kind, quality, grade and style of work you make?.....

13. Do you work in team with others, or do you work singly at your work?.....
14. If in team, how many compose the team?.....
15. How much do you receive per piece in team by machine?..... in team by hand work?..... singly, by machine?..... singly, by hand work?.....
16. Describe what constitutes a piece?.....
17. Give the highest price you receive for your class of work?..... the lowest price?.....
18. Give quantity you produce in a day in team by machine?..... singly, by machine, in a day?..... in team, by hand, in a day?..... singly, by hand, in a day?..... in a week, in team, by machine?..... in a week, singly, by machine?..... in team, by hand, in a week?..... singly, by hand, in a week?.....
19. If paid for time, state amount of wages you receive per day?..... per week?..... per month?..... the quantity produced in a day?..... in a week?.....
20. What quantity do you consider a fair average day's work of ten hours?.....
21. If possible, give amount of your individual earnings (if not, give estimated,) from July 1st, 1880, to July 1st, 1881?.....
22. If your wages have been advanced during the year, state how much?..... if reduced, state how much?.....
23. Have you saved anything during the year from your earnings?..... have you fallen in debt?.....
24. How many days' work, not including legal holidays, did you lose from July 1st, 1880, to July 1st, 1881, from sickness?..... from inability to obtain work?..... from other causes?.....
25. Is there any system of teaching apprentices in the factory where you work?..... State the method of teaching apprentices in your trade?.....
26. Give your views on labor topics, such as shortening the hours of labor, payment of wages, co-operation, trades-unions, sanitary condition of factories, education, convict labor, child labor, or any other subject of interest to your trade, or to wage workers in general?.....

N. B.—Extended remarks may be made by using the back of this blank.

COLLATED STATISTICS DERIVED FROM LABORERS.

Based upon Blank No. 3 for Employes.

The following tables are compiled from the answers received from individual workmen to the questions asked in Blank No. 3, copies of which were distributed among different establishments to be filled out by those most familiar with the trades represented, the condition of the workmen therein and the earnings received by them. The 798 returns received represent 219 subdivisions of occupations, in which over 11,000 hands were engaged. Thus the tables below will give a tolerably accurate view of the condition of the workmen in the respective trades reported. In fifty-eight of the classifications, given in Table 1, the workmen have been considered as "skilled;" while in thirteen they have been classed as common laborers. The total annual earnings of the 640 employes, who reported this item, amounted to \$365,479.

Table No. 1 shows the average condition of the workmen in the several trades, so far as the time of labor, annual wages, lost time, etc., are concerned. The aggregate annual wages in the seventy-one classifications amount to \$40,074.83; the total annual earnings in those of the skilled trades footing up \$35,205.52, or an average of \$607; and in those of the workmen outside of the skilled trades, \$4,869.31, being an average of \$374.55.

The highest wages were paid to glass blowers and nail cutters, in whose trades the average yearly earnings amounted to over \$1000. In nine trades the average annual wages of workmen was \$800 or over, viz.: Glass blowers (covered pots), \$1,080; bottle and vial (green) glass blowers, \$1,064.65; nail cutters, \$1,050; window glass blowers, \$951; puddlers, \$910; lithographers, \$900; creamery employes, \$808.33; glass pot makers and silk hatters, \$800. The average number of hours worked daily during the busy season

in these occupations was considerably less than the aggregate average time reported in our table, that amounting to ten and one-sixth hours daily. In estimating the relative yearly wages received in these trades, the fact must be taken into consideration that, by mutual agreement between employer and employe, neither the bottle and vial nor the window glass blowers work during the hot months of July and August.

In four trades, which we have classed under "skilled," the average daily earnings were less than one dollar, although the time of work during the busy season averaged from ten and one-fifth to eleven and a quarter hours, viz.: Silk workers, (hours of labor, ten and one-fifth,) \$364.22; shirt makers, (female, eleven hours,) \$349.87; cotton mill operatives, (eleven and one-quarter hours,) \$326.65; steel pen makers, (female, ten and one-third hours,) \$291.66.

The average annual earnings of the workmen outside of the skilled trades were as follows: Employes in canning factories, (ten and one-third hours,) \$237.50; brick yard laborers, (ten hours,) \$366.66; oystermen, (eleven hours,) \$368.75; puddlers' helpers, (eleven and one-half hours,) \$375; nail factory feeders, (boys, ten hours,) \$287.50; glass batch mixers, (ten hours,) \$390; glass packers, (nine and one-half hours,) \$390.83; railroad employes, (ten and two-thirds hours,) \$399.29; longshoremen, (ten hours,) \$425; miscellaneous iron workers, (nine and one-quarter hours,) \$438; miscellaneous glass workmen, (ten and five-sixths hours,) \$383.89; miscellaneous occupations, (ten and one-quarter hours,) \$457; laborers unclassified, (ten and one-third hours,) \$349.93.

It seems that, in those industries where all or the greater part of the employes are women or children, the pay is not only comparatively small but the hours of work are many, and that, in general, as the number of hours increase the wages decrease.

Most of the employes reporting reply to the questions "Have you saved anything from your earnings during the year?" and "Have you fallen in debt during the year?" There are 293 affirmative replies, nearly one-third of the whole number; and of these 213 are in response to the former and 80 to the latter question. Thus, while it is gratifying to know that a good number have "laid something by" during the year, it is to be deplored that so many, over two-thirds of the whole, have either saved nothing or fallen in debt.

The figures in the "lost time" columns must be read with this explanation: Many of those answering considered the heading "other causes" to apply to every failure of employment not attributable to sickness. Therefore the columns headed "inability to obtain work" and "other causes" must be read together in order to obtain a correct idea of the period of dullness in the several trades.

TABLE No. 1.—BLANK No. 3.

GENERAL CLASSIFICATION.

Classification of Trades Reported.	Average number hours worked per day during busy months.	Average number hours worked per day during slack months.	Average number hours per day when on full time.	Number reports from each trade.	Number hands working in subdivision or department in factories reported.	Average yearly earnings of employees, from July 1st, 1880, to July 1st, 1881.	Number who have saved something during the year.	Number who have fallen in debt.	AVERAGE LOST TIME, DAYS.		
									From sickness.	Inability to obtain work.	Other causes.
Blacksmiths.....	10	.....	10 1-7	15	185	\$796 27	7	...	5	2	6 1-2
Blacksmiths & Mould makers in Glass	10	.....	.....	4	23	670 00	1	...	3	.....	12
Factories.....	10	.....	10	4	30	675 00	4	...	12	.....	8
Boiler makers.....	10	.....	.....	2	8	400 00	...	1	.....	.....	.....
Box makers in Glass	10	8	10	6	227	723 25	2	1	12 1-2	51 1-2	3
Factories.....	10	.....	.....	3	20	533 33	2	...	.....	winter	.....
Bricklayers.....	8	.....	.....	3	17	366 66	...	6 1-2	.....	winter	4
Brick makers.....	10	.....	.....	1	30	800 00	.....	.....	12	36	.....
Brick Yard Laborers*..	9 1-2	.....	.....	3	350	237 50	.....	8	winter	6	.....
Cabinet makers.....	10 1-3	7	.....	11	149	522 73	1	4	21 1-2	37	15 1-2
Canning Factory Em- ployes*.....	10	8 1-3	.....	7	44	521 43	3	1	12 2-3	36	21 1-2
Carpenters (house).....	9	7	10	2	14	408 00	.....	25	12	.....	.....
Carriage makers.....	11 1-4	.....	11 1-4	26	634	326 65	.....	12	26 1-2	7	.....
Cigar makers.....	12	.....	.....	3	25	808 33	2	.....	.....	.....	.....
Cotton Mill Operatives..	.....	.....	11 1-5	7	11	648 40	3	2	6	.....	8
Creamery Employees....	10 5-6	8 2-5	10	10	88	583 33	4	1	6	31	6 1-2
Engineers (stationary)..	.....	.....	.....	51	400	1,064 65	29	...	8	.....	13
Fruit Can makers (tin)..	8 1-10	.....	8 7-10	5	87	1,080 00	4	...	7 1-2	.....	22 1-2
Glass Blowers—	9 1-5	7	.....	2	32	687 50	1	...	10	.....	20
Bottle & Vial (green)..	10	5	.....	3	46	666 66	1	...	30	.....	10
Flint (covered pots)...	10	.....	.....	2	19	390 00	1	...	.....	.....	.....
Glass Stopper Grinders..	10	.....	.....	21	170	383 89	4	...	19	.....	11
Glass Lamp Workers....	10 5-6	.....	.....	6	80	390 83	1	...	9	8	5
Glass Batcn Mixers*....	9 1-2	.....	.....	2	2	895 00	1	...	.....	.....	6
Glass Workmen (mis- cellaneous)*.....	10	.....	10	11	300	405 27	1	5	11	33 1-3	32 1-2
Glass Packers*.....	10 1-18	7 4-15	10	15	744	395 00	3	...	9	4 1-2	.....
Glass Factory Pot makers.....	9	4 3-11	9 1-10	12	425	490 17	5	...	.....	55	.....
Harness makers.....	9 1-7	3 2-13	9 1-2	1	1	800 00	...	1	.....	75	.....
Hat Finishers.....	8	.....	.....	4	160	436 25	2	...	20	50	6
Hat makers, &c.....	10	3 1-3	10	5	134	546 00	1	...	17	50	8
Hatters (silk).....	10 7-10	.....	10	17	211	606 91	6	1	12	56	6 1-2
Hatters (straw, female)..	10 5-7	7	.....	5	48	910 00	.....	10 1-2	.....	64	.....
Iron Workers—	11 1-2	.....	.....	3	12	375 00	.....	13	.....	34	24
Core makers.....	11	9	.....	3	8	593 33	1	...	5	35	19
Moulders.....	10	.....	10	2	3	625 00	2	...	.....	.....	11
Puddlers.....	10	.....	.....	3	60	438 00	3	2	31	13 1-2	13 1-2
Puddlers' Helpers*....	9 1-3	7 1-2	10 1-4	19	277	633 90	7	4	26	49	17
Rollers.....	10 4-5	7	10	27	780	349 93	7	8	10	36 1-2	8
Iron Foundry Pattern makers.....	10 1-3	.....	10	3	18	900 00	3	...	30	.....	10
Iron Foundry, mis- cellaneous work- men*.....	10	.....	.....	5	.....	425 00	...	2	.....	many	.....
Jewelers.....	10	.....	10	22	355	677 95	12	...	10	.....	7 1-2
Laborers (unclassified)*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lithographers.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
'Longshoremen*.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Machinists.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

* Not skilled.

TABLE No. 1.—BLANK No. 3—Continued.

GENERAL CLASSIFICATION—Continued.

Classification of Trades Reported.	Average number hours worked per day during busy months.	Average number hours worked per day during slack months.	Average number hours per day when on full time.	Number reports from each trade.	Number hands working in subdivision or department in factories reported.	Average yearly earnings of employees, from July 1st, 1880, to July 1st, 1881.	Number who have saved something during the year.	Number who have fallen in debt.	AVERAGE LOST TIME, DAYS.		
									From sickness.	Inability to obtain work.	Other causes.
Master Shearers (glass factory).....	13 3-11	.....	12 2-3	11	21	\$761 82	5	...	4 1-2	6	8
Millwrights.....	.....	.....	10	2	3	562 50	1	...	18	.....	8
Miners.....	9 3-10	.....	.....	11	529	459 09	6	3	8 1-2	7	8
Miscellaneous Occu- tions*.....	10 1-4	.....	10 1-2	8	25	457 00	3	2	9 1-2	11	10
Miscellaneous Work- men (skilled).....	10 4-5	8	11	6	31	564 00	1	2	12	.....	17
Nail Factory Feeders (boys)*.....	10	.....	.....	2	106	287 50	.....	.....	.....	50 1-2	4
Nail Cutters.....	10	.....	.....	4	90	1,050 00	3	...	6	43 1-2	.....
Oil Cloth Printers.....	.....	.....	10	5	110	630 00	3	...	9	.....	7
Oystermen*.....	11	.....	.....	4	17	368 75	2	...	.....	12	33 1-2
Paper makers.....	.....	.....	10	4	40	481 25	1	...	5	.....	4
Potters.....	9 4-5	.....	9 5-7	6	81	604 00	1	5	23	33 1-2	26
Printers.....	10 7-11	9 3-5	10 1-9	9	35	556 11	2	2	18	9	15
Painters.....	10	6 1-2	10	4	53	444 17	.....	2	12	139	.....
R. R. Employes*.....	.....	.....	10 2-3	7	47	399 29	4	1	3	78	5 1-2
Sash, Door and Blind makers.....	10	8	10	4	28	532 50	2	...	7	.....	4
Ship Carpenters and Caulkers.....	.....	.....	.....	8	110	619 37	4	...	13 1-2	55 1-2	3
Shoemakers.....	10 1-13	6 3-5	9 2-3	24	154	526 79	9	3	14	35	11
Shirt makers (female)...	11	.....	.....	7	180	349 87	1	1	28 1-2	.....	11
Silk Workers.....	10 1-5	9 1-2	10 2-7	74	1441	364 22	17	18	19	49	19
Steel Pen makers (fe- male).....	10 1-3	.....	.....	3	30	291 66	.....	...	18	.....	6
Stone Cutters & Masons	10	.....	.....	1	15	425 00	1	2	6	.....	7
Tailors.....	.....	.....	12	2	6	505 00	.....	2	4	12	3
Trunk makers.....	10 1-37	8	10 1-3	75	1072	423 60	8	4	47	52	26
Window Glass Blowers..	9 1-2	.....	.....	10	63	951 00	4	...	12	71	10
Window Glass Gath- ers.....	9 1-3	.....	.....	5	64	453 80	.....	...	9	89	.....
Window Glass Flat'ners	12	.....	.....	4	20	625 00	2	...	5	75	.....
Window Glass Cutters...	9 5-6	.....	.....	5	57	679 00	4	...	6	39	6
Wheelwrights.....	10	.....	10	1	1	625 00	.....	...	.....	.....	4
Wood Turners.....	10	.....	10	2	13	430 00	.....	...	35	.....	11
Woolen Mill Operatives	10 11-13	.....	10 9-11	12	422	460 42	4	...	8 1-2	77	6 1-2
Total.....	620 1-2	161	407 1-2	.....	.....	\$40,074 83	213	80	.....	.....	.....

* Not skilled.

The following tables give in detail the returns from every employe reporting. These generally will show, among other things, the product of a day's labor as well as the amount of wages received in those trades where the workmen are paid by the piece; although in many occupations it has been found impossible to give this result statistically. We believe this to be the first attempt of this kind made, but think that it is essential, in a comparison of the cost of labor, that the wages paid, as well as the quantity produced, should be known.

Our tables also show that of the 11,000 employes in the establishments from which reports have been received, the wages of 1,916 have been increased during the year, while those of 571 have been reduced. A general advance of wages is reported among glass blowers and harness makers. There has also been an advance among some of the hatters, iron moulders, shoe makers, trunk makers, machinists, printers, brick layers, carpenters, masons, painters, carriage makers, and a few unskilled laborers. A reduction has taken place among miners and jewelers; while among the silk workers in some departments there has been an advance, in others a decrease of wages.

BOTTLE AND VIAL BLOWERS.

Office number.	County.	What are the busy months in the year?	Number hours worked per day during busy months.	How many hours per day when on full time?	State in what subdivision of your trade you are engaged.	Give the kind, quality, grade and style of work you make.
1	Cum.	Sept. 1 to June 30.	9	9	Gaffer.....	1 and 2 oz. vials.....
18	do.	do.	8 to 9	9	do.	12 to 20 oz. weight.....
17	do.	do.	8 1/2	9	Blower.....	12 to 20 oz. weight.....
16	Glou.	do.	8 1/2	8 3/4	do.	.....
8	Sal	do.	8 1/2	8 3/4	do.	.....
4	Glou.	do.	8 1/2	8 3/4	Blower and Finisher.	.....
5	Sal	do.	7	8 3/4	do.	Mineral water bottles, fruit jars.
6	do.	do.	8 3/4	8 3/4	Gaffer.....	1 and 2 oz. vials.....
2	do.	do.	8 3/4	8 3/4	do.	.....
3	do.	do.	7 1/2 to 8	8 3/4	Blower and Finisher.	12 to 40 oz. weight.....
19	do.	do.	7 1/2 to 8	.....	do.	Large bottles.....
21	Glou.	do.	8 1/2	8 3/4	Blower.....	Lager beer bottles, &c.....
20	Sal	do.	8 1/2	8 3/4	do.	1/2 to 8 oz. vials.....
10	Cum.	do.	8 1/2	9	do.	12 to 20 oz. bottles.....
11	do.	do.	8 1/2	9	do.	.....
12	do.	do.	8 1/2	9	Gaffer.....	3 to 6 oz. prescription.....
13	do.	do.	10	10	Gaffer and Foreman.	2 to 4 oz. vials.....
14	Sal	do.	7 to 8 1/2	8 3/4	Blower and Finisher.	12 to 22 oz. weight.....
15	do.	do.	8 to 8 1/2	8 3/4	Gaffer.....	4 to 8 oz. vials.....
113	Cam.	do.	7	8	do.	4 oz. snuff.....
132	Cum.	do.	8 1/2	8 1/2	Blower and Finisher.	13 oz. bottles.....
133	Sal	do.	7 1/2	9	do.	12 oz. mineral to 1/2 gal. bottles...
134	Cum.	do.	7	9	do.	16 oz. to 1 gal. bottles.....
135	do.	do.	8 1/2	9	Gaffer.....	2 oz. panel vials.....
136	do.	do.	8 1/2	9	Blower.....	Quart fruit jars.....
137	do.	do.	8	9	do.	1/2 to 4 oz.....
138	do.	do.	8 1/2	9	do.	10 oz. panels.....
141	do.	do.	8 1/2	.....	do.	1 to 4 oz.....
370	Glou.	do.	9	9	do.	1 oz. panels.....
363	Cam.	do.	7 1/2	7 1/2	Blower and Finisher.	16 to 20 oz.....
183	Glou.	do.	8	8 1/2	Gaffer.....	1/2 oz.....
357	Cam.	do.	7	8 1/2	Blower and Finisher.	Wines, 6 to gal., 18 oz. weight.....
361	do.	do.	7 1/2	7 1/2	do.	1/2 to 1 gal. bottles.....
369	Glou.	do.	8 1/2	8 3/4	Blower.....	1 oz. panels.....
356	Cam.	do.	7	8 1/2	Gaffer.....	1 oz. round.....
335	do.	do.	7 1/2	7 1/2	do.	10 oz. panels.....
306	Glou.	do.	8 1/2	8 1/2	Blower.....	Mustard, catsup, &c.....
293	Cum.	do.	8	9	Gaffer.....	2 oz. prescription.....
292	do.	do.	8	9	Blower in Team.....	1/2 and 1 oz. long prescriptions...
309	do.	do.	8 1/2	9	Blower and Finisher.	Quart bottles, 20 oz. weight.....
291	do.	do.	7	9	Blower in Shop.....	4 oz. panels.....
308	do.	do.	9	9	Small vials.....	6 dr. to 1 oz.....
323	Cam.	do.	8	9	Blower and Finisher.	Minerals, 14 oz. weight.....
322	do.	do.	8	9	Blower in Shop.....	2 oz. long.....
324	do.	do.	8	9	Gaffer.....	4 oz. panels.....
145	Cum.	do.	9	9	Presser.....	Telegraph insulators.....
367	Glou.	do.	8 1/4	.....	Foot Bench Blower...	Beer bottles.....
375	Cam.	do.	7 1/2	8 1/2	Blower.....	8 oz. pepper sauce.....
368	Glou.	do.	8 1/2	8 1/2	do.	Pint oils.....
365	do.	do.	8 1/2	.....	Gaffer.....	8 oz. pepper sauce.....
372	do.	do.	8	8 1/2	Blower.....	8 oz. pepper sauce.....
371	do.	do.	8 1/2	8 1/2	do.	Bell-bottom oils.....

NOTE.—Paid by piece, and work by hand. No work in July and August.

BOTTLE AND VIAL BLOWERS.

Do you work in team or singly?	How many compose the team?	Amount received per piece in team by hand work, subject to 10 per cent. discount.	Describe what constitutes a piece.	Highest price received for your work.	Lowest price received for your work.	Quantity produced in team by hand in a day.	Amount of individual earnings from July 1st, 1880. to July 1st, 1881.	Per cent. wages have been advanced during the year.	Have you saved anything from your earnings during the year.	LOST TIME.	
										Days lost from sickness	Days lost from other causes.
Team...	3	60 to 67c.	Gross.	\$0 68	\$0 60	25	\$1,200	133 $\frac{3}{4}$	Yes....	20	
do.	3	11 to 15c.	Doz....	15	11	140 to 160	1,200	do.	Yes....	8	4
do.	3	11 to 15c.	do.	15	11	150 to 180	1,300	do.	Yes....	4	3
do.	3	70 to \$1.08	Gross.	1 08	70	30	1,160	do.	Yes....		
do.	3	85c.	do.	1 08	64	27	1,200	do.	Yes....	6	
do.	2	11 to 22c.	Doz....	22	11		1,000	do.			
do.	2	9 to 11c.	do.	15	09	80 to 90	1,200	do.			
do.	3	60 to 68c.	Gross.	68	60	30	1,170	do.	Yes....	4	
do.	3	70 to 96c.	do.	96	60	25	1,100	do.	Yes....	1	$\frac{1}{2}$
do.	2	11 to 22c.	Doz....	22	11	40 to 90	1,101	do.	Yes....		
do.	2	12 to 30c.	do.	30	12	40 to 90	1,100	do.	Yes....		
do.	3	10 $\frac{1}{2}$ to 13 $\frac{1}{2}$ c.	do.	13 $\frac{1}{2}$	10 $\frac{1}{2}$	80	900	do.	Yes....	3	
do.	3	60 to \$1.00	Gross.	1 00	60	19 to 27	1,300	do.	Yes....		
do.	3	11 to 15c.	Doz....	15	11	140 to 160	1,100	do.	Yes....	20	30
do.	3	11 to 15c.	do.	15	11	140 to 160	1,200	do.	Yes....	6	8
do.	3	72 to 85c.	Gross.	85	72	22 to 25	1,100	do.	Yes....	2	25
do.	3	80 to 84c.	do.	84		19	1,150	do.	Yes....	3	1
do.	2	12 to 16c.	Doz ...	16	12	84	1,000	do.	Yes....		6
do.	3	75 to \$1.08	Gross.	1 08	75	19 to 22	1,250	do.	Yes....		3
do.	3	8c.	Doz....			144		do.		1	4
do.	2	11 $\frac{1}{2}$ c.	do.	11 $\frac{1}{2}$		80	900	do.	Yes ...		30
do.	2	11 $\frac{1}{2}$ to 30c.	do.	30	11 $\frac{1}{2}$	12 oz., 90	1,150	do.		1	6
do.	2	11 to 36c.	do.	36	11	36 to 80	1,100	do.		12	20
do.	3	64 to 68c.	Gross.	68	64	22 to 24	1,150	do.	Yes....	6	8
do.	2	9c. net	Doz....	09		80	1,350	do.	Yes....		20
do.	3	60 to 75c.	Gross.	75	60	24 to 30	1,200	do.	Yes....		10
do.	3	10c.	Doz....	10		175	1,100	do.	Yes....	15	20
do.	3	60 to 75c.	Gross.	75	60	20 to 22	1,075	do.			6 10
do.	3	64c.	do.	64		27	1,175	do.			7
do.	2	16 oz., 13c.	Doz....			{ 16 oz., 75 }	1,000	do.	Yes....	3	
do.	3	20 oz., 15c.	Gross.	60		{ 20 oz., 60 }	1,000	do.		12	10
do.	2	14c.	Doz....			60	900	do.	Yes....		
do.	2	$\frac{1}{2}$ gal., 24c.	do.			{ $\frac{1}{2}$ gal., 57 }	1,050	do.	Yes....	3	
do.	3	$\frac{1}{2}$ gal., 27c.	do.			{ $\frac{1}{2}$ gal., 34 }					
do.	3	64c.	Gross.			27	1,143	do.			14
do.	3	60c.	do.			22	900	do.	Yes....	10	
do.	3	10c.	Doz....			140	1,000	do.	Yes....	12	
do.	3						869	do.	No....	5	13
do.	3	64c.	Gross.			22	1,100	do.	Yes....		
do.	3	60c.	do.			25	900	do.		10	50
do.	2	15c.	Doz....	18	12	70	1,050	do.	Yes....	15	5
do.	3	85c.	Gross.			16	700	do.	No....		50
do.	3	{ 6 dr. panels 64c.	do.			30	1,300	do.	\$400		
do.	2	{ 1 oz. pres., 60c.									
do.	3	12c.	Doz....			80	900	do.	No....		10
do.	3	64c.	Gross.			21	850	do.		8	10
do.	3	85c.	do.			18	950	do.			20
Single...		3c.	Doz....			100	650	do.			20
Team...	2	13c.	do.			75	1,127	do.			15
do.	3	9c.	do.			165	900	do.	Yes....		
do.	3	\$1.08	Gross.			113 $\frac{1}{4}$	1,000	do.	Yes....	10	6
do.	3	9c.	Doz....			168	900	do.	Yes....		
do.	3	\$1.02	Gross.			16	1,128	do.	Yes....		7
do.	3	\$1.10	do.			113 $\frac{1}{4}$	1,050	do.			6

DRUGGIST GLASS BLOWERS—COVERED POTS.

Office number.	County.	What are the busy months in the year?	Number hours worked per day during busy months.	State in what subdivision of your trade you are engaged.	Number hands in your subdivision or department where you work.	Give the kind, quality and grade of work you make.	Do you work in team or singly?	How many compose the team?
143	Cum.	Sept. to July..	9½	Blower.....	50	½ oz. prescription.....	Team...	3
130	do.	do. do.	8½	Gaffer	25	1½ and 2 oz. bell neck panels.....	do.	3
131	do.	do. do.	9	do.	.....	Perfumery, 1 to 4 oz.....	do.	3
147	do.	do. do.	9	Blower.....	.....	4 oz. panels.....	do.	3
144	do.	do. do.	10	do.	12	12 oz. tinctures in wooden moulds....	do.	3

NOTE.—Work by piece.

STOPPER GRINDERS.

274	Cum.	All the year...	10	Grinder.....	30	Stopper, from 4 oz. to ½ gal. bottles..	Single ..	.....
278	do.	do. do.	10	Stopperer...	2	Pint to ½ gallon acid bottles.....	Team...	2

NOTE.—Work by piece.

LAMP WORKERS.

304	Cum.	All the year...	10	Lamp work	40	4 dram vials, apothecary.....	Single ..	.....
305	do.	.....	10	do.	.....	1 and 2 dram.....	do.	.....
302	do.	.....	.....	Cutter.....	6	Cut figures on glass.....	do.	.....

NOTE.—Work by piece.

DRUGGIST GLASS BLOWERS—COVERED POTS.

Amount received per piece in team by hand work.	Describe what constitutes a piece.	Quantity produced in a day singly by machine.	Quantity produced in team by hand in a day.	Amount of individual earnings from July 1st, 1880, to July 1st, 1881.	How much have wages been ad- vanced during the year—per cent.?	Have you saved anything from your earnings during the year?	LOST TIME, DAYS.		
							From sickness.	Inability to obtain work.	Other causes.
60 cents.....	Gross .....	.....	27	\$1,100 00	10	Yes	6	.....	30
73 cents.....	do. ....	.....	20-21	1,150 00	.....	Yes	.....	.....	.....
1 oz., 60 cts. net; 4 oz., 75 cts. net.	do. ....	.....	25	1,000 00	12½	.....	6	.....	.....
85 cents.....	do. ....	.....	17	1,050 00	10	Yes	6	.....	.....
Per day, \$4.50.....	100 bottles...	.....	100	1,100 00	10	Yes	12	.....	.....

STOPPER GRINDERS.

{ 40 cents for ½ gal., 12 cents for 4 oz., less 15 per cent. }	1 dozen.....	25	.....	725 00	.....	.....	.....	.....
	do.	30 pints 15 ½ gal	.....	650 00	.....	.....	.....	.....

LAMP WORKERS.

40 cents.....	Gross	6	.....	600 00	.....	Yes	30	.....
25 c. for 1 dram, 33 c. for 2 dram..	do.	7	.....	600 00	.....	No.	10	.....
.....	.....	.....	.....	800 00	.....	.....	.....	.....

WINDOW GLASS BLOWERS.

Office number.	County.	What are the busy months in the year?	Number hours worked per day during busy months.	State in what subdivision of your trade you are engaged.	Number working in your subdivision or department where you work.	Give the kind, quality, grade and style of work you make.	Do you work in team or singly?	How many compose the team?
84 Cum.		Sept. to July....	9	Blow.....	16	Double-thick, 1st to 4th quality...	Single..	Gatherer
85 do.		do. do.	9	do.	16	Single, 1st to 4th quality.....	do.	do.
86 do.		do. May....	9	do.	16	Single and double-thick.....	do.	do.
358 Cam..		do. June....	10	do.	16	1st to 5th quality, single strength.	do.	do.
284 Sal....		do. do.	.....	do. ....	.....	4th quality.....	do.	do.
83 Cum.		do. June 15.	.....	do. ....	.....	1st, 2d, 3d and 4th quality.....	do.	do.
256 do.		do. do.	9 $\frac{1}{2}$	do.	15	4th quality.....	do.	do.
282 Glou..		do. do.	9 $\frac{1}{2}$	do.	16	1st to 4th quality.....	do.	do.
381 do.		do. do.	.....	do. ....	.....	4th quality.....	do.	do.
342 Cum.		do. do.	10	do.	16	1st to 4th quality.....	do.	do.

NOTE.—Work by piece. Do not work in July or August.

WINDOW GLASS GATHERERS.

93 Cum.	Sept. to July....	10	Gatherer..	16	Gather the glass.....	.....	.....
298 Sal....	do. June....	9	do.	16	Gather the glass for the blower...	.....	.....
359 Cam..	do. May....	9	do.	16	Gather the glass.....	.....	.....
283 Glou..	do. June....	9 $\frac{1}{2}$	do.	16	do. do.	.....	.....
258 Cum.	do. July....	10	do.	.....	do. do.	.....	.....

NOTE.—Work by month. Do not work in July or August.

FLATTENERS.

259 Cum.	Sept. to June....	.....	Flattener	6	{ Flatten the rollers and pre- pare glass for cutting..... }	Team....	6
297 Glou..	do. do.	.....	do.	4	do. do.	do.	4
360 Cam..	Sept. to May....	.....	do.	6	do. do.	do.	3
299 Sal....	do. June....	.....	do.	4	do. do.	do.	4

NOTE.—Work by piece. Do not work in July or August.

WINDOW GLASS CUTTERS.

362 Cum.	Sept. to May....	10	Cutting....	8	Cut the glass into sheets.....	.....	.....
296 Glou..	do. July....	10	.....	8	Cut and assort.....	.....	.....
312 Cum.	do. May....	10	.....	9	do. do.	.....	.....
313 Sal....	do. July....	9	.....	10	do. do.	.....	.....
311 Cum.	do. May....	10	.....	10	do. do.	.....	.....
257 do.	do. June....	10	.....	12	do. do.	.....	.....

NOTE.—Work by piece. Do not work in July or August.

WINDOW GLASS BLOWERS.

Amount received per piece, single by hand work.	Describe what constitutes a piece.	Highest price received for your work.	Lowest price received for your work.	Quantity produced singly by hand in a week.	Wages received per month.	Amount of individual earnings from July 1st, 1880, to July 1st, 1881.	Have you saved anything from your earnings during the year?	LOST TIME, DAYS.		
								From sickness.	Inability to obtain work.	Other causes.
{ 50c. to \$1.40 for single } { \$1.80 to \$3 for double. }	Box, 100 ft..	\$3 00	\$0 50	40	.....	\$1,080 00	.....	25	50	.....
50c. to \$1.40 for single \$1.40 to \$3 for double.	do. do.	3 00	50	40	.....	1,000 00	.....	.....	52	.....
{ \$1.80 for 2d double.... } { 50c. for 4th single..... }	do. do.	3 00	50	45	.....	1,300 00	.....	.....	40	.....
.....	.....	.....	.....	48	.....	800 00	Yes ..	.....	.....	.....
52c., net.....	do. do.	.....	.....	48	.....	900 00	Yes ..	.....	75	.....
{ 50c. to \$1.40 for single } { \$1.80 to \$3 for double. }	do. do.	3 00	50	40	.....	1,100 00	Yes ..	.....	104	.....
.....	.....	.....	.....	40	.....	900 00	Yes ..	.....	.....	.....
.....	.....	.....	.....	45	.....	800 00	No.....	.....	100	10
50c., net.....	do. do.	.....	.....	51	.....	750 00	No.....	.....	.....	.....
65c., average.....	do. do.	.....	.....	48	.....	880 00	.....	.....	78	.....

WINDOW GLASS GATHERERS.

.....	.....	.....	.....	.....	\$50 00	400 00	No.....	.....	104	.....
.....	.....	.....	.....	.....	50 00	450 00	No.....	.....	75	.....
.....	.....	.....	.....	.....	45 00	450 00	No.....	9	.....	.....
.....	.....	.....	.....	.....	50 00	450 00	No.....	.....	.....	.....
.....	.....	.....	.....	.....	52 00	519 26	No.....	.....	.....	.....

FLATTENERS.

1-5 wages of 4 blowers	.....	.....	.....	.....	.....	600 00	Yes ..	.....	.....	.....
1-4 do. each.....	.....	.....	.....	.....	.....	650 00	Yes ..	5	.....	.....
.....	.....	.....	.....	.....	.....	550 00	No.....	.....	75	.....
1-5 wages of 8 blowers	.....	.....	.....	.....	.....	700 00	Yes ..	.....	75	.....

WINDOW GLASS CUTTERS.

22 1-10c.....	Box.....	.....	.....	20	.....	720 00	Yes ..	.....	.....	.....
22 1-2c.....	do.....	.....	.....	18	.....	800 00	No.....	.....	.....	.....
22 1-4c.....	do.....	.....	.....	16	.....	700 00	Yes ..	4	50	.....
22 1-10c.....	do.....	.....	.....	20	.....	.....	.....	.....	.....	.....
22 1-10c.....	do.....	.....	.....	14	.....	675 00	Yes ..	8	52	.....
22c.....	do.....	.....	.....	14	.....	500 00	No.....	.....	.....	.....

MASTER SHEARER IN GLASS FACTORIES.

Office number.	County.	What are the busy months in the year?	Number hours worked per day during busy months.	State in what subdivision of the business you are engaged.	Number hands in your subdivision or department where you work.	Give the kind, quality, grade and style of work you make.
49	Glouces...	Sept. to July..	13	Master Shearer.	4	Melt the glass.....
54	Salem.....	do. do.	12	do. do.	3	Melt the glass
55	do.	do. do.	12	do. do.	3	Making glass
341	Camden..	do. do.	12 to 14	do. do.	1	Melt the glass.....
337	do.	do. do.	14	do. do.	1	Melt the glass.....
334	Glouces...	do. do.	15	do. do.	2	Melt the glass.....
294	Cumberl..	do. do.	12 to 14	do. do.	1	Melt the glass
40	do.	do. do.	12	do. do.	4	Melt the glass, very responsible place..
269	Salem.....	do. June	15	do. do.	2	Melt best quality window glass.....
92	Cumberl..	do. July..	15	do. do.	2	Make the glass.....
117	Camden..	do. do.	14	do. do.	1	Make the glass.....

NOTE.—Paid by the month. Do not work in July or August.

POTMAKERS IN GLASS FACTORIES.

27	Salem.....	All the year..	10	Potmaker.....	1	Make the pots for melting glass in.....
339	Camden..	do. do.	10	do.	1	Potmaking, responsible position.....

NOTE.—Paid by month and work by hand.

BLACKSMITHS AND MOULDMAKERS IN GLASS FACTORIES.

44	Cumberl..	All the year..	10	Blacksmith.....	2	All kinds of work required.....
52	Glouces...	do. do.	10	do.	1	Tools for mouching bottles.....
51	do.	do. do.	10	do.	3	All kinds of work for glass house.....
43	Cumberl..	do. do.	10	Mouldmaker ...	17	Make the moulds and repair.....

NOTE.—Paid by month and work by hand.

PACKERS, GLASS.

188	Cumberl..	Sept. to July..	8	Packer	12	Pack and assort ware for market.....
340	Camden..	do. do.	10	do.	5	Pack the bottles
60	Salem.....	do. do.	10	do.	10	Pack and assort, responsible position...
9	Cumberl..	do. do.	10	do.	23	Pack drug ware.....
39	do.	do. do.	11	do.	13	Overseer of packing and pack.....
30	Glouces...	do. do.	8	do.	17	Pack the glass in boxes.....

NOTE.—All paid by month, except No. 30, who is paid for day's work. All work by hand. Do not work in July or August.

BATCHMAKER, GLASS.

53	Camden..	Sept. to July..	10	Batchmaker.....	10	Mix the material for melting.....
25	Glouces...	do. do.	10	do.	9	do. do. do.

NOTE.—Paid by the month, and work by hand. Do not work in July or August.

MASTER SHEARER IN GLASS FACTORIES.

Describe what constitutes a piece.	Highest price received for your work.	Wages received per day.	Wages received per month.	Quantity produced in a day.	Amount of individual earnings from July 1st, 1880, to July 1st, 1881.	Have you saved anything from your earnings during the year?	Have you fallen in debt during the year?	LOST TIME, DAYS.		
								From sickness.	Inability to obtain work.	Other causes.
1 Furnace.....	\$80 00	.....	\$80 00	.....	\$700 00	Yes	No.....	.....	.....	.....
do.	65 00	.....	65 00	.....	675 00	Little...	.....	.....	.....	6
do.	65 00	.....	65 00	.....	680 00	No.....	.....	.....	.....	6
do.	70 00	.....	70 00	9,000 lbs	700 00	No.....	.....	.....	.....	.....
do.	80 00	.....	80 00	9,600 lbs	800 00	Yes .....	.....	.....	.....	.....
do.	90 00	.....	90 00	9,600 lbs	850 00	Yes .....	.....	.....	6	3
do.	80 00	.....	80 00	6,000 lbs	800 00	No.....	.....	.....	.....	.....
do.	80 00	.....	80 00	7,500 lbs	800 00	Yes .....	.....	.....	6	4
do.	100 00	.....	100 00	.....	875 00	.....	.....	4	.....	3
do.	80 00	.....	80 00	.....	800 00	No.....	.....	4	.....	26
do.	75 00	.....	75 00	9,600 lbs	700 00	No.....	.....	6	.....	.....

POTMAKERS IN GLASS FACTORIES.

1 Pot.....	.....	\$100 00	.....	\$1,200 00	Yes .....	.....	.....	.....	.....
1 Pot 42x48 inches	.....	50 00	.....	590 00	.....	.....	.....	.....	6

BLACKSMITHS AND MOULDMAKERS IN GLASS FACTORIES.

.....	.....	\$45 00	.....	\$580 00	.....	.....	4	.....	.....
.....	.....	93 00	.....	1,100 00	Yes .....	.....	6	.....	12
.....	.....	25 00	.....	400 00	No.....	.....	.....	.....	.....
.....	.....	\$2 25	.....	650 00	.....	.....	12	.....	.....

PACKERS, GLASS.

.....	.....	\$35 00	.....	\$375 00	No.....	.....	10	8	.....
.....	.....	30 00	.....	325 00	No.....	.....	4	.....	.....
.....	.....	30 00	.....	275 00	No.....	.....	.....	.....	.....
.....	.....	42 00	.....	420 00	Little...	.....	.....	.....	.....
.....	.....	60 00	.....	600 00	No.....	.....	.....	.....	5
.....	.....	\$1 40	.....	350 00	No.....	.....	12	.....	.....

BATCHMAKER, GLASS.

.....	.....	\$45 00	.....	\$450 00	.....	.....	.....	.....	.....
.....	.....	\$1 50	.....	330 00	Yes .....	.....	.....	.....	.....

BOX MAKERS, GLASS FACTORIES.

Office number.	County.	What are the busy months in the year?	Number hours worked per day during busy months.	State in what subdivision of the business you are engaged.	Number in your subdivision or department where you work.	Give the kind, quality, grade and style of work you make.	Do you work in team or singly?	How many compose the team?
281	Cam.	10 months	10	Box maker.	3	Window glass boxes.....	Team	3
364	do.	Sept. to July.....	10	do.	5	Window and hollow ware.....	do.	5

MISCELLANEOUS WORKMEN—GLASS.

336	Cam.	Sept. to July.....	10	Grinder.....	.....	Grind the tops of fruit jars.....	.....	.....
91	do.	do. do.	12	Shearer.....	6	Keep up fires and help master shearer.	.....	.....
26	Glou.	do. do.	12	do.	8	do. do. do.	.....	.....
57	Sal.	do. do.	12	do.	9	do. do. do.	.....	.....
56	do.	do. do.	12	do. ....	.....	do. do. do.	.....	.....
32	Cum.	do. do.	12	do. ....	.....	do. do. do.	.....	.....
31	do.	do. do.	12	do.	15	.....	.....	.....
22	do.	do. do.	12	do. ....	.....	.....	.....	.....
89	do.	All the year.....	10	Laborer.....	20	All kinds of laboring work .....	.....	.....
87	do.	do. do.	12	do. ....	.....	do. do. ....	.....	.....
270	Sal.	do. do.	10	do.	20	do. do. ....	.....	.....
295	Cum.	do. do.	10	do.	6	Wash glass, &c.....	.....	.....
354	Cam.	do. do.	10	do. ....	.....	Pick pots shells.....	.....	.....
88	Cum.	do. do.	10	do.	30	Common laborer.....	.....	.....
161	do.	do. do.	10	do.	8	do. do. ....	.....	.....
59	Sal.	do. do.	10	do.	30	do. do. ....	.....	.....
58	do.	do. do.	10	do. ....	.....	do. do. ....	.....	.....
36	Cum.	do. do.	10	do. ....	.....	do. do. ....	.....	.....
28	Glou.	do. do.	10	do.	10	do. do. ....	.....	.....
7	Cum.	do. do.	10	.....	3	Making furnace stone.....	.....	.....
310	do.	Sept. to June....	12	Helper.....	4	Tread the clay and help the flattener..	.....	.....
709	do.	do. do.	10	Temperer...	1	Temper glass of all kinds.....	.....	.....

NOTE.—Nos. 336 and 354 are paid by the piece, and Nos. 91, 26, 57, 56, 32, 31, 22, 89, 310, 709, by the month; the others for the day's work. All work singly by hand except 336, who works by machine in team. Only "laborers" work in July and August.

BOX MAKERS, GLASS FACTORIES.

AMOUNT RECEIVED PER PIECE.			Describe what constitutes a piece.	QUANTITY PRODUCED.			Wages, day or month.		Amount of individual earnings from July 1st, 1880, to July 1st, 1881.	Have you saved anything from your earnings during the year?	LOST TIME, DAYS.		
In team by machine.	In team by hand work.	Single by hand work.		In a day in team by machine.	In team by hand in a day.	Singly by hand in a day.	Wages received per day.	Wages received per month.			From sickness.	Inability to obtain work.	Other causes.
.....	1 1/2 c.....	.....	1 box...	300.....	.....	.....	.....	.....	\$350 00	No....	.....	.....	.....
.....	{ 1 3/4 c., window... }	.....	do.	{ 500 window. }	.....	.....	.....	.....	450 00	No....	.....	25	.....
.....	{ 4 1/2 c., hol. ware. }	.....		{ 300 hol. ware }	.....	.....	.....	.....					

MISCELLANEOUS WORKMEN—GLASS.

18c...	.....	Gross...	35	.....	.....	.....	40 00	500 00	Little	.....	25
.....	.....	.....	.....	.....	.....	.....	420 00	.....	.....	.....	6
.....	.....	.....	.....	.....	.....	.....	47 50	.....	Yes....	14	.....
.....	.....	.....	.....	.....	.....	.....	35 00	370 00	No....	8	10
.....	.....	.....	.....	.....	.....	.....	35 00	385 00	No....	7	4
.....	.....	.....	.....	.....	.....	.....	50 00	540 00	Some	.....	.....
.....	.....	.....	.....	.....	.....	.....	50 00	580 00	.....	1 1/2	.....
.....	.....	.....	.....	.....	.....	.....	45 00	400 00	No....	30	.....
.....	.....	.....	.....	.....	.....	.....	\$1 20	350 00	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	1 20	325 00	.....	.....	25
.....	.....	.....	.....	.....	.....	.....	1 00	300 00	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	1 25	350 00	.....	6	.....
.....	40c...	Bush'l	.....	.....	.....	4	.....	375 00	No....	50	.....
.....	.....	.....	.....	.....	.....	1 35	.....	250 00	.....	52	10
.....	.....	.....	.....	.....	.....	1 00	.....	300 00	.....	.....	4
.....	.....	.....	.....	.....	.....	1 00	.....	300 00	No....	.....	5
.....	.....	.....	.....	.....	.....	1 00	.....	300 00	.....	.....	.....
.....	.....	.....	.....	.....	.....	1 35	.....	400 00	Little	15	.....
.....	.....	.....	.....	.....	.....	1 25	.....	375 00	No....	.....	.....
.....	.....	.....	.....	.....	.....	1 35	.....	421 00	No....	.....	.....
.....	.....	.....	.....	.....	.....	.....	44 00	351 00	No....	6	.....
.....	.....	.....	.....	.....	.....	.....	45 00	520 00	.....	5	.....

HATTERS—FINISHERS.

Office number.	County.	What are the busy months in the year?	Number hours worked per day during busy months.	Number hours worked per day during slack months.	How many hours per day when on full time?	State in what subdivision of your trade you are engaged.	Number in your subdivision or department where you work.	Give the kind, quality, grade and style of work you make.
755	Essex.....	July, Aug., Sept...	9	.....	9	Finisher....	20	Ladies' hats, fine grade.....
746	do.	do. do. ....	.....	.....	.....	do.	22	Ladies' hats.....
747	do.	6 months.....	9	.....	9	do.	30	Fine medium stiff.....
748	do.	6 do.	10	8	9	do.	20	Medium.....
750	do.	6 do.	9	2-3	9	do.	90	Common to fine, soft and stiff....
752	do.	6 do.	9	.....	9	do.	30	Coarse to medium.....
753	do.	2½ do.	10	.....	.....	do.	30	Ladies' felt hats.....
754	do.	6 do.	10	3-5	10	do.	30	Coarse to medium.....
755	do.	7 do.	9	5	9	do.	20	Soft hats, coarse quality.....
756	do.	6 do.	8	1-3	9	do.	30	Common to medium.....
758	do.	4 do.	8-10	1-5	.....	do.	12	Stiff hats, coarse quality.....
759	do.	6 do.	8	4	8	do.	45	Medium.....
781	do.	6 do.	5-8	.....	.....	do.	60	Second class.....
562	do.	8 do.	10	5	10	do.	25	Medium.....
784	do.	6 do.	8	2-5	.....	do.	60	Medium to fine.....
787	do.	6 do.	8	.....	.....	do.	30	Common.....
789	do.	6 do.	9	.....	.....	do.	35	Coarse and medium.....
790	do.	6 do.	9	.....	.....	do.	20	Ladies' and stiff hats.....
791	do.	6 do.	10	6-8	.....	do.	40	Common to fine.....
792	do.	6 do.	10	.....	.....	do.	25	Coarse to medium.....
793	do.	6 do.	9	2-3	.....	do.	50	Medium.....
797	do.	6 do.	9	.....	.....	do.	20	Coarse and medium.....

NOTE.—Paid by piece, and work by hand.

HAT MAKERS, &c.

994	Essex.....	6 months.....	10	2-3	.....	Making.....	40	Medium.....
786	do.	6 do.	8	3	.....	do.	40	Common.....
783	do.	7 do.	8	2	.....	do.	60	Medium.....
782	do.	6 do.	9	3	9	do.	90	Common and fine.....
749	do.	5 do.	8	2-5	9	do.	50	Medium.....
744	do.	3 do.	9	.....	.....	do.	24	Napping hats.....
743	do.	6 do.	8	2-4	.....	do.	40	Common to medium.....
785	do.	5 do.	10	3	10	Curler.....	6	Medium to fine.....
751	do.	5 do.	9	3	.....	do.	15	Common and fine.....
788	do.	7 do.	10	3	.....	Napping.....	20	Fine.....
796	do.	7 do.	10	3	10	Flanging...	1	Medium.....
780	do.	7 do.	9	4	9	Blocking....	14	Common to fine.....
561	do.	Steady work.....	10	5	10	Sizing.....	25	Medium.....
757	do.	6 months.....	10	4	.....	Packing.....	.....	do.
511	Hudson..	3 do.	8	.....	.....	Silk Hatter.	.....	Fine silk hats.....

NOTE.—All paid by piece, except No. 561, who is paid by week. All work by hand, except Nos. 786 and 561, who work by machine.

STRAW HATS.

229	Camden..	All but summer..	10	3	10	Weaver.....	60	Ladies' straw hats, complete.....
228	do. ..	do. do. ..	10	3	10	do. ....	.....	do. do.
327	do. ..	do. do. ..	10	3	10	.....	.....	Put the hat together.....
326	do. ..	do. do. ..	10	3	10	Overseer....	100	Ladies' straw hats.....

NOTE.—All paid by piece, and work by hand.

HATTERS—FINISHERS.

Do you work in team or singly?	How many compose the team?	Amount received per piece for hand work.	Describe what constitutes a piece.	Highest price received for your work.	Lowest price received.	Quantity produced singly by hand in a day.	Wages received per week.	Amount of individual earnings from July 1st, 1880, to July 1st, 1881.	How much have wages been advanced during the year—per cent.?	Have you saved anything from your earnings during the year?	Have you fallen in debt during the year?	LOST TIME, DAYS.		
												From sickness.	Inability to obtain work.	Other causes.
Team	2	\$1 00—\$1 75	1 doz.	\$1 75	\$1 00	2-3	.....	\$400 00	.....	No.	No.	.....	.....	.....
do.	2	.....	do.	1 50	1 00	6-12	.....	.....	.....	.....	.....	.....	.....	.....
do.	2	.....	do.	2 00	1 50	2-2½	.....	.....	.....	.....	.....	.....	.....	.....
Single	2	.....	do.	1 20	1 02	1½-2	.....	325 00	.....	.....	.....	.....	.....	.....
.....	.....	.....	do.	2 75	1 70	1½-3	.....	420 00	.....	No.	.....	.....	.....	.....
.....	.....	.....	do.	1 25	1 00	2½-3	.....	.....	.....	.....	.....	.....	.....	.....
Team	2	.....	do.	1 00	70	12	.....	.....	.....	No.	No.	.....	.....	.....
.....	.....	.....	do.	1 50	1 00	2	.....	300 00	.....	No.	Yes	14	.....	.....
Team	2	.....	do.	1 20	1 00	2	\$7 00	364 00	.....	.....	.....	.....	.....	.....
do.	2	2 00	do.	2 25	1 70	4	.....	425 00	.....	.....	.....	.....	.....	.....
do.	2	1 75	do.	2 00	1 75	2	8 00	416 00	.....	No.	Yes	.....	36	.....
.....	.....	.....	do.	2 00	1 37	1½-2	.....	375 00	.....	.....	Yes	.....	31	.....
.....	.....	.....	do.	2 75	1 75	1½	.....	400 00	.....	No.	No.	.....	.....	.....
Team	4	.....	do.	1 75	1 17	8	.....	500 00	10	No.	No.	.....	75	.....
.....	.....	.....	do.	2 25	1 50	1-2	.....	450 00	.....	.....	.....	4	20	.....
.....	.....	.....	do.	1 65	1 25	2	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	do.	1 65	1 25	2-3	.....	.....	.....	No.	No.	.....	.....	.....
Team	2	.....	do.	1 75	70	6	.....	375 00	.....	No.	No.	.....	.....	.....
.....	.....	.....	do.	2 75	1 50	1½-1¾	.....	400 00	.....	No.	.....	.....	.....	.....
.....	.....	.....	do.	1 62	1 25	2½-3	.....	.....	.....	No.	No.	.....	.....	.....
.....	.....	.....	do.	1 75	1 50	2	.....	375 00	.....	No.	No.	.....	.....	.....
.....	.....	.....	do.	1 60	1 25	2½-3	.....	400 00	.....	.....	.....	.....	.....	.....

HAT MAKERS, &c.

.....	.....	.....	1 doz.	\$1 75	\$1 62	1½-2	.....	\$375 00	.....	No.	.....	.....	.....	.....
.....	.....	.....	do.	1 25	95	2½	.....	375 00	.....	.....	.....	.....	.....	.....
.....	.....	.....	do.	1 68	1 20	1½-2	.....	425 00	.....	.....	Yes	.....	.....	.....
.....	.....	.....	do.	1 68	1 20	2	.....	350 00	.....	.....	.....	.....	.....	.....
.....	.....	.....	do.	1 20	1 08	2	.....	400 00	.....	.....	Yes	.....	.....	.....
.....	.....	\$0 50	1 hat.	.....	.....	5-8	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	1 doz.	1 32	1 20	2	.....	375 00	.....	No.	.....	.....	.....	.....
.....	.....	.....	do.	1 00	75	.....	.....	800 00	.....	.....	.....	.....	.....	.....
.....	.....	.....	do.	1 50	1 00	3	.....	800 00	.....	.....	.....	.....	.....	.....
.....	.....	.....	1 hat.	62	50	8-10	.....	.....	.....	.....	.....	.....	.....	.....
Team	2	13	1 doz.	35	11	30	.....	432 00	14	No.	Yes	.....	50	.....
do.	3	20	do.	24	18	.....	.....	600 00	.....	.....	.....	.....	.....	.....
.....	.....	.....	do.	.....	.....	.....	\$12 00	500 00	10	No.	No.	.....	60	.....
.....	.....	.....	do.	10	.....	30	.....	450 00	.....	No.	Yes	.....	.....	.....
.....	.....	.....	do.	.....	.....	10-12	.....	800 00	.....	.....	Yes	.....	150	.....

STRAW HATS.

.....	.....	\$1 00	100hts	.....	110 h'ts.	.....	\$250 00	.....	Yes	.....	50	.....	4
.....	.....	1 00	do.	.....	95	.....	280 00	.....	No.	.....	.....	40	10
.....	.....	1 00	do.	.....	100	.....	225 00	.....	No.	.....	1	60	3
.....	.....	.....	.....	.....	.....	\$20 00	1,040 00	.....	Yes	.....	.....	.....	.....

IRON WORKERS, PUDDLERS.

Office number.	County.	What are the busy months in the year?	Number of hours worked per day during busy months.	State in what subdivision of your trade you are engaged.	Number hands in your subdivision or department where you work.	Give the kind, quality, grade and style of work you make.
71	Cumberland..	Sept. to April	12	Puddler.....	36	Puddle the iron for nails.....
72	do.	do.	12	do. ....	.....	Get the iron ready for nails.....
163	do.	do.	12	do. ....	.....	do. do. do.
167	do.	do.	12	do. ....	.....	Prepare iron for nails.....
601	Morris.....	All the year...	9	do.	12	{ Work bars and several kinds of hard iron..... }

PUDDLERS' HELPERS.

164	Cumberland..	All the year...	12	Puddler Helper	Help the puddler.....
165	do.	do.	12	do.	do. do.
166	do.	do.	12	do.	do. do.
677	Morris.....	.....	10	do.	do. do.

NOTE.—All work by piece and by hand work.

IRON WORKERS, PUDDLERS.

Do you work in team or singly?	How many compose the team?	Amount received per piece in team by hand work.	Describe what constitutes a piece.	Quantity produced in team by hand in a day.	Wages received per day.	Amount of individual earnings from July 1st, 1880, to July 1st, 1881.	Have you saved anything from your earnings during the year?	Have you fallen in debt during the year?	LOST TIME, DAYS.		
									From sickness.	Inability to obtain work.	Other causes.
Single	Helper....	\$3 50	1 ton.	2 $\frac{1}{4}$	.....	\$900 00	Yes .....	.....	18	60	.....
do.	do.	3 50	do.	2 $\frac{1}{4}$	.....	1,000 00	Yes .....	.....	.....	60	.....
do.	do.	3 50	do.	2 $\frac{1}{4}$	.....	1,050 00	No.....	.....	.....	60	.....
do.	do.	3 50	do.	2	.....	900 00	No.....	.....	.....	60	.....
Team.....	Four.....	4 50	do.	2	.....	700 00	.....	Yes	3	18	.....

PUDDLERS' HELPERS.

Team.....	.....	30	1 heat	5	.....	\$350 00	No. ....	.....	20	40	.....
do. ....	.....	30	do.	5	.....	400 00	No.....	.....	.....	40	.....
do. ....	.....	30	do.	5	.....	375 00	.....	.....	6	45	.....
.....	.....	.....	do.	.....	\$1 25	.....	.....	.....	.....	12	24

IRON WORKERS—MOULDERS.

Office number.	County.	Are you paid by the day, week, or month, or do you work by the piece?	Do you work by machine or by hand?	What are the busy months in the year?	Number hours worked per day during busy months.	What are the slack months in the year?
99	Cumberland..	Day	Hand	All the year	10	.....
378	Burlington ...	do.	do.	All but January	10	January
380	do.	do.	do.	do. do.	10	.....
264	do.	do.	do.	do. do. ....	.....	.....
195	do.	do.	do.	All the year	10	.....
194	do.	do.	do.	do.	10	.....
569	Cumberland..	Piece	do.	September to July	9 to 9½	July and August.
101	do.	do.	do.	Fall and spring	10	Winter
98	do.	do.	do.	do. do.	10	do.
97	do.	Day	do.	All the year	10	.....
100	do.	do.	do.	do.	10	.....
287	Camden	do.	do.	do.	10	.....
244	do.	do.	do.	Fall, summer and spring	10	Winter
243	do.	do.	do.	do. do.	10	do.
240	do.	do.	do.	do. do.	10	do.
337	do.	do.	do.	do. do. ....	.....	do.
512	Hudson	do.	do.	All the year .....	.....	.....

CORE MAKERS.

102	Cumberland..	Piece	Hand	Spring, summer and fall	10	Winter
242	Camden	Day	do.	All but winter	10	do.
238	do.	do.	do.	do. do. ....	.....	do.
513	Hudson	Piece	do.	All the year .....	.....	.....
265	Burlington ...	Day	do.	All but winter .....	.....	Winter

ROLLERS.

642	Morris	Piece	Hand	Winter	10	Summer
186	Cumberland..	do.	Both .....	.....	12	.....
209	do.	do.	do. ....	.....	11	.....

MISCELLANEOUS IRON WORKERS.

627	Morris	Piece	Hand	All the year .....	.....	.....
625	do.	do.	do.	Fall and winter	10	Heat of summer..
602	do.	do.	Machine	do. do.	9	do. do.
657	do.	Day	Hand .....	.....	.....	.....
705	Passaic	Hour	Machine	All the year	10	.....
739	Mercer .....	.....	do. ....	.....	.....	.....

PATTERN MAKERS—IRON FOUNDRY.

76	Cumberland..	Day	Hand	All the year	10	.....
641	Morris	do.	do. ....	.....	.....	.....

NAIL CUTTERS.

148	Cumberland..	Day	Machine	September to July	10	July and August.
149	do.	do.	do.	do. do.	10	do. do.
150	do.	do.	do.	do. do.	10	do. do.
162	do.	do.	do.	do. do.	10	do. do.

FEEDERS IN NAIL FACTORIES.

142	Cumberland..	Day	Machine	September to July	10	July and August.
160	do.	do.	do.	do. do.	10	do. do.

NOTE.—All work by piece. Moulders, core makers and rollers pay their own laborers.

IRON WORKERS—MOULDERS.

Number hours worked per day during slack months.	How many hours a day when on full time?	State in what subdivision of your trade you are engaged.	Give No. hands working in your subdivision or department.	Give the kind, quality, grade and style of the work you make.
.....	10	.....	8	General iron work.....
.....	10	Dry sand moulding.....	40	2 to 6-inch iron pipe.....
.....	10	Long pipe.....	20	30 to 40-inch pipe.....
.....	.....	Dry sand.....	.....	2 to 6-inch pipe, dry sand.....
.....	10	Machine casting.....	30	Castings for machinery.....
.....	10	do. do. ....	.....	do. do.
8½ to 9	.....	General casting.....	2	Glass Moulds, &c.....
.....	.....	Boss of team—Dry sand moulding...	15	All kinds of dry sand moulding.....
.....	.....	Pipe moulder.....	14	Iron pipe, green sand
.....	.....	.....	.....	General iron work.....
.....	10	.....	.....	do. do.
.....	10	.....	.....	Casting looms.....
.....	.....	Pipe.....	22	All kinds of pipes.....
.....	10	.....	.....	do. do.
.....	10	General job work.....	20	Looms, jobs and engines.....
.....	.....	Green sand.....	.....	Pipe moulding.....
.....	.....	Moulder.....	40	Machinery and ship work.....

CORE MAKERS.

.....	.....	Core for green sand moulding.....	7	Core to mould pipe.....
.....	.....	Core maker.....	22	Dry sand moulding.....
.....	.....	do.	20	Pipe, green sand.....
.....	9	do.	45	Piano and fancy casting.....
.....	.....	Dry sand.....	40	2 to 6-inch pipe.....

ROLLERS.

9	.....	Rolling iron.....	4	Murk bars.....
.....	.....	do.	4	Roll iron for nails.....
.....	.....	do. ....	.....	do. do.

MISCELLANEOUS IRON WORKERS.

.....	12	Bloomer.....	1	Oxide ore into iron for steel.....
8	10	Heating iron.....	2	Finished merchant iron.....
7	9	Squeezer.....	2	Bloom iron.....
.....	10	Furnace.....	.....	Furnace man.....
.....	.....	Planer.....	55	All work appertaining to locomotives..
.....	.....	.....	.....	Wire drawer.....

PATTERN MAKERS—IRON FOUNDRY.

.....	10	.....	1	Patterns for iron and brass moulding...
.....	.....	.....	2	Patterns for iron moulding.....

NAIL CUTTERS.

.....	10	Nail cutting.....	90	All size nails.....
.....	10	do. ....	.....	do.
.....	10	do. ....	.....	All size, 4 machines.....
.....	10	do. ....	.....	Have 4 machines.....

FEEDERS IN NAIL FACTORIES.

.....	10	Feed cutting machine.....	.....	Feed.....
.....	10	do. do.	106	.....

IRON WORKERS—MOULDERS—Continued.

Office number.	Do you work in team or singly?	How many compose the team?	Amount received per piece in team by hand work.	Describe what constitutes a piece.
99	Team.....	3 moulders, 2 core makers, 6 laborers.....		1 pipe.....
378	do.	3 moulders, 1 laborer.....		1 ton.....
264	do.	3 moulders, 2 core makers, 6 laborers.....		1 pipe.....
195	Single.....			
194	do.			
569	Team.....	Two.....	\$0 01	1 lb.....
101	do.	1 boss, 2 moulders, 1 core maker, 6 laborers....	40	1 pipe.....
98	do.	2 moulders, 1 core maker, 1 laborer.....	45	100 lbs.....
97	do.	Eight.....		
100	do.	Eight.....		
287	do.	Two.....		
244	do.	2 moulders, 2 laborers.....		1 ton.....
243	do.	2 moulders, 2 core makers, 2 laborers.....		1 ton.....
240	do.	1 moulder, 1 core maker, 1 laborer.....		
337	do.	1 moulder, 1 core maker, 1 laborer.....		100 lbs.....
512	Single.....			

CORE MAKERS—Continued.

102	Team.....	1 core maker, 2 moulders, 3 laborers.....	60 & \$0 45	100 lbs. of pipe....
242	do.	2 core makers, 2 moulders, 2 laborers.....		1 ton.....
238	do.	1 core maker, 1 moulder, 1 laborer.....		100 lbs. of pipe....
513	Single.....		6 00	1 piano core.....
265	Team.....	3 moulders, 2 core makers, 6 laborers.....		1 pipe.....

ROLLERS—Continued.

642	Team.....	Two.....	\$0 65	1 ton.....
186	do.	Nine.....	12 ³ / ₄	1 ton.....
209	do.	Nine.....	12 ³ / ₄	1 ton.....

MISCELLANEOUS IRON WORKERS—Continued.

627	Single.....		\$5 00	1 ton.....
625	Team.....	Two.....	1 00	1 ton.....
602	Single.....			1 ton.....
657	.....			
705	.....			
739	.....			100 lbs.....

PATTERN MAKERS—IRON FOUNDRY—Continued.

76	Single.....			
641	do.			

NAIL CUTTERS—Continued.

148	Have help....	3 machines.....	12 to \$0 70	1 keg, 100 lbs.....
149	do.	Help costs \$2.50 per day for 3 machines.....	12	do.
150	do.	Help costs 7c. per keg.....	12 to 70	do.
162	do.	Run 3 machines, have help.....	12	do.

FEEDERS IN NAIL FACTORIES—Continued.

142	Single.....		\$0 07	1 keg, 100 lbs.....
160	do.		07	do.

NOTE.—All work by piece. Moulders, core makers and rollers pay their own laborers. Number 602 receives 40 cents per piece, by machine; 739 receives 9 cents, by hand. 657 has been reduced 25 cents per day.

IRON WORKERS—MOULDERS—Continued.

Quantity produced in team by hand in a day.	Wages received per day.	Amount of individual earnings from July 1st, 1880, to July 1st, 1881.	What per cent. have wages been advanced during the year?	Have you saved anything from your earnings during the year?	Have you fallen in debt during the year?	LOST TIME, DAYS.		
						From sickness.	Inability to obtain work.	Other causes.
48 (6-inch); 60 (2-inch)	\$2 00	\$550 00	.....	No.....	.....	12	.....	8
50 to 100	2 50	600 00	.....	Little.....	.....	10	50	4
48 (6-inch); 60 (2-inch)	2 50	500 00	.....	No.....	.....	.....	78	.....
.....	.....	600 00	.....	.....	.....	20	40	10
.....	2 00	600 00	.....	Yes.....	.....	.....	.....	6
.....	2 50	700 00	.....	Yes.....	.....	12	.....	3
400	.....	742 54	.....	No.....	No.....	6	.....	11
22	.....	600 00	.....	No.....	No.....	.....	75	.....
20	.....	500 00	.....	No.....	No.....	.....	75	.....
.....	2 00	600 00	.....	Yes.....	.....	6	.....	.....
.....	2 00	500 00	.....	No.....	No.....	25	.....	6
.....	2 00	500 00	.....	.....	.....	6	40	.....
4	2 25	600 00	.....	No.....	No.....	.....	50	.....
4	2 25	575 00	.....	No.....	No.....	10	50	3
.....	2 50	625 00	.....	.....	.....	15	40	6
4,500	2 25	625 00	.....	No.....	No.....	.....	60	6
.....	3 37	900 00	Per day, \$0 78	Yes.....	No.....	12	.....	.....

CORE MAKERS—Continued.

20	.....	\$475 00	.....	No.....	No.....	6	75	4
4	\$2 25	450 00	.....	No.....	No.....	12	50	6
4,500	2 50	625 00	.....	Yes.....	.....	26	60	6
2 per week	.....	554 00	20	No.....	No.....	12	.....	12
48 (6-inch); 60 (2-inch)	2 50	625 00	10	.....	.....	.....	40	8

ROLLERS—Continued.

6	.....	\$630 00	.....	Yes.....	No.....	3	.....	18
17	.....	600 00	.....	Yes.....	No.....	8	30	.....
17	.....	550 00	.....	Yes.....	No.....	15	40	20

MISCELLANEOUS IRON WORKERS—Continued.

7 per week	.....	.....	.....	Yes.....	.....	16	12	6
6 per week	.....	\$550 00	.....	Yes.....	.....	10	4	12
.....	\$1 75	400 00	.....	.....	Yes.....	4	18	.....
.....	1 70	364 00	.....	No.....	Yes.....	.....	20	30
.....	.....	.....	.....	Yes.....	.....	93	.....	5

PATTERN MAKERS—IRON FOUNDRY—Continued.

.....	\$2 25	\$700 00	.....	Yes.....	.....	.....	.....	.....
.....	2 08 $\frac{1}{3}$	550 00	.....	Yes.....	.....	.....	.....	11

NAIL CUTTERS—Continued.

20 to 40	.....	\$1,050 00	.....	Yes.....	.....	6	40	.....
60	.....	1,100 00	.....	Yes.....	.....	.....	40	.....
20 to 70	.....	.....	.....	.....	.....	.....	25	.....
75	.....	1,000 00	.....	Yes.....	.....	.....	60	.....

FEEDERS IN NAIL FACTORIES—Continued.

20 single	.....	\$300 00	.....	No.....	.....	.....	41	4
20 single	.....	275 00	.....	No.....	.....	.....	60	.....

HARNESS MAKERS.

Office number.	County.	Are you paid by the day, week, or month, or do you work by the piece?	Do you work by machine or by hand work?	What are the busy months in the year?	Number hours worked per day during busy months.	What are the slack months in the year?	Number hours worked per day during slack months.	How many hours per day when on full time?	State in what subdivision of your trade you are engaged.	Number hands in your subdivision or department where you work.
639	Morris.	Week.....	Hand.....	All alike.	10			10		1
709	Essex...	.....	do.	8 months	10	4 months	7	10	Stitching.....	17
710	do.	Piece.....	do.	7 do.	10	5 do.	8	10	Fitting.....	40
711	do.	do.	do.	7 do.	10	5 do.	7 to 8	10	do.	150
712	do.	do.	do.	5 do.	10	7 do.	7	10	Stitching.....	
713	do.	do.	do.	7 do.	10	5 do.	7	10	Fitting.....	17
714	do.	do.	do.	7 do.	10	5 do.	7	10	.....	
715	do.	do.	do.	7 do.	10	5 do.	7	10	Stitching.....	
716	do.	do.	do.	6 do.	10	6 do.	8	10	do.	
717	do.	do.	do.	6 do.	10	6 do.	7	10	do.	
718	do.	do.	do.	6 do.	10	6 do.	6	10	Fitting.....	
719	do.	do.	do.	8 do.	10	4 do.			do.	
720	do.	do.	do.	7 do.	10	5 do.	7		Reins maker.....	
721	do.	do.	do.	8 do.	8	4 do.	6		Stitching.....	
722	do.	do.	do.	5 do.	10	7 do.	7		Fitter.....	
723	do.	do.	do.	4 do.	11	8 do.	8		.....	
724	do.	do.	do.	8 do.	11	4 do.	7 to 8		.....	
725	do.	do.	do.	8 do.	11	4 do.			Stitching.....	75

NOTE.—Number 720 gives description of piece and price: 70 cents for flat double reins; 70 cents for coupling parts, stitfled 22 inches, lap on the buckle 14½ inches; 30 cents for flat buggy reins, creased by hand, lap 4½ inches; 20 cents for flat buggy reins, creased by machine.

MACHINISTS.

Office number.	County.	Are you paid by the day, week or month, or do you work by the piece?	Do you work by machine or by hand work?	How many hours per day when on full time?	Number hands in subdiv'n or department where you work.	Give kind, grade quality, and style of work you make.
650	Morris.....	Month.....	Machine.....	10	30	Railroad irons and mining implements.
564	Essex.....	½ hour.....	Both.....	10		Anything, skilled machinist.....
191	Burlington ..	Day.....	Machine.....	10	125	Making machines for wood work.....
193	do.	do.	do.	10		Making machines to cut wood.....
192	do.	do.	do.	10		do. do. do.
205	Camden.....	Week.....	do.	10		Making dredging machines.....
218	do.	do.	do.	10	15	do. do. do.
245	do.	do.	do.	10	10	Machine work, new and repairing.....
247	do.	do.	do.	10		Machinery for factory and engines.....
159	Cumberland..	do.	do.	10	60	Machine for cutting dies.....
140	do.	do.	do.	10		do. do.
272	Camden.....	Piece.....	do.	10	10	Shafts, gearing, &c., for woolen factories.
271	do.	do.	do.	10		Work on lathe turning.....
290	do.	Week.....	do.	10	50	Card machines for woolen factories.....
246	do.	do.	do.	10		General machine work.....
289	do.	do.	do.	10	20	All kinds of factory machinery.....
262	Burlington ..	do.	do.	10		Machinery for wood and job work.....
260	do.	do.	do.	10		Generally lathe work.....
307	Cumberland..	do.	do.	10	35	Engines and job work.....
208	Burlington ..	do.	do.	10		Machines to do wood work.....
109	do.	do.	do.	10		Iron machines for wood work.....
217	Camden.....	do.	do.	10		Dredging machines.....

HARNESS MAKERS.

Give the kind, quality, grade and style of work you make.	Amount received per piece, single by hand work.	Describe what constitutes a piece.	Wages received per week.	Quantity produced in a day.	Amount of individual earnings from July 1st, 1880, to July 1st, 1881.	What per cent. have wages been advanced during the year?	Have you saved anything from your wages during the year?	Have you fallen in debt during the year?	LOST TIME, DAYS.		
									From sickness.	Inability to obtain work.	Other causes.
Mend'g and repair'g Third class.....			\$9 00		\$460 00	.....	Yes	.....	4		6
					850 00	10	No.	No.		24	
{ All kinds carriage and coach harness	\$8 25	1 doz. sets harness				10	No.	Yes			
Second class.....	5 50	A set.....				10	No.	No.		18	6
do.					225 00	10	No.	Yes	21		
Second class.....					450 00	10	No.	No.		12	24
do.						10	No.	No.			
Second class.....					364 00	10	No.	Yes	6	30	52
First class.....					416 00	10	No.	Yes		52	
Second class.....					468 00	10	No.	Yes	18	30	6
do.					360 00	10	No.	No.	14	52	10
	16 00	12 sets body parts			315 00						
				4 sets	600 00	10	No.	No.		30	
Second class.....							No.	No.		52	104
do.			15 00		450 00	10	No.	No.	4		52
Third quality.....						10	No.	No.	12		
Medium.....			15 00			10	No.	No.			
			6 00				No.	No.			
							Yes	Yes			

MACHINISTS.

Am't received per piece in team by hand work.	Describe what constitutes a piece.	Quantity prod'cd in a day singly by machine.	Wages received per day.	Wages received per week.	Wages received per month.	Am't of individual earnings from July 1, 1880, to July 1, 1881.	How much have wages been advanced during the year?	Have you saved anything from earnings during the year?	Have you fallen in debt during the year?	LOST TIME, DAYS.	
										From sickness.	Other causes.
					\$80 00	\$960 00		Yes	No	12	
						800 00	25c. per day	No	No		7
			\$2 00			600 00	10 per cent.	Yes		10	
			2 00			600 00	do.	Yes			6
			2 25			650 00	do.				4
				\$14 00		625 00		Yes		10	
			16 00			825 00		Yes		10	
			12 00			580 00		No	No	10	12
			12 00			600 00		No	No		12
			13 50			800 00	10 per cent.	Yes		over	time.
			13 50			750 00	do.	Yes			
3 cts	1 foot 3-in. shaft	90				500 00		Yes		3	2
2½	1 foot 2-in. shaft	100				700 00		No	No		10
			10 00			500 00		No	No	6	6
			12 00			575 00		No	No	20	12
			8 00			400 00		No	No		4
			12 00			600 00		Yes	No	6	6
			12 00			575 00		No	No	10	5
			12 00			575 00		No	No		
			15 00			750 00	10 per cent.	Yes	No		6
			15 00			750 00	do.	Yes			12
			25 00			1,200 00		Yes	No		

BLACKSMITHS.

Office number.	County.	Are you paid by the day, week or month, or do you work by the piece?	Do you work by machine or by hand work?	What are the busy months in the year?	Number hours worked per day during busy months.	How many hours per day when on full time?	State in what subdivision of your trade you are engaged.	Number working in your subdivision or department where you work.	Give the kind, quality, grade and style of work you make.
462	Ess	Week	Hand	Gen'ally busy	10	10	Blacksmith.....	1	Machine and iron work
214	Cam ..	do.	do.	do. do.	10	10	do.	1	General repairing.....
216	do.	do.	Both..	do. do.	10	10-15	do.	8	All kinds for machinery
106	do.	do.	Hand	All the year...	10	10	do.	2	For chemical works.....
68	do.	do.	do.	do. do.	10	10	do.	60	General iron work.....
129	do.	do.	Both..	do. do.	10	10	do.	20	Carriages, finest quality
125	do.	do.	.....	do. do.	10	10	do. ....	.....	Carriage work gen'ally..
118	do.	do.	Both..	do. do.	10	10	Boss in shop.....	20	Best work on carriages..
67	do.	do.	do.	do. do.	10	10	Blacksmith.....	60	All kinds of work.....
66	do.	do.	do.	do. do.	10	10	do. ....	.....	High grade work.....
65	do.	Mon..	do.	do. do.	10	10	Foreman .....	.....	All kinds of work.....
213	do.	do.	Hand	do. do.	10	10	Blacksmith.....	.....	Glass factory work.....
593	War ..	Week	do.	9 months.....	10	10	Finisher.....	7	Carriage phaetons.....
605	Mor ..	.....	do.	All the year...	.....	.....	Gen'l blacksmith...	4	All kinds of repairing..
606	do.	Day...	do.	.....	.....	.....	Sharpening drills...	.....	Work for mines.....
613	do.	Week	do.	.....	.....	10	.....	2	Sharpening tools.....

NOTE.—No. 593, one wagon constitutes a piece; two produced per week.

BLACKSMITHS.

Do you work in team or singly?	How many compose the team?	Wages received per week.	Wages received per month.	Amount of individual earnings from July 1st, 1880, to July 1st, 1881.	How much have wages been reduced during the year?	Have you saved anything from your earnings during the year?	Have you fallen in debt during the year?	LOST TIME, DAYS.		
								From sickness.	Inability to obtain work.	Other causes.
Singly ..	.....	\$15 00	.....	.....	.....	No	No .....	.....	.....	.....
Team ...	8	15 00	.....	\$750 00	.....	Yes .....	.....	6	.....	.....
Both ...	.....	18 00	.....	950 00	.....	Yes .....	.....	6	.....	6
do. ....	.....	16 00	.....	800 00	.....	Yes .....	.....	.....	.....	.....
.....	.....	10 00	.....	500 00	.....	No .....	.....	7	.....	2
.....	.....	22 00	.....	1,000 00	.....	Yes .....	.....	.....	.....	.....
Singly ..	.....	15 00	.....	700 00	.....	Yes .....	.....	.....	.....	Few days
Both ...	.....	25 00	.....	1,200 00	.....	Yes .....	.....	.....	.....	.....
do. ....	.....	15 00	.....	700 00	.....	.....	.....	4	.....	.....
.....	.....	18 00	.....	900 00	.....	Yes .....	.....	.....	.....	3
.....	.....	.....	\$125 00	1,460 00	.....	.....	No .....	.....	.....	6
Singly ..	.....	75 00	.....	800 00	.....	No	No .....	.....	.....	25
Team ...	2	12 00	.....	409 00	.....	No	No .....	.....	.....	5
do.	2	18 00	.....	840 00	20c. *	No	No .....	.....	5	5
Singly ..	.....	9 00	.....	475 00	25c.	No	No	4	5	8
Team ...	2	9 00	.....	460 00	25c. per day	Yes	No	2	.....	4

* Advanced.

MINERS.

Office number.	County.	Are you paid by the day, week or month, or do you work by the piece?	Do you work by machine or by hand?	How many hours per day when on full time?	State in what subdivision of your trade you are engaged.	Number working in your subdivision or department where you work.	Give the kind, quality, grade and style of work you make.	Do you work in team or singly?	How many compose the team?
621	Mor...	Piece ...	Hand....	8	Miner .....	.....	Iron ore.....	Team....	2
622	do.	Week ...	do.	8	do. ....	.....	do. ....	.....	.....
624	do.	Piece ...	do. ....	.....	do.	150	do.	Team....	2
634	do.	Week ...	do.	8	do. ....	.....	do. ....	.....	.....
638	do.	Day	do.	10	do. ....	.....	do. ....	.....	.....
644	do.	Piece ...	do.	10	Drilling.....	4	Mining of all kinds.....	Team....	4
652	do.	do.	do.	10	Timbering...	25	Drilling, blasting, iron hoisting	do.	4
655	do.	Week ...	Mach ...	8	Run a drill..	16	Drilling with machine.....	do.	2
656	do.	do.	Hand. ...	10	Shaftsman ...	.....	Timber, attend to pumps, &c....	.....	.....
675	do.	do.	do.	8	Miner .....	.....	.....	.....	.....
678	do.	do.	do.	10	Drilling.....	25	.....	Team....	2
581	do.	do.	do.	10	Miner .....	.....	.....	do.	2
582	do.	do.	do.	9	do. ....	.....	Mining and timbering.....	do.	4-6
585	do.	do.	do.	10	do. ....	.....	Mining in general.....	do.	6
598	do.	do.	do.	10	do.	40	Drilling by hand.....	do.	2
615	do.	Piece ...	Mach ...	10	Drifting	150	Drilling, hoisting, timbering....	do.	2
616	do.	Week ...	Hand....	10	Landing.....	42	Nothing but landing.....	.....	.....
617	do.	do.	Mach ...	8	Drilling	2	Drilling and blasting.....	Team....	2
798	do.	do.	Hand ..	10	do.	75	Blasting and filling iron ore....	do.	2

MINERS.

AMOUNT RECEIVED PER PIECE.			Describe what constitutes a piece.	QUANTITY PRO- DUCED.				Wages received per week.	Amount of individual earnings from July 1st, 1889, to July 1st, 1891.	How much have wages been reduced during the year?	Have you saved anything from your earnings during the year?	Have you fallen in debt during the year?	TIME LOST, DAYS.		
In team by machine.	In team by hand work.	Single by machine.		In a day in team by machine.	In a day singly by machine.	In team by hand in a day.	Singly by hand in a day.						From sickness.	Inability to obtain work.	Other causes.
.....	\$0 60	.....	Ton .....	.....	.....	6	3	.....	.....	5c.*	No.	No.	1	13	3
.....	2 00	.....	Ton .....	.....	.....	3	.....	\$7 50	\$350 00	.....	No.	Yes	.....	8	14
.....	.....	.....	.....	.....	.....	.....	.....	9 50	.....	.....	No.	No.	12	.....	10
.....	.....	.....	.....	.....	.....	.....	.....	.....	400 00	25c. per day	No.	No.	4	.....	2
.....	45	.....	Bucket .....	.....	.....	14	.....	.....	325 00	15c. per day	No.	No.	.....	4	7
.....	2 00	.....	Ton .....	.....	.....	5½	.....	.....	680 00	.....	No.	No.	12	.....	10
.....	20	.....	Foot.....	.....	.....	.....	.....	7 50	400 00	.....	Yes	.....	10	.....	12
.....	.....	.....	.....	.....	.....	.....	.....	12 00	.....	.....	Yes	.....	9	.....	10
.....	.....	.....	.....	.....	.....	.....	.....	7 50	350 00	15c. per day	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	7 50	320 00	.....	Yes	.....	14	.....	4
.....	.....	.....	.....	.....	.....	.....	.....	10 00	450 00	.....	.....	.....	5	.....	4
.....	.....	.....	.....	.....	.....	.....	.....	9 00	.....	.....	.....	Yes	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	9 00	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	Foot.....	.....	.....	8	5	9 00	.....	.....	Yes	.....	.....	.....	12
\$8 00	\$4 00	.....	Yard ...	1½	¾	.....	.....	.....	1,200 00	.....	Yes	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	7 50	275 00	.....	Yes	Yes	.....	2	10
.....	.....	.....	Ton	20	.....	.....	.....	9 00	.....	.....	Yes	.....	3	.....	.....
.....	.....	.....	Ton	9 ft.	.....	.....	.....	7 50	300 00	.....	No.	No.	.....	.....	.....

* Advanced.

PRINTERS.

Office number.	County.	Are you paid by the day, week or month, or do you work by the piece?	What are the busy months in the year?	Number hours worked per day during busy months.	State in what subdivision of your trade you are engaged.	Number working in your subdivision or department where you work.	Give the kind, quality, grade and style of work you make.
645	Mor...	Piece	.....	.....	.....	.....	Newspaper
658	do.	Week	Fall and spring.....	10	Job work...	1	Jobbing mostly.....
578	do.	do.	Fall, winter and spring.	10	As "devil".....	.....	All kinds of work.....
579	do.	do.	do. do.	10	Job printer.	6	Newspaper, book and job work..
580	do.	do.	do. do.	10	Pressman ...	1	Newspaper, posters and circulars
221	Cum.	do.	All the year.....	10	.....	6	Newspaper and job printing.....
225	Cam..	Piece	do. do.	10	Newspaper	10	.....
226	do.	do.	do. do.	10	Book work.	7	Book, job and newspaper.....
227	do.	Week	do. do.	10	Job work...	.....	General job work.....
267	do.	Piece	Except July and Aug....	10 $\frac{1}{2}$	Compositor	.....	Newspaper
268	do.	do.	do. do.	10 $\frac{1}{2}$	do.	4	do.
176	do.	do.	do. do.	.....	do.	.....	do.
219	do.	do.	All the year.....	.....	.....	.....	Print shirt tags.....
458	Ess.....	.....	.....	16-18	Reporter	.....	.....

NOTE.—Slack months, June, July and August.

PRINTERS.

Amount received per piece, single, by hand work.	Describe what constitutes a piece.	Quantity produced singly by hand in a day.	Wages received per week.	Amount of individual earnings from July 1st, 1880, to July 1st, 1881.	How much have wages advanced during the year?	Have you saved anything from your earnings during the year?	Have you fallen in debt during the year?	LOST TIME, DAYS.		
								From sickness.	Inability to obtain work.	Other causes.
25c....	1,000 ems....	8	.....	.....	.....	No....	Yes....	.....	18	24
.....	.....	.....	\$9 00	.....	.....	No....	No....	10	.....	10
.....	.....	.....	3 00	.....	.....	.....	.....	78	.....	.....
.....	1,000 ems....	.....	12 00	\$650 00	.....	No....	No....	.....	.....	.....
.....	.....	.....	12 00	600 00	25c. per day.....	Yes....	No....	2	.....	4
.....	.....	.....	7 00	.....	.....	Yes....	No....	8	.....	.....
30c....	1,000 ems....	8	.....	600 00	10c.....	No....	No....	6	.....	20
35c....	1,000 ems....	8	.....	575 00	10c.....	No....	No....	10	.....	24
.....	.....	.....	12 00	600 00	10c.....	.....	.....	15	.....	10
30c....	1,000 ems....	6	.....	500 00	.....	.....	.....	.....	.....	.....
30c....	1,000 ems....	6	.....	480 00	5c. per 1,000 ems...	No....	No....	.....	.....	.....
30c....	1,000 ems....	6	15 00	600 00	5c. per 1,000 ems...	.....	.....	12	.....	.....
.....	.....	8	8 00	400 00	.....	No....	No....	12	.....	.....
.....	.....	.....	16 00	.....	.....	No....	Yes....	.....	.....	.....

POTTERS.

Office number.	County.	Are you paid by the day, week, or month, or do you work by the piece?	Do you work by machine or by hand?	Number hours worked per day during busy months.	How many hours per day when on full time.	State in what subdivision of your trade you are engaged.	Number hands in your subdivision or department where you work.	Give the kind, quality, grade and style of work you make.
570	Mercer	Piece ...	Hand	10	.....	Make the moulds	2	All kinds of pattern moulds.
571	do.	do.	Machine.....	.....	10	Turner.....	6	Oyster bowls and egg cups....
556	do.	do.	do.	.....	10	Slip maker.....	.....	.....
555	do.	do.	Hand	10	10	Sagger maker.....	1	.....
554	do.	Week....	do.	10	10	Potter .....	.....	Dishes.....
553	do.	Piece ...	do.	10	.....	do. ....	.....	Wash basins.....
552	do.	do.	do.	.....	10	do.	12	Hollow ware.....
551	do.	do.	do.	10	.....	do. ....	.....	Plate maker.....
550	do.	Week....	do.	10	10	Dipper.....	1	Dip and place ware.....
733	do.	do.	do.	10	.....	Pressing	30	Plumbers' earthenware.....
740	do.	do.	do.	10	.....	Modeler	2	.....
741	do.	do.	do.	8 to 9	.....	Kiln work.....	26	.....
742	do.	do.	do.	10	8	Mould maker.....	1	Model and make the moulds

NOTE.—Busy months, fall and spring. Slack months, summer and winter.

POTTERS.

Amount received per piece single by hand work.	Describe what constitutes a piece.	Quantity produced singly by hand in a day.	Wages received per week.	Amount of individual earnings from July 1st, 1880, to July 1st, 1881.	Have you saved anything from your earnings during the year?	Have you fallen in debt during the year?	LOST TIME, DAYS.		
							From sickness.	Inability to obtain work.	Other causes.
{ 50c.	1 dozen plate moulds.....	3 teapots	\$15 00	\$624 00	No.....	Yes	12	12	18
{ 75c.	Teapot mould, 12 pieces.....						4	26	6
9c.	1 dozen oyster bowls, No. 30....	30	.....	600 00	No.....	No.....	36	48	.....
3c.	Leaf 24 leaves in press.....	8	.....	.....	No.....	No.....	.....	.....	.....
3c.	1 sagger.....	60	12 00	.....	.....	Yes .....	.....	.....	.....
{ 40c.	Dozen	20	.....	600 00	No.....	Yes	72	48	.....
{ 10c.	do.	10	.....	.....	No.....	No.....	.....	.....	.....
45c.	.....	.....	12 00	600 00	.....	.....	20	.....	.....
{ 18c.	Dozen .....	.....	.....	600 00	No.....	Yes	24	.....	60
{ 15c.	.....	.....	15 00	600 00	.....	Yes	12	.....	18
.....	.....	.....	18 00	.....	Yes	No.....	1	.....	.....
.....									
.....	.....	.....	9 00	.....	.....	.....	.....	.....	.....
.....	.....	.....	18 00	.....	No.....	No.....	.....	.....	30

WOOLEN MILL OPERATIVES.

Office number.	County.	Are you paid by the day, week, or month, or do you work by the piece?	Do you work by machine or by hand?	Number hours worked per day during busy months.	How many hours per day when on full time?	State in what subdivision of your trade you are engaged.	Number hands in your subdivision or department where you work.	Give the kind, quality, grade and style of work you make.	Amount received per piece single by machine.
110	Cam.....	Piece ...	Machine	11	11	Jack spinner.	8	Spin 1st to 4th quality.....	\$1 00
114	do.	Month..	Hand	11	11	Overseer.....	4	Keep the looms in repair.....	.....
115	do.	Piece ...	Machine	11	11	Weaver.....	100	Woolen goods, shoddy, &c.....	9 to 11
123	do.	do	do.	11	11	do.	100	Cassimere, broadcloth, &c.....	11
124	do.	do.	do.	11	11	do.	100	Broadcloth, waterproof.....	9 to 13
139	do.	Week....	do.	11	11	Cloth finisher	20	Finish the cloth.....	.....
224	do.	Piece ...	do.	11 $\frac{1}{4}$	11 $\frac{1}{4}$	.....	40	Quilts, tablecloths, &c.....	5
212	do.	do.	do.	11 $\frac{1}{4}$	11 $\frac{1}{4}$	.....	.....	Tablecloths.....	5
223	Cumb...	do.	do.	10	.....	Weaver.....	40	Light cassimeres, two looms.	80
222	do.	do.	do.	10	10	do. ....	.....	do. do.	80
232	Cam. ...	do.	Hand	11 $\frac{1}{4}$	.....	Sorter.....	8	Assort and give the quality...	1 00
238	do.	do.	do.	11 $\frac{1}{4}$	11 $\frac{1}{4}$	do. ....	.....	Give the different qualities...	1 00
210	do.	Week....	Machine	10	10	Carder.....	2	Card for fancy woolen yarns.	.....

NOTE.—Work all the year. Numbers 222 and 223 are females; the rest males.

WOOLEN MILL OPERATIVES.

Describe what constitutes a piece.	Highest price received for your work.	Lowest price received for your work.	Quantity produced in a day singly by machine.	Quantity produced singly by hand in a day.	Quantity produced in a week singly by machine.	Wages received per week.	Wages received per month.	Amount of individual earnings from July 1st, 1880, to July 1st, 1881.	What per cent. have wages been advanced during the year?	Have you saved anything from your earnings during the year?	Have you fallen in debt during the year?	LOST TIME, DAYS.		
												From sickness.	Inability to obtain work.	Other causes.
100 runs.....	.....	.....	2	.....	.....	.....	.....	\$550 00	.....	No.....	.....	4	.....	.....
1 loom.....	.....	.....	.....	100	.....	.....	\$65 00	.....	.....	.....	.....	.....	.....	.....
1 yd. double width..	13c. 9c.	14 to 16	.....	.....	.....	.....	.....	375 00	.....	Very little...	.....	3	.....	.....
do. do.	13c. 9c.	15 to 16	.....	.....	.....	.....	.....	450 00	.....	No.....	.....	3	.....	.....
do. do.	13c. 9c.	14 to 16	.....	.....	.....	.....	.....	400 00	.....	Very little...	.....	7	.....	20
1 yard.....	.....	.....	500	.....	.....	\$7 50	.....	400 00	.....	No.....	.....	12	.....	12
do. ....	.....	.....	25	.....	.....	.....	.....	425 00	.....	No.....	No..	12	.....	2
do. ....	.....	.....	23	.....	.....	.....	.....	300 00	.....	.....	.....	20	.....	.....
1 cut, 35 yards.....	.....	.....	.....	.....	8	.....	.....	325 00	5	Little.....	.....	4	.....	3
do. do.	.....	.....	.....	.....	9	.....	.....	325 00	5	.....	.....	10	.....	4
100 lbs.....	.....	.....	.....	300	.....	.....	.....	675 00	.....	No.....	No..	.....	80	3
do. ....	.....	.....	.....	300	.....	.....	.....	700 00	.....	No.....	No..	.....	75	2
.....	.....	.....	.....	.....	.....	14 00	.....	600 00	.....	Yes.....	.....	10	.....	6

SILK WORKERS.

Office number.	County.	Paid by day, week, month or piece?	Do you work by machine or by hand?	What are the busy months in the year?	Hours worked per day during busy months.	What are the slack months in the year?	Hours worked per day during slack months.	Hours per day when on full time.	State in what subdivision of your trade you are engaged.	No. in subdivision or department where you work.
175	Hudson...	Piece	Hand.....	12 months.....	10			10	Weaving.....	22
469	do.	do.	Machine..	6 do.	11	6 months...	10		do.	200
470	do.	Week	Hand.....	8 do.	10	4 do.	10			
471	do.	Piece	Machine..	All the year..	11				Spinning ..	16
472	do.	do.	Hand.....	April to Sept.	11	Oct. to Mar.	10		Weaving.....	325
473	do.	do.	Machine..					10	do.	
474	do.	do.	do.	All the year..	10				do.	100
475	do.	do.	do.	do.	10				do.	
476	do.	do.	do.	Mar. to Dec...	10	Jan. & Feb.	11		do.	
478	do.	do.	Hand.....	10 months....	10	do.	8	10	do.	24
479	do.	do.	do.						do.	
480	do.	do.	Machine..	All the year..	10				do.	35
481	do.	do.	Hand.....	do.				10	do.	
482	do.	do.	Machine..	Mar. to Dec...	9	Jan. & Feb.	7	10	do.	
483	do.	do.	do.	do.	9	do.	7	10	do.	
484	do.	do.	Hand.....	do.	10	do.	10	10	do.	5
485	do.	do.	do.		10			10	do.	85
486	do.	do.	Machine..	12 months....	10			10	do.	
487	do.	do.	Hand.....	12 do.	12				do.	
488	do.	do.	Machine..						do.	
489	do.	do.	do.	Mar. to Dec...	10	Jan. & Feb.	10	10	do.	
490	do.	do.	do.	Oct. to Mar....	11	Apr. to Sep.	10		do.	
491	do.	do.	do.	All the year..				10½	do.	
492	do.	do.	do.	do.				10½	do.	
493	do.	do.	Hand.....	do.	10			10	do.	80
494	do.	do.	Machine..	do.				10	do.	
495	do.	do.	do.	Aug. to Feb...	11½	Feb. to Aug	10		do.	
496	do.	do.	Hand.....	Jan. to Dec...	10				Work home	
497	do.	do.	Machine..	Sept. to Apr....	11½	May to Sep.	10¾		Weaving.....	
498	do.	do.	Hand.....	Jan. to Dec...	10				do.	36
499	do.	do.	do.	do.				10	do.	15
500	do.	do.	do.	do.	10				do.	
501	do.	do.	do.	12 months....	10				do.	
502	do.	do.	do.	Jan. to Dec...	10				do.	21
503	do.	do.	do.	do.	10				do.	19
504	do.	do.	do.	do.	10				do.	
505	do.	do.	do.	12 months....	10				do.	88
506	do.	do.	do.	12 do.	10				Work home	
507	do.	do.	Machine..	Aug. to June...		June & July	10		Weaving.....	
508	do.	do.	Hand.....	All the year..	10				do.	24
536	do.	Week	Machine..	do.				10	Spinning ..	12
537	do.	do.	do.	do.	10				do.	
538	do.	do.	do.	do.				10	do.	
539	do.	do.	do.	do.	10				do.	
540	do.	Piece	do.	do.	10				do.	
541	do.	do.	do.	do.	10				do.	16
542	do.	do.	do.	do.	10				do.	
543	do.	do.	do.		10				do.	
544	do.	Week	Machine..	All the year..	10			10	do.	
520	do.	Piece	do.	12 months....	10				Warping	8
521	do.	do.	do.	do.	10			10	do.	
522	do.	Week	do.	do.	10			10	Reeling.....	10
514	do.	Piece	do.	All the year..					Transfer'ng	12
515	do.	do.	do.	do.					do.	
516	do.	do.	do.	do.	10				do.	
517	do.	do.	do.	do.	10				do.	
518	do.	do.	do.	do.					do.	
519	do.	do.	do.	do.				10	do.	
523	do.	Week	Hand.....	do.	10¾			10¾	Twisting....	12
524	do.	Piece	do.	do.				10-13	do.	
526	do.	Week	do.	do.				10¾	do.	
527	do.	do.	do.	6 months....	10¾	6 months...	10	10¾	do.	
528	do.	do.	do.	Sept. to Mar...	10¾	Apr. to Aug	10	10¾	do.	
529	do.	do.	Machine..		10			10	Spooling....	12
530	do.	do.	do.	do.				10¾	do.	8
531	do.	Piece	do.	12 months....				12	Winding.....	95
532	do.	do.	do.	12 do.				10	do.	
533	do.	do.	do.					12	do.	
534	do.	do.	do.	Jan. to Dec...	11			11		
560	do.	do.	do.					10	Weaving.....	120
559	do.	do.	do.	Spring & fall.	10	Summer ..		10	do.	80
618	Passaic...	do.	do.					10¼	do.	
700	Hudson...	do.	do.	All the year..	10			10		
701	do.	do.	Hand.....						Weaving.....	
702	Passaic...	do.	do.	8 months....	10	4 months...			do.	
708	Hudson...	do.	do.						do.	11

SILK WORKERS.

Give the kind, quality, grade and style of work you make.	Do you work in team or singly?	How many in the team?	AMOUNT REC'D PER PIECE.		
			Team by machine.	Single by machine.	Single by hand.
Satin broad cloth, 21½ in. wide, 5,000 threads, 95 picks to the in...	Single..	.....	.....	11c.	33c.
Grogram dress silk, 69 perta or 5,520 threads.....	Single..	.....	.....	.....	.....
Satin dress goods.....	Team...	7	13c.	.....	.....
Tafta broad cloth silk, 21 in. wide, 4,240 threads, 60 picks to the in.	Single..	.....	.....	.....	23
Grogram dress silk.....	do.	.....	.....	7-8	.....
Taffet or grogram dress silk.....	do.	.....	.....	10	.....
Grogram dress goods.....	do.	.....	.....	7	.....
Flowered dress silk.....	do.	.....	.....	8	.....
Satin.....	do.	.....	.....	.....	55
Satin dress goods.....	do.	.....	.....	.....	32
Silk taffet.....	do.	.....	.....	15	.....
Grogram A dress silk.....	do.	.....	.....	.....	17
Grogram No. 1 dress silk.....	do.	.....	.....	7-8	.....
Grogram dress silk.....	do.	.....	.....	7-8	.....
Satin dress silk.....	do.	.....	.....	.....	24
Grogram dress silk.....	do.	.....	.....	.....	32
Satin dress silk.....	do.	.....	.....	11	.....
Flowered dress silk.....	do.	.....	.....	.....	32
Grogram dress silk.....	do.	.....	.....	20	.....
Taffet or grogram dress silk.....	do.	.....	.....	8	.....
Grogram dress silk.....	do.	.....	.....	11	.....
Taffet or grogram dress silk.....	do.	.....	.....	5½	.....
Grogram dress silk.....	do.	.....	.....	7	.....
do. do.	do.	.....	.....	.....	22
Heavy taffet silk stuff, 20½ in. wide.....	do.	.....	.....	5½	.....
Broad cloth tafta, 22 in. wide, 5,040 threads, 65 picks to the in.....	do.	.....	.....	10	.....
Taffet dress silk.....	Single..	.....	.....	8	24
Broad cloth silk, 22 in. wide, 5,040 threads, 65 picks to the in.....	do.	.....	.....	.....	24
Heavy serge, 8,400 threads, 28 in. wide.....	.....	.....	.....	.....	40
Broad cloth serge, 28 in. wide, 8,400 threads, 110 & 120 picks to in.	Single..	.....	.....	.....	40
Broad cloth serge, 6,300 threads, 110 picks to the in.....	do.	.....	.....	.....	37
Broad cloth satin, 22½ in. wide, 6,160 threads, 100 picks to the in.	do.	.....	.....	.....	33
Broad cloth serge, 28 in. wide, 6,560 threads, 105 picks to the in.....	do.	.....	.....	.....	38
Broad cloth tafta, 22 in. wide, 5,520 threads, 56 picks to the in.....	do.	.....	.....	.....	24
Broad cloth tafta, 21½ in. wide, 5,040 threads, 50 picks to the in.....	do.	.....	.....	.....	23
Broad cloth tafta, 21½ in. wide, 5,600 threads, 56 picks to the in.....	do.	.....	.....	.....	24
First-class grogram.....	do.	.....	.....	10	.....
Flowered silk.....	do.	.....	.....	.....	50
Tram or 364-end raw silk.....	.....	.....	.....	.....	.....
Uncolored 100-end tram.....	Single..	.....	.....	.....	.....
Raw silk organzine.....	do.	.....	.....	.....	.....
do. do.	do.	.....	.....	.....	.....
Raw silk organzine, 2 and 3 double.....	Team...	3	2	.....	.....
2-end organzine raw silk.....	do.	.....	2	6	.....
Raw silk organzine.....	do.	.....	2	6	.....
1-end organzine.....	do.	.....	6	13	.....
do. do.	Single..	.....	.....	.....	.....
Colored organzine.....	do.	.....	.....	10	.....
Colored and black organzine.....	do.	.....	.....	\$7 00	.....
Raw silk tram.....	.....	.....	.....	.....	.....
Colored organzine.....	Single..	.....	.....	8c.	.....
do. do.	do.	.....	.....	8	.....
do. do.	do.	.....	.....	8	.....
do. do.	do.	.....	.....	8	.....
do. do.	do.	.....	.....	8	.....
do. do.	do.	.....	.....	8	.....
Twist all kind of warps.....	do.	.....	.....	.....	.....
Black and colored warps.....	do.	.....	.....	2	.....
do. do.	do.	.....	.....	.....	.....
Colored and black silk.....	do.	.....	.....	.....	.....
Colored and black warps.....	do.	.....	.....	.....	.....
Black soft silk, or tram.....	do.	.....	.....	.....	.....
Black and colored spool tram.....	do.	.....	.....	.....	.....
Colored tram.....	do.	.....	.....	30	.....
Soft silk winding.....	do.	.....	.....	30	.....
Colored tram.....	do.	.....	.....	30	.....
Soft silk winding.....	do.	.....	.....	30-35	.....
Satin.....	.....	.....	.....	24-34	.....
do. do.	.....	.....	.....	45	.....
Ribbon weaving.....	.....	.....	.....	.....	.....
Taffet or grogram dress silk.....	Single..	.....	.....	8	.....
Checked or flowered broad cloth dress silk.....	do.	.....	.....	.....	38
Handkerchief, twenty hundred, 2 double, 2 width.....	.....	.....	.....	.....	25
Grogram or taffet.....	.....	.....	.....	13-16	.....

SILK WORKERS—Continued.

Office number.	What constitutes a piece?	Highest price received for your work.	Lowest price received.	QUANTITY PRODUCED.					Wages received per week.
				In a day singly by machine.	Day singly by hand.	In a week in team by machine.	In a week singly by machine.	Singly by hand in a week.	
175	1 yard.....	33c.	33c.		6				
469	1 do.	11	11	14					
470									\$7 50
471	1 pound.....	13	13			380			
472	1 yard.....	23	10		6				
473	1 do.			13 with 1 loom					
474	1 do.	10	5½	23			50 at 5½c.		
475	1 do.	10	4½	12					
476	1 do.	8	7½	20 to 24			136		
478	1 do.	60	45		3				
479	1 do.				5				
480	1 do.	24	7	8 to 10			50		
481	1 do.				7				
482	1 do.	8	7	20, by 2 looms.					
483	1 do.	8	7	20, by 2 looms.					
484	1 do.	24	24		8				
485	1 do.	32			9				
486	1 do.	14	4½	9 to 14					
487	1 do.	38	22		6				
488	1 do.	20	20	7 to 8					
489	1 do.	8	7	16					
490	1 do.	11	7	14					
491	1 do.	10	4½	28, by 2 looms.					
492	1 do.	10	4½	15					
493	1 do.	22			8				
494	1 do.	10	4	30, by 2 looms.					
495	1 do.	10	4	14 to 15					
496	1 do.				8				
497	1 do.	11	7	14					
498	1 do.				8				
499	1 do.				4½				
500	1 do.				4½				
501	1 do.				5				
502	1 do.	33	33		6				
503	1 do.	38	38		5				
504	1 do.				5				
505	1 do.	23	23		9				
506	1 do.				9				
507	1 do.			12, by 1 loom...					
508	1 do.						20		
536	1 pound.....								8 00
537	1 do.								7 00
538	1 do.								7 00
539	1 do.								5 00
540	1 do.					400			
541	1 do.					400			
542	1 do.					400			
543	1 do.					380			
544	1 do.								5 00
520	1 perta, or 80 threads, 225 yds.	12	10	10					
521	60 perta, 4,800 threads, 225 yds	\$7 50	\$7 00	1 piece a week					
522	1 pound.....			12					6 00
514	1 do.						70		
515	1 do.			10			60		
516	1 do.			16			90		
517	1 do.			15			85		
518	1 do.						80		
519	1 do.						80		
523									10 00
524	1 perta.....							700	
526	1 do.				114			627	10 00
527	1 do.				94				7 00
528	1 do.				119				7 00
529	1 spool.....						10,800		2 50
530	Board of spools (10 oz.).....				24				5 00
531	1 pound.....	32c.	28c.				20		
532	1 do.	32	28	2			12		
533	1 do.	32	28				20		
534	1 do.	45	30	3½			21		
560	1 yard.....			3					
559	1 do.			3					
618	1 do.			2 to 8					
700	1 do.			18, by 2 looms.			108		
701	1 do.			6			30		
702	1 handkerchief.....				8				48
708	1 yard.....	16	13						50

NOTE.—Numbers from 514 to 534 are females.

SILK WORKERS—Continued.

Quantity produced in a day.	Amount of individual earnings from July 1, 1880, to July 1, 1881.	How much have wages advanced during the year?	How much reduced?	Saved anything from earnings during the year?	Have you fallen in debt during the year?	LOST TIME, DAYS.		
						From sickness.	Inability to obtain work.	Other causes.
.....	\$468 00	.....	.....	.....	Yes	7	6	58
.....	347 50	.....	.....	.....	Yes .....	.....	.....	40
.....	.....	.....	.....	.....	Yes .....	.....	.....	.....
.....	300 00	.....	.....	.....	Yes	6	30	12
.....	309 96	.....	.....	.....	Yes	12	6	24
.....	384 00	.....	.....	.....	Yes	6	14	36
.....	412 00	.....	.....	No	No .....	.....	.....	18
.....	252 00	.....	.....	No	No	2	.....	12
.....	280 90	.....	10 cents .....	.....	Yes .....	.....	60	60
.....	373 20	5 cents per yard .....	.....	.....	Yes	5	.....	42
.....	400 00	.....	.....	No	No .....	.....	.....	24
.....	400 00	.....	.....	Little .....	.....	.....	100	.....
.....	144 00	.....	.....	No	No .....	.....	.....	.....
.....	364 00	.....	.....	No	No	6	20	14
.....	364 00	.....	.....	No	No	12	.....	12
.....	348 00	.....	.....	.....	Yes .....	.....	40	50
.....	632 00	.....	.....	Yes .....	.....	21	14	14
.....	320 00	.....	.....	.....	.....	12	30	.....
.....	410 00	.....	.....	No	No	3	36	36
.....	.....	.....	.....	No	No .....	.....	78	.....
.....	352 00	.....	.....	No	No .....	.....	14	46
.....	349 50	.....	.....	No	No .....	.....	12	18
.....	422 00	.....	.....	.....	.....	.....	.....	10
.....	336 60	.....	.....	No	No .....	.....	.....	6
.....	452 00	.....	.....	No	Yes	18	.....	44
.....	435 00	.....	.....	Yes .....	.....	.....	30	6
.....	360 00	.....	2 cents per yard	No	No .....	.....	.....	.....
.....	355 20	.....	.....	No	No	30	90	.....
.....	350 00	.....	.....	.....	Yes	8	24	.....
.....	390 00	.....	.....	.....	.....	42	60	.....
.....	495 00	.....	5 cents	No	No	30	.....	.....
.....	378 00	.....	.....	No	No	6	90	.....
.....	488 00	.....	.....	.....	.....	14	.....	36
.....	312 00	.....	.....	.....	Yes .....	.....	140	12
.....	412 00	.....	.....	.....	.....	90	.....	.....
.....	300 00	.....	.....	No	No .....	.....	150	.....
.....	468 00	.....	.....	No	No .....	.....	75	11
.....	558 00	.....	.....	No	No .....	.....	.....	45
.....	425 00	.....	.....	No	No .....	.....	.....	.....
.....	500 00	.....	.....	.....	Yes .....	.....	.....	14
40	400 00	.....	.....	Yes .....	.....	.....	.....	6
20	315 00	.....	.....	No	Yes	1	36	.....
12	336 00	.....	.....	Yes .....	.....	6	12	7
10	250 00	.....	.....	.....	Yes .....	.....	6	.....
.....	400 00	.....	.....	No	No .....	.....	.....	12
.....	600 00	.....	.....	Yes	No .....	.....	.....	3
.....	585 00	.....	.....	Yes	No .....	.....	.....	3
.....	360 00	.....	.....	No .....	.....	.....	.....	12
15	232 50	60 cents per week .....	.....	No .....	.....	6	.....	6
.....	312 00	1 cent per piece .....	.....	No	No	6	.....	6
.....	336 00	10 cents .....	.....	Yes .....	.....	3	12	9
.....	209 00	.....	.....	.....	Yes	90	12	2
.....	270 00	.....	.....	.....	.....	10	.....	12
.....	230 00	.....	.....	Yes .....	.....	2	.....	20
.....	345 00	.....	.....	Yes .....	.....	.....	.....	6
.....	354 00	.....	.....	Yes .....	.....	.....	8	4
.....	320 00	.....	.....	.....	.....	6	4	5
.....	325 00	.....	.....	Yes .....	.....	7	3	2
.....	510 00	.....	.....	Yes .....	.....	3	.....	3
.....	710 00	.....	.....	Yes .....	.....	3	.....	3
.....	485 00	30 per cent .....	.....	Yes .....	.....	6	.....	6
.....	357 00	10 per cent .....	.....	Yes .....	.....	.....	.....	4
.....	350 00	10 per cent .....	.....	Yes .....	.....	3	.....	3
.....	100 00	.....	.....	.....	Yes	24	21	10
.....	250 00	.....	.....	No	No .....	.....	.....	12
.....	225 00	.....	2½ cents per lb.	No	No	20	.....	20
.....	105 00	.....	2½ cents per lb.	No	Yes	6	.....	84
.....	232 00	.....	2½ cents per lb.	No	No	7	6	15
.....	291 50	.....	.....	No	No .....	.....	30	.....
.....	315 00	.....	.....	No	Yes .....	.....	70	.....
.....	350 00	.....	.....	No	No .....	.....	50	.....
.....	200 00	.....	.....	.....	.....	78	104	.....
.....	275 00	.....	.....	No	Yes	130	.....	6
.....	467 40	.....	2 cents per yard ..	No	No .....	.....	.....	60
.....	550 00	.....	.....	No	No .....	.....	60	.....
.....	372 00	.....	.....	No	No .....	.....	.....	6

COTTON MILL OPERATIVES.

Office number.	County.	Are you paid by the day, week or month, or do you work by the piece?	Do you work by machine or by hand?	Number hours worked per day during busy months.	State in what subdivision of your trade you are engaged.	Number working in your subdivision or department where you work.	Give the kind, quality, grade and style of work you make.
*62	Cum....	Piece...	Machine	11 ¹ / ₄	Weaving.....	160	2 twilled and 2 plain muslin.
*63	do.	do.	do.	11 ¹ / ₄	do.		do. do. do.
*64	do.	do.	do.	11 ¹ / ₄	do.		Muslin, twilled and plain....
*69	Cam....	do.	do.	11	Gingham weaver.....	50	Gingham
*70	Cum....	do.	do.	11 ¹ / ₄			2 twill'd & 2 com. pl'n muslin
*80	do.	do.	do.	11 ¹ / ₄	Weaving.....		do. do. do.
†111	Cam....	Week....	do.	11	Press in weave room....	300	Printing cloth and gingham.
*116	do.	Piece....	do.	11	Weaver		do. do. do.
*35	Cum....	do.					Twilled muslin, No. 7 yarn...
†34	do.	Week....		12	Second weave boss.....		Oversee work & repair looms
*33	do.	Piece....	Hand....	10 ³ / ₄	Web drawer.....	9	Draw the ends.....
†95	Cam....	Week....	Machine	11	Grinder	10	Grind the cards.....
†96	do.	do.		11	Clean cards.....	10	
*328	Atl....	Piece....	Machine	11 ¹ / ₄	Weaver	50	Plain muslin, single & double
†329	do.	Week....	do.	11 ¹ / ₄			Trim and draw forward.....
*343	do.	Piece....	do.	11 ¹ / ₄	Weaver		Plain muslin.....
*344	do.	do.	do.	11 ¹ / ₄	do.		do.
†345	do.	do.	do.	11 ¹ / ₄	do.		Plain fine muslin.....
*346	do.	do.	do.	11 ¹ / ₄	do.		do. do.
†447	do.	Week....	Both	11 ¹ / ₄	Stripper		Strip cards and clean them...
†348	do.	do.	Machine	11 ¹ / ₄	Card grinder.....	1	Grind cards & sharpen them
†349	do.	do.	do.	11 ¹ / ₄	Cotton pick....	1	Run mach. for pick'g cotton.
†350	do.	Piece....	do.	11 ¹ / ₄	Speeder	12	Attend two speeders.....
†351	do.	Week....	do.	11 ¹ / ₄	Mule spinner.....	14	Run self-acting mules & spin
†352	do.	Piece....	do.	11 ¹ / ₄	Speeder tender.....	13	Prepare cotton for machine..
*353	do.	Week....		12	Watchman.....	2	Watch over the factory.....

NOTE—Busy all the year; no slack months. No. 34, highest price, \$25 per week.

* Female. † Male. ‡ Boy, 15 years old.

COTTON MILL OPERATIVES.

Amount received per piece, single by machine.	Describe what constitutes a piece.	Lowest price received for your work.	Quantity produced in a week, singly by machine.	Wages received per week.	Amount of individual earnings from July 1st, 1880, to July 1st, 1881.	LOST TIME, DAYS.		
						From sickness.	Inability to obtain work.	Other causes.
\$0 49	50 yards twilled.....	.....	10 to 14 cuts, 5 looms....	.....	\$275 00	.....	25	.....
39	50 yards plain.....	.....	11 to 14 cuts, 6 looms....	.....	300 00	.....	25	8
49	Cut twilled.....	.....	12 to 15 cuts, 6 looms....	.....	250 00	.....	25	.....
50	Cut of 50 yards.....	.....	13 cuts, 3 looms.....	.....	300 00	.....	12	8
39	50 yards plain.....	.....	10 cuts.....	.....	175 00	6	21	.....
45	50 yards twilled.....	.....	16 to 18 cuts, 3 looms....	.....	300 00	20	48	.....
50	Cut of 50 yards.....	\$0 23	1 cut per loom in a day	.....	700 00	.....	.....	.....
28	Printing cloth.....	23	18 cuts with 6 looms....	.....	300 00	.....	.....	4
39	Cut of 50 yards.....	20	.....	\$15 00	350 00	.....	30	.....
.....	.....	.....	.....	10 00	490 00	.....	30	.....
39	1 work.....	20	.....	.....	200 00	26	90	.....
40	1 card.....	20	.....	8 00	380 00	8	12	.....
.....	1 card.....	.....	.....	8 00	400 00	.....	12	5
42	Double cut.....	.....	18 cuts with 8 looms....	.....	400 00	.....	.....	7
.....	.....	.....	.....	2 40	140 00	.....	6	.....
21	Single cut.....	.....	24 cuts, 6 looms.....	.....	250 00	6	.....	7
42	Double cut.....	.....	16 cuts, 7 looms.....	.....	325 00	10	.....	7
21	Single cut.....	.....	38 cuts, 8 looms.....	.....	400 00	.....	.....	7
42	Double cut.....	.....	11 cuts, 5 looms.....	.....	200 00	40	.....	7
.....	.....	.....	36 cards.....	7 00	350 00	6	.....	7
.....	.....	.....	Grind for 36 cards.....	7 00	350 00	7	.....	10
.....	.....	.....	Pick for 36 cards.....	7 00	300 00	30	.....	7
9	1 hank.....	.....	14 hanks in a day.....	.....	350 00	12	.....	11
.....	.....	.....	.....	9 00	450 00	12	7	.....
10	1 hank.....	.....	8 in a day.....	.....	228 00	.....	.....	7
.....	.....	.....	.....	.....	330 00	.....	.....	.....

TRUNK MAKERS.

Office number.	County.	Are you paid by the day, week, or month, or do you work by the piece?	Do you work by machine or by hand?	What are the busy months in the year?	Number hours worked per day during busy months.	What are the slack months in the year?
410	Essex.....	Piece.....	Hand.....	No slack time.....	10	
382	do.	do.	do.	All the year.....	10	
384	do.	Week.....	Machine....	do.	10	
385	do.	Piece.....	Hand.....	do.	10	
386	do.	do.	do.	do.	10	
388	do.	do.	do.	do.	12	
389	do.	do.	do.	do.	10	
390	do.	do.	do.	do.	10	
391	do.	Week.....	do.	do.	10	
392	do.	Piece.....	do.	do.	10	
393	do.	do.	do.	December to February.....	10	January and December..
394	do.	do.	do.	All the year.....	10	
395	do.	do.	do.		10	January and December..
396	do.	do.	do.		10	
397	do.	do.	do.		10	
398	do.	do.	do.	Always busy.....	10	
399	do.	do.	do.	do.	10	
400	do.	do.	do.	do.	10	
401	do.	do.	do.	do.	10	
402	do.	do.	do.		10	
403	do.	do.	do.	Always busy.....	10	
404	do.	Week.....	Machine....		10	
405	do.	do.	do.		10	
407	do.	Piece.....	Hand.....		10	
408	do.	do.	do.		10	
409	do.	do.	do.		10	
411	do.	Week.....	Machine....		10	
413	do.	Piece.....	Hand.....		10	
415	do.	Week.....	do.		10	
416	do.	do.	do.		10	
417	do.	Piece.....	do.		10	
418	do.	do.	do.		10	
419	do.	Week.....	do.	8 months.....	10	4 months.....
420	do.	do.	do.	Always busy.....		July, December, January.
421	do.	do.	do.		10	
423	do.	do.			10	
424	do.	do.	Hand.....	9 months.....	10	3 months.....
425	do.	Piece.....	do.		10	
426	do.	do.	do.	9 months.....	10	3 months.....
427	do.	do.	do.		10	
428	do.	do.	do.		10	
429	do.	do.	do.		10	
430	do.	Week.....	Machine....		10	
433	do.	do.	do.	Always busy.....	10	
434	do.	Piece.....	Hand.....	do.	10	
435	do.	do.	do.	do.	10	
436	do.	do.	do.	do.	10	
437	do.	do.	do.	do.	10	
438	do.	do.	do.	do.	10	
439	do.	Week.....	Machine....	do.	10	
440	do.	Piece.....	Hand.....	do.	10	
441	do.	Week.....	Machine....	do.	10	
442	do.	Piece.....	Hand.....	do.	10	
443	do.	do.	do.	do.	10	
444	do.	do.	do.	do.	10	
445	do.	do.	do.	do.	10	
446	do.	do.	do.	do.	10	
447	do.	do.	do.	do.	10	
448	do.	do.	do.	do.	10	
449	do.	Week.....	Machine....	do.	10	
450	do.	Piece.....	Hand.....	do.	10	
451	do.	do.	do.	do.	10	
452	do.	Week.....	do.	do.	10	
453	do.	do.	Both.....	do.	10	
454	do.	Piece.....	Hand.....	do.	10	
455	do.	do.	do.	do.	10	
456	do.	do.	do.	do.	10	
457	do.	do.	do.	do.	10	

TRUNK MAKERS.

State in what subdivision of your trade you are engaged.	Number hands in your subdivision or department where you work	Give the kind, quality, grade and style of the work you make.
Ironing and lining.....	25	Best quality.....
Sole leather trunks.....	28	do.
Iron cutting.....	8	
Ironing off half French.....	60	Two grades, zinc and leather.....
Ironing off.....	20	Third grade and quality.....
do.	18	Best quality.....
do.	20	Lowest grade packing trunks.....
do.	10	Zinc packing trunks.....
Packing.....	8	
Ironing off and lining.....	15	Paper, French.....
Ironing off.....	45	Common French, No. 4.....
Lining.....	35	Third and fourth quality.....
Ironing off.....	40	Pine packing.....
Ironing off and lining.....	6	Best quality.....
Drawing on.....	2	Drawing and creasing, best quality.....
Drawing on, leather work.....	2	do.
Drawing on, paper trunks.....	10	Lowest and second lowest grades.....
Drawing on.....	10	Second lowest grade.....
Trunk liner.....	35	Second quality.....
Ironing off.....	18	French trunks, zinc and leather.....
do.	3	Sample and express trunks.....
Pasteboard cutter.....	1	
Cutting iron.....	6	
Lining, No. 4, French.....	6	Zinc French, Saratoga.....
Lining.....	115	No. 3 French and packing.....
Ironing off.....	40	Third and fourth grade.....
Iron cutting.....	9	
Ironing off.....	34	Common French.....
Sole leather.....	2	Best quality.....
do.	3	Second quality.....
Ironing off.....	13	No. 1 French, best quality.....
Ironing and lining.....	34	Zinc French, Saratoga.....
Ironing off.....	2	First and second class.....
Trunk lining.....	2	Best quality.....
Nesting up trunks.....	1	
Iron cutter.....	1	
Paper and leather drawing.....	1	All kinds.....
Ironing.....	1	Third class of work.....
Ironing off.....	1	Fifth class packing trunks.....
Lining.....	4	Zinc trunks, common.....
Ironing off.....	15	Zinc trunks, No. 12.....
Lining.....	13	All kinds.....
Lining cutter.....	1	
	1	
	10	
Ironing and packing.....	35	Lowest grade.....
do.		do.
Drawing and creasing.....	1	All the leather work.....
Ironing off and packing.....	20	Nos. 1 and 2 packing.....
Iron cutter.....	1	
Lining and packing.....	2	Lowest grade.....
	1	
Ironing off and packing.....	40	Lowest grade.....
Ironing off, French.....		Second, third and fourth quality.....
Ironing off.....	40	Third and fourth class work.....
Liner.....	2	Best quality.....
Ironing off.....	40	Fourth class work.....
Lining.....	40	Lowest grade.....
Ironing.....		Fourth class work.....
Cutter.....	1	Zinc and pasteboard.....
		Third and fourth quality.....
Canvas, pack.....	5	Common trunks.....
Making sole leather.....	1	All kinds.....
Cutting.....	1	Cutting the iron.....
Ironing.....	2	Best quality.....
do.		do.
Drawing on.....	1	Paper packing and paper French.....
Ironing.....	40	Third and fourth quality.....

TRUNK MAKERS—Continued.

Office number.	Do you work in team or singly?	How many compose the team?	Describe what constitutes a piece.	Highest price received for your work.	Lowest price received.	Quantity produced singly by hand in a day.
410	Single.....		1 dozen.....	\$9 00	\$3 00	2 trunks.
382	do.		1 trunk.....	2 15	95	1 trunk.
384	.....		.....	.....	.....	.....
385	Single.....		1 dozen.....	8 26	3 00	$\frac{1}{3}$
386	do.		do.	6 08	2 40	$\frac{1}{3}$
388	do.		do.	27 00	7 08	$\frac{1}{3}$
389	do.		do.	2 80	30	1
390	do.		do.	2 88	2 00	$\frac{3}{4}$
391	Team.....	Eight.....	.....	.....	.....	.....
392	Single.....		1 dozen.....	5 45	1 33	$\frac{1}{2}$
393	do.		do.	8 00	2 10	.....
394	do.		do.	5 00	2 50	$\frac{1}{2}$
395	do.		do.	3 00	2 25	$\frac{1}{2}$
396	do.		1 trunk, draw. and lining.....	6 50	1 60	.....
397	do.		1 dozen.....	7 00	2 00	$\frac{1}{2}$
398	do.		do.	7 00	2 00	$\frac{1}{2}$
399	do.		do.	1 50	70	2
400	do.		do.	60	.....	$3\frac{1}{2}$
401	do.		do.	5 65	3 00	$\frac{1}{2}$
402	do.		do.	10 00	3 00	$\frac{1}{2}$
403	do.		do.	30 00	4 00	$\frac{1}{6}$
404	do. ....		.....	.....	.....	.....
405	Team.....	Six.....	.....	.....	.....	.....
407	Single.....		1 dozen.....	5 00	3 00	$\frac{1}{2}$
408	do.		do.	1 00	.....	2
409	do.		do.	6 00	3 25	$\frac{1}{2}$
411	Team.....	Nine.....	.....	.....	.....	.....
413	do.		1 dozen.....	6 00	3 00	.....
415	do.	Two.....	.....	.....	.....	.....
416	do.	Two.....	.....	.....	.....	.....
417	Single.....		1 dozen.....	18 00	.....	$\frac{1}{2}$
418	do.		do.	6 00	3 00	$\frac{1}{3}$ of best.
419	do.		do. ....	.....	.....	$\frac{1}{4}$
420	do.		do. ....	.....	.....	.....
421	.....		.....	.....	.....	.....
423	.....		.....	.....	.....	.....
424	.....		1 dozen.....	.....	.....	.....
425	.....		do.	1 40	1 20	1
426	Single.....		do.	1 40	1 20	$\frac{3}{4}$
427	do.		do.	1 60	75	1
428	do.		do.	3 25	.....	$\frac{1}{2}$
429	.....		do.	2 40	2 00	1
430	.....		.....	.....	.....	.....
433	.....		.....	.....	.....	.....
434	.....		1 dozen.....	18	10	10
435	Single.....		do.	1 80	60	1
436	do.		do.	1 80	60	1
437	Team.....	1 man and 2 boys...	do.	4 00	1 75	1
438	Single.....		do.	2 00	60	1
439	Team.....	2 Boys.....	.....	.....	.....	.....
440	Single.....		1 dozen.....	24	18	4
441	Team.....	2 Boys.....	.....	.....	.....	.....
442	Single.....		1 dozen.....	60	20	$1\frac{1}{2}$
443	do.		do.	5 00	2 50	$\frac{1}{2}$
444	do.		do.	5 25	2 50	$\frac{1}{3}$
445	do.		do.	2 40	1 30	.....
446	do.		do.	3 25	1 70	$\frac{1}{2}$
447	do.		do.	20	.....	8
448	do.		do.	3 25	1 70	$\frac{1}{2}$
449	do. ....		.....	.....	.....	.....
450	do.		1 dozen.....	3 00	1 00	$1\frac{1}{2}$
451	Team.....	2 Boys.....	do.	1 50	22	1 and 5
452	.....		.....	.....	.....	.....
453	Single.....	1 boy.....	.....	.....	.....	.....
454	do.		1 dozen.....	17 00	5 00	$\frac{1}{4}$
455	do.		do.	18 00	3 25	$\frac{1}{8}$ to $\frac{1}{2}$
456	do.		1 trunk.....	59	25	.....
457	do.		1 dozen.....	3 25	1 70	$\frac{1}{2}$

TRUNK MAKERS—Continued.

Quantity produced singly by hand in a week.	Wages received per week.	Amount of individual earnings from July 1st, 1880, to July 1st, 1881.	What per cent. have wages been advanced during the year?	Have you saved anything from your earnings during the year?	Have you fallen in debt during the year?	LOST TIME, DAYS.		
						From sickness.	Inability to obtain work.	Other causes.
2 doz.	.....	\$500 00	.....	No	No	.....	.....	.....
6	.....	500 00	.....	No	No	.....	.....	.....
.....	\$8 00	400 00	.....	No	No	.....	.....	.....
1 1/3	.....	500 00	.....	No	No	.....	.....	6
3	.....	450 00	.....	No	No	.....	.....	26
1	.....	500 00	.....	No	No	.....	.....	.....
6	.....	300 00	.....	No	No	.....	.....	.....
4 1/2	.....	400 00	.....	No	No	.....	.....	.....
.....	8 00	400 00	.....	No	No	.....	.....	.....
3	.....	350 00	.....	No	Yes	.....	.....	26
.....	.....	500 00	25	.....	.....	.....	.....	26
3	.....	500 00	10	No	No	.....	.....	.....
3	.....	340 00	10	No	No	.....	52	.....
2 1/2 best; 10 lowest.	.....	600 00	25	Little	No	36	.....	.....
3	.....	600 00	Very little.	No	No	.....	.....	26
3	.....	550 00	Little.	No	No	.....	.....	52
12	.....	500 00	15	.....	.....	78	.....	.....
20	.....	500 00	Little.	No	.....	.....	.....	.....
8	.....	500 00	25	No	No	.....	.....	.....
.....	.....	480 00	30	Little	No	52	.....	.....
.....	.....	450 00	20	.....	No	.....	.....	.....
.....	12 00	500 00	.....	.....	No	.....	.....	.....
.....	13 50	600 00	.....	Little	No	.....	.....	.....
3	.....	500 00	20	Little	No	.....	.....	.....
12	.....	600 00	.....	Little	\$90 00	52	.....	.....
3	.....	500 00	20	No	No	.....	.....	26
.....	10 00	500 00	.....	No	No	.....	.....	.....
.....	.....	400 00	.....	.....	.....	.....	.....	.....
.....	9 00	375 00	.....	No	No	.....	.....	52
.....	9 00	375 00	.....	No	No	.....	.....	.....
.....	.....	400 00	20	No	No	.....	.....	.....
2	.....	400 00	20	No	No	.....	.....	.....
1 1/2	10 00	350 00	.....	No	No	.....	.....	52
1 1/2	12 00	500 00	.....	No	No	.....	.....	.....
.....	9 00	375 00	.....	No	No	.....	.....	26
.....	6 00	300 00	.....	No	No	.....	.....	12
5	12 00	500 00	.....	No	No	.....	.....	26
6	.....	200 00	.....	No	No	.....	.....	130
4 1/2	.....	300 00	20	No	No	.....	.....	52
6	.....	300 00	25	No	No	.....	.....	.....
.....	.....	300 00	25	No	No	.....	.....	.....
.....	.....	500 00	25	Little	No	.....	.....	.....
.....	12 00	500 00	.....	No	No	.....	.....	.....
.....	7 00	275 00	.....	No	No	.....	.....	.....
60	8 00	450 00	.....	.....	.....	.....	Few days	.....
6	.....	475 00	25	No	No	.....	.....	52
6	.....	400 00	25	.....	.....	26	.....	26
6	.....	500 00	.....	No	No	.....	.....	.....
6	.....	300 00	20	No	No	.....	.....	.....
.....	12 00	550 00	.....	No	No	.....	.....	.....
24	.....	200 00	10	No	No	.....	.....	.....
.....	14 00	600 00	.....	Little	No	.....	.....	.....
.....	.....	225 00	20	No	No	.....	.....	.....
3	.....	400 00	25	.....	.....	.....	.....	52
1 1/2	.....	400 00	25	No	No	.....	.....	.....
.....	.....	500 00	15	No	No	.....	.....	26
3	.....	375 00	15	No	No	.....	.....	52
40	.....	300 00	15	No	No	.....	.....	26
3	.....	300 00	.....	No	No	.....	.....	52
.....	10 00	400 00	.....	No	No	.....	.....	52
.....	.....	300 00	15	No	No	78	26	26
.....	.....	175 00	15	No	No	.....	.....	.....
.....	16 00	600 00	.....	Yes	No	.....	.....	.....
.....	12 00	500 00	.....	Little	No	.....	.....	18
.....	.....	300 00	10	.....	Yes	.....	78	.....
.....	.....	500 00	10	No	\$100 00	26	.....	.....
.....	.....	250 00	15	No	No	.....	.....	.....
3	.....	400 00	15	No	No	26	.....	52

JEWELERS.

Office number.	County.	Are you paid by the day, week, or month, or do you work by the piece?	What are the busy months in the year?	Number hours worked per day during busy months.	What are the slack months in the year?	Number hours worked per day during slack months.	State in what subdivision of your trade you are engaged.	Number hands in your subdivision or department where you work.
565	Essex	Hour	Sept., Oct., Nov., Dec.	10-13	After holidays.....	6-8	Finishing.....	25
568	do.	do.	do. do.	.....	do.	6-8	Bracelet making...	10
567	do.	Piece	Sept. to Christmas.....	9-10	Rest of year.....	9-10	.....	17
572	do.	Week	do. do.	.....	do.	4-6	.....	.....
619	do.	do.	do. do.	10-12	do. ....	.....	Ring making	6
464	do.	do.	do. do.	10-13	do.	8-10	.....	.....
460	do.	do.	do. do.	13	do. ....	.....	.....	17
461	do.	do.	All the year .....	.....	.....	.....	Tempering springs	5
688	do.	Piece	Sept. to Christmas.....	10	Rest of year.....	.....	Locket making.....	43
686	do.	do.	10 months	10	July and Jan .....	.....	Chain making.....	.....
685	do.	Week	.....	15	March to Sept.....	.....	Finishing.....	15
687	do.	do.	Oct. to Jan.....	10	Feb. to July.....	4	Engraving.....	13
698	do.	Hour	9 months.....	10-13	3 months .....	.....	Chain making.....	*88
708	do.	Week	10 do.	12-13	2 do.	2-10	Engraving.....	40
710	do.	do.	10 do. ....	.....	2 do.	7	Pattern making.....	2
727	do.	do.	Fall months.....	10	Jan. to July.....	.....	Engraving.....	20
728	do.	Piece	Oct., Nov., Dec.....	10	All the rest	9	Stone Setter.....	6
729	do.	Week	Sept. to June.....	10	June, July, Aug.....	.....	Chain making.....	.....
730	do.	do.	Aug. to Jan	10	May, June, July ..	.....	General workman..	30
731	do.	do.	8 months	10	4 months	7	.....	.....
732	do.	Piece	3 do.	10	8 do.	1-10	Ornamenting.....	.....

*28 men, 30 boys and 30 girls.

CARPENTERS.

629	Mor...	Week	All the year.....	.....	.....	.....	15
587	do.	do.	Summer.....	.....	Winter .....	.....	15
597	do.	do.	All .....	.....	.....	.....	.....
109	Cam...	do.	All .....	.....	.....	.....	.....
200	do.	do.	Summer .....	.....	Winter .....	.....	100
215	do.	do.	do. ....	.....	do. ....	.....	.....
146	Cum.	Piece	Sept. to July.....	.....	July and Aug.....	.....	5
196	do.	Week	All the year.....	.....	July .....	.....	.....
187	do.	do.	do. ....	.....	.....	.....	10
706	Essex	Hour	8 months .....	.....	4 months .....	.....	.....
736	Mer...	Day...	.....	.....	.....	.....	.....
31	Cum.	do.	All the year.....	.....	.....	.....	.....
37	do.	do.	do. ....	.....	.....	.....	.....

JEWELERS.

Give the kind, grade and quality of work you make.	Describe what constitutes a piece.	Highest price received for your work.	Lowest price received.	Wages received per week.	Amount of individual earnings from July 1st, 1880, to July 1st, 1881.	How much have wages been reduced during the year—per week?	Have you saved anything from your earnings during the year?	Have you fallen in debt during the year?	LOST TIME, DAYS.		
									From sickness.	Inability to obtain work.	Other causes.
14 k. ornamental.....				\$15 00	\$600 00		No.	No.	6	14	
14 karat bracelets... 1 pair.....				17 00	800 00		No.	No.	3	24	8
Bracelets mostly.....					400 00	Yes	No.	No.		35	
14 karat lockets..... 1 locket.....		\$3 50	\$1 00	15 00	690 00		No.	No.		36	
Fine finger rings.....				17 00	846 43	\$1 00	Yes	No.	5	6	6
14 karat sets.....				12 00	519 00	3 00	No.	No.		92	
Most all kinds..... 1 pr. br'let.....				16 00	752 00	\$1 00	Yes			24	
All kinds.....				6 00	252 00			Yes	14		48
		25c. hour.					No.	No.	36	48	
14 karat chains..... 1 piece.....		\$2 75	1 25	13 00	480 00		Yes		45	30	
All kinds.....				12 00	400 00	3 00	No.	Yes	50		
Sets of jewelry.....				14 00	350 00			Yes	110		
Gents' vest chains... 1 chain... 30c. hour.			16 $\frac{2}{3}$ c h'r.	17 70	834 08		No.	No.	10	18	
All kinds.....				15 00	600 00		Yes			78	
do.				22 00	950 00		Yes		3		24
do.		\$22 00	\$9 00	16 00	300 50	2 00	No.	No.		78	
		15c.	2c.		1,250 00	30	Yes			90	
Vest chains..... 1 chain.....				17 70					9	30	6
1st-class bracelets...				20 00	850 00		No.	No.			
All kinds.....				16 20	650 00		Yes				20
do.				12 00	520 00		Yes			93	

† 100 produced in a day. ‡ Advanced during busy season \$1 per week.

CARPENTERS.

Coal & freight cars.....				\$12 00	\$600 00	25c.	No.	No.	8		
House building.....				12 00	550 00	25c.	No.	No.	5		
do.					400 00		No.	Yes		26	
General work.....				12 00	600 00		No.	No.	6		6
House building.....				13 50	600 00	10 p.c.	No.	No.	12		50
General work.....				15 00	600 00	10 p.c.	No.	No.	10	75	10
Packing boxes..... 1 box.....				10 50	700 00		Yes	No.			5
House & job work...				12 00	500 00	25c.	No.	Yes	25	18	
Job work.....				12 00	500 00	25c.	No.	Yes	40		10
Wood mouldings...				12 00				Yes			
Build and repair...				12 00	300 00	25c.				78	30
Common work.....				13 50	400 00	25c.				10	

‡ 275 produced in one day. ¶ Advanced per day.

SHIP CARPENTERS AND CAULKERS.

Office number.	County.	Are you paid by the day, week or month, or do you work by the piece?	Do you work by machine or by hand?	What are the busy months in the year?	Number hours worked per day during busy months.	State in what subdivision of your trade you are engaged.	Number working in your subdivision or department where you work.	Give the kind, quality, grade and style of work you make.
332	Cam.	Day	Hand	Bad weather.....	.....	.....	50	All kinds.....
199	do.	do.	do.	do. do. ....	.....	.....	.....	do.
198	do.	do.	do.	do. do. ....	.....	.....	40	Repairing.....
197	do.	do.	do.	do. do. ....	.....	.....	.....	do.
331	Cum.	do.	do.	do. do. ....	.....	.....	20	New work.....
330	do.	do.	.....	do. do. ....	.....	.....	.....	New & repairing
333	do.	do.	Hand	do. do. ....	.....	.....	.....	New work.....
336	Cam.	.....	.....	.....	.....	.....	.....	Caulker.....

SASH, DOOR AND BLIND MAKERS.

45	Cum.	Day	Both	Spring, summer and autumn	10	Finish.....	.....	All grades.....
234	Cam.	do.	Mach	All the year.....	10	Mouldings	8	Mouldings.....
231	do.	do.	do.	do. do.	10	Doors.	10	Finish doors.....
233	do.	do.	do.	do. do.	10	Window sash...	10	Smooth up.....

WOOD TURNERS, WHEELWRIGHT, CABINET MAKER.

704	Pas	.....	Hand	All the year.....	10	Hand turner.....	.....	Bobbins.....
703	do.	.....	Both	do. do.	10	do. do.	13	Bobbins & spools
119	Cam.	Week	Hand	do. do.	10	Wheelwright...	1	Repairing.....
557	Hud.	Hour	Both	.....	9½	Cabinet maker.	30	Latest styles.....

SHIP CARPENTERS AND CAULKERS.

Describe what constitutes a piece.	Quantity produced in a day, singly by machine.	Quantity produced in a day, singly by hand.	Wages received per day.	Wages received per week.	Amount of individual earnings from July 1st, 1880, to July 1st, 1881.	Have you saved anything from your earnings during the year?	Have you fallen in debt during the year?	LOST TIME, DAYS.		
								From sickness.	Inability to obtain work.	Other causes.
.....			{ \$2 75 for old work }	.....	\$750 00	Yes ...	.....	.....	75	.....
.....			{ 3 00 for new work }	.....	725 00	No	No	20	40	.....
.....			{ 3 00 for old work }	.....	800 00	Yes ...	.....	.....	40	.....
.....			{ 2 75 for new work }	.....	750 00	Yes ...	.....	12	30	.....
.....			{ 3 00 for old work }	.....	480 00	Yes ...	.....	12	50	.....
.....			{ 2 75 for new work }	.....	425 00	No ....	.....	.....	60	4
.....			{ 2 00 for old work }	.....	425 00	No ....	.....	10	75	2
.....			{ 1 75 for new work }	.....	600 00	No	No ....	.....	75	.....
.....			{ 2 25 for old work }	.....	.....	.....	.....	.....	.....	.....
.....			{ 2 00 for new work }	.....	.....	.....	.....	.....	.....	.....
.....			{ 2 25 for old work }	.....	.....	.....	.....	.....	.....	.....
.....			{ 2 00 for new work }	.....	.....	.....	.....	.....	.....	.....
.....			{ 2 75.....	.....	.....	.....	.....	.....	.....	.....

SASH, DOOR AND BLIND MAKERS.

.....	.....	.....	\$1 50.....	.....	\$300 00	Yes ...	.....	4	.....	.....
100 feet.....	500 ft. ....	.....	2 00.....	.....	650 00	Yes ...	.....	.....	.....	6
1 door.....	48.....	.....	.....	.....	600 00	No	No	8	.....	.....
1 window or 2 sash.	25.....	.....	2 00.....	.....	580 00	No	No	10	.....	2

WOOD TURNERS, WHEELWRIGHT, CABINET MAKER.

100.....	.....	.....	\$2 00.....	.....	\$460 00	No	No ....	.....	.....	12
.....	.....	2,000	2 00.....	.....	400 00	No	No	35	.....	10
.....	.....	.....	.....	.....	\$13 00	625 00	.....	.....	.....	4
.....	.....	.....	.....	.....	17 00	800 00	No	No	12	36

LABORERS UNCLASSIFIED.

Office number.	County.	Are you paid by the day, week, or month, or do you work by the piece?	What are the busy months in the year?	Number hours worked per day during busy months.	State in what subdivision of your trade you are engaged.	Number in your subdivision or department where you work.	Give the kind, quality, grade and style of work you make.
224	Cum..	Week.....	All the year.....	10	Laborer.....	.....	Work in woolen factory.....
73	do.	Day.....	do.	10	do.	4	Work in iron foundry.....
74	do.	do.	do.	10	do. ....	.....	Work in iron foundry.....
275	do.	do.	do.	10	do. ....	.....	Help moulder in iron found'y
241	Cam..	do.	All except winter...	10	do. ....	.....	Help moulder and coremak'r
120	do.	do.	Constant work.....	10	do. ....	.....	Chemical works.....
104	do.	do.	do.	10	do.	150	Chemical works.....
108	do.	do.	do.	12	do. ....	.....	Help at furnaces in nickel works.....
103	do.	Hour	do.	12	do. ....	.....	Help in roasting or melting nickel
122	do.	Day.....	do.	12	do.	100	Run furnace to melt nickel...
122	do.	do.	do.	10	do.	6	Laborer in glass works.....
628	Mor...	Month.....	do.	10	Teamster.....	.....	.....
640	do.	Day.....	Summer season.....	10	Laborer.....	4	Help lay flagstone curbing...
649	do.	Month.....	All year round.....	10	do.	14	Laying railroad track.....
674	do.	do.	do.	10-13	Driver .....	.....	Deliver store goods.....
681	do.	Irregular	Summer.....	10	Anything...	.....	Opening oysters, cleaning water-closets, &c.....
682	do.	Day.....	All the year.....	10	Laborer.....	2	Work at mine filling bucket..
599	do.	do.	do.	10	do.	8	Landing
603	do.	do.	Summer season.....	10	Anything...	.....	Carting, plowing, mow'g, &c.
604	do.	Month.....	All the year.....	9-11	Hostler	1	Take care of horses.....
607	do.	Day.....	Summer season.....	.....	Anything...	.....	Whatever I find to do.....
608	do.	Month.....	All the year.....	12	Hostler .....	.....	.....
610	do.	do.	do. ....	.....	Driving .....	.....	.....
612	do.	do.	do. ....	.....	Watchman..	11	Watch the mill.....
273	Burl..	Day.....	do.	10	Laborer.....	.....	Sometimes pack.....
250	do.	do.	do.	10	do.	48	Work in iron foundry.....
574	War...	Month.....	do.	10	Filler.....	20	Work in iron foundry.....
563	Essex	Week.....	April to November.	10	Laborer.....	12	Piling lumber.....
647	Mor...	Month.....	.....	.....	.....	.....	.....
680	do.	do. ....	.....	.....	.....	.....	.....
683	do.	Day.....	Summer	10	Gardener...	.....	Flowers and trim fruit trees.
631	do.	Month.....	May to September..	10	Bottler.....	2	Bottling beer.....
733	Mer...	Day.....	.....	.....	Laborer.....	.....	.....
737	do.	do. ....	.....	.....	do.	400	Laborer in iron works.....
735	do.	do. ....	.....	.....	do. ....	.....	Sand digging.....

LABORERS UNCLASSIFIED.

Do you work in team or singly?	How many compose the team?	Describe what constitutes a piece.	Quantity produced in team by hand in a day.	Singly by hand in a day.	Wages received per day.	Wages received per week.	Wages received per month.	Amount of individual earnings from July 1st, 1880, to July 1st, 1881.	How much have wages been advanced during the year?	Have you saved anything from your earnings during the year?	Have you fallen in debt during the year?	From sickness.	Inability to obtain work.	Other causes.	LOST TIME, DAYS.
.....						\$7 00	.....	\$350	\$0 05	No..	No..	.....	.....	.....	4
.....					\$1 50	.....	.....	450	.....	No..	No..	.....	.....	.....	.....
.....					1 50	.....	.....	400	.....	No..	No..	.....	.....	.....	.....
.....					1 50	.....	.....	350	.....	No..	No..	6	.....	.....	3
Team	{ 2 laborers..... 4 skilled..... }	1 ton..	4	.....	1 20	.....	.....	325	.....	No..	No..	.....	40	.....	.....
.....					1 33	8 00	.....	300	.....	No..	No..	.....	.....	.....	.....
.....					1 50	9 00	.....	400	.....	No..	No..	20	.....	.....	6
.....					1 50	.....	.....	400	.....	No..	No..	8	.....	.....	8
.....		1 cwt.	.....	25	.....	.....	.....	400	.....	No..	No..	4	.....	.....	.....
Team	3	100 lbs	.....	25	1 50	.....	.....	425	.....	No..	No..	3	.....	.....	4
.....					1 00	.....	.....	300	.....	No..	No..	.....	.....	.....	2
Team	2	.....	.....	.....	.....	.....	\$30 00	360	.....	No..	Yes	4	.....	.....	.....
.....					1 30	.....	.....	400	Day, 05	Yes	.....	4	.....	.....	.....
.....								30 00	Day, 10	No..	Yes	8	.....	.....	.....
.....								30 00	.....	No..	Yes	52	.....	.....	.....
.....					1 50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Team	2	1 ton..	9 to 10	.....	1 25	.....	.....	350	.....	.....	Yes	3	.....	.....	3
.....		1 ton..	15	.....	1 50	.....	.....	350	+	No..	.....	.....	.....	.....	20
.....					*3 00	.....	.....	.....	.....	.....	Yes	10	12	.....	18
.....							20 00	240	.....	.....	Yes	12	.....	.....	.....
.....					1 50	.....	.....	223	.....	No..	No..	.....	.....	.....	.....
.....							30 00	300	.....	Yes	No..	4	.....	.....	6
.....							30 00	340	.....	Yes	No..	7	36	.....	12
.....								360	.....	Yes	.....	4	.....	.....	2
.....					1 25	.....	.....	375	.....	No..	Yes	2	.....	.....	.....
Team	{ 3 moulders..... 2 core makers 6 laborers..... }	1 pipe	{ 48 6-in.. 60 2-in.. }	.....	.....	.....	.....	350	10	No..	No..	.....	.....	.....	4
.....					1 10	.....	.....	.....	.....	No..	No..	.....	.....	.....	.....
Team	3	1000 ft	20	.....	1 50	.....	.....	400	.....	\$4..	.....	.....	.....	.....	.....
.....							†10 00	.....	.....	.....	.....	.....	.....	.....	.....
.....							†15 00	180	.....	Yes	.....	.....	.....	.....	.....
.....					1 50	.....	.....	400	.....	Yes	.....	12	12	.....	.....
.....							†10 00	.....	Mo., 2 00	.....	.....	.....	.....	.....	5
.....					1 50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....					1 20	.....	.....	.....	.....	Yes	.....	17	20	.....	21
.....					1 50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

*Self and team. †And board. ‡Reduced 25 cents.

SHIRT MAKERS.

Office number.	County.	Are you paid by the day, week or month, or do you work by the piece?	Do you work by machine or by hand?	How many hours per day when on full time?	State in what subdivision of your trade you are engaged.	Number in your subdivision or department where you work.	Give the kind, quality, grade and style of work you make.	Do you work in team or singly?
*211	Cam..	Week	Mach ..	11 $\frac{1}{4}$	Forelady .....	.....	Oversee the work of factory.....	.....
*152	Cum..	Piece	do.	11	.....	50	Machine work altogether.....	.....
*151	do.	do.	do.	10	Buttonhole maker.	10	Make buttonholes and finish....	.....
*204	Cam..	do.	do.	11 $\frac{1}{4}$	Stitching.....	20	Do the stitching and hemming	Team ..
*203	do.	do.	do.	11 $\frac{1}{4}$	Body maker	30	Make the best quality.....	do.
*202	do.	do.	do.	11 $\frac{1}{4}$	Buttonhole	30	The best quality.....	do.
*181	do.	do.	do.	11 $\frac{1}{4}$	Finish.....	40	Best and ordinary.....	do.

* Females.

OIL CLOTH PRINTERS.

314	Cam..	Piece	Mach ...	10	Printer.....	60	Coarse grade of cloth.....	Team ..
318	do.	do.	do.	10	do. ....	.....	do. do.	do.
317	do.	do.	do.	10	do.	30	Coarsest to highest.....	do.
316	do.	do.	do.	10	do.	20	All grades and qualities.....	do.
315	do.	do.	do.	10	do. ....	.....	Best grade.....	do.

SHIRT MAKERS.

How many compose the team?	Amount received per piece, singly by hand work.	Describe what constitutes a piece.	Highest price received for your work.	Lowest price received for your work.	Quantity produced in a day, in team by machine.	Quantity produced in a day, singly by machine.	Wages received per week.	Amount of individual earnings from July 1st, 1880, to July 1st, 1881.	Have you saved anything from your earnings during the year?	Have you fallen in debt during the year?	TIME LOST, DAYS.	
											From sickness.	Other causes.
60c. to \$2 00	1 doz.....					1	\$12 00	\$624 00†	No....		50	8
75	1 doz.....		\$3 00	\$0 75		1	325 00	300 00	No....	Yes...		
4	1 doz.....		2 00	75	4	1	300 00	300 00	No....	No....	12	8
4	1 25 1 doz.....		2 00	75	4		250 00	250 00	No....	No....	40	25
4	1 25 1 doz.....		2 00	75	4		325 00	325 00	Yes...			4
4	1 25 1 doz.....				4		325 00	325 00	No....	No....	12	10

† Wages reduced during year.

OIL CLOTH PRINTERS.

2	70	1 cut.....				7	650 00	Yes...			6
2	80	1 cut, 50 yards...				6	600 00	No....	No....	6	3
2	80	do. do. ...	80	70		6	650 00	Yes...			15
2	70	do. do. ...					625 00	No....	No....	12	10
2	80	do. do. ...				5 to 6	625 00	Yes...		10	3

MISCELLANEOUS SKILLED WORKMEN.

Office number.	County.	Are you paid by the day, week or month, or do you work by the piece?	What are the busy months in the year?	Number hours worked per day during busy months.	Number hours worked per day during slack months.	Hours per day when on full time.	State in what subdivision of your trade you are engaged.	Number hands in your subdivision or department where you work.	Give the kind, quality and grade of work you make.
*734	Mer...	Day	8 months ...	10	8	...	.....	1	Marble cutting.....
463	Ess...	Week....	All the year	10	...	...	Saw maker.....	4	Spring temper department...
509	Hud...	Piece ...	7 months ...	11	...	...	Fancy leather.....	...	Pocket books, portfolios, &c.
105	Cam...	Hour ...	All the year	12	...	...	Roast nickel.....	20	Keep up fire in furnace.....
121	do.	Day	do.	12	...	...	Foreman	...	Oversce melting furnace.....
94	Cum.	do.	.....	.....	.....	...	Packer.....	6	.....

* Nos. 734 to 94 work by hand and machine.

MISCELLANEOUS OCCUPATIONS.

609	Mor..	Year ...	All the year	8	.....	...	Book-keeper ...	4	Bank clerk.....
637	do.	Month ..	.....	.....	.....	...	Clerk	1	Freight depot.....
545	Pass...	Week....	8 months ...	15	15	...	Salesman.....	1	Clothing house.....
670	Mor..	Month ..	.....	.....	.....	...	Operator.....	1	Telegraphing
573	War..	do.	10 months...	6	8	...	Teacher.....	5	High school
614	Mor...	.....	Dec. & Jan.	.....	.....	...	Agent	1	Sell books†.....
611	do.	Piece ...	Summer.....	10	9	...	Contractor	6	.....
584	do.	Month ..	All the year	10	...	...	Police.....	3	.....
646	do.	do.	Winter.....	12-13	10-11	...	Butcher.....	1	Meat route.....
626	do.	Piece ...	Summer.....	.....	.....	...	Boating.....	2	On canal.....

† Highest price received, \$20.00; lowest, 25 cents.

ENGINEERS.

707	Ess...	Week....	All the year	.....	.....	10	Engineer.....	.....	Stationary engine.....
623	Mor..	Month ..	do.	.....	.....	12	do.	.....	do. do.
648	do.	do.	do.	.....	.....	10	do.	2	do. do.
220	Cam...	Week....	do.	.....	.....	12	do.	1	do. do.
600	Mor..	Month ..	do.	.....	.....	12	do.	2	Pumping
42	Cum.	do.	do.	.....	.....	12	do.	2	Run the engine.....
303	do.	Week....	do.	.....	.....	10	do.	4	Engineer

MISCELLANEOUS SKILLED WORKMEN.

Describe what constitutes a piece.	Wages received per day.	Wages received per week.	Wages received per month.	Quantity produced in a day.	Amount of individual earnings from July 1st, 1880, to July 1st, 1881.	How much have wages been advanced during the year?	Have you saved anything from your earnings during the year?	Have you fallen in debt during the year?	LOST TIME, DAYS.		
									From sickness.	Inability to obtain work.	Other causes.
1 doz. saws.	\$12 00	18 00		27	\$550 00			Yes			48
100 lbs.	\$1 68	10 08		25	780 00		No	Yes			
do.	12 00	20		20	500 00		No	No			4
1 box	1 50	9 00		27	600 00		No	No			4
					400 00		Yes		12		12

MISCELLANEOUS OCCUPATIONS.

			\$40 00	\$480 00	\$100 00	Yes	4	
				450 00	No	No		15
	\$12 00			600 00	No	No		
			40 00	400 00	Yes		12	4
			35 00	350 00				
	\$2 00				No	No		
	3 00	18 00	72 00		No	No	7	
			50 00	600 00	Yes		15	
			Board and 20 00	160 00	5 00	Yes	12	12
1 ton†				625 00	10	\$200 00	10	10

† No. 626 receives, single by hand, 65 cents a ton.

ENGINEERS.

	\$15 00		\$780 00	No	Yes		
				Yes		10	12
	10 00	\$45 00	520 00		Yes	2	6
		40 00	442 00		Yes		4
		60 00	700 00	Yes			10
	25 00		800 00	Yes			10

BOILER MAKERS.

Office number.	County.	Are you paid by the day, week or month, or do you work by the piece?	Do you work by machine or by hand work?	What are the busy months in the year?	Number hours worked per day during busy months.	What are the slack months in the year?	Number hours worked per day during slack months.	How many hours per day when on full time?	State in what subdivision of your trade you are engaged.	Number hands in your subdivision or department where you work.
206	Cam..	Day . . .	.....	All the year.....	.....	.....	.....	10	Boiler maker.....	20
189	do.	do.	.....	do.	.....	.....	.....	10	do.	.....
185	do.	do.	.....	do.	.....	.....	.....	10	do.	.....
184	do.	do.	.....	do.	.....	.....	.....	10	.....	10

STONE CUTTERS AND MASONS.

633	Mor..	Day .....	.....	Summer.....	10	Winter.....	.....	.....	.....	4
558	Hud..	do.	.....	Summer, 7 mos.	10	Winter, 5 mo.	.....	.....	.....	3
672	Mor..	do.	.....	June to Oct.....	10	Nov. to May...	6-8	.....	Stone mason.....	8

MILLWRIGHTS.

168	Cum.	Day	Machine..	All the year.....	.....	.....	.....	10	Millwright	3
355	Bur ..	do.	Both	do.	.....	.....	.....	10	do.	.....

CIGAR MAKERS.

29	Sal ...	Piece ...	Hand.....	All the year.....	.....	.....	.....	10	Cigar maker.....	5
459	Pass...	do.	do.	9 months.....	9	3 months.....	7	.....	do.	9

TAILORS.

699	Hud..	Piece ...	Both	All the year.....	.....	.....	.....	12	Sew and finish.....	.....
577	Mor..	Week ...	Hand.....	do.	.....	.....	.....	.....	.....	3
575	do.	Piece ...	Both	do.	.....	.....	.....	.....	.....	3

PAINTERS.

112	Cam..	Week....	Hand.....	All the year.....	.....	.....	.....	10	Painter	1
546	Pass...	Day	do.	7 months.....	10	5 months.....	8-9	.....	House painter.....	10
547	Mor..	do.	do.	6 do.	.....	6 do.	5	.....	do.	12
636	do.	do.	do.	All the year.....	10	.....	.....	.....	.....	30

CARRIAGE MAKERS.

586	War ..	Week....	Hand.....	9 months.....	10	3 months.....	.....	.....	Carriage painter....	4
590	do.	Piece ...	do.	9 do.	9½	3 do.	8	.....	Trimmer.....	.....
592	do.	do.	do.	9 do.	10	3 do.	8	.....	Wood department..	2
591	do.	Day	do.	9 do.	10	3 do.	9	.....	Painting	3
128	Cam..	Piece ...	Both	All the year.....	10	.....	.....	.....	Maker	15
127	do.	do.	do.	do.	10	.....	.....	.....	Wheel maker.....	.....
126	do.	Week....	do.	do.	10	.....	.....	.....	Body maker.....	20

BOILER MAKERS.

Give the kind, quality, grade and style of work you make.	Amount received per piece, singly by hand work.	Describe what constitutes a piece.	Highest price received for your work.	Lowest price received for your work.	Wages received per day.	Amount of individual earnings from July 1st, 1880, to July 1st, 1881.	How much have wages been advanced during the year—per week?	Have you saved anything from your wages during the year?	Have you fallen in debt during the year?	LOST TIME, DAYS.		
Rivet driving.....		100.....	.....	.....	\$2 25	700 00	.....	Yes	.....	.....	.....	8
Rivet driving*.....		100 rivets.....	.....	.....	2 25	650 00	.....	Yes	.....	.....	.....	10
.....					2 25	650 00	.....	Yes	.....	12	.....	10
.....					2 25	700 00	.....	Yes	.....	.....	.....	4

* Work in team of 4.

STONE CUTTERS AND MASONS.

Get out the stone....	.....	.....	.....	.....	\$1 25	.....	.....	Yes	.....	.....	.....	4
Granite & marble....	.....	.....	.....	.....	1 50	425 00	\$1 00	.....	Yes	6	.....	.....
Laying foundation	.....	.....	.....	.....	2 50	.....	2 00	.....	Yes	.....	.....	10

MILLWRIGHTS.

Water wheels.....	.....	1 inch coggin....	.....	.....	\$1 75	500 00	.....	.....	.....	25	.....	12
Turbine wheels.....	.....	.....	.....	.....	2 25	625 00	.....	Yes	.....	12	.....	4

CIGAR MAKERS.

Common work.....	.....	1,000.....	\$6 00	\$4 50	.....	400 00	.....	.....	.....	25	.....	.....
1st to 3d grade.....	.....	1,000.....	14 00	7 00	.....	416 00	.....	.....	.....	.....	12	.....

TAILORS.

Second quality.....	.....	1 coat.....	\$3 00	\$2 00	.....	450 00	.....	No.	No.	.....	.....	.....
Coat making.....	.....	do. ....	.....	.....	\$2 50	.....	†25c.	.....	Yes	4	.....	3
Coats only.....	.....	do. ....	.....	.....	2 50	560 00	.....	.....	Yes	.....	12	.....

PAINTERS.

Plain painting.....	.....	.....	.....	.....	\$1 58	500 00	.....	.....	.....	.....	.....	.....
House decorator....	.....	.....	.....	.....	2 50	326 68	†25c.	.....	Yes	.....	179	.....
General painting....	.....	.....	.....	.....	2 50	500 00	†25c.	No.	No.	.....	100	.....
Pass. and coal cars.	.....	.....	.....	.....	1 50	450 00	†20c.	.....	Yes	12	.....	.....

† Advanced per day.

CARRIAGE MAKERS.

Medium grade.....	.....	.....	.....	.....	\$1 37	325 00	\$1 00	Yes	.....	6	40	.....
Med. light work....	\$9 00	1 buggy.....	\$14 00	\$9 00	.....	475 00	.....	Yes	.....	.....	36	.....
Light buggies, No. 1	5 25	All wood work	.....	.....	.....	300 00	.....	.....	Yes	37	.....	26
\$125 carriages.....	.....	.....	.....	.....	2 00	500 00	.....	No.	No.	.....	.....	26
The best quality....	8 50	1 set of wheels..	.....	.....	.....	700 00	.....	No.	No.	6	.....	.....
The best.....	8 50	do. ....	.....	.....	.....	700 00	.....	Yes	.....	6	.....	12
Fine carriage work	.....	.....	.....	.....	2 75	650 00	.....	.....	.....	8	.....	12

FRUIT-CANNING EMPLOYES.

Office number.	County.	Are you paid by the day, week, or month, or do you work by the piece?	Do you work by machine or by hand?	What are the busy months in the year?	Number hours worked per day during busy months.	Hours per day when on full time.	State in what subdivision of your trade you are engaged.	No. hands in subdivision or department where you work.	Give the kind, quality, grade and style of work you make.	Do you work in team or singly?	How many compose the team?
*276	Bur...	Week..	Hand	Aug. & Sept..	11	...	.....	300	Prepare the fruit.....	.....	...
*79	Cum..	Piece..	do.	do.	10	...	.....	50	do. do. ....	.....	...
*279	Bur...	do. ..	do.	do.	10	...	.....	...	do. do. ....	.....	...

* Females.

OYSTERMEN.

172	Cum..	Month	Hand	Fall & Spring	10-12	...	.....	4	Get oysters from bed...	Team	4
171	do. ..	do.	do.	do. do.	.....	...	.....	3	do. do.	do.	3
170	do. ..	do.	do.	10 full mths..	10-12	...	.....	6	do. do.	do.	6
†169	do. ..	Shares	do.	do. do.	10-12	...	.....	4	do. do.	do.	4

† The boat takes one-third; the rest share alike, except captain, who does not pay anything for provisions. Boat freighted \$3,900 during the season.

'LONGSHOREMEN.

694	Hud..	Week..	.....	All alike.....	10	...	.....	'Longshoreman.....	.....	...
695	do. ..	do. ..	.....	do. ....	.....	...	.....	do. ....	.....	...
696	do. ..	Hour..	.....	do. ....	.....	...	.....	do. ....	.....	...
697	do. ..	do. ..	.....	do. ....	.....	...	.....	do. ....	.....	...

NOTE.—Nos. 696 and 697 lost a great deal of time through inability to obtain work.

RAILROAD EMPLOYES.

676	Mor...	Month	.....	.....	.....	.....	Fireman.....	Locomotive fireman....	.....	...
630	do.	do.	.....	.....	.....	.....	Baggage.....	1 Master.....	.....	...
620	do.	do.	.....	.....	.....	.....	Brakeman....	.....	.....	...
671	do.	do.	.....	.....	.....	.....	Flagman.....	1 Flagging at crossing....	.....	...
594	do.	do.	.....	.....	.....	10	Laborer.....	25 Laying track, repairing	.....	...
588	do.	do.	.....	.....	.....	.....	Watchman....	Watchman at depot.....	.....	...
576	do.	do.	.....	.....	.....	10	Laborer.....	12 Track layer.....	.....	...
684	do.	do.	.....	.....	.....	.....	Laborer.....	8 General laborer.....	.....	...
510	do.	do.	.....	.....	.....	12	Driver.....	Driver street car.....	.....	...

FRUIT-CANNING EMPLOYES.

Amount received in team by hand work—per hour.	Amount received singly by hand work.	Describe what constitutes a piece.	Quantity produced singly by hand in a day.	Wages received per day.	Wages received per week.	Wages received per month.	Amount of individual earnings from July 1st, 1880, to July 1st, 1881.	How much have wages been advanced during the year?	Have you saved anything from your earnings during the year?	Have you fallen in debt during the year?	LOST TIME, DAYS.		
.....	6c.	1 basket peaches.	12	.....	\$6 00	.....	\$275	.....	.....	.....	From sickness.	Inability to obtain work.	Other causes.
.....	3c.	1 basket tomatoes	40	.....	.....	.....	.....	.....	.....	.....	8	.....	6
.....	4c.	Basket.....	25	\$1 00	.....	.....	200	.....	.....	.....	.....	.....	.....

OYSTERMEN.

.....	.....	.....	.....	.....	\$25 with board.	\$250	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	do. do.	275	.....	No.	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	40 with board.	400	.....	Yes	.....	.....	12	25	.....
.....	.....	.....	.....	.....	.....	550	.....	Yes	.....	.....	.....	52	.....

'LONGSHOREMEN.

.....	.....	.....	.....	.....	.....	\$600	.....	No.	No.	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	500	.....	No.	No.	.....	.....	.....	.....
25c	.....	.....	.....	.....	.....	300	.....	.....	Yes	.....	.....	.....	.....
25c	.....	.....	.....	.....	.....	300	.....	.....	Yes	.....	.....	.....	.....

RAILROAD EMPLOYES.

.....	.....	.....	.....	.....	\$50	\$600	\$5 mth.	Yes	.....	1	.....	.....	.....
.....	.....	.....	.....	.....	30	330	.....	Yes	.....	2	.....	.....	6
.....	.....	.....	.....	.....	45	540	.....	.....	.....	3	.....	.....	5
.....	.....	.....	.....	.....	\$1 00	300	.....	.....	.....	.....	.....	.....	3
.....	.....	.....	.....	.....	30	325	.....	Yes	.....	.....	.....	.....	8
.....	.....	.....	.....	.....	30	.....	.....	Yes	No.	.....	.....	.....	.....
.....	.....	.....	.....	.....	1 00	300	10c. day	.....	.....	3	.....	.....	.....
.....	.....	.....	.....	.....	1 10	400	20c. day	No.	Yes	5	.....	.....	.....
.....	22½c	1 trip	.....	.....	.....	.....	.....	.....	.....	.....	78	.....	.....

BRICKLAYERS.

Office number.	County.	Are you paid by the day, week or month, or do you work by the piece?	What are the busy months in the year?	Number of hours worked per day during busy months.	State in what subdivision of the business you are engaged.	Number hands in your subdivision or department where you work.	Give the kind, quality, grade and style of work you make.
673	Mor...	Week	Summer.....	10	Bricklaying.....	150	.....
374	Cam...	do.	Summer.....	10	Laying brick.....	50	Best work.....
107	do.	do.	All the year.....	.....	Laying brick.....	2	{ All kinds of work, repairing in factory..... }
373	do.	do.	All but winter.....	10	.....	.....	Best work, on buildings.....
261	do.	.....	9 months	10	.....	.....	.....
174	Essex	Week	March to Novem'r..	10	Laying brick.....	25	{ Ordinary walls to be plas- tered on..... }

BRICK MAKERS.

78	Cum..	Piece	Summer.....	.....	Moulding brick..	8	Common brick, No. 1 quality
81	do.	do.	do. ....	.....	do.	.....	Topping out and common...
77	do.	do.	do.	8	Brick moulding..	12	{ Hand-made common, first quality

WORKMEN IN BRICK YARDS.

82	Cum..	Week	All the year.....	10	Wheeler	8	Dig and wheel clay.....
153	do.	do.	.....	.....	do.	5	{ Dig and prepare clay for brick maker..... }
154	do.	do.	.....	.....	do.	4	{ Dig and prepare clay for brick maker..... }

BRICKLAYERS.

Describe what constitutes a piece.	Quantity produced singly by hand in a day.	Wages received per week.	Amount of individual earnings from July 1st, 1880, to July 1st, 1881.	How much have wages been advanced during the year—per day?	Have you saved anything from your earnings during the year?	Have you fallen in debt during the year?	LOST TIME, DAYS.		
							From sickness.	Inability to obtain work.	Other causes.
One hundred	1,500	\$24 00 18 00	\$800 00 650 00	\$1 00	No.... No....	No.... No....	10 4	26 Winter.	..... .....
One hundred do.	1,500 1,300	16 00 18 00 18 00	800 00 625 00 700 00		Yes ... Little	..... .....	4 25 20	 Winter. Winter.	3 6 4
	{ 2,000 in a 2-foot wall..... 1,500 in a 16-inch wall..... 800 in an 8-inch wall..... 3,000 in a 3-foot wall, rough }	24 00	764 50	1 00	.....	Yes ...	.....	.....	78

BRICK MAKERS.

1,000 bricks...	2,500	.....	\$600 00	.....	Yes ...	.....	.....	Winter.	.....
do.	2,500	\$12 00	400 00	.....	.....	.....	.....	.....	.....
do.	2,500	12 00	600 00	.....	Yes ...	.....	.....	.....	.....

WORKMEN IN BRICK YARDS.

1,000 bricks...	2,500	\$8 10	\$400 00	.....	No....	No....	.....	.....	.....
do.	.....	8 10	350 00	.....	No....	No....	7	.....	4
do.	2,500	8 10	350 00	.....	No....	No....	6	.....	4

LITHOGRAPHERS.

Office number.	County.	Are you paid by the day, week or month, or do you work by the piece?	Do you work by machine or by hand?	What are the busy months in the year?	Number hours worked per day during busy months.	What are the slack months in the year?	Number hours worked per day during slack months.	How many hours per day when on full time?	State in what subdivision of your trade you are engaged.	Number hands in your subdivision or department where you work.
251	Bur....	Week....	Both.....	All the year..	.....	.....	.....	10	Lithographer....	18
252	do.	do.	do.	do.	.....	.....	.....	10	do.	.....
253	do.	do.	do.	do.	.....	.....	.....	10	do.	.....

PAPER MAKERS.

325	Cam ...	Week....	Machine..	All the year..	.....	.....	.....	10	Paper maker....	25
320	do.	do.	do.	do.	.....	.....	.....	10	do.	.....
319	do.	do.	do.	do.	.....	.....	.....	10	do.	.....
321	do.	do.	do.	do.	.....	.....	.....	10	Unskilled.....	15

FRUIT CAN MAKERS—TIN.

155	Cum ...	Piece ...	Hand.....	All the year..	.....	.....	.....	10	Tin can maker	7
167	do.	do.	do.	do.	.....	.....	.....	10	do.	8
23	do.	do.	do.	Aug. & Sept..	13	4 months, winter.	9	10	do.	8
158	do.	do.	do.	All the year..	.....	.....	.....	10	do.	8
156	do.	do.	do.	do.	.....	.....	.....	10	do.	.....
277	Bur....	do.	do.	Aug. & Sept..	11	Rest of year.....	8	.....	Can making....	20
301	do.	do.	do.	do.	11	do.	9	.....	do.	10
300	Cam ...	do.	do.	do.	10	do.	7	.....	do.	18
24	Salem	do.	do.	May to Dec...	9	.....	.....	.....	do.	12
275	Bur....	Week....	Machine..	Aug. & Sept..	11	Rest of year.....	8-10	.....	Can capper.....	10

STEEL PEN MAKERS.

239	Cam ...	Week....	Both.....	All the year..	10½	.....	.....	.....	.....	10
236	do.	Piece ...	Machine..	do.	10	.....	.....	.....	.....	21
235	do.	do.	do.	do.	10½	.....	.....	.....	.....	.....

CREAMERIES.

286	Bur....	Week....	Both.....	All the year..	12	.....	.....	.....	.....	25
281	do.	do.	do.	365 days.....	12	.....	.....	.....	.....	.....
280	do.	do.	do.	do.	12	.....	.....	.....	.....	.....

LITHOGRAPHERS.

Give the kind, quality, grade and style of work you make.	Amount received per piece for hand work.	Describe what constitutes a piece.	Quantity produced in a day in team by machine.	Quantity produced singly by hand in a day.	Wages received per week.	Amount of individual earnings from July 1st, 1880, to July 1st, 1881.	Have you saved anything from your earnings during the year?	Have you fallen in debt during the year?	LOST TIME, DAYS.		
									From sickness.	Inability to obtain work.	Other causes.
.....		100 impressions	.....	18,000	\$18 00	\$800 00	Yes	.....	30	.....	10
.....		do.	.....	18,000	18 00	900 00	Yes	.....	.....	.....	.....
.....		do.	.....	18,000	.....	1,000 00	Yes	.....	.....	.....	.....

PAPER MAKERS.

Flour sacks, &c.....	.....	.....	.....	.....	\$12 00	\$600 00	.....	.....	.....	.....	4
do. ....	.....	.....	.....	.....	12 00	600 00	Yes	.....	.....	.....	6
do. ....	.....	.....	.....	.....	9 50	425 00	No.	No.	4	.....	3
Work in paper mill.....	.....	.....	.....	.....	6 00	300 00	No.	No.	6	.....	4

FRUIT CAN MAKERS—TIN.

Fruit cans.....	35c.	100 cans.....	.....	8	.....	\$750 00	Yes	.....	10	20	.....
do.	35	do. ....	.....	8	.....	700 00	No.	No.	6	20	.....
do.	35	do. ....	.....	6	.....	.....	No.	Yes	.....	78	.....
do.	35	do. ....	.....	8½	.....	750 00	Yes	.....	.....	.....	8
do.	35	do. ....	.....	8	.....	700 00	Yes	.....	.....	25	8
Seams, & put ends on...	13	do. ....	.....	16	.....	600 00	Yes	.....	.....	10	.....
do. do.	13	do. ....	.....	16	.....	600 00	No.	No.	3	10	2
Fruit cans.....	28	do. ....	.....	9	.....	400 00	No.	No.	.....	.....	.....
do.	35	do. ....	.....	5½	.....	400 00	No.	No.	.....	78	.....
Cap the cans.....	.....	.....	.....	1,600	\$7 50	350 00	No.	No.	6	10	8

STEEL PEN MAKERS.

Prepare work.....	.....	.....	.....	.....	\$7 00	\$325 00	.....	.....	20	.....	4
Nos. 12 & 14 steel pens*	85c.	10,000	35,000	.....	.....	300 00	No.	.....	12	.....	4
No. 14 steel pens.....	85	10,000	3½	.....	.....	250 00	No.	.....	24	.....	10

* Work in team of 3.

CREAMERIES.

Butter and cheese†	1	gallon milk...	500	.....	\$12 00	\$700 00	Yes	.....	.....	.....	.....
Creamery work†	1	do.	500	.....	15 00	800 00	.....	.....	.....	.....	.....
Butter and cheese†	1	do.	500	.....	18 50	925 00	Yes	.....	.....	.....	.....

† Work in team of 4.

SHOEMAKERS.

Office number.	County.	Are you paid by the day, week or month, or do you work by the piece?	What are the busy months in the year?	Number hours worked per day during busy months.	Number hours worked per day during slack months.	How many hours per day when on full time?	State in what subdivision of your trade you are engaged.	Number hands in your subdivision or department where you work.	Give the kind, quality, grade and style of work you make.
46	Cum.	Piece	All except July	10	10	10	Lasting	8	Wom., miss., chil...
48	do.	Day...	All except July and Jan.	10	7 1/4	10	Foreman	1	
50	do.	Week	All except July	10	10	10	Shoe finisher	6	Men's, wom., miss.
47	do.	do.	All except July	10	10	10	Stock fitter	5	Men's, wom., miss.
41	do.	do.	do.	14	10	10	Shoemaking	3	Gents' boots.
465	Atl.	Piece	All	8	8	8	Trimming	20	Wom., miss., chil...
467	do.	Week	July to Dec., Feb. to June.	10	6-8	10	Stock fitting	1	All kinds of shoes.
468	do.	Piece	All	8	8	8	Heeler	1	Wom., miss., chil...
248	Cam.	Week	All	10	10	10	Misses' & child'n's	10	Misses' & child'n's
249	do.	do.	All	10	10	10	Ladies' & child'n's	1	Ladies' & child'n's
254	Bur.	Piece	All	10	10	10	Infants' & misses'	1	Infants' & misses'
207	Atl.	do.	Jan. to June	8	5	5	Cutting	1	Med. grades wom.
182	do.	do.	Feb. to June, Aug. to Nov.	8	4	4	Burnishing	6	Wom., miss., chil...
376	Bur.	do.	All	10	10	10	Stock fitting	3	Infants' shoes.
263	do.	Week	All	10	10	10	Edge setting	1	Children's & miss.
255	do.	do.	All	10	10	10	1st lasting	3	Infants' shoes.
266	do.	do.	All	10	10	10	Fox work	8	Men's fine shoes.
379	do.	do.	All	10	10	10	Infants	1	Children's & miss.
635	Mor.	do.	7 months	12	12	12	All grades	2	All styles
643	do.	do.	do.	12	12	12	Work for myself	1	Repairing
659	do.	do.	All	10	10	10	Foreman	1	Fine shoes & slip's.
549	Cam.	Piece	do.	10	10	10	Heeler	35	Women's & misses'
548	do.	do.	7 months	9	4-8	4-8	Heeler	1	Women's & misses'
595	Mor.	do.	Winter	11	10	10	Boots and shoes	1	Mending fine work
596	do.	do.	Winter	8-10	5-7	5-7	Finisher	20	Making & mend'g.
689	Ess.	Piece	May, June, Oct., Nov.	10	6	10	do.	20	Fine work
690	do.	Week	6 months	10	7	7	do.	20	Children's
691	Hud.	Piece	6 months	12-14	8	8	do.	1	Boys'

NOTE.—Nos. 46, 50, 47, 41, 465, 468, 263, 635, 643, 549, 548, 595, 596, 689, 690 and 691 work by hand. Nos. 467, 248, 249, 254, 207, 376, 255, 266 and 379 work by machinery. No. 659 works by hand and machinery. No. 376 is a female.

SHOEMAKERS.

Do you work in team or singly?	How many compose the team?	Amount received per piece, singly by hand work.	Describe what constitutes a piece.	Highest price received for your work.	Lowest price received for your work.	QUANTITY PRODUCED.			Wages received per week.	Quantity produced in a day.	Amount of individual earnings from July 1st, 1890, to July 1st, 1891.	What per cent. have wages been advanced during the year?	Have you saved anything from your earnings during the year?	Have you fallen in debt during the year?	LOST TIME, DAYS.		
						In a day in team by machine.	In team by hand in a day.	Singly by hand in a day.							From sickness.	Inability to obtain work.	Other causes.
Sin..	2½-5c.	1 pair	5c.	2½.	50	...	...	...	\$50 00	...	\$500 00	...	No.	...	...	24	...
T'm.	4	60 prs	...	...	...	3	1	...	6 00	...	600 00	...	Yes	...	...	...	...
do.	3	60 prs	...	...	...	7	...	...	6 00	7	200 00	...	No.	...	75	...	...
Sin..	\$2½-3	1 pair	...	...	...	...	...	...	...	...	250 00	...	No.	...	...	...	...
T'm.	4 5c.	1 pair	5c.	8c.	...	48	...	...	9 00	60	500 00	...	Yes	...	1	...	...
Sin..	...	1 pair	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
T'm.	4	1 pair	4½c.	8c.	...	48	...	...	...	...	400 00	...	No.	No.	...	...	...
do.	12	12 prs	...	...	12	...	...	...	12 00	...	600 00	...	...	...	...	...	12
Sin..	...	1 pair	...	...	...	...	...	...	15 00	150	750 00	...	5 Yes	...	...	...	3
do.	20c.	12 prs	20c.	16c.	...	12	...	...	650 00	...	650 00	...	10 Yes	...	10	...	4
do.	4½c.	1 pair	...	...	...	75	...	...	450 00	...	450 00	...	Yes	...	...	60	52
T'm.	4 5½c.	1 pair	5½c.	8c.	...	60	...	...	525 97	...	525 97	...	Yes	...	7	52	14
do.	12c.	12 prs	...	...	...	144	...	...	350 00	...	350 00	...	10	...	20	...	few
do.	...	12 prs	...	...	...	10	...	...	650 00	...	650 00	...	10 Yes	...	...	...	...
do.	10	12 prs	20c.	16c.	12	...	...	...	700 00	...	700 00	...	10 Yes	...	...	...	10
do.	4	12 prs	...	...	10	...	...	...	700 00	...	700 00	...	10 Yes	...	12	...	6
do.	...	12 prs	...	...	25	...	...	...	550 00	...	550 00	...	...	...	...	...	...
Sin..	\$1.50	1 pair	...	...	...	...	1	...	450 00	...	450 00	...	Yes	Yes	7	3	12
do.	...	1 pair	\$1.25	90c.	...	...	...	...	401 00	...	401 00	...	Yes	...	12	...	10
do.	...	1 pair	...	...	...	...	...	...	650 00	...	650 00	...	...	...	3	...	...
do.	6¼-6¾	1 pair	...	...	...	...	50	...	660 00	...	660 00	...	...	...	...	...	6
do.	...	1 pair	8½c.	4½.	...	...	...	...	858 00	...	858 00	...	Yes	...	...	...	5
do.	...	...	...	...	...	...	...	...	325 00	...	325 00	...	No.	Yes	4	...	...
do.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7
T'm.	20 1½c.	1 pair	...	...	...	...	100	...	...	...	...	...	...	...	...	...	...
do.	...	...	...	...	...	...	...	...	473 00	...	473 00	...	...	...	2	36	...
do.	...	...	...	...	...	...	...	...	450 00	...	450 00	...	...	...	...	...	...

* Per month. † Per week.

48 Snapper-up and mould boys, wages, each.....	\$12 00	per month.
8 Laying-up boys, wages.....	14 00	"
Gathering boys, "	19 50	"
12 Oven boys, "	\$15 00 to	20 00 "
Laborers, "	1 00	per day.

No. 385. Winslow, Camden county. There are employed at glass factories—

8 Snapper-up boys, wages.....	\$11 00	per month.
4 Mould boys, "	13 00	"
13 Gathering boys, "	18 00	"
4 Oven boys, "	18 00	"
4 Supernumeraries, "	14 00	"
Laborers, "	1 00	per day.
Pot maker, "	60 00	per month.
Window-glass night shearer, wages.....	45 00	"
" day " "	40 00	"
Bottle-house night " "	40 00	"
" day " "	35 00	"
Men engaged in clay-room.....	1 00	per day.

No. 375. Tansboro. There are employed in the glass works there—

9 Snapper-up boys, wages.....	\$12 00	per month.
2 Other boys, "	14 00	"
1 Other boy, "	18 00	"
1 Other boy, "	15 00	"
Pot maker, "	50 00	"
6 Laborers, "	1 00	per day.

No. 313. Quinton. There are employed—

16 Gatherers of window glass, wages.....	\$50 00	per month.
Flatteners, flatten for four blowers, getting one-fifth as much as each blower.		
1 Master shearer, wages.....	100 00	"
Laborers, "	1 00	per day.

No. 206. Riverside iron works, Camden county. There are employed there—

35 Machinists, wages.....	\$12 00 to \$15 00	per week.
30 Blacksmiths, "	14 00 to 18 00	"
40 Ship carpenters, wages.....	2 75 to 3 00	per day.
20 River drivers, "	15 00	per week.
40 Laborers, "	1 00 to 1 25	per day.

No. 111. Washington cotton mills, Gloucester City, Camden county. In the feeder-room mostly half-grown girls and boys work by the piece, at 7 to 11 cents per hank, and turn out 50 hanks in a week.

Boss in card-room, wages.....	\$15 00	per week.
Card grinder, "	7 00 to 8 00	"
1000 looms and 900 employes.		

No. 207. Women's, misses' and children's shoe manufactory, Hammonton, Atlantic county. There are employed—

16 Fitters (girls), wages, 9 cents per pair, quantity in day.....	12	pairs.
4 Lasters, " 4 " " "	50	"
3 Heelers, " 3½ " " "	60	"
3 Burnishers, " 4 " " "	60	"
3 Finishers, " 3½ " " "	60	"
1 Stock fitter, " 2½ " " "	90	"
1 McKey sewing machine operator, wages, \$10.00 per week, quantity in day.....	50	"

No. 224. At Eastlake woolen mills, Bridgeton, Cumberland county—

Strippers' wages are.....	\$5 00	per week.
Card grinders' wages are.....	5 00	"
Spinning boss' "	15 00	"
Card " "	15 00	"
Dyers' "	15 00	"
Wool sorters' "	18 00	"
Boys and girls from 10 to 15 years of age on self-setting spinning mules.....	2 50	"

No. 279. At a fruit-canning establishment at Moorestown, Burlington county, in busy seasons there are at times 450 hands employed. Women make 50 cents per day, children 30 cents per day.

No. 205. At the American Dredging Company's works, Camden—

10 Machinists, wages, each.....	\$16 00 per week.
2 " " 	14 00 "
1 Machinist, " 	12 00 "
2 Machinists, boys, " 	7 00 "

No. 216. American Dredging Company's works, Camden, employ—

1 Blacksmith, wages.....	\$25 00 per week.
4 " " 	18 00 "
3 " " 	14 00 "
1 " helper, wages.....	10 00 "
6 " wages.....	9 00 "

No. 209. At rolling mill, Bridgeton, Cumberland county, a team, consisting of—

2 Rollers,	} Produce 17 tons of rolled iron in a day.
2 Catchers,	
4 Hookers,	
1 Screenman,	
2 Dragger-outs,	

No. 380. At iron foundry, Burlington, there are employed—

75 Moulders and core makers, wages.....	\$2 50 per day.
100 Laborers, wages.....	1 25 "
10 Boys, " 	50 "
10 " " 	75 "
5 " " 	40 "

No. 210. Worsted and yarns, Camden. There are employed in the factory—

1 Man, wages.....	\$14 00 per week.
2 Men, " each 	12 00 "
2 Boys, " " 	4 00 "
1 Wool picker, wages.....	10 00 "
1 Mule spinner, " 	10 00 "
1 Mule spinner, " 	9 00 "
2 Men, general work, wages, each.....	8 00 "
1 Woman, wages.....	6 00 "
7 Women, " each 	5 00 "
6 Women, " " 	4 00 "
8 Girls, 10 to 15 years of age, wages, each.....	3 00 "

No. 177. Print works, Passaic. There are employed—

1 Boss dyer, wages.....	\$30 00 per week.
7 Calico printers, wages, each.....	25 00 "
7 Back tenders, " 	7 00 "
6 Engravers, " 	25 00 "
2 Sketchers, " 	25 00 "
20 Color mixers, " 	10 00 "
6 Folders, " 	12 00 "
30 Women, " 	5 00 "
30 Laborers, " 	7 00 "
50 Dyers, " 	8 00 "
1 Second boss, " 	12 00 "

No. 271. Woolen machinery, Camden. "Very low wages in this shop, very few regular machinists getting over eight dollars per week. Nine dollars are more than the average wages of those employed on time. Some machinists here do piece work on shafts, &c., take apprentices, and hire help at low wages; these men make good wages in this way for themselves, but it cuts down all the others."

No. 208. Machine works, Burlington county. There are employed in the works about 250 hands.

125 Machinists, wages.....	\$2 00 to \$2 50 per day.
30 Iron moulders and core makers, wages....	2 00 to 2 50 "
8 Packers, wages.....	9 00 to 12 00 per week.
8 Testers, "	10 00 to 15 00 "
30 Laborers, "	7 50 to 9 00 "
30 Apprentices, wages.....	2 50 to 8 00 "
8 Girls, "	3 00 "

WAGES IN ENGLAND.

With a view to obtain data for comparison of the wages of the workmen in this State with those of the countries of Europe, early last summer copies of blank No. 3 were sent to a number of persons there, but for some cause we received replies only from the bottle makers of England. From the returns thus received the following table has been compiled. The differences in the method of computing the wages of the English blowers from that which prevails here, makes it difficult to give an exact comparison between the compensation received, or amount of work produced per day by individual workmen. To explain this point we annex the following letter from the secretary of the "Glass Bottle Makers' United Trade Protection Society," Yorkshire, England:

CASTLEFORD, December 12th, 1881.

Mr. Charles H. Simmerman, Office Bureau of Statistics of Labor and Industries, Trenton, N. J.:

DEAR SIR—In answer to yours of November 5th, asking for an explanation of our method of computing wages, I reply, a "team," or "chair," as we call it, consists of five hands, generally two men, one youth and two lads, as follows:

- Bottle maker, who finishes the bottle;
- 1 Blower, who blows the bottle;
- 1 Gatherer, who gathers the metal;
- 1 Wetter-off, who wets the bottle off the pipe;
- 1 Taker-in, who puts the bottle in the kiln.

These hands constitute the team, and every bottle made passes through their hands successively. Suppose then that they make 128 dozen of bottles, six ounces in weight, and contents the same, for five days in a week, or 640 dozen in all, they would receive, as wages and overwork combined, the following results:

Bottle maker.....	£2 9s. 6d.
Blower	2 7 6
Gatherer	1 10 0
Wetter-off.....	11 6
Taker-in.....	10 6

£7 9s. 0d.

We work five days in a week, and in good times could produce this quantity of small bottles, and then the pay for making 80 dozen per day would be as follows, for the five days:

Bottle maker	£1 7s. 0d.
Blower	1 5 9
Gatherer	1 0 0
Wetter-off.....	9 0
Taker-in.....	8 0

£4 9s. 0d.

The remaining 48 dozen per day would be overwork, and paid for at the following rates:

Bottle maker.....	£1 2s. 6d.
Blower.....	1 2 6
Gatherer.....	10 0
Wetter-off.....	2 6
Taker-in.....	2 6

£3 0s. 0d.

The number of dozen constituting a day's work, and rate of pay for overwork, depends upon the size of the bottles. Thus you will see we have two rates of payment in a day, but for the above quantity of bottles the manufacturer pays in wages the sum of £7 9s. 0d.

Yours truly,

A. GREENWOOD,

Cor. Secretary.

BOTTLE MAKERS (ENGLAND).

Office number.	Locality.	Are you paid by the day, week or month, or do you work by the piece?	Do you work by machine or by hand?	What are the busy months in the year?	Number hours worked per day during busy months.	What are the slack months in the year?	Number hours worked per day during slack months.
799	Castleford, Yorkshire	Day...	Hand...	March to Aug.....	8-9	Jan., Nov. and Dec.	8-9
780	Leeds, Yorkshire.....	Piece	do.	March to Sept.....	10	.....	.....
781	do. do.	do.	do.	All except Nov. and Dec..	10	Nov. and Dec.....	8
782	Hunslet, Leeds.....	do.	do.	March to Sept.....	10	Sept. to Feb.....	10
783	do. do.	do.	do.	All except Nov. and Dec..	10	Nov. and Dec.....	8

NOTE.—No. 781 lost 30 days from sickness. No. 799 lost 5 days from other causes. Nos. 780 and 782 each lost 6 weeks from other causes.

BOTTLE MAKERS (ENGLAND)—Continued.

Office number.	How many hours per day when on full time?	State in what subdivision of your trade you are engaged.	Number working in your subdivision or department where you work.	Give the kind, quality, grade and style of work you make.	Do you work in team or singly?	How many compose the team?	Amount received per piece in team, by hand work, per day.	Quantity produced in a day.	Quantity produced in a week.	Amount of individual earnings from July 1st, 1880, to July 1st, 1881.	How much have wages been reduced during the year?
799	8-9	Bottle maker.	40	Bottles for Italian warehousemen.	Team	5	8s. 6d.	*110	550	£100	†3s.
780		do. do.	26	Wine, pickle and spirit bottles.....	do.	5	.....	100	500	.....	.....
781		do. do.	5	Ordinary bottles, ginger, wine & oil	do.	5	.....	90	.....	100	3s.
782		do. do.	26	Wine and all aerated water bottles	do.	5	.....	100	500	.....	.....
783		do. do.	5	Jam, oil and spice bottles.....	do.	5	.....	90	.....	120	6s.

NOTE.—The value of a pound sterling in U. S. currency is \$4.866½. * Dozen. † Per week.

FARM WAGES AND LABOR.

Mr. Charles Worthington, the statistician of the United States Department of Agriculture, in the report for 1880 (page 202), gives interesting statistical tables of "Farm Wages and Labor," compiled from the returns made in the month of March, 1881. He observes that "the advance in wages, noted a year since as the first reaction since the depression following 1873, has still progressed and there is a decided increase in the wages of labor in nearly every section of the country."

"The average wage of labor as engaged by the month or year, and which represents the steady and reliable working force, is returned this year (1881) as being, without board, \$22.39, against \$21.75 last spring, and \$20.26 in 1879, being an increase of 64 cents since a year, and \$2.13 since two years. The average price for the same class of labor, with board, is \$14.86 against \$14.56 last year, and \$13.12 in 1879. * * We find the cost of subsistence to be: this year, \$7.53; in 1880, \$7.19, and \$7.14 in 1879.

"The different sections of the Union present some interesting points of comparison. New England, as a whole, pays \$22.76 per month on yearly engagements, without board, against \$20.31 in 1879, which was the year of the greatest depression in value of agri-

cultural labor, being an increase, in two years, of 10 per cent. But the cost of subsistence this year is \$9 per month, against \$8.02 then, an increase of 12 per cent. This indication is rather unfavorable to the laborer in that section, as the cost of living has increased in a greater ratio than the value of labor.

"In the Middle States the wages of labor, per month, are this year \$22.30, against \$19.69 in the same year of depression as quoted above, while the cost of subsistence has only increased from \$8.27 then, to \$8.83 this year. In the South Atlantic States, from Maryland to Florida, the rate of wages, without board, is not so valuable or reliable a datum as in the other sections of the country, from the fact that the custom is almost universal to hire labor with board or rations given weekly. The average price, however, as returned to this department, for labor by the month, without board or ration, is \$13.37; with board or ration, \$8.83. To the same inquiry two years since, the price returned was \$11.19 without, and \$7.67 with ration and board. From all sections of these States there is reported a demand for labor and an increase in value, particularly for the skilled laborer.

"The Gulf States, owing to the demand for railway laborers, added to the increase in production of Texas and Louisiana, report a great increase since the same time. The average wages of this section is \$16.23 without board, and \$11.29 with board, against \$14.80 and \$9.80. The five States north of the Ohio river pay an average of \$23.06 against \$20.90 in 1879, and the cost of subsistence remains nearly the same as then, viz.: \$7.50 against \$7.58, which indicates a gain very much in favor of labor. In all this section the demand for labor is reported as good, and the supply not equal to the needs of the farmer.

"The six States west of the Mississippi pay an average of \$25.84 per month. This average includes the wages paid in Colorado. Leaving out the sum paid in that State, as not being the wages of agricultural labor so much as labor in the mining districts, there is reported for the five States of the West and Northwest an average of \$23.41 without board, and \$14.95 with board, making the cost of subsistence \$8.46 per month. The two Pacific States report an average wage of \$35.75 without board, and \$23.63 with board, being a decline since 1879, when the same values were returned as \$38.22 and \$25.10."

AVERAGE WAGES FOR 1881.

STATES.	PER MONTH.		PER DAY.			
	BY THE YEAR.		TRANSIENT, IN HARVEST.		TRANSIENT, NOT IN HARVEST.	
	Without board.	With board.	Without board.	With board.	Without board.	With board.
New Jersey.....	\$22 30	\$12 80	\$1 82	\$1 40	\$1 05	\$0 74
New York.....	22 13	13 81	1 74	1 33	1 08	76
Pennsylvania.....	22 47	13 80	1 47	1 18	1 05	75
Massachusetts.....	25 33	15 44	1 62	1 25	1 33	97
Maryland.....	16 31	10 10	1 37	1 09	78	49

IRON AND STEEL INDUSTRY.

HANDS EMPLOYED AND WAGES PAID.

In this connection the following extracts from the final report on the iron and steel industries of the United States, ("Statistics of Iron and Steel Production of the United States—Tenth Census of the United States,") by Mr. James M. Swank, special agent of the Census, will be appropriate :

"The total number of hands employed in 1880 was 140,978. Of the whole number, 133,203 were men above 16 years old, and 45 were women above 15 years old; 7,709 were boys below 16 years old, and 21 were girls below 15 years old. The remarkably small number of 66 women and girls employed in the manufacture of iron and steel in 1880 will not escape notice, and is exceedingly creditable to our American civilization. The comparatively small number of boys employed is also worthy of notice.

"The 140,978 persons who were employed in 1880 were paid \$55,476,785, as wages, or an average of \$393.51 for the year for each person. The average daily wages of skilled labor were \$2.59; of unskilled labor, \$1.24. The highest average daily wages of skilled labor were paid in Rhode Island, Colorado and Wyoming Territory, \$4.00; the lowest in North Carolina, \$1.25. The highest average daily wages of unskilled labor were paid in Wyoming Territory, \$2.00; the next highest, in Colorado and California, \$1.75; the lowest in North Carolina, 54 cents. The average wages in the four

grand divisions were as follows: Eastern States—skilled, \$2.70; unskilled, \$1.21. Southern States—skilled, \$2.09; unskilled, \$1.03. Western States—skilled, \$2.70; unskilled, \$1.31. Pacific States and Territories—skilled, \$3.50; unskilled, \$1.75.

“The average number of hours of labor required per week in the iron and steel works of the United States, in 1880, was 65. This gives a little less than 11 hours for each working day of the week. The average is high in consequence of the general, though not universal, practice of operating blast furnaces seven days in the week, and in consequence, also, of the usual practice at blast furnaces, rolling mills and steel works of working twelve-hour turns or shifts, which practice may require the presence of the workmen for that length of time, although they may not be, and generally are not, so long actually employed. The State which presents the highest average is Vermont (75 hours), while the lowest average in any of the States is found in Delaware and Kansas (56 hours). A still lower average is found in the District of Columbia (54 hours).”

In 1870, New Jersey was fourth in rank among the iron-producing States of the Union, but in 1880 it had fallen to the fifth place. There were employed in 1880 in the 40 establishments (having an invested capital of \$9,099,050), 4,792 hands, of whom 4,711 were males above, and 81 males below, 16 years of age. The average number of hours of labor per week was 63. Average day's wages for skilled mechanics, \$2.32; not skilled, \$1.21. Total amount paid in wages, \$1,808,448, or $16\frac{1}{2}$ per cent. of the value of the products manufactured (\$10,341,896), or an average for each person of \$366.40.

THE COTTON GOODS TRADE.

WAGES OF ENGLISH AND AMERICAN OPERATIVES.

The U. S. Department of State, in October, 1881, issued a pamphlet (Commercial Relations of the United States, No. 12,) on the “Cotton Goods Trade of the World and the share of the United State therein.” We give the following abstracts (pages 92–99):

“According to the latest trustworthy statistics, the cotton manufacturing industries of the principal countries may be estimated as follows:

	Number of operatives.	Number of spindles.
Great Britain.....	480,000	40,000,000
France.....	210,000	5,000,000
Germany.....	130,000	5,000,000
Russia ..	180,000	3,500,000
All other countries in Europe.....	250,000	6,600,000
Total for Europe.....	1,250,000	59,100,000
The United States.....	181,000	10,920,000
India.....	80,000	1,250,000
Grand total.....	1,511,000	71,270,000

“Deducting from the number of American operatives, say 10,000 overseers, clerks, mechanics and watchmen, to equalize them, relatively, with the operatives of the other countries, it will be seen that while one English operative runs a little over 83 spindles, the American operative runs only $64\frac{1}{2}$, the French operative only about 24, the German operative a little less than 39, while the Russian operative runs only a little more than 19. On the strength of this showing the English boast of the ‘superior efficiency’ of their operatives.” * * *

“The home consumption of cotton manufacturers in the United Kingdom—and this estimate somewhat reduced may be applied to the remainder of Europe—is estimated at 27 yards per capita annually, while the home consumption in the United States is estimated at 40 yards per capita. * * * The total output of the American mills during the year 1880 was 2,131,580,000 yards. * * * The total output of the British mills during the ‘red letter’ year of 1880, was 5,439,645,000 yards of piece goods. * * * We find the total value of British cotton manufactures to be, for the year 1880, \$437,207,000. * * *

“In 1874, the latest official statistics in this connection at hand (and there must have been an increase since that time), there were 2,655 cotton mills in the United Kingdom, employing 187,260 males and 291,895 female operatives. The United States, with about one-fourth the number of spindles running in the United Kingdom, and with 181,000 operatives, against 500,000 British operatives, is credited with a production, the value (\$233,280,000) of which is more than one-half that of the United Kingdom, although in piece goods the American output was only as one yard to about two and a half yards of British. * * * Every American spindle consumes

66 pounds of raw cotton, while each British spindle consumes only 32 pounds, or less than one-half the American consumption per spindle. It thus appears that each American operative works up as much raw material as two British operatives, turns out nearly one and a half dollar's worth of manufactures to the British operative's one dollar's worth, and even in piece goods, where the superior quality and weight of the American goods are so marked, the American operative turned out 2.75 yards to 2.50 yards by the British operative."

"As Lancashire represents the most advanced features in the English cotton-manufacturing industry, so Massachusetts may be taken as representative of the best features of the American industry. * * * The wages of spinners and weavers in Lancashire and in Massachusetts [according to the official statistics reproduced] were as follows, per week:

"Spinners—English, \$7.20 to \$8.40 (master spinners running as high as \$12); American, \$7.07 to \$10.30. Weavers—English, \$3.84 to \$8.64, subject to a reduction of 10 per cent.; American, \$4.82 to \$8.73.

"The average wages of employes in the Massachusetts mills is as follows: Men, 8.30; women, \$5.62; male children, \$3.11; female children, \$3.08. The average wages of the men employed in the Lancashire mills on the 1st of January, 1880, was about \$8 per week, subject to a reduction of 10 per cent.; women from \$3.40 to \$4.30, subject to a reduction of 10 per cent. The hours of labor in the Lancashire mills are 56, in the Massachusetts mills 60, per week. The hours of labor in the mills of the other New England States, where the wages are generally less than in Massachusetts, are usually 66 to 69 per week. Undoubtedly the inequalities in the wages of English and American operatives are more than equalized by the greater efficiency of the latter, and their larger hours of labor."

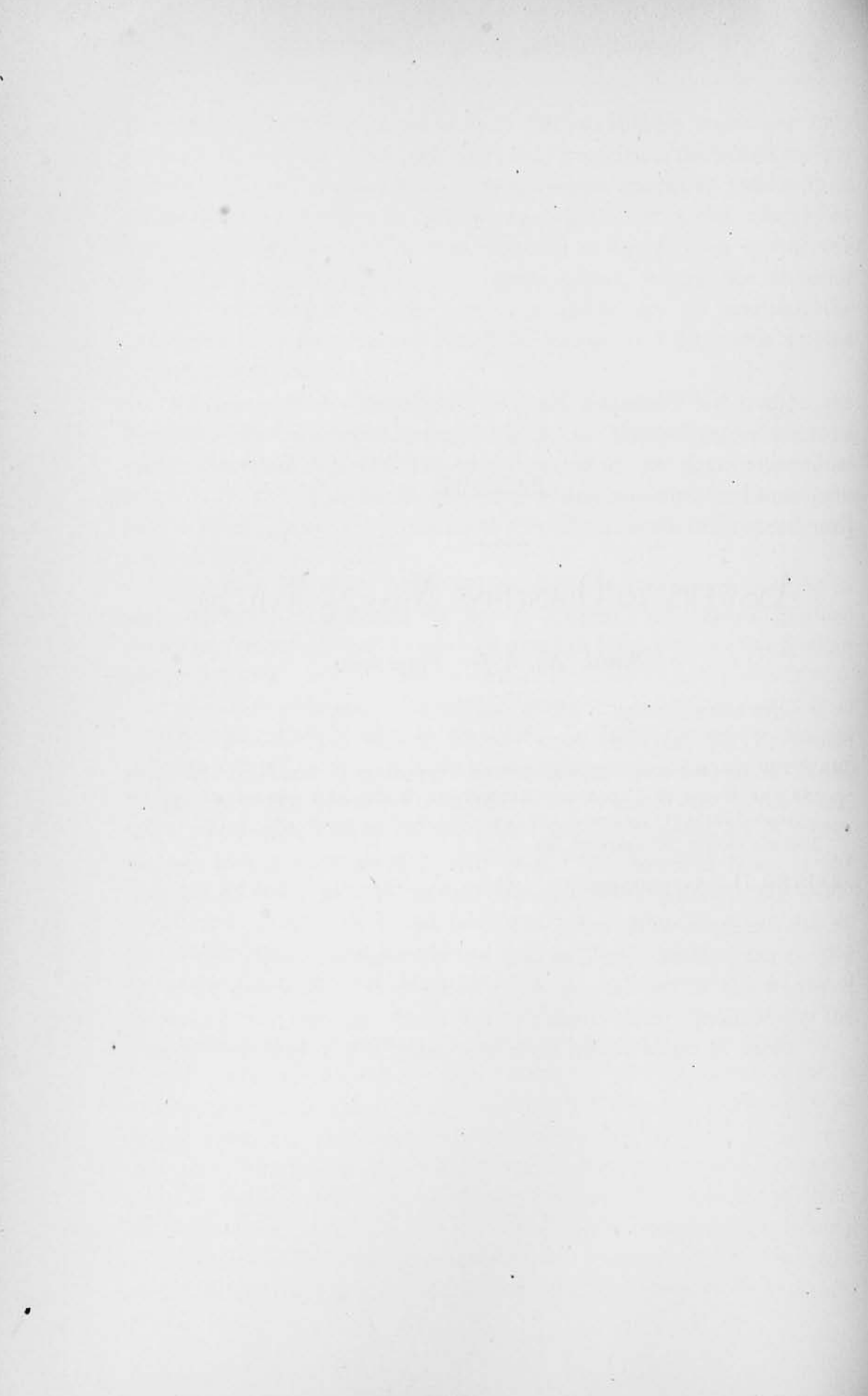
PART II.

ANSWERS TO QUESTIONS NOS. 25 AND 26.

Blank No. 3 for Employes.

CHAPTER I.—OPINIONS, SUGGESTIONS AND COMPLAINTS OF EMPLOYES—SHORTENING THE HOURS OF LABOR AND PAYMENT OF WAGES—CO-OPERATION—CONVICT LABOR—SANITARY CONDITION—TRADES UNIONS—EDUCATION AND CHILD LABOR—MISCELLANEOUS SUGGESTIONS, &c.

CHAPTER II.—APPRENTICESHIP.



CHAPTER I.

OPINIONS, SUGGESTIONS AND COMPLAINTS OF EMPLOYES.

Question No. 26 (Blank No. 3 for Employees)—*Give your views on labor topics, such as shortening the hours of labor, payment of wages, co-operation, trades unions, sanitary condition of factories, education, convict labor, child labor, or any other subject of interest to your trade or to wage-workers in general.*

By far the greater number of employes answered this question more or less minutely, thus showing the interest felt in their own welfare as well as in that of their fellow-workmen. These responses, in which they give their opinions on the leading labor questions of the day, come from representatives of all trades—from skilled mechanics and unskilled laborers, employes in the glass factories of South Jersey, workmen in the iron foundries, shoe and trunk makers, operatives in the silk, cotton and woolen mills, and the other industries—in fact, from wage-workers in every part of the State. The views and suggestions given are those of practical workmen, and do not represent the theories of agitators, and they may thus be accepted as the genuine home thought of the working classes. Possibly a good many crude ideas are set forth, but as a whole they are entitled to grave consideration. At all events, they show that the masses have opinions of their own.

There is but one sentiment regarding contract convict labor, and all who give expression to their views on this subject are "down" on it. "Cash payments in full, no store trade," is the unanimous demand, while nearly all desire weekly payments. Co-operation, so far as understood, meets with great favor. There are different estimates of the desirableness of trades unions. They are favored as a general rule, especially by the skilled trades. Still, many unskilled laborers think them selfish, and desire a union of all kinds of wage-laborers. The great majority are of the opinion that the reduction

of the hours of labor would benefit the class generally, provided that this be accomplished without corresponding reduction in pay. Very few admit that the educational facilities afforded are sufficient, and all acknowledge the necessity of giving the growing generation a better education than it is at present receiving, on account of the "child-labor evil," which is opposed as ruinous both to the health of their children and their own rate of wages. "But we see no help for it, the parents need the wages of their children in order to live," is the conclusion arrived at by some, while very many demand compulsory education and the keeping of the youth out of the factories. The general sanitary condition of the workshops and tenement houses does not seem to be the best, and the appointment of inspectors of factories, mines, etc., is earnestly asked for.

The following extracts from the returns will show the drift of the views of employes in the various trades on the subjects suggested in Question No. 26 :

ON SHORTENING THE HOURS OF LABOR AND PAYMENT OF WAGES.

Glass Blowers—"Eight hours a day and pay Saturday nights." "An eight-hour law and weekly payment of wages." "While the labor hours are about right now, would favor an eight-hour law for the general good." "As we shorten the hours of labor, the child-labor question will solve itself." "Weekly payments will pave the way for successful co-operation." "Cash system; no store trade, which is degrading to American labor." "The withholding of wages when due, is unjust and dishonest, and the law should not allow it." "Less hours and more pay." "Weekly payments, which we have now." "Never do anything, while blowers strain every nerve to accomplish a big day's work. They injure their health, and make no more in the long run."

But a blower thinks "the eight-hour system of labor a fraud. A laborer should not ask ten hours' pay for eight hours' work. Better enforce the ten-hour system before trying the eight." "Satisfied with present hours and monthly payments." "Don't want eight hours; two weeks' pay good enough." "Ten hours about right." "Eight hours will do when the demand for labor decreases." "Do not favor shortening the hours, as we do not average but eight." "Eight hours should be a legal day's work for those working by the day." Window-Glass Blower—"Cannot shorten them, as it takes so long to make the melt that we only get five days a week in our trade."

Window-Glass Cutter—"We are compelled to work a great deal at night, which should be stopped. The store system is very much against the laborer, who nominally gets ten cents an hour; but pay-day does not come until the third Tuesday of the month, when his store account is first taken out; this eats up his whole pay. Skilled labor is paid once a week in cash." Shearer—"Weekly payments have advanced our wages, by giving us a chance to buy cheaper. Our own factory store has reduced the price of goods from ten to twenty per cent., so as to retain our custom."

Glass Packer—"Personally, I have no interest in shortening the time; but it would be a benefit to workmen generally." Master Shearer—"While mine cannot be shortened, believe an eight-hour law would be for the general advantage." Help to Flatten—"Cannot well, unless we reduce work. This would do if wages would not be reduced, as it would give us more time to educate ourselves." Cutter—"Difficulty of adapting supply to demand would cease were eight hours and co operation to become general." Shearer—"Would employ more hands." Flint Prescription Blower—"Not in our trade, but generally."

Master Shearer—"To shorten hours would put us even more than now at a disadvantage with employers." Laborer—"The shortening of the hours would reduce our wages; it is an increase that we need, and cash weekly." "Let us be paid by the hour, and have as much work as we want." Blacksmith—"Do not believe in agitating the reduction of labor hours." "Ten hours about right." Carpenter—"Ten hours." Bottle Maker—"Reduction would correspondingly reduce wages, and then nothing would help but stopping foreign immigration."

Workmen in Iron Foundries—Moulders—"True work by contract." "Shortening time would shorten pay." "Do not see that it would benefit us." "All we can do is to compete with Europe, as it is." "Eight-hour law not for our trade." "Most of us have weekly payments now." "Employers should not be allowed to keep back wages longer than a week." "We want weekly payments; have monthly ones now, and most of the men are forced to get their necessities on credit at credit prices, so that when they get it, their pay passes into the storekeepers' hands." "No piece work."

Nail Cutter—"Receive weekly wages." "Satisfied with ten hours; if less, the cost of living or reduction of wages would follow." Nail-feeder—"Less hours, if wages are not reduced." "We have weekly payments; but what does it signify? Seven dollars a week just gives us enough to keep body and soul together."

Iron Roller—"Weekly payment of wages." "Cannot shorten hours; run night and day; great competition." "In favor of eight, but could not get along with less than the present number." Puddlers' Helper—"I want to get into some good trade to make a living. Wages are not right. Some get all, others hardly anything." Pattern Maker—"Ten hours about right. The trouble is, men work too hard while they are at it; moderate work tends to skillfulness and health. To perform as much work in eight as we should do in ten hours, will shorten our lives." "Nine hours in summer and eight in winter."

Nickel Works Foreman—"Ten hours the right thing." Workman—"Could not live comfortably on the wages if only working eight hours, as we are paid by the hour."

Brick Moulder—"Not interested in hours of labor; get weekly payments and am satisfied with that." Brick Layer—"Ten hours very reasonable." "Eight-hour law would benefit the rising generation, but do not care personally for it." Wheeler—"Eight hours should be a legal day's work."

Blacksmiths—"Eight hours are long enough for any man to work." "Eight hours and no reduction of wages. If the lawmakers will see to the first, we will attend to the second." "Less hours would bring less wages." "Only interested in getting the best wages for the best work. Probably ten hours could not be bettered." "If an eight-hour law were adopted generally, then child labor would not be bad." "Working hours already too long. Half-holidays." "Ten hours enough." "Do not think that it would benefit us to shorten the time." "Am satisfied with my pay, though two weeks is long enough to wait."

Trunk Makers—"Shortening hours of labor is not to keep men waiting for stock." "It may be done at my brand by using steam power. Have to turn the machine by hand, which is very hard work."

Shoemakers—"Eight hours and no more." "Usual to work ten hours." "Ten not too much." "Wages should be paid weekly. As it is now, we must trust some and often lose thereby. Could work cheaper and make more, because all my work would be a certainty." "Eight hours, without exhaustion, is a pleasure." "While every thinking man among wage-workers must admit that eight hours are long enough, a longer time has been the rule so long, that it would revolutionize business to adopt eight at once. Do not think we are sufficiently united to get it yet." "Ten hours enough." "Better wages, so that our children may have a chance to go to school." "Wages should be at least \$3 for a day of ten hours for first-class mechanics, and extra pay for all time over that."

Woolen Mills Operative—"More wages rather than shortening hours." "Weekly instead of monthly payments." "Ten hours long enough; longer than that should not be tolerated." "Too much work for the wages; ten hours enough." "If children must work, only eight hours should be allowed for them."

Cotton Mills Operative—"We should come down to ten hours and wages weekly." "Ten enough, and eight on Saturday." "Weekly wages; now they are monthly and two weeks' wages are kept back." "Do not want less time unless wages are advanced." "Ten hours even at present wages."

Ship Carpenter—"Piece work is a great injury to workmen. If it were not for that, we could agree and shape things to our advantage."

Can Maker—"Ten hours about right when we work by the piece." "Shortening time would reduce wages; if not, the cost of production would be increased. Either would be oppressive to our interests; for the demand depends on the cheapness of production. Glass jars are pushing us now."

Wheelwright—"Ten hours not too much." "Eight only for children." Carriage Maker—"Ten about right." Carpenter—"Ten short enough." Millwright—"Better make a specialty of advancing wages than shortening hours of work." "Do not mind ten hours if they would only give us living wages."

Oil Cloth Printer—"Ten hours not oppressive."

Packer—"I think we should have weekly instead of monthly payments."

Shirt Maker—"Work too many hours." "Ten hours short enough. Women who take the work say they work from twelve to fifteen hours." "Woman labor not properly paid; other things being equal, they should be paid the same wages as men."

Saw Maker—"The hours must be shortened or the wealth we create through improved machinery will drown us."

Machinist—"Do away with piece work. Better have ten hours, or even twelve, than do as much work in eight as should be done in that time. Think less hours and less work will advance instead of reducing wages." "Reduction of hours would certainly benefit the next generation; possibly the present."

Barber—"Shorten the hours and close the shops on Sundays."

Stone Cutter—"Eight hours very good." "A man in my trade should receive at least \$1.50 a day."

Tailor—"An eight-hour law should be passed." Salesman in Clothing Business—"The great trouble in our work is the long hours. We are compelled to work from seven in the morning until nine or ten o'clock every evening, and on Saturdays until

half-past eleven, sometimes until twelve, o'clock. We are kept like slaves. We have no holidays, as our stores are kept open until six P. M. on such days, and get no extra pay. We are compelled to stand at the door to watch for customers. We are not allowed to go home for our suppers on Saturdays, or on any busy evening, and are given, instead, twenty-five cents for a lunch, at ten o'clock."

Potter—"The shorter the hours the better."

Printer—"Eight hours per day is sufficient." "A compositor should receive at least thirty cents per thousand ems when at piece work, and thirty cents per hour when on time." "Ten not too much."

Jeweler—"Working over-time is a great injury in our trade. The bosses have a custom of withholding work as long as possible, and then crowd it into a few months, when we are compelled to work late. This necessarily results in idleness during the remaining time, of which advantage is taken by reducing wages." "Eight hours should be a day's work." "Am satisfied with the ten-hour system in use, but would certainly not find it bad to work only eight hours." "The greatest good would be accomplished by an eight-hour law, even at the sacrifice of the pay, as the price of labor would advance with its scarcity, and less hours a day means more men at work."

Laborer on Railroad—"Ten hours in summer and eight hours in winter." "Every laborer should be paid at least twenty cents an hour. A man cannot support a family on \$30 a month." Flagman—"My work requires twelve hours a day, but the pay should be \$2, instead of \$1." Horse Car Driver—"We work altogether too long—ninety hours a week. If we would work only sixty hours, as other workmen, we could not make a living. With the improvements in machinery, the hours of labor should be reduced, so as to give the laborer a portion of the benefit derived from invention."

Hostler—"Ten hours, but no more."

Hatter—"Nine hours long enough." "My business is good only during the fall months. The wages for ladies' hats during that time are very good, and enable me to tide over the dull time." "Eight hours are a fair day's work, for which a full day's pay should be given." "The mechanic should not be required to work longer than the professional man." "If the ten-hour law were universally adopted, it would give general satisfaction and greatly benefit both employer and employe; tending to utilize the unemployed labor, and more equally distribute it. Every honest dollar earned should be paid in honest money."

Engraver—"Give us an equal division of labor; not two hours a day during six months, and twelve to fourteen during the rest of the year."

Harness Maker—"Am in favor of eight hours, provided I can get as much pay as for ten hours." Harness Stretcher—"Eight hours and living wages."

Carpenter—"Nine hours should be a legal day's work, to be paid by the day."

Carriage Trimmer—"Think ten hours not too much for a long day; nine for a short one." Painter—"If the time be shortened, our wages will be."

Silk Weaver—"If an eight-hour law were enforced, there would be a greater demand for labor, and every person could find employment, which would be paid its full value, thus enabling the working class to consume one-third more than now and make business flourishing. All silk weavers agree that the introduction of improved machinery is another reason for shortening the hours of labor. Every month the bosses increase the number or make improvements in machinery, and thus the worker can tend to more machines and produce more. But the general complaint in all large mills is,

that for producing two thirds more the workers only get one-third more pay. We do not enjoy full weekly payments, as the pay-roll is made out from six to ten days before pay-day, and no piece is paid for till the succeeding pay-day, unless turned in before the pay-roll is made up." "If a piece of silk is not finished before Tuesday noon it is not paid for until the Saturday of the succeeding week; so that a person beginning work receives no pay for at least three weeks. This causes great inconvenience. Work finished should be paid for as soon as possible." "Ten hours, higher wages, and good work."

Silk Worker—"I would like to see nine hours a day." "I do not favor over-time, Sunday work, or child labor." "Eight hours very good; trades unions better." "Working hours not to be shortened." "Ten hours are too long to be locked up in such a noisy factory for such small wages. Our labor is worth at least from \$3 to \$10 a week; but this we cannot get until we are organized in all branches. But the bosses watch too well, and if any one would dare to mention the word 'union,' he would get his walking papers at once and his place be filled up with children, who ought to be kept out of the mills by strict laws and sent to school, for the majority of them lack common school education." "Night work should be paid double." "Less hours and steady work would do us good." "We could supply all the market demands in six hours if we had steady work and a just portion of the value we produce." "Wages should be paid every week; not every two weeks, as now." "Do not like to work twelve hours."

Bobbin Maker—"If the hours of labor were less than ten, our wages would be just as good and a vast improvement in our sanitary, mental and moral condition would follow. The use of labor-saving machines, with long hours, overstocks the market, temporarily at least, if not permanently, and thousands of hands are kept in idleness for short periods of time by what is called being 'laid off' until a new demand is made for their labor. This state of things is of constant occurrence, and the suffering it produces is immense. There has not been a single week, in Paterson, since 1878, that all hands, able and supposed to work, have had full time; one or more out of every family has been 'laid off.'"

House Painter—"Reduction of hours would prolong work and shorten the dull season." "Shortening the number of hours would be a great benefit to the laboring class generally, preventing over-production, giving employment to more, and, by reducing the labor market, destroy competition, resulting in higher wages. There would be more happiness, because the laborer would have more time to spend with his family, and, if a lover of literature, in reading. To say that he would have more time to spend in the rum-shop is a libel against the toiler who produces all wealth."

Miner—"Eight hours should be considered a day's work; all over that to be paid extra." "I want at least \$2 a day to support my family." "Eight hours short enough." "Eight hours long enough for any laborer." "The hours of labor should be reduced, for I do not believe that God ever created man in order to spend his life in work and sleep, without any time to enjoy the pleasures of this world."

The miners of Morris county bitterly complain because they are compelled to trade in stores in which the mining companies there are interested. The workmen in these mines thus express themselves: "Some concerted action should be taken against the greatest of all evils—the company store." "Abolish the company store, and I will be satisfied." "To trade where I please." "In favor of allowing a man to trade where he pleases, and not compelling him to go a distance of four or five miles to buy at the

company store, when he could do better by purchasing at another place, only two blocks away." "Of all the curses that are imposed on the workman, the stores of the company's agents are the worst. The men are bound to trade there, under penalty of losing their places. If they were paid cash and permitted to trade where they choose, a saving of from ten to thirty per cent. would result. As it now is, a man, after working hard all the month, finds, when he comes to draw his pay, that his store bill has been deducted, and that, instead of having something to lay by, he is in debt. If a man is sick, and unable to work, the agent refuses to supply provisions, informing his wife or children that the husband or father has already had more than is coming to him." "Want our pay every two weeks; we sometimes have to wait two months for it." "No man's pay should be stopped for debts made during the month. Abolish company stores."

A butcher thinks that "all the company stores should be burned up."

Laborer on Railroad—"All laborers should have the right to buy their goods where they want to."

Engineer—"Every man to spend his money where he pleases, to the best advantage."

Shoemaker—"Cash, and no company store."

Watchman—"Higher wages and abolition of company stores."

Clerk—"The majority of storekeepers here are interested in the mines."

Morris county farmer, who is "independent of the mining companies, and therefore not afraid to express his opinion," says: "The companies persecute the men who work for them. For instance, they get \$1.25 a day, on which they must support a family of six or seven, and are, besides, compelled to trade in the agents' stores, where things are generally ten per cent. dearer than elsewhere."

Morris County Saloon Keeper—"The mining companies should be compelled to pay their men at the end of every two weeks and allow them to spend their money as they please, and not force them to trade all their earnings in their stores. If a man gets \$30 a month, and does not spend at least \$20 with them, he will be notified that he must do better or leave their employ." Hotel Keeper—"Every man should be paid in full, and no stoppage of a workman's pay for his debts."

Carriage Painter (Hackettstown)—"Nearly all the workmen here are paid in orders, which results in bringing them into debt at the end of the year."

ON CO-OPERATION.

Glass Blowers express themselves—"Co-operation is the plan for wage-workers." "Right kind is good." "Like it as far as I understand it." "Productive co-operation would result in higher wages. Not so many brown-stone fronts, but more cheerful cottages." "Co-operative stores would be equal to ten per cent. advance in wages." "Would be a solution of the labor topics." "Make interests of capital and labor the same." "Weekly payments and thus give a chance to co-operative stores." "In our trade it is the only way by which we can get adequate compensation for our labor." "We have tried it with success." But "Co-operative glass works started on a small scale do not succeed. It requires a large capital and is a risky business." "Not much in favor of co-operative stores."

Master Shearer—"Co-operation on the Rochdale plan would render agitation of the other topics unnecessary. At present, all we get out of the employers is by force; we have to contend continually to get anything like living wages."

Glass Flattener—"The interest of our trade depends on sustaining a co-operative

system wherever possible. It makes operatives more independent." Stopper Grinder—"Just the thing to help save some earnings." Glass Packer—"Honestly conducted they are excellent. We are paid weekly, but our wages are low with no chance of advance, and we should thus make it up in purchasing necessities."

Pot Maker—"Never studied these subjects. Co-operation strikes me as a good thing. The great leak in our present system seems to be supporting middlemen."

Shearer—"Wages so low that we cannot save anything to go in." Cutter—"Does not suit our business."

Iron Moulders—"Would be equivalent to increase in wages." "Rochdale plan would do away with all evils."

Core Maker—"The iron business is monopolized in the rural districts by persons who have their own stores and keep back two weeks' pay, thus forcing their employees to deal with them. Co-operation would remedy this evil."

Moulder—"Strong believer in it." Heater—"Belong to a co-operative association and am well pleased with it."

Nail Cutter—"Not practicable." "Would be well for us."

Brick Moulders—"Just the thing, as the brick business does not take much capital." "It will not be a success in this country for many years, as rum and dishonesty stand in the way." Wheeler—"Like the Rochdale plan; but the trades would not take us in on equal terms."

Blacksmiths—"A good thing, and I do not see why it should not work here as well as in England." "If co-operation be adopted universally, what will become of the trades? Would not the result be over-production and worse for labor?"

Shoemakers—"It is the only salvation for the workman." "Every workman should make it a close study for the next five years." "As carried on in England it would be a great benefit."

Paper Maker—"Productive co-operation, once thoroughly understood, would have the support of purchasers on account of cheapness of goods."

Carpenters—"Workmen should have the profits of their own consumption." (Millville)—"Would favor co-operative stores, but they do not seem to succeed here."

Cotton and Woolen Operatives—"Thorough and general co-operation backed by thorough and active combination." "If rightly conducted."

Cloth and Silk Weavers—"Good enough for the few that engage in it, if successful; but the condition of the laboring man will be none the better, since the members of the co-operative associations will thus become capitalists themselves." "Can see only one way to better our condition, by co-operation." "Co-operation is impossible because we have not the means to engage in it."

Painter—"Co-operation among honorable men would work well."

Miner—"Co operation and trades unions should be encouraged."

ON CONVICT LABOR.

Convict labor finds but few advocates. The workmen in the glass factories observe on this subject—"It is ruinous to the laboring class." "Down with convict labor; would rather pay more for our shoes and hats than have any fellow-workmen injured by such competition." "Does not hurt us, but it should be abolished." "Not opposed to it if paid as other labor." "The State should not put the product of convict labor on the market to compete with that of honest labor." "I do not know of any better system than the present, but it hurts the trades and I am opposed to it." "Convicts

to work but to get the same pay as other workmen; board and clothing to be deducted and balance to be paid to their families." "It does not interfere with us."

Brick Layer says—"If there must be prison labor, it would be better to equalize it among all trades, because if confined to a single one it almost destroys it."

Door and Sash Maker—"It is better for the convicts to labor, even if their products be kept out of our market, which should be done."

Hatters—"Convict labor is our greatest evil. The people do not know this yet, but they will, and then it will be stopped." "The prisons can be made self-sustaining without placing the whole burden on the mechanic." "It is a disgrace to the State. Let the convict work at hard labor and teach him to be a better man. No State should sell him as a slave to a contractor." "It is the main cause of the dullness in our trade. If it were abolished in the different prisons in this country, we would have work all the year and better prices would be paid for work." "Enough has already been said about convict labor to satisfy every intelligent person that it is a criminal injustice to manufacturers and mechanics to continue the contract system in our State prison, and the action of the late Legislature virtually so decided. * * * The Reformatory at Jamesburg was built at an enormous expense to our taxpayers, for the purpose of educating and reforming the erring youth of New Jersey and instructing them in the various trades, so that they might be able to get an honest existence when they reach their majority. This Reform School has been diverted from its original object and transformed into an immense shirt manufactory. This is wrong and should be stopped. It is an outrage on the poor working girls who are engaged in this branch of industry, and on account of this competition hundreds of them are compelled to work until the small hours of the morning in order to gain a livelihood."

Here is what the shoemakers think of convict labor—"We have enough competition without prison labor, which is worse than slave labor." "If it must go on to any extent, the prisoners should be paid full price for their labor; and everything thus made should be stamped 'Prison Labor,' so that people may know what they are buying." "Convict labor is the all-important topic with us, and, in fact, with all workmen, for we cannot consume the products of other manufactories if we are stricken down by this abominable system." "Pay convicts the market price and give the money to their families, most of whom are in a state of want, or to themselves when liberated. This would be a reform measure for the prisoners and protection to honest workmen from unfair competition." "A curse to shoemakers." "It is keeping our wages down." "Convict labor should be employed on public works and not allowed to interfere with any trade." "Should not be confined to one branch, as honest labor cannot compete with it." "Seriously interferes with us." "Should be abolished."

Tailors—"Contract convict labor should be abolished." "Make convicts crack stone."

Sexton does "not believe in teaching convicts a trade, so that when they come out of prison they will compete with good mechanics who have served out their time as apprentices."

Iron Moulder—"There should be convict labor, but it should not be employed by private corporations or monopolies."

Locomotive Fireman is a "firm believer in convict labor," and miner thinks "convicts should be made to work enough to support themselves."

Freight Clerk—"People should not be compelled to pay taxes in order to support convicts in idleness."

ON SANITARY CONDITION OF WORKSHOPS, ETC.

The sanitary condition of glass factories is "very good" or "fair," as a general rule, if we believe the reports from the workmen, "Far better than that of our tenement houses, which are really bad, and a reform in this respect is very much needed." "The factories should have high roofs and plenty of shutters." "Not healthy to do too much night work." "Good, except in hot weather, when we should not be allowed to work." Salem—"Our sanitary condition could be improved." Millville—"More care in building factories; looking to their sanitary condition." "Glass blowing is healthy, notwithstanding what is said to the contrary." "Not healthy." Flat-tener—"Business generally considered healthy." Gatherer—"Healthy but hard work." Shearer—"Sanitary condition good, only we have night work, which is unhealthy." Blacksmith—"Good." Mould Maker—"Healthy." Engineer—"Very healthy." Stopper Grinder—"Our work, which is in water, is unhealthy." Cutter—"Trade unhealthy." Packer—"My work is unhealthy."

Nail Cutter—"Our business is unhealthy." Nail Feeder—"The work is unhealthy." Nickel Works Foreman—"Not very healthy work." Operative—"Healthy."

Shoemakers—"Sanitary condition fair." "Gas and smoke make it unhealthy."

Blacksmith—"The best." Shirt Maker—"Good." Paper Maker—"Very healthy." Ship Carpenter—"Sanitary condition of work is the best." Brick Layer—"Extraordinary healthy business." Wheeler—"Brick yards are not healthy, being too damp."

Chair Maker—"For the present give us factory inspectors. They should be appointed on recommendation of labor organizations, and their duty should consist in taking children from the factories and placing them in school, and in looking after the sanitary condition of workshops, as well as in seeing to it that there is every possible safeguard against injury from defective machinery, and that fire escapes are provided."

Potters—"A better sanitary condition is needed." "Very good." Dipper and Kilnman—"Unhealthy."

Machinist—"The State Board of Health should have power to compel employers to observe sanitary rules in their factories. I have seen factories in which children were compelled to work while several inches of water was in the cellar, where it had been permitted to remain because there was no outlet for it."

Stone Cutter—"Factory inspectors should be appointed." Miner—"Inspectors should visit mines once a week, and then there would not be so many lives lost."

Creamery Workman—"This is an unhealthy business, as there is so much work in the damp."

Saw Maker—"Factory inspectors should be appointed to visit the shops every three months. Many months have I worked in places not fit for beasts."

Cotton Mill Pickers—"Factories are unhealthy." "Too much dust inhaled and consequent indigestion." Weavers—"Work is healthy if we only would work reasonable hours. Now, not many girls continue at weaving more than two or three years on that account." "Picking cotton very unhealthy, because of the dust inhaled. You can hear the hectic cough all around you above the noise of the machinery." "Dyspepsia is common among the operatives." Woolen Mill Weaver—"Sanitary condition, I think, is good." Passaic Operative—"The place is full of malaria."

Silk Workers—"Sanitary condition of mills and shops should be better." "Factory inspection should be enforced." "Shops should be better ventilated, and more room

given for the workers to move about." "Little attention paid to our sanitary condition; in winter the air becomes foul." "It is bad for the eyes to work by lamp." "Night work is very bad for the health." "More light and ventilation." "Too much bad air." "Our factory is lighted with gasoline, which is dangerous to life and injurious to the eyesight." "Factory inspection should be introduced, because some mills are very badly ventilated, badly lighted and have bad water."

Hatters—"Factories should be well cleaned." "More ventilation."

Harness Maker—"Good."

Planer (Paterson)—"Sanitary measures should, by all means, be enforced. I have lost ninety-three days on account of sickness resulting from a filthy closet near my machine. Employers should be compelled to cleanse such places."

Jeweler—"Factory, mine and workshop inspection, as well as sanitary supervision of food."

ON TRADES UNIONS.

Trades unions are favored by glass blowers. The following observations, among others, are selected—"A good thing." "Indispensable; our trade would go down without them." "They stand at the back of all these questions, supporting and putting in force favorable legislation." "Only way by which we can keep up our wages." "The Legislature should provide for their incorporation." "A mutual benefit, when rightly conducted." "Have had a union for 20 years; it works well; our business is done by a standing committee recognized by employers. We have not had a general strike for 15 years." "They protect us to a certain extent. It is the only defence we have. But it depends all on the state of business. When times are good we have no trouble to keep up a good organization; but when bad, we have to go down with everything else." "Best thing for a workman to do is to attach himself to a union." Flattener—"When wages are arranged by committee it relieves the individual from uneasiness." Pot Maker—"Though not perfect, yet a good thing." Laborer—"They keep up the labor agitation."

The following opinions from glass workers are not so favorable:

Box Worker—"Combination of workmen a good thing; but no trades unions. They are only for special trades and rather an injury to the common laborer. They make social inequality and give no protection to those who need it most." Shearer—"We cannot stick together in trades unions." Stopper Grinder—"I believe in organizations which will take us all in; others are selfish." Flattener—"Should be governed with care so as to avoid all loss of time, which is the poor man's capital." Gatherer—"Believe in union of workmen, but not of select trades, which leave the poor ones in their helpless condition. We are paid weekly and this was brought about by combination of all kinds of labor."

Among the iron workers there is also more or less difference of opinion on this subject:

Core Maker—"They should be introduced into every branch of industry." "They are the backbone of everything that has been done for workmen." Nail Cutter—"Keep our business up." Nail Feeder—"Should have trades unions." Roller—"In favor of them." "In favor of all labor combining together for mutual benefit." Moulders—"Thorough combination our only refuge." "United political action is better." "They should be encouraged by legislation." "Without them we would be at the mercy of our employers." Laborer—"They will do for trades, but not for us

too much competition." "They are selfish, and are founded on selfish principles. We need organization that will take in suffering humanity."

Ship Calker—"There is a great difference between the wages in those trades which have unions and those which have none, the advantage being with the former." Carpenter—"They protect the workmen."

Can Makers—"Trades unions are good when rightly managed; oppressive when ruled by bad men." "Strikes should only be resorted to when all other peaceful means fail."

Blacksmiths—"Combination is necessary to accomplish anything." "Trades unions for wages, but not to settle the labor topics." "Know nothing about them, but see the necessity of them." "The most friendly feeling between employers and employes should be cultivated. This is sometimes neglected, and conflicts arise without any necessity therefor." "They have had their day."

Brick Layer—"Favor combination among wagemen." Moulder—"Arbitration is the best means of settlement." Mason and Plasterer—"Wish that all men who work for a living would make an effort to form unions for their own good; for it is impossible for men singly to obtain redress. These unions have been a great benefit to our workmen, because they permit none but good mechanics to join. They take a great interest in apprentices, compelling them to serve out their full time, and thoroughly learn the trade. When properly organized, each union knows what is going on in its trade all over the country."

Trunk Maker—"The workmen should all unite in one body and strike together, so that labor and not capital will rule."

Shoemakers—"Strict trades unions are too sectarian in their views. We want those where each man will feel an interest in his neighbor and brother, let his trade be what it may." "They are good." "Sometimes oppressive." "Weekly payments, trades unions and co-operation make one chain; the loss of a single link would destroy it." "Trades unions and co-operation are worthless."

Laborer—"Combination of all workmen; but not of those of a single trade."

Silk Weaver—"They are the greatest benefit. Without them the employers would reduce our wages at pleasure, and compel us to work over-time or keep us idle, when it suited them. Strikes are prevented through them." Operatives—"They are the only thing I know of which will better our condition. We are agitating this subject throughout Hudson county, and expect, in time, to meet with success." "Very necessary, if we ever intend to better ourselves." "Then we would get better wages; there is no use in asking for an increase singly." "A law should be passed preventing the bosses from interfering and setting the police after us whenever we 'conspire' with our fellow workmen by encouraging them to strike for better treatment or reduction of fines."

Cloth and Silk Weaver—"There is nothing that capitalists hate more than a good organization of trade. Think a centralized organization of unions would become a power and aid to solve all the labor questions."

Painter—"They should be encouraged because a protection to the workmen, who are thus enabled to obtain a fair day's pay for a fair day's work."

Machinist—"They are good as far as they go, but the members are apt to think that the interests of their own particular trade are all that it is necessary to look after."

Miner—"Trades unions and co-operation are useless."

ON EDUCATION AND CHILD LABOR.

"Education and no child labor" is the general cry which comes up from all classes of workmen. This is the way in which the various tradesmen express themselves on these two important topics:

Glass Blowers, Millville—"Enforced attendance at school is necessary. One-third of the children over ten years of age, both boys and girls, are employed at two dollars a week, many of them in the cotton mills, during *fourteen hours a day*." "Our boys are growing up in ignorance." "Our boys attend the night schools, which should be made more efficient through State appropriation." "Night schools meet the want of our boys, some of whom work at too young an age. But this is the result of necessity." "By shortening hours of labor more time will be given for study. Those who advocate long hours say night schools will do; but what can a child do at study after ten to twelve hours' hard work? I have seen the little fellows frequently fall to sleep at school. The ill health frequently complained of is caused by too many hours' labor. The medicine needed is less work and more recreation." "A good many boys employed by our firm, but the company is very strict in compelling them to attend the night school during the winter. Consequently all get a common school education."

Salem—"We are lacking very much in education." "Boys cannot be educated if put to work at ten years of age." "Favor compulsory education." "Somehow we ought to be better educated; children are placed at work too young, for their parents need their wages to live."

Camden—"What little education those brought up in glass factories get, is mostly obtained in the night schools. They are improving."

Bridgeton—"Children should not be allowed to go into the factories before 14 years of age. Education is needed very much, but they are placed there too young, so that they get none." "Child labor and ignorance are the outgrowth of low wages and will continue until there is improvement in the latter respect."

Malaga—"Good advantage in education." Winslow—"Advance education." Williamstown—"We are taking more than ordinary interest in education." "Do not like child labor, but do not see how to avoid it." "More thorough school system." "Want schools to run ten months instead of six as here." "Compel employers to teach their apprentices to read and write and the technicalities of their trades. Plenty of free schools with competent teachers, who should receive fair salaries." Tansborough—"Education should be advanced." Port Elizabeth (Cumberland)—"Deadly opposed to child labor. Children should go to school and not work."

Window Glass Flatteners—"As a body we need more education." Gatherer—"Education at a low ebb, but feel the need of it."

Laborers in Glass Factories—"I have six boys over 15 years of age, who can scarcely read or write. They have been compelled to work in order to live, the wages being so low that it is all we can do to get the common necessities of life. I am in favor of anything which will better our condition." "The compulsory education law should be enforced; many here who cannot read or write. Night schools have been tried without success. Boys 10 years of age and under are sent to the factory and kept there." "We cannot spare the time to send our children to school." "Technical education should be made compulsory for the laboring class." "Children are put to work too young. If there is no other way, the firms should be compelled to

educate the small children of their employes." "Room for improvement in education." "Child labor is bad, for it deprives children of education; but without a radical change in the present system of capital and labor, especially unskilled labor, I see no help for it." "To educate our children is out of the question at our wages." "Compulsory education, strictly enforced, would make many families want for the necessities of life." "Our children must work in winter when the factories are in operation, and there is no school in July or August." "Child labor interferes with us."

"Education has been too much neglected," says an employe in the iron foundries. "Means should be devised to put down child labor." "Opportunities for education should be better." "Give the children time for education and physical development." "Ignorance is the mother of vice. Child labor is bad, but under the present system I see no help for it." "It is a subject for legislation, and, like convict labor, is bad for wage-workers."

Brick Moulders—"We are unable to improve our opportunities on account of poverty. Am opposed to child labor, but how can we help it?" "Something more is needed in the way of education." Brick Layer wants "compulsion in regard to education."

Cotton and Woolen Mills Operatives—"Child labor is a curse to all concerned." "Some work as early as seven or eight years old." "Education much neglected." "Compulsory education." "Something should be done in the way of educating our children." "No chance for education here. Children go to work as early as eight years, and never see the inside of a school-house after that." "Too much cannot be done for our educational interests."

Shoemakers—"The State should see to it that the children of working people get a systematic education, of which they now obtain very little." "Education greatly needed." "No child should work until 14." "We need a thorough system of compulsory education."

Harness Maker—"The trade is ruined by the employment of boys and girls."

Hatter—"The employment of children in our factories, mines and workshops is very dangerous to the future of our country. We see hundreds of them in Newark, as well as throughout the rest of the State, between 7 and 12 years of age, working from 10 to 12 hours a day, growing up in ignorance, ruining their constitutions and preparing themselves for a premature grave. If this is ruinous to our society now, what will it be two or three generations hence?"

Trunk Maker—"Education by all means. Children below 12 are sent to work in the factory where they are subject to harsh treatment. None that I know of receive more than \$3 a week. They learn to chew, curse and drink beer, and, I can assure you, before 21 they are broken down. They are probably put to work at some machine and get hurt and crippled for life."

Carpenters—"Education is at the bottom of all true reform." "It would be better to have absolute compulsory education, even if some allowance had to be made in extreme cases when child labor is necessary." "The best system of education would fail with child labor." Essex County—"Middling."

Laborer—"How are we to get along without child labor? How is a family of six to be maintained on \$1.25 a day?"

Silk Workers—"Most of the operatives lack a common school education; this should not be." "Children should be compelled to go to school, because two-thirds of the

younger generation do not receive a proper education." "Little girls should be sent to school instead of into the factory; we have them here working at the age of 10." "It makes children unmannerly." "Plenty from 9 to 12 working in the factory." "If child labor is not soon stopped there will be no children left in school. Woman labor is also a great evil in our trade, because it cuts down the wages of men. Women work more hours if they can get a chance, and they are never willing to join a union for their own benefit." "In our factory, children from 10 to 12 years work the same hours as grown people and displace many of them to that extent." "Women should not be employed in the factories; they should be at home looking after their domestic affairs."

"Trade schools should be established in order to secure intelligent and efficient workmen." "Industrial schools, as they exist in Europe, should be set up. This is a great need of wage-workers, because young men with talent do not get an opportunity to completely learn their trades, for they have not the means to serve a long apprenticeship on small wages." "The public schools should teach pupils drawing and book-keeping in order that they may get positions in other businesses or industries; for the working people are too poor to send their children to high schools or colleges."

"Workmen," observes a glass blower, "are entitled to the luxuries as well as to the necessities of life. They should have the privilege of educating their children in all the higher schools."

"Technical education is needed," says an iron moulder, "so that boys learning the trades will learn them well." Brick Wheeler—"Technical schools would be a good thing; boys who grow up without a trade have a hard time of it in life. But at our wages, what can we do?"

Carpenter—"There should be appropriations for technical schools in every city, so that our children could be educated to a trade."

Nail Feeder (iron foundry)—"We want technical education. The trades keep us out and we first want some means of obtaining a living, then we will think about labor topics."

Laborer—"Technical education would in time make less laborers and more demand, which would result in increase of wages. Till then, no use to talk to us about educating our children."

Painter—"I believe the public school system to be the best, but it should be made compulsory." "Let our boasted Republic take a lesson from monarchical England and its child-labor laws."

Hoboken Horse Car Driver—"The employment of children in factories drives the men out of work. We have more 'extras' waiting for a situation as driver or conductor than 'regulars,' and they are mostly silk weavers out of work."

Jeweler—"Child labor is a great evil in our trade."

Miner—"No boy should be sent underground until he is old enough to understand the dangers in mines."

Saloon keeper is "well pleased with our public schools, but think that something should be done to compel parents to send their children to school until twelve years of age."

Machinist—"All children should be taught a trade after they have received a proper education."

Several miners think, that "education should not be compulsory," and that the question of "child labor should be left to the discretion of parents."

Creamery Workman—"Our educational system seems good enough. The trouble is that so many do or cannot avail themselves of the opportunities afforded. Some means should be adopted to diffuse and make compulsory this privilege."

MISCELLANEOUS.

"Unskilled labor is suffering because there is very little combination outside of the trades. If there were we could manage these topics without legislative interference."

"Intemperance is a fearful curse among us, and we must have a reform in this respect before our condition is bettered socially." "No liquors to be made or sold. No Sunday excursions by railroad or steamboat, and a strict observance of the Sabbath."

"I do not think any legislation can better our condition. The way to do it is to save money while young and get into something else."

"There are too many side issues. Attention had better be given to advancing wages and the rest will take care of themselves."

"Our remedy is political. If wage-workers would not be bound by party, but elect men pledged to their interests, and acquainted with the same by actual experience, things would be better. We have enough intelligent workmen among us and they should represent us."

"Opposed to the tenement system of cigar making, for it hurts the trade. Apprentices should serve for three years."

Silk Operatives—"Labor bureaus should be established in every State; all conspiracy laws should be repealed and employers made liable for injuries to their employes, through negligence as to machinery, &c." "Labor statistics and information are a great necessity for the silk trade, because the operatives are supposed to receive large wages, which is not true. Some departments in our trade are very unclean and tedious. But the worst is bad pay, long hours, bad treatment and dissatisfaction all the year round."

"Compulsory education of children under 14 years, all books and materials in the public schools to be furnished free of charge. Prohibition of the employment of female labor in occupations detrimental to health and morality, and equalization of wages where equal service is performed with men. Strict laws making employers liable for negligence resulting in injury to the employe. National and State bureaus of labor, the officers to be chosen by the working classes."

Silk Hatter—"Convict labor must not be; child labor must not be; trades unions must be." "A reduction of duty on plush hats would be good for my trade."

Shoemaker—"Put down the banking system and crush monopolies, and then labor will come out all right."

Jeweler—"All property, whether for religious or secular purposes, should bear its just proportion of taxation."

Carriage Painter—"Give us a government in the interest of the whole people and not of a select few." Painter—"Labor to receive a just share of the attention of law makers."

"Am satisfied now," is what a Morris county bar-tender as well as a mining contractor observe. Miner—"I am satisfied, if the other miners in this vicinity are."

Harness Maker is "satisfied now," while a number of shoemakers "propose the socialist platform to emancipate the workman."

Freight Clerk—"Laborers, as far as possible, should have a half-holiday on Saturdays. If employers would pay more attention to the wants of their employes, they would soon have a far better grade of workmen, and so would be able to get more work done in less time."

Carpenter—"Let every one fight his own battles about labor, and not be compelled to carry lazy workmen on his shoulders. He has enough to do to carry himself."

Potter—"Would like half-holidays on Saturdays, just as they have in England."

Machinist in machine works, Burlington county, observes: "The system adopted by the employer here is to pay men, as he claims, according to their skill and worth. A few men are given extraordinary chances to make large wages by taking work on contract, and hiring their own help at low wages, thus making in some instances as high as \$3,000 a year. By this system most of the men are obliged to work at the lowest figures, although this is regarded as a model establishment in regard to the relations between employer and employes. The truth is, a few men are bribed by this contract arrangement and high wages to keep the balance in contentment at low wages. No trade-union men, or one who agitates the labor topics of the day, can remain here. They have a sick-benefit society to which both employer and employes contribute. No other labor societies are allowed, but are denounced as socialistic and communistic. The proprietor takes a great deal of interest in the welfare of the men, cares for them when sick, and buries them when they die (if the family is too poor to do it), and cares for the family after death. He is kind as an employer, yet there is no independence among the workmen here. He is lord over all, and dictates the social arrangements and the opportunities of the human mind. As a result the workmen become mere dependents, and lack that manly independence that should always characterize an American citizen."

CHAPTER II.

APPRENTICESHIP.

Question No. 25 (Blank No. 3 for Employes)—*Is there any system of teaching apprentices in the factory where you work? State the method of teaching apprentices in your trade.*

The answers received to this question show the following practice (or rather want of it) among the various trades:

Glass Blowers—"None. Boys learn the trade by practice, being apprenticed five years to the manufacturer, who pays them one-half the price (by the piece) of journeymen."

Window Glass Workmen—"None. Blowers take the young men and boys to gather their glass and teach them to blow. Cutters take boys for four years who learn by practice."

The mould makers, blacksmiths, carpenters, lamp workers, stopper grinders, and miscellaneous workmen in glass factories, generally learn their trades by practice "gradually." A "flint prescription blower" remarks, that apprentices get no instruction, but the employers should be compelled by law to teach them the full trade.

Trunk Makers—"Not now, but there used to be; men would take boys and pay them from \$3 to \$4 per week."

Shoemakers—Camden shoemaker says: "Yes, the boss attends to it. Such as the trade is the boys are well taught at it." Burlington—"The trade is learned in a regular and systematic way." "Only by practice."

Shoe Heeler—"Sometimes errand boys learn."

Iron Workers—Iron Moulders—"Very loose system; taken without indenture and are discharged at their own pleasure or that of the employer, with the trade only half learned." "They work at what they can do and gradually learn." "Pick it up the best way they can." "If they are smart boys, we teach them." "They are not indentured; a verbal agreement is all." "Take them for five or six years, paying them at first \$2.50 a week."

Core Makers—"No one teaches them; they work up themselves." "Merely verbal agreement, which is not often regarded." "If they have ability and aptness any one is willing to do all he can to teach them." "Learners must serve a term of two years."

Puddlers—"We do not want apprentices; too many puddlers now." "Bosses put in a few helpers, who, if they are smart, will pick up the trade." "Very few learn the trade now; those that do are put in by the firm and learn of themselves."

Puddlers' Helpers—"There is no system of teaching, but there should be. The puddlers are opposed to our learning. Have heard about technical schools and wish there was one here" (Bridgeton). "Very few get a chance to learn puddling."

Nail Cutter—"We have the entire control of apprentices, none being taken in except our children or friends. Very few for the past three years."

Nail Feeders—"The system is to keep one from learning the trade." "They give us no chance to." Iron Roller—"They work up."

Saw Maker—"Yes. Hire them by the week, with the understanding that if they are steady they will have the first chance to learn. The time thus occupied is allowed, if taken on."

Steel Pen Maker—"Some learn."

Can Makers—"Some learn when put at it, and when competent we give them wages." "Begin with lowest work." "Very few taken last year."

Printers—"Boys are taken on a three years' apprenticeship, and are taught the trade by the foreman." "Go in as devil and work up." "It has been successfully taught in technical schools."

Paper Makers—"To learn the trade in all its branches requires considerable skill and long practice." "Only those who go into a paper mill young become proficient."

Oil Cloth Printers—"Must learn by practice." "There is no particular method. We study their disposition and aptness."

Millwright—"Take boys at about 15 and keep them until 21; teach them and make them a reasonable allowance for clothes."

Creamery Employee—"Place them in the team; look after them, and they learn very fast."

Weavers in Cotton Factory—"Weavers take new hands for about three weeks, after which they become spare hands until they are good weavers and work for themselves. They receive nothing while learning." "Taught to fix looms; go under instructors for two or three weeks."

Woolen Mills Operatives—Weaver—"Learn by practice, in a few weeks, with an old weaver." Wool Sorter—"Yes, there is a regular system. We set the apprentice to work assorting until he can, in a measure, tell the qualities. It is all eye practice."

Shirt Maker—"Girls used to sewing machines soon learn; we take no others."

Boss Dyer in Print Works—"My work is skilled; we only take our relatives or friends." Card Grinder, Stripper, Cloth Finisher—"Not a trade." Jack Spinner—"Hardly among the trades."

Cigar Maker—"Simply by being shown."

Ship Carpenters—"Practice makes perfect." "We take none now." Calker—"Push them along as fast as they learn; none taken now."

Carpenters—"Take none." "Let them work up." Door and Sash Maker—"Cannot be learned theoretically; only by practice." Doors—"There is a regular apprenticeship."

Carriage Makers—"Work them up gradually." "Generally they are taken during the busy part of the season and then sent off." "A cut-throat plan."

Chair Maker—"The boys are used to the best advantage of the employer. The work is so subdivided that a boy cannot learn how to make a complete chair in four years."

Machinists—Dredging Machines—"No regular way. In time advance them according to capacity." Iron Machine for Wood Work—"First put them at work at what they can do." "Three years." General Jobbing—"Regularly indentured for three years." For Woolen Mills—"Take them as helps, and push them forward." For Cutting Tin, Brass, &c.—"All our men have been taught in the shop by the employer; ordinary machinists cannot do the work." All Kinds of Machine Work—"Good chance to learn all the branches. They are under indenture. Put to work in the shop." "A boy is kept at one thing as long as the conscience of the employer permits."

Potter—"The foreman teaches them." "They are taught by being shown." "They learn by watching and being instructed in the different branches."

House Painter—"Almost unknown. Employers, in order to make money, will teach the trade to any one, from 14 to 40 years of age, giving low wages."

Stone Cutter—"Must serve a term of three years."

Blacksmiths—"Take none." "Help learn sometimes." In Iron Works—"Put him at sticking first, and work him up." In Carriage Factory—"The boss teaches them." "The boy is thoroughly instructed from the start, and advanced gradually." Helper—"There should be a law compelling employers to teach apprentices the full trade."

Brick Layer—"Take them for three years, and adopt various methods according to capacity. Masons—"Put the boy with a good journeyman, to show him how to do the work, and he can soon learn." Moulders—"They learn by being put at it." "Do not teach any."

Silk Weavers—"Yes. Apprentices are taken and sent to some experienced hand, for three or four weeks, to help and get instructions. This is without pay. Then they obtain looms for themselves." "Yes and no. The weaver is at liberty to take in apprentices whenever he chooses. As soon as they are able to tend a power loom they can fill vacancies if there are any." "The employes ought to have control of the apprentices in order that the bosses may not take their friends and favorites to teach them the trade and send off those of the employes." "Learners must stand by and look on for three or four weeks, without pay, until they can weave." "Take children under 14 years and let them learn for one or two weeks." "Sometimes they are taught. In order to understand perfectly they must work for six weeks." "They work three out of the six without pay." Broad Cloth Silk Weaver—"We do not take apprentices in the weaving department." "The other weavers have to show them till they can tend a loom."

Silk Winder—"They are placed by the machines and whatever they can earn is theirs." Spooler—"Taken learners as under 14; learn one week and then given a side of ten ends to wind, paying them \$1.50 to \$2 a week."

Silk Workers—"School girls are taken for three or four weeks, until they understand how to tend six or twelve ends, till they are able to run a machine." "Experienced silk workers are instructed little by little until finally they are able to twist perfectly." "Girls taken in to learn how to handle silk and start the machine." "Boys are taken in on small wages to help, and in course of time become skilled workmen." "The method here adopted is to take in fresh hands, let them look on for a week, or less, then help one or two weeks without pay, and then discharge them. If they desire to come back they are taken at from \$3 to \$5 a week." "There are not sufficient opportunities offered to the girls to learn the other branches of the business."

Bobbin Maker—"No system. Much depends on their natural ability. A smart, active boy gets the best chance. All instruction is conducted on selfish principles."

Fancy Cloth Weaver—"Apprentices must generally learn for six months to understand the work."

Fancy Leather Goods—"The practice is to employ as many apprentices, or unskilled hands, as possible, in connection with the smallest possible number of skilled workmen. By this means the former get all the easy work, to which the latter are entitled, in order to have relaxation from hard work. In this way wages are also kept down."

Harness Makers—"A boy must take his chances in the factory with the men." "No

apprentices." "They are not bound, but are under instruction in several factories for a few years." "Employers should be compelled to teach the apprentices the whole trade when they agree to do it, and not let the boys only learn as much as they can pick up." "They are shown once in a while."

Hatters—"General instruction and wages according to ability and progress of apprentice." "Every twelve men take one apprentice until he has served a term of three or four years." "He is taught his business by a journeyman." "Serves four years before he becomes a journeyman."

Jewelers—"Boys come in at low wages and work up until 21." "No system; they learn all they can." "During a period of from three to five years, until he knows how to scroll." "Boys are placed between men and sometimes put on the same jobs and are watched by them." "Most every shop has its own system, and the majority a very bad one. The trouble is, that our trade is not sufficiently organized to compel employers to have a fair plan of taking in boys. In a good many shops most of the work is done by teams of boys or green hands. This is the curse of our trade and keeps us down." "To get all the work possible out of the apprentices, so that the journeymen will lose all the time possible, is the only method in my shop."

PART III.

SUGGESTIONS FOR WORKINGMEN.

CHAPTER I.—TRADES-UNIONS AND LABOR ORGANIZATIONS.

CHAPTER II.—WORKINGMEN'S CLUBS.

CHAPTER I.

TRADES-UNIONS AND LABOR ASSOCIATIONS.

Much has been written on the subject of trades-unions, labor associations, and combinations of workingmen generally, yet, as many writers have been influenced in great measure by individual interests, what has been said has contributed to create prejudice rather than to promote investigation into the causes which have led to their establishment and the objects sought to be accomplished by them. No movement on the part of workingmen has excited so much controversy or met with such opposition, and been the subject of so much hostile legislation, as that for the organization of trades-unions. Although their origin dates back to a very early period of our present civilization and of methodical organization of industry, history confirms the fact, that, wherever unions have been started for the first time among a body of workingmen, the attempts have been met by employers and the public with disapprobation, ending in proscription and unfriendly legislation; it being assumed that these combinations were not only detrimental to the one but mischievous in their results to the other.

Since the inability of many trades-unionists to understand the principles underlying these organizations has seemed to justify these assumptions, a brief statement of the causes that have led to and necessitated combinations may be useful; for it is idle to suppose that trades-unions could exist and enlist the support of the most intelligent wage-workers without the existence of some reasons therefor. Men who labor for wages are not without reasoning capabilities; but the intelligent among them are actuated by as high purposes and are as capable of determining what is just and what will promote their own interests, as those of any other class of society. They certainly have the same right to the exercise of their own judgment as to the best means of seeking their own elevation as those engaged in business or professional pursuits. There is scarcely an interest in

the whole range of scientific, literary or industrial life, that has not its own combination for the advancement in knowledge, or for the purpose of protecting its members against competition, either by mutual agreement of association under written laws, or else the purpose is answered by a tacit understanding growing out of their relation to each other.

The close competition in both production and exchange, brought about to satisfy modern convenience and by the introduction of labor-saving machines, has caused the present age to be characterized as pre-eminently one of competition and association, and has very materially changed the relations formerly existing between capital and labor. This has resulted in the concentration of capital into fewer hands and under the control of individual capitalists and corporations, and thus necessitated the massing of workmen into large mills and the subdivision of labor into specialties, which have diminished their individuality and independence. This loss of independence compels the individual workmen to seek closer association with his fellow-workers in order to defend himself against the ever-increasing power of the employer; for capital and machinery being owned and controlled by the few, their power to oppress the laborer can only be restrained by the union of numbers. While a few employers may be disposed to be just, by paying a fair rate of wages and treating their employes with consideration, and even kindness, there are always men in every business who strive to obtain the greatest possible amount of work for the smallest possible pay; men who are unscrupulous, and, with unlimited power over the wages of their employes, will only allow them sufficient to obtain a bare subsistence. This being the case, even the most liberally inclined employers are obliged, because of competition, to reduce their own rate of compensation to the same low standard; for though enlightened enough to see the advantages of well-paid labor, and that anything less is unjust and unwise, they are controlled in this matter by force of circumstances. Therefore, without some system of protection, which combination of workmen alone affords, the rivalry of employers will always bring down wages to the minimum.

The question arises here, what is a just rate of wages, and what rate would be unwise? It certainly would be unwise for employers, in possession of capital and machinery, capable of producing large quantities of goods, to pursue a policy which will reduce the earn-

ings of wage-workers, who must buy and consume the greater portion of their production, to such a standard that they will be unable to purchase what has been produced. In other words, the demand for goods depends on the purchasing power of the many who labor for wages, and, consequently, low wages must ultimately lessen production and reduce profits; for it is an axiom in political economy, that the price of labor is the measure of wealth. The more rapid expansion and increase of wealth in this country than in any other is largely due to the higher price of labor that prevails here, stimulating the development of all the vast resources of our land. The most important subject for the political and social economist of the day to consider is, not so much how to supply the wants of the age, as in what way to keep up the consumption, so that all the immense capacities of production may be kept in activity. This can only be done by gradually increasing the wages or purchasing power of the many. The wage-workers of this country can have no sympathy with that policy which seeks to reduce the cost of things produced here below the standard in Europe, in order to find a market for them abroad, because this can only be accomplished by lower wages. Other things being equal, the people of Europe can never afford to buy our goods until the rate of wages of our workmen is reduced below that which prevails there. We deem it very unwise in American employers to seek to bring about such a state of affairs, for this would result in destroying to that extent home consumption, which is more profitable, as the cost of transportation must be added when goods are disposed of in a foreign market.

What, then, is a just rate of wages? Labor certainly is entitled to receive and share with capital the reward due to their joint association, and neither can be said to have dealt justly with the other unless both have given their best efforts to promote the interests of each other. The abominable doctrine that one has a right to obtain labor at the lowest price for which man and woman can be forced to work, is simply a justification of robbery. It leads to strife, poverty, crime and general demoralization; for it discards every human impulse and generates selfishness, greed and dishonesty in our business relations. The division of the proceeds of industry between employer and employe should be a matter of contract; but the equity of the contract can be safely relied on only where the contracting parties are either imbued with a high sense of honor, or are

restrained by the knowledge that the party aggrieved has the power to compel restitution. The aim, therefore, should be to determine by investigation of the laws of trade what division secures the highest results to both. Capital is entitled to interest, insurance and a reasonable profit. Labor is entitled to a living and insurance in old age, and unless this be secured the deficiency must be met by taxes; in other words, what is denied in wages must be made good in charity and benevolence. While our almshouses and other charitable and reformatory institutions are evidence of our feelings of humanity, the necessity which requires them is strong proof that some radical evil exists in our social system.

Many instances of attempts to fix a standard of division of profits between workmen and employers might be cited. Such, for example, are the "industrial partnerships," where an additional per cent. is added to the amount of wages received, after capital has earned a certain profit. Another plan is to fix a sliding scale, now in operation in many of the iron establishments in this country. These experiments, wherever tried and carried out in good faith, have been conducive to the interests of both parties; but, so far as the knowledge of the writer goes, none of them have resulted in establishing a basis for a permanent settlement. Still, even the partial success obtained shows the advisableness of these efforts, for they have always led to better relations between employer and employe, and have allayed to a great extent the spirit of strife before existing; and many employers have acknowledged the advantages they have derived from considerate treatment of their workmen, and the more cordial relations that have thus been established. Workmen, when thoroughly organized, and demanding a fair remuneration for their work, have the power to regulate, and in many trades do fix, the price of their own labor. But in the exercise of this power it is important that they fully understand their responsibility, both to themselves and their employers, as well as to the public.

The object, therefore, of a trades union should be to establish uniformity of prices, for if all employers pay the same rate of wages no advantage can be taken by any one, all being on an equality when competing in the same market. In adjusting this price care must be taken not to make it so high as to increase the cost of the articles produced and in this way check the demand, by causing the consumer to seek for a cheaper substitute, or to obtain them by importa-

tion from abroad. Workmen who bear these considerations in mind, will have the basis of an equitable demand. Combinations of workmen, recognized by employers, and thus conducted, are a great advantage to both, because security is given to the contract, and each is enabled to obtain the best returns. Only by this means can the interests of capital and labor, under the wage system, be reconciled, and both be placed in the best relations to each other. So long as either party becomes arrayed against the other, or resorts to corrupt legislation for the sake of obtaining a passing advantage, or for any other cause distrust exists between them, both will suffer in the struggle that ensues. The gain will be but temporary, for again and again the strife will be renewed and the war will go on indefinitely. When such a state of things exists, it is idle to say that their interests are identical; and it is folly to expect anything but discord, disturbance and consequent loss to both. The interests of capital and labor are identical when in their proper relations. But when the employing capitalist seeks to reduce the workman to the lowest possible wages, without regard either for his right as a citizen, or for his comfort and well-being as a man, he abuses his trust, and the inevitable result of this wrong-doing will be sure to follow. So when workmen, through indifference or neglect to attend to their duties, because of drunkenness or for any other reason, fail to do their part, leaving their work without cause, and thus entailing loss to the employer, the injury must also fall upon them, as in all such cases there is loss of business and the divisible profits are lessened. It is important for employes to understand this. Any failure to do their duty, especially when the profits are small, results in damage to all concerned. The losses of the employer necessitate lower wages to employes. This is appreciated by all trades unions which are well organized and under experienced leaders, for they never will attempt to protect a workman when he willfully neglects his work.

But the laborers have the same right to expect that the employer will pursue a policy which will enable them to secure good wages, as he has to demand that the employes will diligently attend to his interests; and only then can capital and labor be said to be in true relation to each other when the two are acting in harmony and are intelligently directed, so as to secure the greatest returns to

the one and the best wages to the other. This cannot be, except through organized labor, for the condition of the workman is such that individually he is too weak to resist the power of the employers, advantage being taken by the avaricious ones in order to undersell their competitors in the same business. This obliges all to follow the example thus set in reducing wages of employes until the very lowest point has been touched and the competition between the employers has reached its limit. But where labor is thoroughly organized and strong enough to resist abuses, this state of things will not exist, for all employers are consulted and can re-adjust their contracts to whatever standard the necessities of the case require. The apparent hostility or misunderstanding between labor and capital does not arise from any natural cause, or so much from personal enmity between the parties as from their inability to understand the true relations which should exist between them, and the principles that should govern in their intercourse with each other.

Great prejudice has existed against trades unions and labor organizations because they have been considered the cause of the strikes and lock-outs that have so frequently occurred in the past. But the facts show that the great majority have taken place where no regular organizations have existed, which, instead of being their cause, have often averted them, and, in some trades, almost have removed the possibility of their occurrence. The time has gone by for the laboring men or women to be content to work for such wages as employers may be pleased to give; and in the future they will have opinions of their own about what they are entitled to receive. As education becomes more general, and they acquire greater knowledge of the affairs of the world, the clearer and better will their ideas become and the more will they insist on having their say. Those who believe that the public schools and other American institutions can exist and that at the same time the masses can be kept content with their present condition, have but slight conception of the influence and progress of our times; and when employers seek to prevent organization in order that they alone may have control of the wages of their employes, they make a grave mistake. Though unorganized workmen generally are slow to take advantage of an opportunity, experience has proved that slight causes sometimes arouse them, when they quickly concentrate and strike without notice and without any definite idea of what they desire. Thus unreasonable demands

are often made and foolish strikes are entered upon by mobs; and the consequence is, that employers are either forced to submit or suffer great loss in their business and, possibly, destruction of property. Strikes and lock-outs are usually the result of passion and a semblance of war, having about as much justification. The weapons used may differ, but the same hostile attitude, the same bitter strife, arises in the one as the other; and while, perhaps, they cannot entirely be avoided, they may be made less frequent and disastrous.

Though strikes should not be encouraged nor lock-outs justified, yet as political revolutions frequently have forced more liberal and progressive ideas on governments, so, we believe, these labor wars have awakened attention and been largely the means through which labor has attained its present social recognition. The restless desire for independence and a better condition, which comes with education and higher wages, brings the laborer into conflict with the opposing conservatism of the past; and as men will not freely yield power or privileges once enjoyed, so it happens that employers and the public have been slow to recognize the increasing strength and intelligence of the workingman, who is supposed to encroach on their prerogatives. But capital is no longer the master of labor, which in these conflicts has demonstrated its power to claim equality and joint partnership. Strikes, therefore, are only incidental to our age and civilization and result from unwillingness to adopt more rational means of adjusting differences and settling disputes when they arise. The mission of trades unions is to supply better and more peaceful methods; and it is a fact, well attested, that in trades well organized, where the workmen are disciplined by unions, disputes are not frequent and, generally, the relations existing between employer and employe are the most cordial. In fact, it will be difficult to find a single case where an honest effort for mutual agreement has not resulted in pecuniary advantage to all concerned. So well is this recognized that many of the largest manufacturers in this State prefer to confer with committees representing the body of their employes rather than treat with the workmen individually, and they no longer seek to destroy the unions, but admit their advantages. This is true in some of the New Jersey glass factories, where the workmen, as will be seen by our tables, receive higher average wages than those of any other trade. The following resolution, adopted at a meeting of window-glass manufacturers at Pittsburg, where the firm

referred to had employed Belgian workmen in order to break down the window-glass blowers' union, is further proof of the correctness of our assertion :

"WHEREAS, The undersigned, glass manufacturers of Pittsburg, to avoid the numerous strikes, so damaging in the past, and hoping in the future to be able to settle our differences with our workmen in a more reasonable and sensible manner, made an arrangement, through the representative of the Window-Glass Blowers and Gatherers' Union, Mr. David P. Swearer, in July last (1879), to advance the price of blowing and gathering, which price was to maintain for the blast, and the glass manufacturers west of Pittsburg were called upon to ratify our action, which they did at a meeting held in Pittsburg; we now hear with regret that certain manufacturers west of Pittsburg, without consulting any Pittsburg manufacturers or others west of this city, have engaged European workmen, discharging those who were hired under our arrangements; we do not hesitate to say that we consider this a piece of bad faith on the part of the said western manufacturers, and that our sympathies are all with the discharged workmen; *furthermore*, it is reported to our workmen that the President of the Western Window-Glass Association is one of the parties to the importation of the European workmen, which is not correct, as our President is Mr. Thomas Wightman, of this city; therefore,

"*Resolved*, That we, the Pittsburg glass manufacturers, propose to abide by the arrangements made with the blowers and gatherers, and we trust that this experiment may result in arrangements for a long future; that, instead of strikes and lock-outs, we may be able for all time to settle our mutual difficulties by concessions and agreements."

For the past twenty years it has been the aim of the Hollow-Ware Glass Blowers' League to establish and maintain a uniform standard of wages throughout the whole trade, and the success attained is shown by the fact that to-day there is not more than five per cent. difference between the wages paid in any of the establishments here or in Canada. This has proved a great advantage to the manufacturers as well as to the workmen; for the former always have sought by combinations to establish a uniform price of glass, but have failed because of the want of integrity among themselves, having often been engaged in destructive competition with each other at great loss and without benefit to anybody. We see no reason why this method should not be adopted in other trades, especially in those, such as the cotton, woolen, silk, iron, hat and shoe, in which there is a very little difference in the cost of raw material and transportation; while in such as printing, cigar making and jewelry, where the expense of transportation is small, an absolutely uniform standard of wages could easily be agreed upon, and, at least, employers who

seek only honorable competition should offer no opposition to its establishment.

The most important argument, however, in favor of trades unions is the influence they have exerted on their own members. It must be borne in mind that these associations deal with the practical and most essential affairs of a workman's life—with his means of obtaining a livelihood. While some include within their scope sick benefit, insurance and other benevolent features, the primary object of a trades union is to enable its members to maintain wages, secure exemption from obnoxious rules, and generally to promote the interests of the craft. In the consideration of these questions the most delicate and subtle problems of social and political economy often require solution, which no statesman has yet been able to give. The meetings are attended by men, representative of every phase of the workman's social life—the good, the bad, the intelligent as well as the illiterate. While it is true that bad counsels sometimes prevail, it is easy to predict which must ultimately win in the struggle between the good and evil, between intelligence and ignorance, between right and wrong. Discussions take place on the most important questions of every-day life, and the better educated consult books of authority for the acquisition of knowledge, which is imparted to others, who in turn learn to think for themselves. Well-defined principles of action thus become understood, reason takes the place of passion and stubborn will. Men are taught their duties, and form new habits and modes of living to which they were strangers before. In a word, labor associations are essentially educational, and men are to be found in almost every walk of life, in the pulpit, at the bar, in the halls of legislation, whose inspiration was first obtained and whose experience was largely acquired in the trades unions. The assumption that workmen, as a body, are vicious and incapable of self-restraint and government, without the control of the upper classes, so-called, is absurd, and contradicts the fundamental principles on which our institutions are based.

While it would be difficult to trace directly all the benefits derived from associations by workmen, it must be admitted that, since trades unions have been instituted and become a part of their social life, labor has been dignified, and the condition of the laborer has been improved to an extent unknown before in the world's history. To appreciate this it is necessary to refer to the laws of England as well as to the

customs that prevailed there in dealing with the laborer before trades unions became a power. This we deem pertinent, because the laws and customs of England have had much to do in establishing the relations between employer and employe here; besides, in England trades unions have exerted their greatest influence.

"The law had always dealt unfairly and harshly with the trade associations. Public opinion had for a long time regarded them as absolutely lawless. There was a time when their very existence would have been an infraction of the law. For centuries legislation had acted on the principle that the workingman was a serf of society, bound to work for the sake of the employer and on the employer's terms." The statute books of England are filled with acts passed to regulate and fix the wages of workmen; and a study of them leads one to suppose that it formerly required only a petition to Parliament by some interested employer, to obtain the enactment of laws to make workmen accept such wages and conform to such rules as suited the petitioner; most of these laws being special and applying only to particular trades or industries. The famous statute of laborers, passed in the reign of Edward III., declared that every person under the age of sixty, not having the means to live, should be "bound to serve him that doth require him," or else be committed to jail "until he find surety to serve." If a workman or servant left his service before the time agreed upon, he was to be imprisoned. The same statute contained a section fixing the scale of wages, and declaring that no higher wages should be paid. In 1548 it was enacted that, if any artificer, workman or laborer do conspire, covenant or promise together, or make any oaths that they shall not make or do their work but at a certain price or rate, or do but a certain work in a day, or shall not work but at certain hours and time, they shall, upon conviction, be fined for the third offence forty pounds, and unless paid in six days, be made to sit in the pillory and lose one of his ears, and at all times after that be taken as a man infamous, and his sayings and depositions not to be credited at any time in any matter of judgment. An act passed in the reign of Elizabeth contained provisions making the acceptance of wages compulsory, and fixing the hours and wages for labor. In 1685 the justices of Warwickshire notified all concerned that every employer who gave more, or any workman who received more, should be imprisoned; but the general rule was, that any breach of contract

by the employer could only be compensated by damages obtained in a civil suit, while any violation of it by the employe was criminal. A workman could be arrested on a warrant and imprisoned before trial, but the employer was exempt from this degradation.

"The same principle," observes McCarthy, in his "History of Our Own Times," "continued to be embodied in our [English] legislation with regard to masters and workmen, with hardly any modification, down to 1813, and, indeed, to a great extent, down to 1824. In case of breach of contract the remedy against the employer was entirely civil; against the employed, criminal. The laws were particularly stringent in their declarations against all manner of combination among workmen. Any combined effort to raise wages would have been treated as conspiracy of a specially odious and dangerous order. * * * The very laws which did this were a survival of the legislation which for centuries had compelled a man to work for whomsoever chose to call on him, and either fixed his maximum of wages for him or left it to be fixed by the justices."

When we consider that the authorities were all land-holders and employers of labor themselves, and that the laborers had no voice in the matter, and dared not associate openly to influence them in their decisions, we can readily understand the reason why low wages were paid. Thus, from 1660 to 1688, Macaulay observes, the wages of agricultural laborers averaged four shillings a week, without board. In 1685 the justices of Warwickshire fixed the wages of agricultural laborers at four shillings per week, without food, from March to September, from September to March at three shillings and six pence; and nowhere in the kingdom were wages more than seven shillings per week. Mechanics and artificers in woolen and other industries received a shilling a day, while the hours worked were from sunrise to sunset. In 1680 a member of the House of Commons remarked that the wages paid in England made it impossible for manufacturers of textile goods to compete with those of Bengal, for the English operatives exacted a shilling a day. What extortion, when wheat at that time was fifty shillings per quarter, or about \$1.56 per bushel!

So far as the writer has been able to examine, not a single law was enacted during this whole period intended to secure an advance of wages; but the object always was to restrict the workman and limit

the price of his labor, to coerce and hamper him in his efforts to improve his condition. Yet, notwithstanding this hostility, a gradual change took place in the whole current of thought and legislation on this subject. Trades unions continued to multiply and increase in power, until, in 1824, a new departure was taken with the passage of what has been known as the "combination act," which repealed all the previous acts against them. This act was the first legislation acknowledging the equality of labor with capital to fix and determine its own pay. Since that time trades unions have been an acknowledged power in England, and have exerted a vast influence on its social and industrial life. For many years they have maintained a Parliamentary committee to look after legislation in their interests; and to-day in no country are the laws relating to the hours of labor, the sanitary condition of factories and the regulations for the employment of women and children therein, so favorable to the working classes or so stringently enforced as in England. The wages in almost every department of industry have doubled in the past sixty years; the length of the day's labor has been shortened by several hours, and at the same time the moral, social and intellectual condition of the workman raised, many of whom have attained eminence in various positions of public and private trust. This legislation has been the result of the efforts of the workmen themselves, through organization, aided by a few philanthropic men of eminence.

Although the act of 1824 repealed the prohibition against combination of workmen, society still continued united against, and for many years thereafter hostile courts called to aid all their ingenuity in order to give the strictest possible interpretation to the law. The courts, not many years ago, held, that while a strike was not of itself illegal, yet a combination of workmen to produce a strike was conspiracy, and hence all combination of workmen was kept under the ban of the law and they themselves on the defensive against the combined forces of all other classes of society. While the employers combined to cause lock-outs, the employe was told to submit with resignation because any increase of wages would disturb the "wages-fund" and bring disaster on the whole country. This bugbear of an imaginary wages-fund was constantly held up before the workmen by their self-constituted advisers as a reason for their pitiable condition. But this was not satisfactory to the workman, who, while the employers were growing rich, could not under-

stand why he alone should be compelled to toil for the lowest wages. With public opinion, the press, orators and clergy, all combined in condemning him for using the only means he had of defending himself against his avaricious employer, with no protection in the law to aid him to secure better terms, or to support him in his refusal to work for any one who might call upon him, at a price he had no part in fixing, is it any wonder that outraged nature revolted and that excesses were committed against person and property? Yet, notwithstanding all these provocations and adverse surroundings, a Parliamentary Committee, in 1867, after the most searching investigation, could only find in a few instances any breaches of the peace; and, while these were elaborately dwelt upon in its report, the great majority of the unions were exonerated from any complicity in the crimes imputed to them.

At the beginning of 1876 the number of members enrolled in the trades unions in Great Britain was estimated at over one million. "A prime object of these organizations," observes a writer in the *American Cyclopædia*, "is to obtain better wages, shorter time or more agreeable conditions of employment. They discountenance long engagements at a pre-established rate of wages, oppose the practice of working beyond customary hours and usually seek to establish in each town or district a minimum rate of wages. In skilled trades they insist on apprenticeship and seek to regulate the proportion between the apprentices and workmen, defending their action on the ground that it is the workman and not the employer who instructs the apprentices. * * * One of the best results of free association among the workmen of the United Kingdom is the mutual culture which it has promoted." Mr. W. T. Thornton, in his well-known work on labor, argues that the efforts of the trades unions have raised the wages of laborers in general, and estimates the addition thus made to the aggregate earnings of the workmen of Great Britain at nearly forty-five million dollars.

The trades unions in this country do not compare with those in Great Britain in membership, resources or discipline, nor to the extent to which they have combined beneficial objects with trade purposes. Various causes may be assigned for this; the chief one being the rapid development of our country. This allows an outlet for the surplus labor into the less densely populated territory and thus has resulted in keeping up the wages in the older settled dis-

tricts. But trades unions of the United States have not been without influence in checking the encroachments of capital and in securing some relief to labor through legislation. The information concerning their extent is very meagre. A list of organized trades which have had a national organization since 1859, was published in the First Annual Report of the Ohio Labor Bureau, viz.:

Machinists and blacksmiths, printers (typographical), iron moulders, shoemakers (Knights of St. Crispin), daughters of St. Crispin, coopers, iron and steel heaters, puddlers, rollers and catchers, brick layers, painters, carpenters, plasterers, hatters, morocco dressers, tailors, locomotive engineers, coal miners, ship carpenters, railroad conductors, trainmen (railroad), and glass blowers.

In 1880 the following were said to be in existence: Amalgamated association of iron, steel and tin workers, locomotive engineers, iron moulders, cigar makers, granite cutters, locomotive firemen, carpenters and joiners, furniture workers, painters, coopers, machinists and blacksmiths, and the International Labor Union of America.

The trades unions and labor organizations in New Jersey have a *bona fide* membership of about sixteen thousand, in addition to the twelve or fourteen thousand persons indirectly connected with them in such a way that any action by the unions would affect them. It would be a very difficult matter to contrast the condition of the organized trades with that of those having no organization, so far as to give figures and accurate data. But it is a well-known fact that the wages are from ten to fifteen per cent. higher in those cities where the trades are organized than in those where no attempt has been made to regulate wages by this means. All but very few of the leading trades have an organization in some part of the State; while many have also national unions. That trades unions are generally favored by workmen, will be seen from the answers on this point, given elsewhere, under replies to Question No. 26. Copies of blank No. 3 were circulated indiscriminately in every part of the State among workmen, few of whom give anything but very decided affirmative answers in favor of such organizations. Nearly all admit the need of some kind of organization; a small number opposing unions because of their "sectarian" character, being confined only to special trades, and desire a union of all classes of labor. In general, the exceptions are the few who have steady employment, having been in one situation for a long time, whose testimony, therefore, is

against them ; or those who work by contract and employ assistants at low wages, thus making money themselves, protest against interference of trades unions, which seek to establish a uniformity of wages. But these exceptions are so few, that it may fairly be assumed that the principles on which trades unions are founded are approved by the working classes of this State generally, and that these organizations are permanently engrafted on our social and industrial life.

The following observations from Mr. Wm. M. Manks, who has been engaged during the year in collecting information from and distributing copies of blank No. 3 among the workmen in the southern part of the State, will be interesting in this connection :

"It has been a great pleasure to me to find such amicable relations existing between employer and employe in those trades where there is thorough combination of the workmen, who seem to be controlled by men of moderation and superior intelligence. The employers seem to be fully satisfied with their profits ; and good feeling generally prevails on both sides. If any differences have arisen, committees from the workmen have been appointed, and met the employers to discuss them dispassionately, and thus reached conclusions, sometimes by mutual concessions, satisfactory to both parties. The great conflicts between labor and capital, which have taken place during the year in other States, happily have been avoided in this section, and thus millions of dollars have been saved.

"Employers are learning that trades unions, instead of being their worst enemies, are their best friends. 'Trades unions, when properly conducted, do not stand in the way of a free market for labor, but are the indispensable means of enabling laborers to take care of their own interests under a system of great competition among capitalists.' There is no necessity of strikes or even strife between employer and employe ; and when trades unions, or other workmen's organizations, keep in the background rash and designing men, they are a preventative rather than a promotion of conflicts, and many capitalists have at least learned to recognize this fact. Herein lies the solution of all the great labor problems, for labor organizations have done much to enlighten and educate the public. It is the great mission of this Bureau to mould public opinion, so that the great questions, upon the solution of which depend the permanent settlement of the issues between capital and labor, may be correctly answered. I have heard politicians prate on the stump about what they would do for the

workman, if they were only elected to an office, when, even supposing them to be sincere, they did not know the A B C of the wants of the laboring man. Laws have their place, but it is only an enlightened public opinion that makes their enforcement possible; with it, they are irresistible. It was so with the 'truck system,' and so it will be with all other reforms."

CHAPTER II.

WORKINGMEN'S CLUBS.

One of the most powerful means of elevating the moral, intellectual and social condition of the masses is that of association. This is the principal argument of the advocates of trades unions and workingmen's organizations generally. Man, who is by nature a social being, may be so directed as to make not only himself, but his fellow-men, better and happier; and it should be the aim of philanthropists everywhere to encourage and stimulate this social quality by providing suitable places of attraction and enjoyment for the laboring man, especially as this will be the surest way of raising him to a higher plane of life. This cannot be done by elevating the character of the public houses, as now conducted, where strong drink, if nothing worse, is the chief diversion, and now attract him for want of something better. What is needed is something which will bring about an entire change in the habits of the laboring classes. The reformers of the day attack the vices and advocate the removal of the temptations which surround them, through prohibitory legislation; they appeal from the pulpit, platform, and in the press. Yet the most zealous must admit that these methods have only been partially successful. The remedy, we believe, will have been found when places of social resort have been provided, whose attractions will draw the great body of workingmen, who will there find congenial minds, and be encouraged to lead a better existence than that to which they have been accustomed in the saloons; where their social qualities will have full scope to develop, thus having higher enjoyment than the gratification of mere animal appetite.

Trades unions have demonstrated the power and usefulness of association by improving the general condition of the members thereof. But their meetings are not held frequently enough, and they are organized, to a great extent, for the benefit of particular classes of workingmen. We do not propose to interfere with them in any way, but only desire to enlarge their sphere, so that the benefits derived therefrom may be extended to all classes of wage-workers. Neither is it

our intention to create a rival or substitute for home, which should always be the dearest and most attractive place on earth—a place which every family should enjoy, and which should be made as pleasant and comfortable as possible. The very name of “home” should always be held sacred, and it should never be deserted, even to find the most fascinating attractions elsewhere. Still it is a sad truth, that the dwellings of many working people are far from being ideal homes, and, only too often, are mere hovels of discontent and discord. It is impossible, even for the best-natured husband, after working from ten to twelve hours every day, to find pleasure in returning to a home where he meets his wife worn out by drudgery, in her efforts to feed, clothe and support a large family on the miserable pittance earned by him. Their thoughts and conversation naturally drift to their hard lot in life. Can it be wondered that the man, in order to escape from the misery everywhere around him, and throw off his cares, even though only for a few hours, seeks more pleasant companionship, which he certainly needs, in the only place where it is at present possible to find it—the public house? This is the simple explanation why we find the mass of the laboring men spending leisure hours in places where destroying influences and temptations abound, and where their hard-earned wages are wasted. It is worse than useless to talk to them of the error of their ways. If they cannot find recreation elsewhere, they drift to the tippling house. As a result their homes are constantly deteriorating, for these can be no better than the men who made them. If the great body of the working people acquire their habits and tastes in the saloons, where drinking, profanity and, frequently, obscenity are the rule, how can it be expected that their family circles will be places of refinement, and that their children will follow in the paths of virtue and become good citizens. By looking after the heads of the families and trying to influence their habits and associations, we will reach their homes and make them pleasant and agreeable. Then, too, there are many who are yet unmarried, and have no other place of social resort than the saloon. What an opportunity is here offered to save all these from a certain downward career! The formation of *workingmen's clubs*, we believe, will do much to accomplish this. They have been in successful operation in England for twenty years, where there are now over eight hundred of them, containing something like one hundred thousand members, in a very

flourishing condition. The general aims, as well as the character and condition of these clubs, may be learned from the following extracts from some of their late reports :

TYLER'S GREEN CLUB (Bucks).—"We believe that human nature is the same in every rank of life, and that if the same influences which have operated to reduce the evils of intemperance among the upper and middle classes could be brought to bear on the working classes, they would be equally effective. We therefore have founded our club upon that broad basis. We have built a very comfortable room, which will be well lighted and warmed; we offer every facility for reading and writing; we have provided it with the most comfortable chairs; we supply it with the daily, weekly, and local papers, with periodicals, excellent maps, where any member can trace out the abode of friends in distant lands, such as America and Canada; we have the nucleus of an excellent library, which no doubt will be increased by the kindness of our friends, so as soon to fill our empty shelves; we have provided bagatelle and other games, which can be made use of at a trifling charge; we provide refreshments in the shape of tea, coffee and cocoa, all of which are most comfortably served at the lowest possible price. But, in addition to these, having in view the principle with which we set out—that we should try to help the working man in his own way, and by improving his associations and surroundings, raise his own self-respect, and make him ashamed to transgress or commit any excess—we also provide him with all the refreshments of an exciseable nature which he would obtain at a public house. Our terms of admission are two shillings a quarter, or two pence a week; so that any working man who chooses to deny himself one pint of beer at the public house in the course of a week, can enjoy all the privileges of the club; or if he drinks a pint of beer a day, and has it at the club, he saves his subscription in the week. We have another class of subscribers to which we attach great importance, that is, the library subscribers, intended more for women. That is, I believe, a special feature of this club. We have taken a great deal of pains to ascertain what the wants of our neighbors are, and we think this will be of great use. For five shillings a year those not related to members, including females, can enjoy all the benefits of the club up to five o'clock in the summer and four in the winter, and partake of all refreshments except exciseable articles; read the papers, write their letters, bring their work here, or their lace pillows, and sit under the balcony outside or inside."

SWANSEA CLUB AND INSTITUTE.—"The annual outing and athletic sports, held on Bank Holiday at the Ladies' Park, Morriston, was a most gratifying success. The members, with their wives, children and acquaintances, mustered to the number of close upon 2,000. The sports were, in fact, looked upon as the leading attraction of the day. To those gentlemen who contributed towards the prize fund, the committee hereby tender their warmest thanks." * * * "The penny bank, started in connection with the club, completed the first year of its existence in September last; and, considering the unusual depression of trade, and the large numbers out of employ, the result of the twelve months' working is highly satisfactory to the promoters."

COBDEN CLUB (London).—"During the past quarter we have had several discussions on the subject of co-operation. There were not two opinions on it; for it was unanimously thought that co-operation is the best means to better the condition of the class

to which we belong. I am happy to inform you that the views promulgated have taken a practical shape, and we have now established the Cobden Co-operative Society, in shares of £1 each. There is now established, in full working order, the Cobden Sick and Benefit Society. The other societies established within the parent club, are: 1st, the Labor Registration Society, second to none in usefulness, as a means of providing employment to those who may require it; 2d, the Labor Loan Society, of which many members can testify to its usefulness and convenience. In addition to the societies mentioned, there are a Boot Club, Clothes Club and Coal Club, at the head of which are practical men. Our Sunday discussions have been well attended during the past quarter. The lectures have been well attended, which shows the interest taken by the members in intellectual recreation."

PELHAM CLUB AND INSTITUTE (Upper Bedford Street, Brighton).—"Though coffee-houses are most useful in supplying wholesale refreshments at moderate prices, and we earnestly hope that we may see them multiplied in all directions, it is certain that the Working Men's Club meets a real need which is not supplied by the coffee public houses. It is a place where the working man may count upon finding congenial society, and where he feels himself quite at home. It is a place, also, where, if he wishes to elevate his fellow-men, he can help to set on foot and carry out many schemes for their improvement. It seems that the feeling of good fellowship produced by drink needs to be replaced by some bond of membership, and that the man who does not pay for the hospitality he receives by continually drinking and treating others, cannot feel at home unless he knows that the room he sits in is in some sense his own. And this feeling of good fellowship and of ownership he can have at this club. It is certain that the members highly appreciate its advantages; that we have no trouble at all with bad language, or bad conduct of any kind; that anxious wives come to the door to know if their husbands are within, and, on finding them there, go away comforted; and that several policemen on duty in Bedford street report that the neighborhood is much more quiet and orderly since the club has been established. The library is open to women and to youths of fifteen years of age, and upwards, on payment of a subscription of one shilling per quarter, which also gives them free admission to the entertainments."

The reports show that in 1879, in 149 clubs, there were held 83 classes for educational purposes. Lectures were given in 32 per cent. In 73 per cent. there were libraries. Over one-quarter had provident societies, some of which were formed for the purpose of supplying the members with houses, clothing, etc., or consisted of loan associations, penny savings banks, coal and tea clubs. Musical and elocutionary entertainments were given by nearly three-quarters of these associations. In 41 per cent. exciseable refreshments were supplied, and 53 per cent. were wholly self-supporting. Probably the most successful of these English clubs is the "Wisbech Club and Institute," of Cambridgeshire. It has been in existence for seventeen years. There are now 896 members, of whom 218 are of the gentler sex, besides 60 honorary members and 60 who attend only

the classes. From the library, 16,733 volumes were issued in 1880. The list of classes is most remarkable: for reading, for discussion (the latter being open to the public), for French, for drawing, for science, a natural history society, a junior educational class, an adult educational class, a singing class, a coal club, a Christmas club, a savings bank (£870 paid in last year), August *fête* and show, an excursion to Sandringham, a cricket club, a football club, a gymnasium, a floral and natural history exhibition, lectures, and a Sunday afternoon Bible class.

But it is not necessary to go abroad to obtain information concerning the practicability and usefulness of these kinds of clubs. "The Workingmen's Club" of Germantown, Pa., was begun four years ago, with a capital of \$300, furnished by the Episcopal churches of that place. In their first annual report (May 23d, 1878,) the Executive Committee—

"Cannot refrain from an expression of thanksgiving that so great a measure of success has crowned their efforts to establish in Germantown, what thinking persons have long felt was needed, a place where recreation, in the real meaning of the word, might be obtained after the day's labor, without the recipient being exposed to sinful allurements and temptation. The formal opening exercises took place in Parker's Hall, on May 10th, 1877, although the club-house was opened a few days previous; and, of course, as is always the case with new enterprises, members flocked in rapidly for the first two months, many to fall away when the novelty had worn off. Having passed this stage, our growth has not been so rapid, but we lose very few members—450 signed, now 300 reliable.

"*Library.*—The library now contains 1,700 volumes, embracing books of travel, history, industrial arts, technical and educational works, novels and biographies. It has been open every evening during the year, Sundays excepted, for the use of members. Some few additions to the number of volumes have been made by purchase, and quite a large number received from friends of the club, as donations, for which we hereby return our sincere thanks. It affords the Executive Committee great pleasure to see the increasing use made of the library. During the first month of our existence 225 volumes were taken out, and from this the number has steadily increased to 647 in the month of January, and the number for the year reaches the respectable total of 5,678. This number of books was taken home by 332 of the members, to be read at their homes.

"*Instruction.*—In the second story, adjoining the chess room, we have a room arranged for classes, and have, during the past year, given instruction in the following branches, namely: Drawing (mechanical and free-hand), penmanship and book-keeping. There has been much interest taken in our classes, both by those giving the instruction and the members of the club who have availed themselves of the opportunity thus offered.

"*Lectures and Concerts.*—Fourteen of the former and four of the latter, &c."

The fourth and latest annual report (May 10th, 1881,) of this club shows a membership of 409, with an average daily attendance of 63. There are about 1,700 volumes in the library. During the year 3,812 books were taken out by 278 members. In the reading room are to be found eight daily newspapers, and nine weekly and two monthly periodicals. A new building has been rented for \$600. The expenditures for the past year were \$1,498.23, leaving a balance in the treasury of \$307.64. The club has a singing society, as well as a literary association, and is entertained with "Saturday Evening Talks," given by prominent outsiders. Three public entertainments were also given. "The bathing advantages of the club," says the report, "are still well appreciated, 1,301 baths having been taken during the year." * * * "The cricket club has played twelve matches, and the prospects for the coming year are very promising." * * * "The coal club would report a sale of 131 tons for the year just closed. The contracts are made in such a way as to insure a much lower rate to the members of the club than the regular market price." * * * "The interest in the game room has not suffered in the least, as is fully attested by the merry click of the bagatelle balls. * * * It is earnestly hoped that ere long we may be able to add a billiard table to this department, as it would fill a vacancy long felt by many of the members." All this has effected the reformation of many members of the club. The expenses for the present year are estimated at \$2,000, a large part of which is covered by the fees from members, each of whom contributes 25 cents a month. The balance is donated by the four Episcopal churches of the place. Still the club is in no sense sectarian or even religious, strictly speaking, for the members are not incommoded with religious meetings or services of any kind, the purpose being simply social.

The following notice of "a sensible workingmen's club" appeared in a New York City paper, of the date of November 27th, 1881. As it is of interest in this connection, we reproduce it here:

"Seven years ago a workingmen's club was organized among the members of the Church of the Holy Communion, through the exertions of its pastor, the Rev. H. Mottet. The club was modeled on the English plan, its object being to help workingmen who help themselves, and to-day it is firmly established, is without debt, has a surplus in its treasury, and, being the first of its kind in this country, has aided by its advice and its experience in the organization of at least 20 other clubs in the city and vicinity. Last evening, in the Church of the Holy Communion, Sixth avenue and

Twentieth street, its anniversary service was held, the Right Rev. T. A. Starkey, of Northern New Jersey, preaching the sermon, and Dr. Gallaudet and the pastor, Mr. Mottet, assisting. Mr. Mottet read the reports of the club's Secretary, John B. Pine, and its Treasurer, W. C. Burkinshaw, for the 11 months ending on the 23d inst. The Secretary's report shows that 16 men received aid from the sick benefit fund, amounting to \$502, or an average of \$31.37 per man. The amount of sick benefit money distributed during the last five years was \$1,267.70, and of moneys paid on the death of a member or his wife, \$424.25. The sick benefits, so called, are paid at the residence of the recipient, week by week, the first installment being received as soon as the Secretary has received from the club's physician a certificate notifying him of the member's condition. The amount of these benefits is \$5 per week for the first 12 weeks of illness, and \$3 a week thereafter. In every case of death the club's by-laws have been complied with to the letter, the moneys to which a member or his widow is entitled being paid within 24 hours after notice of death has reached the President, Mr. Mottet. The amount of assessment is \$1 per member when an associate dies and 50 cents on the death of a wife. Members and their families receive free medical attendance and medicines, which are paid for out of the club's funds. When a member is in want of work, the club resolves itself into a committee of the whole, and by hunting around and instituting inquiries has almost invariably succeeded in finding him employment. The members are ambitious to have a home of their own, and have created a building fund, which amounts to a number of hundred dollars. The membership is 152 persons. Treasurer Burkinshaw's report showed a balance on hand of \$757.40."

Experience has proved that these clubs are not successful when men and boys both belong to them. In such cases the former generally fall off and soon the boys have them all to themselves. Therefore the boys' department should be entirely separate and chiefly devoted to the purposes of instruction. One of these boys' clubs is now in operation at Millville, N. J., under the direction of some Christian ladies of that place. It has only recently been organized, but from present indications is destined to accomplish a great amount of good. The boys belong mostly to the glass works of Whital, Tatem & Co., who, at their own expense, have erected and furnished the building in which the boys meet. The cost was over \$2,000; but the firm also bear the entire expense of conducting the club. There is a library and reading room and a musical instrument in the club-house, where the ladies meet with the boys, reading, instructing, singing, and generally amusing them, so as to make their evenings pleasant and agreeable. There is an average attendance of one hundred boys each evening, and the managers felt very sanguine that during the cooler weather and longer evenings the number would be largely increased. This surely is a noble and praiseworthy

work for Christian people to be engaged in, and deserves to be emulated.

In many places where these clubs have been organized, men of means have contributed considerable sums of money for that purpose. These gentlemen have become honorary members. But, while in every community there probably will be found those who will be willing to extend aid, especially to begin them, the object in view should always be to make these organizations, when once formed, self-sustaining. A saving of less than half of the money foolishly spent, whether in public houses or elsewhere, not only would make them so, but in a few years would give a reserve fund on which the members might draw in time of need.

In the first place, a commodious building should be secured. If the necessary funds can be obtained, it should be *built* in some central locality of the town; but if that is not possible, let the best building procurable for the purpose, be rented. The fact that the club cannot be *started* on a large scale, should not deter its promoters from organizing it. Begin it, even if only on the humblest foundation. In time the club will grow and increase in members, means and usefulness; for when the business and other moneyed men of the place are fully convinced that the results to be derived are desirable as well as practicable, there will be enough to come forward to advance the necessary funds to enlarge the scope of the organization, and give the enterprise generally their hearty support. Nevertheless, it should not be begun with only a single room, but with several, even if they are small, for otherwise the whole object may be defeated. To create the most favorable impression, the whole affair must be set in motion at the start; but, if everything is crowded together into a single chamber—a library and reading room, a refreshment, smoking and debating apartment—there will be confusion and not order. At the same time, all this need not involve great expense. A few men, thoroughly in earnest, will undoubtedly succeed with but little outlay.

Let them determine to organize a "Workingmen's Club and Institute," where the members may meet for consultation, business and mental improvement, for recreation and refreshment, and ultimately to form among themselves societies of various kinds for mutual aid. To attain these ends, a club-house, containing seven rooms, is desirable, viz.: a conversation or reception, a library, lecture, committee,

refreshment, smoking and amusement room. If the means will not permit, three rooms will do: reading, conversation and refreshment rooms; but these are indispensable. A circulating library, containing works of the best English literature, will be required, as well as the aid of teachers, lecturers and readers, to instruct the members. Newspapers and other periodicals, and different kinds of games, are necessary. Probably it will be well, occasionally, to publish reports concerning the affairs of the club, which is intended to form a center of communication between all classes interested in the welfare of the people, to bring about a better understanding between men of different occupations and social position, and thus to promote conciliation in disputes. Then the *name* of the club is of great importance. It should be one suggestive of the purposes of the society. One word, indicating simply a place of resort, is objectionable. The word "club," implying association, in connection with that of "institute," pointing to its educational objects, would be very appropriate.

HOW TO CARRY ON THE CLUB.

Experience has shown that, in order to make it healthy and permanent, its members should feel that they alone are responsible for its success, and that on them rests the chief burden of its management. A board of seven managers should control the affairs of the club, and be composed of a president, vice-president and secretary, elected annually, and four other members so chosen that the term of office of one of them will expire at the end of every few months; a majority of the board to constitute a quorum for the transaction of business, and elect one of their number to take charge of the rooms, etc., at a salary, or not, as the financial condition of the concern may warrant. While each club must, of course, have its own by-laws, suited to its peculiar condition, and be at liberty to change them at pleasure, the following rules may generally be adopted with advantage in all localities.

The club to be open every evening to men over eighteen years of age, who have been first approved by the managing board, on payment of a small admission fee, and such dues (monthly or weekly) thereafter as are necessary to meet the expenses of carrying it on. One member of the board always to be present to see that the rules are observed and to act as referee, when necessary. Profane

language or unruly behavior by a member, to warrant his expulsion for the evening; and if such conduct be persisted in, his dismissal from membership to follow. No gambling whatever to be permitted. (A strict enforcement of this rule will be necessary.) Refreshments to be provided on the premises, and sold to actual members only—and if any profits arise therefrom they are to be turned into the club treasury. The managers may pay for services performed in providing these refreshments, which are to be sold at cost, unless it be necessary to charge a small profit in order to meet expected deficits in the receipts from dues. A small income in like cases may be derived from the use of the bagatelle and billiard tables, &c.

Suitable recreation can easily be provided by the managers. The object should be to make this really a department of diversion and amusement, not wearisome study—although it may be possible to combine both social entertainment and intellectual improvement. The following are some of the recreations recommended: Singing, recitations and classes for discussion; musical exercises, adapted for Summer or Winter; tea parties, at which ladies or gentlemen might contribute music, singing, or lend works of art, or in illustrating the various subjects of natural history, give short descriptions in a conversational way, etc.; besides croquet, cricket, foot ball, base ball, and athletic sports generally, games of chess, dominoes, bagatelle should be on the entertainment programme, and, possibly, Summer excursions by steamboat or cars. Means for the purpose of instruction of the members, adapted to their tastes and pursuits, should also be provided. While these should generally be of the most elementary character, in some places there may be organized with advantage, classes in agriculture, architecture, chemistry, with occasional lectures on geology, botany, etc.

Every club, also, should have some kind of an economical arrangement through which its members may effect considerable saving in their household supplies. Sub-associations, such as tea clubs, flour clubs, boot and shoe clubs, and clothing clubs, should be organized, and will form an excellent basis for a co-operative store. A savings bank, building loan, life insurance, and sick benefit society, all belong under this head and will be advantageous to all concerned.

As soon as several clubs have been organized in the State, a central organization will be of great benefit. This State club should have a general oversight of all the local clubs, and consist of delegates from

them. Such an association will bring about combined action, and thus, under good management, develop a spirit of brotherly love among workingmen of different localities and trades, and give advice and help when needed. It might also be made the means of greater economy by supplying the local clubs with lecturers, books, and papers, and the sub-clubs with articles of domestic economy. Its annual reports should embrace that of all the clubs in the State, and thus, by extending information concerning the workings of these associations, enlist the sympathy of a larger circle of friends and enlarge their usefulness.

When the condition of the club will permit, there should be employed a Steward, who is called the "Resident Secretary" at the Germantown club. His duties will depend on the size, income, and general character of the association. His qualifications should be good judgment, patience and tact in making himself personally agreeable. In fact, he should have all the qualities of a good *host*, constantly planning to make the club comfortable and agreeable to its members. Its whole success depends on this point, because it must be made a place where the members assemble *because they like it, and because to do so contributes to their enjoyment*. "It is particularly desirable," says an English writer, "that the steward should make new-comers feel at their ease, to introduce them for that purpose to some of the older members, and to establish a pleasant relationship between them." He should endeavor to find him a partner in the games, if he desire to play, secure him a comfortable seat, and make him feel that he is no stranger in the place.

Cleanliness is so essential to the success of the club, that it is scarcely necessary to mention it in connection with the qualifications of the steward. He should attain the highest possible degree in this art and not be satisfied unless he fully carries out as his motto, "A place for everything and everything in its place." The walls should be decorated with pleasing pictures, maps and drawings; and flowers should adorn the tables. In short, the rooms should appear in the most favorable light and not suffer, in the eyes of the workingman, when compared with the best-regulated saloon. The steward should also be a man of the strictest honesty, for he will be required to make the purchases for, and, in general, to act as treasurer of the club; and he should be thoroughly acquainted with all details in its management and affairs, ready and willing to answer all questions.

It may be difficult to find such a person, but any one at all fitted for the position will soon acquire the necessary qualifications for a successful steward.

Many difficulties will have to be met before a club can be successfully established. The greatest of these is the *apathy of the working classes* themselves. People have been discouraged by the indifference, and, not unfrequently, the distrust with which the efforts made for the advancement of the workingmen have been regarded. Even men from their own ranks are often looked at with suspicion and jealousy; for the masses are slow to understand that any one is willing to make sacrifices for their welfare except from selfish motives. For this reason—the lack of appreciation by those to be benefited—many, who would otherwise be ready to lend a helping hand, are deterred from giving pecuniary assistance. In order to overcome such hesitation on the part of men of means, it will be well to hold a public meeting of all workingmen for the purpose of fully discussing the advisability of organizing a club. At this meeting a committee should be appointed to confer with some of the leading citizens and to solicit their assistance. Then another committee should be selected to draft suitable rules for the government of the proposed club, and to enroll all who desire to become members. In this, aid from outside persons will, of course, also be needed; but it is of the greatest importance that such consultations should be held privately. If the whole thing appears to be the work of representatives of the workingmen, it will be the more appreciated.

In all probability the whole project will be strongly opposed by the proprietors of saloons, where the laboring man has heretofore spent his money, and who will not willingly permit their gains thus to be cut off. But neither this opposition, nor numerous other little annoyances, will be great obstacles in the way of final success if the promoters of the club only go ahead manfully.

But, after all, the principal difficulty is that of obtaining pecuniary assistance from men of wealth. Without this aid, the working people will make but slow progress in bettering their condition, or reforms will only come through revolutions, which will bring with them anarchy and consequent despotism. The surest way to guard against these evils, and the best security for prosperity, especially in a land of universal suffrage, are to educate the masses, and to instill into them the principles of morality, thus to prepare them for the

responsibilities of citizens of a country whose wealth was created by their labor, and depends, in a great measure, on them for its protection. Looking at the matter from a purely business point of view, the money which will be expended in organizing these proposed clubs will certainly be a paying investment. Our jails, poor-houses, asylums and penitentiaries are filled with victims whose education has been obtained in the public houses, and the crimes for which they have been convicted are the direct result of drunkenness. Half of the money now paid in taxes for the support of our penal institutions, properly applied for the education and enlightenment of the masses, would, at no distant day, by the prevention of crime, almost do away with their necessity. We have no data on hand, so far as regards our own State, but we do not suppose that there are fewer convictions for drunkenness in New Jersey, in proportion to population, than in Massachusetts. The latest report (1881) of the "Bureau of the Statistics of Labor," of that State, shows that during the ten years from 1870 to 1879, there were 208,671 convictions for liquor offences or drunkenness there; an average of nearly 21,000 a year, or one for every seventy-seven inhabitants. The report also states that sixty-seven per cent. of *all* sentences for crime in that Commonwealth, during the past twenty years, were for *distinctively* rum offences, such as the various classes of drunkenness and liquor offences. The total sentences during that period were 578,458, of which 340,814 were for *distinctively* rum crimes. No information is given from which to ascertain the weight of the influence of intemperance in the commission of the remaining crimes. But the enormity of rum's share in the commission of all crime may be judged from the statistics which have been obtained on this point from one county (Suffolk). From September 1st, 1879, to September 1st, 1880, the total number of sentences in that county was 16,897. Seventy-two per cent. were for *distinctively* rum crimes; while twelve per cent. were passed on criminals who were in liquor at the time of the commission of the crime. In other words, eighty-four per cent. of all crime committed there was due, directly or indirectly, to the influence of liquor.

The time and money lost, not only to the workman, but also to the employer, through intemperance, are well known to be considerable; and the facts show that these evils are growing, notwithstanding the increased efforts that have been put forth in so many directions

for the suppression of the latter vice. Many proprietors have reported that their factories on Mondays are deserted by the hands, who have not yet recovered from their Sunday debauch, which follows every pay-day Saturday. But a nobler and higher consideration than these mere mercenary motives should influence employers and others to support workingmen's clubs, which we sincerely believe will, in time, do much to improve the condition of the masses—the common brotherhood of mankind, for we are all members of one great family. The thought of thousands of human beings, whose lives are passed, from their cradles to their graves, without any opportunity of sleeping or living in a well-ventilated or decently-furnished room, who have never sat down to a well-cooked or properly-served meal, who have never enjoyed an hour's social intercourse, surrounded with the conditions of culture and refinement which the wealth their toil produces has prepared for others; the thought of this cannot but be present to the hearts and minds of every one who recognizes the fact of our common humanity.

We have no doubt that these reasons will be appreciated and induce many of those who are able to incur the necessary expense, to place such social clubs on a business foundation; and it will depend on the workingmen, the members themselves, to see to it that the efforts thus made are rightly prized, and that they do not desert the clubs when the novelty has worn off. Injudicious friends, as well as enemies, are certain to produce adverse influences. "Bickerings and dissensions," says a writer on this subject, "will now and then threaten to make shipwreck of the whole scheme, and, worse than all, that stupid, unconquerable apathy which so lamentably prevails among the poor in relation to everything that tends to elevate their minds and improve their habits, will cause many of the members to regard the advantages of the club with the utmost unconcern. Experience shows that such troubles and shortcomings must generally be encountered, and that they can only be overcome by patient management coupled with resolute perseverance. But if only a moderate amount of success can be achieved, it will be well worth the cost; for such an agency cannot fail in a very large degree to ameliorate the social life of the working classes and to lessen the evils which are now filling their homes with misery and disgracing our country with pauperism and crime."

PART IV.

SPECIFIC STATE INDUSTRIES.

CHAPTER I.—THE SILK INDUSTRY.

CHAPTER II.—THE HAT INDUSTRY.

CHAPTER III.—THE POTTERY INDUSTRY.

CHAPTER IV.—THE BRICK, GLASS AND CLAY INDUSTRIES.

CHAPTER I.

THE SILK INDUSTRY.

The statistics show that the silk industry of this country, although it has scarcely passed its infancy, has a bright outlook before it, there now being produced in the United States 39 per cent. of our entire annual consumption of manufactured silk goods, the value of which is estimated at upwards of \$85,000,000. As New Jersey is more largely interested in this industry than all other states of the Union combined, it is particularly gratifying to be able to report that the various branches of silk manufacture in our State are in a prosperous condition (at least so far as the manufacturers are concerned), the statements received this year contrasting very favorably with those of the past two years.

The number of firms reporting is 105, some of which operate two or more mills, and have included their returns in a single report. Consequently the number of silk factories in this State is much larger than that of the firms operating them. In Passaic county there are 82 firms, one of which has also a mill in Morris county. Besides these there are 17 firms in Hudson, 3 in Essex, and 1 each in Bergen, Camden and Middlesex counties.

Silk goods are manufactured by 84 firms, in whose mills were consumed during the present year, 1,572,078 pounds of raw silk. The remaining firms operate dyeing, throwing and finishing establishments. The capital invested in the business is \$7,524,200, and the value of the product \$18,053,210; one dollar of capital annually reproducing two and a half dollars in silk goods. The mills of 79 firms were in operation on full time during the whole year—the average period for the whole 105 having been 7.3 months. Those of 20 firms remained idle during an average period of 5.4 months.

The greatest number of hands employed was 15,740, and the average number 14,152, of whom 5,458 were men, 5,175 women, and 3,489 children; *i. e.*, nearly 25 per cent. of all were boys and

girls under 16 years of age, who were engaged by 89 firms. The average daily wages paid to men by firms employing them, were \$1.81; to women, \$1.01; to children, 63 $\frac{1}{10}$ cents. The wages of the men varied from \$2.50 to 83 cents, those of the women from \$1.50 to 50 cents, those of boys and girls from \$1.10 to 50 cents. Skilled mechanics were employed by 37 firms, and received from \$4 to \$1.66 daily, averaging about \$2.85 per firm. Skilled women were employed by 27 firms, receiving from \$2 to 90 cents daily—an average of about \$1.41 per firm. Seven firms paid their employes weekly, the rest semi-monthly. The total amount paid in wages was \$4,787,500, or 26.51 per cent. of the value of the total product—averaging over \$338 for each employe. In 1879 the percentage of wages to total product was 26.46; in 1880, 26.37; in 1881, 26.5. According to the U. S. census of 1880, the percentage for the whole country was 26.49.

The following table contrasts the result of the last three years respecting labor and production:

	1879.	1880.	1881.
Reports filed.....	66	106	105
Average number of men employed.....	3,600	4,852	5,458
Average number of women employed.....	3,176	4,065	5,175
Boys and girls employed.....	3,648	3,763	3,489
Total.....	10,424	12,680	14,122
Wages paid.....	\$3,625,166	\$4,168,335	\$4,787,500
Value of product.....	13,700,846	15,808,424	18,053,210

The following tables give the statistics of the silk industry in New Jersey, in detail for the year ending July 1st, 1881:

SILK.

Office number.	Number of pounds of raw silk consumed.	Location.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NO. OF HANDS EMPLOYED.			Wages of men.	Wages of women.
					Males above sixteen years.	Females above fifteen years.	Children and youth.		
90	103,000	Passaic county.	\$350,000	800	200	200	330	\$2 00	\$1 50
91	Dyer.....	do.	200,000	430	400	20	5	1 50	1 00
92	Soft silk winder.....	do.	4,000	40	30	5	3	1 50	1 25
93	5,000	do.	15,000	35	27	6	2	2 50	1 10
94	2,750	do.	15,000	22	16	4	1	1 90	1 00
95	3,300	do.	10,000	75	15	30	20	2 00	1 10
96	160	do.	1,000	5	5	.....	.....	2 00	.....
97	1,300	do.	1,500	15	12	3	.....	2 00	1 00
98	600	do.	1,500	10	8	2	.....	2 25	1 25
99	Commission throwster....	do.	1,000	4	.....	3	1	.....	90
100	200	do.	1,000	5	3	1	.....	2 00	1 00
101	120,000	do.	800,000	900	200	500	200	2 50	1 10
102	115,500	do.	400,000	1,200	300	400	300	2 50	1 50
103	25,250	do.	200,000	255	165	45	48	2 50	1 25
104	20,000	do.	75,000	250	30	190	30	2 00	1 00
105	Throwster.....	do.	5,000	25	.....	22	1	.....	1 20
106	1,500	do.	2,000	11	1	.....	9	1 85	.....
107	5,000	do.	15,000	40	20	17	3	2 00	1 50
108	650	do.	2,500	14	8	.....	6	2 25	.....
109	4,000	do.	15,000	34	22	10	2	2 00	1 10
110	100	do.	2,000	7	4	.....	1	2 00	.....
111	3,500	do.	5,000	22	15	2	3	2 10	1 30
112	5,000	do.	15,000	55	28	17	5	2 00	1 10
113	3,000	do.	25,000	100	38	31	6	2 00	1 25
114	Throwsters.....	do.	12,000	56	7	40	6	1 25	90
115	Silk finishers.....	do.	2,000	9	4	4	1	1 70	1 10
116	3,000	do.	11,000	30	20	8	2	2 00	1 10
117	Throwster.....	do.	8,000	30	18	5	2	1 60	90
118	1,800	do.	10,000	20	12	3	2	2 10	1 00
119	2,000	do.	10,000	32	20	8	2	2 25	1 20
120	84,000	do.	350,000	500	100	200	150	1 25	80
121	.....	do.	25,000	115	15	70	20	1 50	85
122	150,000	do.	350,000	300	42	160	30	2 00	1 00
123	60,000	do.	700,000	800	300	325	105	2 00	1 00
124	26,000	do.	50,000	325	60	150	90	1 50	1 00
125	35,000	do.	58,000	160	8	20	120	2 10	75
126	11,887	do.	150,000	120	25	52	9	1 50	85
127	Dyer.....	do.	12,000	27	27	.....	.....	2 00	.....
128	3,500	do.	35,000	90	16	28	31	1 66	1 25
129	4,000	do.	45,000	45	5	35	5	1 30	1 00
130	Dyeing and finishing.....	do.	15,000	90	56	5	.....	2 00	1 00
131	Dyeing and finishing.....	do.	3,600	12	11	.....	.....	2 00	.....
132	4,000	do.	20,000	125	50	20	30	2 00	1 10
133	12,000	do.	35,000	150	30	25	50	1 75	1 00
134	6,500	do.	25,000	75	38	35	2	1 50	1 00
135	25,000	do.	75,000	100	15	60	25	2 00	1 00
136	250	do.	1,500	9	1	6	1	1 75	1 00
137	Throwster.....	do.	120,000	175	17	97	24	1 80	90
138	4,500	do.	20,000	80	35	30	4	2 00	1 10
139	72,000	do.	225,000	650	250	100	200	2 00	1 00
140	Dyer.....	do.	45,000	105	60	.....	.....	2 00	.....
141	6,500	do.	40,000	60	8	30	16	1 75	1 00
142	Dyeing and finishing.....	do.	6,000	14	8	4	.....	1 75	1 00
143	1,000	do.	1,000	5	5	.....	.....	2 00	.....
144	18,000	do.	15,000	100	18	54	15	2 00	1 00
145	Dyer.....	do.	45,000	110	95	.....	1	2 00	.....
146	6,000	do.	10,000	51	20	10	15	1 65	1 30

SILK—Continued.

Office number.	Wages of children.	When wages are paid.	Total amount paid in wages during the year.	MONTHS IN OPERATION.				Percentage of advance in wages.	Percentage of decline in wages.	Average wages of skilled man.	Average wages of skilled woman.	Products.
				On full time.	On three-quarters time only.	On half time only.	Idle.					
90	\$0 75	Semi-monthly.....	\$270,000	12	.....	.....	.....	.....	.....	\$3 50	\$1 50	\$1,100,000
91	75	do.	180,000	12	.....	.....	.....	10	.....	4 00	1 50	540,000*
92	50	do.	11,500	12	.....	.....	.....	.....	5	.....	.....	15,000*
93	50	do.	9,000	12	.....	.....	.....	.....	.....	.....	.....	80,000
94	50	do.	13,000	11	.....	.....	1	.....	.....	.....	.....	50,000
95	75	do.	15,000	9	.....	.....	3	.....	.....	2 00	1 60	30,000
96	.....	do.	1,100	9	.....	.....	3	.....	.....	.....	.....	2,200†
97	.....	Weekly.....	4,500	6	.....	6	.....	.....	.....	2 50	1 10	16,500
98	.....	Semi-monthly.....	5,400	12	.....	.....	.....	.....	.....	.....	.....	18,000
99	90	do.	1,100	12	.....	.....	.....	.....	.....	.....	.....	2,000*
100	.....	do.	1,300	12	.....	.....	.....	.....	.....	.....	.....	4,000
101	1 00	do.	325,000	12	.....	.....	.....	.....	.....	3 00	1 50	1,250,000
102	90	do.	339,000	12	.....	.....	.....	.....	.....	3 50	1 50	1,250,000
103	50	do.	106,000	12	.....	.....	.....	.....	.....	3 00	1 30	365,000
104	75	do.	77,500	12	.....	.....	.....	.....	.....	.....	.....	190,000
105	50	do.	4,000	6	.....	.....	6	.....	.....	.....	.....	10,000*
106	85	do.	3,150	12	.....	.....	.....	.....	.....	1 85	.....	13,000
107	1 00	do.	13,000	12	.....	.....	.....	.....	.....	3 00	1 50	50,000
108	75	do.	3,000	6	.....	.....	6	.....	.....	.....	.....	11,000†
109	50	do.	13,500	12	.....	.....	.....	.....	.....	.....	.....	48,000
110	60	do.	200	1	.....	.....	11	.....	.....	.....	.....	1,000†
111	66	do.	4,000	8	.....	.....	4	.....	.....	.....	.....	9,000
112	66	do.	30,000	12	.....	.....	.....	.....	.....	.....	.....	83,000
113	66	do.	8,000	5	.....	.....	7	.....	.....	3 00	2 00	40,000
114	70	do.	19,600	12	.....	.....	.....	.....	.....	.....	.....	24,000*
115	66	do.	3,500	12	.....	.....	.....	.....	.....	.....	.....	6,000*
116	66	do.	17,000	12	.....	.....	.....	.....	.....	.....	.....	40,000
117	75	do.	3,900	6	.....	.....	6	.....	.....	.....	.....	10,000*
118	60	do.	5,300	12	.....	.....	.....	.....	.....	.....	.....	15,000
119	50	do.	4,500	6	.....	.....	6	.....	.....	3 00	1 50	20,000
120	60	do.	90,580	12	.....	.....	.....	.....	.....	.....	.....	501,610
121	66	do.	24,000	12	.....	.....	.....	.....	.....	1 66	90	90,000
122	75	do.	76,000	12	.....	.....	.....	.....	.....	.....	.....	800,000
123	66	do.	230,000	12	.....	.....	.....	.....	.....	2 50	1 50	750,000
124	66 ² / ₃	do.	90,000	12	.....	.....	.....	.....	.....	2 50	1 25	275,000
125	66	do.	27,000	12	.....	.....	.....	.....	.....	2 25	1 25	210,000
126	75	do.	25,000	12	.....	.....	.....	.....	.....	3 00	.....	162,000
127	.....	do.	12,330	12	.....	.....	.....	.....	.....	4 00	.....	37,000*
128	75	do.	19,500	9	.....	3	.....	.....	.....	.....	1 50	60,000
129	70	do.	14,500	12	.....	.....	.....	.....	.....	.....	.....	72,000
130	.....	do.	23,000	8	4	.....	.....	.....	.....	3 50	.....	37,000*
131	.....	do.	7,500	12	.....	.....	.....	.....	.....	.....	.....	18,500*
132	75	do.	15,000	3	.....	.....	9	.....	.....	.....	.....	50,000†
133	66	do.	27,000	5	.....	.....	7	.....	.....	.....	.....	100,000†
134	50	do.	26,000	12	.....	.....	.....	.....	.....	3 00	1 50	85,000
135	70	do.	50,000	12	.....	.....	.....	.....	.....	.....	.....	188,000
136	50	do.	2,300	12	.....	.....	.....	.....	.....	.....	.....	3,800
137	66	do.	48,000	12	.....	.....	.....	.....	.....	.....	.....	100,000*
138	60	do.	26,500	12	.....	.....	.....	.....	.....	.....	.....	100,000
139	75	do.	285,000	12	.....	.....	.....	.....	.....	.....	.....	960,000
140	.....	do.	40,000	12	.....	.....	.....	.....	.....	4 00	.....	105,000*
141	66	do.	16,000	12	.....	.....	.....	.....	.....	2 50	.....	60,000
142	.....	do.	6,000	12	.....	.....	.....	.....	.....	.....	.....	17,000*
143	.....	do.	2,500	9	.....	.....	3	.....	.....	.....	.....	6,500
144	80	do.	35,000	12	.....	.....	.....	.....	.....	.....	.....	160,000
145	50	do.	56,000	12	.....	.....	.....	.....	.....	.....	.....	126,000*
146	75	do.	19,500	12	.....	.....	.....	.....	.....	.....	.....	75,000

*Added value. †Out of business. ‡New firm.

SILK—Continued.

Office number.	Number of pounds of raw silk consumed.	Location.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NO. OF HANDS EMPLOYED.			Wages of men.	Wages of women.
					Males above sixteen years.	Females above fifteen years.	Children and youth.		
147	25,000	Passaic county.	\$50,000	200	50	60	40	\$2 00	\$1 00
148	7,000	do.	25,000	90	16	7	60	1 90	1 00
149	25,000	do.	30,000	183	100	70	13	2 00	1 10
150	Throwster.....	do.	5,000	28	5	7	10	1 25	66
151	3,300	do.	5,000	25	18	3	2	1 85	1 10
152	9,000	do.	30,000	110	49	54	5	2 15	1 25
165	3,000	do.	20,000	151	40	22	4	1 65	1 15
167	22,000	do.	150,000	220	50	70	100	1 37	75
174	24,000	do.	150,000	200	125	50	25	2 00	1 25
175	8,000	do.	50,000	100	60	25	15	2 00	1 25
176	Throwster.....	do.	60,000	150	29	.....	111	1 50	.....
177	15,000	do.	25,000	125	50	30	20	2 00	1 15
178	350	do.	2,500	15	9	2	2	1 50	85
179	800	do.	3,500	7	5	.....	1	1 65	.....
180	4,500	do.	6,000	17	7	8	.....	1 50	1 00
181	3,000	do.	1,500	10	3	5	1	1 60	1 00
182	1,550	do.	2,500	11	6	1	2	1 50	1 00
183	2,300	do.	16,000	50	18	15	10	1 33	80
184	Throwster.....	do.	18,000	60	11	30	14	1 25	50
185	Throwster.....	do.	2,000	10	1	7	2	1 25	90
186	1,050	do.	4,000	25	20	4	.....	1 75	1 00
187	8,000	do.	30,000	70	40	20	4	2 00	1 10
189	2,500	do.	16,000	50	25	4	15	2 00	80
153	10,500	do.	125,000	223	117	67	10	1 50	.....
154	95,000	do.	650,000	1,000	275	170	550	2 00	1 25
155	Dyer.....	Hudson county	3,000	32	30	.....	.....	1 66	.....
156	800	do.	2,500	12	3	.....	8	2 00	.....
157	8,500	do.	45,000	100	60	22	15	1 50	80
158	11,000	do.	50,000	120	50	20	12	2 00	1 00
159	3,000	do.	20,000	60	30	19	.....	2 10	1 00
160	1,500	do.	3,000	25	12	5	2	1 25	75
161	5,500	do.	22,000	50	30	16	.....	1 50	80
162	7,000	do.	50,000	90	50	25	10	1 66	66
163	7,800	do.	40,000	125	65	45	6	1 30	80
164	8,500	do.	20,000	130	70	20	30	2 00	66
166	60,000	do.	250,000	800	250	300	180	1 50	1 00
168	Throwster.....	do.	50,000	40	7	10	25	1 25	75
173	25,000	do.	100,000	300	75	120	10	1 66	66
188	3,200	do.	12,000	35	19	6	6	1 50	1 25
192	35,500	do.	80,000	500	200	225	25	1 60	1 00
172	47,000	do.	60,000	550	203	190	114	1 75	1 00
169	40,000	do.	30,000	90	40	20	20	2 00	1 50
170	1,000	Camden, Essex, Mid- dlesex and Bergen cos.	15,000	50	10	30	.....	84	75
171	53,000		325,000	325	90	150	60	2 00	1 00
190	500		1,500	10	2	.....	7	2 25	.....
191	140		600	6	3	1	1	2 00	1 00
193	530		6,000	15	2	3	8	83	66
194	25,000		175,000	221	85	125	.....	2 50	50
Total.....	1,572,078	.....	\$7,524,200	15,740	5,458	5,175	3,489	.....	.....

SILK—Continued.

Office number.	Wages of children.	When wages are paid.	Total amount paid in wages during the year.	MONTHS IN OPERATION.				Percentage of advance in wages.	Percentage of decline in wages.	Average wages of skilled man.	Average wages of skilled woman.	Products.
				On full time.	On three-quarters time only.	On half time only.	Idle.					
147	\$0 75	Semi-monthly.....	\$80,000	12	.....	.....	.....	.....	.....	\$3 00	.....	\$300,000
148	66	do.	40,000	12	.....	.....	.....	.....	.....	.....	.....	160,000
149	75	do.	75,000	12	.....	.....	.....	.....	.....	3 00	\$2 00	260,000
150	50	do.	6,250	12	.....	.....	.....	.....	.....	.....	.....	18,000*
151	50	do.	10,000	6	.....	.....	6	.....	.....	3 00	1 60	40,000
152	75	do.	50,000	12	.....	.....	.....	.....	.....	3 00	1 60	160,000
165	35	do.	8,303	3	.....	4	5	2	.....	.....	.....	36,000
167	75	do.	50,000	12	.....	.....	.....	10	.....	.....	.....	200,000
174	50	do.	75,000	12	.....	.....	.....	.....	.....	3 00	.....	300,000
175	50	do.	37,500	12	.....	.....	.....	.....	.....	3 00	.....	150,000
176	90	do.	28,000	7	.....	5	.....	.....	.....	.....	.....	75,000*
177	60	do.	41,000	12	.....	.....	.....	.....	.....	.....	.....	124,000
178	60	do.	1,800	7	.....	5	.....	.....	.....	.....	.....	6,300
179	75	do.	3,200	12	.....	.....	.....	.....	.....	.....	.....	12,200
180	.....	do.	4,500	12	.....	.....	.....	.....	.....	.....	.....	15,000
181	60	do.	2,500	12	.....	.....	.....	.....	.....	.....	.....	15,000
182	50	do.	2,600	12	.....	.....	.....	.....	.....	.....	.....	12,500
183	75	do.	12,450	12	.....	.....	.....	.....	.....	.....	.....	40,000
184	50	do.	14,400	12	.....	.....	.....	.....	.....	.....	.....	30,000*
185	50	do.	2,500	12	.....	.....	.....	.....	.....	.....	.....	6,000*
186	.....	Weekly.....	13,600	12	.....	.....	.....	.....	.....	.....	.....	50,000
187	50	Semi-monthly.....	35,000	12	.....	.....	.....	.....	.....	.....	.....	125,000
189	50	do.	10,000	12	.....	.....	.....	.....	.....	2 50	.....	60,000
153	60	do.	83,542	12	.....	.....	.....	.....	.....	3 00	1 25	290,000
154	66	do.	325,000	12	.....	.....	.....	.....	.....	3 00	2 00	1,400,000
155	.....	do.	10,000	12	.....	.....	.....	.....	.....	.....	.....	20,000*
156	66	do.	2,550	12	.....	.....	.....	.....	.....	2 50	.....	6,500
157	50	do.	15,000	6	.....	.....	6	.....	.....	2 50	1 00	75,000
158	60	do.	38,500	12	.....	.....	.....	.....	.....	3 00	1 10	150,000
159	.....	do.	19,000	12	.....	.....	.....	.....	.....	.....	.....	75,000
160	66	do.	4,500	12	.....	.....	.....	.....	.....	.....	.....	12,500
161	.....	do.	21,500	12	.....	.....	.....	.....	.....	.....	.....	75,000
162	66	do.	20,000	11	.....	.....	1	.....	.....	.....	.....	94,500
163	50	do.	30,000	12	.....	.....	.....	.....	.....	2 10	1 00	115,000
164	45	do.	36,000	12	.....	.....	.....	.....	.....	.....	.....	125,000
166	60	do.	185,000	12	.....	.....	.....	.....	.....	2 50	1 10	700,000
168	50	do.	7,000	12	.....	.....	.....	.....	.....	.....	.....	21,000*
173	50	do.	80,000	12	.....	.....	.....	.....	.....	.....	.....	300,000
188	60	Weekly.....	11,445	12	.....	.....	.....	.....	.....	2 50	1 50	40,000
192	60	Semi-monthly.....	115,000	12	.....	.....	.....	.....	.....	2 25	1 10	500,000
172	65	do.	195,000	12	.....	.....	.....	.....	.....	.....	.....	550,000
169	55	do.	24,000	12	.....	.....	.....	.....	.....	.....	.....	85,000
170	.....	Weekly.....	10,000	10	.....	2	.....	.....	.....	.....	.....	26,000
171	50	do.	101,450	12	.....	.....	.....	.....	.....	.....	.....	450,000
190	70	do.	1,200	5	.....	.....	7	.....	.....	.....	.....	5,000
191	50	do.	1,350	7	.....	.....	5	.....	.....	.....	.....	2,600
193	50	Semi-monthly.....	1,200	6	.....	.....	6	.....	.....	.....	.....	5,000
194	.....	do.	60,000	12	.....	.....	.....	.....	.....	.....	.....	293,000
			\$4,787,500	787	4	25	108	.....	.....	\$105 11	\$38 15	\$18,053,210

* Added value.

The following tables, compiled by Mr. Wm. C. Wyckoff, Secretary of the Silk Association of America, giving the imports of raw silk at New York and San Francisco, and of silk manufactures, entered at New York, as well as the home production of finished goods in the United States, will also be interesting in this connection:

IMPORTS OF RAW SILK AT NEW YORK AND SAN FRANCISCO, IN THE FISCAL YEARS
ENDING JUNE 30TH.

1880-1881.		1879-1880.		1878-1879.		1877-1878.		1876-1877.		1875-1876.	
Bales.	Value.	Bales.	Value.	Bales.	Value.	Bales.	Value.	Bales.	Value.	Bales.	Value.
20,198	10,885,167	21,741	11,749,943	15,949	8,080,681	10,190	5,002,483	10,640	6,554,062	11,660	5,648,127

IMPORTS OF SILK MANUFACTURES ENTERED AT THE PORT OF NEW YORK, IN FISCAL
YEARS ENDING JUNE 30TH.

ARTICLES.	1880-1881.	1879-1880.	1878-1879.	1877-1878.	1876-1877.	1875-1876.
Silks.....	\$16,167,056	\$16,696,145	\$13,877,796	\$11,281,968	\$12,647,212	\$12,848,799
Satins.....	272,641	263,591	113,705	33,001	28,460	67,672
Crapes.....	489,560	457,071	434,744	324,040	517,014	416,046
Pongees.....	16,477	3,212	1,996	580	2,431	.....
Plushes.....	495,496	212,176	130,637	57,963	8,731	80,277
Velvets.....	1,575,715	2,207,296	1,713,879	1,221,545	1,398,787	1,202,503
Ribbons.....	3,103,564	2,975,147	1,995,257	1,640,647	1,524,724	2,749,208
Laces.....	1,883,236	1,295,017	944,530	1,064,437	1,033,228	1,236,715
Embroideries.....	.....	.....	.....	1,552	468	.....
Shawls.....	17,466	13,908	9,978	1,057	5,650	7,056
Gloves.....	204,703	223,265	106,483	104,970	30,591	34,634
Cravats.....	69,914	117,996	121,555	63,881	51,066	134,876
Handkerchiefs.....	53,727	65,135	47,248	41,926	67,278	98,876
Mantillas.....	.....	.....	.....	.....	.....	573
Vestings.....	.....	.....	.....	.....	1,616	811
Hose.....	110,277	106,596	60,646	45,686	51,381	54,400
Sewings.....	175,627	303,215	59,563	85,924	35,456	15,441
Braids and Bindings.....	1,323,437	1,707,114	1,001,042	1,129,209	992,549	996,639
Silk and Worsted.....	174,390	135,434	158,995	125,121	141,062	179,893
Silk and Cotton.....	4,866,921	3,813,793	2,244,018	1,852,105	2,092,326	2,075,231
Silk and Linen.....	1,644	398	811	2,969	7,555	7,206
Total.....	\$30,501,851	\$30,596,509	\$23,023,903	\$19,078,661	\$20,709,585	\$22,206,856

SILK MANUFACTURE IN THE UNITED STATES.

(Production of finished goods, in the calendar year ending December 31st, 1880.)

Machine Twist.....	\$6,007,735
Sewing Silk.....	776,120
Floss Silk.....	225,025
Dress Goods.....	4,115,205
Satins.....	1,101,875
Tie Silks and Scarfs.....	606,675
Millinery Silks.....	891,955
Broad Goods, not above enumerated.....	627,595
Handkerchiefs.....	3,881,590
Ribbons.....	6,023,100
Laces.....	437,000
Braids and Bindings.....	999,685
Fringes and Dress Trimmings.....	4,950,275
Cords, Tassels, Passementerie and Millinery Trimmings.....	1,866,575
Upholstery and Military Trimmings.....	1,392,355
Coach Laces and Carriage Trimmings.....	37,510
Undertakers', Hatters' and Fur Trimmings.....	59,805
Mixed Goods, and Silk values therein.....	510,763
Total.....	\$34,510,843

RECAPITULATION.

Sewings, Twist and Floss Silk.....	\$7,008,880
Broad Goods.....	7,343,305
Handkerchiefs, Ribbons and Laces.....	10,341,690
Trimmings and Small Goods.....	9,306,205
Mixed Goods and Silk values therein.....	510,763
Total.....	\$34,510,843

The value of all silk goods imported during the late fiscal year was over \$50,000,000, which would bring that of the total consumption to over \$85,000,000. Mr. Wyckoff, in the ninth annual report (page 15) of the Silk Association of America, remarks: "In drawing deductions from the figures of these tables (of imports), two things should be considered: first, the values assigned are those of the invoices, and are made as low by the importer as the Custom House will permit. * * * The official reports of investigating committees, appointed by the United States Government, have estimated the undervaluation, on the average, at not less than 25 per cent. Second, the duty paid on these goods, and the importers' profits, should be added to the invoices, in any calculation of the

value of these imports in the United States markets. Of all the silk goods brought into this country, 94 to 95 per cent. come to the port of New York."

The following are the values of imports of silk manufactures and of raw silk imported during the past eleven years, as given in the "Statistical Abstract of the United States," 1881, prepared under the direction of the United States Secretary of the Treasury.

TOTAL VALUE OF SILK IMPORTED.

Fiscal Year.	MANUFACTURES OF SILK, (imported.)	RAW SILK, (imported.)	Pounds.
1871.....	\$32,341,001.....	\$5,739,592	
1872.....	36,448,618.....	5,625,620	
1873.....	29,890,035.....	6,460,621	
1874.....	23,996,782.....	3,854,008	
1875.....	24,380,923.....	4,504,306	
1876.....	23,745,967.....	5,424,408	
1877.....	21,830,159.....	6,792,937	
1878.....	19,837,972.....	5,103,084	
1879.....	24,013,398.....	8,371,025	
1880.....	32,188,690.....	12,024,699	2,562,236
1881.....	42,056,701.....	10,888,264	2,550,103

The importation of raw silk in 1881 amounted to 2,550,103 pounds; of this quantity there were consumed by the mills in New Jersey, as shown by our tables, 1,572,078 pounds, or over 61 per cent. of the total importation.

The rapid development of the silk industry in this country will be understood by a glance at the following tables of statistics* for the different years named. They show that 39 per cent. of all the silk goods now used in the United States is manufactured here in our 383 mills, in which are employed over 31,300 hands, who receive annually over \$9,000,000 in wages. In 1860 all but 13 per cent. of the silk goods consumed was imported, our 139 mills only turning out a product valued at \$6,607,711; and even as late as 1874 only 24 per cent. of our consumption was manufactured here. In 1880 the value of the home production was over \$34,500,000—more than double that of the product of six years before.

*Kindly furnished by Mr. Wyckoff, Secretary of the American Silk Association, and special agent of the U. S. Census Bureau.

ESTIMATE OF PROPORTION OF SILK GOODS MADE IN THIS COUNTRY
TO THE WHOLE CONSUMPTION OF SILK GOODS THEREIN.

In the fiscal year 1860.....	13 per cent.
In the fiscal year 1870	23 "
In the calendar year 1874.....	28 "
In the calendar year 1875.....	34 "
In the calendar year 1876.....	35 "
In the calendar year 1877.....	32 "
In the calendar year 1878.....	36 "
In the calendar year 1879.....	39 "
In the fiscal year 1880	39 "
In the fiscal year 1881.....	39 "

The value of production bears the following relation to the imports of raw silk :

Source of information.	YEAR.		Home Production. Value.	Import Raw Silk. Value.	Proportion of Raw Silk. On basis of Values.
	Date.	Kind.			
Statistics of—Census	1850	Fiscal.	\$1,809,476	\$401,385	22 per cent.
Census	1860	Fiscal.	6,607,771	1,340,676	23 "
Census	1870	Fiscal.	12,210,662	3,017,958	25 "
Silk Association	1874	Calendar.	16,262,157	3,627,757	22 "
Silk Association	1875	Calendar.	21,269,081	5,372,242	25 "
Silk Association	1876	Calendar.	21,201,480	5,626,299	27 "
Silk Association	1877	Calendar.	16,613,743	5,650,255	34 "
Silk Association	1878	Calendar.	20,791,055	6,859,692	33 "
Silk Association	1879	Calendar.	29,983,630	9,921,332	33 "
Census	1880	Fiscal.	34,519,723	12,024,699	34 "

The gradual rise in the proportion of value of raw material in the product, thus indicated, may be ascribed to the use of better raw silk in the manufacture, or to the decline in the prices of goods. Both are facts.

The number of power-looms in the United States in successive years was—

1875	1,605
1876	1,941
1877	2,340
1878	2,862
1879	3,690
1880	5,321

LOOMS IN 1880:

Number of hand-looms for broad goods.....	1,444
Number of hand-looms for narrow goods.....	1,524
Number of power-looms for broad goods.....	3,253
Number of power-looms for narrow goods.....	2,068
Total looms.....	8,289

Number of Jacquard machines reported.....	3,189
Number of "all other" machines (<i>i. e.</i> , not looms).....	4,117
Number of spindles, winding, cleaning and doubling.....	165,045
Number of spindles, spinning and twisting.....	262,205
Number of spindles, braiding.....	80,872
Total spindles.....	508,122

Number of hands employed in silk industry in the United States.*

	Total.	Male.	Female.	Youth.
1860.....	5,435.....	1,585.....	3,850.....	
1870.....	6,649.....	1,734.....	3,529.....	1,386
1875.....	18,017.....	4,743.....	8,739.....	4,535
1880.....	31,300.....	9,350.....	16,400.....	5,550

	NUMBER OF ESTABLISHMENTS.	TOTAL WAGES PAID.
1860.....	139.....	\$1,050,224
1870.....	121.....	1,942,286
1875.....	213.....	6,392,256
1880.....	383.....	9,146,700

The returns of the late census show a total capital in the business of silk manufacture amounting to \$19,125,300. If we assume that the money used in carrying on the business, aside from the investment in plant and fixtures, is turned over three times in the year, the following estimate may be made:

One-third of (\$9,146,705) the year's expenditure for wages.....	\$3,048,902
One-third of (\$22,467,701) the year's expenditure for materials,	7,489,234
Fixed capital in machinery.....	5,227,500
Fixed capital in buildings.....	3,836,600

Estimate for total fixed and floating capital.....\$19,602,236
 Giving a result within $2\frac{1}{2}$ per cent. of the returns.

It will, therefore, be seen that the American silk industry is in a very flourishing condition, which, in a great measure, may be explained by the fact that, in general, a better and cheaper class of goods is produced here than abroad. As the American manufacturers now get their raw silk direct from Asia, by rail from San Francisco (China and Japan being the great silk-producing countries of the world), they have the choice of the market. This was not the case before the Pacific railroad was built, for then the silk went

*The number of hands reported as the "average" employed is usually taken from the pay-roll, and no allowance is made for irregularities and absences. The actual number constantly employed is fully 10 per cent. below the "average," as given. A careful study of the returns upon this point has justified this conclusion.

the other way, and only that which the foreign importers rejected came here. During the commercial depression of 1873, and some time afterwards, cheap and poor goods were sent over by the European manufacturers, while our establishments, protected by a liberal tariff, took advantage of the opportunity to gain notice and trade by producing superior fabrics. Our manufacturers also introduced improved machinery, and thus have been able to compete with the European cheap labor. "The American idea is to substitute machinery for manual labor, and that is the main reason why our manufacturers can sell dress silks at a profit."

"Our manufacturers make the most ornate and varied fabrics that are offered; the figured dress silks, which are now so popular, being almost exclusively of domestic manufacture. Our manufacturers take nothing but the mere suggestion of the design from abroad, their styles being original, and changing with each season's fashions, both as to color and pattern. We have made such improvements in the application of the Jacquard loom, in weaving, that we can produce grenadines with satin stripes as well as with brocade patterns. Foreign manufacturers acknowledge that they cannot do this. Fine grades of damasse dress goods are made with combinations of gros-grain, satin, brocade and grenadines. Marcelines, florentines, serges, satin de chine, and the various fabrics used for lining are produced in great quantities here. American linings are preferred because they are made of purer silk.

"American-made handkerchiefs are now the favorites in the market, being solid, substantial goods, closely woven, and firm to the touch. The brocade handkerchiefs are made in four or five different colors and variety of patterns. The former prejudice against them has entirely disappeared, because they are not so flimsy as the foreign goods, and they now have come into general use throughout the United States. In this branch of the silk industry our manufacturers are particularly successful, and the reputation of the goods to-day is that they are superior to the foreign article.

"The manufacture of silk ribbons has been developed by degrees, but the progress has been remarkable, our manufacturers now having attained a position in this line of silk goods that precludes serious foreign competition. In fancy or Jacquard work we have made great advances, and these goods are largely sold. Pictures are produced

in silk, the most elaborate flower patterns are woven and the finest work done.

"Great success has also attended the manufacture of fringes and passementeries. Braids, cords, tassels, bindings and trimmings generally are included under this head, all of which are produced in large quantities and in the most finished manner by our manufacturers. There is an endless variety of such goods, and it is estimated that one-sixth of all the raw silk imported into this country is absorbed in this branch of silk manufacture."*

*Hand-book of silk manufacturers at Paterson, published by the *Dry Goods Bulletin*, of New York, 1881.

CHAPTER II.

THE HAT INDUSTRY.

We have the reports from 88 hat factories, of which 86 are located in Essex, and 2 in Union counties. The number of firms reporting is the same as last year, although many changes have taken place in the membership.

Many manufacturers, who heretofore have been making goods on commission, are now manufacturing and selling their own stock, because they find it much more profitable. Some of the manufacturers of cheap goods complain of the competition of convict labor; a prisoner being paid but forty cents a day, while free labor is worth two dollars for the same class of work. Other manufacturers, on the contrary, say that the general prosperity of all classes of people has created a demand for a better grade of goods than can be manufactured in the State Prison. One of the largest manufacturers of the cheap grade of hats asserts that he can compete successfully with convict labor, as he uses the latest improved machinery, and never offers poor goods to the regular trade, such stock being disposed of at auction sales. The contractor of convict labor, in one of the Eastern States, desired this gentleman to make hats for him, as he could not compete in some of the grades, since one free laborer will accomplish as much as three convicts; taking into consideration the fact that, in addition to the forty cents pay, and ten cents allowance for tobacco, daily, a greater percentage of goods is damaged by the latter. A better class of goods is also made by the free laborer.

A few complain of a dull season, attributing it to different causes:

"The reason why we are idle so long," observes one firm, "is because of the large number of hats made in State Prison."

"Business is decreasing," says another, "because most of the manufacturers are now farming their own stock."

"It was the dullest year I ever had," is the opinion of a third.

But the returns do not seem to bear out these rather gloomy reports, so far, at least, as the trade as a whole is concerned.

The total capital invested in the business is \$1,754,500. The

largest amount invested in any one establishment is \$75,000; the smallest, \$500; while the average is nearly \$20,000. The number of dozen hats manufactured during the year was 578,775, valued at \$9,765,443, which is an increase of over 40,000 dozen over the number made during the previous year, while the value of the production is \$1,300,000 greater. This is attributed to improvement in the quality of goods manufactured, as required by the market during the year. Last year there were manufactured, 538,626 dozen hats, valued at \$8,494,881. In 1879 the average value per dozen hats was \$13.73; in 1880, \$15.78; while this year it has reached \$16.89. In 1879 the amount paid for labor was \$4.54 per dozen hats; in 1880, \$5.21; and this year, \$5.28.

The greatest number of hands employed at any one time during the year was 8,150, and the average number, 6,976. Of the latter, 5,066 were males over 16 years of age, 1,523 females over 15 years of age, and 387 children and youths, *i. e.*, a little less than 6 per cent. were boys and girls. The proportion of men, women and children employed does not materially differ from that stated last year, although the average number of employes was larger in 1880, when it was reported at 7,342.

In all the factories men are employed. Four do not employ women, while in eighteen there are no children at work. Wages are paid weekly in all the factories. The aggregate amount paid for labor during the year was \$3,057,811, or an increase of nearly \$252,000 over that of 1880, when the total sum paid was \$2,805,818. This year over 31 per cent. of the total value of the product went to the employes; in 1880 hands received 33 per cent. The average annual wages this year amounted to \$438.33. The average daily wages, per factory, of men, were \$2.07; of women, \$1.06; of boys and girls, 73.05 cents. This seems to show a decrease in the rates paid last year; although the employers report generally that the wages have remained the same or nearly so. One firm observes: "There have been slight changes in wages, but nothing permanent."

Eighty-seven establishments were in operation on full time during either the whole or a portion of the year, averaging over seven and a half months.

The following tables will show the statistics of the trade in detail:

HATS.

Office number.	Quantity—number of dozens.	Where manufactured.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NO. OF HANDS EMPLOYED.			Wages of men.	Wages of women.	Wages of children.
					Males above sixteen years.	Females above fifteen years.	Children and youth			
1	7,500	Essex county...	\$20,000 00	125	100	20	5	\$2 00	\$1 25	\$0 75
2	2,500	do.	7,000 00	42	3	10	1	2 00	1 25	50
3	9,000	do.	12,000 00	125	80	20	4	2 00	1 50	80
4	7,500	do.	20,000 00	100	80	9	3	2 50	1 25	75
5	15,000	do.	35,000 00	200	125	50	5	2 50	1 25	75
6	9,000	do.	15,000 00	180	80	30	10	2 50	1 25	1 00
7	5,000	do.	10,000 00	80	57	11	2	2 50	1 25	75
8	4,000	do.	30,000 00	67	35	10	2	2 50	1 00	50
9	11,000	do.	50,000 00	190	150	25	8	2 50	1 50	60
10	6,000	do.	10,000 00	103	70	25	5	2 50	1 25	75
11	11,000	do.	10,000 00	135	80	22	8	2 00	1 25	65
12	7,000	do.	12,000 00	160	100	50	.....	2 50	1 25	.....
13	4,000	do.	5,000 00	110	75	25	.....	2 25	1 25	.....
14	Forming mill...	do.	60,000 00	100	55	15	2	2 25	1 00	85
15	3,000	do.	8,000 00	70	35	19	.....	2 50	1 25	.....
16	2,500	do.	15,000 00	30	16	7	5	2 00	1 25	80
17	10,000	do.	25,000 00	100	75	15	4	2 00	1 00	80
18	5,000	do.	30,000 00	90	56	20	.....	2 25	1 00	.....
19	8,000	do.	20,000 00	115	80	20	2	2 00	1 00	85
20	5,800	do.	15,000 00	110	75	20	.....	1 65	60	.....
21	2,500	do.	10,000 00	30	15	5	1	1 60	60	75
22	7,000	do.	11,000 00	85	55	20	.....	2 25	1 50	.....
23	14,000	do.	60,000 00	200	150	40	3	2 25	1 00	80
24	4,000	do.	10,000 00	70	50	10	2	1 50	1 00	65
25	2,500	do.	8,000 00	60	30	10	3	1 50	1 00	1 00
26	8,000	do.	30,000 00	145	100	20	.....	1 65	75	.....
27	1,300	do.	6,000 00	16	7	4	2	1 60	1 00	75
28	2,000	do.	9,000 00	40	21	12	3	1 75	80	80
29	5,000	do.	10,000 00	80	50	15	2	2 50	1 25	80
30	7,000	do.	12,000 00	90	62	16	6	2 00	1 00	80
31	3,000	do.	2,000 00	35	20	7	3	1 50	1 00	70
32	1,000	do.	5,000 00	22	12	6	.....	1 50	1 00	.....
33	4,500	do.	15,000 00	50	32	10	3	1 50	1 00	70
34	Forming mill...	do.	70,000 00	50	32	.....	7	2 00	.....	80
35	1,000	do.	3,000 00	22	15	5	.....	2 00	1 00	.....
36	8,000	do.	10,000 00	100	70	20	3	2 00	90	60
37	8,000	do.	18,000 00	100	70	18	5	2 00	1 00	60
38	500	do.	500 00	20	12	3	1	2 00	1 00	80
39	18,000	do.	50,000 00	80	30	20	5	1 65	85	65
40	2,500	do.	5,000 00	20	8	2	.....	1 65	85	.....
41	6,000	do.	11,000 00	160	66	30	4	2 00	1 10	75
42	Forming mill...	do.	30,000 00	26	18	5	1	2 00	1 00	60
43	3,000	do.	8,000 00	65	45	15	.....	2 25	1 10	.....
44	15,000	do.	20,000 00	230	150	50	6	2 00	1 00	60
45	10,000	do.	60,000 00	200	100	30	10	2 10	1 15	1 50
46	150	do.	2,000 00	8	4	3	.....	2 50	1 20	.....
47	1,000	do.	Est. 1,500 00	12	1	6	.....	2 50	1 00	.....
48	5,000	do.	12,000 00	40	30	8	2	2 00	1 00	70
49	2,500	do.	25,000 00	54	36	14	.....	2 00	1 00	.....
50	10,000	do.	25,000 00	110	70	25	5	2 00	1 30	80
51	2,600	do.	8,000 00	75	50	15	3	2 00	1 00	70
52	8,100	do.	17,000 00	80	55	16	4	2 00	1 00	1 00
53	1,000	do.	3,000 00	25	6	3	2	2 00	1 00	75
54	30,000	do.	Est 75,000 00	431	280	65	15	2 00	1 00	70
55	19,500	do.	40,000 00	250	150	63	5	2 00	1 00	75
56	500	do.	2,500 00	18	12	4	.....	2 00	.....	60
57	1,800	do.	4,500 00	40	16	.....	2	2 00	.....	50
58	1,300	do.	3,000 00	7	3	.....	2	2 00	.....	75
59	10,000	do.	30,000 00	80	48	10	2	2 50	1 25	60
60	8,000	do.	10,000 00	60	30	10	.....	2 60	1 00	.....

HATS.

Are wages paid weekly or monthly?	Total amount paid in wages during the year.	MONTHS IN OPERATION.			Average day's wages of skilled mechanic.	Average day's wages of skilled woman.	Percentage of increase in wages.	Percentage of decrease in wages.	Products.
		On full time.	On half time only.	Idle.					
Weekly.....	\$56,839 00	9	.....	3	\$3 50	\$1 25	.....	.....	\$140,000 00
do.	20,000 00	7	.....	5	3 50	1 25	.....	.....	48,000 00
do.	40,872 00	8	4	.....	3 00	.....	.....	.....	127,000 00
do.	50,000 00	8	4	.....	4 00	.....	.....	.....	160,000 00
do.	125,000 00	10	2	.....	3 50	1 30	.....	.....	300,000 00
do.	60,000 00	8	4	.....	3 50	1 25	.....	.....	198,000 00
do.	22,400 00	8	.....	4	3 75	1 25	.....	.....	90,000 00
do.	35,500 00	8	.....	4	3 25	.....	.....	.....	84,000 00
do.	78,000 00	9	.....	3	4 00	1 50	10	.....	231,000 00
do.	47,000 00	8	.....	4	3 50	1 25	.....	.....	100,000 00
do.	58,700 00	8	3	1	3 00	1 50	.....	.....	175,000 00
do.	45,000 00	6	.....	6	3 00	1 25	.....	.....	110,000 00
do.	30,000 00	7	.....	5	3 50	.....	.....	.....	64,000 00
do.	38,000 00	12	.....	.....	3 00	.....	.....	.....	320,000 00
do.	23,000 00	2	4	6	.....	.....	.....	.....	54,000 00
do.	12,500 00	9	.....	3	.....	.....	.....	.....	35,000 00
do.	65,000 00	8	.....	4	3 00	.....	.....	.....	165,000 00
do.	30,500 00	8	.....	4	3 50	2 00	10	.....	90,000 00
do.	52,500 00	8	.....	4	3 00	1 50	.....	.....	172,000 00
do.	30,000 00	8	.....	4	2 50	1 00	.....	.....	76,000 00
do.	10,000 00	8	.....	4	2 00	1 00	10	.....	30,000 00
do.	40,000 00	7	.....	5	3 00	1 00	.....	.....	105,000 00
do.	125,000 00	10	2	.....	3 50	1 25	.....	.....	320,000 00
do.	20,000 00	8	.....	4	2 00	1 00	.....	.....	40,000 00
do.	14,500 00	8	.....	4	3 00	1 00	.....	.....	37,500 00
do.	50,000 00	9	.....	3	2 50	90	.....	.....	104,000 00
do.	6,500 00	12	.....	.....	2 00	1 00	.....	.....	16,000 00
do.	10,000 00	8	.....	4	.....	.....	.....	.....	30,000 00
do.	32,000 00	7	.....	5	3 00	1 50	.....	.....	85,000 00
do.	35,000 00	6	4	2	.....	.....	.....	.....	105,000 00
do.	8,000 00	7	.....	5	2 00	1 00	.....	.....	36,000 00
do.	5,000 00	6	.....	6	2 00	.....	.....	.....	18,000 00
do.	19,500 00	9	.....	3	2 00	.....	.....	.....	54,000 00
do.	18,000 00	9	.....	3	2 00	.....	.....	.....	30,000 00
do.	4,000 00	6	.....	6	.....	.....	.....	.....	14,000 00
do.	42,000 00	6	6	.....	3 00	1 25	.....	.....	120,000 00
do.	43,000 00	10	.....	2	3 00	1 25	.....	.....	128,000 00
do.	2,000 00	4	.....	8	.....	.....	.....	.....	6,500 00
do.	23,000 00	10	2	.....	3 00	1 25	.....	.....	105,000 00
do.	7,500 00	8	.....	4	.....	.....	.....	.....	37,500 00
do.	60,000 00	9	.....	3	3 00	.....	.....	.....	126,000 00
do.	15,000 00	12	.....	.....	3 25	1 25	.....	.....	240,000 00
do.	14,500 00	6	6	.....	4 00	1 25	.....	.....	36,000 00
do.	70,000 00	6	4	2	3 50	1 50	.....	.....	330,000 00
do.	52,000 00	6	3	3	.....	.....	.....	.....	200,000 00
do.	2,500 00	6	.....	6	.....	.....	.....	.....	7,500 00
do.	1,000 00	4	.....	8	.....	.....	.....	.....	12,500 00
do.	15,000 00	7	.....	5	.....	.....	.....	.....	60,000 00
do.	10,500 00	5	3	4	3 50	1 25	.....	.....	55,000 00
do.	55,000 00	9	2	1	.....	.....	.....	.....	135,000 00
do.	12,000 00	.....	8	4	.....	.....	.....	.....	37,500 00
do.	40,000 00	9	.....	3	3 00	.....	.....	.....	121,500 00
do.	5,500 00	5	.....	7	3 00	1 10	.....	.....	15,000 00
do.	182,000 00	9	3	.....	3 00	2 00	.....	.....	600,000 00
do.	74,000 00	8	.....	4	4 00	1 25	.....	.....	309,000 00
do.	1,000 00	3	.....	9	.....	.....	.....	.....	6,000 00
do.	10,000 00	6	4	2	3 00	.....	.....	.....	27,000 00
do.	2,500 00	6	.....	6	.....	.....	.....	.....	17,000 00
do.	45,000 00	6	4	2	.....	.....	.....	.....	250,000 00
do.	19,000 00	6	.....	6	.....	.....	.....	.....	64,000 00

HATS—Continued.

Office number.	Quantity—number of dozen.	Where manufactured.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NO. OF HANDS EMPLOYED.			Wages of men.	Wages of women.	Wages of children.
					Males above sixteen years.	Females above fifteen years.	Children and youth.			
61	2,000	Essex county...	\$6,000 00	45	25	10	4	\$2 00	\$1 10	\$0 50
62	7,000	do.	15,000 00	130	98	20	8	2 00	1 00	66
63	2,500	do.	7,000 00	30	15	9	2	2 00	1 00	50
64	4,000	do.	10,000 00	75	42	15	8	2 00	1 00	66
65	13,000	do.	40,000 00	110	80	10	9	2 00	1 00	66
66	5,000	do.	12,000 00	70	50	6	3	2 00	1 00	60
67	3,250	do.	15,000 00	90	55	25	4	2 25	1 00	75
68	20,000	do.	Est. 60,000 00	300	150	75	10	2 00	90	66
69	3,000	do.	16,000 00	75	44	2	4	2 25	1 00	75
70	6,000	do.	20,000 00	100	70	15	8	2 50	1 10	66
71	7,000	do.	12,000 00	55	45	2	.....	2 50	1 50	.....
72	8,500	do.	25,000 00	100	65	15	8	2 50	1 00	66
73	8,000	do.	20,000 00	90	54	16	6	2 00	1 00	75
74	5,500	do.	25,000 00	60	30	6	4	2 00	1 00	75
75	10,000	do.	25,000 00	110	65	25	8	2 25	1 10	66
76	3,000	do.	6,000 00	60	30	10	3	2 50	1 00	75
77	8,000	do.	25,000 00	200	100	30	6	2 25	1 10	80
78	2,500	do.	18,000 00	75	40	10	.....	2 00	1 00	.....
79	3,000	do.	10,000 00	65	35	15	4	2 00	1 00	66
80	3,000	do.	10,000 00	88	58	15	5	2 00	1 00	75
81	75	do.	1,500 00	4	2	1	.....	2 50	1 20	.....
82	30,000	do.	40,000 00	130	25	30	73	1 50	1 50	66
83	8,600	do.	37,000 00	85	63	10	2	2 25	1 00	1 00
84	18,000	do.	30,000 00	160	110	40	.....	1 75	85	.....
85	9,000	do.	36,000 00	120	90	20	9	2 00	1 25	85
86	9,500	do.	60,000 00	130	115	25	10	2 25	1 10	60
87	7,000	Union county...	20,000 00	75	42	19	9	1 25	1 00	80
88	4,300	do.	12,000 00	50	30	9	2	1 75	1 00	65
Total....	578,775	.....	\$1,754,500 00	5,150	5,066	1,523	387	.....	.....	.....

HATS—Continued.

Are wages paid weekly or monthly?	Total amount paid in wages during the year.	MONTHS IN OPERATION.			Average day's wages of skilled mechanic.	Average day's wages of skilled woman.	Percentage of increase in wages.	Percentage of decrease in wages.	Products.
		On full time.	On half time only.	Idle.					
Weekly.....	\$9,500 00	6	.....	6	\$3 00	\$1 25	.....	.....	\$27,000 00
do.	23,000 00	6	.....	6	.....	.....	.....	.....	84,000 00
do.	14,500 00	8	.....	4	.....	.....	.....	.....	42,000 00
do.	18,500 00	6	.....	6	.....	.....	.....	.....	52,000 00
do.	36,000 00	8	.....	4	3 00	1 20	.....	.....	218,000 00
do.	15,500 00	6	.....	6	3 25	1 10	.....	.....	45,000 00
do.	29,000 00	7	.....	5	3 50	1 25	.....	.....	78,000 00
do.	80,000 00	8	3	1	2 50	90	.....	.....	300,000 00
do.	24,500 00	8	.....	4	.....	.....	.....	.....	58,393 00
do.	27,500 00	6	.....	6	.....	.....	.....	.....	90,000 00
do.	26,500 00	8	.....	4	.....	.....	.....	.....	56,000 00
do.	40,000 00	8	.....	4	.....	.....	.....	.....	160,000 00
do.	26,000 00	7	.....	5	.....	.....	.....	.....	96,000 00
do.	12,500 00	8	.....	4	.....	.....	.....	.....	66,000 00
do.	23,000 00	4	.....	8	.....	.....	.....	.....	100,000 00
do.	24,000 00	8	.....	4	.....	.....	.....	.....	63,000 00
do.	100,000 00	12	.....	.....	3 25	1 20	10	.....	160,000 00
do.	25,000 00	8	2	2	.....	.....	.....	.....	85,000 00
do.	15,500 00	6	.....	6	.....	.....	.....	.....	45,000 00
do.	27,000 00	6	.....	6	.....	.....	.....	.....	72,000 00
do.	1,500 00	6	.....	6	.....	.....	.....	.....	3,850 00
do.	32,000 00	7	3	2	2 00	.....	.....	.....	200,000 00
do.	40,000 00	12	.....	.....	.....	.....	10	.....	103,200 00
do.	56,000 00	7	.....	5	.....	.....	.....	.....	170,000 00
do.	67,500 00	8	4	.....	2 50	1 75	.....	.....	205,000 00
do.	98,000 00	12	.....	.....	2 50	1 25	.....	.....	235,000 00
do.	27,000 00	9	2	1	3 00	1 50	.....	.....	94,500 00
do.	16,000 00	9	.....	3	.....	.....	.....	.....	56,000 00
.....	\$3,057,811 00	659	86	311	.....	.....	.....	.....	\$9,765,443 00

CHAPTER III.

THE POTTERY INDUSTRY.

The amount of capital employed by the 38 firms reporting as engaged in the pottery interest in this State, is \$3,254,500. This is invested in the following branches of this industry: White pottery (25 establishments), colored pottery (5), pottery supplies (3), and decorators (5). All but three of these potteries are located at Trenton; Jersey City, Elizabeth and Perth Amboy each having one. The value of the product for the year was \$3,663,300, or \$1.12 for each dollar of capital invested.

The greatest number of workmen employed at any one time by these 38 firms was 3,884, and the average number 3,682, of whom 2,344 were men, 518 women and 820 children—that is, all but 36 per cent. of the employes were men. The daily wages reported were: Men, highest, \$3.00; lowest, \$1.25; average, \$2.01; women, highest, \$1.50; lowest, 50 cents; average 88 cents; children, highest, 90 cents; lowest, 50 cents; average, 70 cents. Skilled mechanics received from \$2.25 to \$3.00 daily, while skilled women were paid from \$1.25 to \$1.50 per day.

The total sum disbursed in wages was \$1,555,300, or 42.4 per cent. of the gross value of the product. The average yearly wages for each employe were over \$422. In 1880 the total paid for labor was reported at \$858,816, or 39 per cent. of the gross value of the product, which amounted to \$2,187,015. In the establishments of 35 firms there was continuous work throughout the year. Weekly wages are paid by 31 firms, semi-monthly by 3, and monthly by 1.

The following table gives the statistics in detail:

POTTERIES.

Office number.	Business.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NO. OF HANDS EMPLOYED.			Wages of men.	Wages of women.	Wages of children.
				Males above sixteen years.	Females above fifteen years.	Children and youth.			
301	Pottery, white.....	\$25,000 00	65	50	15	.....	\$2 00	\$0 80	.....
302	Terra cotta.....	150,000 00	70	60	.....	2	1 65	.....	\$0 85
303	Pottery, white.....	120,000 00	150	90	20	35	2 00	75	50
304	do. do.	180,000 00	225	150	20	40	2 00	66	66
305	Yellow ware.....	30,000 00	35	30	.....	5	2 00	.....	50
306	Pottery, white.....	130,000 00	160	100	25	25	2 25	1 10	50
307	do. do.	200,000 00	200	100	50	50	2 00	1 00	66
303	Decorator.....	30,000 00	60	8	23	25	3 00	1 50	60
309	Pottery, white.....	170,000 00	100	65	8	18	2 25	66	66
310	do. do.	100,000 00	110	73	15	15	2 00	75	75
311	do. do.	4,500 00	13	12	.....	.....	1 50	.....	.....
312	Pottery supplies.....	8,000 00	35	2	25	3	1 50	66	50
313	Pottery, white.....	130,000 00	200	110	35	50	2 00	1 00	66
314	Pottery supplies.....	12,000 00	34	2	22	3	1 50	66	66
315	Pottery, white.....	125,000 00	210	100	25	80	2 00	75	80
316	do. do.	200,000 00	300	150	60	75	2 50	66	66
317	do. do.	35,000 00	45	36	.....	4	2 00	.....	66
319	do. do.	6,000 00	10	7	.....	2	2 25	.....	75
320	do. do.	110,000 00	100	48	.....	27	2 50	.....	66
321	do. do.	200 000 00	180	115	30	30	2 50	75	75
322	do. do.	200,000 00	180	115	28	32	2 25	75	75
323	do. do.	125,000 00	190	115	35	30	2 35	75	75
324	do. do.	175,000 00	175	100	25	50	2 00	1 00	50
325	do. do.	210,000 00	275	145	.....	125	2 00	.....	60
332	do. do.	15,000 00	40	30	5	4	1 50	75	50
333	do. do.	150,000 00	150	100	16	25	1 50	75	66
334	Pottery decorator.....	4,000 00	8	2	2	1	3 00	1 50	90
335	do. do.	7,500 00	10	3	4	1	2 50	1 50	90
336	do. do.	18,000 00	25	10	12	.....	2 00	1 00	.....
337	do. do.	4,500 00	8	3	2	1	2 25	1 00	90
338	Pottery supplies.....	50,000 00	40	37	2	.....	1 60	1 00	.....
339	Pottery, white.....	80,000 00	85	55	.....	20	2 25	.....	75
341	do. do.	60,000 00	100	63	12	22	2 25	50	50
342	Pottery, colored.....	10,000 00	9	5	.....	.....	1 50	.....	.....
344	Pottery, white.....	5,000 00	12	8	2	.....	1 40	70	.....
345	do. do.	10,000 00	35	10	.....	20	1 65	.....	50
409	Pottery, yellow ware.....	40,000 00	40	35	.....	.....	1 65	.....	.....
410	Terra cotta.....	125,000 00	200	200	.....	.....	1 25	.....	.....
Total.....		\$3,254,500 00	3,884	2,344	518	820	.....	.....	.....

POTTERIES—Continued.

Office number.	How often are wages paid?	Total amount paid in wages during the year.	MONTHS IN OPERATION.		Percentage of advance in wages.	Percentage of decline in wages.	Average pay of skilled man.	Average pay of skilled woman.	Products.
			On full time.	Idle.					
301	Weekly.....	\$28,000 00	12	.....	.....	.....	.....	.....	\$70,000 00
302	Semi-monthly.....	32,000 00	12	.....	.....	.....	\$2 25	.....	200,000 00
303	Weekly.....	52,500 00	12	.....	.....	.....	2 50	.....	140,000 00
304	do.	71,000 00	12	.....	.....	.....	2 50	.....	200,000 00
305	do.	17,500 00	12	.....	.....	.....	2 50	.....	60,000 00
306	do.	75,000 00	12	.....	.....	.....	2 50	\$1 25	140,000 00
307	do.	75,000 00	12	.....	.....	.....	2 50	.....	200,000 00
308	do.	19,500 00	12	.....	.....	.....	3 50	.....	40,000 00*
309	do.	40,000 00	12	.....	.....	.....	2 50	.....	75,000 00
310	do.	46,000 00	12	.....	.....	.....	2 25	.....	100,000 00
311	do.	3,500 00	5	7	.....	.....	.....	.....	4,000 00
312	Semi-monthly.....	11,000 00	12	.....	.....	.....	.....	.....	12,000 00
313	Weekly.....	85,000 00	12	.....	.....	.....	2 50	1 25	140,000 00
314	do.	10,000 00	12	.....	.....	.....	.....	.....	21,500 00
315	do.	70,000 00	12	.....	.....	.....	3 00	1 50	140,000 00
316	do.	90,000 00	12	.....	.....	.....	3 00	.....	200,000 00
317	do.	33,500 00	12	.....	.....	.....	.....	.....	70,000 00
319	do.	3,900 00	12	.....	.....	.....	.....	.....	6,500 00
320	do.	55,000 00	12	.....	.....	.....	3 00	.....	130,000 00
321	do.	72,000 00	12	.....	.....	.....	3 00	1 25	210,000 00
322	do.	78,000 00	12	.....	.....	.....	.....	.....	210,000 00
323	do.	73,500 00	12	.....	.....	.....	.....	.....	140,000 00
324	do.	75,000 00	12	.....	.....	.....	.....	.....	175,000 00
325	do.	110,000 00	12	.....	.....	.....	.....	.....	250,000 00
332	do.	7,500 00	12	.....	10	.....	.....	.....	30,000 00
333	do.	76,000 00	11	1	.....	.....	.....	.....	160,000 00
334	do.	3,000 00	12	.....	.....	.....	.....	.....	4,500 00*
335	do.	6,000 00	12	.....	.....	.....	.....	.....	10,000 00*
336	do.	12,500 00	12	.....	.....	.....	.....	.....	27,000 00*
337	do.	3,500 00	12	.....	.....	.....	.....	.....	5,800 00*
338	do.	19,000 00	12	.....	.....	.....	.....	.....	48,500 00
339	Semi-monthly.....	50,000 00	12	.....	.....	.....	3 00	.....	90,000 00
341	Weekly.....	41,000 00	12	.....	.....	.....	.....	.....	80,000 00
342	do.	3,000 00	10	2	.....	.....	.....	.....	7,500 00
344	do.	3,900 00	12	.....	.....	.....	.....	.....	6,000 00
345	do.	14,000 00	12	.....	.....	.....	.....	.....	30,000 00
409	do.	14,000 00	12	.....	.....	.....	2 50	.....	20,000 00
410	Monthly.....	75,000 00	12	.....	.....	.....	2 75	.....	210,000 00
		\$1,555,300 00	.....	.....	.....	.....	.....	.....	\$3,663,300 00

* Added values.

The manufacture of terra cotta, although yet in its infancy so far as New Jersey is concerned, bids fair to become one of the most important branches of the pottery industry, as our red and colored clays are admitted to be superior for making this material to any in the world. Two establishments are reported to be engaged in the manufacture of terra cotta, employing a capital of \$275,000, and having produced during the year a product valued at \$410,000. The following historical sketch of the development of the manufacture of terra cotta in this country undoubtedly will be interesting in this connection. It was kindly furnished by a gentleman connected with the Perth Amboy Terra Cotta Company.

"The manufacture of terra cotta, for architectural purposes, was first introduced into the United States about the year 1848, by an Englishman, named Young, who located in New York city, and in a short time had established a factory on 43d street and Third avenue. Mr. Young made terra cotta for several large buildings in New York and elsewhere, many of which can be seen at this day, and are an evidence of the weather-resisting qualities of this material. In the Trinity building on Broadway, New York, there is a large quantity of terra cotta, which has been subjected to the severities of this climate for thirty years, but is as perfect now as when it left the kiln; while the brown stone work in the same edifice, on the Broadway front, is disintegrating with increasing rapidity. This building, being largely occupied by architects, they have the evidence of the superiority of terra cotta for architectural decoration ever before them.

"Mr. Young's decease about 1852 caused a cessation in the manufacture of architectural terra cotta for several years thereafter, although a number of the stoneware and drain-pipe manufacturers succeeded in making some excellent material for garden and fancy work, particularly O. Bowman, of Trenton, N. J., and Stewart & Co., of New York, and some firms in Ohio and elsewhere. Messrs. Galloway & Graff, of Philadelphia, gave particular attention to figures and other works of art, with great success, as evidenced by their exhibit at the Centennial Exposition, at Philadelphia. Also a firm in Indianapolis, after working there a few years in architectural terra cotta, removed to Chicago, Illinois, in 1868, and from that time has been known as The Chicago Terra Cotta Company. This firm secured in the person of Sanford E. Loring, Esq., an indomitable and enterprising young architect, who made terra cotta for architectural purposes his principal study, and in a very short time many large contracts were executed by it in the Northwest, also in New York, Philadelphia, Providence, R. I., Boston, Mass., and many other cities, from Salt Lake city, in Utah, to Birmingham, in Alabama, and to Sherman and other cities in Texas. In the year 1877, Messrs. A. Hall & Sons, of Perth Amboy, N. J., undertook the introduction of architectural terra cotta on a very extensive scale, and from that time its revival and great improvement has been fully established.

"The experience of Mr. A. Hall in the fire brick and pottery business led him to discover the facility with which the cheap and usually discarded clays of the Woodbridge and Raritan districts could be adapted to this business; and the large amount of terra cotta now being made at Perth Amboy and Boston, composed almost entirely

of these clays, proves the correctness of his judgment. The firm now known as the Perth Amboy Terra Cotta Company, have over 160 hands in their employ, and are doing business to the extent of about \$18,000 per month. Messrs. A. & E. H. Hall are now erecting a factory that will have a capacity of producing \$30,000 of work monthly, so that the general outlook for this interest is most encouraging. Terra cotta, as prepared and fired by Messrs. Hall's modes and appliances, is made with a minimum of risk, and without warpage, or detriment to the design by reason of cracks or scorchings—a very important consideration in the execution of original designs, and one which secures work of real artistic merit."

CHAPTER IV.

THE BRICK, GLASS AND CLAY INDUSTRIES.

The following table contains the reports from 72 firms engaged in mining clay and sand or in manufacturing their products, brick, drain pipe and glass. The capital employed is \$2,694,900; while the value of the products amounted to \$3,349,500, or \$1.24 for every dollar invested.

The greatest number of hands employed at any one time during the year was 5,152; while the average number was 4,569, of whom 3,440, or 75 per cent., were men, 41 women and 1,088 children. The total amount paid for labor was \$1,242,890, or 37 per cent. of the product, or an average of over \$272 for each employe during the year.

Continuous work throughout the year is reported by 33 firms, while the remaining 39 had an average busy season of nearly 8 months—the period of idleness ranging from six to eight months. An advance in wages, from 5 to 25 per cent., was made by 29 firms, the rest reporting no change in this respect.

The average daily wages of men varied from \$2 to \$1.10; those of women from \$1.00 to 75 cents; those of children from \$1.12½ to 40 cents. Skilled mechanics received from \$5 to \$1.25; while skilled women were paid from \$1.25 to 75 cents a day. Skilled mechanics in glass factories earned from \$5 to \$3 daily. Weekly wages are paid by 26 establishments; semi-monthly by 4, and monthly by 42.

One firm, No. 385, replies to the question: "If you have any information which will be of public advantage as regards your own business, or any State industry, give it?" "By advancing the duty on iron and all imported goods manufactured from clays, it would greatly advance the industry of clay mining."

Nos. 378 and 382 inclusive, say their employes are engaged in digging clay when they are not employed in the brick yards, and are thus kept busy all the year.

An excellent market for clay and bricks is found in the Eastern and Middle States and Canada.

The following table gives the reports in detail from 72 establishments:

BRICK, GLASS AND CLAY.

Office number.	Business.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NO. OF HANDS EMPLOYED.			Wages of men.	Wages of women.	Wages of children.
				Males above sixteen years.	Females above fifteen years.	Children and youth.			
318	Fire brick.....	\$30,000 00	10	10	.....	.....	\$1 50	.....	.....
326	Bricks.....	15,000 00	40	27	.....	8	1 75	.....	\$1 00
327	do.	28,000 00	48	30	.....	15	2 00	.....	88
328	do.	24,000 00	70	50	.....	15	1 75	.....	1 00
329	do.	27,000 00	70	50	.....	18	1 75	.....	1 00
330	do.	25,000 00	60	40	.....	15	1 75	.....	1 12½
331	do.	16,000 00	35	25	.....	6	1 75	.....	1 00
340	Drain pipe.....	20,000 00	15	14	.....	.....	1 50	.....	.....
343	do.	20,000 00	15	13	.....	.....	1 65	.....	.....
346	Glass.....	100,000 00	250	210	.....	.....	1 00	.....	50
347	do.	200,000 00	410	250	.....	160	1 00	.....	40
348	do.	20,000 00	100	50	.....	50	1 25	.....	50
349	do.	100,000 00	120	90	.....	14	1 25	.....	75
350	do.	Est. 250,000 00	450	325	.....	130	1 40	.....	50
351	do.	300,000 00	474	284	8	140	1 35	.....	55
*352	do. ....	.....	942	300	19	370	1 35	\$0 90	60
353	Brick.....	24,000 00	50	45	.....	4	1 25	.....	50
354	do.	15,000 00	40	30	2	3	1 25	75	85
355	do.	200,000 00	260	230	4	34	1 25	95	1 00
356	Clay.....	5,000 00	40	30	.....	.....	1 25	.....	.....
357	Brick.....	10,000 00	35	30	.....	5	75	.....	50
358	do.	10,000 00	30	28	.....	2	1 00	.....	50
359	do.	2,000 00	22	18	.....	4	1 30	.....	75
360	do.	10,000 00	30	28	.....	2	1 00	.....	50
361	Brick and clay.....	25,000 00	40	36	.....	4	1 37	.....	50
362	do.	25,000 00	40	36	.....	4	1 25	.....	50
363	Clay and sand.....	.....	50	40	3	7	1 25	1 00	60
364	do.	100,000 00	50	50	.....	.....	1 50	.....	.....
365	Clay.....	25,000 00	7	7	.....	.....	1 25	.....	.....
366	Brick.....	60,000 00	50	50	.....	.....	1 30	.....	.....
367	do.	16,000 00	37	29	2	8	1 40	80	60
368	Sand.....	20,000 00	20	20	.....	.....	1 25	.....	.....
369	Fire brick and pipe.....	1,000 00	4	3	.....	.....	1 20	.....	.....
370	Fire brick.....	100,000 00	110	100	.....	.....	1 37	.....	62½
371	do.	100,000 00	64	59	.....	4	1 37	.....	75
372	Brick.....	3,000 00	18	18	.....	.....	1 50	.....	.....
373	do.	50,000 00	72	70	.....	2	1 25	.....	50
374	Fire brick and pipe.....	40,000 00	40	35	.....	5	1 20	.....	75
375	Fire brick.....	50,000 00	30	24	.....	4	1 20	.....	70
376	Clay.....	50,000 00	25	25	.....	.....	1 20	.....	.....
377	Brick.....	3,000 00	15	10	.....	3	1 35	.....	90
378	do.	2,000 00	8	7	.....	1	1 25	.....	.....
379	do.	2,000 00	9	8	1	.....	1 10	.....	.....
380	do.	10,000 00	20	18	.....	2	1 35	.....	.....
381	do.	5,000 00	18	16	.....	2	1 25	.....	.....
382	do.	4,000 00	16	14	2	.....	1 35	.....	75
383	Earthenware.....	2,400 00	3	2	.....	.....	1 50	.....	.....
384	Clay.....	10,000 00	16	14	.....	.....	1 25	.....	.....
385	do.	45,000 00	30	30	.....	.....	1 25	.....	.....
386	Brick.....	3,000 00	15	10	.....	3	1 35	.....	90
387	Fire clay.....	40,000 00	95	50	.....	6	1 25	.....	75
388	Brick.....	10,000 00	25	20	.....	2	1 40	.....	65
389	Brick, pipe, &c.....	150,000 00	70	65	.....	5	1 12	.....	.....
390	do.	50,000 00	100	80	.....	15	1 12	.....	60
391	Brick and drain pipe.....	20,000 00	30	20	.....	.....	1 20	.....	.....
392	Clay.....	12,000 00	20	15	.....	.....	1 25	.....	.....
393	do.	10,000 00	29	18	.....	3	1 25	.....	.....
394	do.	7,000 00	20	15	.....	3	1 30	.....	80

* Capital, wages and value of product included in report number 351.

BRICK, GLASS AND CLAY.

When wages are paid.	Total amount paid in wages during the year.	MONTHS IN OPERATION.			Percentage of advance in wages.	Percentage of decline in wages.	Average pay of skilled man.	Average pay of skilled woman.	Products.
		On full time.	On half time only.	Idle.					
Weekly.....	\$5,000 00	12							\$35,000 00
do.	15,000 00	8		4					17,000 00
do.	25,000 00	8		4					45,000 00
do.	20,000 00	8		4					40,000 00
do.	21,000 00	8		4					43,000 00
do.	16,500 00	8		4					40,000 00
do.	11,000 00	8		4					26,000 00
do.	7,800 00	12							28,000 00
do.	7,000 00	12							25,000 00
Monthly.....	85,000 00	10		2		\$4 00			200,000 00
Weekly.....	120,000 00	9½		2½	5	3 75			300,000 00
do.	40,000 00	10		2		5 00			90,000 00
do.	38,200 00	9		3		3 00			90,000 00
Monthly.....	Est. 140,000 00	10		2	10	4 50			400,000 00
Semi-monthly.....	214,690 00	10		2	13	4 00	\$1 25		700,000 00
do.		11½		1½	23	4 00	1 00		
Monthly.....	9,000 00	7	2	3	10	1 50			30,000 00
do.	9,000 00	7		5	25	2 00	75		14,000 00
do.	32,000 00	7		5	25	2 25	1 50		85,000 00
do.	10,000 00	9	3						25,000 00
Weekly.....	8,000 00	7	2	3	5	1 00			10,000 00
Monthly.....	4,000 00	7		5	10	1 25			20,000 00
do.	6,000 00	7		5	25				12,000 00
Weekly.....	4,000 00	7		5	10	1 25			10,000 00
Monthly.....	7,000 00	9		3	20	2 00			25,000 00
do.	8,000 00	12			10				10,000 00
Semi-monthly.....	12,000 00	12							40,000 00
Monthly.....	10,000 00	12			25	2 00			30,000 00
do.	1,500 00	9		3	10				5,000 00
Weekly.....	9,000 00	7½		4½	25	1 75			30,000 00
do.	9,600 00	8		4	20				20,000 00
Semi-monthly.....	2,500 00	8		4	10				12,000 00
Monthly.....	700 00	8		4					1,500 00
do.	28,000 00	12			10	2 50			75,000 00
do.	18,000 00	12			10	1 75			40,000 00
Weekly.....	5,000 00	7		5	10	1 75			10,000 00
do.	15,000 00	7		5					30,000 00
Monthly.....	18,000 00	12			10	1 75			50,000 00
do.	11,000 00	12				2 25			40,000 00
do.	3,000 00	12			12				5,000 00
Weekly.....	1,600 00	4		8		2 00			4,000 00
do.	1,800 00	7		5		2 25			6,000 00
do.	2,000 00	7		5		2 25			6,000 00
do.	7,000 00	6		6	10	2 25			20,000 00
do.	6,000 00	7		5		2 25			18,000 00
do.	4,000 00	8		4		2 25			12,000 00
do.	1,500 00	12				2 00			3,000 00
Monthly.....	6,000 00	12							10,000 00
do.	7,200 00	12							20,000 00
Weekly.....	1,500 00	4		8	10	2 00			4,000 00
Monthly.....	20,000 00	12							60,000 00
do.	6,000 00	6	6		10	1 60			10,000 00
do.	30,000 00	12				1 50			70,000 00
do.	25,000 00	12			12½	2 00			120,000 00
do.	9,000 00	12			15	1 40			20,000 00
do.	3,000 00	12							16,000 00
do.	6,000 00	12							15,000 00
do.	7,000 00	12							14,000 00

BRICK, GLASS AND CLAY—Continued.

Office number.	Business.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NO. OF HANDS EMPLOYED.			Wages of men.	Wages of women.	Wages of children.
				Males above sixteen years.	Females above fifteen years.	Children and youth.			
395	Clay	\$19,000 00	15	10	.....	.....	\$1 25	.....	.....
396	do.	10,000 00	6	4	.....	.....	1 25	.....	.....
397	do.	11,000 00	12	8	.....	.....	1 25	.....	.....
398	do.	16,000 00	35	30	.....	2	1 25	.....	\$0 50
399	Fire sand	1,500 00	6	6	.....	.....	1 15	.....	.....
400	Clay	4,000 00	8	5	.....	.....	1 25	.....	.....
401	do.	30,000 00	16	12	.....	2	1 25	.....	60
402	do.	20,000 00	46	28	.....	3	1 20	.....	.....
403	do.	6,000 00	7	6	.....	.....	1 25	.....	.....
404	do.	9,000 00	30	16	.....	.....	1 25	.....	.....
405	do.	15,000 00	25	10	.....	.....	1 25	.....	.....
406	do.	20,000 00	16	12	.....	.....	1 25	.....	.....
407	do.	20,000 00	100	60	.....	3	1 25	.....	60
408	do.	12,000 00	18	15	.....	.....	1 25	.....	.....
Total establishments, 72		\$2,694,900 00	5,152	3,440	41	1,088	.....	.....	.....

PART V.

STATISTICS OF THE POPULATION,
PRODUCTIONS OF AGRICULTURE AND MANUFACTURES,

OF THE

STATE OF NEW JERSEY.

(From U. S. Census Returns, 1880.)

STATISTICS OF POPULATION.

POPULATION OF NEW JERSEY, 1790-1880.

	1880.	1870.	1860.	1850.	1840.	1830.	1820.	1810.	1800.	1790.
Total population.....	1,130,983	906,096	672,035	489,555	373,306	320,823	277,426	245,562	211,149	184,139
Relative rank.....	19	17	21	19	18	14	13	12	10	9

POPULATION IN 1880, SHOWING SEX, COLOR AND NATIVITY.

	Total.	Male.	Female.	Native.	Foreign.	White.	Colored.	Chinese.	Japanese.	Indians.
Total population.....	1,130,983	559,922	571,194	909,416	221,700	1,092,017	38,853	170	2	74

PLACE OF BIRTH.	White.	Colored.	PLACE OF BIRTH.	
New Jersey.....	697,945	27,669	Ireland.....	93,079
New York.....	93,341	1,351	German Empire.....	64,935
Pennsylvania.....	44,736	2,018	England.....	31,285
Massachusetts.....	6,513	70	Scotland.....	7,633
Connecticut.....	5,984	87	Holland.....	4,281
Virginia.....	1,850	2,939	France.....	3,739
Maryland.....	2,838	1,718	Switzerland.....	3,040
Delaware.....	2,395	1,718	Canada.....	2,776
Ohio.....	2,383	26	Sweden.....	1,622
Maine.....	1,936	25	Italy.....	1,547
All other natives.....	10,776	1,098	All other foreign born.....	7,763

POPULATION BY COUNTIES.

COUNTIES.	Popula- tion.
Atlantic.....	18,706
Bergen.....	36,790
Burlington.....	55,403
Camden.....	62,941
Cape May.....	9,765
Cumberland.....	37,694
Essex.....	189,819
Gloucester.....	25,886
Hudson.....	187,950
Hunterdon.....	38,568
Mercer.....	58,058
Middlesex.....	52,286
Monmouth.....	55,535
Morris.....	50,867
Ocean.....	14,455
Passaic.....	68,716
Salem.....	24,580
Somerset.....	27,161
Sussex.....	23,553
Union.....	55,571
Warren.....	36,588

PRODUCTIONS OF AGRICULTURE.

UNITED STATES CENSUS RETURNS (1880).

LIVE STOCK ON FARMS.

CIVIL DIVISIONS.	HORSES.	MULES AND ASSES.	WORKING OXEN.	MILCH COWS.	OTHER CATTLE.	SHEEP.	SWINE.
The State.....	86,940	9,267	2,022	152,078	69,786	237,368	219,069
Atlantic.....	1,167	157	24	1,602	915	6	1,725
Bergen.....	3,777	168	265	4,760	2,408	599	3,689
Burlington ..	7,761	1,362	59	17,575	5,888	41,311	33,070
Camden.....	2,326	581	4	3,960	1,183	2,346	5,706
Cape May.....	902	12	10	1,430	1,327	288	1,867
Cumberland.....	3,849	419	59	5,139	3,485	3,663	6,979
Essex.....	1,790	71	75	4,286	1,323	86	1,282
Gloucester.....	4,731	458	.....	6,983	2,668	7,241	13,039
Hudson.....	275	5	.....	189	13	.....	86
Hunterdon.....	9,673	740	48	15,555	7,444	47,678	25,056
Mercer.....	4,912	862	10	7,936	3,299	18,443	16,154
Middlesex.....	5,318	738	47	6,630	3,456	6,652	9,360
Monmouth.....	7,226	1,311	8	9,995	4,242	28,349	22,079
Morris.....	5,956	275	479	10,620	6,994	14,406	9,561
Ocean.....	1,096	344	47	1,974	1,546	1,855	3,909
Passaic.....	1,587	92	432	3,770	2,516	1,113	2,157
Salem.....	5,742	644	.....	9,226	3,831	11,024	13,469
Somerset.....	6,411	497	35	8,729	4,797	18,193	9,800
Sussex.....	4,546	214	344	18,903	7,100	9,854	17,028
Union.....	1,575	36	56	3,228	1,149	677	1,330
Warren.....	6,320	281	20	9,588	4,202	23,584	21,723

MILCH COWS AND DAIRY PRODUCTS.

CIVIL DIVISIONS.	MILCH COWS ON FARMS.	GALLONS OF MILK.*	POUNDS OF BUTTER MADE ON FARMS.	POUNDS OF CHEESE MADE ON FARMS.
The State.....	152,078	15,472,783	9,513,835	66,518
Atlantic.....	1,602	51,079	71,196	50
Bergen.....	4,760	535,641	427,073	.....
Burlington.....	17,575	1,211,535	645,489	21,064
Camden.....	3,960	457,330	151,140	5,086
Cape May.....	1,430	26,425	53,439	.....
Cumberland.....	5,139	172,002	282,040	886
Essex.....	4,286	1,349,079	260,925	1,274
Gloucester.....	6,983	144,797	455,475	4,982
Hudson.....	189	21,312	2,660	.....
Hunterdon.....	15,555	1,394,429	1,053,955	88
Mercer.....	7,936	510,022	647,535	6,997
Middlesex.....	6,630	1,181,961	441,226	.....
Monmouth.....	9,995	424,318	597,292	525
Morris.....	10,620	1,131,645	708,899	460
Ocean.....	1,974	33,233	116,181	100
Passaic.....	3,770	564,863	275,254	25
Salem.....	9,226	429,962	404,559	6,396
Somerset.....	8,729	440,950	660,108	1,250
Sussex.....	18,903	4,183,145	1,190,571	16,675
Union.....	3,228	965,367	107,161	160
Warren.....	9,588	243,688	961,657	500

*Gallons of milk sold off from farms, including that sent to butter and cheese factories for manufacture.

CEREAL CROPS.

	BARLEY.		BUCKWHEAT.		INDIAN CORN.		OATS.		RYE.		WHEAT.	
	Acres.	Bushels.	Acres.	Bushels.	Acres.	Bushels.	Acres.	Bushels.	Acres.	Bushels.	Acres.	Bushels.
United States.....	1,997,717	44,113,495	848,389	11,817,327	62,368,869	1,754,861,535	16,144,593	407,858,999	1,842,303	19,831,595	35,430,052	459,479,505
The State.....	240	4,091	35,373	466,414	344,555	11,150,705	137,422	3,710,573	106,025	949,064	149,760	1,901,739
Atlantic.....			103	777	4,519	98,173	90	1,569	616	4,675	872	10,519
Bergen.....			1,204	17,135	6,074	178,002	2,250	49,587	3,228	40,372	584	9,189
Burlington.....			674	9,059	34,030	1,256,523	4,237	131,663	13,495	135,149	15,072	241,412
Camden.....			111	1,007	8,250	234,555	438	12,538	2,688	23,198	3,949	67,604
Cape May.....			16	174	4,996	116,428	335	5,080	39	269	1,543	18,196
Cumberland.....			281	3,162	20,339	602,546	2,445	63,324	629	4,131	8,744	157,952
Essex.....	9	128	215	2,741	2,211	92,664	924	28,010	616	9,707	427	8,461
Gloucester.....	5	50	445	4,666	19,156	675,653	1,349	29,299	3,568	27,473	11,233	108,154
Hudson.....					65	2,656						
Hunterdon.....	137	2,225	5,741	82,069	42,343	1,252,598	29,584	854,852	11,057	87,418	21,365	234,795
Mercer.....			913	9,373	21,673	702,937	12,899	396,570	5,107	54,284	11,985	158,417
Middlesex.....	7	68	1,051	10,536	19,738	597,491	9,651	247,080	4,749	52,233	8,197	112,973
Monmouth.....	10	240	515	5,389	30,385	1,048,940	5,314	149,769	12,489	133,560	12,369	179,421
Morris.....	35	844	5,281	57,937	18,579	651,352	13,634	377,576	4,818	41,723	4,889	53,257
Ocean.....			229	2,249	4,626	137,277	443	10,629	2,348	17,807	1,151	12,149
Passaic.....			1,318	17,613	3,169	97,427	1,573	36,209	1,767	21,825	350	5,538
Salem.....			321	3,785	30,460	1,064,227	5,315	142,729	691	3,716	20,256	269,670
Somerset.....	13	181	1,079	12,485	25,655	727,683	20,711	547,230	6,572	56,429	13,974	137,619
Sussex.....	9	181	8,016	119,899	17,354	571,484	10,641	229,587	13,498	98,300	3,138	30,560
Union.....			335	4,442	3,256	122,166	1,424	38,690	527	6,897	334	4,962
Warren.....	15	174	7,525	101,856	27,677	869,923	14,165	358,622	17,613	129,898	9,328	80,891

YIELD PER ACRE.

	Corn.	Oats.	Wheat
United States.....	28.1	25.3	12.9
The State.....	32.36	27.00	12.70
Atlantic.....	21.72	17.43	12.06
Bergen.....	29.81	22.04	15.73
Burlington.....	36.92	31.07	16.02
Camden.....	34.49	28.67	17.12
Cape May.....	23.30	15.16	11.79
Cumberland.....	29.63	25.90	18.06
Essex.....	41.91	30.31	19.81
Gloucester.....	35.27	21.72	9.63
Hudson.....	40.86	.....	.....
Hunterdon.....	29.58	28.90	10.99
Mercer.....	32.43	30.74	13.22
Middlesex.....	30.27	25.60	13.78
Monmouth.....	34.52	28.18	14.51
Morris.....	35.06	27.69	10.89
Ocean.....	29.68	23.99	10.56
Passaic.....	30.74	23.02	15.82
Salem.....	34.94	26.85	13.31
Somerset.....	28.36	26.42	9.85
Sussex.....	32.93	21.57	9.74
Union.....	37.52	27.17	14.86
Warren.....	31.43	25.32	8.67

LIVE STOCK AND CEREAL CROPS.

(In New Jersey.)

*Estimated by the Statistician of the U. S. Department of Agriculture, for the Calendar Year 1880.**

LIVE STOCK.

	Number.	Average price.	Total value.	Average price for U. S.
Horses.....	114,500	\$95 67	\$10,954,215 00	\$58 44
Mules.....	13,563	124 32	1,686,152 00	69 79
Milch cows.....	153,700	33 80	5,195,060 00	23 95
Oxen and other cattle.....	84,500	29 17	2,464,865 00	17 33
Sheep.....	129,748	4 11	533,264 00	2 39
Hogs.....	220,400	8 80	1,939,520 00	4 70

* From Report for 1880.

CEREAL CROPS.

	Quantity produced.	Average yield per acre.	Number of acres.	Value per bushel or ton.	Average value per acre.	Total value- tion.	Average yield per acre in U. S.	Average value.
Indian Corn, bushels.	14,235,200	41.	347,200	\$0 58	\$23 78	\$8,256,416 00	27.6	\$10 91
Wheat, bushels.....	2,460,563	15.5	157,746	1 17	18 13	2,878,859 00	13.1	12 48
Rye, bushels.....	1,297,362	13.3	97,546	90	11 97	1,167,626 00	13.9	10 50
Oats, bushels.....	3,523,500	27.	130,500	41	11 07	1,444,635 00	25.8	9 28
Buckwheat, bushels..	562,240	17.5	32,128	64	11 20	359,834 00	17.7	10 55
Potatoes, bushels.....	4,239,280	76.	55,780	56	42 56	2,373,997 00	91.0	44 00
Hay, tons.....	489,214	.99	494,156	19 12	18 93	9,353,772 00	1.23	14 38
.....	.....	.....	1,316,056	.....	\$19 63*	\$25,835,139 00	.....	.....

* Average cash value per acre of the principal crops of the farm taken together.

STATISTICS OF MANUFACTURES.

UNITED STATES CENSUS RETURNS.

The following tables have been furnished by the United States Census Department, Washington, D. C., from the returns of the tenth census (1880). The statistics have been obtained with the understanding that they are subject to further revision when complete returns have been prepared.*

We are under great obligations, for these most valuable compilations, to the former Superintendent of the Census, Gen. F. A. Walker, and to the present Superintendent, Col. C. W. Seaton, through whose courtesy they were attainable; and to Mr. F. R. Williams, in charge of the "statistics of manufactures" at the census office, who had the trouble and labor of extracting and preparing them for our purpose.

The tables include statistics of each separate industry for the State at large as well as by counties, and special schedules by county totals, the latter embracing details of census reports on the manufacture of agricultural implements, slaughtering and meat packing, and lumber and saw mills; also our own estimates of the statistics of glass, cotton goods and print works, breweries and gas.

* "These statements do not include the statistics of the following named industries, viz.: Breweries and distilleries, coke, cotton goods (except for the city of Newark), the fisheries, gas, glass, mineral and soda waters, mixed textile fabrics, petroleum refining, print works, bleacheries and dye works, salt, and ship building, as the collection of data relating thereto (except for mineral and soda waters) has been assigned to expert special agents whose reports in detail will be published hereafter. Statistics made public at this time are merely preliminary, and subject to such revision and correction as this office may deem necessary by reason of the receipt of additional information.—*U. S. Census Office.*"

GENERAL STATISTICS OF MANUFACTURES.

CONSOLIDATION (STATE).

BUSINESS.	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NO. OF HANDS EMPLOYED.			Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.			
*The State.....	6884	\$93,614,301	131,852	78,832	24,457	10,327	\$41,456,666	\$156,596,323	\$237,199,243
Agricultural im- plements.....	40	208,300	267	204	.....	2	61,972	95,437	242,984
Awnings & tents.	3	1,800	20	14	.....	1	2,100	3,600	16,100
Axle grease	1	50,000	10	10	.....	.....	7,020	34,700	65,888
Bagging, hemp, flax and jute....	3	380,000	692	281	272	139	195,007	335,560	574,835
Bags, paper.....	5	14,550	50	15	27	.....	8,429	28,550	50,275
Bark, ground.....	4	12,000	30	17	.....	.....	2,715	7,300	14,400
Baskets, rattan & willow-ware.....	18	13,825	136	42	28	15	15,135	17,035	46,098
Belting and hose leather.....	8	42,700	50	37	.....	5	17,134	78,296	112,145
Billiard tables & materials.....	1	1,000	4	2	.....	2	1,250	650	3,500
Blacking.....	1	8,000	2	2	.....	.....	500	1,200	3,000
Blacksmithing....	747	486,411	1,301	923	.....	16	332,329	416,108	1,212,651
Bobbins & spools	3	40,000	92	74	.....	7	27,750	21,500	57,650
Bookbinding.....	5	21,200	76	35	11	21	26,904	36,650	69,350
Boot & shoe find- ings.....	3	12,500	13	7	4	1	2,457	13,271	19,530
Boot & shoe up- pers.....	4	18,100	33	11	6	2	10,072	30,940	51,000
Boots and shoes... Boots and shoes, rubber.....	402	1,170,815	5,074	3,118	989	157	1,523,989	2,998,552	5,330,247
Boxes, cigar.....	3	600,000	1,058	546	438	15	275,997	1,419,849	2,366,465
Boxes, fancy and paper.....	4	3,650	32	8	7	8	4,140	9,200	18,166
Boxes, wooden packing.....	16	135,200	660	104	422	69	147,754	184,650	477,600
Brass and copper, rolled.....	15	232,300	193	135	15	22	73,324	214,577	376,990
Brass castings & finishings.....	3	366,000	136	91	.....	45	49,600	223,000	304,500
Bread, crackers, & other bakery products.....	21	501,350	625	560	4	10	261,309	222,249	641,596
Brick and tile	329	737,400	1,077	751	45	95	384,648	1,810,724	2,797,681
Bridges	108	1,735,300	3,126	2,569	26	149	658,367	538,932	1,679,249
Brooms & brushes	2	185,709	285	175	.....	.....	52,484	298,448	415,291
Bronze castings...	33	52,750	225	102	33	11	51,705	76,930	176,342
Bronze powder...	1	60,000	102	90	6	6	37,000	75,000	124,000
Building mate- rials.....	2	40,000	16	15	1	.....	6,900	53,500	79,000
Buttons.....	1	25,000	11	11	.....	.....	6,100	10,000	20,000
Card cutting.....	25	211,600	1,548	544	261	171	331,130	297,500	797,205
Carpentering.....	4	4,800	38	27	.....	4	9,550	4,690	18,350
Carpets	320	780,865	4,480	2,660	6	35	1,241,686	2,093,190	4,028,361
Carpets, rag.....	1	100,000	232	114	60	58	46,000	102,425	169,500
Carriage & wagon materials.....	45	26,375	65	53	1	.....	14,841	33,350	72,208
Carriages and wagons.....	26	341,775	356	292	.....	2	139,219	192,086	498,306
Celluloid & cellu- loid goods.....	130	1,048,740	1,631	1,306	16	29	589,552	764,529	1,824,375
Charcoal.....	5	1,209,000	750	452	174	109	242,498	388,262	1,251,540
Cheese and butter	23	19,075	109	50	.....	.....	10,625	11,750	31,105
Clocks	11	42,220	45	30	1	1	7,982	69,565	90,696
Cloth, enameled..	1	30,000	115	35	25	5	30,000	10,000	47,000
	2	190,000	160	130	.....	30	71,627	603,200	722,000

* See note on preceding page.

STATISTICS OF MANUFACTURES—*Continued.*

BUSINESS.	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NO. OF HANDS EMPLOYED.			Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.			
Clothing, men's...	187	\$1,098,709	4,408	1,193	1,975	74	\$989,716	\$2,870,529	\$4,741,175
Clothing, wom'n's	5	22,200	108	11	41	1	13,325	47,800	79,300
Coal tar.....	1	275,000	63	63	.....	.....	30,000	190,000	300,000
Coffee and spices, roasted, ground	7	116,000	37	33	3	.....	19,079	240,060	319,888
Coffins, burial cases & undertakers' goods...	34	251,770	96	74	1	7	47,583	67,015	166,470
Combs.....	1	5,000	10	8	2	.....	2,400	3,000	6,000
Confectionery.....	58	195,850	397	224	44	37	112,402	593,392	883,955
Cooperage.....	27	190,300	432	338	.....	13	123,788	405,421	697,374
Coppersmithing..	1	30,000	30	27	.....	3	20,000	100,000	175,000
Cordage & twine..	5	381,400	294	114	67	43	71,745	630,943	756,521
Cork cutting.....	2	50,200	65	43	.....	20	15,900	50,400	77,400
Corsets.....	9	104,100	651	53	340	74	115,698	213,880	371,633
Cotton goods*.....	3	1,314,000	1,354	305	894	155	433,955	545,462	1,598,397
Cotton ties.....	1	10,000	4	4	.....	.....	1,000	5,500	8,000
Crucibles.....	2	950,000	575	575	.....	.....	211,000	482,000	800,000
Cutlery and edge tools.....	30	345,311	865	591	3	90	307,275	261,038	723,640
Dentistry, mechanical.....	37	75,600	51	35	6	10	19,258	47,184	157,617
Drugs and chemicals.....	40	3,629,250	1,256	1,135	27	29	557,991	3,278,046	4,694,425
Dyeing & cleaning.....	15	225,350	261	189	28	42	89,368	276,789	413,152
Electro-plating...	2	3,000	13	7	.....	.....	2,800	3,500	11,000
Electric lights.....	1	200,000	75	60	.....	15	35,000	50,000	150,000
Emery, ground..	1	30,000	24	24	.....	.....	7,500	40,000	70,000
Engraving & die sinking.....	15	80,075	145	70	7	9	49,984	17,422	101,928
Engraving, steel..	1	500,000	150	100	.....	50	30,000	35,000	70,000
Explosives & fire-works.....	2	65,000	109	39	40	30	34,000	37,400	88,000
Fancy articles.....	19	189,300	770	359	75	167	258,667	177,577	586,046
Felt goods.....	6	313,000	282	246	21	15	86,170	516,195	685,386
Fertilizers.....	18	1,039,000	937	760	40	21	335,545	1,851,900	2,416,055
Files.....	9	72,600	316	202	8	52	102,350	83,262	214,551
Flax, dressed.....	1	500	2	2	.....	.....	400	950	2,100
Flouring & grist-mill products...	481	3,947,841	1,168	892	.....	6	302,981	7,345,801	8,686,164
Food preparations.....	3	2,500	9	6	.....	.....	1,594	11,200	15,500
Foundry supplies	5	15,500	14	11	.....	.....	6,198	7,600	20,660
Fruits and vegetables, canned and preserved...	32	767,806	3,854	612	1,208	225	212,678	965,637	1,417,086
Furnishing goods men's.....	2	7,000	80	4	68	4	7,400	12,500	62,000
Furniture.....	80	364,975	558	407	18	30	182,084	217,435	548,398
Furniture, chairs	4	2,250	9	6	.....	2	1,600	1,500	5,850
Furs, dressed.....	4	35,200	79	37	13	7	18,785	47,315	96,495
Fruit jar trimmings.....	1	150,000	348	230	93	25	104,501	318,708	485,503
Galvanizing.....	1	6,000	25	25	.....	.....	9,000	18,000	30,000
Gas machines & meters.....	1	40,000	15	11	.....	1	5,000	20,000	37,500
Glass, cut, stained & ornamented..	6	45,000	63	44	.....	5	27,090	41,212	84,893
Gloves & mittens.	2	1,000	14	1	13	.....	2,360	2,000	6,850

*Newark.

STATISTICS OF MANUFACTURES—*Continued.*

BUSINESS.	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NO. OF HANDS EMPLOYED.			Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.			
Gum.....	4	\$14,500	16	11	.....	.....	\$5,410	\$8,400	\$18,810
Gold and silver leaf and foil.....	3	4,000	12	6	.....	.....	1,380	11,580	16,918
Gold and silver, reduced and refined	6	211,800	343	320	.....	3	165,350	8,505,886	8,794,600
Grease and tallow	6	37,200	27	24	.....	.....	10,818	147,540	201,087
Gunpowder	2	76,000	80	65	.....	1	29,263	249,528	365,560
Hair work.....	2	9,750	6	.....	5	1	1,249	2,500	8,100
Hammocks.....	1	10,000	22	19	1	.....	7,800	30,000	50,000
Handles, wooden	3	10,775	16	8	.....	1	3,510	2,690	11,500
Hardware.....	33	507,450	571	392	33	51	217,090	540,793	965,986
Hardware, saddlery.....	36	790,200	1,284	816	133	150	420,294	764,579	1,554,008
Hat and cap materials	5	31,500	62	47	7	1	25,964	31,666	82,490
Hats and caps	79	1,343,900	6,803	4,094	1,271	202	2,113,581	2,103,082	6,152,447
Hosiery and knit goods.....	7	892,070	1,058	318	602	138	237,961	254,043	853,181
House furnishing goods	1	1,900	2	2	.....	.....	1,200	1,000	3,700
Ink.....	5	62,700	62	43	1	4	25,950	64,385	142,919
Instruments, professional & scientific.....	6	5,050	15	13	.....	.....	4,480	2,750	16,900
Iron and steel.....	40	9,099,050	4,792	4,711	.....	81	1,808,448	6,556,283	10,341,896
Iron bolts, nuts, washers & rivets	4	160,050	229	196	.....	13	85,263	334,853	452,862
Iron casting and finishing	51	1,928,471	1,923	1,585	4	103	719,439	2,129,527	3,222,288
Iron forgings.....	9	391,941	422	349	.....	33	150,190	524,352	775,514
Iron pipe, cast.....	2	666,200	565	505	.....	20	168,040	437,688	674,852
Iron pipe, wrought	2	50,500	8	7	.....	.....	3,350	1,925	6,700
Iron railing, wrought	8	3,675	21	9	.....	2	3,654	4,492	12,437
Iron shutters, wrought	1	10,000	102	90	.....	12	40,000	75,000	150,000
Iron wheelbarrows.....	1	100,000	48	48	.....	.....	17,000	14,000	36,000
Ivory and bone work.....	3	7,100	68	29	6	22	13,900	12,800	37,500
Jewelry.....	69	2,557,399	2,602	1,785	264	189	1,116,446	1,968,054	4,084,677
Jewelry and instrument cases	1	1,000	8	4	2	2	1,900	3,000	8,000
Kaolin & ground earth	1	50,000	34	32	2	.....	20,800	21,216	72,000
Kindling wood.....	28	54,700	164	97	2	15	43,958	93,315	181,698
Labels and tags.....	1	90,000	120	70	.....	50	70,000	100,000	300,000
Lamps & reflectors.....	5	47,975	70	33	1	21	20,470	15,456	55,160
Lapidary work	6	5,400	33	25	.....	4	9,900	8,200	29,506
Lard, refined.....	1	25,000	28	28	.....	.....	15,000	150,000	175,000
Lasts.....	1	20,000	17	8	.....	1	4,900	2,950	15,000
Leather, curried.....	56	1,983,746	1,470	1,283	27	78	762,697	7,088,270	8,727,128
Leather, tanned.....	55	1,810,250	1,397	1,226	4	69	716,499	5,262,747	6,748,094
Lime and cement	30	351,700	414	208	.....	.....	71,949	164,655	310,454
Lock and gunsmithing	10	7,300	10	9	.....	1	3,275	3,400	14,400
Looking glasses & picture frames.....	19	160,130	395	245	39	37	104,196	243,650	394,000
Lumber, planed.....	11	162,000	180	136	.....	27	58,742	152,230	254,285

STATISTICS OF MANUFACTURES—Continued.

BUSINESS.	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NO. OF HANDS EMPLOYED.			Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.			
Lumber, sawed...	284	\$1,657,395	1,066	760	.....	8	\$179,693	\$989,979	\$1,627,640
Machinery	136	4,829,750	6,844	5,670	98	236	2,554,809	3,620,837	7,454,045
Malt	1	10,000	4	4	.....	.....	800	13,500	16,875
Mantels, slate, marble & marbleized	1	2,500	6	6	.....	.....	1,458	1,000	3,550
Marble and stone work	85	411,860	817	503	1	41	308,683	286,512	811,990
Masonry, brick & stone	60	201,430	959	643	.....	11	258,594	377,000	794,146
Matches	1	6,000	60	4	15	5	1,840	1,470	3,600
Mattresses and spring beds	9	28,550	88	63	7	8	20,216	58,976	101,900
Meat packing	33	1,800,200	759	587	.....	12	381,178	19,403,185	20,781,390
Millinery & lace goods	6	11,300	79	38	30	7	11,500	6,155	25,680
Models and patterns	9	8,375	26	17	.....	3	8,363	4,647	25,297
Musical instruments and materials	4	26,000	49	28	5	.....	13,900	10,600	30,000
Musical instruments, organs and materials	5	354,022	446	409	2	.....	160,900	215,168	467,000
Musical instruments, pianos and materials	2	10,200	13	6	.....	1	4,500	6,000	13,000
Needles and pins	2	4,500	27	22	1	4	8,700	4,400	16,000
Nets, mosquito & fly	1	7,000	17	2	1	8	3,168	4,118	9,401
Nickel	1	200,000	85	75	.....	.....	38,752	242,658	288,540
Oil cloth, enameled	2	260,000	112	98	.....	14	49,032	383,888	487,218
Oil cloth, floor	6	365,000	290	289	.....	.....	131,100	494,281	686,040
Oil, linseed	1	14,000	2	1	.....	.....	450	9,000	9,500
Oil, lubricating	1	3,000	4	3	.....	.....	1,135	2,035	6,047
Oil, not specified	1	75,000	35	35	.....	.....	7,875	150,000	160,000
Oil, vegetable	2	251,000	32	31	.....	.....	15,200	202,000	302,250
Painting & paper-hanging	159	193,675	1,088	598	2	14	279,338	500,909	798,077
Paints	10	696,000	159	138	7	10	58,204	364,665	499,338
Paper-hangings	4	330,000	253	175	23	10	65,655	329,188	528,363
Paper, not specified	32	1,777,500	858	662	129	33	263,329	1,159,700	1,933,275
Patent medicines & compounds	12	308,500	196	113	50	5	62,076	133,550	639,125
Pencils, lead	1	100,000	170	47	24	99	35,000	35,000	100,000
Pens and pencils, gold and steel	1	150,000	200	22	162	16	70,000	27,000	120,000
Photographing	45	86,550	140	83	19	9	50,047	50,574	172,682
Photograph'g apparatus	1	3,000	8	6	2	.....	3,000	500	5,000
Photograph'g materials	1	7,900	8	8	.....	.....	1,800	14,500	21,000
Pickles, preserves and sauces	3	16,000	28	17	8	3	6,953	44,460	62,412
Pipes, tobacco	2	3,400	19	17	2	.....	3,600	1,100	7,800
Plastering	9	23,500	88	61	.....	1	23,541	20,005	58,900
Plumbing & gas fitting	125	404,176	787	482	.....	28	245,492	448,268	912,352

STATISTICS OF MANUFACTURES—*Continued.*

BUSINESS.	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NO. OF HANDS EMPLOYED.			Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.			
Printers' fixtures.	2	\$62,000	22	19	.....	.....	\$8,500	\$10,300	\$50,000
Printing & publishing	93	880,675	1,285	859	82	120	477,224	408,758	1,224,519
Pumps.....	5	5,500	15	11	.....	.....	3,300	3,650	11,075
Refrigerators	1	500	6	4	.....	.....	1,000	1,000	3,000
Roofing and roofing materials...	19	39,260	112	69	.....	1	28,200	82,141	149,150
Rubber and elastic goods.....	9	560,000	982	521	247	73	269,873	1,113,274	1,556,148
Rubber, vulcanized	8	450,200	801	417	150	31	187,200	724,700	1,226,700
Rules, ivory and wood	2	7,000	18	11	.....	5	5,708	1,940	13,000
Saddlery & harness.....	196	791,078	1,210	883	75	29	376,674	891,590	1,636,951
Sand and emery paper & cloth...	1	500	5	3	.....	1	2,000	1,800	4,000
Sash, doors and blinds.....	67	778,625	957	724	31	28	310,014	614,271	1,123,615
Saws.....	3	235,000	284	197	6	58	120,643	114,462	279,909
Scales and balances	1	6,000	9	8	1	.....	4,462	20,000	30,000
Screws.....	1	12,000	9	9	.....	.....	3,640	2,423	9,000
Sewing machines & attachments..	8	1,152,755	3,314	2,836	75	400	1,519,947	1,484,902	4,640,852
Shirts.....	35	519,800	4,392	443	2,480	214	688,086	1,271,329	2,206,069
Shoddy.....	1	35,000	50	10	5	15	25,000	80,734	137,500
Silk & silk goods.	106	6,952,325	13,931	4,696	5,360	2,493	4,177,745	9,692,136	17,122,230
Silversmithing....	3	128,000	55	47	4	2	33,000	15,500	69,000
Soap and candles	16	1,202,700	436	250	8	176	188,995	1,122,321	1,751,380
Spectacles & eye glasses	2	5,000	26	6	6	5	4,400	4,695	13,000
Sporting goods....	2	16,000	35	24	11	.....	15,000	7,100	45,600
Spring steel, car and carriage....	3	66,393	90	87	.....	1	44,050	125,250	191,100
Stationery goods.	7	52,900	119	62	4	13	22,390	19,600	63,900
Steam fitting and heating apparatus.....	1	40,000	72	72	.....	.....	24,300	22,000	60,000
Stone & earthenware.....	49	2,057,200	3,320	2,054	458	678	1,101,505	1,030,598	2,598,757
Straw goods.....	3	54,800	360	33	192	.....	30,150	145,860	251,900
Sugar & molasses, refined	4	2,110,000	847	692	.....	5	476,216	20,794,961	22,841,258
Surgical appliances	2	4,000	21	4	5	.....	4,624	3,500	16,100
Taxidermy	1	10,000	125	5	100	20	9,000	10,000	25,000
Thread, linen.....	1	500,000	930	200	730	.....	260,000	750,000	1,200,000
Tin, copper and sheet-iron ware	165	656,310	1,156	808	38	88	361,274	796,999	1,404,655
Tobacco, chewing, smoking & snuff.....	6	1,293,000	3,627	990	1,994	181	923,350	3,452,949	5,063,949
Tobacco, cigars...	283	479,595	1,166	746	56	67	332,226	790,106	1,508,810
Tools	3	31,550	49	46	.....	.....	23,450	10,950	38,700
Toys and games...	5	6,500	77	38	22	8	8,600	11,075	25,100
Trunks & valises.	15	991,800	1,860	1,313	160	250	650,822	1,349,855	2,453,923
Type founding....	1	1,000	.....	.....	.....	.....	.....	400	1,200
Umbrellas and canes.....	8	101,800	245	198	.....	41	64,448	65,513	180,300

STATISTICS OF MANUFACTURES—*Continued.*

BUSINESS.	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NO. OF HANDS EMPLOYED.			Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.			
Upholstering and upholster'g materials.....	33	\$97,000	230	93	84	23	\$63,237	\$133,731	\$231,580
Varnish	17	430,000	89	84	.....	3	56,630	551,007	840,774
Vinegar.....	3	12,000	8	8	.....	.....	3,060	27,450	36,800
Watch and clock repairing.....	23	29,750	35	30	.....	1	17,701	18,900	74,060
Watch cases	2	153,000	440	326	17	77	137,342	517,225	659,817
Watch materials..	2	13,000	29	12	4	2	4,800	6,500	15,651
Wax bleaching...	1	2,000	6	5	.....	1	2,000	8,000	12,000
Weavers' supplies	1	5,000	200	10	50	20	5,000	18,000	28,365
Wheelwrighting..	366	398,673	848	586	3	23	210,827	264,702	714,688
Whips	1	70,000	43	32	11	.....	24,000	25,000	90,000
Window blinds & shades	4	154,300	93	70	3	20	36,300	104,000	226,500
Wine.....	5	68,000	48	42	2	.....	8,525	58,361	79,700
Wire & wire work	8	498,800	777	611	38	108	359,999	885,380	1,393,500
Wooden ware.....	3	20,000	31	15	.....	9	10,500	31,500	45,000
Wood preserving.	1	3,000	10	6	.....	.....	3,000	6,000	30,000
Wood, turned and carved.....	28	54,325	178	119	8	21	47,504	49,823	128,770
Woolen goods.....	30	2,531,125	3,374	1,838	997	539	996,484	3,167,355	4,989,507
Worsted goods.....	2	45,000	180	90	35	55	22,200	70,417	119,000
Zinc.....	1	125,000	43	29	.....	.....	45,373	141,548	200,000

STATISTICS OF MANUFACTURES—CONSOLIDATION. BY COUNTIES.

ATLANTIC COUNTY.

BUSINESS.

	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
The County.....	60	\$425,300	384	218	54	9	\$1 55	\$0 90	\$85,663	\$357,933	\$556,858
Blacksmithing	8	10,000	22	19	.....	1	1 60	80	6,075	12,240	27,400
Boots and shoes	8	18,900	136	69	37	3	1 55	1 05	27,550	56,040	100,000
Bread, crackers and other bakery products.....	4	4,000	.....	.....	.....	.....	.....	.....	.....	6,233	10,850
Brick and tile	2	3,500	2	2	.....	.....	1 50	1 00	400	225	1,800
Carriages and wagons.....	1	2,000	4	4	.....	.....	1 65	75	2,000	1,000	5,000
Clothing, men's.....	4	3,800	9	5	1	.....	1 25	.....	950	4,600	6,600
Confectionery.....	1	1,000	.....	.....	.....	.....	.....	.....	.....	1,500	2,000
Flouring and grist mill products.....	4	11,500	11	8	.....	.....	.....	1 00	2,600	53,820	65,398
Hosiery and knit goods.....	1	500	12	4	8	.....	.....	.....	2,200	1,700	5,200
Lumber sawed.....	6	28,100	36	21	.....	.....	1 50	1 05	3,578	15,225	26,760
Paper, not specified.....	2	300,000	45	41	4	.....	2 55	1 00	19,360	152,400	200,000
Printing and publishing.....	3	5,200	14	7	5	.....	1 50	65	3,550	1,500	7,000
Sash, doors and blinds.....	1	20,000	10	10	.....	.....	1 25	75	3,000	30,000	40,000
Tobacco, cigars.....	9	9,700	70	18	3	.....	1 15	.....	13,050	19,250	53,600
Wheelwrighting	5	4,100	10	8	.....	.....	1 70	1 00	1,200	1,600	4,050
Woolen goods.....	1	3,000	3	2	1	.....	Short time.	.....	150	600	1,200

BERGEN COUNTY.

BUSINESS.

	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
The County.....	180	\$1,931,785	2,385	1,687	282	211	\$2 10	\$1 10	\$705,307	\$2,171,168	\$3,443,061
Agricultural implements.....	1	1,400	4	4	.....	.....	1 25	1 15	700	555	1,500
Bark.....	1	4,000	3	3	.....	.....	2 00	1 00	400	800	1,600
Baskets, rattan and willow-ware.....	2	2,200	12	4	4	2	1 25	75	500	400	2,200
Blacksmithing.....	23	13,280	30	25	.....	.....	2 20	1 20	9,041	13,400	36,160
Boots and shoes.....	4	5,850	35	20	12	.....	3 00	2 00	18,000	16,850	39,225
Bread, crackers and other bakery products.....	1	1,000	3	1	.....	.....	.....	1 00	200	1,000	2,000
Brick and tile.....	4	118,000	190	186	.....	2	2 40	1 20	44,000	38,300	107,250
Brooms and brushes.....	1	500	2	2	.....	.....	.....	1 50	900	2,400	4,200
Bronze castings.....	1	60,000	102	90	6	.....	2 50	1 00	37,000	75,000	124,000
Carpentering.....	10	37,100	162	58	.....	.....	1 85	1 10	18,590	29,663	59,513
Carriages and wagons.....	6	27,000	44	40	1	.....	2 15	1 00	13,750	21,975	49,437
Carriage and wagon materials.....	1	1,500	3	3	.....	.....	1 50	1 00	500	200	1,000
Cutlery and edge tools.....	1	2,000	3	3	.....	.....	2 00	75	1,200	200	1,800
Coal tar.....	1	275,000	63	63	.....	.....	2 50	1 60	30,000	190,000	300,000
Drugs and chemicals.....	1	300,000	107	105	.....	2	4 50	1 85	62,400	390,000	500,000
Dyeing and cleaning.....	1	100,000	160	100	20	40	3 00	1 00	45,000	65,000	125,000
Fertilizers.....	1	5,000	4	4	.....	.....	2 50	1 75	1,500	10,000	12,000
Flouring and grist mill products.....	25	160,400	46	41	.....	.....	1 90	1 10	13,815	234,525	285,610
Furniture.....	4	30,200	133	101	15	10	1 70	1 00	37,500	26,900	77,600
Hardware.....	1	1,500	.....	.....	.....	.....	.....	.....	.....	300	550
Hosiery and knit goods.....	1	18,000	37	14	14	9	.....	.....	6,490	10,677	22,600
House furnishing goods.....	1	1,900	2	2	.....	.....	2 00	1 00	1,200	1,000	3,700
Jewelry.....	2	11,500	39	24	4	11	2 00	1 00	11,500	15,000	32,000
Leather, curried.....	1	600	2	1	.....	.....	.....	1 00	50	500	905
Leather, tanned.....	1	400	.....	.....	.....	.....	.....	.....	.....	450	650
Lumber, sawed.....	22	53,220	73	48	.....	.....	1 55	95	8,590	34,726	63,623
Machinery.....	2	23,500	21	21	.....	.....	2 50	1 00	6,312	5,777	16,383
Marble and stone work.....	2	7,000	7	7	.....	.....	2 00	1 50	3,200	2,500	9,000
Masonry, brick and stone.....	2	530	17	11	.....	.....	1 75	1 25	4,952	400	6,800

BERGEN COUNTY—Continued.

BUSINESS.

	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
Millinery and lace goods	5	\$5,300	44	32	2	7	\$1 05	\$0 75	\$7,500	\$375	\$14,100
Musical instruments.....	1	8,000	18	15	1	.....	2 00	1 00	6,000	2,000	9,000
Oils.....	1	75,000	35	35	.....	.....	2 50	1 50	7,875	150,000	160,000
Painting.....	3	250	3	1	.....	.....	.....	1 00	200	625	2,100
Paints.....	1	5,000	5	5	.....	.....	1 50	75	600	2,000	7,000
Paper, writing.....	1	20,000	14	8	4	2	2 50	1 00	3,600	11,100	20,000
Patent medicines and compounds.....	2	20,500	34	25	6	.....	2 15	90	6,250	20,400	37,200
Photographing apparatus.....	1	3,000	8	6	.....	.....	2 00	1 00	3,000	500	5,000
Plumbing and gas-fitting.....	1	2,500	10	3	2	.....	2 50	1 25	800	2,500	3,500
Printers' fixtures.....	1	50,000	10	7	.....	.....	1 75	1 25	3,000	4,000	20,000
Rubber, vulcanized.....	3	64,000	40	28	.....	3	2 40	1 00	11,100	31,500	103,500
Saddlery and harness.....	3	1,130	1	1	.....	.....	3 00	.....	400	1,850	4,175
Sash, doors and blinds.....	3	32,700	14	11	.....	2	1 75	65	3,050	8,750	15,687
Silk goods.....	2	195,000	341	185	173	30	2 00	75	110,000	194,875	413,515
Stationery goods.....	1	15,000	12	12	.....	.....	1 00	75	2,500	1,000	7,000
Tin, copper and sheet-iron ware.....	2	8,000	8	7	.....	.....	2 25	1 00	1,800	3,800	6,500
Tobacco, cigars.....	6	11,280	22	18	.....	2	1 80	1 00	5,430	11,900	23,300
Type founding.....	1	1,000	.....	.....	.....	.....	.....	.....	.....	400	1,200
Watch cases.....	1	125,000	400	308	16	76	2 50	75	134,592	507,225	641,817
Wheelwrighting.....	12	8,425	21	18	.....	1	2 15	1 10	7,605	6,085	20,461
Window blinds and shades.....	1	3,000	15	15	.....	.....	2 00	1 25	8,000	2,000	12,000
Wood, turned and carved.....	2	4,200	13	6	.....	4	1 65	1 00	2,075	1,525	4,500
Woolen goods.....	2	11,000	13	9	3	1	.....	.....	2,640	18,060	25,200

CAMDEN COUNTY.

BUSINESS.	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
The County.....	351	\$5,989,110	5,829	3,688	903	274	\$2 00	\$1 10	\$1,697,380	\$5,096,241	\$8,737,198
Agricultural implements.....	1	17,000	30	22	.....	.....	1 60	1 00	7,200	17,000	30,500
Awnings and tents.....	1	1,200	7	6	.....	.....	2 50	.....	400	10,000	10,000
Baskets, rattan and willow-ware.....	2	750	7	8	.....	.....	1 55	1 00	1,300	775	3,900
Blacksmithing.....	20	9,175	37	25	.....	.....	1 90	1 05	9,986	13,346	38,668
Boots and shoes.....	37	65,775	342	218	91	4	1 60	95	103,137	139,913	349,965
Boxes, cigar.....	1	300	3	1	1	.....	1 25	75	520	1,000	2,540
Brass castings and finishings.....	1	30,000	14	14	.....	.....	2 50	1 00	6,000	15,000	22,500
Bread, crackers and other bakery products.....	29	64,900	66	37	1	.....	1 55	1 00	13,291	67,672	122,284
Brick and tile.....	6	118,500	136	119	.....	17	1 75	1 05	24,441	22,001	57,667
Brooms and brushes.....	1	100	.....	.....	.....	.....	.....	.....	.....	2,000	2,500
Building materials.....	1	25,000	11	11	.....	.....	2 50	1 50	6,100	10,000	20,000
Carpentering.....	19	85,000	137	132	.....	.....	2 35	1 15	57,801	77,176	176,382
Carpets, rag.....	7	5,600	13	10	.....	.....	1 50	85	2,940	7,600	17,420
Carriages and wagons.....	9	190,000	235	209	2	7	2 15	1 25	68,528	62,100	208,700
Clothing, men's.....	1	1,000	12	2	6	.....	2 00	75	2,000	4,000	7,250
Coffee and spices, roasted and ground.....	2	27,000	7	3	3	.....	2 50	1 35	2,890	120,560	162,120
Coffins, burial cases and undertakers' goods.....	6	116,700	9	8	.....	.....	2 40	1 25	4,559	3,600	12,120
Combs.....	1	5,000	10	8	2	.....	1 50	1 00	2,400	3,000	6,000
Confectionery.....	9	9,400	42	20	6	2	1 90	95	9,166	33,200	52,970
Cooperage.....	2	1,000	2	2	.....	.....	3 00	1 00	575	600	3,000
Dentistry, mechanical.....	2	3,800	19	14	4	.....	2 25	1 00	5,448	10,800	23,800
Drugs and chemicals.....	3	620,000	140	109	.....	1	2 10	1 00	56,400	273,675	483,073
Dyeing and cleaning.....	2	107,000	58	58	.....	.....	2 00	1 40	23,668	193,514	234,952
Fertilizers.....	1	250,000	50	50	.....	.....	1 75	1 25	20,000	95,000	200,000
Flouring and grist mill products.....	7	103,500	28	25	.....	.....	1 55	1 10	9,623	282,750	319,109
Fruits and vegetables, canned and preserved.....	2	110,000	400	55	17	5	2 00	1 00	38,080	260,000	330,000
Furniture.....	6	11,550	28	21	.....	.....	2 25	1 25	7,138	7,400	22,280
Furnishing goods, men's.....	1	7,000	80	4	68	4	1 15	1 25	7,400	12,500	62,000
Galvanizing.....	1	6,000	25	25	.....	.....	2 50	1 25	9,000	18,000	30,000

BUSINESS.

	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
Hosiery and knit goods.....	1	\$500	8	4	2	2	.....	.....	\$800	\$3,600	\$5,000
Gold and silver leaf foil.....	1	500	.....	12	.....	.....	.....	.....	5,818	2,080	3,600
Grease and tallow.....	3	28,000	12	.....	.....	.....	.....	.....	.....	87,540	123,587
Hair work.....	1	750	4	.....	.....	.....	.....	.....	624	1,300	3,100
Hats and caps.....	3	3,200	9	6	3	1	4 00	50	2,785	2,950	8,791
Ink, printing.....	1	10,000	5	5	.....	.....	.....	1 50	2,250	7,883	13,919
Iron pipe, cast.....	2	666,200	563	505	.....	20	2 40	1 10	168,040	437,688	674,832
Jewelry and instrument cases.....	1	1,000	8	4	.....	.....	.....	1 25	1,900	3,000	8,000
Kindling wood.....	2	1,100	5	4	2	2	2 00	1 15	1,350	25,500	38,000
Leather, curried.....	1	15,000	5	2	.....	.....	1 15	.....	240	17,450	21,250
Lime.....	1	9,000	2	1	.....	.....	.....	80	416	500	3,000
Lock and gunsmithing.....	1	3,600	3	3	.....	.....	2 50	1 35	800	3,000	3,000
Looking glass and picture frames.....	2	2,000	3	3	.....	.....	2 50	1 00	1,200	800	3,000
Lumber, sawed.....	1	457,000	69	54	.....	3	1 65	2 00	21,225	216,570	319,000
Machinery.....	6	565,000	619	509	.....	22	2 40	1 30	253,051	445,226	878,050
Marble and stone work.....	5	6,300	16	9	1	1	2 60	1 10	3,000	6,475	17,300
Masonry, brick and stone.....	14	32,690	132	79	.....	.....	2 40	1 45	40,615	43,200	113,200
Models and patterns.....	1	800	7	3	.....	3	1 75	75	1,820	2,210	7,820
Nickel.....	1	200,000	85	75	.....	.....	2 00	1 25	38,752	242,658	288,540
Oil cloth, floor.....	2	145,000	148	148	.....	.....	2 15	1 40	68,000	241,000	352,000
Painting.....	7	4,400	73	36	.....	.....	2 05	1 35	17,177	17,925	47,520
Paints.....	3	140,000	83	66	7	10	2 20	1 05	26,100	205,171	262,087
Paper-hanging.....	10	17,400	45	27	.....	.....	2 30	1 10	11,741	15,853	40,288
Paper, wrapping.....	1	80,000	32	28	4	.....	2 80	1 00	12,000	15,000	96,000
Patent medicines and compounds.....	3	3,300	8	3	.....	1	1 65	75	1,396	5,100	11,675
Pens and pencils, gold and steel.....	1	150,000	200	22	162	16	2 00	1 00	70,000	27,000	120,000
Photography.....	2	2,900	2	2	.....	.....	2 50	80	1,040	620	2,780
Photographing materials.....	1	7,900	8	8	.....	.....	1 25	1 00	1,800	14,500	21,000
Plastering.....	5	5,100	39	19	.....	.....	2 00	1 50	8,541	7,805	21,650
Plumbing and gas-fitting.....	8	16,000	39	30	.....	.....	2 80	1 35	14,329	18,340	55,050
Printing and publishing.....	9	96,225	103	70	.....	11	2 95	1 00	26,350	15,914	75,250

CAMDEN COUNTY—Continued.

BUSINESS.	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
Pumps.....	1	\$500	2	1	.....	.....	\$2 00	\$1 00	\$150	\$700	\$1,350
Roofing and roofing materials.....	8	20,560	40	19	.....	.....	2 05	1 25	9,610	26,341	53,350
Saddlery and harness.....	4	25,350	19	15	.....	.....	1 85	1 25	7,024	15,946	28,700
Sash, doors and blinds.....	4	172,000	122	107	.....	.....	1 60	1 15	41,624	113,464	186,200
Shirts.....	1	40,000	200	8	175	15	1 00	75	55,000	90,000	150,000
Silk goods.....	1	9,000	58	8	41	9	1 25	50	10,800	11,425	26,000
Slaughtering and meat packing.....	1	10,000	7	7	.....	.....	2 00	1 50	3,500	43,000	50,000
Soap and candles.....	2	304,000	25	17	8	.....	2 10	1 30	12,116	183,100	238,700
Stone and earthenware.....	1	3,000	3	3	.....	.....	1 75	1 50	1,500	400	3,000
Straw goods.....	1	34,000	175	25	150	.....	2 00	50	26,500	120,000	170,000
Tin, copper and sheet-iron ware.....	6	38,950	95	74	1	6	2 50	2 20	46,893	81,100	156,421
Tobacco, cigars.....	17	24,575	60	40	.....	2	1 75	1 10	16,478	17,937	56,448
Vinegar.....	1	1,000	.....	.....	.....	.....	.....	.....	.....	150	900
Watch and clock repairing.....	4	7,000	6	5	.....	.....	2 65	1 15	2,300	1,800	8,030
Wheelwrighting.....	10	13,150	27	16	.....	.....	2 00	1 15	6,625	9,110	21,700
Woolen goods.....	4	588,000	525	355	118	52	.....	.....	151,909	465,509	882,500
Worsted goods.....	1	35,000	120	40	25	55	.....	.....	2,200	30,267	54,000

CAPE MAY COUNTY.

BUSINESS.	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
The County	29	\$57,550	113	82	.....	.....	\$1 85	\$1 15	\$20,733	\$71,785	\$134,211
Blacksmithing	4	3,300	11	7	.....	.....	1 95	1 25	3,300	2,625	11,000
Carpentering	1	450	2	2	.....	.....	1 50	.....	468	100	1,000
Flouring and grist mill products	7	21,100	10	10	.....	.....	1 45	90	2,405	47,035	56,716
Lumber sawed	4	6,800	12	9	.....	.....	1 30	1 00	1,190	10,500	20,645
Marble and stone work	1	1,000	4	4	.....	.....	2 50	1 50	1,000	1,000	4,000
Saddlery and harness	1	2,000	2	2	.....	.....	2 00	1 25	500	500	1,500
Tin, copper and sheet-iron ware	3	14,500	44	24	.....	.....	2 00	1 00	4,800	3,000	15,500
Wheelwrighting	8	8,400	28	24	.....	.....	2 00	1 00	7,070	7,025	23,850

CUMBERLAND COUNTY.

BUSINESS.

	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
The County...	291	\$1,706,834	5,085	1,089	1,571	130	\$1 65	\$1 05	\$735,416	\$2,026,919	\$3,351,730
Agricultural implements.....	1	500	2	2	.....	.....	1 25	.....	100	240	1,400
Blacksmithing.....	46	33,625	84	55	.....	.....	1 90	1 05	14,993	27,378	72,252
Boots and shoes.....	22	73,925	578	335	217	12	1 60	1 00	176,995	286,582	546,009
Boxes, fancy and paper.....	2	2,400	25	3	17	3	2 00	1 15	5,000	4,000	11,300
Boxes, wooden, packing.....	1	3,000	4	3	.....	.....	1 60	.....	1,480	3,400	7,200
Bread, crackers and other bakery products.....	14	23,900	40	23	3	1	1 25	90	7,589	30,544	53,278
Brick and tile.....	7	28,500	88	66	.....	6	1 60	1 10	11,320	4,705	21,600
Brooms and brushes.....	3	1,700	6	5	.....	.....	2 00	1 50	1,350	3,100	7,700
Buttons.....	5	12,000	145	67	12	9	2 15	1 00	25,100	29,800	70,825
Carpentering.....	9	21,400	130	50	.....	.....	1 75	1 35	23,920	49,070	87,600
Carpets, rag.....	4	1,250	10	9	.....	.....	1 40	1 00	3,950	9,000	9,000
Carriages and wagons.....	10	21,100	54	39	.....	.....	1 75	1 10	12,775	16,525	38,550
Clothing, men's.....	6	7,850	555	12	173	.....	1 05	65	18,100	59,000	146,450
Coffins, burial cases and undertakers goods.....	3	4,075	3	3	.....	.....	1 50	.....	600	2,100	4,800
Confectionery.....	2	2,300	7	3	1	.....	1 40	1 00	1,125	2,000	4,200
Cooperage.....	2	800	5	2	.....	.....	.....	1 00	300	700	2,000
Cordage and twine.....	1	1,000	5	.....	1	1	1 50	1 00	600	2,341	3,532
Drugs and chemicals.....	1	5,000	10	7	.....	.....	1 50	1 00	2,400	8,000	8,000
Fancy articles.....	1	1,000	20	.....	12	.....	75	50	1,000	6,000	10,000
Flouring and grist mill products.....	21	245,646	66	46	.....	1	1 60	1 05	18,220	393,085	460,844
Foundry facings.....	1	6,000	3	3	.....	.....	1 40	.....	1,598	3,000	6,460
Fruits and vegetables, canned and preserved.....	8	165,700	1,161	174	282	44	1 90	1 00	57,538	203,987	316,537
Furniture.....	2	325	4	4	.....	.....	2 00	1 00	900	575	2,100
Gloves and mittens.....	1	400	8	.....	8	.....	1 00	50	800	1,000	3,600
Iron castings and finishings.....	1	15,000	10	10	.....	.....	2 00	1 50	3,381	3,130	8,133
Iron pipe, wrought.....	1	500	3	2	.....	.....	1 25	1 00	500	800	1,500
Iron and steel.....	1	500,000	311	311	.....	.....	2 00	95	124,000	292,700	441,000
Leather, curried.....	1	3,663	2	2	.....	.....	2 00	1 50	500	5,475	6,624
Leather, tanned.....	1	7,000	4	4	.....	.....	2 00	1 50	1,860	6,213	9,237

ESSEX COUNTY.

BUSINESS.

	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
The County.....	1,544	\$27,087,736	42,481	25,916	6,108	2,911	\$2 20	\$1 20	\$14,074,653	\$45,953,928	\$73,728,949
Agricultural implements.....	2	2,200	5	2	.....	2	2 00	1 00	1,452	1,790	4,003
Awings and tents.....	1	100	3	1	.....	.....	2 00	1 00	200	400	1,100
Belting and hose, leather.....	2	4,000	13	7	.....	4	2 15	50	3,900	16,600	22,200
Blacksmithing.....	71	41,125	154	114	.....	.....	2 15	1 40	56,818	49,327	153,617
Bookbinding.....	2	15,300	46	25	3	18	2 35	75	18,104	30,050	50,850
Boots and shoes.....	62	511,820	1,802	1,009	251	99	2 10	1 25	657,054	1,191,860	2,117,603
Boot and shoe findings.....	1	2,500	4	3	.....	1	1 50	.....	1,657	11,771	16,000
Boot and shoe uppers.....	4	18,100	33	11	6	2	2 00	1 00	10,072	30,940	51,000
Boxes, cigar.....	1	1,000	8	2	1	.....	75	50	500	700	2,046
Boxes, fancy and paper.....	11	109,800	551	94	351	58	2 00	90	125,874	152,850	412,450
Brass casting and finishing.....	11	135,000	257	197	4	6	2 50	1 20	94,630	100,468	273,110
Brass, rolled.....	2	66,000	46	46	.....	.....	2 25	1 15	14,600	33,000	104,500
Bread, crackers and other bakery products.....	85	183,460	322	254	9	16	2 00	1 45	141,215	682,948	1,008,211
Brick and tile.....	1	1,000	1	1	.....	.....	.....	1 00	312	500	1,500
Bronze powder.....	1	40,000	16	15	1	.....	2 00	1 50	6,900	53,500	79,000
Brooms and brushes.....	12	36,375	163	69	25	11	2 10	1 20	40,658	48,617	118,442
Buttons.....	17	188,100	1,247	376	199	158	2 60	1 00	258,510	224,500	613,380
Carpentering.....	89	253,100	2,246	1,240	.....	25	2 15	1 30	631,425	756,108	1,603,328
Carpets, rag.....	8	2,185	5	5	.....	.....	.....	1 30	1,772	2,620	7,700
Carriages and wagons.....	1	320,950	403	289	2	11	2 20	1 50	168,513	218,450	499,817
Carriage and wagon materials.....	5	128,475	130	105	.....	.....	2 85	1 25	57,219	98,461	212,506
Celluloid and celluloid goods.....	5	1,209,000	750	452	174	109	2 50	1 10	242,498	388,262	1,251,540
Clothing, men's.....	46	477,144	1,281	475	566	27	2 05	1 15	457,798	1,160,294	2,094,151
Clothing, women's.....	4	21,500	70	10	23	.....	2 00	1 20	10,325	34,800	59,300
Cloth finishing.....	2	190,000	160	130	.....	30	2 40	1 50	71,627	603,200	722,000
Clocks.....	1	80,000	115	35	25	5	2 50	1 50	30,000	10,000	47,000
Coffee and spices, roasted and ground.....	3	50,000	19	19	.....	.....	2 25	1 50	11,289	49,350	77,784
Coffins, burial cases and undertakers' goods.....	3	95,000	39	33	.....	6	2 65	1 15	29,880	35,000	93,500
Copper, rolled.....	1	300,000	90	45	.....	45	4 50	50	35,000	140,000	200,000

ESSEX COUNTY—Continued.

BUSINESS.	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
Cooperage.....	8	\$1,600	7	7	.....	.....	\$2 25	\$1 50	\$3,115	\$3,950	\$11,415
Confectionery.....	13	87,100	203	129	14	6	2 00	1 15	62,277	367,905	521,350
Cordage and twine.....	2	5,400	9	4	.....	3	2 40	1 25	3,000	8,600	17,800
Cork, cutting.....	1	200	5	8	.....	.....	1 00	.....	900	400	2,400
Cotton goods.....	3	1,314,000	1,354	305	894	155	.....	.....	433,955	545,462	1,598,397
Corsets.....	8	103,800	638	53	340	61	1 90	90	113,698	213,080	368,133
Cutlery and edge tools.....	22	274,211	678	433	1	78	2 50	1 35	243,132	195,172	548,705
Dentistry, mechanical.....	23	51,500	16	7	2	7	2 20	80	6,285	22,334	96,484
Drugs and chemicals.....	16	1,690,150	530	456	25	22	2 10	1 30	223,406	841,982	1,380,329
Dyeing and cleaning.....	2	1,300	8	2	3	1	2 00	1 00	2,000	575	6,600
Electro-plating.....	2	3,000	13	7	.....	.....	2 75	1 15	2,800	3,500	11,000
Electric lights.....	1	200,000	75	60	.....	15	2 00	1 25	35,000	50,000	150,000
Engraving and die sinking.....	12	71,800	138	65	7	8	2 75	1 30	46,555	16,082	93,954
Fancy articles.....	12	178,000	669	337	51	162	1 95	1 30	247,351	158,015	542,499
Felt goods.....	1	50,000	6	6	.....	.....	.....	.....	2,750	9,050	18,600
Fertilizers.....	2	475,000	580	480	.....	20	2 40	1 25	245,000	1,108,400	1,416,250
Files.....	6	50,900	228	139	8	29	2 05	95	74,150	72,250	169,145
Flouring and grist mill products.....	13	107,500	48	42	.....	1	1 95	1 10	17,791	346,260	421,823
Food preparations.....	2	1,500	4	3	.....	.....	1 30	.....	1,094	8,100	11,500
Foundry facings.....	1	1,500	2	1	.....	.....	2 00	1 50	1,000	500	2,700
Furniture.....	24	165,850	196	146	3	15	2 35	1 50	78,820	100,020	240,753
Furs, dressed.....	3	23,200	49	13	9	5	2 60	90	10,285	42,315	78,495
Gas machines and meters.....	1	40,000	15	11	.....	1	2 50	1 25	5,000	20,000	37,500
Glass, cut, stained and ornamented.....	6	45,000	63	44	.....	5	2 65	1 50	27,090	41,212	84,893
Gold and silver, reduced and refined.....	6	211,800	343	320	.....	3	2 40	1 45	165,350	8,505,886	8,794,600
Gloves and mittens.....	1	600	6	1	5	.....	1 00	80	1,560	1,000	3,250
Hair cloth.....	2	12,500	93	7	61	15	1 50	75	19,600	25,000	51,000
Hammocks.....	1	10,000	22	19	1	.....	2 00	1 00	7,800	30,000	50,000
Handles, wooden.....	2	5,275	9	4	.....	1	1 50	75	1,186	1,650	5,600
Hats and caps.....	74	1,310,700	6,659	4,002	1,245	196	2 55	1 20	2,065,796	1,975,132	5,973,656
Hat and cap materials.....	4	19,500	56	41	7	1	2 40	1 10	24,300	15,300	57,530

ESSEX COUNTY—Continued.

BUSINESS.

	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Children and youth.	Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.						
Hardware.....	28	\$292,350	397	279	22	41		\$2 50	\$1 25	\$139,863	\$376,743	\$672,736
Hardware, saddlery.....	36	790,200	1,284	816	133	150		2 20	1 10	420,291	764,579	1,554,008
Hosiery and knit goods.....	1	104,570	226	95	68	63				55,391	69,919	201,631
Hunting and fishing tackle.....	1	1,000									100	600
Ink.....	3	12,700	27	13	1	4		1 75	65	5,500	16,500	29,000
Instruments, professional and scientific.....	3	1,850	10	9				1 95	1 25	3,480	1,500	8,500
Iron castings and finishing.....	10	218,000	414	332	4	25		2 30	1 30	146,590	271,800	508,500
Iron railing and wrought.....	2	525	5	3				1 75	1 50	1,113	817	2,787
Iron and steel.....	3	600,000	281	281				2 50	1 48	126,144	471,946	771,078
Ivory and bone work.....	2	5,600	18	4				1 75	1 00	1,900	2,800	7,500
Jewelry.....	65	2,517,899	2,518	1,726	259	178		2 65	1 35	1,087,446	1,931,054	4,002,677
Kindling wood.....	13	11,450	78	41		10		1 55	1 05	17,766	28,620	62,723
Labels and tags.....	1	90,000	120	70		50		3 00	1 50	70,000	100,000	300,000
Lamps and reflectors.....	3	42,500	64	29	1	20		2 68	85	19,550	11,860	48,600
Lapidary work.....	6	5,400	33	25		4		2 35	1 10	9,900	8,200	29,506
Lasts.....	1	20,000	17	8		1		2 50	1 50	4,900	2,950	15,000
Leather, curried.....	32	1,863,183	1,370	1,207	25	77		2 40	1 45	729,112	6,742,728	8,300,722
Leather, tanned.....	27	1,652,350	1,285	1,142	3	66		2 45	1 55	680,973	4,952,176	6,345,856
Lime and cement.....	5	215,500	129	78				2 05	1 25	34,745	80,250	143,700
Lock and gunsmithing.....	1	1,500	1	1				1 50		450	100	2,000
Looking glass and picture frames.....	7	17,530	41	18		8		2 00	95	11,156	26,750	47,650
Lumber, planed.....	4	44,000	91	66		16		2 40	1 55	31,592	61,830	114,785
Lumber, sawed.....	7	130,000	57	36				1 65	1 15	11,250	40,540	77,300
Machinery.....	46	1,270,350	1,201	956		36		2 65	1 40	546,192	662,522	1,493,916
Marble and stone work.....	16	191,435	408	221		34		2 70	1 45	179,659	111,110	371,775
Masonry, brick and stone.....	14	119,300	274	209		11		2 20	1 20	79,914	120,200	242,546
Mattresses and spring beds.....	3	2,550	13	5	2	1		2 00	1 00	3,074	10,500	17,900
Meat packing.....	7	232,000	112	88				2 20	1 50	53,822	1,368,288	1,527,660
Models and patterns.....	5	5,250	13	9				2 40	1 00	4,351	2,024	12,077
Musical instruments, organs and materials.....	1	250,000	225	225				2 25	1 00	94,000	130,000	275,000
Musical instruments, pianos and materials.....	2	10,200	13	6		1		2 75		4,500	6,000	13,000

ESSEX COUNTY—Continued.

BUSINESS.

	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
Oil cloth, floor.....	2	\$5,000	7	6	.....	.....	\$1 50	.....	\$2,100	\$3,281	\$9,040
Oil, lubricating.....	1	3,000	4	3	3	.....	2 00	\$1 50	1,135	2,035	6,047
Painting.....	35	59,175	303	158	.....	10	2 15	1 55	79,377	86,175	217,607
Paints.....	1	8,000	6	6	.....	.....	2 50	1 50	4,004	33,494	40,301
Paper hangings.....	1	60,000	28	14	10	.....	2 34	1 00	8,957	58,500	73,894
Paper, not specified.....	8	205,000	149	118	13	9	2 34	1 25	50,050	217,178	358,880
Photography.....	11	14,650	39	22	1	4	2 05	1 25	13,289	10,004	41,252
Plumbing and gas-fitting.....	52	221,851	407	214	.....	18	2 40	1 45	124,340	208,145	439,206
Printing and publishing.....	27	291,650	454	281	25	28	2 50	1 15	178,963	163,900	446,105
Pickles, preserves and sauces.....	1	3,000	4	4	.....	.....	.....	1 872	5,000	1,000	10,000
Refrigerators.....	1	500	6	4	.....	.....	2 00	1 50	1,000	1,000	3,000
Rubber and elastic goods.....	1	175,000	120	54	48	3	2 50	1 30	46,650	245,000	343,000
Rules, wood and ivory.....	2	7,000	18	11	.....	5	1 85	1 00	5,708	1,940	13,000
Roofing and roofing materials.....	1	500	12	8	.....	.....	2 00	.....	5,000	5,000	15,000
Saddlery and harness.....	45	501,225	858	638	69	25	2 05	1 15	279,577	681,380	1,200,004
Sash, doors and blinds.....	16	260,375	449	316	80	21	2 25	1 25	148,125	204,189	419,496
Sand and emery paper and cloth.....	1	500	5	3	.....	.....	2 50	1 50	2,000	1,800	4,000
Saws.....	1	35,000	150	90	6	50	2 50	1 00	60,000	70,000	150,000
Scales and balances.....	1	6,000	9	8	1	.....	2 00	1 25	4,462	20,000	30,000
Sewing machines, attachments and cases.....	6	203,300	1,012	1,009	.....	.....	2 30	1 40	430,654	602,100	1,062,150
Shirts.....	11	171,900	816	60	513	21	2 00	1 00	164,549	264,094	507,806
Silk goods.....	3	328,500	339	95	158	61	2 15	65	105,140	280,390	468,250
Silver smelting.....	3	128,000	55	47	4	2	2 50	1 15	83,000	15,500	69,000
Soap and candles.....	3	20,300	8	7	.....	1	1 85	1 15	2,450	8,866	14,095
Springs, steel, car and carriage.....	3	66,393	90	87	.....	1	2 50	1 35	44,050	125,250	191,100
Stationery goods.....	5	35,400	73	34	4	9	1 55	1 10	15,090	16,600	47,900
Stone and earthenware.....	6	38,700	74	42	1	3	2 10	1 25	24,138	10,694	53,750
Sugar and molasses, refined.....	1	10,000	12	12	.....	.....	.....	1 50	2,900	35,000	41,644
Surgical appliances.....	2	4,000	21	4	5	.....	2 50	75	4,624	3,500	16,100
Tin, copper and sheet-iron ware.....	15	222,750	423	280	87	72	2 40	1 30	130,450	369,884	542,613
Tobacco, cigars.....	68	189,945	479	249	48	38	2 00	1 10	129,767	465,606	726,282

ESSEX COUNTY—Continued.

BUSINESS.	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
Toys and games.....	2	\$2,000	16	6	1	3	\$2 00	\$1 00	\$3,300	\$1,775	\$6,100
Trunks and valises.....	13	786,800	1,500	1,106	90	167	2 25	1 20	549,322	1,059,855	2,013,923
Umbrellas and canes.....	3	650	6	2	.....	1	2 25	.....	1,248	1,179	6,400
Upholstery and upholstering materials.....	8	53,950	75	48	16	3	2 20	1 20	24,100	55,405	88,030
Varnish.....	16	390,000	83	78	.....	3	3 00	1 70	52,262	521,007	792,774
Watch and clock repairing.....	12	14,500	18	15	.....	1	2 75	1 00	10,800	14,500	52,830
Watch materials.....	2	13,000	29	12	4	2	2 50	1 00	4,800	6,500	15,651
Wheelwrighting.....	34	59,480	95	62	.....	7	2 25	1 25	33,014	36,485	96,610
Wire and wire work.....	4	257,500	219	168	33	2	3 75	1 15	77,248	152,000	297,000
Wood, turned and carved.....	8	7,550	25	15	.....	1	2 00	1 00	7,590	2,716	14,300
Wooden ware.....	3	20,000	31	15	.....	9	2 15	1 00	10,500	31,500	45,000
Woolen goods.....	4	541,000	528	296	117	115	.....	.....	171,537	580,597	869,837

GLOUCESTER COUNTY.

BUSINESS.

BUSINESS.	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above sixteen years.	Children and youth.					
The County.....	154	\$705,886	531	337	41	3	\$1 75	\$1 10	\$120,943	\$603,988	\$1,275,602
Agricultural implements.....	2	6,500	19	19	.....	.....	1 75	1 25	4,000	7,350	14,620
Baskets, rattan and willow-ware.....	2	125	4	1	.....	.....	1 90	.....	100	140	1,100
Blacksmithing.....	43	37,976	82	46	.....	.....	1 90	1 10	14,910	19,943	59,675
Boots and shoes.....	8	10,900	28	14	5	1	1 90	1 15	5,600	15,672	26,944
Bread, crackers and other bakery products.....	1	2,000	10	4	.....	.....	1 50	1 00	1,200	10,000	16,000
Brick and tile.....	2	2,300	12	10	.....	.....	1 50	1 25	1,520	1,050	7,970
Carpentering.....	2	1,400	8	5	.....	.....	2 00	1 00	1,900	7,250	11,000
Carpets, rag.....	1	800	3	1	.....	.....	1 60	1 00	150	700	1,400
Carriages and wagons.....	3	9,000	28	18	.....	2	1 65	1 25	8,700	10,000	28,500
Charcoal.....	1	900	3	1	.....	.....	.....	1 25	600	1,800	3,000
Coffins, burial cases and undertakers' goods.....	2	1,150	3	2	.....	.....	1 40	.....	450	600	1,600
Cooperage.....	3	700	15	12	.....	.....	1 50	1 25	1,900	1,750	5,000
Flouring and grist mill products.....	20	209,950	37	29	.....	.....	1 70	95	10,465	367,813	432,770
Fruits and vegetables, canned and preserved.....	1	3,000	20	3	9	.....	2 00	1 00	900	700	2,500
Furniture.....	2	4,000	4	2	.....	.....	1 65	.....	250	1,200	3,600
Furniture, chairs.....	1	100	3	2	.....	.....	1 00	.....	700	700	2,400
Iron castings and finishing.....	2	1,700	5	5	.....	.....	1 50	1 00	900	2,550	4,800
Leather, curried.....	1	4,000	1	1	.....	.....	2 00	.....	400	3,875	5,040
Leather, tanned.....	1	6,000	2	2	.....	.....	1 50	1 00	700	4,100	5,400
Lime.....	2	3,200	5	4	.....	.....	.....	1 15	1,600	2,400	5,600
Lumber, planed.....	1	3,000	8	1	.....	.....	2 00	1 25	600	2,000	4,000
Lumber, sawed.....	15	44,550	60	44	.....	.....	1 75	1 10	8,978	39,300	66,533
Machinery.....	1	3,500	2	1	.....	.....	1 66	.....	700	1,000	3,000
Marble and stone work.....	1	2,000	2	2	.....	.....	1 50	1 00	600	1,500	3,000
Masonry, brick and stone.....	1	500	6	4	.....	.....	1 75	1 00	1,200	3,000	5,500
Patent medicines and compounds.....	1	250,000	97	70	27	.....	4 00	1 25	40,000	75,000	500,000
Printing and publishing.....	1	2,000	3	1	.....	.....	1 50	1 50	200	500	1,500
Saddlery and harness.....	7	8,275	16	7	.....	.....	1 35	1 00	2,780	7,000	12,850
Tin, copper and sheet-iron ware.....	6	66,160	17	8	.....	.....	1 95	1 05	2,265	5,970	14,000
Tobacco, cigars.....	1	300	.....	.....	.....	.....	.....	.....	.....	125	500
Wheelwrighting.....	19	19,900	28	18	.....	.....	1 90	1 25	6,675	10,100	27,300

HUDSON COUNTY.

BUSINESS.

	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
The County.....	754	\$14,121,325	16,123	9,735	3,422	1,194	\$2 25	\$1 20	\$5,588,036	\$52,126,875	\$64,565,474
Awnings and tents.....	1	500	10	7	.....	.....	2 00	1 00	1,500	2,500	5,000
Axle grease.....	1	50,000	10	10	.....	.....	3 50	1 50	7,020	34,700	65,888
Billiard tables and materials.....	1	1,000	4	2	.....	2	.....	1 00	1,250	650	3,500
Baskets, rattan and willow goods.....	1	200	.....	.....	.....	.....	.....	.....	.....	220	600
Blacksmithing.....	54	45,950	127	105	.....	3	2 20	1 40	50,763	48,940	150,220
Boots and shoes.....	53	34,895	64	50	3	2	1 85	1 25	21,787	43,088	100,996
Boxes, wooden, packing.....	3	170,600	112	94	.....	18	1 90	1 50	54,824	157,952	280,070
Brass castings and finishing.....	4	180,600	115	111	.....	4	2 70	1 35	47,729	89,781	157,886
Bread, crackers and other bakery products.....	65	123,050	189	146	20	8	1 95	1 25	80,963	421,814	608,938
Bridges.....	1	15,000	15	15	.....	.....	3 00	1 00	4,000	20,000	28,000
Buttons.....	1	500	25	25	.....	.....	.....	60	1,200	30,000	35,000
Carpeting.....	53	54,390	341	240	4	5	2 25	1 40	116,896	212,858	410,472
Carpentering.....	1	125	1	1	.....	.....	1 25	.....	250	100	500
Carpets, rag.....	7	23,300	58	54	.....	2	2 40	1 30	26,000	30,400	77,000
Carriages and wagons.....	1	700	41	1	25	.....	1 00	50	3,900	1,500	6,000
Clothing, children's.....	1	67,755	210	119	44	5	1 95	1 20	65,076	194,525	331,900
Clothing, men's.....	32	2,000	6	5	.....	1	2 50	1 50	3,500	5,000	9,500
Coffins, burial cases and undertakers' goods.....	1	28,000	51	20	8	17	1 95	80	13,616	50,540	85,290
Confectionery.....	9	178,900	374	298	.....	13	2 10	1 20	112,618	386,346	653,529
Cooperage.....	10	30,000	30	27	.....	3	2 75	1 75	20,000	100,000	175,000
Coppersmithing.....	1	300	18	.....	.....	13	.....	50	2,000	800	3,500
Corsets.....	1	950,000	675	575	.....	.....	3 25	1 10	211,000	482,000	800,000
Crucibles.....	2	9,500	9	7	.....	2	2 00	1 00	4,825	10,500	21,850
Dentistry, mechanical.....	4	838,900	321	310	2	4	2 30	1 55	155,995	1,451,202	1,864,863
Drugs and chemicals.....	10	.....	.....	.....	.....	.....	.....	.....	.....	10,150	25,500
Dyeing and cleaning.....	8	8,300	16	16	.....	.....	.....	1 25	13,000	37,400	88,000
Explosives and fire works.....	2	65,000	109	39	40	30	1 90	1 05	34,000	21,338	85,001
Fancy articles.....	4	23,700	102	51	18	27	2 25	1 70	30,168	10,000	12,000
Flouring and grist mill products.....	4	4,000	4	3	.....	.....	.....	1 50	1,300	19,700	42,840
Furniture.....	1	11,600	30	28	.....	.....	2 25	1 25	10,400	.....	.....

HUDSON COUNTY—Continued.

BUSINESS.

	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
Grease and tallow.....	1	\$4,000	4	4	.....	.....	\$2 00	\$1 05	\$2,400	\$2,000	\$7,500
Hardware.....	4	13,600	16	15	1	.....	1 60	.....	5,400	8,750	17,700
Hosiery and knit goods.....	2	16,000	255	101	150	4	.....	.....	27,800	54,064	108,750
Hunting and fishing tackle.....	1	15,000	35	24	11	.....	2 00	.....	13,000	7,000	45,000
Ink, printing.....	1	40,000	30	25	.....	.....	3 00	2 00	18,200	40,000	100,000
Iron and steel.....	5	1,100,000	510	498	.....	12	2 50	1 45	245,634	1,044,826	1,847,687
Iron bolts, nuts, washers and rivets.....	2	110,000	107	75	.....	12	2 75	1 20	60,863	294,403	379,562
Iron castings and finishings.....	14	537,500	417	363	9	.....	2 50	1 40	172,417	432,515	702,099
Iron forgings, anchors and cable chains.....	1	6,000	10	10	.....	.....	3 00	1 50	4,881	11,550	21,087
Iron pipe, wrought.....	1	50,000	5	5	.....	.....	2 50	1 25	2,850	1,125	5,200
Iron railing, wrought.....	3	2,200	12	4	.....	1	3 00	1 15	1,910	1,975	5,900
Iron shutters, wrought.....	1	10,000	102	90	.....	12	2 75	1 50	40,000	75,000	150,000
Ivory and bone work.....	1	1,500	25	6	19	.....	2 00	75	12,000	10,000	30,000
Kindling wood.....	6	31,800	49	35	2	3	1 65	1 05	17,750	29,600	57,500
Lamps and reflectors.....	1	3,000	3	3	.....	.....	1 00	75	270	3,000	4,000
Lard, refined.....	1	25,000	28	28	.....	.....	2 00	1 50	15,000	150,000	175,000
Leather, curried.....	2	42,500	37	27	1	1	2 25	1 55	15,595	143,162	176,700
Leather, tanned.....	3	35,500	34	25	.....	1	2 25	1 55	12,495	112,724	143,742
Lock and gunsmithing.....	4	550	1	1	.....	.....	.....	75	225	1,450	4,200
Looking glass and picture frames.....	3	102,800	254	179	26	8	2 35	1 00	71,500	176,500	259,700
Lumber, planed.....	1	6,000	10	10	.....	.....	1 50	1 00	3,000	9,500	15,000
Lumber, sawed.....	1	12,000	8	6	.....	.....	2 50	1 25	1,000	4,800	7,500
Machinery.....	18	446,800	668	525	12	2	2 55	1 35	288,020	275,606	725,674
Marble and stone work.....	14	39,350	110	95	.....	3	2 65	1 45	42,015	52,700	131,200
Masonry, brick and stone.....	2	7,000	175	75	.....	.....	2 65	1 40	38,000	25,500	80,000
Mattresses and spring beds.....	6	26,000	75	58	5	7	2 45	1 20	17,142	48,476	84,000
Meat packing.....	20	1,272,200	534	423	.....	10	2 80	1 75	303,800	17,404,689	18,551,783
Models and patterns.....	2	325	4	3	.....	.....	2 50	2 25	1,692	313	3,900
Nets, mosquito and fly.....	1	7,000	17	2	1	8	2 50	70	3,168	4,118	9,401
Oil cloth, enameled.....	1	135,000	77	63	.....	14	2 25	1 33	31,032	167,888	217,218
Oil, castor.....	1	250,000	30	30	.....	.....	3 50	1 75	15,000	200,000	300,000

HUDSON COUNTY—Continued.

BUSINESS.	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
Painting.....	35	\$60,150	240	191	.....	1	\$2 35	\$1 35	\$91,988	\$82,700	\$223,752
Paints.....	3	530,000	51	51	.....	.....	2 40	1 40	22,500	114,000	165,000
Paper, not specified.....	2	120,000	86	63	18	4	2 80	1 20	33,000	94,000	163,300
Patent medicines and compounds.....	2	30,000	24	11	10	3	1 65	1 00	11,750	29,000	80,000
Pencils, lead.....	1	100,000	170	47	24	99	2 00	1 00	35,000	35,000	100,000
Photography.....	14	39,800	54	37	10	2	2 15	1 05	20,870	25,750	75,950
Pipes, tobacco, clay.....	1	3,000	15	15	.....	.....	1 00	50	2,500	1,000	6,000
Plastering.....	3	16,400	40	35	.....	1	2 25	1 30	12,500	11,400	32,750
Plumbing and gas-fitting.....	27	53,150	118	86	.....	10	2 60	1 55	41,387	92,183	172,062
Printing and publishing.....	9	82,700	140	109	3	9	2 40	95	54,549	84,436	127,674
Pumps.....	1	500	4	4	.....	.....	2 75	1 50	1,650	1,500	4,950
Rubber and elastic goods.....	1	70,000	35	35	.....	.....	2 75	1 75	12,098	111,430	142,172
Saddlery and harness.....	13	6,650	12	8	.....	.....	2 05	1 25	2,800	8,350	19,250
Sash, doors and blinds.....	9	36,200	68	61	.....	.....	2 15	1 00	36,124	84,008	146,372
Shirts.....	6	10,300	64	6	51	4	1 00	55	10,100	29,400	43,925
Silk goods.....	17	753,300	2,202	911	813	281	1 75	60	615,560	1,089,685	2,045,000
Soap and candles.....	3	783,000	367	190	.....	175	1 90	1 35	158,122	807,250	1,340,000
Spelter.....	1	125,000	43	29	.....	.....	2 50	1 10	45,373	141,548	200,000
Springs, rubber, car and carriage.....	1	70,000	35	35	.....	.....	1 75	1 00	12,098	111,430	142,172
Steam-fitting and steam-heating apparatus.....	1	40,060	72	72	.....	.....	2 50	1 00	24,300	22,000	60,000
Stone and earthen ware.....	1	30,000	85	77	1	7	3 00	1 00	30,000	25,000	65,000
Sugar and molasses, refined.....	3	2,100,000	835	680	.....	.....	2 50	1 35	473,316	20,759,961	22,799,614
Taxidermy.....	1	10,000	125	5	100	20	1 00	50	9,000	10,000	25,000
Tin, copper, and sheet-iron ware.....	27	66,900	132	83	.....	4	2 20	1 10	39,374	69,900	146,714
Tobacco, cigars.....	66	112,475	186	162	2	12	2 00	1 15	74,328	125,807	270,148
Tobacco, chewing, smoking and snuff.....	1	1,000,000	3,475	929	1,966	136	2 75	1 50	893,040	3,033,327	4,478,675
Toys and games.....	1	3,000	40	30	10	.....	1 50	75	3,600	8,000	15,000
Trunks and valises.....	2	205,000	360	207	70	83	2 25	75	101,500	290,000	440,000
Umbrellas and canes.....	3	100,150	236	193	.....	40	1 65	90	61,400	63,684	170,000
Upholstery.....	8	4,450	18	11	.....	3	2 30	1 10	5,237	11,476	23,150
Varnish.....	1	40,000	6	6	.....	.....	2 50	.....	4,368	30,000	48,000

HUDSON COUNTY--Continued.

BUSINESS.	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
Vinegar.....	1	\$10,000	6	9	6	.....	.....	\$1 75	\$8,000	\$27,000	\$35,000
Watch and clock repairing.....	2	3,500	3	3	.....	.....	\$2 25	1 75	1,600	1,200	6,500
Wheelbarrows, iron.....	1	100,000	48	48	.....	.....	2 50	1 25	17,000	14,000	36,000
Wheelwrighting.....	25	80,100	78	69	.....	3	2 10	1 25	34,050	33,900	97,680
Window blinds and shades.....	3	151,300	78	55	.....	20	1 75	90	28,300	102,000	214,500
Wire work.....	2	31,300	52	37	5	6	2 35	1 10	24,401	27,380	63,000
Wood, turned and carved.....	6	20,000	69	59	.....	7	1 90	1 45	24,750	35,700	75,500
Zinc.....	1	125,000	43	29	.....	.....	2 50	1 10	43,373	141,548	200,000

HUNTERDON COUNTY.

BUSINESS.

	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
The County.....	369	\$1,762,125	1,538	985	130	41	\$1 65	\$1 00	\$359,101	\$1,820,257	\$2,830,999
Agricultural implements.....	4	34,500	25	15	.....	.....	1 55	1 15	5,250	7,227	16,750
Blacksmithing.....	68	36,075	73	48	.....	.....	1 50	1 00	13,277	26,305	74,045
Boots and shoes.....	31	29,125	48	30	2	.....	1 40	95	7,795	17,110	39,551
Brass castings and finishing.....	1	3,550	4	3	.....	.....	2 00	1 25	300	1,000	1,600
Bread, crackers and other bakery products.....	3	2,850	8	6	.....	1	1 80	85	2,140	4,350	10,500
Brick and tile.....	6	25,100	45	36	2	1	1 70	1 15	9,850	3,462	27,020
Brooms and brushes.....	1	3,500	8	8	.....	.....	2 50	75	2,000	2,000	7,000
Carpentering.....	8	5,750	27	21	.....	.....	1 65	1 05	6,400	10,150	22,300
Carpets, rag.....	5	2,450	5	5	.....	.....	1 40	90	1,450	2,700	5,760
Carriage and wagon materials.....	5	68,800	85	79	.....	.....	1 50	1 15	31,650	32,000	127,000
Clothing, men's.....	13	24,900	110	10	43	.....	1 35	75	8,790	20,750	44,200
Cofins, burial cases and undertakers' goods.....	3	2,900	1	1	.....	.....	.....	1 00	800	1,200	3,650
Confectionery.....	2	800	5	3	.....	.....	1 25	1 00	790	1,480	3,650
Cooperage.....	1	300	4	1	.....	.....	1 25	1 00	300	150	1,000
Cordage and twine.....	1	50,000	55	10	26	19	1 50	1 00	8,145	20,002	35,189
Cutlery and edge tools.....	1	36,000	12	12	.....	.....	2 75	1 35	6,000	12,000	26,000
Fancy articles.....	1	5,500	18	1	.....	.....	1 50	1 00	300	6,000	7,500
Fertilizers.....	1	1,000	2	1	.....	.....	1 50	1 00	250	800	1,480
Flax, dressed.....	1	500	2	2	.....	.....	1 75	1 00	400	950	2,100
Flouring and grist mill products.....	63	363,800	118	86	.....	.....	1 45	95	27,605	665,310	817,556
Fruits and vegetables, canned and preserved.....	1	16,000	100	18	42	.....	1 50	50	4,500	13,800	21,000
Furniture.....	4	17,500	16	6	.....	.....	1 85	1 10	2,150	5,350	11,700
Furniture, chairs.....	2	650	6	4	.....	2	.....	1 50	900	550	2,750
Iron castings and finishing.....	1	175,000	93	84	.....	4	1 95	1 15	40,123	210,000	301,000
Iron, forgings.....	1	175,000	94	85	.....	4	1 95	1 15	40,124	210,000	301,000
Leather, curried.....	4	7,400	5	5	.....	.....	1 50	1 00	10,575	10,575	15,400
Leather, tanned.....	4	5,600	27	13	.....	.....	1 25	90	1,150	7,820	10,350
Lime.....	4	9,100	27	13	.....	.....	1 15	1 00	3,960	8,065	11,010
Looking glass and picture frames.....	1	20,000	40	15	5	4	2 00	1 00	7,000	15,000	25,000

HUNTERDON COUNTY—Continued.

BUSINESS.	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
Lumber, sawed.....	32	\$167,350	108	70	.....	.....	\$1 45	\$1 00	\$19,209	\$113,810	\$179,719
Machinery.....	2	79,300	66	58	.....	1	2 25	1 00	26,790	39,176	76,600
Marble and stone work.....	3	3,250	7	6	.....	.....	2 00	1 00	1,625	3,104	7,400
Oil, linseed.....	1	14,000	2	1	.....	.....	1 00	.....	450	9,000	9,500
Painting.....	2	800	2	2	.....	.....	1 50	50	600	1,200	3,000
Paper, not specified.....	4	288,000	149	136	8	5	2 05	.....	43,430	276,212	422,754
Photography.....	2	1,900	4	2	2	.....	2 00	1 00	1,240	1,100	5,100
Plumbing and gas-fitting.....	1	800	2	2	.....	.....	2 00	1 00	650	1,000	2,100
Printing and publishing.....	2	6,200	7	5	.....	.....	1 50	1 00	2,775	925	6,000
Saddlery and harness.....	15	13,225	26	14	.....	.....	1 35	1 05	3,225	12,375	28,600
Sash, doors and blinds.....	3	6,000	9	6	.....	.....	1 65	1 25	2,050	2,500	11,500
Shirts.....	1	2,500	4	1	.....	.....	.....	50	175	700	1,100
Tin, copper and sheet-iron ware.....	13	21,000	22	16	.....	.....	1 60	1 10	6,095	17,900	30,800
Tobacco, cigars.....	5	2,200	10	6	.....	.....	1 60	1 00	1,560	2,100	8,900
Upholstery.....	2	4,300	6	3	.....	.....	1 25	75	800	2,700	4,500
Watch and clock repairing.....	1	550	.....	.....	.....	.....	.....	.....	.....	50	600
Wheelwrighting.....	37	24,100	69	40	.....	.....	1 65	1 10	13,828	23,856	57,285
Wood, turned and carved.....	1	1,000	.....	.....	.....	.....	.....	.....	.....	500	850
Woolen goods.....	1	2,000	5	5	.....	.....	.....	.....	350	973	1,600

MERCER COUNTY.

BUSINESS.

	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
The County.....	581	\$7,827,295	11,022	7,438	1,032	1,202	\$1 85	\$1 10	\$3,407,298	\$8,500,151	\$14,384,511
Agricultural implements.....	4	64,000	49	43	.....	.....	1 95	1 10	14,100	20,850	66,500
Bags, paper.....	4	13,550	42	15	22	.....	1 80	1 75	7,679	26,050	46,825
Baskets, rattan and willow-ware.....	3	2,150	42	11	.....	11	1 40	60	3,800	4,500	11,000
Beltting and hose, leather.....	1	1,600	2	1	.....	1	.....	1 25	300	1,500	2,800
Blacksmithing.....	44	21,345	64	40	.....	.....	1 75	1 15	1,296	18,442	60,990
Book binding.....	3	5,900	30	10	8	3	2 00	1 25	8,800	6,600	18,500
Boots and shoes.....	47	123,885	572	508	15	1	1 65	90	107,145	419,031	588,907
Boot and shoe findings.....	1	5,000	6	2	3	.....	2 00	50	300	1,000	2,030
Boxes, cigar.....	2	2,350	21	5	5	8	1 40	.....	3,120	7,500	13,600
Boxes, fancy and paper.....	1	10,000	13	1	12	.....	1 40	90	2,540	3,600	8,350
Boxes, wooden, packing.....	5	2,500	12	9	.....	1	1 75	90	3,170	2,550	9,000
Brass castings and finishing.....	1	200	1	1	.....	.....	1 50	.....	400	1,500	3,000
Bread, crackers and other bakery products.....	39	132,800	195	108	3	69	1 90	1 05	66,139	264,754	444,010
Brick and tile.....	10	219,600	447	316	.....	45	1 95	1 20	101,250	58,125	214,800
Brooms and brushes.....	4	600	8	4	.....	.....	1 25	1 00	1,166	1,887	5,400
Bridges.....	1	170,709	270	160	.....	.....	1 60	1 10	48,484	278,448	387,291
Carpentering.....	27	76,350	323	204	.....	2	1 85	1 25	84,277	269,600	420,123
Carpets, rag.....	6	2,325	8	7	.....	.....	1 30	1 00	1,614	5,500	10,600
Carriages and wagons.....	8	52,600	85	66	.....	2	1 90	1 05	27,500	44,800	92,100
Carriage and wagon materials.....	1	9,000	15	13	.....	2	1 50	1 25	5,000	2,500	20,000
Clothing, men's.....	20	96,150	265	95	118	2	1 95	1 00	67,360	156,200	284,900
Coffee and spices, roasted and ground.....	1	4,000	2	2	.....	.....	2 75	.....	1,400	150	2,984
Coffins, burial cases and undertakers' goods.....	4	10,300	15	8	1	.....	2 25	1 35	4,334	9,200	21,100
Confectionery.....	8	11,750	31	15	7	7	1 95	1 00	7,908	31,017	47,225
Cooperage.....	3	4,700	15	12	.....	.....	1 70	1 15	4,050	8,800	17,800
Cutlery and edge tools.....	1	21,700	80	70	.....	5	2 25	1 25	30,793	41,296	91,535
Dentistry, mechanical.....	1	4,500	2	2	.....	.....	2 00	1 00	400	200	3,000
Drugs and chemicals.....	3	12,700	11	11	.....	.....	2 25	1 40	4,568	17,300	32,000
Dyeing and cleaning.....	3	1,450	5	2	2	1	1 65	1 05	2,100	2,600	7,500

MERCER COUNTY—Continued.

BUSINESS.

	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
Engraving and die sinking.....	2	\$275	2	.....	.....	1	\$1 60	\$0 75	\$75	\$800	\$3,000
Fertilizers.....	22	10,000	7	7	.....	.....	1 60	1 00	1,800	12,500	18,000
Flouring and grist mill products.....	24	243,000	68	57	.....	.....	1 60	1 00	18,654	503,117	593,647
Fruits and vegetables, canned and preserved.....	1	16,000	81	9	63	9	1 50	1 25	2,374	9,426	17,131
Furniture.....	8	25,300	56	28	.....	5	2 10	1 50	16,012	12,700	39,500
Glue.....	2	1,500	3	2	.....	.....	1 50	75	650	2,100	5,000
Hardware.....	2	200,000	158	98	10	.....	2 60	1 30	71,827	155,000	275,000
Iron and steel.....	3	1,945,550	1,391	1,361	.....	30	2 60	1 25	518,325	1,371,245	2,340,381
Iron castings and finishing.....	5	39,200	66	47	.....	.....	2 25	1 30	18,970	14,560	48,260
Iron forging, anchors, &c.....	6	110,941	218	154	.....	29	2 15	1 30	64,766	100,668	201,302
Iron railing, wrought.....	3	950	4	2	.....	1	1 50	1 00	625	1,700	3,750
Jewelry.....	2	28,000	45	35	1	.....	2 50	1 15	17,500	22,000	50,000
Kaolin and ground earth.....	1	50,000	34	32	2	.....	2 00	1 50	20,800	21,216	72,000
Kindling wood.....	1	800	8	2	.....	1	1 20	75	650	985	2,075
Leather, curried.....	1	500	1	1	.....	.....	1 75	.....	100	830	1,050
Leather, tanned.....	1	500	.....	.....	.....	.....	.....	.....	.....	650	800
Lime.....	1	38,000	50	16	.....	.....	1 50	1 00	6,000	35,000	45,000
Lock and gunsmithing.....	2	650	4	3	.....	1	1 65	1 00	1,100	600	3,000
Looking-glass and picture frames.....	2	2,500	4	3	.....	.....	1 65	1 00	1,300	4,450	7,450
Lumber, planed.....	2	28,000	23	15	.....	7	1 65	1 00	7,050	15,900	33,000
Lumber, sawed.....	3	93,900	65	54	.....	.....	1 65	1 10	12,904	79,657	112,700
Machinery.....	6	76,000	284	260	.....	1	2 05	1 30	105,584	182,296	351,458
Marble and stone work.....	14	72,225	141	61	.....	3	2 15	1 25	37,359	42,208	110,190
Masonry, brick and stone.....	15	26,950	284	205	.....	.....	2 15	1 20	69,580	99,400	213,850
Matches.....	1	6,000	60	4	15	5	2 10	1 35	1,840	1,470	3,600
Meat packing.....	3	251,000	89	54	.....	.....	2 60	1 35	13,156	533,458	590,197
Musical instruments and materials.....	2	16,000	16	10	.....	.....	2 25	1 50	5,400	13,000	3,600
Painting.....	29	12,025	124	55	.....	1	2 00	1 15	22,822	19,131	67,600
Patent medicines and compounds.....	1	1,000	3	1	2	.....	.....	.....	280	750	2,250
Photography.....	7	6,400	13	7	3	.....	3 35	1 35	4,528	4,400	18,800
Plumbing and gas-fitting.....	9	13,275	33	23	.....	.....	2 05	1 25	9,238	20,750	37,500

MERCER COUNTY—Continued.

BUSINESS.

	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
Printing and publishing.....	9	\$149,800	186	139	6	22	\$2 00	\$1 25	\$83,444	\$87,618	\$230,594
Pumps.....	1	2,000	3	2	.....	.....	1 50	1 00	500	300	1,100
Rubber and elastic goods.....	2	160,000	215	176	.....	4	2 25	1 50	82,575	557,844	717,776
Roofing and roofing materials.....	4	2,800	21	14	.....	.....	1 80	1 15	4,600	13,900	27,800
Rubber, vulcanized.....	2	145,000	97	75	.....	18	1 65	1 15	32,000	335,000	403,000
Saddlery and harness.....	13	16,900	30	17	.....	.....	1 65	1 20	7,545	22,272	43,896
Sash, doors and blinds.....	4	14,700	28	24	.....	1	1 90	1 90	6,571	13,200	27,200
Shirts.....	2	6,800	87	2	47	13	1 45	75	8,840	42,500	75,800
Saws.....	1	150,000	84	70	.....	5	2 00	1 00	30,643	34,462	89,909
Soap and candles.....	3	34,200	13	13	.....	.....	2 25	1 25	6,335	44,640	54,700
Stone and earthenware.....	29	1,902,500	2,966	1,792	441	644	2 50	1 25	983,177	950,243	2,341,337
Tin, copper and sheet-iron ware.....	17	21,050	76	46	.....	.....	2 00	1 40	21,744	51,483	94,990
Tobacco, cigars.....	27	16,600	72	48	1	4	1 70	95	18,897	23,853	65,471
Upholstery.....	3	8,500	16	9	5	2	2 00	1 00	4,950	19,500	29,000
Wheelwrighting.....	30	21,215	42	24	.....	.....	1 85	90	5,925	14,450	40,610
Wire.....	1	200,000	500	400	.....	1 00	2 00	1 00	255,000	700,000	1,020,000
Wood, turned and carved.....	2	6,275	35	14	8	6	1 65	50	4,200	1,784	9,670
Woolen goods.....	6	589,000	585	226	232	127	.....	.....	177,150	607,035	896,297

MIDDLESEX COUNTY.

BUSINESS.

BUSINESS.	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
The County.....	270	\$4,233,725	7,956	3,916	2,154	486	\$1 90	\$1 05	\$1,814,895	\$5,259,818	\$9,034,448
Agricultural implements.....	2	12,000	14	6	.....	.....	1 50	1 05	2,360	1,875	7,000
Baskets, rattan and willow-ware.....	3	4,000	17	10	.....	.....	1 90	1 75	24,000	3,100	10,750
Blacksmithing.....	38	28,825	68	54	.....	.....	1 80	1 05	21,088	28,023	73,000
Boots and shoes.....	14	106,150	329	175	80	5	1 65	1 05	78,875	210,150	335,188
Boots and shoes, rubber.....	3	600,000	1,058	546	433	15	1 85	1 90	275,997	1,419,849	2,366,465
Boxes, wooden, packing.....	2	8,000	33	9	15	2	1 30	1 95	6,300	24,000	38,600
Bread, crackers and other bakery products.....	13	32,100	34	33	1	.....	1 85	1 40	17,500	62,295	96,275
Brick and tile.....	21	930,200	1,446	1,203	24	57	1 85	1 00	334,468	280,587	853,261
Brooms and brushes.....	1	700	2	2	.....	.....	1 00	.....	600	636	1,600
Carpeting.....	23	63,750	156	148	.....	.....	2 00	1 25	58,370	97,760	181,015
Carpets, rag.....	1	400	2	2	.....	.....	1 50	1 75	400	1,800	2,400
Carriages and wagons.....	8	39,200	52	51	.....	1	1 60	1 00	21,548	13,450	45,270
Clothing, men's.....	12	90,700	733	79	374	35	1 60	1 95	67,518	528,100	638,850
Coffee and spices, roasted and ground.....	1	35,000	9	9	.....	.....	2 50	1 00	3,500	70,000	77,000
Confectionery.....	2	3,500	6	5	.....	1	1 50	1 00	2,440	16,040	23,640
Cork cutting.....	1	50,000	60	40	.....	20	1 75	1 25	15,000	50,000	75,000
Cutlery and edge tools.....	1	1,000	5	2	.....	.....	4 00	85	500	4,000	4,000
Drugs and chemicals.....	1	80,000	61	61	.....	.....	2 50	1 00	20,000	175,000	250,000
Dyeing and cleaning.....	1	3,500	4	4	.....	.....	1 50	.....	1,200	3,000	6,850
Emery ground.....	1	30,000	24	24	.....	.....	2 50	1 25	7,500	40,000	70,000
Flouring and grist mill products.....	16	74,400	40	34	.....	.....	1 55	1 00	10,991	233,849	273,016
Fruit jar trimmings.....	1	150,000	348	230	93	25	2 25	1 00	104,501	318,708	485,503
Furniture.....	4	10,500	11	1	.....	.....	1 95	1 00	4,850	8,800	17,050
Hair work.....	1	9,000	2	.....	2	60	1 00	.....	625	1,200	5,000
Hosiery and knit goods.....	1	662,500	520	100	360	.....	.....	.....	145,280	114,083	510,000
Iron castings and finishing.....	3	4,000	17	15	.....	.....	2 00	1 05	6,680	4,100	12,500
Kindling wood.....	2	5,100	10	10	.....	.....	1 50	1 15	4,782	5,200	12,400
Lime and cement.....	2	7,100	9	8	.....	.....	1 50	1 05	2,580	2,900	6,500
Lock and gunsmithing.....	1	1,000	1	1	.....	.....	2 50	.....	700	1,000	2,200

MIDDLESEX COUNTY—Continued.

BUSINESS.

	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
Lumber, sawed.....	5	\$60,800	12	8			\$1 20	\$1 15	\$2,275	\$22,395	\$33,800
Machinery.....	6	92,000	153	152			2 30	1 20	68,100	66,800	157,700
Mantels, slate, marble and marbleized.....	1	2,500	6	6			1 50	1 75	1,458	1,000	3,850
Marble and stone work.....	5	18,700	29	29			2 25	1 55	11,450	14,400	36,550
Masonry, brick and stone.....	8	13,100	45	45			2 30	1 50	20,403	81,000	122,150
Meat packing.....	2	25,000	17	15		2	1 40		6,900	53,750	61,750
Millinery and lace goods.....	1	6,000	35	6	28		2 00	40	4,000	5,580	11,580
Needles and pins.....	1	4,500	27	22	1	4	1 50	90	8,700	4,400	16,000
Painting.....	2	10,700	26	26			1 95	1 20	7,600	8,110	20,250
Paper hangings.....	2	250,000	189	145	13	10	3 35	1 15	51,698	245,688	424,469
Pipes, tobacco.....	1	400	4	2	2		2 00	1 00	1,100	100	1,800
Plumbing and gas-fitting.....	7	35,000	27	27			2 15	1 20	10,966	25,250	45,495
Printing and publishing.....	5	46,000	67	41	14	11	2 10	1 20	26,480	13,115	56,064
Roofing and roofing materials.....	2	2,200	7	7			1 75	1 00	2,050	7,000	11,500
Rubber and elastic goods.....	1	120,000	481	219	197	65	2 75	75	111,350	150,000	275,000
Saddlery and harness.....	6	11,100	17	15		2	1 90	1 25	8,175	14,290	27,085
Sash, doors and blinds.....	1	1,000	5	4			2 50	1 00	1,200	3,000	5,000
Shirts.....	6	165,450	1,499	155	481	117	1 60	85	198,372	390,615	640,334
Silk goods.....	1	6,000	25	4	6	15	1 50	60	1,200	3,000	5,000
Stone and earthenware.....	1	35,500	65	47		9	1 90	1 25	19,940	13,336	50,670
Tin, copper and sheet iron ware.....	3	2,500	3	3			2 00	75	625	2,500	4,300
Tobacco, chewing, smoking and snuff.....	4	270,000	122	49	25	30	1 75	90	24,600	408,372	517,774
Tobacco, cigars.....	5	3,550	7	7			1 65	1 50	2,940	3,850	9,470
Wheelwrighting.....	10	9,100	17	10			1 75	1 05	3,150	5,612	16,224

MONMOUTH COUNTY.

BUSINESS.

BUSINESS.	Number of establish-ments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
The County.....	265	\$857,208	1,405	797	182	64	\$1 80	\$1 05	\$252,142	\$1,235,971	\$1,764,169
Baskets, rattan and willow-ware.....	3	1,000	8	4	.....	.....	1 50	1 15	775	300	2,400
Blacksmithing.....	55	37,350	84	56	.....	.....	1 75	1 15	14,531	22,730	64,200
Boots and shoes.....	8	5,300	22	10	.....	.....	1 25	1 15	2,438	4,280	9,588
Bread, crackers and other bakery products.....	6	19,800	20	17	3	.....	1 70	1 00	6,050	20,910	34,400
Brick and tile.....	11	34,700	117	92	.....	3	1 60	1 00	12,291	8,004	40,125
Brooms and brushes.....	1	2,500	13	5	8	.....	3 00	1 00	2,995	7,500	.....
Carpentering.....	10	21,800	104	68	.....	.....	1 95	1 10	29,125	74,200	116,500
Carriages and wagons.....	9	43,950	91	78	.....	1	1 90	1 25	32,618	44,998	104,400
Carpets, rag.....	4	2,850	5	4	.....	.....	1 40	1 00	1,350	2,570	5,928
Clothing, men's.....	5	19,000	77	32	33	.....	2 00	90	17,100	40,760	65,000
Coffins, burial cases and undertakers' goods.....	4	9,045	8	5	.....	.....	1 85	70	1,660	2,785	5,900
Confectionery.....	1	1,000	2	2	.....	.....	1 25	.....	780	1,500	3,500
Fertilizers.....	1	50,000	85	40	.....	.....	2 50	1 00	12,000	250,000	265,000
Files.....	1	1,500	7	5	.....	.....	1 75	1 25	2,000	500	3,000
Flouring and grist mill products.....	37	315,200	72	59	.....	.....	1 45	95	19,533	463,200	582,393
Fruits and vegetables, canned and preserved.....	4	39,000	294	54	135	28	2 05	1 05	11,400	35,500	60,000
Furniture.....	1	250	1	1	.....	.....	1 75	.....	325	610	1,200
Gold and silver leaf and foil.....	2	3,500	12	6	.....	.....	1 75	90	1,380	9,500	13,318
Iron castings and finishing.....	2	16,000	59	30	.....	18	2 10	1 10	17,424	21,194	43,500
Leather, curried.....	2	2,500	3	.....	.....	.....	1 50	.....	400	4,600	8,555
Leather, tanned.....	2	13,500	7	7	.....	.....	1 55	1 00	2,300	16,850	21,750
Lumber, sawed.....	25	75,075	59	48	.....	.....	1 55	95	8,929	54,349	93,770
Maps and atlases.....	1	5,000	2	2	.....	.....	2 00	.....	1,200	2,000	4,000
Marble and stone work.....	2	4,500	4	4	.....	.....	2 00	1 25	1,950	8,000	15,500
Masonry, brick and stone.....	2	550	12	4	.....	.....	1 90	1 15	1,050	1,300	2,600
Pickles, preserves and sauces.....	1	10,000	12	9	.....	3	1 50	1 00	4,281	36,410	45,112
Saddlery and harness.....	12	19,050	23	14	.....	.....	2 40	1 00	3,931	11,150	21,950
Sash, doors and blinds.....	8	33,400	66	53	.....	.....	1 90	1 05	16,540	55,600	85,200
Stone and earthenware.....	1	6,000	7	7	.....	.....	3 00	1 25	2,800	1,500	6,200
Tin, copper and sheet iron ware.....	7	19,000	25	19	.....	1	2 10	1 00	6,755	11,336	23,300
Tobacco, cigars.....	9	8,800	11	9	.....	.....	1 50	1 00	2,660	7,450	13,250
Wheelwrighting.....	28	36,088	93	51	3	8	1 80	1 15	13,570	19,930	48,785

MORRIS COUNTY.

BUSINESS.	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
The County.....	233	\$2,176,125	2,185	1,505	220	37	\$2 05	\$1 10	\$506,533	\$1,861,570	\$3,089,809
Agricultural implements.....	3	17,000	29	22	.....	.....	1 60	1 00	5,290	12,600	33,200
Bark, ground.....	1	5,000	8	5	.....	.....	.....	1 00	1,200	5,000	9,000
Baskets, rattan and willow-ware.....	1	1,400	7	5	.....	2	1 50	75	500	600	1,500
Betting and hose, leather.....	1	600	7	2	.....	.....	.....	1 00	500	3,000	4,800
Blacksmithing.....	42	26,125	62	40	.....	1	.....	1 00	12,055	19,978	53,400
Boots and shoes.....	11	2,200	18	10	.....	.....	1 75	1 05	2,340	4,082	10,299
Bread, crackers and other bakery products.....	3	3,700	9	6	.....	.....	1 80	1 00	2,128	12,500	18,900
Brick and tile.....	3	18,800	53	51	.....	2	1 70	1 05	8,700	6,100	21,000
Brooms and brushes.....	4	2,175	15	4	.....	.....	1 50	1 00	1,400	10,400	14,400
Buttons.....	1	10,000	125	75	50	.....	2 50	1 25	45,320	12,000	75,000
Carpentering.....	18	7,825	113	67	.....	.....	1 85	1 10	18,250	53,145	84,385
Carpets, rag.....	1	100	2	1	.....	.....	1 75	1 00	65	600	1,000
Carriages and wagons.....	5	34,000	51	48	.....	1	1 85	1 05	20,000	20,831	55,163
Cutlery and edge tools.....	3	7,400	34	18	2	7	2 25	1 00	7,650	6,170	16,600
Engraving and die-sinking.....	1	8,000	5	5	.....	.....	4 00	1 50	3,354	540	4,974
Fertilizers.....	1	3,000	4	4	.....	.....	1 75	1 00	525	1,450	2,300
Flour and grist mill products.....	38	289,500	76	54	.....	.....	1 75	1 10	19,216	396,019	491,541
Foundry-facings.....	1	2,000	3	2	.....	.....	3 25	2 00	1,300	1,500	4,000
Furniture.....	2	3,700	3	2	.....	.....	2 75	.....	950	1,400	3,700
Gunpowder.....	2	21,000	50	35	.....	1	2 60	1 50	17,821	179,312	271,000
Hat and cap materials.....	1	12,000	6	6	.....	.....	2 40	1 10	1,664	16,366	24,960
Iron and steel.....	13	1,140,500	474	472	.....	2	2 60	1 25	111,103	491,883	704,229
Leather, carried.....	1	6,000	1	1	.....	.....	.....	.....	400	2,050	3,000
Leather, tanned.....	1	5,000	1	1	.....	.....	2 00	.....	200	1,460	2,000
Lime.....	1	600	2	1	.....	.....	.....	1 00	100	200	1,200
Lumber, sawed.....	28	72,000	80	49	.....	.....	1 60	1 00	8,340	53,105	85,020
Machinery.....	2	46,500	63	46	.....	2	2 25	1 25	20,750	30,300	91,225
Marble and stone work.....	1	2,000	.....	.....	.....	.....	.....	.....	.....	1,200	1,500
Paper, not specified.....	7	121,000	123	90	17	4	1 90	1 05	22,466	85,067	147,721

MORRIS COUNTY—Continued.

BUSINESS.	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
Plumbing and gas-fitting.....	1	\$1,000	8	1	.....	.....	\$2 50	.....	\$500	\$1,000	\$2,250
Rubber and elastic goods.....	1	25,000	30	29	.....	.....	1 50	\$1 00	12,000	40,000	60,000
Rubber, vulcanized.....	2	201,200	656	306	150	10	1 75	1 00	142,700	351,200	707,200
Saddlery and harness.....	6	18,800	10	7	.....	.....	1 85	1 15	2,250	9,900	15,400
Sash, doors and blinds.....	1	20,500	10	5	.....	4	1 75	1 25	2,400	3,000	7,500
Stone and earthen ware.....	1	5,000	4	2	.....	.....	1 75	1 25	600	600	2,000
Tin, copper and sheet iron ware.....	4	11,000	16	12	.....	1	1 90	1 25	6,700	14,500	26,463
Wheelwrighting.....	19	10,000	23	18	.....	.....	2 00	1 10	4,496	8,150	22,440
Woolen goods.....	2	14,500	9	8	1	.....	.....	.....	1,300	4,412	6,539

OCEAN COUNTY.

BUSINESS.

	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
The County.....	69	\$223,910	308	207	21	10	\$1 75	\$1 00	\$53,378	\$219,155	\$356,532
Bagging, flax, hemp and jute.....	1	50,000	72	44	20	8	2 67	62	15,007	55,874	86,525
Blacksmithing.....	12	5,460	21	13	.....	.....	1 70	1 00	3,875	3,900	10,900
Boots and shoes.....	2	3,000	5	5	.....	.....	2 00	1 25	450	2,600	5,000
Boxes, wooden, packing.....	2	3,000	16	5	.....	1	1 60	1 00	800	1,175	3,220
Bread, crackers, and other bakery products.....	2	4,900	5	2	1	.....	1 65	1 00	850	2,100	8,600
Brick and tile.....	3	16,500	50	49	.....	.....	1 25	1 00	9,150	2,460	13,900
Charcoal.....	4	4,100	26	9	.....	.....	.....	50	1,100	1,125	5,030
Coffins, burial cases and undertakers' goods.....	1	500	1	1	.....	.....	.....	1 00	150	350	900
Cotton ties.....	1	10,000	4	4	.....	.....	2 00	1 25	1,000	5,500	8,000
Drugs and chemicals.....	1	500	.....	.....	.....	.....	.....	.....	.....	500	1,000
Flouring and grist mill products.....	8	42,500	16	12	.....	.....	1 45	1 05	4,015	88,724	103,104
Lumber, sawed.....	17	71,500	61	49	.....	1	1 55	95	11,281	44,022	87,503
Oil, vegetable.....	1	1,000	2	1	.....	.....	.....	1 00	200	2,000	2,250
Saddlery and harness.....	3	650	3	2	.....	.....	.....	1 00	700	1,875	3,450
Tin, copper and sheet-iron ware.....	2	3,500	5	3	.....	.....	1 75	1 25	1,100	1,500	3,500
Tobacco, cigars.....	2	2,500	6	3	.....	.....	1 90	1 00	1,150	2,800	6,650
Wheelwrighting.....	7	4,300	•15	9	.....	.....	1 45	1 25	2,550	2,750	7,000

PASSAIC COUNTY.

BUSINESS.

	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
The County.....	387	\$11,452,515	20,816	10,017	6,044	2,803	\$1 95	\$1 15	\$6,416,863	\$13,989,794	\$24,815,371
Bagging, flax, hemp and jute.....	2	330,000	620	237	252	131	2 15	1 00	180,000	279,686	488,310
Bark, ground.....	1	2,000	4	4	.....	.....	1 50	1 00	365	1,000	1,800
Belting and hose, leather.....	4	36,500	28	27	.....	.....	2 00	1 20	12,434	57,196	82,345
Blacksmithing.....	26	18,150	59	44	.....	.....	1 90	1 15	18,491	17,085	56,500
Bobbins and spools.....	3	40,000	92	74	.....	7	1 90	1 25	27,750	21,500	57,650
Boots and shoes.....	12	7,900	40	34	2	1	1 45	1 00	10,881	12,937	29,360
Boxes, fancy, paper.....	2	13,000	71	6	42	8	1 50	1 10	14,300	24,200	45,500
Boxes, wooden, packing.....	1	45,000	14	14	.....	.....	2 75	1 25	6,500	25,200	38,000
Brass castings and finishing.....	3	152,000	224	234	.....	.....	2 25	1 35	112,250	14,500	188,500
Bread, crackers and other bakery products.....	31	71,890	75	40	.....	.....	2 00	1 00	14,620	74,439	134,510
Brick and tile.....	5	48,600	133	130	.....	.....	2 50	1 45	15,600	8,034	34,000
Card cutting.....	4	4,800	88	27	.....	4	2 40	1 25	9,550	4,680	18,350
Carpentering.....	22	100,100	390	237	2	1	1 75	1 20	116,408	255,125	490,982
Carpets.....	1	100,000	232	114	60	58	.....	.....	46,000	102,425	169,500
Carriages and wagons.....	3	34,000	40	35	.....	.....	2 15	.....	19,140	10,300	43,500
Carriage and wagon materials.....	2	12,000	15	12	.....	.....	2 25	1 25	5,300	5,500	17,300
Clothing, men's.....	5	18,500	70	46	13	.....	2 25	1 00	22,800	21,800	55,900
Confectionery.....	1	300	1	1	.....	.....	1 00	.....	150	450	630
Dentistry, mechanical.....	3	2,000	3	3	.....	.....	2 50	.....	1,700	1,500	5,583
Drugs and chemicals.....	2	35,000	27	27	.....	.....	2 40	1 25	12,322	120,137	192,660
Fancy articles.....	3	3,000	26	16	.....	.....	2 60	1 00	4,116	3,362	13,847
Felt goods.....	4	113,000	95	70	11	14	.....	.....	23,420	98,845	152,156
Files.....	2	20,200	81	58	.....	21	1 90	1 25	26,200	10,512	42,406
Flouring and grist mill products.....	11	54,100	25	24	.....	.....	1 95	1 05	9,471	108,798	131,127
Furniture.....	2	7,000	8	8	.....	.....	1 45	1 00	5,676	11,000	20,300
Glue.....	2	13,000	13	9	.....	.....	4 760	1 05	6,300	6,300	13,810
Gunpowder.....	1	55,000	30	30	.....	.....	2 75	1 00	11,442	70,216	91,560
Handles, wooden.....	1	5,600	7	4	.....	.....	2 00	1 00	2,324	1,040	6,000
Instruments, professional and scientific.....	1	1,000	3	3	.....	.....	1 50	1 00	800	800	2,000
Iron castings and finishing.....	3	29,500	40	37	.....	.....	2 05	1 20	12,566	17,546	36,730
Iron bolts, nuts, &c.....	2	50,050	122	121	.....	1	2 00	1 60	24,400	40,450	73,300
Iron and steel.....	5	560,000	656	656	.....	.....	2 25	1 20	302,660	519,029	927,803

PASSAIC COUNTY—Continued.

BUSINESS.	Number of establish- ments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fif- teen years.	Children and youth.					
Looking-glass and picture frames.....	3	\$3,000	7	6	.....	.....	\$1 85	\$0 90	\$1,800	\$9,950	\$14,300
Lumber, planed.....	1	75,000	38	34	.....	4	2 00	1 25	14,000	60,000	80,000
Lumber, sawed.....	1	4,000	6	6	.....	.....	1 25	75	1,728	1,600	5,223
Machinery.....	25	1,643,500	3,048	2,564	86	124	1 90	1 10	1,043,956	1,679,328	2,998,059
Marble and stone work.....	6	21,500	37	31	.....	.....	2 35	1 50	12,567	12,365	42,475
Models and patterns.....	1	2,000	2	2	.....	.....	2 50	.....	500	100	1,500
Paper, writing.....	2	480,000	174	107	55	8	2 75	1 25	59,269	224,611	380,760
Painting.....	13	9,650	76	42	.....	2	1 90	90	22,738	26,490	60,930
Paints.....	1	3,000	8	4	.....	.....	1 50	.....	3,000	4,000	10,000
Photography.....	1	11,500	12	6	3	.....	2 00	1 00	5,300	4,500	15,000
Plumbing and gas-fitting.....	3	20,100	56	37	.....	.....	2 10	1 40	19,232	35,300	70,815
Printing and publishing.....	7	61,500	88	45	26	10	2 10	1 00	33,891	29,517	92,522
Printers' fixtures.....	4	12,000	12	12	.....	.....	1 90	.....	5,500	6,300	30,000
Rubber, vulcanized.....	1	40,000	8	8	.....	.....	2 50	1 00	7,000	7,000	13,000
Saddlery and harness.....	1	10,800	15	15	.....	.....	1 90	1 00	9,100	20,000	38,551
Screws.....	1	12,000	9	9	.....	.....	2 00	1 25	3,640	2,423	9,000
Sewing machines, attachments and cases.....	1	800	2	2	.....	.....	1 50	1 00	700	300	2,000
Shirts.....	1	110,000	600	200	375	25	2 25	1 00	193,600	225,000	480,204
Shoddy.....	1	35,000	50	10	5	15	2 00	1 00	25,000	80,734	137,500
Silk goods.....	82	5,660,525	10,996	3,543	4,169	2,097	2 00	80	3,335,045	8,112,761	14,164,465
Soap.....	1	40,000	9	9	.....	.....	2 00	1 50	4,200	60,000	75,000
Tin, copper, and sheet-iron ware.....	15	72,100	128	108	.....	.....	2 00	1 25	42,049	68,373	143,680
Thread, linen.....	1	500,000	930	200	730	.....	2 00	1 25	260,000	750,000	1,200,000
Tobacco, cigars.....	18	19,450	58	46	1	4	1 90	1 30	18,110	23,030	71,280
Tobacco, chewing, smoking and snuff.....	1	23,000	30	12	3	15	1 25	1 00	5,710	11,250	67,500
Watch and clock repairing.....	2	2,000	4	3	.....	.....	1 60	1 00	801	650	2,300
Wax, bleaching.....	1	2,000	6	5	.....	.....	1 50	1 25	2,000	8,000	12,000
Weavers' supplies.....	1	5,000	200	10	50	1	2 25	1 25	5,000	18,000	28,365
Wheelwrighting.....	7	17,400	26	25	.....	.....	2 30	1 05	8,416	8,350	26,498
Whips.....	1	70,000	43	32	11	.....	3 00	1 25	24,000	25,000	90,000
Wine.....	1	50,000	27	27	.....	.....	1 60	1 00	7,000	50,000	60,000
Wire.....	1	10,000	6	6	.....	.....	1 75	1 50	3,350	6,000	13,500
Wood, turned and carved.....	3	4,800	12	8	.....	.....	1 85	.....	2,848	2,450	6,950
Woolen goods.....	3	428,000	771	411	138	222	.....	.....	146,927	435,580	707,075
Worsted goods.....	1	10,000	60	50	10	.....	.....	.....	20,000	40,150	65,000

SALEM COUNTY.

BUSINESS.

BUSINESS.	Number of establish-ments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth					
The County.....	175	\$685,566	1,187	641	360	21	\$1 75	\$0 95	\$192,163	\$1,008,376	\$1,428,082
Agricultural implements.....	10	5,300	19	12	.....	.....	1 95	1 00	3,845	5,125	13,154
Blacksmithing.....	33	17,540	44	33	.....	.....	1 60	1 95	8,715	12,982	36,271
Boots and shoes.....	11	9,470	36	33	.....	.....	1 50	90	7,887	7,887	21,259
Bread, crackers and other bakery products.....	2	11,000	3	3	.....	.....	1 75	1 00	1,300	7,920	13,500
Brick and tile.....	2	9,000	29	20	.....	.....	1 75	1 10	4,500	13,560	13,560
Brooms and brushes.....	4	1,600	4	2	.....	.....	1 40	80	475	2,300	4,700
Buttons.....	1	1,000	6	1	.....	.....	2 00	1 00	1,000	1,200	3,000
Carpentering.....	2	600	4	4	.....	4	1 75	1 25	1,200	2,000	6,000
Carpets, rag.....	4	1,600	7	5	1	.....	1 90	1 10	2,500	3,600	6,950
Carriages and wagons.....	1	6,500	15	15	.....	.....	1 65	1 00	3,500	5,000	12,500
Clothing, men's.....	6	8,500	33	15	14	.....	2 15	1 05	7,375	16,100	30,350
Coffins, burial cases and undertakers' goods.....	2	3,000	1	1	.....	.....	.....	1 00	150	580	1,500
Confectionery.....	1	3,000	5	4	.....	.....	2 00	1 00	1,200	6,000	12,000
Flouring and grist mill products.....	18	191,400	66	44	.....	.....	1 50	95	14,605	476,106	557,215
Fruits and vegetables, canned and preserved.....	3	144,606	413	132	251	15	2 20	1 00	23,250	89,000	124,500
Leather, curried.....	3	4,000	4	3	.....	.....	1 60	1 00	1,000	5,450	8,300
Leather, tanned.....	3	29,200	20	9	.....	.....	1 55	1 10	3,171	21,989	31,589
Lumber, planed.....	1	6,000	10	10	.....	.....	1 50	1 00	2,500	3,000	7,500
Lumber, sawed.....	18	46,700	71	51	.....	1	1 50	90	12,640	51,480	88,684
Machinery.....	4	50,500	34	34	.....	.....	2 00	90	11,278	18,060	34,650
Marble and stone work.....	1	500	2	1	.....	.....	2 00	1 00	250	700	1,500
Masonry, brick and stone.....	1	100	6	6	.....	.....	2 00	50	600	1,000	2,000
Oil cloth, floor.....	1	65,000	75	75	.....	.....	2 00	1 00	31,000	190,000	225,000
Painting.....	4	1,000	11	11	.....	.....	1 50	1 00	2,300	3,900	9,500
Pickles, preserves and sauces.....	1	3,000	12	4	8	.....	1 00	70	800	8,050	7,300
Saddlery and harness.....	6	7,850	19	19	.....	.....	1 45	90	5,325	10,850	20,500
Shirts.....	2	135	900	.....	85	.....	65	45	11,850	24,000	41,000
Soap and candles.....	1	3,200	3	3	.....	.....	2 50	1 00	1,100	3,965	6,285
Stone and earthenware.....	1	3,000	3	1	.....	.....	2 00	75	900	300	2,500
Tin, copper and sheet-iron ware.....	8	17,450	20	18	.....	.....	2 05	1 20	7,100	8,400	23,300
Tobacco, cigars.....	3	6,600	17	14	1	.....	2 00	1 25	4,500	4,500	16,600
Wheelwrighting.....	14	28,950	45	42	.....	1	1 70	85	9,925	18,600	34,225
Wood, turned and carved.....	3	7,500	15	13	.....	.....	1 50	65	4,141	3,300	11,200

SOMERSET COUNTY.

BUSINESS.

	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
The County.....	140	\$786,975	1,347	874	333	2	\$1 75	\$1 00	\$415,066	\$1,724,435	\$2,515,245
Agricultural implements.....	1	15,000	25	25	.....	.....	1 75	1 00	8,400	6,200	20,400
Blacksmithing.....	35	19,300	70	49	.....	.....	1 55	90	13,849	25,463	57,350
Boots and shoes.....	7	6,975	17	13	1	.....	1 50	80	4,346	6,028	14,760
Bread, crackers and other bakery products.....	3	5,250	6	6	.....	.....	1 85	1 10	2,150	13,800	19,750
Brick and tile.....	3	20,000	75	67	.....	.....	1 60	1 00	12,240	6,840	26,250
Carpentering.....	4	4,650	61	30	.....	.....	1 65	1 05	8,626	17,385	38,761
Carriage and wagon materials.....	2	8,500	18	8	.....	.....	1 40	75	2,000	3,700	10,000
Cheese and butter.....	2	4,000	8	4	.....	.....	1 50	1 00	1,012	18,180	22,670
Coffins, burial cases and undertakers' goods.....	1	400	1	1	.....	.....	.....	75	50	100	500
Cooperage.....	1	600	7	2	.....	.....	1 50	1 00	225	300	680
Fertilizers.....	1	4,000	4	4	.....	.....	1 50	1 00	350	1,600	2,625
Flouring and grist mill products.....	31	357,300	93	68	.....	.....	1 65	1 00	22,401	646,934	755,569
Furs, dressed.....	1	12,000	30	24	4	2	2 50	1 00	8,500	5,000	18,000
Leather, curried.....	1	1,400	2	1	.....	.....	1 50	1 00	100	960	1,800
Leather, tanned.....	1	1,400	.....	.....	.....	.....	.....	.....	.....	600	820
Lime.....	2	1,500	11	9	.....	.....	1 75	1 15	2,100	3,525	6,550
Lumber, sawed.....	9	19,050	19	16	.....	.....	1 40	90	9,235	16,410	23,410
Machinery.....	2	34,040	45	35	.....	.....	2 00	1 25	15,296	26,225	79,200
Painting.....	1	200	2	1	.....	.....	.....	1 00	125	250	900
Paints.....	1	10,000	6	6	.....	.....	2 00	1 00	2,000	6,000	15,000
Plumbing and gas-fitting.....	1	200	2	1	.....	.....	3 00	1 00	250	1,700	2,300
Saddlery and harness.....	6	3,950	7	7	.....	.....	1 25	90	1,400	3,900	7,800
Sash, doors and blinds.....	1	1,000	6	4	.....	.....	1 75	1 00	1,500	2,600	5,500
Soap and candles.....	1	8,000	3	3	.....	.....	2 00	1 00	1,500	5,000	5,000
Tobacco, cigars.....	3	5,300	11	8	.....	.....	2 25	1 00	2,952	11,200	27,800
Wheelwrighting.....	17	18,000	33	25	.....	.....	1 55	90	7,088	12,300	25,850
Woolen goods.....	2	225,000	785	457	328	.....	.....	.....	294,766	892,010	1,333,000

SUSSEX COUNTY.

BUSINESS.

	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
The County	182	\$1,300,468	953	703	74	24	\$1 65	\$1 00	\$271,889	\$1,454,848	\$2,224,006
Agricultural implements.....	2	12,000	11	6	.....	.....	1 50	1 00	1,500	2,900	6,500
Bark, ground.....	1	1,000	15	5	.....	.....	.....	1 00	750	500	2,000
Blacksmithing.....	28	17,850	43	30	.....	.....	1 50	85	8,213	11,810	30,500
Boots and shoes.....	11	34,550	202	120	52	5	1 70	1 10	55,550	127,547	188,100
Bread, crackers and other bakery products.....	3	9,200	10	8	.....	.....	1 70	85	2,650	7,000	13,350
Brooms and brushes.....	1	3,000	4	1	.....	.....	1 50	75	160	600	2,900
Carpentering.....	5	10,800	22	15	.....	.....	1 90	1 05	5,455	18,500	28,000
Carriages and wagons.....	1	2,500	7	6	.....	.....	2 50	1 00	1,600	4,500	7,038
Cheese and butter.....	9	38,220	37	26	1	1	1 50	1 05	6,970	51,385	68,026
Clothing, men's.....	2	13,000	19	5	9	.....	1 70	1 10	3,850	11,200	18,000
Cooperage.....	2	900	1	1	.....	.....	.....	75	225	325	1,150
Dentistry, mechanical.....	3	3,800	2	2	.....	.....	1 00	1 00	600	950	2,400
Flouring and grist mill products.....	40	228,200	81	56	.....	.....	1 50	1 00	16,001	387,250	457,614
Furniture.....	7	28,300	26	20	.....	.....	1 90	1 15	4,785	5,155	15,575
Iron castings and finishing.....	3	9,700	13	9	.....	.....	1 35	90	2,085	2,750	6,260
Iron and steel.....	2	700,000	256	249	7	7	1 60	1 10	106,872	714,515	1,130,480
Leather, curried.....	1	3,000	2	2	.....	.....	1 00	75	600	7,300	10,000
Leather, tanned.....	4	25,300	11	9	.....	.....	1 40	85	2,200	32,750	37,500
Lime.....	2	36,000	41	27	.....	.....	1 65	1 00	7,310	17,200	33,294
Lumber, sawed.....	16	27,050	41	28	.....	.....	1 55	90	3,800	22,830	40,865
Marble and stone work.....	2	6,000	7	7	.....	.....	2 15	1 00	1,800	2,500	9,200
Painting.....	1	200	1	1	.....	.....	.....	1 50	400	250	900
Printing and publishing.....	3	22,000	16	14	1	1	2 20	1 15	7,030	3,825	17,850
Saddlery and harness.....	7	4,523	10	8	.....	.....	1 50	90	1,688	2,895	7,215
Tin, copper and sheet-iron ware.....	7	17,900	16	13	.....	.....	1 60	1 20	4,695	8,914	20,029
Tobacco, cigars.....	3	2,000	3	3	.....	.....	1 00	1 00	800	2,250	3,900
Watch and clock repairing.....	2	2,200	4	4	.....	.....	3 00	1 25	2,200	700	3,800
Wheelwrighting.....	13	11,275	15	13	.....	.....	1 90	1 05	4,100	6,250	16,310
Woolen goods.....	1	30,000	37	15	12	10	.....	.....	18,000	11,087	50,000

UNION COUNTY.

BUSINESS.	Number of establish- ments.	Capital.	Greatest number of hands employed at any one time dur- ing the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above six- teen years.	Females above fif- teen years.	Children and youth.					
The County.....	289	\$3,700,095	6,751	4,455	774	539	\$2 10	\$1 20	\$2,384,086	\$4,849,687	\$9,958,596
Blacking, blueing and polishing preparations.....	1	8,000	2	2	.....	.....	2 00	1 00	500	1,200	3,000
Blacksmithing.....	21	20,700	54	41	.....	.....	1 95	1 20	16,148	19,591	52,093
Boots and shoes.....	9	27,375	68	31	3	.....	2 20	1 00	21,110	38,949	74,033
Bread, crackers and other bakery products.....	20	34,050	68	52	1	.....	1 90	1 10	22,088	102,095	157,400
Brick and tile.....	4	80,000	115	89	.....	.....	2 15	1 30	36,750	61,700	143,000
Carpeting.....	9	22,300	132	108	.....	.....	2 15	1 35	48,525	113,000	217,000
Carpets, rag.....	1	6,000	1	1	.....	.....	2 00	.....	350	500	1,500
Carriage and wagon materials.....	5	79,000	72	56	.....	.....	2 20	1 40	32,600	34,500	84,000
Carriages and wagons.....	20	140,840	275	213	12	.....	2 10	1 25	96,880	161,900	338,700
Clothing, men's.....	16	205,950	875	248	507	4	2 00	95	217,524	580,050	885,624
Clothing, women's.....	1	700	38	1	18	1	1 25	75	3,000	13,000	20,000
Coffins, burial cases and undertakers' goods.....	2	4,500	5	4	.....	.....	2 15	1 25	1,200	3,500	5,500
Confectionery.....	5	35,300	31	15	7	4	2 00	1 15	9,700	69,500	107,600
Cordage and twine.....	1	325,000	225	100	40	20	2 25	1 25	60,000	600,000	700,000
Cutlery and edge tools.....	1	3,000	53	33	.....	.....	1 75	1 00	18,000	5,000	35,000
Drugs and chemicals.....	2	47,000	49	.....	.....	.....	3 00	2 00	20,500	3,250	42,500
Dyeing and cleaning.....	3	3,800	10	7	3	.....	2 00	90	2,400	1,950	6,750
Fancy articles.....	2	1,800	37	5	12	1	1 90	1 00	5,900	4,200	12,200
Felt goods.....	1	150,000	181	170	10	1	.....	.....	60,000	408,300	514,630
Fertilizers.....	4	122,000	121	91	.....	.....	2 20	1 35	35,300	302,500	378,000
Flouring and grist mill products.....	9	67,500	29	20	.....	.....	1 90	1 10	7,250	112,420	139,369
Foundry facings.....	1	5,000	3	3	.....	.....	2 00	1 25	1,800	2,000	6,000
Fruits and vegetables, canned and preserved.....	1	3,000	50	10	10	.....	1 25	1 00	1,036	3,285	10,739
Furniture.....	1	600	2	6	.....	.....	2 00	.....	85	275	1,200
Grease and tallow.....	1	3,000	8	.....	.....	.....	.....	1 00	2,000	50,000	60,000
Hats and caps.....	2	30,000	135	86	23	6	3 15	1 40	45,000	125,000	170,000
Instruments, professional and scientific.....	1	200	2	.....	.....	.....	3 00	1 50	200	250	1,400
Iron and steel.....	1	25,000	60	57	.....	.....	3 00	1 25	15,000	50,750	72,000
Iron castings and finishing.....	2	76,000	104	93	.....	.....	2 25	1 30	61,200	51,200	153,000
Kindling wood.....	4	4,450	14	5	.....	.....	1 50	1 00	1,660	3,410	9,000
Lamps and reflectors.....	1	2,475	3	1	.....	.....	1 00	.....	650	596	2,560
Leather, curried.....	2	19,000	30	24	1	.....	2 40	1 40	11,300	133,800	156,000

UNION COUNTY—Continued.

BUSINESS.

	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.				Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.	Average day's wages for a skilled mechanic.				
Leather, tanned.....	2	\$17,000	25	19	1	2	\$2 40	\$1 40	\$10 300	\$106,000	\$130,300
Looking-glass and picture frames.....	1	300	1	1	.....	.....	2 00	.....	150	200	900
Lumber, sawed.....	3	40,400	23	20	.....	.....	1 90	.....	7,350	14,500	29,300
Machinery.....	6	295,000	320	255	.....	35	2 25	1 15	94,500	93,671	294,500
Marble and stone work.....	3	13,300	13	8	.....	.....	2 25	1 60	4,200	9,600	15,600
Musical instruments, not specified.....	1	2,000	15	3	4	.....	2 00	1 50	2,500	5,000	8,000
Oil cloth, enameled.....	1	125,000	35	35	.....	.....	3 50	1 45	18,000	216,000	270,000
Oil cloth, floor.....	1	150,000	60	60	.....	.....	1 75	1 25	30,000	60,000	100,000
Painting.....	7	12,700	156	32	2	.....	2 30	1 65	15,450	28,100	81,500
Paper, binders' board.....	3	35,500	33	26	.....	.....	1 75	1 20	9,400	28,500	45,000
Paper hangings.....	1	20,000	36	16	.....	.....	2 50	1 25	5,000	25,000	30,000
Patent medicines and compounds.....	1	2,500	25	1	3	1	2 00	1 00	1,500	2,000	5,000
Photography.....	6	9,400	16	7	.....	.....	2 10	.....	3,780	4,200	13,800
Plastering.....	1	2,000	9	7	.....	.....	2 25	1 50	2,500	800	4,500
Plumbing and gas-fitting.....	9	27,900	67	47	.....	.....	2 40	1 40	18,800	34,200	66,674
Printing and publishing.....	11	77,800	154	105	6	17	2 00	85	45,930	44,600	121,400
Roofing and roofing materials.....	1	10,000	17	12	.....	.....	1 50	1 00	3,640	24,000	30,000
Rubber and elastic goods.....	1	10,000	11	8	2	1	1 50	1 10	5,200	9,000	18,200
Saddlery and harness.....	9	88,200	79	53	6	.....	1 95	1 00	28,228	27,529	80,777
Sash, doors and blinds.....	5	56,550	30	21	.....	.....	2 00	1 40	8,700	9,560	29,500
Saws.....	1	50,000	50	37	.....	3	2 50	1 50	30,000	10,000	40,000
Sewing machines, attachments and cases.....	1	948,655	2,300	1,825	75	400	2 75	75	1,088,583	882,502	3,576,702
Shirts.....	1	250	5	.....	3	.....	1 00	.....	500	800	2,000
Spectacles and eye glasses.....	2	5,000	26	6	6	5	2 75	95	4,400	4,695	13,000
Stone and earthenware.....	3	28,000	108	78	15	15	2 15	1 25	37,000	27,900	70,000
Straw goods.....	1	20,000	85	8	.....	.....	2 00	1 25	2,500	25,000	75,000
Tin, copper and sheet-iron ware.....	6	16,400	37	29	2	.....	2 20	1 80	15,065	19,179	44,945
Tobacco, cigars.....	20	24,250	52	28	.....	4	1 90	1 10	12,924	34,830	68,950
Umbrellas and canes.....	1	500	3	3	.....	.....	2 00	.....	1,800	150	3,000
Upholstery.....	8	11,200	17	13	1	.....	2 10	1 40	7,350	18,700	32,200
Watch cases.....	1	28,000	40	18	1	1	2 00	1 00	2,750	10,000	18,000
Wheelwrighting.....	13	12,750	35	21	.....	.....	2 00	1 10	7,250	7,250	23,250
Wood preserving.....	1	3,000	10	6	.....	.....	1 50	.....	3,000	6,000	30,000
Wood, turned and carved.....	2	2,300	5	3	.....	.....	2 25	.....	1,400	1,350	8,800
Woolen goods.....	1	500	1	1	.....	.....	.....	.....	100	2,400	3,000

WARREN COUNTY.

BUSINESS.

The County.....	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
The County.....	247	\$3,899,013	2,487	1,932	54	110	\$1 75	\$1 05	\$698,080	\$3,532,554	\$4,847,796
Agricultural implements.....	7	20,900	35	26	.....	.....	1 75	1 15	7,775	11,725	27,457
Blacksmithing.....	37	18,435	46	31	.....	7	1 65	95	9,653	13,215	41,960
Boots and shoes.....	9	7,875	10	9	.....	.....	1 45	.....	4,025	4,025	11,882
Bread, crackers and other bakery products.....	2	1,500	4	2	1	.....	1 25	1 00	1,000	2,300	4,000
Brick and tile.....	3	2,200	12	5	.....	3	1 50	1 00	800	730	2,400
Carpentering.....	1	3,200	10	3	.....	.....	1 60	1 15	1,100	5,000	6,500
Carriage and wagon materials.....	5	34,500	18	16	.....	.....	1 30	1 10	4,950	15,225	26,500
Carriages and wagons.....	10	48,100	87	69	.....	1	1 75	1 00	29,950	36,200	71,700
Clothing, men's.....	10	34,800	88	29	41	.....	2 30	95	23,875	38,350	74,050
Coffins, burial cases and undertakers' goods.....	2	1,200	1	1	.....	.....	1 80	1 00	350	1,000	1,900
Confectionery.....	2	11,000	6	6	.....	.....	1 50	1 00	3,000	11,500	18,100
Cooperage.....	1	800	2	1	.....	.....	1 50	.....	450	500	1,800
Flouring and grist mill products.....	53	455,850	115	81	.....	4	1 45	95	25,527	675,234	783,163
Foundry facings.....	1	1,000	3	2	.....	.....	2 25	1 50	500	600	1,500
Furniture.....	6	46,000	35	25	.....	.....	1 65	1 25	11,143	14,200	42,300
Furniture, chairs.....	1	1,500	.....	.....	.....	.....	.....	.....	.....	250	700
Iron castings and finishing.....	2	279,871	434	314	.....	37	2 20	1 15	142,793	758,182	927,515
Iron and steel.....	7	2,328,000	853	826	.....	27	2 00	1 10	258,710	1,509,432	2,107,238
Leather, curried.....	3	11,000	5	4	.....	.....	1 75	1 00	1,550	10,660	15,737
Leather, tanned.....	4	11,500	4	4	.....	.....	1 50	1 00	1,150	9,755	12,850
Lime.....	3	8,200	86	30	.....	.....	.....	1 00	7,200	9,900	34,200
Looking-glass and picture frames.....	1	12,000	45	20	8	17	1 75	1 00	10,000	10,000	36,000
Lumber, sawed.....	20	97,500	74	47	.....	.....	1 45	90	12,080	52,160	89,550
Machinery.....	2	30,000	103	85	.....	.....	1 90	1 25	33,600	27,500	74,600
Malt.....	1	10,000	4	6	.....	.....	.....	1 00	800	13,500	16,875
Marble and stone work.....	3	4,500	11	6	.....	.....	1 65	1 00	2,000	5,050	11,000
Musical instruments, organs and materials.....	4	104,022	221	184	2	.....	3 25	1 50	66,900	85,168	192,000
Paper, wrapping.....	1	28,000	19	15	2	.....	2 45	1 25	6,754	45,482	80,000
Roofing and roofing materials.....	1	2,400	12	7	.....	1	1 50	1 00	2,400	1,600	4,500

WARREN COUNTY—Continued.

BUSINESS.	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
Saddlery and harness.....	13	\$27,300	24	15	.....	1	\$1 45	\$1 00	\$4,530	\$15,950	\$27,850
Sash, doors and blinds.....	2	9,200	10	3	.....	.....	1 75	1 25	1,100	3,000	5,600
Stationery goods.....	1	2,500	34	16	.....	4	1 25	90	4,800	2,000	9,000
Tin, copper and sheet-iron ware.....	6	9,250	12	10	.....	.....	1 90	90	4,093	9,800	18,000
Tobacco, cigars.....	3	3,800	5	3	.....	.....	1 25	.....	1,325	2,594	4,800
Wheelwrighting.....	17	19,110	47	27	.....	1	1 55	1 15	10,622	11,749	28,810
Woolen goods.....	1	12,000	12	6	.....	6	.....	.....	1,575	29,000	35,759

SUMMARY BY COUNTIES.

	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fifteen years.	Children and youth.					
The State.....	6,884	\$93,614,301	134,852	78,832	24,457	10,327	\$1 55	\$0 90	\$41,456,666	\$156,596,323	\$237,199,243
Atlantic.....	60	425,300	384	218	54	9	2 10	1 10	85,663	357,933	556,858
Bergen.....	180	1,931,785	2,385	1,687	282	211	2 10	1 10	705,307	2,171,168	3,443,061
Burlington.....	314	2,673,755	3,966	1,992	698	226	2 00	1 10	757,041	2,730,380	4,156,646
Camden.....	351	5,989,110	5,829	3,688	903	274	2 00	1 10	1,697,380	5,096,241	8,737,198
Cape May.....	29	57,550	113	82			1 85	1 15	20,733	71,785	134,211
Cumberland.....	291	1,706,834	5,085	1,689	1,571	130	1 65	1 05	735,416	2,026,919	3,351,730
Essex.....	1,544	27,087,736	42,481	25,916	6,108	2,941	2 20	1 20	14,974,653	45,953,928	73,728,949
Gloucester.....	154	705,886	531	335	41	3	1 75	1 10	120,943	603,988	1,275,602
Hudson.....	754	14,121,325	16,123	9,755	3,422	1,194	2 25	1 25	5,588,036	52,126,875	64,565,474
Hunterdon.....	369	1,762,125	1,538	985	130	41	1 65	1 00	359,101	1,820,267	2,830,999
Mercer.....	581	7,827,295	11,022	7,438	1,032	1,202	1 85	1 10	3,407,298	8,500,151	14,384,511
Middlesex.....	270	4,233,725	7,956	3,916	2,154	486	1 80	1 05	1,814,895	5,259,818	9,034,448
Monmouth.....	265	887,208	1,405	797	182	64	1 80	1 05	252,142	1,235,971	1,764,169
Morris.....	233	2,176,125	2,185	1,505	220	37	2 05	1 10	506,533	1,861,570	3,089,809
Ocean.....	69	223,910	308	207	21	10	1 75	1 00	53,378	219,155	356,532
Passaic.....	387	11,452,515	20,816	10,017	6,044	2,803	1 95	1 15	6,416,863	13,989,734	24,815,371
Salem.....	175	635,566	1,187	641	360	21	1 75	95	192,163	1,008,376	1,428,032
Somerset.....	140	786,975	1,347	874	333	2	1 65	1 00	415,066	1,724,435	2,515,545
Sussex.....	182	1,300,468	953	703	74	24	2 10	1 20	271,889	1,454,848	2,224,006
Union.....	289	3,700,095	6,751	4,455	774	539	2 10	1 20	2,384,086	4,849,687	9,958,586
Warren.....	247	3,893,613	2,487	1,332	54	110	1 75	1 05	698,080	3,532,554	4,847,796
Jersey City.....	551	10,363,915	11,264	6,938	2,206	724	2 30	1 30	4,067,811	48,358,159	57,792,141
Newark.....	1,255	22,598,195	34,958	20,829	4,989	2,474	2 25	1 25	12,397,380	33,287,764	55,754,718
New Brunswick.....	129	1,699,600	2,876	1,794	805	120	1 95	1 20	839,294	2,674,148	4,592,087
Paterson.....	314	9,840,965	18,318	8,323	5,747	2,476	1 95	1 20	5,732,160	12,343,668	22,100,104
Trenton.....	386	4,444,130	7,780	5,056	727	957	1 90	1 15	2,406,906	5,377,254	9,319,453
Camden.....	298	3,666,135	4,259	2,669	608	125	2 15	1 10	1,285,765	3,308,388	5,962,083

SUMMARY OF INDUSTRIES (STATE).

BUSINESS.

BUSINESS.										
	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NUMBER OF HANDS EMPLOYED.			Total amount paid in wages during the year.	Materials.	Products.	
				Males above sixteen years.	Females above fifteen years.	Children and youth.				
*The State..	6,984	\$108,540,301	142,240	82,809	26,231	11,618	\$43,936,570	\$161,666,323	\$250,341,243	
Summary given in U. S. Census tables.....										
Glass (estimated).....	6,884	98,614,301	134,852	78,832	24,457	10,327	41,456,666	156,596,323	237,199,243	
Cotton goods and print works (estimated).....	7	990,000	2,746	1,509	27	864	637,890	850,000	1,780,000	
Breweries (estimated).....	15	3,500,000	3,639	1,465	1,747	427	1,119,514	1,500,000	4,924,000	
Gas (estimated).....	39	4,241,000	616	616	.....	.....	490,000	2,400,000	4,888,000	
	39	6,195,000	387	387	.....	.....	232,500	320,000	1,550,000	

* Including statistics of Glass, Cotton Goods and Print Works, Breweries and Gas, which are not included in tables furnished by the Census Bureau.— See note page 178.

STATISTICS OF MANUFACTURES FOR 1850, 1860, 1870 AND 1880.

BUSINESS.

BUSINESS.	Number of establish-ments.	Capital.	Greatest number of hands employed at any one time dur-ing the year.	AVERAGE NUMBER OF HANDS EMPLOYED.				Total amount paid in wages during the year.	Materials.	Products.
				Males above sixteen years.	Females above fif-teen years.	Children and youth.				
1850	4,207	\$22,203,258	37,830	29,068	8,762	.....	\$9,364,740	\$22,011,871	\$39,851,256	
1860	4,173	40,521,048	56,927	43,198	12,829	.....	16,277,337	41,429,100	76,306,104	
1870	6,636	79,606,719	75,552	58,115	11,198	6,239	32,648,409	103,415,245	169,237,732	
1880	6,984	108,540,301	142,240	82,809	26,231	11,618	43,936,570	161,666,323	250,341,243	

SPECIAL STATISTICS OF MANUFACTURES.

AGRICULTURAL IMPLEMENTS.

	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NO. HANDS.		Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	MATERIALS.				PRODUCTS.										
				Males above sixteen years.	Children and youth.				Value of lumber used in manu- facturing.	Value of iron and steel used in manufacturing.	Value of all other materials.	Total value of all materials.	SEEDERS AND PLANTERS.	IMPLEMENTS OF CULTIVATION.									
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SPECIAL STATISTICS OF MANUFACTURES.

AGRICULTURAL IMPLEMENTS.

PRODUCTS—Continued.

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SPECIAL STATISTICS OF MANUFACTURES.

LUMBER MILLS AND SAW MILLS.

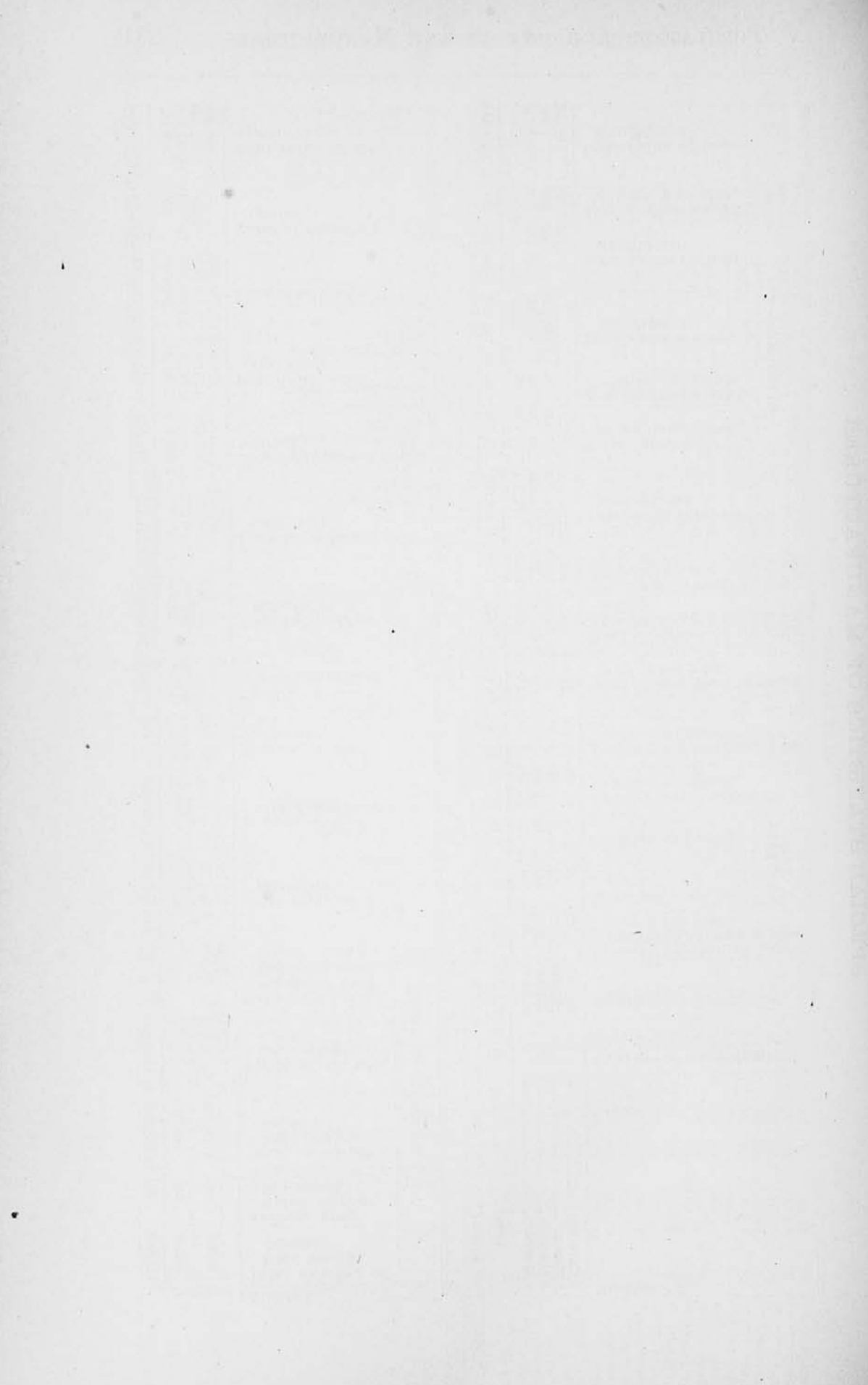
The State.....	No. of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVE. NO. HANDS.		Children and youth.	Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	SAWS.				MATERIALS.			PROPER SAW MILL PRODUCTS.								REMANUFACTURES.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
				Males above sixteen years	Females					No. of gangs.	No. of saws in gang.	No. of circular saws.	No. of mule saws.	No. of band saws.	Value of logs.	Value of mill supplies.	Total value of all materials (including value of logs).	No. of thousand feet of lumber.	No. of thousand laths.	No. of thousand shingles.	No. of thousand staves.	No. of thousand sets of headings.	No. of thousand feet of bobbin & spool stock.	Total value of all products heretofore named.		Total value of all other products.	Total value of all products.	Total value of remanufactures into sash, doors, blinds, frames, clap-boards, &c.	Average No. of hands.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
Atlantic	6	28,100	36	21			1 50	1 05	3,578	4	22	6	2		13,500	1,725	15,225	950	330	630																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						

SPECIAL STATISTICS OF MANUFACTURES.

MEAT PACKING.

Number.	COUNTIES.	Number of establishments.	Capital.	Greatest number of hands employed at any one time during the year.	AVERAGE NO. HANDS.		Average day's wages for a skilled mechanic.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	MATERIALS.							Total value of hogs slaughtered.
					Males above sixteen years.	Children and youth.				Total number of hogs slaughtered.	Average gross weight of hogs in pounds.	Total value of sheep slaughtered.	Total number of sheep slaughtered.	Average gross weight of sheep in pounds.	Total value of sheep slaughtered.	Total number of hogs slaughtered.	
1	Camden	1	\$10,000	7	7	...	\$2 00	\$1 50	\$3,500	...	...	...	4,730	250	...	4,000	\$12,500
2	Essex	7	232,000	112	88	...	2 20	1 50	53,822	5,076	1,189	\$381,288	40,000	79	\$196,400	260	4,000
3	Hudson	20	1,272,200	534	423	10	2 80	1 75	303,800	64,500	1,259	4,034,500	284,000	85	991,000	1,421,580	12,308,318
4	Mercer	3	261,000	89	54	...	2 10	1 35	13,156	945	1,122	51,204	750	95	3,060	...	...
	Total	31	\$1,775,200	742	572	10	\$2 25	\$1 55	\$374,278	70,521	1,252	\$4,486,902	324,750	84	\$1,193,460	1,426,560	\$12,354,848

MATERIALS—Continued.										PRODUCTS.						
Number.	Total number of hogs bought, dressed.	Average gross weight of hogs in pounds.	Total value of hogs bought, dressed.	Value of all anti-meats slaughtered.	Value of all other materials used, including coop-erage.	Total value of all materials.	Pounds of beef sold, fresh.	Pounds of beef canned.	Pounds of beef salted or canned.	Pounds of mutton sold, fresh.	Pounds of pork sold, fresh.	Pounds of pork salted.	Pounds of bacon and hams.	Pounds of lard.	Value of all other products.	Total value of all products.
1	.....	.....	.....	\$42,500	\$500	\$43,000	3,402,784	70,000	.....	1,582,000	50,000	.....	600,000	150,000	.....	\$50,000
2	85,700	150	\$728,400	1,310,088	58,200	1,368,288	4,193,000	70,000	.....	1,582,000	4,193,000	4,705,600	1,572,000	2,151,000	\$6,500	1,527,660
3	.....	.....	.....	17,356,848	47,841	17,404,689	44,770,000	.....	500,000	12,065,000	128,497,202	.....	32,982,934	24,875,319	686,324	18,551,783
4	29,388	200	439,952	494,216	39,242	533,458	593,762	.....	175,000	35,600	381,247	2,308,413	2,203,572	1,000,068	200	590,197
	115,088	163	\$1,168,352	\$19,203,652	\$145,783	\$19,349,435	48,766,546	70,000	675,000	13,682,600	133,121,449	7,014,013	37,358,506	28,176,387	\$693,024	\$20,719,640

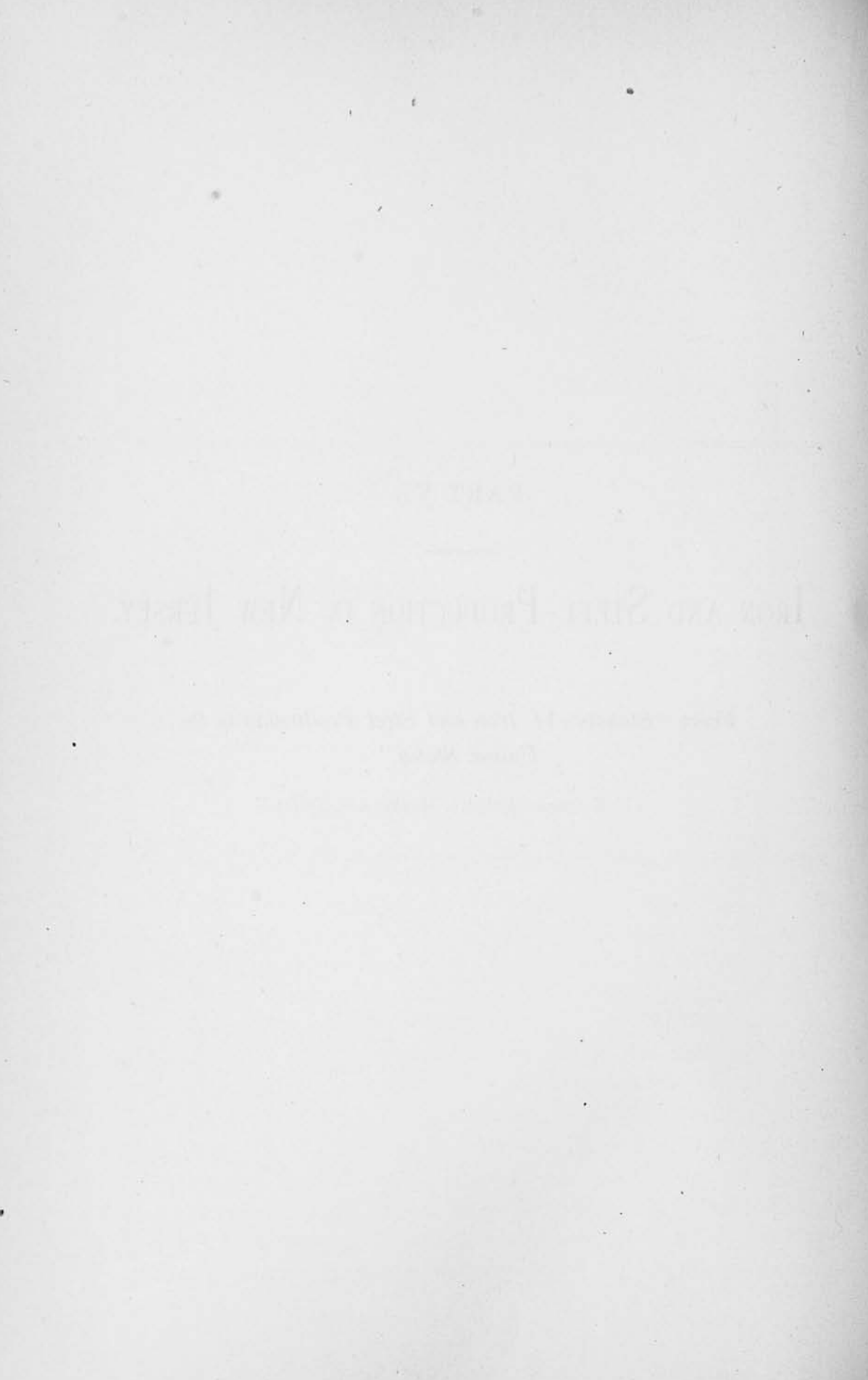


PART VI.

IRON AND STEEL PRODUCTION IN NEW JERSEY.

*From "Statistics of Iron and Steel Production in the
United States."*

(U. S. Census Bulletin, Washington, D. C.)



PART VI.

IRON AND STEEL PRODUCTION IN NEW JERSEY.

The following historical sketch is taken from "Statistics of Iron and Steel Production of the United States," compiled by Mr. James M. Swank, Special Agent of the United States Census (1880), Department of the Interior, Washington, D. C. :

"EARLY IRON ENTERPRISES IN NEW JERSEY.

"In William Reed Deane's *Genealogical Memoirs of the Leonard Family*, it is stated that Henry Leonard left Rowley village, Massachusetts, early in 1674, 'and, at that time, or soon after, went to New Jersey, establishing the iron manufacture in that State.' His sons—Samuel, Nathaniel and Thomas—probably left Rowley village soon after their father's departure, and followed him to New Jersey. Bishop says that Shrewsbury, a township lying northwest of Long Branch, in Monmouth county, was settled by Connecticut people soon after New Jersey was surrendered to the English by the Dutch, in 1664, and that it was 'to this part of Jersey' that Henry Leonard removed. About the time of the Connecticut settlement, James Grover, who had been a resident of Long Island, also settled in Shrewsbury, and is said to have established iron works in that township, which he afterwards sold to Colonel Lewis Morris, then a merchant of Barbadoes, but born in England. On October 26th, 1676, a grant of land was made to Colonel Morris, with full liberty to him and his heirs 'to dig, delve and carry away all such mines for iron as they shall find or see fit to dig and carry away to the iron work,' which establishes the fact that the iron works in Shrewsbury were built prior to 1676, and that they were then owned by Colonel Morris. They were probably undertaken about 1674, in which year Henry Leonard is said to

have emigrated from Massachusetts to New Jersey. They were the first iron works in New Jersey.

"In a brief account of the province of East Jersey, published by the Proprietors in 1682, it is stated that 'there is already a smelting furnace and forge set up in this colony, where is made good iron, which is of great benefit to the country.' Smith, in his *History of New Jersey*, says, that in 1682, 'Shrewsbury, near Sandy Hook, adjoining the river or creek of that name, has already a township, consisting of several thousand acres, with large plantations contiguous; the inhabitants were computed to be 400. Lewis Morris, of Barbadoes, had iron works and other considerable improvements here.' In 1685 it was stated in *The Model of Government of East New Jersey*, that 'there is an iron work already set up, where there is good iron made.' In the same year Thomas Budd, in his *Good Order in Pennsylvania and New Jersey*, wrote that there was but one iron work in New Jersey, and that this was located in Monmouth county. All of these statements refer to the Shrewsbury works, which do not seem to have had a long life. According to Oldmixon, they were located between the towns of Shrewsbury and Middletown. They used bog ore.

"The rich deposits of magnetic iron ore in Northern New Jersey were discovered at an early day, and about 1710, as we are informed by the Rev. Dr. Joseph F. Tuttel, in his *Early History of Morris County*, written in 1869, settlements were made on the Whippany river, in Hanover township, in Morris county; and at a place now called Whippany, four miles northeast of Morristown, a forge was erected. Bishop says that the first settlers of Hanover located there 'for the purpose of smelting the iron ores in the neighborhood.' They 'early erected several forges and engaged extensively in the iron manufacture.' Whippany is about fifteen miles east of the celebrated Succasunna iron-ore mine, in the present township of Roxbury, and it was here that the settlers obtained their supply of ore. The ore was carried to the works in leather bags on pack-horses, and the iron was carried in the same way over the Orange mountains to Newark. Bishop says that 'forges at Morristown, and some in Essex county, were long supplied in the same way from the rich ore of the mine. The ore was for some time free to all.' Dr.

Tuttle says: 'The Succasunna mine lot was located in 1716, by John Reading, and sold the same year to Joseph Kirkbride, containing 558 acres, and after his death the tract was divided between his three sons—Joseph, John and Mahlon Kirkbride—except the mine lot, which was held by them in common until such time as the same should be sold.' This celebrated iron ore deposit has long been known as the 'Dickerson Mine.'

"Dr. Tuttle says that in 1722, Joseph Latham sold a tract of land in the present township of Mendham, in Morris county, to 'one John Jackson, who built a forge on the little stream' which puts into Rockaway, near the residence of Mr. Jacob Hurd. The forge was nearly in front of Mr Hurd's house,' a mile west of Dover. Wood for charcoal was abundant, and the mine on the hill was not far distant. For some reason Jackson did not succeed in his iron enterprise, and was sold out by the sheriff in 1753. Dr. Tuttle says that Rockaway was settled about 1725, or possibly as late as 1730, 'at which time a small iron forge was built near where the upper forge now stands in Rockaway.' This statement fixes the date and location of the first forge at Rockaway. The Doctor says that subsequently 'forges were built on different streams at Rockaway, Denmark, Middle Forge, Ninkee, Shaungum, Franklin, and other places, from the year 1725 to 1770.' At Troy, in Morris county, as we learn from another source, a forge was built in 1743, which was in operation as late as 1860. All these forges were bloomaries, manufacturing bar iron from the ore.

"At the close of the seventeenth century, and for some years after the beginning of the eighteenth century, New Jersey was the only colony outside of New England that was engaged in the manufacture of iron, and this manufacture was almost wholly confined to its bloomaries. The rich magnetic ores, the well-wooded hillsides, and the restless mountain streams of Northern New Jersey afforded every facility for the manufacture of iron of a superior quality by this primitive method, while the nearness of good markets furnished a sufficient inducement to engage in the business. The bloomaries of New Jersey were Catalan forges of the German type.

"Not much progress was made, however, in the establishment of the iron industry in New Jersey until the middle of the

eighteenth century. From about 1740 down to the Revolution many furnaces and other iron works were built in New Jersey. The iron industry during the greater part of this period was exceedingly active, although greatly hampered by restrictions imposed by the mother country. To the iron enterprises which were then built up within its borders, the patriotic cause was afterwards greatly indebted for much of the iron and steel that were needed to secure its ascendancy.

“Peter Hasenclever, a Prussian gentleman of distinction, who is usually referred to as Baron Hasenclever, emigrated to New Jersey in 1764, as the head of an iron company which he had organized in London, and brought with him a large number of German miners and ironworkers. His career in this country is very fully described by Dr. Tuttle in his history, and by Edmund D. Halsey, Esq., of Rockaway, in a letter which we have received from him. Dr. Tuttle first gives an account of the Ringwood Company, which was organized in 1740 and was principally composed of several persons named Ogden. In the year named and in 1764 the company purchased about thirty acres of land at Ringwood, near Greenwood lake, in Bergen, now Passaic county. By one of the purchases of 1764 Joseph Board conveys to the company a tract of land at Ringwood ‘near the old forge and dwelling house of Walter Erwin.’ On July 5, 1764, the Ringwood Company sell to ‘Peter Hasenclever, late of London, merchant,’ for £5,000, all of the company’s lands at Ringwood. The deed states that on the property there are ‘erected and standing a furnace, two forges, and several dwelling houses.’ It speaks of ‘Timothy Ward’s forge;’ also of the ‘old forge at Ringwood.’ Hasenclever also bought from various persons other tracts of land in 1764 at Ringwood and in its vicinity, and in 1765 he bought several tracts of land from Lord Stirling. These various purchases were located at Ringwood, Pompton, Long Pond and Charlottenburg, all in Bergen county. Hasenclever also probably purchased an interest in the iron ore mines at Hibernia. Dr. Tuttle says that ‘Hasenclever at once began to enlarge the old works and build new ones at each of the places just named,’ that is, Ringwood, Pompton, Long Pond and Charlottenburg. It is probable that he built a furnace and one or more forges at each place. Three furnaces and six

forges he certainly erected. The furnaces were erected, respectively, as follows: Charlottenburg, on the west branch of the Pequannock; Ringwood, on the Ringwood branch of the Pequannock; Long Pond, on the Winockie, and about two miles from Greenwood lake. Charlottenburg was built 1767, and was capable of producing from 20 to 25 tons of pig iron weekly. Long Pond was in blast in 1768.

"Hasenclever undoubtedly succeeded in making good iron, some of which was shipped to England. He also made steel of good quality directly from the ore. In 1768 he became financially embarrassed, and in 1770 was formally declared a bankrupt. He was succeeded in the management of the company's works by John Jacob Faesch, who had come to New Jersey with him, under an engagement as manager of the iron works for seven years. Faesch was a native of Hesse Cassel. He is said to have mismanaged the affairs of the company, and in 1771 or 1772 was succeeded by Robert Erskine, a Scotchman, who appears to have met with success until 1776, when all the works were stopped by the opening of hostilities, and Charlottenburg furnace was accidentally burned.

"Robert Erskine was thoroughly loyal to the Revolutionary cause, and held a commission as captain in the New Jersey militia. He died at Ringwood in 1780, 'and his grave occupies a retired spot about a quarter of a mile from the ruins of the old Ringwood furnace, near the road leading from Ringwood to West Milford.'

"The Adventure furnace, at Hibernia, in Morris county, was a famous furnace during the Revolution, casting ordnance and other iron supplies for the army. It was built about 1765. Mr. Halsey says that a tract of land was located November 23, 1765, 'about three-quarters of a mile above the new furnace called the Adventure.' The name usually given to this furnace is Hibernia. Dr. Tuttle says that 'the names of Lord Stirling, Benjamin Cooper and Samuel Ford are connected with the original building and ownership of the Hibernia works.' He also says that 'Benjamin Cooper & Co.' held 'pew No. 6' in the old Rockaway meeting-house in 1768. A grant of certain privileges to encourage the enterprise was made by the legislature in 1769. In 1765 Ford sold his interest in the furnace to Anderson and

Cooper, after which sale he was actively engaged for a number of years in the business of counterfeiting 'Jersey bills of credit,' which he afterwards pleasantly referred to as 'a piece of ingenuity.' In 1768 he participated in the robbery of the treasury of the Province at Amboy, his former partner, Cooper, being one of his associates. Ford was arrested in 1773, but escaped to Virginia; Cooper and others were also arrested and convicted, but all except one escaped punishment, and he was hanged. Previous to the time of his arrest, in 1773, Cooper appears to have sold his interest in Hibernia furnace to Lord Stirling, who became its sole owner about this time.

"Mount Hope furnace, about four miles northwest of Rockaway, was built in 1772 by John Jacob Faesch. It was active until about 1825. It also was a noted furnace during the Revolution, casting shot and shells and cannon for the Continental army. In September, 1776, Joseph Hoff, who was at this time the manager of Hibernia furnace, wrote to its owner that Faesch had spoken to him 'to inform you that he wanted 200 tons of pig metal, and wanted to know your price and terms of payment. Iron will undoubtedly be in great demand, as few works on the continent are doing anything this season.' This letter indicates that at the time it was written Faesch owned or controlled a forge for converting pig iron into bar iron. On the 14th of November, 1776, Hoff wrote to General Knox that there were then 35 tons of shot at Hibernia furnace, and on the 21st of November he wrote that it was the only furnace in New Jersey which he knew to be then in blast. The Hibernia and the Mount Hope furnaces were both in blast in 1777. Mr. Halsey informs us that among the laws of New Jersey for 1777 is an act, passed October 7, exempting men to be employed at Mount Hope and Hibernia furnaces from military service, and reciting the necessity of providing the army and navy of the United States with cannon, cannon shot, etc., and that the works 'have been for some time past employed' in providing such articles, and 'are now under contract for a large quantity.' Faesch is said by Dr. Tuttle to have become the lessee of Hibernia furnace at some time during the war. He says 'this must have been subsequent to July 10, 1778, at which date I find a letter to

Lord Stirling, from Charles Hoff, his manager at Hibernia, reporting to him what he was doing.'

"Faesch died at Old Boonton in 1799, and was buried at Morristown. Dr. Tuttle says that 'in his day John Jacob Faesch was one of the great men of Morris county, regarded as its greatest ironmaster, one of its richest men, and one of its most loyal citizens.' General Washington and his staff once visited him at Mount Hope.

"Lord Stirling, whose proper name was William Alexander, was born in New York in 1726 and died in 1783. As has been shown in the chapter relating to New York, his name has been given to one of the oldest and most successful iron enterprises in the country.

"Colonel Jacob Ford, Sr., was a large landholder in Morris county about the middle of the last century. In 1756 he was the owner of 'iron works' at Mount Pleasant, three miles west of Rockaway. There was a forge at this place as late as 1856, but almost in ruins. In 1764 John Harriman owned a forge called Burnt Meadow forge, at Denmark, about five miles north of Rockaway, of which Colonel Jacob Ford, Jr., afterwards became the owner. Colonel Ford also about the same time became the owner of the forge below Denmark and above Mount Pleasant, called ever since Middle forge, which was built on land located by Jonathan Osborne in 1749. The United States Government now owns the site of the forge last mentioned. John Johnson had 'iron works' at Horse Pound, now Beach Glen, a mile and a half below Hibernia, from 1753 to 1765, as appears from references to them in the title papers of adjoining lands.

"In Andover township, in Sussex county, a furnace and forge were erected by a strong company before the Revolution, probably about 1760, and the works were operated on an extensive scale. About the beginning of hostilities the works were stopped, the company being principally composed of royalists. The excellent quality of the iron made from the ore of the Andover mine led, however, to such legislation by Congress in January, 1778, as resulted in again putting them in operation. Mr. Whitehead Humphreys, of Philadelphia, was directed by

Congress to make steel for the use of the army from Andover iron, as the iron made at the Andover works was the only iron which would 'with certainty answer the purpose of making steel.' The action of Congress is given in detail by the Hon. Jacob W. Miller, in his address before the New Jersey Historical Society in 1854, who also records the interesting fact that William Penn was an early owner of the Andover mine. He says that, 'on the 10th of March, 1714, by a warrant from the council of Proprietors, he acquired title to a large tract of land, situated among the mountains, then of Hunterdon, now of Sussex, county, and William Penn became the owner of one of the richest mines of iron ore in New Jersey. This mine, since called Andover, was opened and worked to a considerable extent as early as 1760. Tradition reveals to us that the products of these works were carried upon pack-horses and carts down the valley of the Mosconetcong to a place on the Delaware called Durham, and were thence transported to Philadelphia in boats, which were remarkable for their beauty and model, and are known as Durham boats to this day.'

"Franklin furnace, near Hamburg, in Sussex county, which was built in 1770 and abandoned about 1860, has been succeeded by one of the largest anthracite furnaces in the country—67 feet high and 23 feet wide at the boshes.

"Israel Acrelius, the historian of New Sweden, who resided in this country from 1750 to 1756, mentions five iron enterprises then existing in New Jersey—the Union iron works, and Oxford, Sterling, Ogden's, and Mount Holly furnaces. Oxford furnace, on a branch of the Pequest river, at Oxford, in Warren county, was built by Jonathan Robeson in 1742. Tradition says that it was first blown by a water-blast. A pig of Oxford iron, bearing the date '1755,' is now in possession of the Historical Society at Trenton. Oxford cannon balls, cast during the French war, have also been preserved. Cannon balls were cast at this furnace for the Continental army. The furnace is still standing and was in operation in 1880, using anthracite coal. It is the second furnace in New Jersey of which there is any exact record, the Shrewsbury furnace being the first. It divides with Cornwall furnace, in Pennsylvania, the honor of being the oldest furnace in the United States that is now in operation. The Union iron

works were situated near Clinton, in Hunterdon county, and embraced at the time of Acrelius' visit two furnaces and two forges, 'each with two stacks'; also a trip-hammer and a 'flatting-hammer.' These works were then owned by William Allen and Thomas Turner, of Philadelphia. William Allen was Chief Justice of Pennsylvania from 1751 to 1774. Allentown, in Pennsylvania, was named after him. He was largely interested in the manufacture of iron in Pennsylvania and New Jersey. In October, 1775, he gave his 'half of a quantity of cannon shot belonging to him and to Turner for the use of the Board of the Council of Safety'; but he remained loyal to the British crown, nevertheless, dying in London in 1780. The Union iron works appear to have been entirely abandoned in 1778. Judge Allen informed Acrelius that at the Union iron works, and also at Durham (hereafter to be mentioned), one and a half tons of ore yielded one ton of pig iron, and that a good furnace yielded from twenty to twenty-five tons of pig iron weekly. Ogden's furnace was situated near Newton, in Sussex county. Mount Holly furnace was situated at the town of that name, in Burlington county. It was built between 1730 and 1747, and is probably as old as Oxford furnace. A forge was connected with the furnace. The works stood where the saw-mill at the south end of Pine street, on Rancocas creek, now stands. All of the furnaces named, except Mount Holly, used magnetic ore; Mount Holly, according to Acrelius, used 'brittle bog ore in gravel, which was only serviceable for castings.' But the existence of the forge, and the further fact that pig iron has been found in the ruins of the works, show that the ore was used for something else than castings. The furnace was in operation before and partly through the Revolution. It was destroyed by the British during that period. Acrelius mentions, but does not name, four bloomeries in New Jersey, all 'in full blast' during his visit. The Sterling furnace referred to by Acrelius was Sterling furnace in New York, but then probably embraced within the boundaries of New Jersey, particulars of which have already been given.

"On the 10th of November, 1750, Governor Belcher certified that there were in New Jersey 'one mill or engine for slitting and rolling of iron, situate in the township of Bethlehem, in the

county of Hunterdon, on the south branch of the river Raritan, the property of Messrs. William Allen and Joseph Turner, of Philadelphia, which is not now in use; one plating-forge, which works with a tilt-hammer, situate on a small brook at the west end of Trenton, the property of Benjamin Yard, of Hunterdon, which is now used; one furnace for the making of steel, situate in Trenton, the property of Benjamin Yard, which is not now used.' Steel was, however, made at Trenton during the Revolution. A rolling and slitting mill was built at Old Boonton, in Morris county, before the Revolution, and a similar enterprise was established at Dover, in the same county, in 1792, by Israel Canfield and Jacob Losey. In 1800 there were in this county three rolling and slitting mills, two furnaces, 'and about forty forges with two to four fires each.'

"Mr. Halsey furnishes us with the following interesting episode in the history of Old Boonton slitting mill: 'A slitting mill was erected at Old Boonton, on the Rockaway river, about a mile below the present town of Boonton, in defiance of the law, by Samuel Ogden, of Newark, with the aid of his father. The entrance was from the hillside, and in the upper room first entered there were stones for grinding grain, the slitting mill being below and out of sight. It is said that Governor William Franklin visited the place suddenly, having heard a rumor of its existence, but was so hospitably entertained by Mr. Ogden, and the iron works were so effectually concealed, that the Governor came away saying he was glad to find that it was a groundless report, as he had always supposed.'

"In the southern part of New Jersey several furnaces were built at an early day to smelt the bog ores of that section. Of these the furnace at Mount Holly, already mentioned, was probably the oldest. Batsto furnace, also in Burlington county, was built about 1766 by Charles Reed, and cast shot and shells for the Continental army. Many bloomaries were also built in this section in the last century, to work bog ores. The 'Jersey pines' furnished the fuel for both the furnaces and bloomaries. It was stated in the chapter relating to New England iron enterprises in the last century that ore was taken from Egg Harbor, in New Jersey, to supply some Massachusetts furnaces. This was bog ore. Batsto furnace was situated on Little Egg Harbor

river, and ran until after the middle of the present century. Sheet iron was made at a forge at Mount Holly in 1775, by Thomas Mayburry, some of which was used to make camp-kettles for the Continental army. A nail factory was in operation at Burlington in 1797. In 1814 or 1815 Benjamin and David Reeves, brothers, established the Cumberland nail and iron works at Bridgeton, in Cumberland county, and for many years successfully manufactured nails, with which they largely supplied the eastern markets. These works are still in operation.

"In 1784 New Jersey had eight furnaces and seventy-nine forges and bloomaries, but principally bloomaries. In 1802 there were in New Jersey, according to a memorial to Congress adopted in that year, 150 forges, 'which, at a moderate calculation, would produce twenty tons of bar iron each annually, amounting to 3,000 tons.' At the same time there were in the State seven blast furnaces in operation and six that were out of blast; also four rolling and slitting mills, 'which rolled and slit on an average 200 tons, one-half of which was manufactured into nails.' Of the forges mentioned, about 120 were in Morris, Sussex and Bergen counties. Of the numerous charcoal furnaces which once dotted New Jersey not one now remains which uses charcoal, the introduction of anthracite coal in the smelting of iron ores, which took place about 1840, rendering the further production of charcoal pig iron in New Jersey undesirable. The last charcoal furnace erected in the State was built at Split Rock, in Morris county, by the late Andrew B. Cobb, just prior to the Civil War, but it was soon abandoned. Only two or three of the old bloomaries of New Jersey now remain, although there are in the State a few bloomaries and forges of modern origin, as well as a number of large rolling mills, steel works, wire works, pipe works, and anthracite furnaces.

"Peter Cooper, now living in New York, at the age of 90 years, embarked in the iron business at Trenton, in New Jersey, in 1845, where, as is stated by the *American Cyclopædia*, 'he erected the largest rolling mill at that time in the United States for the manufacture of railroad iron, and at which subsequently he was the first to roll wrought-iron beams for fire-proof buildings.' He had previously, however, been prominently engaged in the manufacture of iron at Baltimore and New York. In

connection with members of his family he also embarked in many other important iron enterprises in New Jersey. His name has been the most prominent and the most honored in the iron history of the State during the present century.

"In 1870 New Jersey was fourth in rank among the iron-producing states of the Union, but in 1880 it had fallen to the fifth place. * * *

"In 1790, Morse's geography claimed, in a description of New Jersey, that 'in the whole State it is supposed there is yearly made about 1,200 tons of bar iron, 1,200 ditto of pigs, and 80 of nail rods;' and in 1802 it was boastingly declared, in a memorial to Congress, that there were then 150 forges in New Jersey, 'which, at a moderate calculation, would produce 20 tons of bar iron annually, amounting to 3,000 tons.' In 1880 there were several rolling mills in New Jersey and several hundred in the United States, which could each produce much more bar iron in a year than all of the 150 forges of New Jersey would produce in 1802."

The following table will show the statistics of iron and steel production in this State during the census year (1880):

STATISTICS OF IRON AND STEEL PRODUCTION.

BUSINESS.

BUSINESS.	Number of establish-ments.	Capital.	Real and personal.	AVERAGE NO. OF HANDS EMPLOYED.			Average No. of hours of labor per week.	Average day's wages for a skilled me-CHANIC.	Average day's wages for an ordinary laborer.	Total amount paid in wages during the year.	Months in active operation †	Total value of all materials.	Value of all products.	Weight—tons.
				Total number.	Males above sixteen years.	Males below sixteen years.								
Grand aggregate of iron & steel manufacture.....	40	\$9,099,050	4,792	4,711	81	63	\$2 32	\$1 21	\$1,808,448	9	\$6,556,283	\$10,341,896	243,860	
Blast furnaces.....	13	3,694,500	1,174	1,150	24	71	1 75	1 20	365,639	10	2,488,670	3,428,747	* 157,414	
Iron rolling mills.....	14	4,000,550	2,820	2,763	57	57	2 78	1 22	1,086,375	9	2,778,669	4,556,765	† 66,030	
Bessemer and open-hearth steel works (a).....	1											342,337	534,439	† 5,398
Crucible and miscellaneous steel works.....	5	1,290,000	675	675	.....	60	2 63	1 42	326,247	12	793,964	1,612,850	11,189	
Forges and bloomeries.....	7	114,000	123	123	.....	58	2 24	1 19	30,187	7	152,643	209,095	3,829	

GRAND AGGREGATE BY COUNTIES.

Cumberland.....	1	\$500,000	311	311	.....	55	\$2 00	\$0 95	\$124,000	11	\$292,700	\$441,000	6,161
Essex.....	3	600,000	281	281	.....	65	2 50	1 48	126,144	9	471,946	771,078	9,016
Hudson.....	5	1,100,000	510	498	12	64	2 51	1 43	245,634	12	1,044,826	1,847,687	33,247
Mercer.....	3	1,945,550	1,391	1,361	30	57	2 59	1 23	518,325	12	1,371,245	2,340,381	28,315
Morris.....	13	1,140,500	474	472	2	62	2 59	1 22	111,103	7	491,833	704,229	22,455
Passaic.....	5	560,000	656	656	.....	59	2 22	1 19	302,660	9	519,029	927,803	16,019
Sussex.....	2	700,000	256	249	7	73	1 60	1 08	106,872	12	714,515	1,130,480	50,825
Union.....	1	25,000	60	57	3	65	3 00	1 25	15,000	3	50,750	72,000	1,200
Warren.....	7	2,528,000	853	826	27	65	1 99	1 09	258,710	8	1,599,439	2,107,238	76,622

NOTE.—Total production in U. S. (1880) 7,265,140 tons, valued at \$296,557,685. Total production in New Jersey in 1870, 115,262 tons.

(a) The only open-hearth steel works is so interwoven with a crucible steel works that it is not possible to separate all the details.

* Includes 116,443 tons of anthracite pig iron (and spiegelisen), 40,891 tons of mixed anthracite and coke pig iron, and 80 tons of castings direct from furnace.
† Includes 15,998 tons of bar iron, 5,600 tons of rod iron, 20,490 tons of structural iron, 1,650 tons of skelp iron, 1,150 tons of sheet iron, 100 tons of all other rolled iron, 14,803 tons of cut nails, and 6,239 tons of all other finished products (horse shoes, railroad spikes, wire, &c.)

‡ Includes 3,700 tons of open-hearth steel bars.
§ Includes 10,189 tons of finished crucible steel, 1,000 tons of other products.

¶ Includes 523 tons of blooms and bar iron made from ore, and 3,306 tons made from pig and scrap iron.

‡ Reducing part time to full time.

PART VII.

THE DAIRY INTEREST.

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THE DAIRY INTEREST.

The dairy interest of this country has been growing with such marvelous rapidity during the past few years, that it is now one of the most important branches of our national industry, for, wherever grass grows for cattle, dairy farming has become a leading as well as a most remunerative agricultural pursuit. Although less than a quarter of a century ago New York and Ohio were the only important dairy states in the Union, dairying is now generally followed with great success in every section of the country, especially in the west and northwest, where it has proved profitable because cheap and certain, and thousands of grain-growing farms there have been converted wholly or in part into dairy farms. But the area of dairy production in the old dairy states is larger than ever before, and to the eastern farmers who are unable to compete with those in the "prairie" states in raising cereal crops, it is the sheet-anchor of agriculture. This section is admirably adapted to the successful prosecution of dairy farming, and no branch of agriculture has so much promise for the future as the production of milk, butter and cheese. Larger and larger quantities of these products are needed not only for domestic consumption, but to supply the constantly increasing foreign demand. With the markets of the world at our very doors, the farmers of New Jersey need have no fear of over-production, provided the articles be of the kind and quality which are wanted.

"No branch of agriculture stands upon a more substantial basis than the dairy. It has the elements of success and prosperity; it must prove remunerating and enduring. It is endowed with vast capital; it has clearly inaugurated a system of instruction for the people, by which the principles of science, mechanism, political economy and the laws of trade are to be learned

by the farmers of the country. It is to-day a tremendous power in the land, working for the progress of the whole country, and it is destined to sweep along with irresistible force.”*

In 1840 the total value of the dairy products of the United States was only \$33,787,008. In 1860, when the associated dairy system began to attract attention, it was estimated that the entire milk crop of the United States exceeded in value \$160,000,000. In 1840 there were 4,837,043 milch cows in this country; in 1850, 6,385,094; in 1860, 8,581,735; in 1870, 8,935,332, and in 1880, 12,442,137 on the farms† alone, the increase in the ten northwestern states having been sixty-three per cent. in the past ten years. In 1850 we produced 313,345,306 pounds of butter and 105,535,893 pounds of cheese. In 1860 these figures had changed to: Butter, 459,681,372 pounds; cheese, 103,663,927 pounds. In 1870 the aggregate amount produced annually was: Of butter, 514,092,683 pounds; of cheese, 53,492,153 pounds;‡ of milk, 235,500,599 gallons sold in the market and to factories.

In 1880 the products of the dairy had increased nearly three-fold and the production of milk more than two-fold. The value of the annual production of butter and cheese has been estimated at over \$350,000,000, or one-seventh more than the hay crop, one-third more than the cotton crop, and only one-fifth less than the corn crop. There are 13,000,000 milch cows in the United States—six times the number in Great Britain, and more than twice the number in France. The latest estimates give the number in the leading European countries (Germany, France, Great Britain, Ireland, Denmark, Sweden, Norway and Switzerland) at 20,674,365, or only one-third more than in the United States. Ours is the most important dairying country in the world, Germany next, while France stands third in the list, only having about one-third as many cows as we possess.

OUR EXPORTS.

Our dairy products are exported to fifty different countries, Great Britain being our largest customer, taking two-thirds of

*Hon. X. A. Willard, in an address on "The Dairy, its Profits and Prospects," delivered before the American Agricultural Association, in December, 1879.

†The number of neat cattle not on farms was estimated, in the United States Census returns in 1860, at 3,347,009, and in 1870 at 4,273,973.

‡Exclusive of the product of cheese factories, valued at \$16,771,665.

the amount. While, in 1860, the total value of butter and cheese sent to foreign countries did not amount to \$3,000,000, during the fiscal year 1881 we exported nearly \$23,000,000 worth, or two-thirds of the value of our total product forty years before. In 1870 there were exported to foreign countries 2,019,288 pounds of butter and 57,296,327 pounds of cheese, valued respectively at \$592,229 and \$8,881,934. In 1881 the exports had increased to: Butter, 31,560,500 pounds; cheese, 147,995,614 pounds; their respective values being \$6,256,024 and \$16,380,248. The increase in the value of these exports was: Butter, \$5,663,795; cheese, \$7,498,314. "The value of cheese is nearly double that of any other product in the schedule of agricultural exports, and the United Kingdom takes ninety-six per cent. of all exported."*

The total values of our dairy exports were, in 1860, \$2,709,951; in 1865, \$18,990,461; in 1870, \$9,474,163; in 1875, \$15,166,599; in 1880, \$18,862,407; in 1881, \$22,636,266. The average export price per pound of butter, in 1881, was 19.8 cents; of cheese, 11.1 cents.†

These figures indicate the value and importance of the dairy interest, which, especially in the northwest, has been a marvel of progress during the past ten years.

"ASSOCIATED DAIRIES."

The chief cause of the rapid development of our butter and cheese industry has been the American system of "associated dairies," brought within the past twenty years to such wonderful perfection that the business can be readily and successfully introduced into new sections adapted for the purpose. Associated dairying originated in the New York cheese-making districts, and in its earlier days was applied to that branch of the industry rather than to butter making. Butter making, pure

* Report of United States Commissioner of Agriculture, 1880, p. 209.

† It is not so much the enormous amounts of these articles exported that is worthy of attention as it is the steadiness of the increase recently from year to year, showing that this stupendous export * * * is not based on fictitious circumstances that may speedily change. The price of the native products of land do not change materially in Europe. The land itself cannot become much cheaper or produce more, nor can farm laborers be expected for less wages than they at present receive. In America land may become dearer, it is true, but in proportion that it becomes dearer will immigration increase its products, while new methods of farming * * * and transporting will double and treble the capacity of our country for supplying the world cheaply with life's necessities.—*Report of Consul S. H. M. Byers, Zurich, October, 1881, U. S. Commercial Reports.*

and simple, succeeded the cheese factory; and derived from both, we have the later establishments, known by the general name of "creameries."

Although cheese making was begun in Herkimer county, N. Y., nearly three-quarters of a century ago, it was still in its infancy, in America, in 1830, when dairying had become quite general in the northern part of that county; for it was not till some years later that the inhabitants of the adjoining counties in that State engaged in this industry. But, as Prof. Willard observes,* "all the operations of the dairy were rude and undeveloped; everything was done by guess, and there was no order, no system and no science in conducting operations." With the advent of the factory system, which did not come into general use till 1870, all this was changed, and to it is owing the progress made in the dairying industry. By this method a better and more uniform quality of goods was produced more cheaply than could have been done by the old plan, by which each farmer manufactured his own dairy products; and, even if the increased demand for them had arisen, it could not have been supplied without the establishment of "associated dairies."

The originator of the factory system, or of the "American system of associated dairies," as it is called, was Jesse Williams, a farmer living near Rome, N. Y., who was an experienced and skilled cheese maker. In 1851, one of his sons, who had just been married, began farming on his own account, but, not being practiced in the business, agreed to deliver all his milk at his father's milk house, the latter undertaking to do the cheese making. The enterprise proved a great success; and from this little beginning came the idea of "associated dairying," of bringing all the milk from neighboring dairies to one factory, where the manufacture of its various products takes place. This system is now extensively followed in this country, especially in New York, Ohio, and in the western states. In many places it has also received a more extended application, one expert often controlling the operations in a number of factories, ranging from two to twenty or more. In this way the rare skill of superior experts is made available to its utmost extent; and, it is said, that this new departure has done as

* "Practical Dairy Husbandry."

much, if not more, to elevate the standard of American dairy products, than the original idea.

There was only one cheese factory in the United States, in 1851. In 1866, fifteen years later, there were 500 in the State of New York alone. "These 500 factories would probably average 400 cows each, making a total of 200,000 cows, which, at the low cash value of \$40 each, give an aggregate of \$8,000,000. The lands employed in associated dairying in New York, in 1866, could not be less than 1,000,000 acres, which, at an average of \$40 per acre, would amount to \$40,000,000."*

In 1870 the number of the cheese factories in the whole country was 1,313, and the capital invested in them amounted to \$3,690,075. Gallons of milk used, 116,466,405. Value of all materials used, \$14,089,284. Value of cheese produced, \$16,760,569; of other products, \$61,096. The number of cows supplying each factory ranged from 100 to 1,000.

"As yet," observed Mr. Arnold,† in 1878, "the advantage of co-operative dairying has been chiefly applied to cheese making, but there is even a greater necessity for applying it to butter making, since the butter interest is at least three times as large as the cheese interest. * * * Butter factories and creameries differ in this: the former make only butter, the latter both butter and cheese. The buildings for the two purposes are necessarily different, but in creameries they must be combined."

Butter making was inaugurated twenty years ago, in 1861, in Orange county, N. Y., and, in connection with the manufacture of skim milk cheese, has proved a success. "Its importance will be seen when it is known that the finest quality of butter can be produced under this system, thus avoiding the immense loss resulting from a poor article, as manufactured in private families, together with the saving effected by turning the skim milk into cheese."‡ A number of these factories were first in

*Prof. X. A. Willard.

†"American Dairying," by L. B. Arnold.

‡"Creameries are carried on with two distinct purposes. The design of one class of creameries is to take off all the cream that can be obtained without souring the milk, and making from the stale milk an inferior quality of skim cheese, with the hope of getting better returns than from feeding it to calves or pigs. In the other class of creameries the purpose is to take off no more cream than will allow making a good, or, at least, fair article of cheese from the skim milk."—L. B. Arnold, in "American Dairying."

"It was a great surprise, received at first with incredulity and distrust, when, at the Centennial Exposition, the palm for superior butter was awarded to Iowa. But it was not an accident. In Iowa, in Illinois, in Wisconsin, creameries came into existence, acquired prestige, and commanded prices even above the rates for the standard goods of popular eastern establishments. Only the fancy brands, the product of a few popular dairies, which command extraordinary

operation in Orange county, N. Y., but the system has now been adopted, to a considerable extent, throughout the whole dairy region. To-day these co-operative factories extend, in an almost unbroken line, from Maine to California, and can scarcely number less than 5,000, "each factory sweeping a circle of influence on a radius of from two to three miles, through which many thousands of dairymen are held by strong pecuniary bonds. In many districts a new industry has been created in a single decade, and the increase in the quantity has been as great as the improvement in the quality of the products. The advance of the dairy interest in the west and northwest, especially in those states where the creamery system has been generally adopted, has been more than double that in the east, where the old method is still followed to a considerable extent.

DAIRYING IN NEW JERSEY.

In New Jersey,* although our farmers have been rather slow to take advantage of the new ideas in dairying, the progress made has been steady and will be still more rapid within the next few years. In 1850 there were on the farms in this State, 118,736 milch cows, while the product of butter amounted to 9,487,210 pounds, and that of cheese to 365,756 pounds. In 1860 these figures had changed to: Milch cows, 138,818; butter, 10,714,447 pounds; cheese, 182,172 pounds.

The following will show the number of milch cows, and product of butter and cheese made on our farms, and the number of gallons of milk sold off from the same:

	COWS ON FARMS.	MILK SOLD OFF FARMS.	BUTTER, POUNDS, ON FARMS.	CHEESE, POUNDS, ON FARMS.
By census of 1870...	133,331	5,373,323	8,266,023	38,229
By census of 1880...	152,078	15,472,783	9,518,835	66,518

prices from wealthy and fastidious purchasers, bear higher prices than the best butter of the northwest, and a few popular creameries readily obtain to-day from two to four cents more than eastern dairies of a high grade."—*From an address of United States Commissioner of Agriculture, Loring, before the National Dairymen's Association, November 30th, 1881, at Cedar Rapids, Iowa.*

*There are more varieties of cheese made in Europe than in America, which may be attributed in part to the greater attention which is paid there to economy in food. * * * Neufchatel and Brie are French cheeses made of the purest cream, and are esteemed as great delicacies. Both are now largely made in the State of New Jersey, and can be brought to the New York and Philadelphia markets in a better condition than if imported."—*American Cyclopædia.*

The United States Census returns only include the milch cows on the farms, and not those found in cities, towns and villages. Estimates made by the census officials, in 1860 and 1870, showed that about one-seventh of the total number of neat cattle in New Jersey were to be found outside of the farms—in 1870, 31,598; in 1860, 41,664. That this estimate was not too high will be conceded by those acquainted with the subject. The number of milch cows on the farms in Hudson county, which includes Jersey City and Hoboken, according to the census returns of 1870, was only 335; of 1880, 189. Of course, these figures are only a fraction of the total number in the whole county. The assessor of New Brunswick, after a careful estimate, placed the number of cows in that city at 450, of which no account had been taken in the returns for Middlesex in 1880. We think, therefore, that an estimate of 30,000 milch cows in the cities, towns and villages, exclusive of those on the farms, in New Jersey, will at least not be an unfair one. This would make the total number of milch cows in the whole State, 182,000, representing over \$6,000,000 in value, which is only a portion of the amount of capital invested in the milk business. The total annual product of a cow is usually estimated at 450 gallons of milk. This would make the yearly production of milk in New Jersey nearly 82,000,000 gallons, which, at two cents a quart, would have a value of \$6,560,000. But as only about forty per cent. is consumed as food, the rest being manufactured into butter and cheese, the value of the entire product is considerably greater. The total value of the butter and cheese made on the farms during the census year, was worth, at a low estimate, \$2,500,000.

The eight cheese factories, reported by the census of 1870, turned out, in addition to the cheese made on farms, a product valued at \$52,147. By the census of 1880, in the eleven butter and cheese factories returned, there was manufactured \$90,696 worth of products in addition to that made on the farms. The capital invested in these factories was \$42,220, employing 45 hands, who were paid \$7,982 in wages. The value of the materials used was \$69,565.

The number of creameries in the State to-day is more than

double what it was in 1880, notwithstanding that the past season has been a very unfavorable one for the dairy interest; and this fact undoubtedly prevented many of our farmers from organizing butter and cheese factories during the year. Associated dairies are now established in Hunterdon, Sussex, Monmouth, Somerset, Morris, Burlington, Salem, Gloucester, Mercer and Middlesex, and it may safely be prophesied that, in addition to those at present in existence, a considerable number will be begun during the ensuing year.

The following table gives a list of twenty-three associations, firms or individuals, who are engaged in the dairy business in New Jersey, either operating creameries (butter and cheese factories) or buying and selling milk and cream. Full returns have been received from fifteen creameries, which is about one-half the number at present in existence in the State. The factories reporting turned out products (butter and cheese) whose value amounted to over \$103,000. In thirteen factories 556,094 pounds of cheese were manufactured, while 207,335 pounds of butter were made in fifteen. The amount of capital invested in nineteen creamery establishments, from which this item was reported, was \$103,000, varying from \$1,500 to \$8,000 for each, being exclusive of the value of cows, etc.

The reports are supposed to cover the year ending October 31st, 1881, except the following: No. 3, from July 11th to December 1st; No. 4, from May 1st to October 31st; No. 5, from August 1st to October 1st; No. 8, June 14th to October 31st; No. 10, April 1st to November 1st; No. 15, August 1st to October 31st; No. 23, June 13th to February 1st, 1882; No. 7, manufactured cheese from April 20th to October 20th; No. 13, began operations on May 29th; No. 18, on April 1st, and No. 19, on September 5th. No. 21 "expected to start as soon as we can get a sufficient quantity of milk."

DAIRY ESTABLISHMENTS.

Establishments.	Number of individuals.	Location.	Capital.	NO COWS CONTRIBUTING MILK		Average number.	Quantity of milk received during year—pounds.	Average price paid per pound.	Quantity cream received.	Pounds of butter made.	Pounds of cheese made.	Kinds of cheese.	Size—inches.	Weight—dry.	Average pounds milk to one pound butter.	Average pounds milk to one pound cheese.	Value of butter sold.
1	40	Hunterdon	\$250,000	1,500	1,000	10,600,000	\$1.50 ^a	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
2	1	do.	3,500	.....	50	.....	.90 ^b	.....	.....	.....	.....	.....	.....	.....	.....	.....	\$4,346 30 ⁺
3	50	do.	5,000	300	225	413,940	.0127	.....	.....	.....	.....	.....	.....	.....	.....	.....	5,997 87
4	36	do.	2,700	400	250	1,009,546	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,250 00
5	46	do.	6,300	350	300	200,000	1.00 ^d	.....	.....	.....	.....	.....	.....	.....	.....	.....	150 00
6	2	do.	1,500	325	250	1,314,000	0.015	.....	.....	.....	.....	.....	.....	.....	.....	.....	6,185 11
7	28	Burlington	5,000	300	.....	1,247,527	0.011	.....	.....	.....	.....	.....	.....	.....	.....	.....	8,099 30
8	50	do.	7,500	350	250	344,370	1.20 ^d	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
9	2	Sussex	8,000	450	450	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5,534 86 ⁱ
10	1	do.	2,500	400	300	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
11	24	do.	4,000	.....	400	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
12	1	do.	2,000	500	.....	1,168,000 [*]	0.02 [*]										3,000 00
13	3	do.	4,500	275	.....	270,000 [*]	.017 [*]										4,300 00
14	1	do. ....	.....	.....	235	380,800 [*]	.02 [*]										1,579 48
15	52	Monmouth	6,000	320	200	201,163	1.90 ^d	.....	.....	.....	.....	.....	.....	.....	.....	.....	420 00
16	29	do.	6,000	500	.....	1,518,973	.017	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
17	1	Morris	2,000	125	125	827,250	.015	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
18	2	Somerset	3,000	200	200	300,000 [*]	.0264 [*]										
19	46	do.	7,000	150	.....	131,871	.014	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,281 00
20	.....	do.	12,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
21	.....	Mercer	6,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
22	.....	Middlesex	8,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
23	57	Salern	6,000	441	.....	1,294,022	.01 ^{1/4}	.....	.....	.....	.....	.....	.....	.....	.....	.....	12,800 00

No. 1. All individuals except two small creameries lately started; very little butter and cheese made as yet; milk and cream sent to New York. No. 2. Farmer; buys but little milk; creamery his own No. 10. Operated on the Fairlamb, or cream-collecting system. * Quart, or per quart. † Net. ‡ Paid twelve and one-half cents per quart of cream. a \$1.50 per can of forty quarts. b Ninety cents per can. c Per one hundred pounds. d Included in No. 12. e Used two quarts cream to one pound butter. i Cost. l Total cost of milk, \$14,972.16.

DAIRY ESTABLISHMENTS—Continued.

Establishments.	Number of individuals.	Location.	Value of cheese sold.	Pounds of pure milk sold.	Value.	Value of skim milk sold.	Value of cream sold.	Quantity of cream sold.	Number hands employed.	Total amount wages paid.	Net receipts, less transportation and commissions.	Total sales.
1	40	Hunterdon	.....	250,000	\$5,512 87c	\$964 24	.....	.....	3	\$880 00	.....	\$6,477 11
2	1	do.	.....	.....	.....	.....	.....	.....	2	459 00	\$6,664 14	.....
3	50	do.	\$2,317 84†	.....	.....	.....	.....	.....	2	645 00	.....	11,187 63
4	36	do.	5,189 76	.....	.....	.....	.....	.....	3	186 00	2,700 00	2,950 00
5	46	do.	1,700 00	.....	.....	.....	.....	.....	3	1,000 00 ⁿ	23,000 00	28,990 00
6	28	do.	.....	584,000	10,290 00	1,550 00	\$17,000 00	175,000 lbs.	2	.....	.....	18,157 46
7	2	Burlington	5,188 82	44,918*	3,783 45†	.....	3,783 45†	7,110 qts.	4	520 00	4,985 83	5,202 73
8	50	do.	1,928 48	.....	175 00†	.....	.....	.....	3	625 73	6,300 00	.....
9	2	Sussex	.....	.....	.....	.....	.....	.....	5	.....	.....	.....
10	1	do.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
11	24	do.	.....	.....	.....	.....	.....	.....	4	1,680 00	.....	39,840 00
12	1	do.	600 00	1,168,000*	35,040 00	1,200 00	.....	.....	3	600 00	.....	6,300 00
13	3	do.	2,000 00	.....	.....	.....	.....	.....	3	677 48	.....	9,945 43 ^k
14	1	do.	368 90	242,340*	6,058 50	216 00†	1,707 55	13,657 qts.	2	270 00	2,750 00	2,853 23
15	52	Monmouth	2,425 00	.....	.....	.....	.....	.....	2	4,027 84 ^m	.....	19,000 00
16	29	do.	.....	2,040*	.....	.....	.....	11,140 qts.	1	700 00	.....	12,408 75
17	1	Morris	.....	413,625*	12,408 75	.....	.....	.....	2	310 00	.....	.....
18	2	Somerset	.....	.....	.....	.....	.....	.....	3	.....	.....	2,196 00
19	46	do.	916 00	.....	.....	.....	.....	.....	.....	.....	.....	.....
20	.....	do.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
21	.....	Mercer	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
22	.....	Middlesex	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
23	57	Salem	6,375 00	.....	.....	.....	.....	.....	5	1,507 00	.....	19,175 00

No. 1. All individuals except two small creameries lately started; very little butter and cheese made as yet; milk and cream sent to New York. No. 2. Farmer; buys but little milk; creamery his own. No. 10. Operated on the Fairlamb, or cream-collecting system. * Quart, or per quart. † Net. c Including cream sold. ‡ Includes value of milk and cream. § Included in No. 12. ¶ 21,600 quarts. † Includes \$15 for buttermilk. m Current expenses, profit and loss. n Hauling, &c.

THE CREAMERY OUTFIT.

The cost of building a butter and cheese factory combined, of a capacity of 400 cows, fitted up with the necessary machinery complete, was estimated by Mr. Willard, in 1872,* at \$10 per cow. "When the butter department is to be added to cheese factories already built, about a third of the cost will be in pails, two of which are required for every cow from which the milk is delivered. * * * It will hardly pay to build and run a factory for less than 300 cows, and it is not desirable to have the number of cows above 1,000. Extremely large factories, *e. g.*, of 1,500 cows, do not give the best returns to farmers. There is usually more waste, the milk coming from a long distance is often in bad condition, and the work in the factory is from time to time slighted. The best results are obtained, both as to quantity and quality of product, when the factory uses the milk of from 500 to 800 cows, and not above 1,000. Improvements are constantly being made in buildings. The early factories were rude and imperfect structures. The later erections are more substantially built, but very plain in style, with no pretensions to architectural beauty. This is a mistake. A competent architect should be employed, who should give designs for a handsome exterior, imposing, graceful and pleasing to the eye. The cost would not be very much more, but the value of such buildings would be greatly enhanced and could be turned to good account in case they were abandoned. The popular method of organizing factories, and one which seems to give good satisfaction, is to make them joint stock concerns. The ground is selected and an estimate made of buildings, machinery and fixtures. The whole cost is then divided up into shares of \$50 to \$100 each, and the neighboring farmers, or those favorable to the movement, take stock in proportion to the number of cows from which they are to deliver milk. Officers are chosen and the company managed as a joint stock company. After the structure is completed and furnished, a superintendent is chosen and help hired for running the factory, and the expenses are shared by the stockholders in proportion to the amount of milk

*Dairy Husbandry.

delivered. Repairs, additions, etc., from year to year are added to the expense account."*

As the dairy industry is being rapidly developed in our State, we give the following list of apparatus (with prices) now commonly used in a well-arranged creamery designed for 10,000 pounds, 4,000 quarts of milk per day, the approximate cost of running the same being thus shown:

One 12-horse power boiler and 8-horse power engine with shafting, belting, pulleys, hand or power elevator, hot and cold water, steam pipes, with all fittings and plumbing complete.....	\$1,100 00
Four milk vats, two cheese vats, one cream vat, with heating and cooling pipes.....	750 00
Twenty patent self-bandaging hoops, 13½ inch, @ \$7.50.....	150 00
One patent gang cheese press.....	45 00
One No. 10 Blanchard churn, with tight and loose pulleys...	50 00
One 5-beam sliding-poise scale, 600, with wheels.....	40 00
One 70-gallon receiving can (twin).....	25 00
One large milk conductor.....	2 25
One large curd knife to cut perpendicularly.....	5 75
One large curd knife to cut horizontally.....	6 25
One salt scale.....	3 75
One curd scoop, 85 cts.; one 1-gallon dipper, 85 cts.....	1 70
One whey siphon with gate and valve	2 25
One whey siphon strainer with spout.....	1 25
Two 12 gallon jars for annatoine, \$3.....	6 00
Two 10-inch nickel-plated thermometer, 50 cts.....	1 00
One set instruments for testing milk.....	3 50
Four dozen heavy flat-bottom test glasses, \$1.25.....	5 00
One set changeable brass stencil dates, for twelve months....	2 50
One box marking paste and brush.....	45
Two rubber floor scrubs or mops, 50 cts.	1 00
Two vat scrub brushes, 40 cts.....	80
One graduating coloring and rennet measure.....	90
Two butter bowls, 85 cts.; two butter ladles, 50 cts.....	2 70
One 240-pound short pillar Fairbanks cheese scale.....	15 25
One silver steel butter tryer.....	2 50
One cheese tryer, \$1.25; one hair seive, 80 cts.....	2 05
One excelsior butter worker with 6-inch roll.....	11 50
One milk account-book for 80 patrons.....	1 40
One treasurer's or secretary's book.....	75
One brass factory name plate.....	1 00
Fifty feet ¾ inch rubber hose, 16 cts.....	8 00
One steam pump with air chamber.....	100 00
Rapp's automatic butter printer for 1 lb. and ½ lb. prints.....	23 00
Twelve oak tubs, 60 cts.....	7 20

* Willard's Dairy Husbandry.

ALSO NECESSARY FURNISHINGS.

Ten pieces seamless bandage, 500 yards, 6½ cts.....	\$32 50
Twelve and one-half pound box annatoine, \$1.10.....	13 75
Five yards 48-in. heavy press cloth, 18 cts.....	90
Six yards 76-in. linen strainer cloth, 50 cts.....	3 00
One case, 12 gallons, Hansen's pure rennet extract, \$1.70....	20 40
One package, 2 M., scale boards, \$1.00.....	2 00
Twenty-five pounds pure potash, 15 cts.....	3 75
Twenty-five pounds sal soda, 3½ cts.....	88
One hundred best ash butter tubs, 56-lb, 33 cts.....	33 00
Fifty pounds Johnson's patent fly-proof cheese grease, 12 cts.	6 00
Five sacks Ashton's F. F. salt, \$2.75.....	13 75
One hundred yards Orange county butter cloth for prints, 5½ cts.....	5 50

The different plans of fitting, and different kinds of fittings used would make a range of \$500 in the above estimates, but it would not be safe to estimate less than \$2,500 as the necessary outlay for a creamery for 10,000 pounds of milk daily.

It will require close management to erect a building as shown by plan, 40x35, 2½ stories high, for \$2,500, including lot, &c.; therefore a capital of at least \$5,000 would be small enough with which to begin the business. The tendency has been to underestimate the cost of a creamery outfit and buildings, and the consequence has been a floating debt, which always tends to depress and discourage.

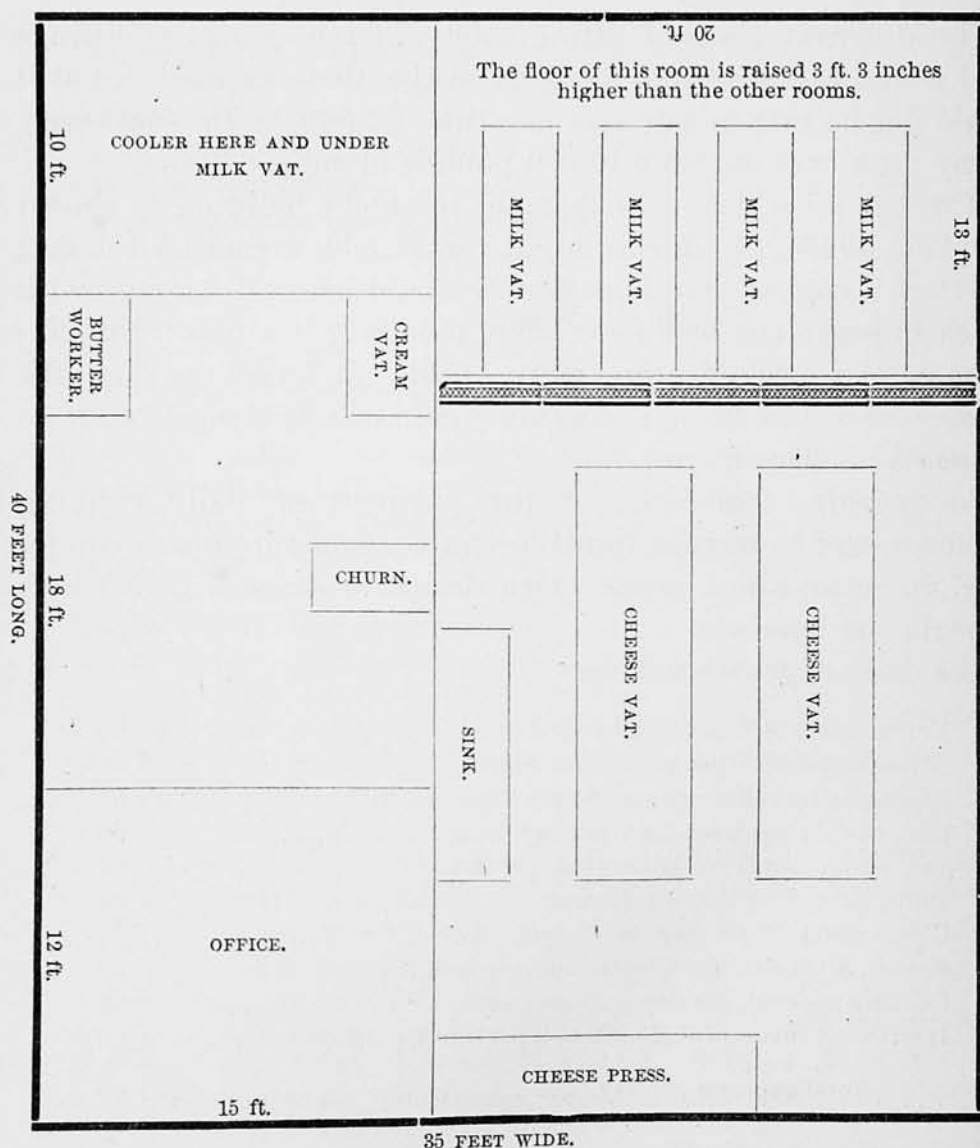
To provide, therefore, for the payment of daily running expenses, and to furnish funds for purchasing supplies, a capital of \$7,500 would be a much more desirable amount with which to begin the business.

The daily expenses will be:

Butter maker (\$50 per month) per day.....	\$1 66
Cheese maker (\$50 per month) per day.....	1 66
Superintendent (\$25 per month) per day.....	83
Coal, one ton per week, cost per day.....	60
Salt, one oz. per lb. of butter, cost per day.....	60
Butter tubs, 6 per day, @ 32 cents.....	1 92
Cheese boxes, 20 per day, @ 12 cents.....	2 40
Rennet, 4 per day, @ 8 cents.....	32
Coloring material, per day.....	10
Interest on investment (\$5,000 at 6 per cent.), per day.....	1 00
Total expenses per day.....	<u>\$11 09</u>

With this outfit one pound of butter and two pounds of cheese can be produced regularly from 12 quarts of milk, making 300 pounds of butter and 700 pounds of cheese per day from 4,000 quarts of milk. As the price of butter seldom falls below 30 cents per pound, and the price of cheese 8 cents, it will be seen that \$146 may be considered a safe estimate for the daily product of the factory, not estimating the value of buttermilk, whey and slop.

The following plan (representing the inside size) is for a creamery to manufacture butter and cheese from 10,000 pounds or 4,000 quarts of milk; for 6,000 quarts, make the building 10 feet wider:



In reply to a letter requesting information on the subject, Mr. H. J. Budd, proprietor of the Mt. Holly Creamery Co., sent us the following letter:

"MT. HOLLY, N. J., Jan. 2d, 1882.

"DEAR SIR—In answer to your inquiry I reply: We are using the Weiss system, which we considered the best until Marquis invented his automatic skimmer, now in use in the Hartford creamery, near us. The Marquis process saves from twelve to fifteen feet of the building of the usual size (44x42 ft., 2½ stories), as well as the necessity of four to six milk cooling vats and the labor of two men. By this process the milk is set cooled and the cream raised in the cheese vats. The skimming is done by a scraper pushing the cream into a sunken vessel (at the end of the vat), from which it is then siphoned out. (In the Weiss process the milk is drawn from under the cream.) The milk is then heated and transformed into cheese in the same vats.

"For making cheese Wire's circular cheese vat takes the lead. Were I starting a factory I think I should adopt Whitman & Burrell's twin circular vats for raising cream, and Wire's circular vat for cheese making, because it saves labor, that of two men, and cuts and agitates and salts by machinery, more easily and perfectly preparing the curd, and consequently a much better cheese results.

"If I took out four pounds of butter from two hundred pounds of milk, I would introduce lard into the skimmed milk, as full skimmed cheese is not worth much. But the proper plan is to take out only two pounds of butter and then work the remaining cream into cheese, when both products will find a ready market and fair price.

"Butter making is about the same in all the creameries."

The following remarks on the

ADVANTAGES OF THE CREAMERY,

by H. E. Alvoord, Esq., of Easthampton, Mass., before the Massachusetts Board of Agriculture, in December, 1879, reported in the twenty-seventh annual report of the Board, will be instructive as well as interesting in this connection:

"The first important fact we have to meet is that creamery butter has an established reputation for uniform good qualities. Here is a double merit—a good reputation as to quality, which, once established, makes a good market for almost everything, and uniformity in the product, an evenness of quality in large quantities from the same source, made at the same or different times. This uniformity is a great point, attractive alike to the merchant and consumer. For example, when a cart-load of butter, from the farms of Massachusetts or Vermont, reaches Boston, there are usually from 1,000 to 1,500 boxes or packages, and every one of these has to be examined, tested, to determine its grade. Very few makers of small quantities have such

reputation for a uniform article as to have it accepted week after week and priced without examination. But it is a very common thing for a car-load of creamery butter, from the far west, to be unloaded and placed in store without opening more than a half dozen tubs in the lot. You can readily see what a great advantage this is to the receiver and all merchants who handle it. * * *

"Every butter maker knows what a difference there is in the home product at different times. Sometimes my best butter cows are dry, and sometimes at their best; now the feed is first-rate and again it is poor; this week I am feeling well and take special pains with the work; last week I was sick, very busy and very careless; sometimes the butter 'won't come,' and when it does 'it is so soft!' Is it any wonder that the butter from the same dairy differs in its appearance, its consistency and its whole quality week after week? With such varying circumstances upon a single farm, with eight or ten cows, just think of the variations upon a hundred separate farms! How is it possible, when such a difference exists in the stock and the owners of it, in the pastures and water, the management and the making, for the butter from a hundred farms to have any uniformity? It *isn't* possible, and that's just what's the matter.

"But now let all the milk or all the cream from the thousand or more cows on the separate farms be brought daily, or twice a day, to one place and thoroughly mixed. You see at once how the law of average will give you a remarkable uniformity to the mass day after day, and month after month. In so large a number there will always be just about so many cows of one kind of milk and just so many of another, just so many fresh and so many giving rich strippings only. But add to this, uniform, methodical treatment of the cream or milk, and the butter made always in exactly the same way and by the best butter maker that can be found on all these hundred farms, whose whole time is devoted to the work, and it becomes clearer and clearer why the butter so made is uniform in quality and of a high grade. Moreover, let the many different owners of these cows, men who have an equal interest in the result, consent to be governed by rigid rules, wisely framed, to guard against those mistakes in feeding and management of cows, which so often injuriously

affect the butter, and the matter of a uniform product becomes clearer still. This is the creamery system. * * *

"The following are the advantages, a partial list at best, of the system :

"1. The expense of manufacturing, including maintenance of implements and apparatus, as well as of labor, is much less in proportion when conducted at one place and for large quantities than for small lots at a hundred different places.

"2. The tendency of this system is, unquestionably, to very greatly raise the average quality of the product from the same cows, as well as to insure uniformity. In many cases the butter and cheese produced by this method equals the best ever before produced in the same section, and at times surpasses it. If this is doubted, just see the revolution this creamery system has wrought in the west. Under the old method of separate dairies, they had the same soil and climate, the same pasturage, and, practically, the same cows and the same keepers. Then western butter was known in eastern markets only as 'grease.' With the very general substitution of co-operative dairying in the west came the change, and the result is but too well known to us. Western creamery butter beats that of our eastern dairies all along the line. Nor is this system successful only in the west; even in the famous old dairying county of Orange, N. Y., their factory butter now sells at the highest price.

"3. The advantages of disposing of the product in large quantities and by an expert agent, whose special duty it is to watch the market, are as great as in the manufacture.

"4. Last, but not least, is the great relief of having the milk or cream taken off the farm, saving all further labor and care. And this relief comes as a rule to that part of the working force of the farm which needs it most—the farmer's wife and daughters. Often this dairy duty is just so much in addition to the ordinary domestic cares, which are of themselves as great a burden as should be borne. Relieve not only the hands of the butter making task, but take it, by this change, entirely off the mind, and a wonderful improvement takes place in the whole household atmosphere. * * *

"Creameries differ much in their systems and management, and in considering the question of introducing co-operative

dairying in a given locality, the kind of creamery adapted to its wants will depend on various conditions. Milk producers near any of our large towns, where there is a steady demand for milk, butter and cheese, can advantageously associate for the sale of their product, especially if they are already selling milk and competing with each other. In such cases the milk should go to the creamery twice a day, and its manager should dispose of it in such a way as circumstances dictate. Much milk may be sold to peddlers in retail, or the concern may itself profitably deliver to families by its own wagons. Cream, skim milk, sour milk and buttermilk, can all be sold in our cities and towns. The milk not sold may be made up into butter, cheese, and cottage cheese, according to the market, and disposed of at wholesale or retail. Several establishments of this kind are in successful operation in different parts of the country; a part are co-operative or joint stock concerns, and others are owned by men who buy the milk outright from producers at fixed prices. Although included in the general term of creamery, such is more properly called a dairy in its broadest sense, or a milk association. One at Syracuse, N. Y., has for several years handled all the milk from sixteen hundred cows at a total expense of less than a cent a quart, and has returned to its patrons about three cents for every quart received during those years of low prices.

"But, taking the whole milk off the farm is, in the long run, practically selling the farm itself by the gallon or by the pound, and can only be afforded when the receipts for the milk are so good as to enable a return to the land by the purchase of food for the stock or of fertilizers. Butter alone, however, contains no nitrogen or other mineral matters of consequence, and may be perpetually produced and sold without perceptibly affecting the fertility of the farm, provided the skim milk be all used at home and in the best way."

"DEERFOOT FARM CENTRIFUGAL DAIRY.*"

"Perhaps it is safe to say there is no farm in America which can present so much that is novel and useful to the observer as

* From an article by E. Lewis Sturtevant, M. D., in the United States Agricultural Report for 1880, p. 629.

Deerfoot farm, Southborough, Mass., the property of Mr. Edward Burnett. It is not amateur farming that is to be seen here, but real 'fancy' farming, the use of intensive conditions, the employment of abundance of labor, and the availing, practically, of every new idea adapted to the conditions that promise improved profits. This farm covers about 300 acres, of which some 100 are tillable. Its specialties are fancy pork, gilt-edged butter and cream, family milk, skim milk and buttermilk. * * *

"The system adopted in the dairy department is to make each employe responsible for certain well-defined duties. Upon entering the dairy-room a framed placard is to be seen, thus :

"DEERFOOT FARM, SOUTHBOROUGH, MASS. , }
DAIRY DEPARTMENT, October, 1880. }

"Basement—Mr. M. responsible for machines, shafting, tanks; also, entry, stairs, &c.

"Milk-room—A. O'C. responsible for tanks, windows, elevators, &c.

"Upper floor, piazza—C. R. responsible for cans, milk-pails, sinks, racks, windows, scales, brass, &c.

"Refrigerators—J. E. M. responsible for churn, shafting, cream-pails, butter utensils, &c.

"J. E. M., *Foreman.*

"W. E. BARKE, *General Manager.*'

"This placard indicates what, in handling milk, must never be overlooked—the necessity of absolute cleanliness and the most scrupulous care exercised to prevent offensiveness in any form. In this respect Deerfoot farm is a model. The amount of water used is enormous. Hot steam is in constant requisition for scalding almost every surface, and rubber wraps and scrubbing cloths are in use almost continually. The men employed are dressed in white overalls and sacks and aprons. The tin is everywhere bright; wherever brass appears it is in full polish; the air is sweet and no foul odors anywhere; and this is the case not only within the dairy buildings and the cow-stables, but everywhere around them. One man is employed on the machines in the centrifugal rooms; he also cares for the skim milk. Another man cares for the bottling, which includes the washing of the bottles and other minor duties. A third man has charge of the butter manufacture. Over all is the skillful and exact supervision of the general manager, and behind him the proprietor. A steam engine of ten-horse power furnishes

the force required in both the dairy and the pork department, and this requires an engineer, who is also his own fireman.

"At the Deerfoot farm dairy there are in use the only centrifugal milk machines, on other than an experimental scale, in America. The value of the centrifugal process of separating cream is said to consist in saving more butter from milk than the ordinary method of setting milk. The claims for this process are: 1. It will do away with the bother and expense of setting milk in pans for cream raising. 2. It will necessitate the use of less capital in the erection of dairy-houses and fittings. 3. The cream can be separated from the milk as soon as withdrawn from the cow, and the cream churned immediately. 4. It opens up a new business in supplying fresh cream to consumers, who will not be slow in discovering its merits. 5. It will admit of the manufacture of sweet skim-milk cheese. 6. It offers economy in disposing of all the products of milk, fresh cream, fresh skim milk, sweet buttermilk. 7. A more complete separation of the cream from milk than can be obtained by the ordinary process. 8. It admits of the quick and ready disposal of surplus milk left over on the hands of milk contractors, and thus is of assistance in diminishing the waste inseparable from the handling of milk and bringing it before the consumer. 9. It purifies the milk completely by throwing out the slime and all extraneous matter.

"It seems to us that the use of the centrifugal machine will ultimately revolutionize the milk interest, although as yet its use must be deemed experimental only. In time manufacturers will realize what the dairyman requires in a machine, and inventive genius will seek its reward in this direction. It will be seen that the conditions required for a farmer's dairy centrifugal are different from those required for the factory where much milk is handled and where abundance of power is at hand. A machine at low cost, one that can be revolved at a sufficiently high speed by such a power as a farm can support, will tend to make easier the care of the milk and enlarge the profits. A dairy of twenty cows would save enough yearly, in extra butter produced, to pay for a machine.

"In our opinion, the farm machine must belong to the self-delivery class, be one in which the milk can be passed in a

steady stream and which will separate the milk into cream in one pail and skim milk in another. It must be simple in construction and efficient in action. The time occupied, if not unreasonably long, is of little consequence as compared to the economy of construction and running, and to efficiency. The dairy machine may be larger and more complicated, if necessary to secure greater efficiency, and may be intermittent or permanent in delivery, as may be found most desirable.

“The use of centrifugal machines for cream raising will also, in our opinion, call attention to the differences between milks, and will thus tend toward an increased attention to securing uniformity of milk by the use of milk from distant breeds of cows. From a theoretical and experimental position it may be prophesied with considerable certainty that the best results will occur where large-globuled milks are used and where the feed is of a nutritious and succulent character.

“It is also probable that the centrifugal machine may find use in the cheese factory in the manufacture of rich cheeses, and it is likely that at a less speed than for cream raising it may be used to drain the whey from curd. It can certainly find profitable use in city supply. Milk unsold can be quickly and cheaply separated into cream for the making of butter, and thus souring and other waste prevented.

“In 1868, D. W. Weston, of Boston, patented the machine in use at Deerfoot Farm. He has built, experimentally, many forms and is yet interested in their improvement, some recent patent claims having just been allowed.

“At the International Dairy Fair, in New York, in 1879, a machine was shown, in operation, by M. I. Krebs, of Denmark. At the present time we know of no machine being offered for sale in this country, and we cannot name their cost or price. The De Laval machine in England was priced at £28 for the 11-inch machine. The Lefeldt machine is priced, so we are informed, at even less.”

MILK-SUGAR.

The following note on milk-sugar was kindly furnished by Dr. Newton, State Inspector of Milk :

“One source of much profit to creameries and cheese factories completely neglected in this State, is the milk-sugar that may be separated from the whey. This article is of considerable importance in commerce, and there is a constantly increasing demand for it. In 1880 about 70,000 pounds were imported into the United States, mostly from Switzerland. The importation has increased eight-fold in seven years. In New York State, recently, some of the cheese factories have separated the sugar from the whey and have received very good prices for it. The best purified, ground milk-sugar is worth, in large quantities, from 45 to 50 cents a pound. Success in manufacturing is due to the checking of waste, perfection of detail, and utilization of by-products; this is eminently true for creameries. The man who looks to details, checks waste, and uses all that may be obtained from milk, will make any creamery pay and is sure of success.

“There is no reason why the creameries in this State should not separate the milk-sugar and thus add to the profits of the trade. Milk contains from three and a half to five per cent. of milk-sugar, and this sugar is easily obtained by evaporating the whey to a certain density and then allowing the sugar to crystallize out. No very expensive apparatus is required, and as all cheese factories have appliances for generating heat, very little outlay is needed.

“One important fact must be kept in mind, and that is, the sugar can only be obtained from sweet whey, for, if sour whey be used, it will be found that the sugar has been converted into lactic acid by fermentation.

“We hope to see milk-sugar added to the productions of the cheese factories in this State.”

MILK CARRIED ON THE RAILROADS OF NEW JERSEY.

Through the kindness of Dr. Wm. K. Newton, State Inspector of Milk, Col. I. S. Buckelew, Superintendent of the Amboy Division of the Pennsylvania Railroad Company, and Mr. George Abbott, Jr., of Philadelphia, we have obtained the following milk statistics, showing the amount of milk carried on the New Jersey railroads during the year. The greater portion of the

milk is shipped to points outside of the State, principally to New York and Philadelphia:

Gallons of milk carried on the New York, Susquehanna and Western R. R. (gathered in Sussex and Passaic counties),	1,454,920
On New Jersey Central R. R. (gathered in Hunterdon county).....	1,187,080
On Delaware, Lackawanna and Western R. R. (gathered in Sussex and Morris counties).....	1,319,080
On Erie R. R. (gathered in Sussex county).....	182,500
On Pennsylvania R. R. (Amboy division).....	1,118,200
On Pennsylvania R. R. (N. Y. division).....	91,250
On West Jersey R. R.....	346,000

ESTIMATED AMOUNT OF MILK* FURNISHED CAMDEN AND PHILADELPHIA FROM NEW JERSEY, FOR THE YEAR ENDING OCTOBER 31ST, 1881.†

	To Camden—No. gallons.	To Philadelphia— No. gallons.	Total.
Pennsylvania Railroad { Amboy Division.....	410,925	675,900	1,086,825
West Jersey Railroad.....	20,425‡	209,875‡	230,300
Camden and Atlantic Railroad.....	29,200‡	45,625‡	74,825‡
Philadelphia and Atlantic City Railroad.....	.....	64,436	64,436
Gloucester Ferry.....	.....	12,000‡	12,000‡
Driven into Camden.....	210,740‡	.....	210,740
Total.....	671,290	1,007,836	1,679,126

*The estimated value of the milk is eighteen cents per gallon; or, deducting freight, sixteen cents per gallon.

† By George Abbott, Jr., Esq.

‡ Estimated.

PART VIII.

THE STATE BOUNTY.

CHAP. I.—FIBRES.

CHAP. II.—SUGAR CULTURE.

CHAPTER I.

FIBRES.

There has not been that advance made in the production of fibrous plants by our farmers which we had reason to expect, considering the efforts made during the year 1880, by this Bureau, through the issue of circulars, giving information respecting the treatment of these plants; yet enough has been accomplished, as can be seen by an examination of the specimens sent to this office, to warrant the statement that, with the introduction of carefully selected seed and proper tillage, several counties in the State might be made to produce flax in sufficient quantity and of such quality as to insure a supply to any of our flax manufacturers who would extend the industry so as to cover the finer qualities of linen goods.*

No bounty has been claimed upon jute or ramie, and we fear that our farmers have become discouraged on account of the failure to produce profitable results in the growth of these valuable fibrous plants, because of the exceedingly dry season through which we have just passed.

Under the "Act to encourage the production and treatment of fibres in this State," approved March 3d, 1880, as will be seen by reference to the report of last year, we had paid out during the year 1880, upon sixty-four (64) vouchers, the sum of *six hundred and forty dollars and fifty cents* (\$640.50) for bounty upon flax stalks, leaving as unexpended balance of the appropriation of *five thousand dollars*, the sum of *four thousand three hundred and fifty-nine dollars and fifty cents* (\$4,359.50).

*The following letter, received from Mr. Wm. Stahler, Superintendent of the Frenchtown flax mills, will be of interest in this connection: "We have manufactured for the year 1881, twenty-one thousand four hundred and forty-eight (21,448) pounds of fibre. There were purchased during the year one hundred and forty-five thousand eight hundred and sixty (145,860) pounds of straw, at an average cost of \$10 30 per ton. This straw is unrotted. I think it very important that the subsidy on flax culture should be continued until the farmer gets his soil in proper shape for it."

The returns of the United States Census for 1880 show that there was one manufactory for dressing flax in this State. Its capital was \$500, employed two workmen, who were paid \$400 in wages. The cost of materials used was \$950, and the value of finished products, \$2,100.

During the present year one hundred and eighty-seven vouchers have been presented for flax straw grown for fibre, amounting to *seven hundred and ninety-five thousand eight hundred and seventy-nine pounds*, upon which the bounty paid was *two thousand five hundred and seventy-nine dollars and fifty-seven cents* (\$2,579.57). This amount, added to the amount paid last year, still leaves a balance of *one thousand five hundred and seventy-nine dollars and ninety-three cents* (\$1,579.93) unexpended, under the section of the bounty law awarding *five thousand dollars* to the "enumerated stalks."

Thirty-one vouchers have been presented during the year for bounty upon cleaned flax, amounting to *thirty thousand eight hundred and eighty-two pounds*, upon which *one thousand and eighty dollars and eighty-one cents* (\$1,080.81) have been paid, leaving still unexpended, under the section of the bounty law awarding "*five thousand dollars* to the enumerated cleaned fibres," the sum of *three thousand nine hundred and nineteen dollars and nineteen cents* (\$3,919.19).

CHAPTER II.

SUGAR CULTURE.

With the plain fact before us, that the people of the United States are paying nearly \$100,000,000 annually to foreign countries for the sugar they consume, is it a wonder that attention should be directed to the question whether a large part of this money cannot be retained at home and distributed among our own wage-workers, agriculturalists and manufacturers, especially since there is no doubt that an affirmative answer can be given?

The difficulties, which had to be overcome on the introduction of sugar making in Louisiana, were far greater than those now in the way of the successful manufacture of sugar from sorghum in many of our northern states. In 1751 a French planter brought some cane over to Louisiana, from Cuba, but, with the best help afforded by the Jesuit schools, he could make no sugar. In 1769 the business was abandoned, not to be revived again until 1795, when another attempt resulted in making 1,200 pounds, and was considered a great success. It was not until 1823, when steam was first applied in the manufacture of sugar, that production was stimulated to such an extent that there was a yield of nearly 30,000 hogsheads. The annual product from that time increased rapidly, amounting, in 1853, to 449,324 hogsheads, and reaching its climax in 1858, when there were 552,699 hogsheads made. In 1861 the quantity manufactured was 459,410; in 1863, 76,801, while in 1864 there were only 10,801 hogsheads produced. Since the latter year there has been a revival in the business, the yield in 1880 having been 218,314 and in 1881 nearly 250,000 hogsheads.

But however interesting it might be to pursue the history of sugar making in the United States, the work we now have in hand is to *stimulate* the production within the bounds of this State; therefore, the simple statements must suffice, that it required more than fifty years to secure success in sugar making in Louisiana, while it is but thirty-seven years since the seed of

the sorgo, or Chinese sugar-cane, was first brought to this country from Paris, where it had been sent by the French Consul at Shanghai. The imphees, or African sugar-canes, discovered in 1851 on the east coast of Africa, reached France about the same time as the sorgo, and was in like manner introduced into this country.

SUGAR CULTURE IN NEW JERSEY.

At the late session (1881) of our Legislature a law was passed, which was published in our report for 1880, entitled "An act to encourage the manufacture of sugar in the State of New Jersey," which offers a bounty of one dollar "for every ton (of 2,000 pounds) of beets, sorghum, amber or other sugar-cane raised by any farmer in the State and manufactured into sugar in the State." The act also provides, "That the sum of one cent per pound upon all merchantable sugar made within the State, from beets, sorghum, amber or other sugar-cane grown within the State, shall be paid by the Treasurer of the State to any person or persons who shall establish a plant or sugar manufactory within the State, and shall manufacture sugar from beets, sorghum, amber or other cane raised in the State," &c.

Of such importance was the cultivation of sorghum, for the purpose of making sugar, considered, that, after the passage of the act referred to, the Senate, on motion of Senator Taylor, requested experiments to be made on the Agricultural College Farm, in order to facilitate the cultivation of the sorghum plant by farmers of the State. In compliance with this request the Board of Managers of the New Jersey State Agricultural Experimental Station instituted a series of experiments on the Agricultural College Farm, where fourteen varieties of cane were planted during the year. A full report of the treatment of the cane, and the results obtained, will be found in the "Second Annual Report of the New Jersey Agricultural Experiment Station, for the year 1881," page 42.

Experiments made through a period of thirty years with sorghum sugar-cane have fully established its value in producing syrup of great excellence and purity. It was, therefore, important to determine its merit as a sugar-producing plant, and

the Legislature had this object in view in offering the State bounty. The report of the very complete experiments carried on upon the College Farm sets forth the details of the cultivation of sorghum so fully that no one need be in doubt on the subject; yet, the following suggestions, contained in a letter written by Professor Collier, the chemist of the U. S. Department of Agriculture, Washington, D. C., to the chairman of the convention of the New York State Cane-Growers' Association, recently held at Utica, N. Y., are so valuable that we cannot refrain from quoting them:

"Be sure to test your seed at least a month or two before you need it for planting, to see if it will sprout. This can be done by counting out, say one hundred seeds, and sprinkling them upon some moist, clean sand, and let them stand in a comfortably warm room for a few days—a week, for example. Those which will not sprout by that time never will. Be sure you have good seed.

"Select a good piece of corn land, if only half an acre. Do not begin with poor land. Select such land as you would if you wished to get the maximum crop of corn. Prepare the land thoroughly. One of the best farmers I know in central New York, has often told me that he 'would rather have land well plowed, without manure or fertilizer, than land poorly plowed, with manure.' Prepare the land well.

"Plant as early as possible after the ground is warm. Nothing is gained and you may lose the seed by planting too early. Plant when you would corn.

"Cultivate very carefully, and keep down the weeds until the plants are a foot and a half high. When about six inches high, thin out to about four inches in drills, or to four or six stalks, if in hills.

"Do not work the crop for either syrup or sugar before the seed is quite ripe, hard and dry, for not until that time can you get any sugar, and then you will get the greatest amount of syrup."

Early in the spring of 1881, Mr. Charles M. Hilgert, of the firm of John Hilgert's Sons, of Philadelphia, an enterprising sugar manufacturer, entered into a contract with a number of farmers of Cape May county to take their entire crop of sorghum, raised upon a specified number of acres of land, and agreed to pay for the same at the rate of two dollars per ton of two thousand pounds, and to convert it into sugar, the farmers stipulating to deliver the cane at the nearest freight depot on the line of the West Jersey railroad. This gave the farmer two dollars per ton for his cane, tied up in bundles, topped and stripped; and, therefore, as he was entitled to the State bounty of one dollar per ton after its conversion into sugar, the total amount to be

received was three dollars per ton, with the seed still to be disposed of. In an ordinary season an average crop of eight tons of sorghum to the acre could have been raised, and would have yielded, at three dollars per ton, a good return ; but on account of the exceedingly dry season the crop averaged less than six tons to the acre. Yet no better results were obtained from the same acreage planted in Indian corn in other parts of the State ; and we are satisfied, through personal intercourse as well as from correspondence with the farmers of Cape May county, that they are in no wise discouraged. One farmer writes :

"As the past season has been one of terrible drought, it is hard to give a correct estimate of what can be done. To furnish you a few points, I will give the one field of fifty acres that I had planted in drills, the rows being three and a half feet apart ; the stalks in drill averaged two to every foot. In this field there were three acres of low land which the drought did not hurt, and from which I received fifteen tons per acre. Therefore, if the season had been fair, I would have obtained fifteen tons per acre on the fifty acres. From the other part of the field I got from six to eight tons per acre.

"I threshed about 1,500 bushels of seed. It will yield from three to three and a half bushels to the ton, and is superior to corn for fattening hogs and chickens. It makes first-class food for cattle, as it makes plenty of milk. The cultivation of cane is no more expensive than corn, but the harvesting costs about ten per cent. more. My experience has led me to believe that it is a profitable crop, and I intend to plant two hundred acres during the coming year."

Mr. Hilgert, having made contracts with farmers to take cane grown on about six hundred acres of land, during the spring of 1881, built and fitted up an extensive factory at Rio Grande, Cape May county, at a cost of over \$65,000, containing, in addition to a powerful mill for crushing the cane, all the modern appliances for sugar making, such as evaporators, defecators, vacuum pans, centrifugals, etc.

The *quality* of the crystallized sugar turned out at this factory was highly satisfactory, selling readily to refiners at from seven to eight cents per pound ; but in respect to the *quantity manufactured* we are left to conjecture ; for, although Mr. Hilgert was entitled to one cent per pound for every pound of sugar made from sorghum within the State, he has not up to the present filed any certificate for the purpose of collecting the amount due to him. However, as the farmers have already received bounty upon 1,500 tons of sorghum, and as additional

certificates are constantly being placed on file, we feel safe in the estimate that 2,000 tons of sorghum have been manufactured into sugar in the State during the year, producing at least *two hundred thousand pounds*.

We can be more explicit in regard to the amount of sorghum sugar-cane raised, as fifty-seven certificates have already been filed. These are for *two million nine hundred and twenty-six thousand five hundred and twenty five pounds* of cane, upon which the sum of *fourteen hundred and thirty-four dollars* has been paid as bounty.

As the profitable manufacture of sugar from sorghum, in New Jersey, no longer admits of a doubt, and as it is destined to become an established branch of our industry, it becomes important to inquire into the best methods to be adopted in order to place it upon a substantial business basis; and here, as in every new enterprise, ordinary prudence requires us to take advantage of the experience of those who have been engaged for many years upon the same line of experiment. We have already stated that it took the manufacturers in Louisiana over fifty years to attain results far less successful than have been accomplished in New Jersey in scarcely half that period, and yet no one will deny that Louisiana is at present far in advance of every other state in sugar manufacture. Let us then profit from the experience of the Louisiana manufacturers, so that we may escape the errors committed in that state.

At the annual meeting of the "Mississippi Valley Cane Growers' Association," held in the city of St. Louis, Mo., early in January, 1882, Mr. J. W. Nichol, one of the delegates from Louisiana, in his report uttered the following words of warning:

"Now, gentlemen, as the sorghum interest is a new one to you as well as to ourselves, let me warn you, from large experience which we have had in sugar-cane, that you may not travel over the same ground we have traveled and commit the same errors which we have committed. A slight allusion to the management of a large sugar estate will best exemplify my meaning—an estate, comprising, in area, 1,300 acres in all, of which 900 are under cultivation. We have in one building, central sugar factory, over \$40,000 in machinery, leaving out cost of original plant and general plantation improvements. We keep

these improvements insured constantly, but use them sixty or seventy-five days out of the year. Now, add to this, interest on cost, wear and tear on machinery and tax, and we have an annual expense, say :

Interest on \$40,000 for nine months.....	\$2,400
Wear and tear, lying idle, say five per cent.....	1,500
Annual improvements.....	500
	\$4,400

“ Whether the buildings be large or small the rule operates in proportion ; and, estimating the value of sugar houses in Louisiana at \$10,000,000, we have an annual loss of \$1,300,000. As a strictly agricultural people, this is radically wrong, and we are rapidly coming to the conclusion that a change must be made, and that change will be made on this wise : Large estates will be cultivated on the co-operative plan ; they will be divided up into small holdings, and the cane brought to mill and sold to the “ central factory ” ; and very soon, instead of having a sugar manufactory on each farm, we will have them only at intervals, covering such territory as the capacity of the mills in their maximum will demand. This is the plan for the future, and we will very soon have a home for thousands in sugar, whereas but lately these same lands were non-producing.

“ When the beet culture was first inaugurated in France the farmer borrowed his ideas from the Indies and fell into the same path we have followed for three-quarters of a century. We all know the failures in France at the start, and we also know that it was through the intervention of the government, the expenditure of large sums of money in central factories, that finally made the culture and manufacture of the beet a success there. So, let us warn you ; centralize your sorghum culture, put central factories where tons enough of the cane can be produced to justify the erection of machinery, perfect and modern, and of large capacity.”

Therefore, as the manufacture of sugar cannot profitably be carried on on the farm on a small scale, there remains no other method than either to employ individual capital in the erection of a well-equipped manufactory, or to conduct the business by means of a joint stock company or a co-operative association,

somewhat on the plan by which dairying is now being managed. One company, the "Rio Grande Sugar Company," has been organized (December, 1881,) under the general corporation law of the State, with a capital of \$250,000. This company has purchased a large tract of land contiguous to the factory of Mr. Hilgert, mentioned above as having been erected at Rio Grande.

With both soil and climate so well adapted to the culture of sorghum, New Jersey must make rapid advancement in sugar manufacture. Success must follow enterprise in a staple business like sugar, provided good judgment be exercised in the employment of skilled labor and improved machinery.

A writer in the *International Review*, for December, 1881, thus describes the method of

"SUGAR CULTURE IN LOUISIANA."

"The first process is the grinding of the cane. The crushing apparatus consists of three heavy rollers, representing each a pressure of from thirty to fifty tons. The cane passes between these rollers, beginning with the two of the lightest pressure. The stalks are laid on a 'feed-plate,' sloping down to the upper rollers, which draw in and crush the tender fibre in a space of, perhaps, an eighth of an inch. The cane is then put between the heaviest rollers into a space much less. When discharged from this pressure the stalk has become as thin as paper and as dry as tinder. It is now called *bagasse*, and is used as fuel to sustain the fire for the boilers. The capacity of these machines is about 100 gallons to each single horse power. The liquor, which has been caught in troughs, is next, and without delay (for it is ripe for fermentation and other wrong twists) transferred to the boilers. In describing this process one simply details the system or method of manufacture prevalent in the oldest of the English sugar raising colonies, and included in the histories of them, written over one hundred years ago. There is the row of five to seven kettles; under the smallest or 'battery' a fire is kindled, which passes under the others until it reaches the chimney at the end of the row. Each kettle grows larger as it recedes from the fire. The juice is run from the troughs into the first kettle or *grande*, where, the heat being moderate, the evaporation is trifling, and the operator is enabled to begin the work of clarification by the introduction of lime, once the only medium known for the purification of the product. As the liquid passes from kettle to kettle it becomes thicker and more of a syrup. From time to time the attendants at the different boilers bring forward specimens of the fluid to be tested by some employe with the requisite skill and judgment, who orders its removal in time to prevent burning and other mischance. The atmosphere of the sugar house, while the juice is thus 'cooking,' is deemed to be of great efficacy in pulmonary complaints, and many strangers are often on hand to inhale the fumes.

"The remainder of the process of sugar making is equally ancient and wanting in improvement. After passing out of the 'battery' kettle, the sugar is directed into

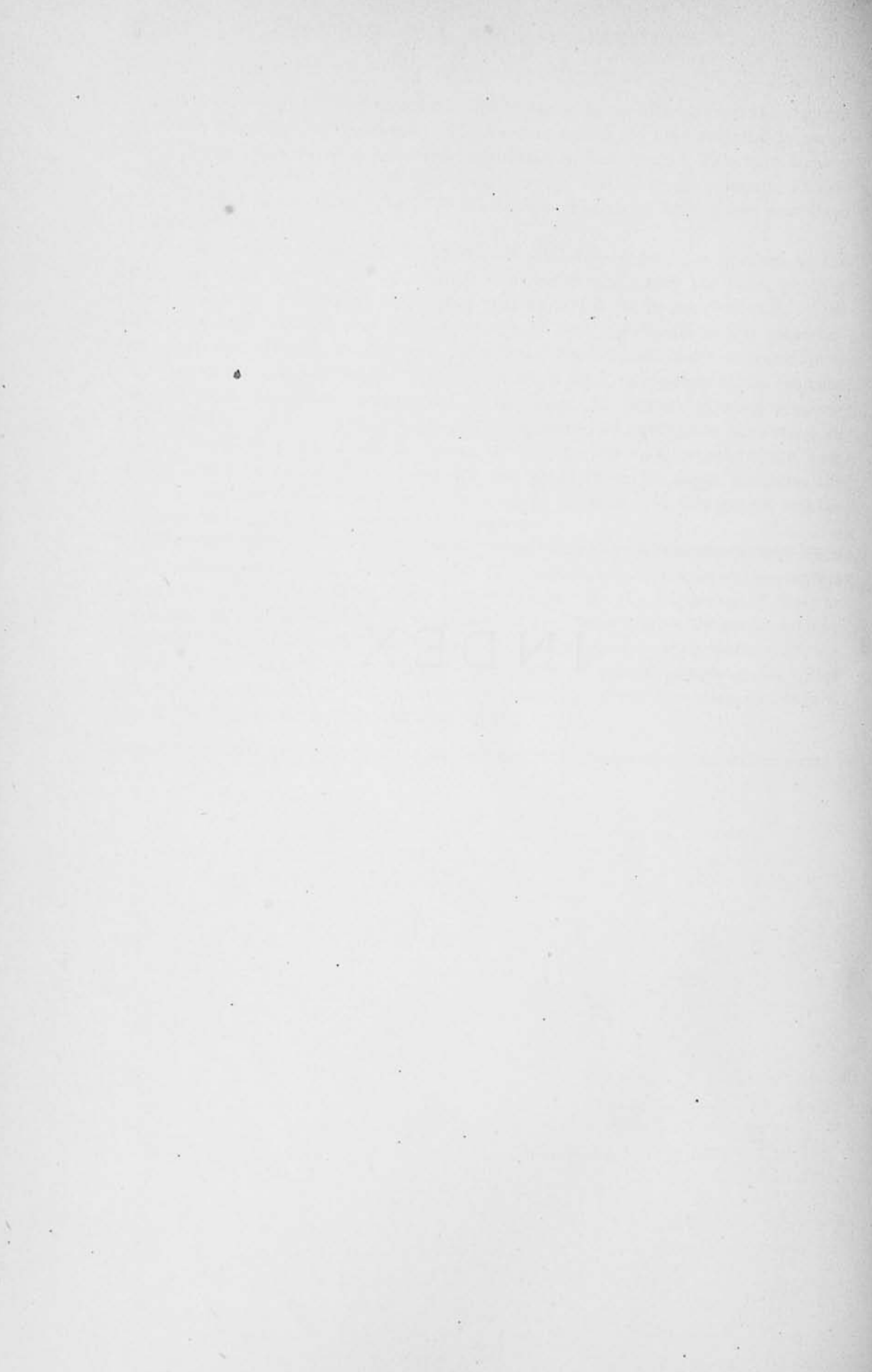
vats and allowed to cool and granulate, the molasses being filtered from the sugar as the mass is placed in the hogsheads. The vacuum pan is the only material improvement in sugar making that has been introduced of late years. This considerably abridges the time and simplifies and improves the method of granulation. It was slowly adopted in Louisiana. In 1870 there were only about fifty in use, now there are about one hundred.

"The different processes may be briefly recapitulated, as they are pursued by the most progressive planters to-day. The first necessity is to clarify the juice, which is of a grayish color, and loaded with foreign matter, which can be removed only by the medium of heat, together with the introduction of such ingredients as will cause certain of the impurities to solidify and sink. After clarification comes evaporation of the juice in the vats, now resembling white wine in color, into syrup of the required density, which experience has proved to be about 22 Baume. During evaporation impurities previously soluble are made insoluble and precipitate themselves in the settling tanks. When cold the syrup is ready for the vacuum pan, where, by a skillful manipulation, similar to that one sees going on at the sugar refineries, the liquid is gradually boiled into a mass, consisting of sugar in bold, free grains, and the liquor of clarification, or, more properly, molasses.

"It will thus be seen that sugar making on the plantations ranks almost as a trade in its requirements of skill and experience. The vacuum pan has enabled the planters to produce a better article of sugar than formerly. At the beginning of the war Louisiana supplied about half the sugar used in the United States, the product being distributed chiefly in the southern and western states. As the supply diminished, the western section acquired a taste for the low grades of refined foreign goods. This taste has improved, and in so doing created a demand for clarified vacuum pan sugars, which the planters are now endeavoring to meet."



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