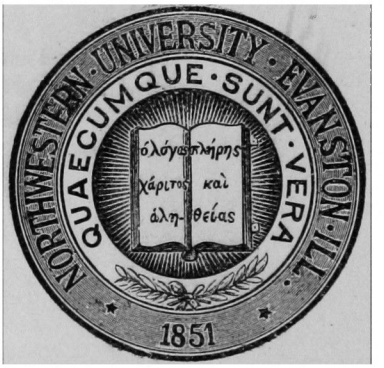
COMPLIMENTS OF

David Ross,

SECRETARY.

BUREAU OF LABOR STATISTICS.

SPRINGFIELD, ILLS.



Northwestern University Library

Evanston, Illinois

THE GIFT OF

TENTH BIENNIAL REPORT

OF

THE BUREAU OF LABOR STATISTICS

OF THE

STATE OF ILLINOIS.

1898.

SPRINGFIELD, ILL.:
PHILLIPS BROS., STATE PRINTERS.
1899.

COMMISSIONERS OF LABOR.

P. H. DONNELLY, *President*,
154 WEST 71ST STREET, CHICAGO.

THOMAS D. KELLIGAR,
PANA.

SAMUEL M. DALZELL,
SPRING VALLEY.

RANDOLPH SMITH,
FLORA.

L. W. FRIBOURG,
DECATUR.

SECRETARY,
DAVID ROSS,
SPRINGFIELD.

CONTENTS.

	PAGE.
Letter of Transmittal	VIII
Index to Subjects	IX
PART I.—Private and Municipal Ownership of Public Works	1
PART II.—Public Employment Agencies	43
Gas Works Tables	139
Electric Light and Power Plants Tables	159
Water Works Tables	199

STATE OF ILLINOIS,
OFFICE OF THE BUREAU OF LABOR STATISTICS,
SPRINGFIELD, ILL., November 1, 1898.

HONORABLE JOHN R. TANNER, *Governor of Illinois.*

SIR:—In compliance with the act creating this bureau, the Board of Commissioners of Labor herewith submit to you for transmission to the Forty-first General Assembly their tenth biennial report.

Very respectfully,

DAVID ROSS,
Secretary.

INDEX OF SUBJECTS.

PART I.

PRIVATE AND MUNICIPAL OWNERSHIP OF GAS WORKS, WATER WORKS, AND ELECTRIC AND POWER PLANTS.

PAGE.

INTRODUCTION 3

ANALYSIS OF TABLES 7

Gas Works—Results of one year's operation 10
Cost of Production and Selling Price 12

Electric Light and Power Plants—Municipal and Private 14
Comparative Percentage of Total Investment 16
Comparative Percentage of Total Cost of Production 18
Cost of Municipal Lighting with Electricity 20
Profit and Loss of Private Electric Light Companies 2
Prices and Cost of Electric Lighting 2

Water Works Plants 31
Number of Plants with Special Investments 32
Percentage of Total Cost of Production 34
Profit and Loss of Private Water Works Plants 37
Price and Cost of Water Delivered by Municipal Plants 38
Price and Cost of Water Delivered by Private and Municipal Plants 40

PART II.

PUBLIC EMPLOYMENT OFFICES.

PAGE.

INTRODUCTION 44

EXPERIENCE IN OTHER STATES—

New York 46
Ohio 48
Iowa 52
Missouri 54
Washington 61
Massachussetts 64

EXPERIENCE IN FOREIGN COUNTRIES—

France 65
England 72
New Zealand 88
Australia 90
Germany 91
Bavaria 94
Russia 95

THE LAWS OF OTHER STATES AND THE RESULTS OF THEIR OPERATIONS—

The Ohio Law 96
The Montana Law 109
The Nebraska Law 113
The New York Law 114
The California Law 118
The Missouri Law 119

CONCENSUS OF OPINION—

Hon. Carroll D. Wright 123
The Commissioners of Labor 123
Other Authorities 127

FUTILITY OF TRYING TO REGULATE PRIVATE AGENCIES—

Experience in Massachussetts 129
Experience in Ohio 130
Other Opinions 132

SITUATION IN CHICAGO 133

CONCLUSION 136

TABLES.

GAS WORKS.—

Table I.—Plant, Distributing Equipment and Apparatus Owned..... 140
Table II.—Fuel and Water Conditions..... 142
Table III.—Investment..... 143
Table IV.—Gross Income..... 144
Table V.—Cost of Production (first part)..... 146
Table V.—Cost of Production (second part)..... 148
Table VI.—Results of Operation..... 150
Table VII.—Profit and Loss..... 152
Table VIII.—Prices of Light, etc., Services..... 154

ELECTRIC LIGHT AND POWER PLANTS.—

Table I.—Plant, Distribution Circuits and Apparatus Owned..... 160
Table II.—Fuel and Water Conditions..... 168
Table III.—Investment..... 170
Table IV.—Sources of Funds Used in the Investment—Municipal Plants..... 173
Table V.—Gross Income..... 174
Table VI.—Cost of Production (first part)..... 178
Table VI.—Cost of Production (second part)..... 182
Table VII.—Certain Additional Elements Theoretically Entering into the Cost in Municipal Owned Plants..... 186
Table VIII.—Profit and Loss—Private Plants..... 187
Table IX.—Prices (private plants) and Cost of Production (municipal plants) of Light and Power Service..... 188

WATER WORKS.—

Table I.—Plant, Distributing Equipment and Apparatus Owned (first part)..... 200
Table I.—Plant, Distributing Equipment and Apparatus Owned (second part). 204
Table II.—Fuel Conditions..... 208
Table III.—Investment..... 210
Table IV.—Sources of Funds Used in the Investment—municipal plants..... 214
Table V.—Gross Income..... 216
Table VI.—Cost of Production (first part)..... 220
Table VI.—Cost of Production (second part)..... 224
Table VII.—Results of Operation..... 228
Table VIII.—Distribution of Cost of Production—municipal plants..... 230
Table IX.—Certain Additional Elements Theoretically Entering into the Cost in Municipally Owned Plants..... 231
Table X.—Profit and Loss—private plants..... 232
Table XI.—Prices (private plants) and Cost of Production (municipal plants) of Water Service..... 233

LABOR LEGISLATION.

ARBITRATION AND CONCILIATION 235
EMPLOYEES, DECEPTION AND UNLAWFUL INFLUENCE IN PROCURING 239
FREE EMPLOYMENT AGENCIES IN CERTAIN CITIES 241
MINES AND MINING 245

INTRODUCTION.

This is the Tenth Biennal Report of the Bureau of Labor Statistics of Illinois, and its contents are presented under two general heads corresponding with the two subjects which have received the attention of the bureau during the year 1898, to which is added an appendix containing the more important laws affecting labor enacted by the Forty-first General Assembly.

Part I is devoted to a study of the results of private and municipal ownership in the operation of gas works, electric light and power plants and water works in the cities and towns of this State. The investigation on which the report is based has embraced, and the tables herewith exhibit, not only the details of construction and of physical condition which characterize the plants in these three groups, but also the financial status of each, and the results of operation as shown by books of account and other record evidence of actual business experience. The object of this investigation has been to gather trustworthy statistics concerning the essential economic facts relating to this group of public utilities, and the measure of success which has been attained in this effort will be disclosed upon an examination of the text and tables of the subject in subsequent pages.

Part II consists of a collation of the experience of other states and countries in the establishment and maintenance of free employment agencies by the State, for the relief and protection of the unemployed in cities. This is a function which has been assumed by government in the most advanced countries of Europe; and in recent years by a number of states in this country with gratifying results, and a compilation of those results gathered from official and other sources, is presented here for the information of the Forty-first General Assembly of Illinois, and in the belief that a necessity for such intervention in the metropolis of this State will be recognized and provided for by proper legislative action.

PART I

PRIVATE AND MUNICIPAL OWNERSHIP

OF

PUBLIC WORKS.

PRIVATE AND MUNICIPAL OWNERSHIP OF GAS WORKS, WATER WORKS, AND ELECTRIC LIGHT AND POWER PLANTS.

During the year this bureau has been engaged in an attempt to acquire some definite data relating to the financial results, under private and public ownership respectively, of the operation of certain public utilities. The inquiry has been confined to agencies for the distribution of light and water, omitting the subject of transportation, and has consequently been directed to the various systems of water works, the gas works and the electric light and power plants established throughout the State.

In this work the bureau has been associated as collaborator with the United States Department of Labor, which is conducting an investigation parallel with this in all the other states of the Union, the report of which, when completed, will contain observations and statistics gathered from the whole country, including Illinois, corresponding with those here presented for Illinois alone.

The investigation has been undertaken in recognition of the prevailing interest manifested in the subject of municipal ownership, and with the specific purpose of bringing to light, so far as this may be done by authentic statistics of actual experience, whatever of economic advantage or disadvantage there may be in either the public or private ownership and control of this group of public works.

The bureau has no theory of ownership either to confirm or to controvert, and in this inquiry has sought simply to gather the facts, without prejudice and with the greatest possible fulness of detail, for the information of those who can not by personal inquiry obtain them. This is consequently not an attempt to demonstrate either the feasibility or futility of municipal ownership, but simply an effort to establish the relative economy of public and private management, that is, to discover which costs the community more for corresponding service, the plant operated by the municipal or the private corporation.

It has been recognized that the difficulties of such an investigation are many and great; that it is probably impossible to overcome them altogether; that the details of construction and management are complicated and diverse; and that the economic results of operation are often contingent upon terms not common to any considerable number of establishments.

Yet these considerations have not deterred the federal office nor this bureau from making the investigation. In the absence of any official data on this subject it is believed that the facts gathered by a carefully conducted inquiry will possess a material value even though they fail to answer conclusively many of the questions which naturally arise in relation to municipal monopolies. Upon this theory, that even negative results are better than none, has the investigation proceeded.

The facts in regard to each class of plants have been taken on schedules prepared by the Department of Labor for use throughout the country at large. Each schedule is the result of mature consideration and consultation with experts and is designed to develop all the elements which contribute to the profit and loss account of each plant. In order to remove the hesitation of those who naturally object to disclosing the details of private business affairs, assurances have been given that the results would be so published as to conceal the identity of the several plants, and in the following tables no plant has any other designation than its number. It is made possible, however, by specific statistics of physical condition and the various items of cost of maintenance and operation to take proper account of local advantages and disadvantages, and to comprehend the economic balance sheet as well as though the location were given. The one exception to this rule in regard to identification is in the case of the Chicago water works, the figures relating to which are so large as to make it impossible that they should refer to any other plant in the State. No objections, however, are raised by municipal authorities to the publication of their financial statements.

By preliminary investigation it was discovered that there are in Illinois 57 gas plants, all under private ownership; 236 electric light and power plants, 197 of which are under private and 39 under municipal ownership, and 165 water works plants, 35 of which are under private and 130 under municipal ownership; in brief, that 458 plants of all kinds are established in 243 of the cities and towns of the State; that the electric light plants are far more numerous than

either of the others; that water works are next in number, and that there are only one-fourth as many gas works as electric light plants. It is further observed that the gas works are all private enterprises, that one-sixth of the electric light plants and three-fourths of the water works plants are municipal.

The cities and towns in which these establishments are found are distributed throughout the State with a uniformity very nearly corresponding with the distribution of the larger towns. By grouping these according to the population given to each by the federal census of 1890, it appears that 130 towns in which public works of one kind or another are maintained, have less than 2,000 inhabitants; that 205 have less than 5,000; 16 have from 5,000 to 10,000; 15 from 10,000 to 20,000, and 7 have over 20,000 inhabitants.

With a field of this nature presented for inquiry the agents of the bureau were sent to every quarter of the State to make personal and specific investigation of the physical condition and the books of every plant. It was very soon developed that the exercise of some discrimination as to the plants which should be scheduled was necessary to the best results, and a number of minor establishments, such, for instance, as the lighting plants operated as collateral to manufacturing and mining enterprises, and other plants whose books were impossible of analysis, and those which had less than a full year's experience were omitted from consideration. It was also found that lighting plants operated by electric street railway companies could not be made use of to advantage, and it was inevitable that some companies should distrust the motive of the inquiry and decline to respond.

Omitting these plants which it was undesirable or impracticable to examine, the result of a five months' canvass of the State is the securing of completed schedules for 202 establishments. The proprietors of eight of them subsequently expressed some hesitation about permitting the publication of their figures in a State report, although consenting to publication in a report for the whole country in which state lines should be obliterated, and their plants are consequently dropped from the tables and omitted from consideration in this report.

For taking the information desired, three schedules have been used for each class of plants. The primary or general schedule contains all inquiries relating to the physical character and efficiency of

the plant; this form is the same for both private and public plants. For each plant there was also prepared a supplemental schedule on which to take the financial statement of the company, showing the actual results of operation; two forms of this schedule were made necessary by the differences between municipal and other establishments. A set of these schedules completely filled, for any plant, constitutes an exhaustive exhibit of all the economic factors which enter into the cost of production and distribution, supplemented by the most recent results of business management. That the proprietors of 202 of these establishments, of which 108 are owned by private corporations, should consent to make such an exhibit is creditable alike to themselves and to the agents of the bureau who submitted the plans of the investigation to their consideration.

The returns which are tabulated herewith were obtained from 102 cities and towns, well distributed throughout the State. Defined as to population, 28 of them have less than 2,000 inhabitants; 49 have less than 3,000 inhabitants, and 69 less than 5,000 inhabitants. Of the remainder, 12 have from 5,000 to 10,000; 14 from 10,000 to 20,000, and 7 over 20,000 inhabitants. There are 21 cities in this State which had a population in 1890 of over 10,000; this report contains statistics from all of them, and from many of them statistics relating to the three kinds of plants.

In all there are 194 plants embraced in the following tables, of which 96 are municipal and 98 private concerns. This equal division does not, however, obtain in the several classes, owing to the fact that there are no municipal gas works in the State and the further fact that by far the greater number of water works are owned by municipalities, while the larger number of electric light plants are owned by private corporations. As a consequence the relative number of the two latter classes are in reversed proportions, giving us 60 municipal water plants as against 13 private plants, and 27 municipal electric light plants as against 60 private plants.

There has been no selection of establishments with a view to securing returns of any given character. On the other hand the purpose and instruction has been to procure the experience of all available establishments, whether public or private, or large or small, or well or ill-managed, or prosperous or unsuccessful. The result is that the various groups here tabulated are in effect representative of the several kinds of public works as they now exist in the State.

Some show gains, some losses, and others an even balance sheet as a result of the last year's operation; the widest differences are shown in magnitude and cost of plant—in operating conditions and expenses and in prices to consumers. Indeed the ramifications of diversity are so complex as to embarass comparison at every point, and no conclusion can be safely drawn which is not based on a study of all the tables relating to each plant.

ANALYSIS OF TABLES.

There are in all 27 general tables, eight of which are devoted to the statistics of 25 gas plants; nine to the statistics of 87 electric light plants, and ten to the statistics of 82 water works plants. The period covered by these statistics is the fiscal year of each plant respectively next preceding the date of investigation. The field work was in progress during the five months, from April to September, 1898, and it must be acknowledged that as a rule the books of account and all details of record evidence were found much more exact in the offices of private companies than in municipal offices.

GAS WORKS.

Table I of the gas works series gives the date of construction and a physical description of each plant and its distributing equipment. The oldest plant was built in 1853, and the most recent in 1895. Three were built prior to 1860, five, between 1860 and 1870; nine, between 1870 and 1880; five, between 1880 and 1890,and two since 1890. Fifteen have changed ownership since their construction; the remainder are still in the hands of original owners.

Thirteen of these establishments manufacture gas from coal alone; seven from water only, and five use both. The daily capacity of the coal-gas companies ranges from 20,000 to 150,000 cubic feet; that of the seven water-gas companies, from 35,000 to 350,000 cubic feet, with an average for all of 140,000 cubic feet; the companies which make gas by both processes have the larger plants, with daily capacities ranging from 325,000 to 792,000 cubic feet. This table also defines the character of the purifying apparatus in each plant, number and capacity of gas holders, the size and length of street mains and the number and kind of meters in use. It is observed that only three of these plants make any use of the prepayment meters.

Table II is devoted to the fuel and water conditions and shows the kind of fuel used and the cost of it and likewise the cost of the water supply for each plant for the year. Bituminous coal, coke and wood are the fuels used, the latter in one instance only. The cost of coal ranges from 18¾ cents to $3.10 per ton; the former price being paid for slack, or fine screenings, presumably at a plant near a coal mine, where the cost is simply that of hauling. The coke used is a by-product of the gas-coal consumed at the plant and consequently is not an item of purchase.

An analysis of the total investment represented by the several establishments is made in Table III. The items which enter into the statement of total investment are the cost of land, cost of buildings, cost of manufacturing equipment, cost of holders, mains, meters and other accessories. The table shows not only the amount of each item but the percentage of each item of total investment. A wide range of difference is observed in these percentages, but when reduced to averages the whole cost of the land is found to be 3.42 per cent of the total investment; the cost of buildings, 6.92 per cent; that of manufacturing equipment, 25.96 per cent; holders, 11.88 per cent; meters, 7.24 per cent; tools, teams, etc., 1.62 per cent.

The aggregate investment represented by the 25 plants is $2,328,-851, and the range in amounts is from $17,000 to $428,000. Nine plants cost over $100,000 each; six cost from $50,000 to $100,000, and ten cost less than $50,000.

Table IV presents an analysis of the earnings of gas works. The items of income as stated in this table are those derived from the sale of gas, from rents and sales of appliances, from sales of by-products and residuals and from sundry minor sources. Income from the sale of gas is shown under three heads: gas for lighting, for cooking and heating and for power. Of the gross income of all plants 86.39 per cent is derived from sales of gas, and of the total income from this source 72.43 per cent is the revenue from lighting.

Cost of production is considered in Table V under the following heads: General expenses, wages, materials and supplies, general distributing expenses, maintenance (including depreciation) and taxes. General expenses include the salaries of officers, superintendents, clerks, etc., office supplies and expenses, insurance, legal expenses and damages, licenses and royalties, and other kindred items of expense. Materials and supplies include fuel, material

used in manufacture and other supplies. Maintenance covers actual disbursements for repairs and renewals on works, on mains, and elsewhere, and depeciation is estimated separately on buildings, on manufacturing equipment and on the distributing system, including meters and apparatus. Summarizing the amounts expended by all plants under these general heads it is found that they sustain the following relations to total cost of production: General expenses constitute 12.75 per cent of the whole cost; wages, 16.32 per cent; materials and supplies, 28.34 per cent; general distributing expenses, 9.35 per cent; maintenance and depreciation, 30.42 per cent; taxes, 2.82. Great care has been exercised in estimating depeciation, and to this end the buildings and the manufacturing and distributing equipment have been considered separately. The specific percentages allowed for this annual loss in value from use are given in this table for each plant, and they naturally vary with existing conditions as found at the several plants. Making the proper computations for all plants it is discovered that the whole amount allowed for depreciation on all buildings is 2.47 per cent of their cost; on all manufacturing equipment it is 5.70 per cent of their cost; and on all distributing systems, 5.13 per cent of their cost. The aggregate sum deducted for all depreciation is equivalent to 4.68 per cent of the total investment on all plants, exclusive of the cost of land.

Table VI summarizes the results of operation in columns showing, first, the year for which the statement is made, then the candle power of the gas produced, the cubic feet on hand at the beginning of the year and made during the year, the disposition made of it and the quantity remaining on hand at the close of the year. The total amount is accounted for as lost by leakage, used at the works and at the office, sold, and remaining on hand. Percentages are also computed representing the proportions of the whole disposed of in each way by each plant. The aggregate quantity of gas accounted for by the 25 plants is 402,434,374 cubic feet, and of this, 12.16 per cent is lost by leakage; 1.42 per cent is used at the works and offices of the companies; 86.17 per cent is sold, and 0.25 of one per cent is on hand and carried over at the end of the year.

Table VII is the profit and loss account of the several companies. This consists of a statement from each plant of all items of income on the one side, and the total cost of production, including depreciation and taxes, on the other; the difference appears as the amount of

profit or loss in the year's business, and when a profit appears computations are made, showing what per cent of gross income and of total investment the given profit is. This table shows the year for which the report is made, and the income is defined as coming from public service, from commercial service, and from other sources. The relation which the business from each of these sources sustains to the whole business is expressed in the following percentages: From public service, 1.94 per cent; from commercial service, 87.45 per cent, and from all other sources, 13.61 per cent. This small percentage received from public service is explained by the fact that fourteen of these companies report no revenue whatever from public service, doubtless owing to the encroachments of electric street lighting. Considering only the eleven companies which have an income from public service it is found that 4.54 per cent of their revenues are derived from that source. A combination of the essential features of this table with the facts regarding capital invested and output, as shown in preceding tables, affords the following view of the financial results of operation in all of the 25 plants scheduled.

Results of one year's operation of 25 Gas Works Plants in Illinois.

Plant No.	Ownership.	Total investment.	Total product for the year: Cubic ft.	Total cost of production—including depreciation and taxes.	Gross income.	Net Profit.			Net loss.
						Amount.	Per cent of gross income.	Per cent on total investment.	
1	Private	$18,875	1,142,180	$4,269	$6,312	$2,043	32.37	10.82	
2	"	32,339	1,721,000	5,259	1,843				$3,416
3	"	17,000	2,198,200	4,371	3,321				1,050
4	"	24,000	3,084,957	8,021	6,835				1,186
5	"	60,000	3,912,807	8,044	6,247				1,797
6	"	30,000	3,940,130	7,172	5,994				1,178
7	"	25,350	4,639,000	4,927	5,615	688	12.25	2.71	
8	"	30,000	6,560,000	6,229	8,196	1,967	24.00	6,56	
9	"	76,000	6,636,770	10,986	8,414				2,572
10	"	45,000	7,612,000	10,736	13,460	2,724	20.24	6.05	
11	"	48,000	8,440,000	10,834	11,509	675	5.86	11.41	
12	"	73,030	9,170,800	13,103	12,660				443
13	"	60,000	10,386,915	13,746	16,615	2,869	17.27	4.78	
14	"	94,942	10,732,900	14,357	11,666				2,691
15	"	100,000	12,768,670	14,545	18,275	3,730	20.41	3.73	
16	"	43,700	14,060,720	11,203	17,014	5,811	34.15	13.30	
17	"	110,136	14,203,500	14,988	18,577	3,589	19.32	3.26	
18	"	125,000	15,377,100	24,429	22,839				1,590
19	"	133,051	19,212,000	34,406	30,079				4,327
20	"	115,000	23,455,900	30,382	31,292	910	2.91	.79	
21	"	91,956	24,609,300	26,447	40,319	13,872	34.41	15.09	
22	"	241,000	33,217,000	41,046	40,957				89
23	"	125,000	35,000,000	28,233	37,954	9,721	25.61	7.78	
24	"	181,205	62,404,000	48,942	74,881	25,939	34.64	14.31	
25	"	428,267	66,972,900	66,568	85,894	19,326	22.50	4.51	

This epitome of the results of the investigation, as applied to gas works, represents the conclusions reached through a most painstaking and searching study of the physical and financial status of each plant. This group of properties is, as stated, all under private ownership, and the fact that there are no municipal gas works in this State precludes any comparison of public and private experience in gas works. But the statement is not without vital interest, if only as an exponent of the rewards which flow from investments of this kind under private management. Here the net result only is given; the specific conditions which combine to produce it must be sought by tracing each plant through all the tables. The designation of each by the same number in every table facilitates this sort of search. Examined in this way many qualifying conditions will be disclosed more or less affecting or explaining the net results as here given. These do not admit of very distinctive generalizations. It appears probable, however, that the smaller plants are unprofitable and the larger ones profitable because of their size and the consequent influence of volume of business. It will be observed that the plants are entered in the table according to the amount of their output. The column for output, considered in connection with the adjacent one showing the total investment, sufficiently defines the limitations of the several plants. The further fact of the population of the several communities does not appear in any table because of the identification which this might make possible and which the office is pledged to obscure. It may be said, however, that only one of these plants is located in a town with less than 3,000 inhabitants, under the enumeration of 1890; that eight are located in cities or towns containing from 3,000 to 5,000 inhabitants; six in cities containing from 5,000 to 10,000; nine in cities containing from 10,000 to 20,000, and one in a city containing over 20,000 inhabitants.

The general observation here is that 11 of the 25 plants show more or less loss on the year's business, taking due account of depreciation and taxes as elements in the cost of production, and that 14 have each made a net profit represented here by various percentages, both of gross income and on total investment.

Table VIII is the final table in the series relating to gas works, and is devoted to the complex subject of prices. These are stated primarily for lighting, cooking and heating, and power, respectively. Under the general head of lighting are the prices to private consumers and to the municipality—to the former for ordinary and for pre-

payment meter service, and to the latter for meter and for contract service and for Welsbach and other lamps. The quantity of gas used at each given price is also stated in cubic feet. A glance at this table and at the foot notes accompanying it affords an illustration of the difficulties presented in attempting this tabulation. In pretty much all cases there is a nominal price subject to contingent modifications which make quite another price, and the details of terms and conditions are often so many and different as to deprive the nominal price of all significance. A minor table is here presented, the elements of which are drawn from several of the general tables, showing the output, the candle power, the cost and the nominal selling price of gas at the several plants, with the explanatory foot notes necessary to define the real terms and prices at which it is sold.

Cost of Production and Selling Price of Gas.

Plant No...	Total product for the year—cubic feet.	Candle power of gas at the works.	Total cost of production including depreciation and taxes.	Cost of production per 1,000 feet.	Selling price per 1,000 feet to meter users.		Result of operation.
1	1,142,180	20	$4,269	$3.738	*a*	$8 00	Profit.....
2	1,721,000	22	5,259	3.114		1 50	Loss .....
3	2,198,200	24	4,371	1.988	*b*	2 00	" .....
4	3,084,957	18	8,021	2.600	*c*	2 50	" .....
5	3,912,807	17	8,044	2.055	*d*	2 72	" .....
6	3,904,130	22	7,172	1.820		2 00	" .....
7	4,639,000	18	4,927	1.062	*e*	2 00	Profit.....
8	6,550,000	.....	6,229	.951		1 50	" .....
9	9,636,770	17	10,986	1.655	*f*	1 50	Loss .....
10	7,612,000	23	10,736	1.410	*g*	2 0	Profit .....
11	8,440,000	22	10,834	1.283	*h*	1 50	" .....
12	9,170,800	20	13,103	1.428	*i*	2 00	Loss .....
13	10,386,915	18	13,746	1.323	*j*	1 75	Profit .....
14	10,732,900	18	14,357	1.337	*k*	1 60	Loss.....
15	12,768,670	20	14,545	1.139	*l*	1 50	Profit .....
16	14,060,720	16	11,203	.796	*m*	1 50	" .....
17	14,203,500	18	14,988	1.055	*n*	1 60	" .....
18	15,377,100	17	24,429	1.719	*o*	1 60	Loss .....
19	19,212,000	22	34,406	1.791	*p*	1 50	" .....
20	23,455,900	23	30,382	1.295	*q*	1 50	Profit .....
21	24,609,300	18	26,447	1.075	*r*	1 35	" .....
22	33,217,000	22	41,046	1.236	*s*	2 00	Loss .....
23	35,000,000	23	28,233	.807	*t*	1 40	Profit.....
24	62,404,000	23	48,942	.784	*u*	1 50	" .....
25	66,972,900	17½	66,568	.994	*v*	1 75	" .....

a Discounts are allowed as follows on monthly bills: On all amounts up to $5, ten per cent; from $5 to $10, fifteen per cent; from $10 to $20, twenty per cent; over $20, twenty-five per cent. One thousand feet of this oil gas is said to be equal to 4,000 feet of ordinary coal gas.

b If over 3,000 cubic feet per month is used the price is $1.50 per 1,000 cubic feet.

c If bills are paid by the 10th of the month the following rates are charged: Under 1,000 cubic feet, $2; 1,000 and under 3,000 cubic feet, $1.50; 3,000 to 5,000 cubic feeet, $1.75; 5,000 cubic feet and over, $1.60.

d If 5,000 cubic feet, or over, is used per month the price is $2.30 per 1,000 cubic feet. For combined service, lighting and cooking and heating, the price is $1.50 per 1,000 cubic feet.

e On 500 and less than 1,000 cubic feet, used monthly, $1.75; on 1,000 and less than 3,000 cubic feet, $1.50; on 3,000 and less than 10,000 cubic feet, $1.25; on 10,000 and less than 20,000 cubic feet, $1.15; on 20,000 cubic feet and over, $1 per 1,000 cubic feet.

f A discount of 5 cents per 1,000 cubic feet is made if bills are paid within 5 days. The price charged hotels is $1.05 per 1,000 cubic feet and the price charged churches is $0.75 per 1,000 cubic feet.

g If bills are paid by the 10th of the month the following discounts are allowed: On the first 1,000 cubic feet, 25 cents; on all over 1,000 cubic feet, 5 cents per 100 cubic feet.

h Discounts are allowed as follows to large consumers: On from 10,000 to 20,000 cubic feet per month, 10 cents per 1,000 cubic feet; from 20,000 and upward, 20 cents per 1,000 cubic feet.

i If bills are paid by the 10th of the month the following rates are charged. For less than 3,000 cubic feet per month, $1.50; 3,000 to 6,000 cubic feet, $1.40; over 6,000 cubic feet, $1.25. A special rate of $1 per 1,000 cubic feet is allowed to a few consumers.

j If bills are paid by the 10th of the month a discount of 25 cents per 1,000 cubic feet is made.

k If bills are paid by the 6th of the month a discount of 10 cents per 1,000 cubic feet is made

l If bills are paid by the 10th of the month a discount of 10 cents per 1,000 cubic feet is made when 1,000 feet or more is used. For combined service, lighting and cooking and heating, the price is $1.25 per 1,000 cubic feet if paid by the 10th of the month.

m If bills are paid by the 10th of the month a discount of 10 per cent is made on amounts up to 5,000 cubic feet; from 5,000 feet upwards the discount is 20 per cent.

n From 3,000 to 10,000 cubic feet the price is $1 50 per 1,000; from 10,000 cubic feet upwards the price is $1.40 per 1,000 cubic feet.

o For prompt payment of bills a discount of 20 to 30 per cent is made.

p Over 1,000 cubic feet and under 5,000 the price is $1.25 per 1,000; over 5,000 and under 10,000, $1.15; over 10,000 and under 25,000, $1. Bills not paid by the 15th of the month have a penalty of 10 per cent added.

q Rates to stores is $1.25 per 1,000 cubic feet. For 5,000 and under 10,000 feet per month the rate is $1; for 10,000 and under 20,000 feet, $0.80; and for 20,000 feet and over, $0.60 per 1,000 feet.

r For 5,000 and under 10,000 cubic feet per month the rate is $1; for 10,000 and under 20,000 feet, $0.80; for 20,000 feet and over, $0.60 per 1,000 feet.

s Subject to the following discounts on gross monthly bills: Over $1 to $3. 10 per cent; over $3 to $20, 14⅔ per cent; over $20 to $50, 20 per cent; over $50 to $100, 25 per cent; exceeding $100, 27½ per cent. From these rates a discount of 12½ per cent is allowed if the bills are paid by the 10th of the month.

t If paid by the 15th of the month, for 3,000 to 5,000 feet consumed per month the rate is $1.20 per 1,000 feet; for 5,000 feet and over, $1 per 1,000 feet.

u A discount of 10 per cent is made if bills are paid by the 10th of the month.

The prices given in the foregoing table are only those for ordinary meter service to private consumers; equally great diversity will be found, upon examination of the general table, in the prices for contract service to municipalities, while the nominal prices for gas for heating and cooking are subject to very much the same discounts as those for lighting.

The last column in this table showing the result of operation as either a profit or a loss to each company is a transcript of the results shown in the preceding table in which the gains and losses are more specifically set forth.

Although this set of tables relating to gas works does not afford the desired opportunity for comparison between the results of private and public management, much exact information is contained in them in regard to the organization and operation of private gas companies in the cities of the State outside Chicago, and this information is of a character to deserve and to repay the critical attention of all who are interested in the general subject of municipal ownership.

ELECTRIC LIGHT AND POWER PLANTS.

The statistics of electric lighting establishments are presented in nine general tables. The whole number of plants carried through these tabulations is 87, of which 27 are owned and operated by the municipalities in which they are located, and 60 by private corporations. These plants have been found in cities and towns of all sizes and in all parts of the State, and, as the electric lighting system is often possible in towns too small to support a gas lighting plant, many of the towns in this list are smaller than any in which gas works are established. On the other hand, of the 20 cities, outside Chicago, having over 10,000 inhabitants, 16 are here represented by their respective electric enterprises. Five of the cities of this class have municipal plants and 11 have private plants; municipal plants have also been found in four cities with 5,000 to 10,000 inhabitants; in eight, with 2,000 to 5,000; in seven with less than 2,000, and three are in the city of Chicago.

In the principal tables of this series the same general facts are tabulated for both the private and municipal plants, and the latter accordingly appear distributed throughout the tables, distinguished only by name in the first column of each. In the matter of cost of production, however, in municipal plants, and of profit and loss in private plants, the two classes of plants are tabulated separately.

Table I is devoted to the physical characteristics of the power and distributing equipment of each plant, including dates of construction and of present ownership; the number and capacity of engines and boilers; the number and capacity of dynamos; the length and weight of wires; and the number of transformers and of connected lamps.

Referring to the columns of dates it is found that the earliest of these plants was installed in 1882, the most recent in 1896; prior to 1887, only 12 had been constructed; in the four years, 1887-1890 inclusive, 29 were established; and in the years 1891-96, 44 were added to the list. The plant established in 1882 was a municipal enterprise which now shows a total investment of $152,000 and a low cost municipal lighting service. From that date municipal plants have increased in number, for the first ten years at the rate of only one or two each year, but for the last five years at the rate of three or four each year, excepting only 1893, in which year no municipal plant was erected.

Changes in ownership have taken place in only 19 out of the 87 plants since their establishment, and in three of these cases plants constructed by private parties have been subsequently acquired by purchase by municipalities.

All these plants save four are operated by steam power; of the four exceptions to the rule, two are operated by water power alone and two by both water and steam power. The electrical energy of the several plants is reported as derived from either direct current constant voltage dynamos, direct current constant amperage dynamos, or from alternating and multiphase current dynamos, and the number and the capacity of each in each plant is duly tabulated; likewise the details of line construction, of transformers and of the kind and number of lamps in service.

Table II shows the kind and cost of the fuel used, and the cost of water and water power, where that is used. Bituminous coal is naturally the almost universal fuel and the range of cost is from 18¾ cents to $3 per ton, with an average of $1.26. Two plants use crude petroleum at 75 and 67½ cents respectively per barrel, and one uses artificial gas at 60 cents per 1,000 cubic feet.

Table III is an analysis of the total investment represented by the several plants, which is divided into the specific amounts paid for preliminary expenses, land, buildings, steam-power plant, and electric power plant, distributing circuits, lamps and apparatus.

An examination of this table discloses the relative magnitude to both the private and public plants, as indicated by total investment, and both the specific amounts expended under each of the several heads, and the percentage of each of the total are stated. Plants are here scheduled, ranging in total cost from $3,200 to $707,411, and both the largest and the smallest are municipal plants. It further appears that five of the municipal plants have an investment of less than $10,000 each; that ten have from $10,000 to $20,000 invested; five have from $20,000 to $50,000; four from $50,000 to $100,000, and three, over $100,000.

Of the private plants, six have less than $10,000 each, invested; twenty-four have from $10,000 to $20,000; twenty-one, from $20,000 to $50,000; four, from $50,000 to $100,000, and five, over $100,000. The largest of the private plants has an investment of $278,000. Two very large electric light plants, one with nearly three, and one with over nine millions invested, for which very complete schedules were obtained, are omitted from these tables, for reasons already given,

but will appear in the Department report for the whole country. The smallest private plant in the list represents a total investment of $6,200.

Briefly stated, 55 per cent of all the municipal plants and 50 per cent of all the private plants cost less than $20,000 each; and 74 per cent of municipal and 85 per cent of private plants cost less than $50,000 each. Of the larger establishments, seven are municipal and nine are private. This shows a very uniform representation of the two kinds of plants, so far as relative size is indicated by total investment. One plant only may be regarded as exceptional in this respect and that is the municipal plant with an investment of $794,411.

This table also affords an opportunity to make some comparison between the two groups of plants in the matter of the relative distribution of total investment. Omitting the item of preliminary expense, which is either wanting altogether or insignificant in amount, there remains five general heads under which the invested capital in each case is expended, namely: For land, for buildings, for steam-power plant, for electric-power plant and for distributing equipment. The amount, and the percentage of total investment, expended for each of these objects, is stated in the table for each plant. By summarizing these amounts for each group the following percentages are obtained for each:

Item.	Percentage of Total Investment.			
	Private plants.	Municipal plants.	All plants except the largest.	The largest plant.
Land	2.74	6.60	4.18	5.71
Buildings	8.49	14.77	10.84	10.60
Steam-power plant	22.32	16.52	20.15	15.17
Electric-power plant	23.35	16.08	20.64	6.80
Distributing equipment	43.10	46.03	44.19	61.72

In computing the percentages for municipal plants the largest of them is omitted and given a separate column because of its exceptional character. There are also twelve private plants omitted from the list because the facts relating to them are in some measure incomplete. Among these are plants to which land or buildings, or both, have been donated, or leased, with or without consideration, and one to which land and buildings and steam-power plant are all leased. For the purpose of this computation only those plants are considered which show an actual purchase of all property.

The differences in the percentages here deduced, for the two groups of plants respectively, are noticeable and not readily explained. It appears that, for some reason, the portion of total investment put into both land and buildings is greater for municipal plants than for private plants, while for machinery equipment of both kinds, the greater percentages are invested by the private companies. In the case of the exceptionally large establishment a very small percentage is observed for electric-power plant; but many individual variations from the average percentages here established must necessarily be found upon an examination of the table itself. The foregoing are merely the general deductions which grow out of a comparison of the specific investments made by the two groups as such.

Table IV relates to the sources from which funds have been obtained for the purchase or installation of municipal plants. Of the 27 cities which are operating their own electric lighting systems, eight were able to pay for them outright from funds already in the municipal treasury; nine raised the necessary money by taxation, and five of these were plants of the greatest magnitude; seven issued bonds for part of the amount, and these, in two cases, have already been paid; a number of cities obtained their money from more than one of these sources. In five cases the bonds bear six per cent interest; in one, seven, and in one, five per cent, and they were uniformly made payable in "coin." Only in one instance were the bonds sold at a premium.

Table V is a statement of the amount of income received by the several plants as a result of a year's business. Total income is reported as coming from both arc and incandescent lighting, from motor service, and from all other sources, and the amounts under each head are given separately. Sixteen of the municipal plants are engaged in public service only and consequently receive no income; eleven also undertake some commercial business and report the various amounts received from that source. Two of these furnish arc lamps only to private users; eight furnish incandescent lamps only, and one furnishes both. Those which received income from more sources than one, derive 89.33 per cent of their total income from lighting service and 10.67 per cent from all other sources.

One of the private companies received income from arc lighting only; eleven from incandescent lighting only; forty-eight from both. Only 18 out of 60 have revenue from motor service, while 44 add to their income from lighting and motor service in various minor ways.

Table VI affords an opportunity for a critical study of the cost of production in both municipal and private establishments. The dis-

tribution of this cost appears under five general heads as follows: General expenses, wages, supplies, maintenance, and taxes. Under these several heads are given the following more specific details of expenditure: General expenses include salaries of officers, superintendents and clerks; office supplies and expenses; insurance; legal expenses and damages; licenses and royalties, and other expenses. Under the head of supplies are entered the amounts expended for fuel, power-house supplies, lamp supplies and other supplies. Maintenance is made to cover not only the actual disbursements for repairs and renewals, but the depreciation on plant. Separate columns show the disbursements for repairs and renewals on buildings, steam-power plant, electric-power plant, and on distributing circuits, lamps and apparatus, while depreciation is estimated for each of the same constituent parts of the whole.

In this table the specific amounts are freely supplemented by percentages in adjacent columns, showing the relation of each item of cost to the whole cost, or to total investment, as the case may be. The facts for the individual establishment may thus be easily read, and comparisons between the single public and the single private plant may readily be instituted; but with a view to reaching some general observation on the relative results of management in the two groups of enterprises, the following percentages have been computed for all public and all private plants separately:

Items.	Percentage of Total Cost of Production.			
	Twentysix municipal plants.	Twentysix corresponding private plants.	All private plants.	The largest municipal plant.
General expenses	8.17	14.39	15.46	5.33
Wages	33.13	23.60	23.03	41.64
Supplies	31.91	29.00	27.87	33.79
Repairs and renewals	5.19	9.20	8.00	19.24
Depreciation	21.60	20.66	21.88	.....
Taxes	.....	3.15	3.76	.....

It should be borne in mind that the two groups considered here consist of 27 municipal and 60 private plants respectively. One of the municipal plants is so much larger than all others as to be clearly exceptional and is consequently omitted from its group and entered in a separate column. In forming a group of private plants corresponding in number and approximately in other respects with those composing the municipal group, selection has been made on the basis of total expenditure in production and not on the respective amounts of total investment. The relation is not very intimate between many of the plants considered individually, but the aggre-

gates of cost of production for the two groups are nearly identical. These facts establish a presumption in favor of the legitimacy of the comparison, and it is probable that the general conformity between the groups, in all essential details of condition, is as close as any we are likely to obtain in a similar number of plants.

The comparison clearly indicates a lower expenditure on the part of municipal plants for the item of general expense, and for repairs and renewals, but a larger outlay for wages and supplies. Some variation is observed between the percentages for the selected group of private plants and all private plants, but the difference is in no case conspicuous. The percentages for estimated depreciation are substantially the same, but it should be noted that these are percentages of total cost of production and not of total investment. When compared with capital invested the several amounts charged off for depreciation are found to sustain the following relations to the whole: In municipal plants estimated depreciation is equivalent to 5.04 per cent of investment; in corresponding private plants it is 6.35 per cent; in all private plants, 5.85 per cent. No depreciation whatever is admitted or estimated in the case of the largest plant, but it will be observed that the outlay for repairs and renewals is more than twice as much as the average for any of the groups.

The item of taxes as an element of expense is considered for private plants, but not for municipal plants; for the former they are observed to be equivalent to 3.15 and 3.76 per cent of the cost of production for the respective groups; the same item is found to constitute 0.97 of one per cent and 1.006 per cent, respectively, of the total investment in said groups.

The net cost of municipal lighting is the total cost of production less the amount of income received from private users, and the following table is prepared to show what plants receive such income, the amount of it, and the net cost of lighting to those which have and have not this source of revenue. The columns showing total investment and the number of lamps in service are introduced to indicate the relative size of the several plants.

Cost of Municipal Lighting with Electricity.

Plant number.	Ownership.	Total investment.	No. of Lamps in Service.		Total cost of production, including depreciation.	Income from private users.	Net Cost of Municipal Lighting.		
			Arc.	Incandescent.			Am'nt.	Per arc lamp per kilowatt hour.	Per 16 C. P. incandesc'nt lamp per month.
1	Municipal	$8,000	28	.....	$2,221	.....	$2,221	$0.1597	.....
2	"	3,200	26	.....	1,745	.....	1,745	.0351	.....
3	"	8,060	50	.....	2,767	$96	2,671	.0561	.....
6	"	7,120	64	.....	2,788	1,610	1,178	.1101	.....
14	"	10,450	.....	1,098	3,802	2,602	1,200	.....	$1.0204
16	"	8,298	59	.....	2,536	.....	2,536	.0865	.....
22	"	12,500	100	.....	5,880	.....	5,880	.0246	.....
24	"	17,133	37	778	2,647	2,180	467	.0156	.....
28	"	11,000	80	12	3,028	.....	3,028	.0230	.3447
29	"	12,000	37	1,000	2,925	2,500	425	.0115	.....
32	"	17,000	27	700	3,463	1,415	2,048	.1848	.....
35	"	16,055	136	.....	6,395	.....	6,395	.0262	.....
36	"	18,000	104	.....	6,912	.....	6,912	.0476	.....
42	"	36,500	156	.....	8,412	.....	8,412	.0509	.....
44	"	27,000	64	2,300	4,679	2,676	2,003	.0644	.....
45	"	19,252	.....	2,283	7,606	6,056	1,550	.....	.4613
47	"	14,630	55	1,000	4,304	1,391	2,913	.0587	.....
48	"	25,414	146	.....	8,524	.....	8,524	.0552	.....
49	"	31,346	.....	4,670	7,808	5,744	2,064	.....	.4914
54	"	51,460	207	.....	12,628	.....	12,628	.0480	.....
56	"	50,000	181	.....	14,148	.....	14,148	.0710	.....
65	"	28,359	60	2,859	11,692	9,170	2,522	.0278	.4621
71	"	83,300	307	.....	19,915	.....	19,915	.0467	.....
77	"	82,529	244	900	14,660	.....	14,660	.0473	.3946
80	"	152,000	490	503	29,642	.....	26,942	.0400	.6668
86	"	225,000	777	300	42,378	.....	42,378	.0426	.7093
87	"	797,411	1,321	.....	121,190	.....	121,190	.0510	.....

Eleven of the municipal plants furnish light to private users and the cost for public service is consequently reduced by the amount of revenue derived from that business. Income from this source is in various amounts and in various proportions of total cost of operation; the smallest outside income reduces total cost by 3.48 per cent; the largest, by 85.45 per cent, and the whole amount received as income by the eleven plants reduces the aggregate cost of production in those plants by 65.05 per cent. The remaining sixteen municipal plants have no revenue from private users, and these are mainly the larger establishments, presumably those in cities which have both public and private electric lighting companies.

Table VII. As the net cost of municipal lighting is a prominent objective in this inquiry, special attention is given to the composition of the amount constituting total cost of production. In addition to the recognized items which properly enter into the total, in the case of all plants, there are certain expenses, necessary to the private plant, which the public plant escapes, but which, it may be claimed, should properly be charged in the municipal statement as well as in the private. These items are estimated rent, taxes and interest. None of them are included in the total cost of production as

given in Table VI; but in order that the exact value of these hypothetical elements may be known, the rental value of quarters occupied by municipal plants rent free, and the amount of taxes which corresponding private plants would have to pay, were carefully estimated and entered upon all municipal schedules. These items, with a further amount representing the interest charged on total investment at the rate of 5 per cent, and the additional cost per unit for both arc and incandescent lighting which these amounts represent, are grouped in Table VII. Here is written the amount and the effect on unit cost of these additional elements theoretically entering into the cost in municipally owned plants, for the information of all, and the use of those who believe that these amounts are properly chargeable to municipal cost and necessary to the establishment of a true parallel between the two sets of accounts. As a matter of abstract accounting these items are doubtless entitled to recognition; the object of their consideration on the part of municipal managers is that they are, in fact, theoretical obligations rather than real, requiring no money to discharge them, but simply the transfer of a given sum from one account to another on the city's book, and that the municipality either gets this rent, taxes and interest in the form of a reduced cost of public lighting, or in money which must be paid out for a somewhat higher cost of lighting. Owing to possible differences of opinion on this point, these items are segregated in this table and their exact measure defined in order to afford opportunity for any use of them which may be desired.

Table VIII brings the inquirer up to the profit and loss account of private plants. Sixty private corporations have permitted these figures to be drawn from their books by expert examiners, without attempt at concealment or evasion, on the sole condition that the identity of the plant should be effectually obscured, and that municipal plants should be subjected to the same scrutiny. On the latter point private owners have been but little less insistent than on the former. It is believed that no reasonable doubt can be entertained of the integrity of the balance sheets here presented. Income from all sources is compared with total cost of production, including depreciation and taxes, and the difference is shown as a net profit or loss on the year's business. A combination of some of the features of this table with columns drawn from other tables defining the relative magnitude of the several plants is here presented as an epitome of profit and loss results in private electric lighting.

Profit and Loss of Private Electric Light Companies.

Plant Number.	Ownership.	Total investment.	No. lamps in service.		Total cost of production including depreciation and taxes.	Gross income.	Net profit.			Net loss.
			Arc.	Incandescent.			Amount.	Per cent of gross income.	Per cent on total investment.	
4	Private	$10,000	....	224	$3,864	$1,524	.....	.....	.....	$2,340
5	"	9,000	41	18	3,056	3,712	$656	17.67	7.29	.....
7	"	9,375	20	721	3,553	4,364	811	18.58	8.65	.....
8	"	7,800	22	200	2,402	3,155	753	23.87	9.65	.....
9	"	16,701	....	1,296	4,164	4,134	970	23.46	5.81	.....
10	"	10,300	..	1,007	3,976	2,740	.....	.....	.....	1,236
11	"	6,200	50	.....	4,410	4,000	.....	.....	.....	410
12	"	15,000	30	704	5,432	5,400	.....	.....	.....	32
13	"	15,000	27	520	4,514	5,566	1,052	18.90	7.01	.....
15	"	13,267	....	999	4,113	4,776	663	13.88	5.00	.....
17	"	16,500	28	1,200	5,439	6,327	888	14.04	5.38	.....
18	"	17,000	24	1,047	7,004	5,200	.....	.....	.....	1,804
19	"	12,206	26	1,288	4,612	4,464	.....	.....	.....	148
20	"	15,200	32	800	3,333	4,169	836	20.05	5.50	.....
21	"	12,022	24	1,359	4,308	5,712	1,404	24.58	11.68	.....
23	"	15,000	29	700	4,851	4,253	.....	.....	.....	598
25	"	22,500	....	1,320	6,413	3,120	.....	.....	.....	3,293
26	"	8,925	24	502	3,548	4,182	634	15.16	7.10	.....
27	"	15,000	35	1,221	6,921	7,133	212	2.97	1.41	.....
30	"	15,540	44	1,235	5,133	7,699	2,566	33.33	16.51	.....
31	"	23,000	30	2,230	7,401	6,262	.....	.....	.....	1,139
33	"	8,650	17	1,770	4,444	6,340	1,896	29.91	21.92	.....
34	"	18,000	63	1,493	7,546	7,475	.....	.....	.....	71
37	"	13,000	43	710	5,075	6,876	1,801	26.19	13.85	.....
38	"	16,000	....	1,200	4,690	4,272	.....	.....	.....	418
39	"	21,000	37	4,400	7,499	6,087	.....	.....	.....	1,412
40	"	13,400	31	2,020	3,035	4,749	1,714	36.09	12.79	.....
41	"	20,000	25	818	3,949	5,911	1,962	33.19	9.81	.....
43	"	16,415	24	1,150	4,506	5,135	629	12.25	3.83	.....
46	"	29,954	....	2,186	8,745	8,048	.....	.....	.....	697
50	"	28,000	97	1,279	11,206	9,200	.....	.....	.....	2,006
51	"	18,000	35	982	4,960	5,950	90	1.78	.56	.....
52	"	25,613	56	1,244	9,571	14,264	4,693	32.90	18.32	.....
53	"	45,155	103	2,018	11,683	12,703	1,020	8.03	2.26	.....
55	"	32,000	57	596	9,003	10,550	1,547	14.66	4.83	.....
57	"	34,000	....	800	7,049	7,593	544	7.16	1.60	.....
58	"	25,600	....	1,428	9,296	10,208	912	8.93	3.56	.....
59	"	40,650	51	4,000	11,196	8,395	.....	.....	.....	2,801
60	"	12,650	48	1,600	4,862	7,242	2,380	32.86	18.81	.....
61	"	26,265	47	1,350	7,289	9,204	1,915	20.81	7.29	.....
62	"	32,056	....	2,492	9,928	7,603	.....	.....	.....	2,325
63	"	25,000	34	1,200	4,912	6,470	1,558	24.08	6.23	.....
64	"	39,061	108	3,101	13,739	14,705	966	6.57	2.47	.....
66	"	37,979	167	2,000	12,471	12,298	.....	.....	.....	173
67	"	22,000	....	2,100	5,638	5,297	.....	.....	.....	341
68	"	18,050	52	2,355	9,342	10,646	1,304	12.25	7.22	.....
69	"	17,590	47	3,210	8,281	8,624	343	3.98	1.96	.....
70	"	13,250	26	594	4,150	5,940	1,790	30.13	13.51	.....
72	"	83,135	65	4,000	24,580	17,756	.....	.....	.....	6,824
73	"	278,000	445	6,500	31,014	48,598	17,584	36.18	6.33	.....
74	"	35,000	29	1,601	4,953	4,990	37	.74	.11	.....
75	"	50,000	64	2,890	10,827	13,997	3,170	22.65	6.34	.....
76	"	35,000	126	4,012	14,076	16,510	2,434	14.74	6.95	.....
78	"	53,000	138	1,165	12,824	15,050	2,236	14.85	4.22	.....
79	"	75,000	251	5,000	25,393	26,200	807	3.08	1.08	.....
81	"	170,000	266	14,000	33,134	37,978	4,844	12.75	2.85	.....
82	"	100,000	120	14,030	24,261	35,650	11,389	31.95	11.39	.....
83	"	37,150	85	2,974	11,142	13,200	2,058	15.59	5.54	.....
84	"	172,500	398	2,350	43,827	40,959	.....	.....	.....	2,868
85	"	100,700	456	8,000	30,576	58,224	27,648	47.49	27.46	.....

Forty of these companies, or two-thirds of the whole number, show net gains of greater or less amounts, and twenty, or one-third, show losses on their respective ventures. A careful study of the various items of outlay and income and of environment of individual plants,

as they appear in the general table, will doubtless disclose why some companies have lost money and some have made more and others less, on their respective investments, but no very marked distinctions appear on the surface of the returns. It is true that all but one of the eleven larger plants were fairly successful, and that among the eleven smaller ones four were losers and seven were gainers, even greater gainers in proportion to investment than the larger plants, but this is conclusive of nothing so far as the relative size is concerned, and neither does it appear that the age of the plant, nor the fact that it may have changed hands, has had any influence for or against favorable results of operation. The general fact seems to be that the distribution of successes and failures in this group of enterprises is about as impartial and fortuitous as in any like number of ventures in any business, though it is evident that the proportion of successful companies is large enough to commend this sort of investment.

Net profit in this table is expressed in total amount and in two percentages, one of gross income and one on investment. An examination of these columns is of interest as affording a quick reading of what the other figures of the table stand for.

Thirteen of the 40 profit-making companies made a gain of less than 5 per cent on the total amount invested in each; seventeen gained from 5 to 10 per cent; five, from 10 to 15 per cent, and five from 15 to 27 per cent on investment.

The percentages of gross income represented by the profits of these companies are necessarily much larger. Only five of these are less than 5 per cent; four are from 5 to 10 per cent; eight, from 10 to 15 per cent; five, from 15 to 20 per cent, and twenty-three are over 20 per cent, one being as high as 47.49 per cent.

The aggregate of all the profits made by the 40 companies is equal to 22.89 per cent of the gross income of all companies, and to 7.44 per cent on the total capital invested by all companies.

The aggregate losses of the 20 companies which failed to make profits is equal to 4.89 per cent on the total amount invested by those companies.

Table IX of the general series is a special elaboration of the statistics of prices and cost; that is to say, of the various prices paid by those who buy electric light or power, either of public or private corporations, and of the cost to municipalities of electric service rendered to themselves. The output of the electric plant consists of the arc light, the incandescent light, and motive power. For each of these it is desirable to show the prices paid by the citizen and the city to private corpora-

tions; likewise the prices paid by the citizen to the city and the cost to the city of service rendered to itself. This alone makes rather an involved tabular statement, but it is further complicated by a terminology not readily understood, by the difficulty of establishing a unit of uniform application, by varying prices for the same thing, by the difference in price to private and public users and for commercial and domestic service, by the character of current, type and capacity of lamp, the number in service, the hours of service, and finally by a great variety of arbitrary discounts contingent upon the prompt payment of bills.

The unit determined upon to express relative prices for arc lamps is the kilowatt-hour. Prices per lamp per month or per year are not comparable because of the different watt capacities of lamps and the great variation in the hours of service rendered in the month or year.

Prices for incandescent lighting are based both on candle-power and duration of service, and are expressed in the table as per lamp per month, per lamp per hour, per lamp-hour, per ampere-hour, per watt or kilowatt-hour. Terms not reducible to any of the foregoing, such as those made for groups of lamps in dwellings, stores, saloons and public buildings, at special contract prices, and also sundry discount conditions, are recited in foot-notes.

Terms for motor service are, per motor per month or year, per horse-power per hour or month, per ampere-hour, and per kilowatt-hour.

All prices, moreover, are modified in some degree by the character of current and type of lamp, and distinctions are accordingly made in the table between prices for open and enclosed arc lamps, and between lamps maintained by constant amperage, constant voltage and alternating currents.

The necessary complexities of this table make it somewhat difficult to institute desired comparisons between private and municipal plants in respect to prices and the cost of lighting, and the following figures, drawn from the columns of the greater table, have been grouped in such a way as to facilitate an examination of relative cost and price of service in the establishments under consideration.

Prices and Cost of Electric Lighting.

Plants Using Less Than 55 Horse-power.

Private Plants.				Municipal Plants.				
Plant number.	Prices to private users.		Prices to municipality.		Plant number.	Prices to private users.		Cost to municipality.	
	Per arc lamp per kilowatt hour.	Per 16 C. P. incandescent lamp per month.	Per arc lamp per kilowatt hour.	Per 16 C. P. incandescent lamp per month.		Per arc lamp per kilowatt hour.	Per 16 C. P. incandescent lamp per month.	Per arc lamp per kilowatt hour.	Per 16 C. P. incandescent lamp per month.
4	.....	$0.7500	.....	$0.7500	1	.....	.....	$0.1597	.....
5	$0.0752	.....	$0.0682	.....	2	.....	.....	.0351	.....
					3	$0.0988	.....	.0561	.....

Plants Using From 55 to 100 Horse-power.

8	.....	$0.6500	$0.0671	.....	6	*a* $0.1935	.....	$0.1101	.....
12	$0.0833	*a* .5250	.0833	$0.5000	14	.....	$0.5413	.....	$1.0204
13	.....	*b*	.0613	.4000	16	.....	.....	.0865	.....

Plants Using From 100 to 150 Horse-power.

18	$0.1961	$0.6500	$0.1373	$1.0000	22	.....	.....	$0.0246	.....
26	.....	.6000	.0662	.6000	24	.....	*a* $0.4000	.0156	.....
30	.....	.7500	.0564	.7200	28	.....	.....	.0230	.....
31	.1117	.6000	.1404	.6000	29	.....	*a* .5750	.0115	.....
33	.0926	.5500	.0926	.5000	32	.....	*a* .4000	.1848	.....
34	*a* .1261	.6500	.0652	.6500	35	.....	.....	.0262	.....
37	.1323	.....	.0903	.....	36	.....	.....	.0476	.....

Plants Using From 150 to 200 Horse-power.

40	.....	*a* $0.7921	$0.1067	*a* $0.7700	42	.....	.....	$0.0507	.....
41	.....	*a* .7062	.0519	*a* .5700	44	.....	*a* $0.5750	.0644	.....
46	.....	.....	.....	.1445	45	.....	*a* .6012	.....	$0.4613
					47	.....	*d*	.0587	.....
50	*a* $0.1375	*a* .7051	*a* .0965	.....	48	.....	.....	.0552	.....
51	.....	*a* .5146	.0521	*c*	49	.....	*d*	.....	.4914

Plants Using From 200 to 300 Horse-power.

52	$0.0889	*a* $0.6680	$0.0686	$1.0000	54	.....	.....	$0.0480	.....
53	.....	*a* .7500	.0679	.6250					
55	.1852	*e*	.1034	.....	56	.....	.....	.0710	.....
66	*a* .0942	*a* .3500	.0667	.3000	65	$0.0794	*e*	.0278	$0.4621

Plants Using Over 300 Horse-power.

70	$0.0679	$0.4000	$0.0679	$0.6042	71	.....	.....	$0.0467	.....
76	.0563	*a* .6667	.0567	1.0000	77	.....	.....	.0473	$0.3946
81	.1135	*f*	.0651	*g*	80	.....	.....	.0400	.6668
85	.0817	*a* .6750	*a* .0603	*h*	86	.....	.....	.0426	.7093

a Average.
b $0.01 per lamp hour.
c $0.15 per kilowatt hour.
d $0.005 per ampere hour.
e $0.20 per kilowatt hour.
f $0.01 per lamp hour.
g $0.005 per lamp hour.
h $0.06 per kilowatt hour.

Here are grouped in adjacent columns corresponding facts relating to 23 municipal plants and the same number of private plants. Owing to obvious difficulties in attempting to define the relative importance of electric plants by their output or the amount of capital invested, and for lack of a better rule, the plants in the series of tables for electric light plants are arranged and numbered according to their power-generating capacity. Therefore, in selecting private plants for comparison with municipal, those have been taken which use approximately the same horse-power.

It is observed that in some columns of this table the data is rather insufficient, notably in those showing the prices to private users and more especially in those on the municipal side; this is because so many public plants have no business with private users. It also appears that certain prices to private users are stated as averages; this is inevitable, owing to the diversity in prices, more fully set forth in the general table. The respective columns for price per arc lamp per kilowatt-hour are, however, substantially full for both public and private plants, and the differences between price and cost, among plants approximately alike, are clearly observable. Brought together these two columns present the following appearance:

Prices and Cost of Electric Lighting per Arc Lamp per Kilowatt-Hour.

Private Plants.		Municipal Plants.	
Plant No.	Price.	Plant No.	Cost.
5	$0.0682	1	$0.1567
8	.0671	2	.0351
12	.0833	3	.0561
13	.0613	6	.1101
18	.1373	14	.....
26	.0662	16	.0865
30	.0564	22	.0246
31	.1404	24	.0156
33	.0926	28	.0230
34	.0652	29	.0115
37	.0903	32	.1848
40	.1067	35	.0262
41	.0519	36	.0476
46	.....	42	.0507
50	.0965	44	.0644
51	.0521	45	.....
52	.0686	47	.0587
53	.0679	48	.0552
55	.1034	49	.....
66	.0667	54	.0480
70	.0679	56	.0710
76	.0567	65	.0278
81	.0651	71	.0467
85	.0603	77	.0473
		80	.0400
		86	.0426
23	$0.0779	23	$0.0579

Although in two instances the cost to the municipality of arc lamps per kilowatt-hour is greater than any prices paid

to private companies for the same thing, yet in much the greater number of cases the municipal cost is less than the private price. The average of all prices paid to 23 private corporations is $0.0779, and the average cost to 23 municipalities is $0.0579 per arc lamp per given unit. It is true, however, as noticed previously, that the given cost of production in municipal plants does not include the estimated rental value of quarters occupied rent free, nor the taxes which a corresponding private plant would pay into the treasury, nor the interest on investment, bonded or otherwise. By reference to Table VII it is seen that the item of rent is small at most, and is chargeable to only 10 of the 23 plants, the others occupying quarters in the plant buildings proper. The amount of taxes which could be levied upon this municipal property if it were in private hands is estimated and tabulated for each plant; likewise the interest charge against municipal plants is computed and stated. But the item of interest on investment is not included in the cost of production of private plants, the profits of the business representing whatever interest that capital has earned. With public plants also whatever reduction is secured in the cost of public lighting constitutes the profit in the enterprise and the measure of the interest earned on the municipal capital.

Omitting therefore the item of interest from municipal cost, for the sake of establishing conformity of statement in the two sets of accounts, and increasing that cost as given in the preceding table by the amount of the two theoretical elements, rent and taxes, the cost to municipal plants, per arc lamp, per kilowatt-hour, assumes the following proportions:

Prices and Cost of Electric Lighting per Arc Lamp per Kilowatt-Hour, including Rent and Taxes.

Private Plants.		Municipal Plants.		
Plant No.	Prices to municipalities.	Plant No.	Cost, including rent and taxes	Cost, excluding rent and taxes
5	$0.0682	1	$0.1597	$0.1658
8	.0671	2	.0451	.0362
12	.0833	3	.0561	.0596
13	.0613	6	.1101	.1168
18	.1373	14	.....	.....
26	.0662	16	.0865	.0883
30	.0564	22	.0246	.0252
31	.1404	24	.0156	.0250
33	.0926	28	.0230	.0239
34	.0652	39	.0115	.0191
37	.0903	32	.1848	.2088
40	.1067	35	.0262	.0274
41	.0519	36	.0476	.0484
46	.....	42	.0507	.0537
50	.0965	44	.0644	.0763
51	.0521	45	.....	.....
52	.0686	47	.0587	.0623
53	.0679	48	.0552	.0563

Prices and Cost of Electric Lighting—Concluded.

Private Plants.		Municipal Plants.		
Plant No.	Prices to municipalities.	Plant No.	Cost, excluding rent and taxes	Cost, including rent and taxes
55	.1034	49	.....	.....
66	.0667	54	.0480	.0518
70	.0679	56	.0710	.0729
76	.0567	65	.0278	.0315
81	.0651	71	.0467	.0500
85	.0603	77	.0473	.0495
.....	.....	80	.0400	.0417
.....	.....	86	.0426	.0444
Av'g.	$0.0779	.....	$0.0579	$0.0624

The irregularities observed here both in the scale of prices and in cost of arc lamps are not surprising, though noteworthy. The widest differences are naturally expected and found in the columns showing the results of municipal management, wherein it appears that the cost of the arc lamp ranges from 1.91 cents to 20 cents per kilowatt-hour, while the range of prices paid to private companies is from 5.19 to 14 cents. Nevertheless, considering each group as a whole, the preponderance of evidence is favorable to municipal management; that is to say, the cost of the arc light to the city which produces it is less than the price which the city would have to pay private owners for it, as 5.79 cents or 6.24 cents is less than 7.79 cents.

Some further statistics of arc light prices are gathered from the schedules of private plants and are presented here to illustrate the influence of terms of contrast on nominal prices, and the factors which control in fixing prices:

Prices per Arc Lamp per Year Made by Private Companies.

To Private Users.					To Municipalities.				
Plant No.	Price.	No. of lamps.	Capacity of lamp. (Watts.)	Hours of service per year.	Plant No.	Price.	No. of lamps.	Capacity of lamp. (Watts.)	Hours of service per year.
3	$96 00	1	450	2,160	.....	.....	.....	.....	.....
5	90 00	10	475	2,520	5	$81 60	31	475	2,520
6	65 00	22	400	743	.....	.....	.....	.....	.....
	30 00	6	400	743	.....	.....	.....	.....	.....
7	66 00	10	450	1,764	.....	.....	.....	.....	.....
	60 00	10	450	1,404	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	8	72 50	22	500	2,160
.....	.....	.....	.....	.....	11	80 00	50	450	3,240
12	72 00	4	480	1,800	12	72 00	26	480	1,800
.....	.....	.....	.....	.....	13	110 00	27	450	3,988
17	60 00	3	405	1,800	17	85 00	25	450	2,880
18	72 00	20	340	990	18	84 00	4	340	1,880
.....	.....	.....	.....	.....	19	80 00	24	500	2,220
.....	.....	.....	.....	.....	20	43 16	32	300	1,800
21	72 00	3	396	1,092	21	72 00	21	340	2,216
.....	.....	.....	.....	.....	26	50 00	24	340	2,220
27	60 00	25	340	1,500	27	78 00	10	340	2,500

Prices Per Arc Lamp per Year Made by Private Companies—Concluded.

To Private Users.					To Municipalities.				
Plant No.	Price.	No. of lamps.	Capacity of lamp. (watts.)	Hours of service per year.	Plant No.	Price.	No. of lamps.	Capacity of lamp. (watts.)	Hours of service per year.
.....	.....	.....	.....	.....	30	60 00	44	480	2,216
31	66 00	25	350	1,803	31	72 00	5	350	1,465
33	60 00	16	450	1,440	33	60 00	1	450	1,440
34	60 00	9	450	1,154	34	65 00	54	450	2,216
37	84 00	4	450	1,629	37	90 00	36	450	2,216
.....	60 00	3	450	912	.....	.....	.....	.....	.....
39	96 00	3	500	1,920	39	108 00	4	500	3,240
.....	60 00	12	500	1,200	.....	73 34	18	500	2,520
.....	.....	.....	.....	.....	40	48 00	31	250	1,800
.....	.....	.....	.....	.....	41	84 00	25	500	3,240
43	72 00	4	500	1,440	43	96 00	17	500	2,160
.....	72 00	3	420	1,440	.....	.....	.....	.....	.....
50	60 00	50	315	1,440	50	94 80	16	315	2,216
.....	.....	.....	.....	.....	.....	48 00	31	315	2,000
.....	.....	.....	.....	.....	51	72 00	35	480	2,880
52	120 00	2	364	3,988	52	144 00	20	480	3,988
.....	76 80	12	480	1,800	.....	120 00	22	480	3,988
.....	.....	.....	.....	.....	53	66 00	103	450	2,160
55	120 00	4	450	1,440	55	125 00	44	450	2,686
59	72 00	18	450	1,800	59	44 56	33	450	3,600
60	60 00	7	475	1,560	60	78 00	41	475	3,988
.....	.....	.....	.....	.....	61	90 00	47	430	3,988
.....	.....	.....	.....	.....	63	80 00	34	500	2,160
64	60 00	41	350	1,440	64	84 00	35	350	2,640
.....	30 00	5	350	720	.....	.....	.....	.....	.....
65	96 00	2	480	2,520	.....	.....	.....	.....	.....
66	54 00	10	450	1,200	66	36 00	125	450	1,200
.....	48 00	2	450	1,200	.....	.....	.....	.....	.....
.....	42 00	40	450	1,200	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	68	72 00	52	500	3,000
69	48 00	6	450	1,560	69	78 00	41	450	3,988
.....	.....	.....	.....	.....	70	66 00	26	450	2,160
72	84 00	32	250	1,560	.....	.....	.....	.....	.....
.....	84 00	33	480	1,560	.....	.....	.....	.....	.....
73	72 00	175	500	3,988	73	72 00	270	500	3,988
74	60 00	8	500	3,988	74	65 00	21	500	3,988
.....	.....	.....	.....	.....	75	90 00	64	500	3,240
76	72 00	26	500	2,556	76	85 00	100	500	3,000
78	72 00	38	450	2,004	78	75 00	100	450	2 004
.....	.....	.....	.....	.....	79	75 00	185	450	3,000
81	84 00	17	450	1,644	81	65 00	249	450	2,220
82	96 00	7	560	2,880	.....	.....	.....	.....	.....
.....	60 00	11	560	1,800	.....	.....	.....	.....	.....
.....	42 00	5	450	1,800	.....	.....	.....	.....	.....
.....	36 00	24	560	900	.....	.....	.....	.....	.....
.....	30 00	22	560	900	.....	.....	.....	.....	.....
.....	21 00	16	560	900	.....	.....	.....	.....	.....
83	72 00	10	480	2,737	.....	.....	.....	.....	.....
.....	52 00	20	480	2,190	.....	.....	.....	.....	.....
.....	30 00	55	480	547	.....	.....	.....	.....	.....
84	102 00	17	450	1,800	84	75 00	258	450	2,160
.....	48 00	3	450	1,800	.....	.....	.....	.....	.....
.....	45 00	47	450	1,080	.....	.....	.....	.....	.....
.....	42 00	41	450	1,080	.....	.....	.....	.....	.....
.....	36 00	8	450	1,080	.....	.....	.....	.....	.....
.....	24 00	18	450	1,080	.....	.....	.....	.....	.....
85	78 00	20	450	2,100	85	113 33	346	500	3,000
.....	60 00	34	450	3,000	.....	67 50	31	500	3,000
.....	60 00	15	500	1,200	.....	.....	.....	.....	.....
.....	24 00	10	450	300	.....	.....	.....	.....	.....

Three conditions govern in fixing a price per arc lamp per year, namely: the number of lamps contracted for, the watt-capacity of the lamp and the number of hours of service rendered in the year. These must be known, together with the price, in order to form a proper estimate of the price. The nominal price for an arc lamp for a year to private users ranges from $21 to $120; the former is for 16 lamps

of 560 watt-capacity used only 900 hours; the latter is for 2 lamps of 364 watt-capacity used for 3,988 hours. The nominal price to municipalities ranges from $36 to $144; the former is for 125 lamps of 450 watt-capacity used 1,200 hours, and the latter is for 20 lamps of 480 watt-capacity used 3,988 hours. It must be said, however, that neither the number of lamps nor their capacity, nor their hours of service sustain any fixed relation to the prices reported; they simply account in some measure for the wide differences observed, and there is a general recognition of the rule that the greater number of lamps commands the lower, and long service and high capacity the higher prices per lamp per year.

This table is of interest not only as showing the great diversity of price at which arc lamps are furnished by private companies by the year, and the factors which influence those prices, but equally as illustrating the necessity for reducing all prices to the basis of the kilowatt-hour in order to make a true comparison of prices possible. By the use of the proper formula all figures representing price and cost per lamp per kilowatt-hour may be reduced to a corresponding price per lamp per year, but such restatement of the facts would not add to the force of the comparison already made.

It is much more difficult to reduce the prices of incandescent lighting to common terms than to establish a workable unit for arc lighting. There are not less than five units made use of in the table to express the price and the cost of incandescent lamps, and each of these is subject to modifications governed by the character of the current, the type and number and candle-power of lamps and the hours of service. Moreover, the number and variety of arbitrary contract prices, differing from all others, make continual demand for the use of foot-notes. Nothing less than the closest scrutiny of the general tables will afford any justification for definite conclusions on the relative results of public and private management in incandescent lighting.

It may be observed in general as a result of this investigation of electric light and power plants, that the representation of municipal and private establishments in these tables is equitable so far as distribution throughout the State and the relative size of the communities to which they are tributary is concerned; that in the matter of capital invested both groups include the large and small concerns in about the same proportion; that a larger percentage of the whole investment is expended by municipalities for land and buildings, and a larger percentage by private companies for machinery equipment; that 17 out of 27 municipal plants are fully paid for, and that only 5 have any bonded indebtedness outstanding; that 11 of the 27 are en-

gaged in commercial business as well as public lighting; that in analyzing the cost of production it is found that municipalities expend more than private companies for wages and supplies and less for general expenses and for repairs and renewals; that two-thirds of all private companies are making money in various amounts represented by an average of 22.89 per cent of their gross income, and 7.44 per cent on total investment, while the losses of the losing companies in the aggregate are equivalent to 4.89 per cent of their total investment; on the other hand, that municipal plants have been successful as a rule in producing light for public use at a cost materially less than the price for the same which is usually paid to private companies, and have done this both with and without revenue from commercial business.

WATER WORKS PLANTS.

The first of the series of tables resulting from the investigation of the various water works systems in the State is descriptive of the physical features of the plant, with its distributing equipment and apparatus. This description is statistically expressed in columns showing the ownership and age of each plant, the character of the source of supply, the manner of distribution, the pumping equipment and the system of mains, hydrants and meters.

Plants are entered in this series in the order of the number of gallons constituting their annual output. The first, or smallest, has an output of only 3,650,000 gallons, and the largest, outside Chicago, an output of 1,480,000,000 gallons. The Chicago municipal plant delivered 96,918,782,023 gallons during the calendar year 1897.

The whole number of plants appearing in the tables is 82, of which 69 are under municipal and 13 under private ownership.

The oldest in the list is the municipal plant in Chicago, which was established in 1851; the next in order of date was constructed in 1866, and the next in 1873. Eleven were established in the decade 1870-1880; 35 in the decade 1880-1890, and 34 since 1890. Fifty-nine of these plants obtain their water from wells; 13, from rivers; 3, from creeks, and 5 from lakes.

Of the whole number, only two deliver water from reservoirs, and there are none which depend wholly upon a gravity service. Distribution is effected through tanks alone in 6 cases, through stand-pipes alone in 8 cases, and in 23 cases by pumping direct without auxilliary features. But 23 plants combine the use of stand-pipes and 20 the use of tanks with a direct pumping system. Pumping direct, for ordinary service as well as for fire service, is characteristic of the larger plants; but in the greater number of cases pumping direct is

resorted to only in cases of fires. All pumping is done by steam power, in the plants here scheduled, and the columns for describing water power plants are consequently blank.

The prices paid for bituminous coal, which is the fuel in general use for steam purposes, are given in the second table of the series, and these vary greatly according to the proximity of the plant to the mines from which the supply is drawn.

Table III presents the statistics of capital invested and makes distribution of the whole amount in each case according to the expenditures made for the several parts of the whole. Total cost is thus displayed as consisting of the cost of land; of constructions for storage at the source of supply; of wells, conduits, buildings, pumping equipment, distribiting reservoirs, stand-pipes and tanks, filters and filtration beds, mains, meters and hydrants, teams, tools, and other accessories. Only nine report any attempt at filtration, seven of which are private and two municipal.

An examination of the column for total investment reveals the fact that two plants have less than $10,000 invested; that forty-four have from $10,000 to $50,000 invested; fifteen have from $50,000 to $100,000; eighteen have from $100,000 to $500,000, and three over $500,000—one having an investment of over $27,000,000.

The relative size of the public and private plants here listed, as indicated by the amount of capital invested in each, is shown by the following classification:

Kind of Plant.	No. of Plants with Specified Investment.					Whole number.
	Less than $10,000.	From $10,000 to $50,000.	From $50,000 to $100,000.	From $100,000 to $500,000.	Over $500,000.	
Municipal	2	41	10	13	2	68
Private	—	3	5	5	—	13

Municipal plant No. 82 is omitted from this grouping because of its exceptional size and character.

The greatest number of municipal plants finds its place in the second group, with investments ranging from $10,000 to $50,000, and in this group also the fewest private plants appear. Possibly the larger cities, as a rule, offer the greater attractions to private investment in water works, while the smaller ones, being more dependent upon their own resources, develop municipal enterprises.

The average investment of the 68 plants under municipal ownership is $94,389, and of the 13 under private ownership, $121,702.

The financing of the municipal enterprises is analyzed in table IV, which gives the sources from which the funds for construction have

been derived. Bonds have been issued in every case except six; of these, four plants were fully paid for from funds on hand, and two from funds derived from taxation. The capital obtained from the bonds issued by the 76 other cities was augmented in every case either by funds in the municipal treasury or by taxation. Three cities have paid off their entire bonded indebtedness, and all but 17 have reduced their water works debt in a greater or less degree. The aggregate bonded indebtedness of the remaining 65 plants, has been reduced, since the issue of the bonds, by an amount equal to 31.77 per cent of the original debt. The prevailing term for which the bonds have been issued is 20 years, and the prevailing rate of interest 5 per cent, though there are some departures from the rule in both respects, which are fully set forth in the foot notes to the table. Only in three instances have the bonds been made payable in "gold"; in all others the stipulation is for payment in "coin." These securities have usually been negotiated at par, although the bonds of six cities have been sold at prices ranging from $101.12 to $104.32.

In table V are gathered the statistics of income. Gross income is accounted for in this table as coming from one or more of four sources, namely: from sales of water, from rents or sales of meters, from permits for tapping street mains, and from all other sources. Sales of water are made either by meter rates or by contract rates, including fixture rates. Three of the 82 plants sell water by meter only, 34 by contract only, and 45 by both. Only 17 plants derive any revenue from the sale or rental of meters; none, in this State, make any charge for tapping the mains, and 40 receive more or less income from miscellaneous other sources. By summarizing the total income of all plants, and that from all sales of water, it is found that the latter affords 98.20 per cent of all income, and there is no material difference in this respect between the municipal and private plants.

Cost of production is very fully defined in table VI. The analysis of cost in this case is on parallel lines with that for gas and electric light works in preceding tables, and groups the expenditures which enter into cost under similar heads, to-wit: general expenses, wages, supplies, rebates and worthless bills, maintenance, including repairs, renewals and depreciation, and taxes, for private plants.

Any distinctive features which may characterize the municipal or private plants, as such, in the matter of relative expenditures for cost of product, are brought out by the following groups of percentages:

Item.	Percentage of Total Cost of Production.			
	All private plants.	All municipal plants except the largest.	All plants except the largest.	The largest plant (municipal).
General expenses	21.46	10.65	12.89	7.17
Wages	13.66	20.17	18.81	21.96
Supplies	18.22	24.84	23.46	16.78
Rebates and worthless bills	1.27	0.38	0.57	.....
Repairs and renewals	7.40	18.31	16.03	26.68
Depreciation	25.63	25.65	25.65	27.41
Taxes	12.36	.....	2.59	.....

In the matter of general expenses, which include salaries of officers, superintendents, clerks, etc., insurance, legal expenses and damages, licenses and royalties, and other kindred expenses, the private plants show a decidedly larger outlay than the municipal. The amount paid out for wages in municipal plants is a larger percentage of total cost than the corresponding item for private plants, and in the Chicago plant it is larger than in other municipal plants. The expenditures for supplies, which includes fuel, pumping station supplies, filtration supplies and other, is larger for municipal plants in general, though smaller in the case of the largest plant.

The percentage of loss sustained on account of rebates and worthless bills is without significance here, for the reason that comparitively few plants report any loss from this source. In fact, there are only 16 of them in all, eight of which are municipal and eight private plants. The aggregate loss on this account to municipal plants constitutes 5.24 per cent of the cost of production in those plants, and in the case of the eight private plants this item is 2.51 per cent of total cost.

Some marked differences are observed in the percentages representing the relative expenditures for repairs and renewals. The general fact established here is that, in the maintenance of plant, the actual disbursements for repairs and renewals by private owners is much less, compared with the total outlay for all purposes, than the expenditures by municipal owners for the same purposes. In the general table all outlay for repairs and renewals is defined under seven heads. No plant reports expenses under all of them and every plant, save four, has disbursements under some of them; the amounts on which the foregoing percentages are computed are the totals of all columns under the general head. These totals sustain the respective relations to total cost indicated by the given percentages. It is further noticeable that the percentage expended for repairs and renewals by the exceptionally large municipal plant is still greater than that expended by all other municipal plants. Whether this is

an accidental result of one year's business, or has any significance as a general rule, can not readily be determined.

The figures given in the table for depreciation should not be read as percentages of total value of property, but as the proportion of total cost of production chargeable annually to wear and tear and shrinkage in value. A computation of the relation between estimated depreciation and total investment, as shown in their respective columns in the general tables, brings out the further fact that, for all plants taken as a whole, the amount allowed for annual depreciation is 1.98 per cent of total investment; for 13 private plants, considered as a separate group, 2.10 per cent; for all municipal plants except the largest, 2.04 per cent; for the largest alone, 1.96 per cent. Taxes are not charged as an element of cost of production, in this table, against municipal plants, and consequently the percentage for this item does not appear except in the groups for private plants. Here the statement is that 12.36 per cent of the annual outlay is for the payment of taxes. Compared with value of property, the total annual tax on all private plants is an amount equal to 0.96 of one per cent of the total amount invested.

Table VII shows the output of each plant in gallons of water delivered during the year, the proportion consumed by private users and by the municipality, respectively, and, for private use, the number of gallons sold by meter and by unmetered service. The greatest difference is observed in the relative quanties consumed by private users and by the municipality in the several places. In some, the quantity used by the city is less than one per cent of the total output; in others, the city uses even more than all private users together. The more generous use of water for public purposes is naturally found in cities with municipal plants. In the city of Chicago 43 per cent of all output goes for public use. Three of the largest municipal plants deliver more water to the city than to all private users. Comparing all municipal plants with all private plants, it is discovered that cities which own water works use 41.40 per cent of the total output, and that cities in which the water works are owned by private companies use only 12.96 per cent of their output.

Much the greater portion of the product of water companies is sold by fixture or other contract rates. In only three cases is all water accounted for by meter measurement. Thirty-four companies make no use of the meter whatever, and forty-five make prices to the consumers both by the thousand feet, as indicated by meters, and by special contracts of various kinds. In this respect the practice is not materially different in private and municipal plants, although

the three plants in which meters alone are used are under municipal ownership.

Table VIII is devoted to municipal plants only, and shows the degree to which cost of production is modified by income from private users, and, as a consequence, the results of operation in the cost of water to the several cities, or, in the absence of cost, as the case may be. In some instances the income from private users is greater, by various amounts, than all cost of production, with the result that such cities not only obtain water for all municipal purposes free of cost, but have a cash balance left to the credit of operating account. This measure of success is attained by eighteen of the municipal plants scheduled in these tables, and this result is characteristic of the large rather than the small plants. Of the twelve plants of largest capacity, ten have a record for this sort of double profit-making. The Chicago city water works is not only much the largest plant in the State and in the west, but it also appears here as a conspicuous example of successful operation. Nearly half the entire output of this plant, that is to say, 43.38 per cent of it, is consumed in various forms of municipal service, yet from the remainder sufficient revenue is raised, at rates to private users not higher than the average for other plants, to discharge all cost of production, including an allowance of over half a million dollars for annual depreciation, and to leave nearly a million and a quarter dollars in the treasury. The value of the water consumed by the city, at average contract price to others, is over two million dollars, which added to the surplus makes a total of $3,224,352 as the net earnings of the plant, or 11.79 per cent on a total investment, less the cost of land, of $27,353,729. Plant No. 80 also shows a surplus of $21,451 after furnishing the city with water free of cost for a year. This plant delivered 33.89 per cent of its total output to the municipality, the value of which was $24,700. The value and surplus in this case was equal to 9.72 per cent on an invested capital of $474,700. The other plants of the larger class earn over $10,000 each in addition to furnishing water free of cost to the city, and one earns over $12,000 besides free water for all public uses. These, of course, are exceptional cases; that is, out of 69 municipal plants 18 are in this category of surplus gainers; others furnish water at a moderate, and some at an excessive, cost. That the results of operation are dependent in large measure upon the size of the community to be supplied is a conclusion which may be fairly drawn from the fact that 15 of the more successful enterprises are in the larger cities and the most successful is in the largest, while three only are in towns of less than the average size.

Table IX defines certain additional elements of cost theoretically entering into the cost of production in municipally owned plants. The treatment of this subject of cost is the same here as in the case of electric light plants considered in previous pages. The separation is made between items of actual and of theoretical cost in order to afford an opportunity to include or exclude the latter at will in making deductions from the figures presented, and this table is produced in order to show just what amounts are represented by the items in question. These items are three in number, namely, estimated rental value of quarters occupied rent free, estimated taxes and interest on total investment. Any or all the amounts expended for these items may, by the use of this table, be carried into the cost of production of any plant if it is desired to observe the effect of such use of these figures.

Table X exhibits tho financial results of operation for the group of private plants only in columns showing the gross income of each, the total cost of production, including depreciation and taxes, and the net profit or loss on the year's business. A glance at this table shows that only two of the 13 companies report a net loss, and the amount in both cases is small; the others, for the most part, show substantial profits which, expressed in percentages of gross income, range from 5.07 to 62.26 per cent, and, in percentages on total investment, range from 0.63 of 1 per cent to 10.43 per cent. Some of the principal facts gleaned from this table and combined with others illustrating the relative size of the several plants, as determined by capital invested and output, afford the following condensed form of profit and loss statement for private water works plants:

Profit and Loss of Private Water Works.

Plant number.	Ownership.	Total investment.	Quantity of water consumed (gallons).	Cost of production, including depreciation and taxes.	Gross income	Net Profit.			Net loss.
						Am't.	Per cent of gross income.	Per cent on total investment.	
23	Private	$12,000	2,190,000	$1,424	$1,500	$76	5.07	0.63	
44	"	85,900	66,700,000	4,937	7,130	2,193	30.76	2.55	
53	"	90,419	110,000,000	8,734	15,066	6,332	42.03	7.00	
55	"	65,000	150,250,000	6,713	7,950	1,237	15.56	1.90	
56	"	39,868	160,680,000	4,940	9,054	4,114	45.44	10.32	
57	"	48,700	168,600,000	5,608	6,259	651	10.40	1.34	
60	"	129,900	221,000,000	8,209	21,754	13,545	62.26	10.43	
61	"	182,640	264,799,345	13,717	30,277	16,560	54.69	9.07	
62	"	195,000	273,750,000	15,550	20,532	4,982	24.26	2.55	
63	"	196,000	273,750,000	18,800	17,729				$1,071
66	"	51,227	330,000,000	6,976	9,608	2,632	27.39	5.14	
70	"	429,667	413,000,000	14,417	34,146	19,729	57.78	4.59	
72	"	55,800	547,500,000	12,964	12,305				659

A similar group of facts relating to municipal plants is also here drawn from Table XI, the final table of the water works series, in which the cost of the water to the municipality is the measure of profit or loss in operation:

Cost and Price of Water Delivered by Municipal Plants.

Plant number.	Ownership.	Total investment.	Quantity of water consumed (gallons).	Total cost of production, including depreciation.	Income from private users.	Net cost of municipality service.	Average price per 1,000 gallons to private users.	Cost per 1,000 gallons to municipality.
1	Municipal	$7,000	3,650,000	$664	$100	$564	$0.0870	$0.2256
2	"	26,000	3,650,000	1,886	916	970	.3000	.6352
3	"	42,529	7,884,000	3,419	870	2,549	.1178	5.0980
4	"	16,000	7,950,000	1,547	591	956	.1178	.3187
5	"	40,424	8,909,227	4,916	1,616	3,300	.2043	3.3000
6	"	10,625	9,000,000	837	510	327	.0699	.1924
7	"	11,120	10,000,000	751	810	a	.1080	a
8	"	14,400	10,950,000	1,320	767	553	.0956	.1603
9	"	22,939	10,950,000	1,749	682	1,067	.1162	.1793
10	"	21,750	13,700,000	1,887	2,301	a	.3734	a
11	"	37,290	14,600,000	3,215	718	2,497	.0718	.5428
12	"	15,595	14,794,545	1,757	1,104	654	.1012	.1635
13	"	20,150	15,500,000	3,309	2,454	855	.1877	.3420
14	"	15,000	17,500,000	2,112	625	1,487	.0500	.2974
15	"	24,300	17,611,250	1,387	1,804	a	.1389	a
16	"	28,600	18,000,000	2,580	1,100	1,480	.0846	.2960
17	"	16,225	18,250,000	1,833	650	1,183	.0650	.1434
18	"	22,243	18,250,000	947	816	131	.0666	.0109
19	"	30,000	18,250,000	1,902	749	1,153	.0713	.1398
20	"	23,000	18,341,500	1,881	990	891	.0542	9.7377
21	"	10,245	18,500,000	2,341	1,425	916	.0686	.1832
22	"	30,000	18,500,000	1,688	1,200	488	.1056	.4888
24	"	45,500	22,000,000	3,909	2,105	1,804	.1238	.3608
25	"	41,198	23,725,000	2,247	1,124	1,123	.0403	.1123
26	"	39,000	25,285,486	5,199	3,662	1,537	.1507	1.3307
27	"	28,185	25,550,000	1,947	1,789	158	.0857	.0285
28	"	33,500	27,375,000	3,208	1,966	1,242	.1123	.1242
29	"	80,000	28,000,000	4,625	2,720	1,905	.1360	.2381
30	"	80,850	29,200,000	7,774	3,891	3,883	.1244	.5523
31	"	34,267	32,412,000	4,436	2,758	1,678	.1212	.1678
32	"	31,881	32,850,000	2,849	2,026	822	.0782	.0822
33	"	15,000	36,500,000	1,969	988	981	.0395	.0852
34	"	21,750	36,500,000	2,213	1,500	713	.0455	.2037
35	"	31,500	36,500,000	2,478	2,094	384	.0665	.0768
36	"	34,750	36,500,000	2,917	1,910	1,007	.0541	.6713
37	"	19,920	39,500,000	1,358	1,063	295	.0545	.0148
38	"	4,827	45,625,000	1,391	663	728	.0146	3.8827
39	"	44,718	46,000,000	3,138	1,689	1,458	.0464	.1080
40	"	100,175	47,500,000	8,022	4,037	3,985	.1022	.3985
41	"	66,500	54,350,000	4,513	3,660	853	.1429	.0257
42	"	83,000	54,750,000	3,737	5,221	a	.1079	a
43	"	38,005	56,250,000	2,866	1,652	1,214	.0302	.8093
45	"	61,400	73,000,000	5,413	4,553	880	.0667	.0800
46	"	71,155	73,000,000	5,535	9,029	a	.1602	a
47	"	44,514	82,666,000	2,402	4,522	a	.0715	a
48	"	72,927	84,883,062	6,405	5,396	1,009	.0973	.0304
49	"	22,499	91,250,000	2,894	2,070	824	.0248	2.2575
50	"	80,000	93,000,000	8,583	7,800	783	.1044	.0392
51	"	33,568	104,035,000	3,489	4,000	a	.0400	a
52	"	37,503	107,010,000	2,816	3,687	a	.0497	a
54	"	54,876	113,880,000	5,698	3,388	2,310	.0426	.0671
58	"	31,456	170,000,000	4,308	1,655	2,653	.1034	.2653
59	"	70,000	185,000,250	5,837	4,200	1,637	.0271	.0546
64	"	219,411	281,553,000	16,346	11,688	4,658	.0813	.0333
65	"	175,000	325,912,183	10,870	7,157	3,713	.0414	.0240
67	"	14,000	370,000,000	3,429	2,176	1,253	.0060	.1253
68	"	164,639	373,000,000	7,807	6,448	1,357	.0350	.0072
69	"	316,817	403,000,000	15,112	27,306	a	.0741	a
71	"	359,854	497,895,895	14,999	25,152	a	.0561	a

a Nothing; income from private users exceeds cost of production.

Cost and Price of Water Delivered by Municipal Plants—Concluded.

Plant number.....	Ownership.	Total investment.	Quantity of water consumed (gallons).	Total cost of production, including depreciation	Income from private users.....	Net cost of municipality service....	Average price per 1,000 gallons to private users.....	Cost per 1,000 gals. to municipality..
73	Municipal.....	229,399	547,500,000	$17,166	$14,409	$2,757	$0.1190	$0.0065
74	"	136,221	584,000,000	13,260	13,418	*a*	.0181	*a*
75	"	166,998	789,518,410	14,635	15,590	*a*	.0218	*a*
76	"	563,302	1,072,049,000	30,961	34,835	*a*	.0407	*a*
77	"	278,645	1,119,750,000	22,909	17,798	5,111	.0166	.1120
78	"	300,000	1,122,841,270	17,622	28,135	*a*	.0436	*a*
79	"	789,730	1,436,180,000	49,460	53,954	*a*	.0649	*a*
80	"	474,700	1,475,058,261	30,763	52,214	*a*	.0526	*a*
81	"	290,000	1,840,000,000	30,563	30,582	*a*	.0440	*a*
82	"	27,352,729	96,918,782,023	1,962,886	3,177,709	*a*	.0558	*a*

a Nothing; income from private users exceeds cost of production.

Here the cost per annum per 1,000 gallons of water to the cities operating their own water works is stated in figures indicating the widest experience. Primarily it is observed that a number of these cities report no cost whatever for water used for municipal purposes. These are the 18 plants which appear in table VIII as making a profit on their business in addition to securing municipal water free of cost. Aside from these the range of cost is from a little more than half a cent to $9.74 per 1,000 gallons. More specifically, the cost to 17 cities and towns is less than 10 cents per 1,000 gallons; to 13, from 10 to 20 cents; to 10, from 20 to 50 cents; to 5, from 50 to 90 cents, while the cost to 6 municipalities ranges from $1.33 to $9.74 per 1,000 gallons. Special inquiry addressed to the plants showing excessive cost of municipal service establishes the fact that this result is generally due to one or more of the three following causes: Small income from water sold to private consumers, the rate usually being low; high fixed charges; the small quantity of water used by the municipality itself. The latter is the leading and sufficient cause for the great gallon cost in the six cases where the cost is highest. A very small consumption necessarily makes an abnormal cost per gallon. In the case of plant No. 20, for instance, in which the cost of city water is found to be $9.74 per 1,000 gallons, it is also found that the city uses only one half of 1 per cent of the total output; two other cases, Nos. 38 and 49, for which high cost is reported, deliver only 0.40 and 0.41 of 1 per cent respectively to the cities owning and operating them. It is doubtless true that in these and similar cases the fixed charges would be no greater if the city consumption were many times greater and the cost per gallon very much less; but it is also true that in a number of these cases the fixed

charges are unusually high, and in others that the private consumption is small. The rate of private users, moreover, is in most of these cases, below the average for other cities and in some very low —in four of them the price being 1, 2, 3 and 5 cents per 1,000 gallons, respectively, in cities where the cost to municipality is as many dollars per 1,000 gallons used.

Further figures taken from the final table afford the following partial view of the effects of public and private ownership on prices and the cost of water service to the citizen and the city:

Price and Cost of Water Delivered by Private and Municipal Plants.

Private Plants.			Municipal Plants.		
Plant No.	Average price to private users per 1,000 gallons.	Price to municipality per 1,000 gallons.	Plant No.	Average price to private users per 1,000 gallons.	Cost to municipality per 1,000 gallons.
23	$0.0533	$0.1014	22	$0.0686	$0.4880
44	.0544	3.5000	43	.0302	.8093
53	.0995	.2302	54	.0426	.0671
55	.0294	.5000	58	.1034	.2652
56	.0447	.6311	59	.0271	.0546
57	.0367	.0375	64	.0813	.6333
60	.0914	.0953	65	.0414	.0240
61	.0766	.3243	67	.0060	.1253
62	.0645	.1157	68	.0350	.0072
63	.0315	.3184	69	.0741	*a*
66	.0183	.3740	71	.0561	*a*
70	.0654	.2859	73	.1190	.0065
72	.0180	.3238	74	.0181	*a*

a Nothing; income from private users exceeds total cost of production.

This exhibit is suggestive rather than conclusive as a comparison between private and public plants. For private plants alone the statement is complete for average price to private users and price to municipality in each case. The columns for municipal plants contain the record of an equal number of establishments of approximately corresponding magnitude, so far as that is indicated by volume of output. This affords a fair opportunity for comparing the average price to private users made by the two groups respectively, but is not so satisfactory a showing for cost to municipality as the whole list presents in the preceding table, as this includes a number of the profit-making enterprises, but none of those in which an excessive cost appears. On the other hand, one instance of excessive price to municipality is observed in the column for private plants. This conspicuous price of $3.50 per 1,000 gallons, like similar cases in the preceding table, is made exceptional by the small quantity of water used, which by reference to table VII is found to be only 1.5 per cent of the total output of the plant.

Something of interest, however, attaches to this table, and it will doubtless be observed that, notwithstanding the considerable di-

versity in prices in both columns for private users, there is substantial correspondence between them. An average taken of both gives 5.23 cents as the price made by private plants, and 5.4 cents as that made by municipal plants to private users as a class. A difference distinctly noticeable is discovered, however, between the price to municipality and the cost to municipality, even omitting from consideration the plants which show no cost whatever for city water. Without attempting precision of statement it is evident from the face of this table that the price paid by municipalities for water bought from private companies is, as a rule, far greater than the cost of water to those cities which operate their own plants, and the contrast is emphasized by extending the comparison to the entire list of municipal plants.

Reviewing the facts gathered concerning water works plants in Illinois, it appears that there are in all 165 plants in the State, 35 of which are under private and 130 under municipal ownership; of these, 82 have been examined and scheduled for these tables, 13 of which are private and 69 public plants; that in the matter of the relative size of the plants considered, while both the largest and smallest are municipal, there is substantial conformity in the representation of both classes; that in general the bonded indebtedness incurred in the construction of municipal plants is in process of gradual extinction as a result of municipal management; that some differences appear in the distribution of cost of production in the two groups, the principal of which are that a smaller proportion of that cost is expended by municipal plants for general expenses and a larger proportion for wages and for repairs and renewals than by private plants; that cities having plants of their own make a much more liberal use of water for municipal purposes than those which purchase city water from private companies; that the operation of private water companies is almost uniformly profitable, and their prices to the municipality usually much higher than to private users; that the establishment of municipal plants operates to reduce the cost of water service to the city in almost all cases, and in some to extinguish it altogether and produce a revenue besides, but the municipal plant does not ordinarily afford lower prices to private users; that the highest success in operation is found in the largest plants; finally, that while the exceptional cases are not of sufficient weight or number to materially disturb these observations, the real interest and instruction afforded by the tables is likely to be found in the specific study of individual plants, both exceptional and otherwise.

PART II.

Public Employment Agencies.

FREE PUBLIC EMPLOYMENT OFFICES.

While modern inventions have widened the sphere of human activity, the constantly increasing number and demands of those who must labor to live tend to exceed the opportunities for remunerative employment.

The vast accumulation of wealth in the world has not perceptibly reduced the necessity for labor or materially protected that numerous class, who, conforming with the ancient injunction, earn their bread in the sweat of their faces, from the horrible calamities following the loss of employment.

The exceedingly narrow margin between work and want was strikingly illustrated during the recent industrial depression, when, in most of the mining and manufacturing centers of the country, charitable organizations were formed for the purpose of relieving the immediate necessities of those whose working time had been reduced, or the still more unfortunate who were left temporarily without occupation. St. Paul's assertion that he who will not work neither shall he eat, can be changed to harmonize with the new conditions of modern life and made to read: that he who can not obtain employment must eat at the expense of others. It is the thought suggested in the radical declaration of Cardinal Manning, during the London dock strike, that necessity knows no law and that a starving man is entitled to a share of his neighbor's bread.

This new version of the gospel of modern charity elicited from the press and pulpit of Great Britain considerable adverse criticism. The ultra-conservative element were shocked at its communistic tendencies. A little reflection, however, is sufficient to show that the principle has its base in the most important of human relations—the social compact. There is nothing revolutionary in the doctrine, as it simply implies that civilized man can not, without confessing to the charge of murder, permit any one to die for the want of something to eat.

During even the most prosperous periods there is always a certain percentage of men and women in search of work; and, as industrial conditions become more fixed in their character through the perfection of mechanical processes, the difficulty of securing employment seems to increase.

To that great majority of men and women who must work for

themselves and their dependents, the great desideratum is employment. All other questions, such as rates of wages, sanitary conditions of labor, factory inspection, and hours of labor, are secondary and pale into insignificance before this *sine qua non.* To the thoughtful student who is closest to the great mass of unskilled as well as the skilled working people, it has long been apparent that the real mental condition back of the ever increasing social unrest is the consciousness of the uncertain tenure of employment, and the fear of that constantly impending danger of being out of work. The statistician or economist can not hope to stem the tide of social discontent by showing that wages for those who have work are higher now than ever before, which is true, and that at the lowest general rate of wages the poor laborer today can live better that the fairly well-to-do of past generations.

This argument, while indicating a commendable general improvement, has no application to the men and women unable, under the prevailing system, to obtain employment at any price, except it be to render their situation even more desperate. Labor's greatest apprehension is the possibility of being deprived of employment. It is this incubus which makes bitter the bread of present plenty. When that which is most feared—the loss of employment—is realized, desperation ensues. The mental anxiety to which this unfortunate class is subjected really destroys more vital force than years of productive toil. It is a mental condition which urges its victims to clutch at any delusion if it has in it only a ray of hope.

It is a matter for public regret that certain parasites have been born of this condition to feed upon it. The private employment agencies take advantage of the unfortunate situation of the unemployed, and in many instances the only return for robbery is the vaguest promise of work.

The purpose of this chapter is to convince the general public and the members of the General Assembly if possible, of the humanitarian necessity and economic importance of establishing free employment offices in the principal cities of this State. To that end it seems important to discuss in some detail the general character of the private agencies, operated for hire, which now in part occupy the field it is proposed to cover.

This Bureau has never inaugurated a detailed investigation of private employment agencies in this State; but it is believed that the pictures here presented from the official reports of other states could be more than duplicated in any considerable city of Illinois, and sadly discounted by very many of the employment agencies of Chicago.

EXPERIENCE IN OTHER STATES.

NEW YORK.

In 1886 the New York Bureau of Labor Statistics called public attention to the private emloyment agencies and their methods and the conditions of the "labor market" upon which these agencies feed, the leanness upon which they fatten, is described with some force by Commissioner Peck on pages 25 and 26, as follows:

"For the purposes of this report, it was only deemed advisable to show the falsity of the almost universal opinion that there is 'work for all' and to keep strongly in mind the fact that whatever is done must be done with this thought before us. Tables of advertisements, to be found further on, will represent only certain trades and only of those men out of work, who can afford to spend twenty-five or fifty cents in advertising for a situation. Nothing can be said of the vast army of unemployed mechanics who did not advertise. In many trades, particularly where there are no unions, the out-of-work members float quiently upon the surface, and but few know or care how they exist. They may get one day, or two days, or three days' work a week, or none at all. This class never advertises for work, prefering to walk around and ask for a job. Many trade unions have labor employment bureaus, or 'houses of call,' where the idle members have at least a shelter from the cold and rain, while they patiently wait for work. A few of these are furnished plainly, and order is preserved. But the majority have cheerless and distasteful surroundings, a reflex of the lives of the occupants, and many, far too many, are forced into saloons, where they are expected to be found when wanted."

Then follow pages of specimen advertisements, together with a table which, summarized, shows that 6,601 mechanics and workmen of various grades advertised for work in three of the New York dailies in three months. It is also shown that an employer advertising for a mechanic had three hundred applicants for the position on the day the notice appeared. In the midst of this enforced idleness the employment agencies were advertising for armies of men to do all kinds of work. Specimen advertisements are given and it is

stated that the printers kept them standing so sure were they that they would appear almost without change of word or figure again and again. Speaking of these the report says, page 35:

"These advertisements proceed from a class who trade on the needs of the inexperienced searcher for honest employment. That the calling pays is presumable from the steady advertising in leading journals. The advertisements appear almost every day with hardly a word changed. How the business is carried on, and with what result, it may be the duty of this bureau to inquire at some future day."

And on pages 37 and 38 Commissioner Peck says:

"A recent trial reported in the New York papers shows that a young fellow or a recently arrived immigrant can go to one of these agencies professing to have connection with the great employers, and for $5 he gets his name put on the list. The agency has, of course, no more direct or legitimate relations with the big employers than it has with great state officers, but it sends out an agent or two to inquire about changes and vacancies, present or prospective. The agency watches the advertisements and sends out its circulars and the candidate for employment can call at the agency to meet other candidates and be told that if he had been there an hour earlier, or yesterday evening, he would have had one of three or four chances just filled. There is not a spark of truth in all these utterances, but they keep hope alive until the applicant really picks up something for himself or quits the city in disgust. In brief, the employment agency is one of the many traps and springs of the metropolis set to catch the heedless and inexperienced and teach life's hard lessons."

On a public occasion Mr. Kean, Chief Clerk of the New York Bureau of Labor Statistics, speaking of this matter, said:

"If an advertisement calls for the employment of several classes of workers day after day, it is plain to assume that, at some period, the situations the agencies claimed to be able to fill would have been secured by some of the applicants whose desire for work was evidenced by the loss of time in looking for it, and the consequent loss of money which was brought about by patronizing such institutions. Applicants for a situation or job are frequently sent to a legitimate advertiser who has been accommodated early in the day or week, and the intelligence office or employment agency would claim that they had performed their part of the contract by giving an opportunity to an applicant to procure work. These instances are not rare. It made no difference to them whether the party to whom they had sent was in possession of help or not. In no case was the fee returned."

The *New York Times*, describing the methods of employment agencies, stated that when a man applied to one of these for work he was required to pay $5 and then sign an agreement wherein the agency agreed to aid him in procuring employment. This contract

was to run for thirty days, and in case a place was secured for him he was to pay $3 more out of his first week's salary. The agreement further states:

"In case we, said agency, fail to obtain for him, said applicant, satisfactory situation at the end of ——— days from date, upon his personal application and surrender of this contract, we are to give him a special advertisement in one of the leading morning papers, in lieu of the fee paid to us, to which it is clearly and distinctly understood that he forfeits all claims hereafter in consideration of the foregoing."

While the agencies of New York claim to have canvassers out in search of employment for applicants, the *Times* states that in reality they do little more than collect the advertisements under "Help Wanted" in the morning papers, and send their dupes to the advertisers.

OHIO.

In the report of the Ohio Bureau of Labor Statistics for 1890 Hon. John McBride, the commissioner, says:

"Prior to the establishment of the 'Free Public Employment Offices' there were employment agencies in all the large cities in this state, but they were run for private profit rather than for public good. They were leaches engaged in sucking the life blood from the poor. These private agencies charged men and women anywhere from $1 to $15 for securing them employment, and in most cases they demanded and received a price for accepting an application whether they secured a place or not. This every honest-hearted citizen knows to be wrong, because it is evident that when men and women are willing to work, and are unable to find it to do, it is sufficient for them to suffer the hardships which are inseparable from enforced idleness without taxing them for the privilege of securing work, or for the promise to secure work."

As an illustration of how anxious our working people are to obtain employment and the manner in which honest bread winners of families are deluded and robbed by private employment agencies, the following is taken from the *Sunday World*, of Columbus, in its issue of June 8, 1890:

How to Get Work.

OR RATHER, HOW TO LOSE ALL THE MONEY YOU HAVE, VIA THE ALLEGED EMPLOYMENT AGENCY, WHICH SEEMS TO BE GETTING THE BEST OF INNOCENT PATRONS.

Every city in the land finds in the warp and woof of its business enterprises various concerns which are parasitic in their life, illegitimate in their pro-

cesses, and as unscrupulous as they are baneful in their operations. Our city is not by any means exempt from combinations and firms of this description. Even the eye of strictest vigilance often fails to detect the presence of questionable business manipulations until considerable boldness is displayed by the sharks, and irreparable harm done. An "outfit" of this doubtful character does business at No. 35½ North High street, and is called by the euphonious name, "The Mercantile Record." "Room 3" of said place is the scene and theater of its transactions. The incredibly large line of men and women, young and old, married and single, that has passed its portals will never be known. In the absence of figures, it will ever remain impossible to estimate the large percentage of the above host of applicants from the city and surrounding country who discovered when too late that they were deceived, disappointed, victimized and robbed. The painful feature about this so-called "Employment Agency" lies in the fact that its victims chiefly are harvested from the rural districts and neighboring towns. "The Mercantile Record" by correspondence and advertising abroad has drawn many unsuspecting young men and women from the suburban towns into its toils, only to leave them hopelessly stranded and with pockets despoiled of their hard-earned savings.

"No doubt 'The Mercantile Record' has obtained employment for some of its applicants and fulfilled some of its contracts. So has the Louisana Lottery put money into a few men's pockets, built churches and blown wind into some church organs. But all over the land the Louisana Lottery is denounced as an unmitigated curse. Evil men even sometimes do good deeds. The conclusions are obvious. An evil establishment is no less evil because it does some good. A *World* reporter has in his possession one of the contracts and agreements used by said firm. The signature of the concern is printed. The contract is then signed by the applicant upon the deposit of an arbitrary amount of money and is open for thirty days. The dupe who pays his money and signs the document has no legal redress, because he signed the agreement. We here give the copy of the blank used:

CONTRACT.

THE MERCANTILE RECORD, 35½ NORTH HIGH STREET.

COLUMBUS, O., February 7, 1890.

Received of.....$2.00 for position as shorthand and typewriter; should position not be accepted in 30 days from date, one-half of the amount, which is $1.00, will be returned on presentation of this contract and agreement in person; it is agreed and understood that the balance is retained to defray expenses of solicitors, advertising, etc.

THE MERCANTILE RECORD.

I hereby accept the terms of the above contract and agreement, as therein printed and specified.

Signed.....

Please read this contract before signing.

"This agreement would seem to evidence sincerity on the part of the contractors, but the experience of a very large number shows that it is only a scheme to wring money out of the earnings of poor men and women. The

deluded applicant calls repeatedly to ascertain developments, only to discover in the end that the promised position is not to be had, the assured employment not to be obtained, the money gone, or half of it in some instances returned, and the person victimized.

"In many cases the applicant is sent to some home, or shop, or business place to inquire for the employment or position promised, and learns to his disgust that the whole thing is a mere ruse, and that the business man knows nothing of such an arrangement. How many business men and homes have been annoyed in this manner, and how many poor boys and girls have been deceived after this style no one can ever tell.

"A *World* reporter himself with another witness saw a poor girl, who had been deceived after this fashion, stand in "Room 3" with her shoes torn, and pleading for the return of her money, because she had been sent about town only to find herself disappointed. No doubt it was the last dollar she had, and had paid it thus in quest of work. Poor working girls are the principal victims of this concern. We will select a number of cases to illustrate the methods of this firm. The facts are true and can be proven. Where names are suppressed, the same can be obtained. If other facts and names are wanted they can be easily obtained, and it is suggested that other victims report their names to the *World* office. Here are some victims:

"Mr. J. J. Ferguson, residing at the corner of Spring street and North Grand avenue, can unfold an interesting experience with said agency. He made application for a place as night watchman some time last month, paid the sum of $3 and signed the contract. Two men operating the Mercantile Record promised him the place in a short time, and said it would pay $10 per week. The applicant called at different times specified. He was held off until his patience was exhausted. He resolved to call once more and either get the position, the money refunded, or 'do up' the boss. He took with him several witnesses. They found one of the fellows locked in 'Room 3,' as developments afterward showed. The other one, returning from supper, found his man at the head of the stairs waiting for him. But bluffing would not do in this case, and the fellow betook himself to the water closet. There he remained a full hour. Meanwhile other victims came up stairs with a purpose to find out more of their prospects. One of this number was a lady who had paid $6, and another, a man who had deposited $5, and two or three others who had paid lesser amounts.

"The aid of Police Officer Jones was invoked. Thinking it time to act, the fellow came out of the closet, and his partner also unlocked the door of 'Room 3' and the duet met the crowd with the officer. The result was that under the pressure the agency paid over the amounts due those present, whose contracts had brought no return. The next day Mr. Ferguson took others there, who had their money refunded. After the evening scene above related, one of the firm challenged Ferguson to fight a duel to get even, and they actually took the cars together to go to the outskirts of the city to engage in the encounter. But the fellow was careful to take an Oak street car instead of a white car, and when the court house was reached, remarked that he had

not taken the right car by mistake, but that he wished to take him (Ferguson) away from the office to prevent a mob.

"Another case: Miss Annie Radcliffe, 887 E. Baltimore street, paid her $3 and is out of her money and has no place.

"Miss Lillie Wilson, 363 N. Park street, applied for some form of employment, paid $3, and never got work or her money,

"Mr. ——— applied for a position as a clerk, paid $5, was promised such a place and frequently went to the agency, until, disgusted, he left, having neither work nor money.

"Observe this case—the names can be obtained: By correspondence six girls were induced to come from Chillicothe and get places of employment. They each paid $2. After waiting and finding nothing would come out of the arrangement, they demanded their money and were advised to go home and the Record would inform them when to return. The girls had no money and were compelled to seek out a former resident of Chillicothe, who resides in this city, who took pity on them and paid their fares home. These girls were only samples of many other victims from the neighboring towns.

"A man residing at the corner of Main and Fourth streets applied for a position as hotel clerk. He paid no money, because he detected the trap in time. He called four times. On the first call the place was open at $45 per month; on second call it was rather uncertain; on last call the place was exceedingly doubtful in the prospect and had depreciated to a $30 job. Because the applicant would sign no contract and pay no money, he was insolently dismissed.

"Miss Sullivan, 624 Mt. Vernon avenue, applied for a position, signed contract, paid $6. She called repeatedly for her position or the return of her money. Finally the fellows met her importunity by sending her to Siebert and Lilley's. It was a ruse. Mr. Siebert said he did not know how many were sent by this concern to him, and yet he had nothing to do with it. Miss Sullivan is employed now on North High street. Her sister at 284 East Town street, can also vouch for the above experience of her sister. She too is without her money.

"Miss ———, living in the East End, applied for a place, paid $1, and though she called often to know what they were doing for her, was treated with angry retort by the outfit, and got neither place nor any part of her money back.

"Miss ———, residing on Third avenue, applied, signed contract, paid $2, and at length was put off by securing for her a very unsatisfactory position.

"A Grand Army man of some importance in this city secured positions for four comrades who had applied and paid their money to the Mercantile Record, but never got situations.

"The reporter can give many other similar cases. The above parties named and implicated can testify to the facts in their own experiences. Beware of the 'Mercantile Record.'"

Iowa.

Very careful investigations of private employment agencies and their methods have been made by the state labor bureau of Iowa. In the Fourth Biennial Report of the Commissioner, Mr. Sovereign, it is stated that:

"Nowhere in this great State can be found a more perfect expression of man's inhumanity to man than is embraced in the pernicious methods of our so-called employment offices. The song of the 'Spider and the Fly' never formed a more fitting illustration of duplicity than is found in the management of most of these offices. They allure the honest and unsuspecting laborer seeking employment into a web of confidence surrounded by pretended sympathy and false promises, only to rob him of his earnings and turn him out disappointed and destitute."

Mr. Sovereign admits that this is pretty harsh language for a public document, but says: "It was penned after the most careful investigation."

The Iowa employment agencies have methods very like all the rest. On page 217 of his fourth biennial report, the commissioner says:

"Mr. Kennedy's business is largely confined to common laborers, he uses no contracts and his charges are nominal. But he is now making an effort to send 3,000 laborers to the state of Washington to work on railroad construction, where there is already a great surplus of emigrant laborers, and at the same time the employment offices of Minneapolis, St. Paul, Chicago and eastern cities are sending the same class of laborers to this state with a vague promise that steady employment and good wages will be given. Thus tramping and vagrancy are superinduced."

"The West" is the great field to which all employment agencies "ship" their victims. New York and Boston claim to have work for hundreds of men in St. Paul, Dubuque, DesMoines. The DesMoines agent has places for as many thousands of laborers as can pay him his fee, if they are only willing to "go West" to Washington or Oregon; while the San Francisco agent can furnish employment for all if they will pay him his fee and accept transportation to Mexico or Texas.

The Iowa commissioner also gives in his report copies of contracts used by a large number of the Iowa employment agencies.

There are some queer things in the contract of the "National League of School Teachers Employment Bureau of Iowa." A registration fee of two dollars is required as an initiative step. In addi-

tion the applicant agrees to "pay five per cent of the first year's salary, one-half of the amount to be paid at the expiration of the first month's teaching; the remainder at the expiration of the second month's teaching." Again: "If I secure an increase of salary in my present position, I agree to pay commission on the increase as above." The applicant further agrees to "use all information of vacancies for my [the agent's] personal use," and if he or she learns of a vacancy to inform the burean of the fact immediately; moreover, if by inadvertance a fellow teacher is told of a vacancy the culprit so misdemeaning promises to be personally responsible to the bureau for the five per cent of the salary of the person securing a position in consequence of such information. Where board is given as part salary, "it is to be estimated at $200 per year and commission charged upon it."

The "Western Labor Bureau" of DesMoines charges a registration fee of two dollars, and twenty per cent of the first month's wages. Where board is furnished, as in case of farm hands, it is reckoned at fourteen dollars per month and commission charged upon it. The relation of demand to supply does not seriously concern the employment agent.

The commissioner further says:

"All employment or intelligence offices receiving fees in advance of service, so far as this department has been able to gather knowledge on the subject, are ever ready and willing to receive such advance fees far in excess of their ability to supply the applicants with positions. Not one of them agrees to limit the registration of applicants or the acceptance of fees to the demand for help. The registration of applicants is made the subject of earnest solicitation at all times and in all places, and the advance fee, though it may be the last dollar of a poor and needy applicant, is received with as little moral compunction when the chances are a thousand to one against the applicant as under any other circumstances.

"Employment agencies, as a rule, are void of humanity, and their relationship to labor is that of the lion to the lamb. All employment agencies receiving fees in advance which they retain whether any service is given the applicants or not, bear the ear mark of fraud. If it is worth ten per cent of one month's salary and two dollars besides, to find a situation for a deserving laborer, the rules of all honorable business demand that no part of the money be paid until the position is found. Commission merchants sell hogs, cattle and other produce for shippers without demanding fees in advance of actual sales, but the commission merchant in the employment office who traffics in human labor, exacts a fee in advance without guarantee that a sale

will be made, and locks the door of his commission house against the poor wretch who must sell his labor to sustain human life, but who has no money with which to pay fees in advance."

"Perhaps the climax of fraud in this line was attained by 'The United States Bureau of Information,' upon whose artistically engraved contract were the usual words: 'I shall in no way hold said managers responsible for failure of service.' The sworn testimony of several witnesses, partners and others, given in the report, is to the effect that a fee of three dollars was charged in each case for registration, and that in no instance did the management even attempt to secure the applicant a situation. The Commissioner also calls attention to that nomad class of employment agents, known in every city, who open an office, advertise for men and women by the thousands to do all kinds of work and then in a month or frequently less time

'Fold their tents like the Arabs,
And as silently steal away.'"

MISSOURI.

A glance at the situation in Missouri, where Labor Commissioner Willard C. Hall made a very complete investigation, will give a very clear idea of the manifold evils arising from this unprincipled trading in human wants.

On pages 30 and 31 of his report he says:

"In St. Louis and Kansas City there arethirty so-called labor agents who, for a stated sum, agree to get a working man or woman a position. The amount charged by the labor agent varies from fifty cents to $20, or in proportion to the amount of money the applicant is supposed to have. The working people of the cities are swindled out of more money in this way than perhaps by all the other methods put together. The criminal court dockets of St. Louis has page after page filled with cases that have been brought against the labor agents by their victims for money paid and no position secured. Each case has been put off from time to time and at last dismissed because the prosecuting witness failed to appear. No one who is dependent upon his daily labor for support can afford to wait month after month for the case to be tried. In some instances where the case is nearly ready for trial, and the witness should remain near at hand, he is bought off by the labor agent and the case is dismissed as usual. Several of the labor agents have their offices in saloons; they advertise in an afternoon paper for fifty or a hundred laborers, who promptly put in an appearance next morning, and after registering and paying $1.00, the fee usually charged, they are told to remain near at hand, and that free transportation will be furnished them and they will be shipped out on the evening train. The laborer is feeling happy over having secured a position, and usually has from fifty cents to $5.00 after paying his registration fee; this money he spends in the labor agent's saloon during the day, and when night comes he is informed that the transportation not having arrived, he will have to wait till morning. In the morning they return and per-

haps spend the remainder of the money; they are then informed that the transportation has not arrived, and they depart sadder but wiser men, while the labor agent gives himself credit for from one to two hundred dollars taken in over the bar from his victims."

The commissioner gives the names of proprietors, and the location of agencies in each case. Speaking of St. Louis employment agencies he says of one of them:

"George A. Lewis is the owner of the labor agency at 319 South Market street. The room called office is in the rear of a saloon. The agent states that he has some 500 applications a week from laborers for all kinds of work, mostly, however, for railroad and quarry work. He is able to secure work for some fifty men a week.

"Employers, as a rule, are not charged for being supplied with laborers. All charges are laid on the men who apply and are provided with work. Charges are $1.00 and $2.00.

"Agent has been in business in the present place for eleven years. He claims that he conducts his business in a fair, honest way. There is entered in the books of the Court of Criminal Correction, under date of September 27, 1890, the following charge:

"That George A. Lewis, on the 22d day of September, 1890, did unlawfully and feloniously, with intent to cheat and defraud, obtain from William Camp seven dollars lawful money of the United States, by means and by use of a false and bogus order. On October 8, of the same year, case was laid over to October 22, and from that latter date to October 24, on which day court had to dismiss the case for want of prosecution. The police say that this charge could have been sustained, but that plaintiff, who had no means, could not wait in the city until trial.

"The location of the agency is decidedly objectionable. The proprietor claims that some 500 men per week, or 26,000 per year, apply at his office for work. All these men have to pass through his saloon. It is suggested by reliable persons that the saloon business is the principal and most profitable business done by the agent; that he advertised for laborers when he had no orders to fill; that he made the men believe that he had work for them in order to get them around his bar and cause them to spend part or all of the little money they had."

Another agent claimed to have some 600 applicants for work per week; and to be able to supply about 100 per week with work. He charges a fee of one dollar, with extras amounting to about one dollar more. In most cases he avers the railroad fare is paid by the contractor or railroad that employs the men; but when laborers are very plentiful the transportation is charged to the men and deducted out of first earnings. Like all other agencies, the farther the men can be shipped the better it suits the agent. This agency is not in a

saloon, and the agent claims to be "perfectly honest" and to have had no trouble with the courts. Commissioner Hall, however, on pages 42 and 43 of his report, quotes from the dockets of the court to show that even this agent's "goodness" is not of that intense type that makes people "die young."

"There is entered in the Court of Criminal Correction of this city a charge against H. P. Thiele, of date May 7, 1891, reading as follows:

"H. P. Thiele, on the 7th day of May, 1891, unlawfully and wilfully did agree and promise and advertise through the public press to furnish employment and situations to certain persons, and in pursuance of such advertisement, agreement and promise, did unlawfully and wilfully receive a sum of money, to-wit, twenty dollars, from one Thomas Berlin, and did unlawfully and wilfully fail to procure for said Thomas Berlin an acceptable situation and employment, and did unlawfully and wilfully fail and refuse to return the said twenty dollars to said Berlin after said Berlin demanded the same.

"Court decision on June 23 inst.:

"Defendant pleads not guilty. Tried by court. Defendant adjudged guilty; sentenced to pay a fine of $50 and costs. Motion filed for a new trial was overruled on July 26. Defendant paid back to two of his victims—namely, Thomas Berlin and John Engel—the unlawfully obtained money ($20), and execution was stayed on promise of good conduct.

"The number of victims in this case," the report continues, "was five, each of whom had paid the agent the sum of twenty dollars. Two of the men were not able to reach the city and prosecute the agent. Three cases were brought before the court, one of which had to be dismissed for want of prosecution."

Mr. Estep, prosecuting attorney of the Criminal Court of St. Louis, says that within six months over fifty cases came to his knowledge where men complained against one agent, to say nothing of the others. These men, as a rule, had not the means to stay and prosecute, and the attorney, weary of the eternal "dismissed for want of prosecution" written as a final entry in his dockets, drops the matter.

The tables given in the Missouri report show that six agences in St. Louis received 106,600 applications for situations during the year; that of these 20,800, or 19 per cent, were furnished employment. The price ranged from $1 to $5, and even as in the case above, to $20 for each applicant. Mr. Hall states that these figures are not as reliable as he could wish, but are the best that could be obtained. Each man that is sent to a job is listed as having been furnished a situation. As a rule, "when a contractor sends an order for 50 men, say, at least 80 or 100 are sent to his camp," and each of these is marked as

having been provided with work. Mr. Hall thinks his figures represent about 40 per cent of the income and business done by these agencies.

There are four employment agencies in St. Louis for typewriters and stenographers. The usual charge is 30 per cent of the first month's salary; but some, as the St. Louis Typewriter Exchange, charge $10 per month for use of machine, and 50 per cent of first month's salary. The National Stenographers' Association is remarkable, in that its employment business extends from St. Paul, Minn., to Jacksonville, Florida. It charges one dollar for registering an application, and 40 per cent of first month's salary. It is able to provide situations for only one-third of its applicants.

In addition to these are the female and domestic employment agencies. These charge both the employer and employé a fee as a rule.

Some interesting social reflections are suggested by such statements as this:

"The manager of this bureau obtains his supply of domestics by advertising in the country newspapers—each weekly edition bringing him an average of five answers. For office positions, one advertisement for office work would bring fifty answers." *

The tables given show that seven out of the ten employment agencies for women received 6,032 applications during the year and secured positions for 5,626. The amount collected from domestics was $3,198, aside from extras which probably amounted to as much more.

In Kansas City, Commissioner Hall finds conditions no better. On page 50 of his report, he says:

"In Kansas City there are three employment agencies that provide employment for both men and women, and six for men alone. Five out of these six, all situated on Union avenue, are in saloons. The male employment agencies, particularly those on Union avenue, have a very bad reputation. Charges are continually being made against them by poor men who have been promised places which they never got, and cheated out of their last cent.

"The demand in these offices seems greatest for laborers to work on railroad lines south, west and northwest of Kansas City. Next in demand are hotel help, train agents and farm hands, and, least of all, for those who do clerical work.

---

*NOTE.—The extract from the Report of the Ohio Bureau of Labor also refers to this practice of some agencies in alluring girls from villages to cities by means of deceptive advertisements in country newspapers. The danger side of such practices suggests itself.

"The supply of men for all kinds of work, however, is greatly in excess of demand, the employment agents to the contrary notwithstanding. These agents state that they receive more orders from railroad laborers than they can get to fill them.

"Quite a number of those seeking employment are Kansas City men who have been thrown out of work on account of the present dull times prevailing in the city. But besides citizens of Kansas City there is usually a floating population consisting of men from the east, west and the northwest—all of whom are seeking employment. Those from the east have come here thinking they could better their condition, while those from the west and northwest are returning to the east, having discovered that they could not improve their condition. Many in this way get stranded here, some having spent their last dollar in registering for work in one or more employment offices. Thousands of working men who came to this city during the "boom" and made it their home as long as there was work to do, have left the city within the last two years, and there are many others who can not get away.

"All who make application for work are required upon registering to pay a fee, besides which there are usually incidental expenses charged to those securing employment. The incidental expenses can be made to amount to considerable. Only about half the number applying for work are able to pay the fee and register."

How many of theee "floaters" are men who have been sent "west" by employment agencies to secure positions that did not exist, and are tramping their way back, would be a very proper subject for congressional investigation.

The Canadian Employment Agency of Kansas City, drawing its supplies from whence it can, reports "most of the employment obtained for applicants is for places outside of the city." Fee $1 to $5, also incidental expenses.

Figures given for eight Kansas City employment agencies for men show that 64,740 applications were received and places alleged to have been secured for 43,672.

Of the employment agencies for women, Commissioner Hall pens an indictment which alone ought to arrest the attention of state Legislatures, and secure the immediate establishment of free employment offices. He says:

"In Kansas City there is one employment agency for women "exclusively," and three for both men and women; the remainder are for men alone. With the exception of the one for women exclusively, they all have a reputation not the best in the world for veracity and conscientiousness.

"Many of the women applying for work are sent to houses of ill-repute. By one employment agency this is said to be done knowingly, but without the knowledge of the women who are thus disposed of; while with the others

it is supposed to be done unwittingly. These other agencies profess to being careful not to send them to places of ill-repute that are known to be such by the public in general; but with the exception of the one mentioned, none of these employment agencies will risk losing a single fee by bothering to inquire into the character of the people to whom they send the women who apply to them for work."

These agents claim to have a great demand for hotel and restaurant help—principally in Mexico and California, and in railroad restaurants along the lines of small western roads. The fee charged both ways amounts to from $1 to $5.

Four employment agencies for women report 22,711 applicants, and positions secured for only 3,835. This does not, of course, represent all the movement of women seeking employment in Kansas City, but only of those applying at these agencies.

Commissioner Hall enumerates several charitable institutions in both St Louis and Kansas City that have employment bureaus attached, making no charges to either party. Of Kansas City, he says:

"The Y. W. C. A. and the Women's Exchange have employment bureaus connected with their work for women, but as they are trying to benefit the women and not themselves, they do not desire to be classed with other employment agencies.

"Occasionally, women who are strangers in the city and just arrived at the depot, will, in their ignorance, apply for work at the employment agencies opposite the depot on Union avenue. Great are the dangers that these ignorant women encounter in trusting themselves to the guidance of some of these agents, whose reputations are far from good. Reports of the fate of some of these women are terrible if true."

The Commissioner of Missouri strongly recommended to the Governor and Legislature the enactment of a law providing for free public employment offices, as the only remedy for the evils complained of. The legislation sought was not, however, at that time secured. The outrages increased until in October, 1897, when the present Commissioner, Hon. Arthur Rozelle, opened a free employment office in St. Louis in connection with, and as a part of the Bureau of Labor. In his report for 1897 Mr. Rozelle says:

"One of the chief sources of complaint of the laborers and especially the unemployed in the large cities is a certain class of private employment agencies who prey upon the unfortunate. Not all of the employment agencies can be classed as fraudulent, but in the investigations made by this department in St. Louis alone, a large majority of them were found to out-

rival in their methods the worst gambling and confidence games in the city, yet their systems of robbery are so cunningly devised and so skillfully operated that it is almost impossible to convict them under the existing law. It was for the purpose of trying to break up these fraudulent concerns and bring the employer and unemployed into closer relationship that the State Free Employment Department, 916 Chemical Building, St. Louis, was established by this bureau.

"The investigation of the methods of employment agencies has been somewhat limited and has been wholly confined to St. Louis, where there were 16 concerns in operation during the month of August, six of them having suspended since the establishment of the State Free Employment Department. During the investigation 2,000 contracts or applications for employment made with two agencies for a period of six months were secured. However, the two concerns were practically one; the business being conducted by the same parties. But owing to the numerous charges of fraud a change in name was necessary in order to deceive the applicant for employment and secure patronage.

"The 2,000 applications represent an income to the agency of about $3,000 for each six months, or $6,000 per year, of which the unemployed of St. Louis were defrauded by one company alone. This $6,000 is clear profit on an investment limited to the cost of a desk and a few chairs.

"The following is a copy of the form of contract used by these concerns:

St. Louis.....189...

This agreement, made and entered into by and between the.....Employment Co., and.....applicant, both of St. Louis, Mo., wherein the said applicant seeks information relative to a position as.....or other work of a similar nature, under the following terms and conditions:

1st. That all fees paid to said..... .....Employment Co. in advance are paid for the exprsss purpose of defraying all incidental expenses in procuring information in reference to the position desired and for services to be rendered by the said.....Employment Co. in various ways.

2d. It is further agreed and understood that the said.....Employment Co. shall have.....if necessary, in which to furnish the applicant employment, and that no money will be refunded and no position guaranteed.

3d. It is also agreed and understood that in the event of the said.....Employment Co. procuring said applicant employment, said applicant agrees to pay said .....Employment Co. 10 per cent of the amount of the first month's salary arising from such employment.

Witness our hand and seal this.....day of.....189....

Applicant represents the following.....Age.....years. Nationality..... Language spoken.....Business formerly engaged in.....References.....

.....Employment Co

.....Applicant.

.....Address.

"From the above it will be seen that the company promises to do absolutely nothing for the fee charged. Verbally, however, all sorts of promises are made and inducements offered. The victim is told that signing this

agreement is a mere matter of form and the 10 per cent clause is pointed out and dilated upon to show that from motives of self-interest alone the employment company is bound to procure work for the applicant. When the work is not forthcoming within a reasonable time and the applicant becomes dissatisfied his contract is produced and he is told to read it for his own edification. The fees charged are on the sliding scale system limited only to the size of the applicant's purse, and range anywhere from 50 cents to $10.

"In order to determine just what percentage of applicants received employment through these agencies, 70 names were selected from the number of applications in possession of the department, and a communication was addressed to each one requesting information on this point. Of the 47 answers received not one had secured employment through any aid given by these agencies.

"The assistant prosecuting attorney of St. Louis is authority for the statement that there is but one private agency in the city against which no complaint of fraud has been lodged, and that in the month of September not a day passed without the customary complaint of fraud being made against some of them.

"Under the existing law it is almost impossible to secure a conviction. The law grants the agency reasonable time within which to procure the applicant employment and the prosecuting attorney construes this to mean thirty days. The majority of persons who apply to these agencies are from the country; their means are limited and they can not remain in the city without work for any great length of time. As a result they are never on hand to prosecute. If by chance they succeed in finding work in the interim they can not afford to lose the time or their situation by being absent from employment, when they in any event remain the losers.

"With the exception of possibly two private concerns the employment agencies in the city of St. Louis are conducted by a class of persons who have no business outside the walls of the penitentiary. They prey upon the class who can least afford to lose, even though it be a small amount. As a rule, the greater the need the easier the victim.

"To give a semblance of honesty to the business, an arrangement is frequently made with some business concern (which is not above turning a dishonest penny) to tell the applicant that the 'place has just been filled,' the consideration being a part of the fee paid the agency. This scheme was disclosed by reputable employers to whom the proposition had been made.

WASHINGTON.

In the city of Seattle, State of Washington, a free employment bureau was established in 1893. Mr. A. H. Grout, the commissioner in charge, in his report for 1897, gives the following facts and figures concerning the office for a series of years:

"This public employment office has been in existence for three years and nine months, during which time it has been of incalculable value in bringing together employers and employés to the number of many thousands, and has saved during this time in cash to the laboring classes fully $25,000.

"I submit below the results of the work done in the department since its creation in April, 1893, showing the number of people for whom work has been found during each month, viz:

Months.	1894.	1895.	1896.	1897.
January	.....	180	162	319
February	.....	223	319	221
March	.....	257	347	533
April	134	280	240	600
May	201	311	254	521
June	221	325	313	558
July	244	439	373	941
August	510	489	250	1,076
September	600	364	196	1,048
October	386	383	291	842
November	256	288	205	848
December	271	190	318	1,229
Totals	2,823	3,729	3,268	8,736
Hop pickers	1,144	2,050	135	2,890
Grand totals	3,967	5,779	3,403	11,626

Monthly average, 1894, 441; 1895, 482; 1896, 284; 1897, 969.

"It will be seen by reference to the above table that the office has been well patronized from the start and, as the last year's work shows, is becoming the chief medium of communication between employers and the employed.

"By a comparison of the totals we find that, aside from the orders for hop pickers, which should not be considered in comparison (as the crop is so uncertain and enters into the work of only one month of the year), the average number of persons for whom work was procured during the first year was 313, while the second year's average was about one per cent less, and that of 1896 about twelve per cent short of the results obtained during the previous year. This office has had the use of the want columns of one of the daily papers for a part of the year, the Commissioner has been allowed an assistant, and last, but not least, the citizens of Seattle and vicinity are awaking to the realization of the fact that their wants are attended to more carefully, conscientiously and promptly than at any of the so-called pay offices.

"The work of the office includes all the principal trades and vocations, from bootblack to pianist and from hodcarrier to pattern maker. We have furnished work during the past year to miners, machinists, engineers, blacksmiths, firemen, painters, carpenters, plasterers, masons, shoemakers, plumbers, tinsmiths, upholsterers, pilots, seamen, pianists, butchers, sheep shearers and all other conceivable callings, although the greater part of all orders received call for shingle bolt and cordwood cutters, loggers, farmers, saw mill and shingle mill help, cooks, waiters, dishwashers and general laborers.

"As many of our citizens are aware the supply of laborers during the last few years has been far in excess of the demand in all lines of work for men,

and many have been forced as a last resort to send their wives out for work at house cleaning or laundry work, but as the year 1897 opened business began to revive, and as early as March there was a material increase in business of all kinds. Mills received new orders, factories began to run on full time, merchants sold more goods, and in May was witnessed what we had not seen before in several years—the employer looking for men, instead of men looking for employment. In a number of our most important industries wages were forced up at least 10 per cent, and some of the mills began to run nights. Indeed we seemed to be entering an era of marked prosperity.

"In June and July the labor market received another shock. For days and weeks every train arriving at Seattle was crowded with men from all parts of the east and south, expecting to find positions with large salaries awaiting them, and it is safe to say that during the months of July and August fully 10,000 people were added to the population of Seattle. The majority of these arrived with little or no means of subsistence, and if it had not been for rigid police regulations and the fact that many were supplied with work in the country, the city would have been overrun with a penniless and (what naturally follows) a lawless element. As it was, the remarkable increase in business generally gave employment to hundreds, but this did not prevent the labor market being so glutted that wages naturally fell back to the former level, and in many cases new comers took positions of those who had lived here for years.

"Among the orders for men, that which attracts first attention is the large number of railroad laborers ordered, a total of 2,784 or an average of 232 per month. This class of work has been formerly done almost wholly by other offices, where applicants have had to pay from $1 to $1.50 for their job; but this is now changed and all the railroad companies running to Seattle leave their orders for help at the Public Employment office.

"I have often been called upon to furnish on two or three hours' notice as many as sixty railroad laborers, and have been able to procure them without difficulty; whereas it would doubtless take as many days for all the licensed agencies to procure the same number of men when charging the usual fee. The railroad companies have fully appreciated this service, as has been frequently expressed by the officials.

"One feature of this work which should be mentioned is that by this means the rougher element and floating population are given work out of the city and are thus taken away from the temptations which always surround those without means of support. For instance, during the months of July and August, when the first news of the Klondike riches was spreading, hundreds of people from all stations in life flocked to Seattle, among whom were many unskilled in any vocation, and who arrived with no visible means of support. These in time would find their way to the city jail on a charge of vagrancy or the commission of some offense, or would become subjects of charity, unless furnished with some kind of employment. This came in the shape of repair work for the various railroads running from Seattle. During the months of

July and August, when help of this kind was most needed, more than 800 men were sent out from this office, thus relieving a situation which would otherwise have been a serious problem for the solution of our citizens. As it was, the tension was relieved and much distress and crime averted."

MASSACHUSETTS.

As throwing some light upon the number of private employment agencies, charging a fee, to be found in cities, and the amount of money paid by the unemployed into these agencies, the following statement is condensed from the Twenty-fourth Annual (1893) Report of the Bureau of Statistics of Labor for Massachusetts. There were 119 licensed private employment agencies in Boston May 1, 1894, charging fees:

"Beside the employment agencies which are generally recognized as intelligence offices, there are a few which deal with special kinds of employment, or aim to provide employment for persons of special training, which operate without a license, not being classed as intelligence offices. These establishments deal principally with mercantile or professional employments.

"An enumeration of these would largely increase the number given above. Returns were received from 98 of the 119 licensed agencies. Of these, two deal exclusively with male help, 40 with females only, and 56 with both sexes. Males find places principally as bell boys, coachmen, general farm and hotel work, gardeners, domestic service, laborers, stablemen, and teamsters; while females are placed principally in domestic and personal service in families, hotels and restaurants. It was impossible to obtain accurate statistics showing the number of applicants and the number of places filled by all of these offices. Estimates, however, from 87 establishments place the number of applicants during the year 1893 at 600,934, and the number of places filled 128,912; that is to say, the number of places filled represented 21.45 per cent of the number of applicants. In 15 establishments the number of applications during the year 1892 was 186,313, rising to 207,161 in 1893. In 1892 in the same establishment the number of places filled was 28,862, falling in 1893 to 20,308; that is, the places filled constituted 15.49 per cent of the applications in 1892 and 9.80 per cent in 1893.

"Eight establishments furnished the Bureau with the number of applications and places filled during the months of January, February and March, 1894. In these establishments the number of applications aggregated 10,024, while the number of places filled was but 493, or 4.92 per cent of the number of applications."

EXPERIENCE IN FOREIGN COUNTRIES.

FRANCE.

The private employment agency seems to have developed in France soon after the practical downfall of fuedalism, as a result of the effort of the working people to adjust themselves to the change. Dishonesty seems to have developed in these private agencies in their earliest stages; for in 1846 the French economist M. de Molinari proposed public employment offices as a remedy for the evil; and failing in this, opened the columns of his paper to free advertising for situations and for help.

In 1848 M. Doucoux, then prefect of police submitted to the Municipal Council of Paris a plan of organization for Municipal Employment offices, as the only practical remedy. This failed to pass and in 1851 he submitted the same proposal to the Chamber, hoping that the State might accept the proposition the Municipality had declined.

The text of this proposal was as follows:

"Art. 1. There shall be erected in Paris, under the direction of the State, a Labour Exchange.

"Art. 2. This exchange, divided into sections for the different classes of trade, shall contain employment registries for workmen, and all information adapted for the purpose of enlightening the public as to the different phases of labour. The cost of commodities, the rate of wages, in fact, all data interesting to employers, workmen, producers and consumers will there be collected and carefully explained.

"Art. 3. This exchange shall be built according to the plans and estimates drawn up by order of the Prefect of Police and handed to the Municipal Council of Paris on the 10th of October, 1848.

"Art. 4. A supplementary vote of 300,000 francs shall for this purpose be inserted in the budget of expenditure for the year 1851."

This bill was returned by the Chamber of Deputies, to the Municipal Council of Paris, as being a matter for local, rather than national legislation.

However an attempt was made to eliminate somewhat of the dishonesty of private registry offices, (as the employment agencies are called) by means of licenses, police supervision, etc.

The draft decree proposed by the Commission of Employment Registries was sanctioned by Louis Napoleon, and promulgated on the 25th of March, 1852. It is under this decree, possessing the force of law, that the business of employment registries has since been conducted, so that it is well that the text should be given here verbatim.

DECREE OF THE 25TH OF MARCH, 1852.

"Art. 1. Henceforward no one will be allowed to carry on an employment registry, under any pretext, or for any professions, situations, or employments whatever, without a special permit issued by the municipal authority, only to be granted to persons of established repute. Present proprietors of registry offices are accorded a delay of three months in which to obtain the said permit.

"Art. 2. The application for a license must state the conditions under which the applicant proposes to conduct his business. He must conform to these conditions and to the regulations which shall be framed in virtue of Art. 3.

"Art. 3. The municipal authority shall supervise the registry offices, so as to ensure that order be maintained therein, and that they be conducted honestly. It shall draw up the rules necessary for this purpose and regulate the list of charges leviable by the owner.

"Art. 4. Any contravention of Article 1, of the second paragraph of Art. 2, or of the regulations made in virtue of Art. 3, shall be punishable by a fine of from 1 to 15 francs, and imprisonment not exceeding five days, or by either of these penalties. The maximum of the two penalties will always be applied to an offender, who within the previous twelve months has been convicted of an infringement of the present decree of the police regulations aforesaid. These penalties are apart from any restitution or damages entailed by the acts with which the proprietor is charged. Art. 463 of the Penal Code applies to the above-named contraventions.

"Art. 5. The municipal authority may cancel the license of: (1) Persons who have incurred, or should hereafter incur, one of the penalties provided by Art. 15, paragraphs 1, 3, 4, 5, 6, 14 and 15, and by Art. 16 of the Decree of 2d February, 1852; (2) of persons who have been, or may hereafter be convicted of conspiracy; (3) of persons who may hereafter be condemned to imprisonment for contravention of the present decree or of the regulations framed in virtue of Art. 3.

"Art. 6. The powers above conferred on the municipal authority shall be exercised by the Prefect of Police for Paris and the jurisdiction of his prefecture, and by the Prefect of the Rhone for Lyons and the other communes in which he discharges the functions conferred on him by the law of 24th June, 1851.

"Art. 7. The withdrawals of licenses and the regulations issued by the municipal authority in virtue of the foregoing provisions shall not take effect until after the prefect has approved of them."

In 1893 the "Office du Travail" (Department of Labor) of France issued a report under the title of *Le Placement des Employés, ouvriers et domestiques, en France.* This report, the data for which covered the year 1891, was drawn upon and translated by the English Labor Department of the Board of Trade, for its extensive "Report on Agencies and Methods for Dealing with the Unemployed," published in 1893. It is from this source that most of the data here used is derived, though the later data has been drawn from the monthly "Bulletin de L'Office du Travail," published by the French Bureau, and from data furnished by letter for this report by the Director of the Department of Labor for France.

After the promulgation of this licensing decree mentioned above, nothing seemed to have been done until 1878, except that in 1875 the Municipal Council of Paris was petitioned to provide "at least a refuge enclosed and covered so as to shelter the numerous groups of workpeople who collect every morning for the purpose of being hired at the docks and other works." July 18, 1878, the council ordered the construction of such permanent shelter. This, however, did not allay the agitation for free municipal employment offices, nor check that against private ones.

On the 19th of November, 1883, M. Manier forwarded to the Municipal Council of Paris the following resolution adopted at a meeting held on the 16th of the same month at the Salle Rivoli:

Considering that the labor exchange will at least have the effect of—

(a) Suppressing the Places de greve;*
(b) Facilitating the placing of workers;
(c) Suppressing the Registry offices;
(d) Centralizing the supply and demand with a view to rapidly bringing workers into relation with work;

* Certain localities in Paris where it was customary for persons seeking work to congregate.

(e) Establishing direct relations between the chambers of syndicates or corporate associations, as well as between all workers in general whether they belong to unions or not,

the assembly, having heard the details of the proposal, invites the municipal council to vote the said proposal in its entirety in the present session.

On page 569 of his report the Director of the French Department of Labor says:

"The want of success attending the experiment made in carrying out the decree of the 8th March, 1848, by which the Provisional Government established a free information bureau in each of the *maries* of Paris, for a long time discounted the idea of free municipal registry offices.

"Some of the municipalities, especially those which administer the arrondissements of Paris, revived this idea in 1886 in consequence of the agitation against the private registry offices, and, following their example, severa other towns have established free registry offices, or encourage private undertakings established with this object."

The following table, taken from the report (page 611), shows the scope of the work of these registries in 1891:

Summary Statement of the Number of Applications for Work and Workpeople Registered, and the Number of Persons Placed by the Free Municipal Registry Offices in Operation in 1891.

Departments.	Towns.	Date of establishment of office.	Nnumber of—		
			Applications for work	Applications for work people	Persons placed.
Gironde	Bordeaux	1888	3,161	734	696
	Sainte-Menehould	1868	.....	.....	.....
Marne	Vitry-le-Francois	1888	90	90	90
	Sezanne	1888	.....	.....	.....
	Lille	1884	1,248	194	.....
Nord	Cambrai	1889	200	100	100
	Caudry	1889	24	24	24
	Flers	1889	.....	.....	.....
Orne	La Ferte-Mace	1889	74	74	74
	1st Arrondissement	October, 1889.	1,410	1,035	1,009
	2d "	April, 1891	975	294	150
	3d "	October, 1888.	4,500	5,000	4,000
	4th "	March, 1889	2,104	956	482
	5th "	May, 1889	284	284	284
Seine	Paris—				
	6th "	January, 1889.	4,000	1,800	1,500
	13th "	Sept., 1891	492	156	101
	14th "	May, 1889	1,000	670	604
	15th "	Nov., 1888	1,000	715	715
	18th "	July, 1887	2,743	765	627
	Levallois-Perret	October, 1883.	1,600	400	400
Total			24,805	13,292	10,856

This table shows the most important free municipal registries are those in Paris, those outside the Department of the Seine, with the exception of that at Bordeaux, being comparatively unimportant.

A description of the methods and working of the oldest of the existing offices in Paris is given on pages 599–600 of the report. The description applies to the office of the 18th *Arrondissement*, the translation being that of the English Department of Labor. It is given as a type of these institutions in France.

"The free municipal registry office of the 18th *Arrondissement* was founded on the 15th of July, 1887. It is conducted with a subsidy of 2,000 francs from the municipal council. An accountant, who receives 60 francs per month, attends at the office every evening from 7 till half past 9. A clerk carries the letters, the object of which is explained further on, and receives for this service 40 francs per month, bringing the expenses for staff to 1,200 francs. A sum of 800 francs then remains for expenses of printing, postage and advertising; the latter takes place by means of circulars, placards, newspaper reports and notices left with tradespeople.

"The two officials are placed under the exclusive supervision of a committee of control consisting of the *maire* as president, some deputies and five members of the *bureau de bienfaisance* (two governors and three commissaries); one of the officials registers the applications for work and the other the applications for workpeople.

"Registration of applications for work takes place on presentation of a document stating the address, together with certificates, work books and references of candidates; in addition, for the greater convenience of employers, a desk has been put up in the waiting room on which are placed printed forms which employers have only to fill up and put into a box opened every evening.

"Each evening after the closing of the office the accountant, following the order in which the applications for work have been registered, endeavors to meet the opplications for workpeople and sends letters by the clerk to the parties interested, which serve them as introductions to employers."

In the table it is shown that in 1891 there were 23 free municipal employment offices in France, registering 24,805 applications for employment, and 13,292 applications for help, and that duriug that year places were found for 10,856 persons.

The *Bulletin de L' Office du Travail* for August and September, 1898, shows an increase in the number of offices not only in Paris but in the country at large. In addition to those named in the table as existing in 1891, there were free municipal offices in 1898 in Nancy,

Brest, Lisieux, Orleans, Sens and Trouville. In Paris offices of this character had been opened by the authorities in the 10th, 17th, 19th and 20th *Arrondissements* since 1891.

Under date of September 22, 1898, the Director of the French Department of Labor writes that owing to the fact that these offices are not required to report to his department, and to the fact that they do not keep "exact, complete and regular records of their doings," he is unable to furnish complete returns. From bulletins which he says "are incomplete for the country districts, but full enough for Paris," the following tables showing the more recent operations of these offices have been prepared for this report. Notwithstanding the assurance that the data was sufficiently full for Paris we regret that foot notes calling attention to omissions in the report are so numerous, especially for the second table. Tables were prepared for Paris only, owing to the utter inadequacy of the available data for the other towns and districts.

TABLE I.

Summary of Business Done by the Paris Municipal Employment Offices for the Year Ending October 31, 1897.

LOCALITY.	Date of establishment of office.	No. of applications for work.	No. of applications for work people.	SITUATIONS SECURED.	
				Permanent.	Temporary.
Paris (a) 1st Arrondissement.....	1889	13,407	1,504	1,385	140
" 2d "	1891	9,843	10,192	3,772	.....
" (b) 3d "	1888	5,761	6,559	4,193	256
" 4th "	1889	7,628	5,264	5,283	89
" 5th "	1889	1,084	1,221	602	1
" (b) 6th "	1889	4,448	2,669	2,327	9,014
" (e) 10th "	....	1,961	6,990	1,565	9,669
" 13th "	1891	3,101	2,816	2,403	.....
" (c) 14th "	1889	3,049	2,410	1,589	56
" 15th "	1888	3,122	2,467	2,075	29
" (d) 17th "	....	304	482	299	5
" (d) 18th "	1887	998	535	377	29
" 19th "	....	1,720	2,130	1,595	23
" 20th "	....	1,844	1,888	1,014	189
Total.....	.....	58,270	38,127	28,479	19,500

(a) No report for June, 1897.
(b) No reports for November, 1896, from these offices.
(c) No report for December, 1896.
(d) Reports for first three months of 1897 only.
(e) Reports for the calendar year 1897.

TABLE II.

Summary of Business Done by Paris Municipal Employment Offices, for Ten Months, from November 1, 1897, to August 31, 1898, inclusive.

LOCALITY.	Date of establishment of office.	No. of applications for work.	No. of applications for work people.	SITUATIONS SECURED.	
				Permanent.	Temporary.
Paris (a) 1st Arrondissement.....	1889	5,475	1,177	1,024	84
" (b) 2d "	1891	6,720	6,637	2,654	756
" (c) 3d "	1888	3,152	2,673	1,682	128
" (d) 4th "	1889	5,042	3,967	3,753	39
" (b) 5th "	1889	1,065	1,051	688	16
" (f) 6th "	1889	1,959	878	805	2,763
" (g) 10th "	....	939	1,370	490	2,659
" (a) 13th "	1889	3,314	2,333	2,038	.....
" (h) 14th "	1889	2,194	1,849	1,159	176
" (a) 15th "	1888	3,071	2,169	2,006	18
" (e) 17th "	....	1,672	1,287	760	8
" 18th "	1887	*	*	*	*
" 19th "	....	1,934	1,841	1,517	13
" (a) 20th "	....	1,351	1,526	879	155
Total.....	.....	37,888	28,758	19,455	6,815

(a) No report for August, 1898.
(b) No report for January and August, 1898.
(c) Reports for five months only.
(d) No reports for June and August, 1898.
(e) Reports for four months only.
(f) No reports for December, 1897, January and February, 1898.
(g) Figures given are for three months only.
(h) No report for June, 1898.
* No reports received.

A comparison of Table I with that showing the work done by all the free public employment offices in France in 1891, shows a very remarkable increase in the business of these institutions, those of Paris alone having done more than twice as much in 1897 as those of all France did in 1891. The total number of situations secured by the Paris offices (combining the permanent and temporary situations) was, for the period covered by Table I, 47,979, as against a total of 10,856 in 1891 for all France, including Paris. This, too, in the face of the fact that the trade unions in France, Paris especially, have free employment departments which seek to secure situations for those of their trade out of employment. There were, in 1891, 421 trade unions with such offices attached. There were also 76 convents that kept employment registries, and sought, free of charge, to secure work for those of their faith. In addition to these, there were 59 so-called "Friendly Societies" maintaining free employment agencies,

as charities. Table II, when its fragmentary character is considered, and due allowance made for the numerous omissions, shows a satisfactory increase in business done.

ENGLAND.

In 1893 the Labor Department of the British Board of Trade published an elaborate report on "Agencies and Methods for Dealing with the Unemployed." At that time municipal and other free public employment offices were experimental in their nature and seemed to be but a sporadic attempt to deal with the enormous number of idle men during the years 1892 and 1893. A few of these Labor Bureaus, as they are called, were of a more permanent character, however, and a fairly complete account of their methods of operation is here given. The quotations given are from the report of the English Labor Department mentioned above:

"Labour bureaux or employment registries for members of various trades do not at present play a part in English industry comparable to that which they fulfill in France and elsewhere. Many institutions and organizations which can not properly be described as labour bureaux include among their functions that of assisting their members to obtain work, but the "labour bureau" as a special and separate institution, intended to centralize the demand and supply of labour, is hardly as yet naturalized in this country, except in a few special cases. It is desirable, however, to give some account of the operations of such labor bureaux under public or quasi-public management as have been established in various parts of the country.

"Counting both permanent and temporary registries, the Department has received information as to the work of 25 labour bureaux during the past win ter. Of these 15 were temporary registries, leaving 10 which may be regarded as more or less permanent bureaux, viz.: at Ipswich, Egham, Chelsea, Battersea, St. Pancras, Camberwell, Westminster, Bloomsbury, Wolverhampton and Salford. It is possible, however, that this list is not exhaustive.

"The temporary registries were for the most part started during the winter by London vestries and other local authorities in connection with schemes (described elsewhere) for the municipal provision of employment. In London the local authorities were requested by the Trade Council to open these registries. In several cases the lists of names registered were merely used for the purpose of selecting men to be employed by the local authority, and no attempt was made to find outside employment for those registered. In these cases it is doubtful if the registries ought to be reckoned as even temporary labour bureaux. In other cases the registries were used for a double purpose: for supplying men both to the local authority and to such private employers as chose to apply. Finally, in a few cases, these temporary registries were conducted (with more or less success) as temporary labour bureaux pure and simple."

DETAILED DESCRIPTIONS OF ENGLISH OFFICES.

The Egham Bureau.—"The first office of this kind to be established in England (at least, among those still in existence) was that at Egham, which was opened in February, 1885. The bureau is managed by the local superintendent of births, deaths and marriages, who gives his service gratuitously.

"The registry is made known by cards sent about the district, and by advertisement in the country papers. It is open to local residents, but others may apply, and if a vacancy occurs for which a local man is not available an outsider may be sent. The bureau is open daily from 9 a. m. to 7 p. m. The following are the heads of information entered in the register:

Name.....
Address.....
Date.....
Description of occupation required.....
Where last employed.....
Applicant's remarks.....
Date when employment is found and by whom.....

"The registrar only enters the names of those whom he considers bona fide workmen out of employment, and as he is acquainted with most persons in the district, formal inquiries are hardly necessary. The local loafers are pretty well known to him, and they do not now apply for registration.

"No charge is made for registration, but 'all who may obtain engagements through its agency are invited to contribute, if possible, threepence per week during the first few weeks of their engagement, but this contribution is entirely voluntary.' The initial rule of the registry is 'that the registrar shall scrupulously abstain from interference in any question of wages or conditions of service, or labor troubles.'

"Following this rule the registrar declines to supply men to fill the places of men on strike, and no record is made as to membership of a trade union or wages previously received or required.

"Postcards are issued to employers and men for them to notify when they are suited, and a fair proportion of these cards are filled up and returned.

"As is natural in a country district, the bulk of those for whom situations are found are gardeners, laborers, grooms and members of the building trades. Besides the work of finding situations, loans are granted in special cases to redeem tools out of pawn, or to take families to other districts. About 75 per cent of the money so advanced is repaid.

"In the fourth annual report of the registry the opinion is given that in such bureaus 'the antecedents of applicants who may be personally unknown to the registrar' should be authenticated 'if it is intended not merely to report a total of all persons desirous of registering themselves as wanting work, but also to attract offers of employment.'

"The success of the registry seems very largely due to the fact that the superintendent knows personally most of those who are likely to apply, whether employers or workmen; a condition of things possible in a country district, but not in a large town.

"*The Ipswich Bureau* was opened in October, 1885, only a few months after that at Egham. The forms and registers used are more elaborate than those at Egham. The principal forms and methods of procedure are thus described in a recent account of the bureau published by the honorary manager:

"Our method of working is as follows: When a man applies to us for work, he is given a form, of which the following is a copy:

No.....

IPSWICH LABOR BUREAU.

Established for the purpose of finding work for men, and securing suitable men for employers. No fees are charged, but donations to defray working expenses are solicited.

Office: Tower Street, Office Hours: 9 to 5.

Dated.....189....

APPLICATION FOR WORK.

Name.....
Address.....
Age.....
Married or Single.....
What Family.....
Trade (describe fully).....
Name and Address of last Employer.....
How long in his employ.....
Average Wages.....
Cause of Leaving.....

CERTIFICATE OF CHARACTER TO BE SIGNED BY LAST EMPLOYER.

I certify that.....
is a competent workman, that he was in employ as stated above, and that his character and conduct were satisfactory.

Signed.....

"If the above is filled up and signed by the last employer to our satisfaction, the man is registered.

COPY OF MEN'S REGISTER.

No.	Date.	Name.	Address.	Occupation.	Age.....	Mar'ed or single.	How many children..	Name of last employer and references	Wages.....	How disposed of.

"If there is an order on the books to suit him, and if the place is near enough to admit of it, we send him to it; but if it is at too great a distance, we send particulars of the man to the employer who has sent us the order, and if he thinks him suitable, he goes. If we have no opening for him, we look up advertisements in the daily papers, and if anything likely is discovered, we send on to the advertiser the following form:

LABOUR BUREAU, IPSWICH.

A Medium for Masters who want Men, and Men who are seeking Employment.

No Fees. Officer: Tower Street.
Telegraphic Address: "Labour Bureau, Ipswich."
Honorary Superintendent.....

WANTS EMPLOYMENT.

Name..... Address.....
Age..... Married or Single.....
Trade.....
Last Employer .....

Having satisfied ourselves that the above is a competent workman, and of good character, we shall be glad if you can find him employment.

"We also advertise daily in the local papers such men as we have on hand.

ORDERS FOR MEN.

"When masters apply to us for men, their orders are entered in a book, of which the following is a sample:

Date.	Name.	Address.	Occupation.	Man sent.	No. of register.	Date.	Result.

If there is a man on the register likely to suit, particulars of him are sent. If not, we do our best to get one.

INDEX BOOKS.

"To facilitate reference we have an index to names and trades.

Index of Names.			Trades Index.		
Name.	No.	Remarks.	Name	No.	Remarks.

"The bulk of those for whom situations are found are laborers, porters, grooms, gardeners, and errand boys, which together make up over 70 per cent of the total number for whom situations were found during the year 1891–92. During the previous year a still greater proportion, nearly 80 per cent, of those placed in situations belonged to these classes. The management of the bureau is entirely in the hands of the honorary manager, but he is desirous that it should be taken over by the municipality, and that similar institutions should be established in all large towns and federated together so as to 'facilitate the circulation of labor.' Registration is free, and the expenses of the bureau, which amounted to £98 11s. 3d. during the year 1891-92, are met by voluntary subscriptions. The bureau is confined to men and lads and claims to be neutral in trade disputes. The success of the bureau in placing applicants seems to spring largely from the energy expended by the manager in finding situations for workmen, and workmen for employers. He does not merely register applications and wait for corresponding offers, but actively exerts himself to find suitable employers or workmen as the case may be."

"*The Salford Bureau*, like that of Wolverhampton, came into existence during the winter of 1892 as an effort to relieve distress caused by the scarcity of employment. For two or three weeks registration was carried on by a private committee in three wards of the borough, and 273 persons registered; afterwards a special committee of the Corporation was appointed on December 7, 1892, to inquire into the extent of distress and to make proposals for its relief. With a view to make this inquiry complete the sub-committee opened a register for the unemployed in the borough. The following particulars were registered: name, address, occupation, usual wages, length of residence in borough, where last employed, how long, married or single, number of children, and physical condition.

"During the six months ended 19th June, 1893, 1,456 applicants were registered. The trades of these applicants and the numbers placed in situations will be seen by reference to the tables.

"It has been the custom of the Corporation to publish every Thursday a weekly flyleaf giving particulars of the bureau and of employment required. The following copy of the flyleaf, dated June 15, will serve as a speciman:

TO THE EMPLOYERS OF LABOR IN THE COUNTY BOROUGH OE SALFORD.

The Corporation of Salford, with the view of assisting unemployed workmen resident in the Borough to obtain work as speedily as possible, have decided to continue the Registration Office as a Labour Exchange for the Borough.

The committee have every hope that the system which they have adopted will presently enable them, at any time, to recommend workmen of good character, and representing almost every trade which is carried on in the neighborhood; and they are convinced that, having once secured the confidence of the employers and workmen alike, the Exchange will prove an invaluable means of speedy communication between employers and unemployed.

The Committee, therefore earnestly request you to support this important experiment, so far as lies in your power, by applying to the Labour Exchange whenever you are in need of any labour, whether skilled or unskilled.

The Committee, on their part, will endeavor to assure themselves of the fitness, both as to character and ability, of those whom they recommend for any situations, and they will strictly confine their operations to residents in the Borough.

Here follows a long list of occupations and trades, with the number of persons seeking employment in each; after which the report says:

"Though it was originally started as a temporary register to ascertain the number of persons unemployed in the borough, the operations of the Salford Labour Bureau were extended for a year by a vote of the Council on the 12th of April, 1893. It may therefore, perhaps, be classed as a permanent bureau.

"*The Chelsea Bureau*—One of the most important labour bureaux under the control of a London Vestry is that at Chelsea, which was founded in October, 1891. The bureau is managed by a committee of the vestry, employing a superintendent and a lad. It is open daily from 9 to 12 for men and from 1 to 5 for women, except on Saturdays. Applicants must be resident in the parish, and must fill in a form indicating name, address, character of employment required, where last employed and how long out of employment. Registration is free, and applicants must apply for renewal every seventh day if still unemployed. The superintendent exercises his discretion to a certain extent in selecting persons from among those registered to send to employers. He has a general instruction from the Committee to work in harmony with trade organizations, but the vestry have not officially laid down the principle that men are not to be sent to take the place of strikers.

"The bureau has no permanent connection with any scheme of relief, though last winter, by arrangement with the surveyor to the vestry, tickets were issued to the men on the register, giving preference for employment in clearing the roads of snow. The superintendent presents a monthly report to the vestry on the work of the bureau.

"During the year, January 1, 1892, to December 31, 1892, 3,402 names were registered, and employment (either temporary or permanent) was found for 1,649, of whom 668 were domestic servants, 290 charwomen, 150 boys, 121

labourers, and the remaining 420 men and women belonging to various trades and industries. The expenditure of the bureau for the first year, October 1892, was £180, 12s 7d., the bureau being accommodated rent free in the vestry offices.

"Most of the remainder of the existing labour bureaux conducted by London vestries and local boards had their origin in the temporary registries for the unemployed started last winter in various districts. Some of these registries have been discontinued since the spring, others have been worked continuously as labour bureaux, and may be considered as permanent institutions.

"Of the latter the most important are the bureaux at St. Pancras, Battersea, and Camberwell."

"*The St. Pancras Bureau* was started in January last, and from its establishment up to August 31st registered 3,297 applicants, for 446 of whom it found employment. At the beginning 20 branch offices were opened, but the amount of use made of these offices decreased after a time, and the whole work of the bureau is now centralized in one office.

"Applicants are required to renew their applications once a forthnight until they obtain work, and are asked to report the fact as soon as they find work for themselves, but the first report of the bureau states that these rules are not strictly complied with. The particulars filled in on the application forms are not as a rule subjected to verification by inquiry. With regard to the question of recommendation.....the Superintendent in her report to the vestry states that:

"The question of recommendation is a serious one, and had to be dealt with very gently; we do not take responsibility in any way, but we have found it desirable, in the interests of the applicants, to invite them to furnish such particulars as will enable employers to make inquiries as to character and suitability. Some working men urge that their character has nothing to do with their quality as workmen and their claim to employment. No doubt, from their point of view, there is some justification for the argument, but I am glad to say that few applicants have persisted in their view when it is pointed out to them how an employer may be equally right in taking the opposite view."

"Care is said to be taken not to interfere with questions of wages to be received, the work of the bureau being considered to consist simply in registering the names of workmen and employers. The cost of the bureau for the first three months (when the branch offices were open) was £98 5s 11d, inclusive of printing, with no charge for rent. As now worked the cost is stated by the superintendent to be about £2 a week.

"*The Battersea Bureau* is conducted in premises provided by the vestry, by which it is maintained. It was opened in December 1892, and during the succeeding six months the names of 1,948 men and boys, and 367 women were registered, and 447 men and boys and 122 women have been placed in situations, either permanent or temporary. Of these 24 men were employed by the vestry surveyor, and 10 by the Commissioners of Baths and Washhouses. The form used, the hours during which the bureau is open, and the general lines on which it is conducted, are substantially the same as at Chelsea. The

cost for the first six months, including the expense of fitting up the office, is stated to have been £106 6s 3d.

"*The Camberwell Bureau*, at Camberwell, a labour bureaa was established by the vestry on December 19, 1892, first for men and since December 30, for men and women. The forms used are nearly identical with those used at Chelsea. The bureau occupies a special building containing two rooms erected by the vestry at the rear of the vestry hall, and is managed by a committee of the vestry. When a workman is supplied to an employer, both parties are informed that not less than trade union rates of wages should be given or accepted. The employers who chiefly use the bureau are shop-keepers and small manufacturers. There is a good demand for domestic servants, but not many applicants for situations. As at Chelsea, St. Pancras, and elsewhere, very few employers return the forms asking whether they are suited or not. The rule is to keep applicants on the register for seven days, after which they must renew their application if necessary.

"The Superintendent has visited the chief local employers, and temporary work as 'sandwich' men has been found for many men, who have been supplied with boards (borrowed for the purpose) and paid 2s. 6d. a day through the superintendent of the bureau.

"In Westminster an employment registry has been at work since March 6, 1893, the Vestry of St. Margaret and St. John having voted £200 for the purpose. The number of persons registered up to June 15 was 936, and employment found for 25. Most of the applicants are unskilled laborers, porters, carmen, boys and charwomen.

"A labor bureau was established by the Vestry of St. Martin-in-the-Fields on November 17, 1892, but with the exception of a few men employed temporarily by the surveyor, none of the 169 applicants have been placed in situations. The Chelsea forms are used, but there is no inquiry or classification.

"The temporary registries, which were open for a few months during the winter, need no description. None of them succeeded to any appreciable extent in obtaining private employment for those who registered their names, and such interest as they possess is mainly in connection with the supply of labor for public relief works.

"The expenditure of money out of the local rates for the purpose of maintaining labor bureaus has not passed without challenge even in the case of London vestries, the powers of which are in some ways less clearly limited than those of ordinary municipalities. Representations have been made by several of those concerned with the management of voluntary bureaux that legislation is desirable which should place these powers beyond question in the case of all municipal authorities."

The "M. A. B. Y. S." In addition to the above should be mentioned the employment office feature of "The Metropolitan Association for Befriending Young Servants," or, as it is popularly called the "M. A. B. Y. S." In 1873 the Local Government Board of Lon-

don commissioned Mrs. Nassua Senior to investigate certain questions relative to the effect on girls of the system of education at the pauper schools. Out of her report grew the elaborate work of the M. A. B. Y. S., under the control of the local board. With all that the M. A. B. Y. S. does in the great work which has given it a world-wide reputation, this report need not deal. It should, however, be stated that 30 free employment registries had been opened in the various districts of London, and that during 1892 10,009 servant girls registered for situations, and situations were secured for 6,165.

The Salvation Army in London, is another organization which, while it exercises many and varied functions as does the M. A. B. Y. S., has in connection with its other schemes for uplifting the poor, a free employment office system. As it appears to receive subsidies from local governmental functionaries, for this as for its other work, it is properly classed as a quasi-public free employment office.

A sufficiently clear idea of its method is gained from the following ticket which is given to each applicant for work upon registering:

B 250
BRANCH NO.

THE SALVATION ARMY.

SOCIAL WING.

NATIONAL LABOR EXCHANGE.

Issuing Office Stamp.

CENTRAL OFFICES,
101, Queen Victoria Street,
London, E.C.

THIS TICKET IS CURRENT FOR ONE CALENDAR MONTH ONLY FROM DATE OF ISSUE.

LONDON BRANCHES.

272, Whitechapel Road, E.
21, West India Dock Road, E.
61A, St. John's Square, Clerkenwell, E.C.
2, Burne Street, Edgware Road, W.
83, Horseferry Road, Westminister.
16, Blackfriars' Road, S.E.
96, Southwark Street, S.E.
8 and 9, Stanhope Street, Drury Lane, W. C.
119 and 121, Green Street, Bethnal Green.
51 and 53, Royal Mint Street, Ratcliffe Highway, E.

PROVINCIAL BRANCHES.

Peel Street, Leeds Road, Bradford.
36, Lisbon Street, Wellington Road, Leeds.
48, Castle Street, Bristol.

We do not guarantee to find you work. Endeavor to get work yourself apart from what we may do on your behalf, as we only promise to do our best to find employment for you. Give this Ticket up at the end of a month and obtain a new one if you are still out of work. This is absolutely necessary, as your name will be taken off the Register on the expiration of this Ticket.

Name.....

Trade.....

N.B.—If *Renewal* it must be stated how often since 1st December of previous year by defacing figure in column.

1	2	3	4	5	6	7	8	9	10	11	12

—6 L .S.

At its London offices during 1892 the Salvation Army received 10,743 applications for work and secured positions for 6,654 or about 62 per cent. A summary of its more recent work will be found in the tables given later. Thus far, the employment offices referred to have been maintained or aided by municipalities or local boards of municipalities. There is, however, another class of free public employment offices which through dealing with specific classes of unemployed, it is important to notice here. The report of the Labor Department, above mentioned, says on page 134:

Agencies for the Employment of Seamen:—"Seamen are the only class of men for whom the Imperial Government provides what is practically a registry office in which facilities are afforded employers and employed to meet together.* The law further provides that the conditions under which the work is to be done shall be settled in a formal agreement made, as regards foreign-going ships, in the presence of an official. This official is styled a Superintendent of Mercantile Marine, and, so far as his functions in connection with seamen are concerned, he acts under the Board of Trade, directly in most cases and indirectly at a few ports where Local Marine Boards exist. There is one of these officials at each port. In some cases a book giving the names of unemployed seamen is kept, which masters of vessels are allowed to inspect. This book is not, however, much in use, the usual practice being for the master of a ship to post up in the Superintendent's office a notice of the number and class of men he wants, or first to select his crew at the shipowner's offices and then to bring them before the superintendent, who reads over and explains in the presence of both parties the terms of the agreement about to be entered into between them. It is unnecessary to describe here the details of such agreements, which in all cases must comply with the provisions of the law, except as regards rates of wages. The point to be observed is that, in practice, the office of superintendent is one which both sailors and masters of vessels frequent, well knowing that here they will have a good opportunity of obtaining what they seek.

"To facilitate the supply of seamen the Board of Trade has power to grant to certain persons licenses to engage or supply seamen or apprentices for merchant ships in the United Kingdom. Such licenses, however, may be revoked at any time at the discretion of the board, and, for the present, boys only are supplied in this way, mainly from training ships. In any case, however, the holders of such licenses are merley intermediaries and do not take the place of the superintendents other than in so far as they assist these officers in bringing together the two parties to the agreement, which, in all cases, has to be read and signed in the presence of the proper official. This official is also authorized to provide runners to take seamen from one port to another when men are required to complete a crew. On the whole it will be seen

*The whole expense of staff and accommodation falls upon the Mercantile Marine Fund which is mainly supported by light dues.

that, while it is no part of the duty of the board of trade to find employment for seamen, every facility is afforded them to meet the masters of ships wanting crews, and every precaution is taken to safeguard the seaman from unwittingly making an agreement against his own interest.

"There do not appear to be any large agencies for assisting seamen to live while waiting for an engagement, but by assigning his next monthly note a seaman can generally obtain credit from one of the lodging-house keepers who cater for this class."

Agencies for Discharged Soldiers.—Governmental provision is also made for finding employment for discharged soldiers, for those transferred from active service to the "reserved force." The records of the British army show that in 1892 (a year of great trade depression in England) 29,548 were thus "thrown on the labor market to compete with ordinary workmen for employment." Upon this point the report says:

"Of a total number of soldiers discharged and transferred to the reserve, viz.: 29,548, no less than 20,694 belonged to infantry regiments, of whom probably a large proportion were not mechanics, and would consequently drift into the ranks of unskilled labor. On the other hand cavalrymen and many artillerymen would, through their experience with horses, make good grooms or carters; and men of the royal engineers, who are obliged to have some occupation on joining, would be qualified to take posts requiring some technical skill. Many of these are, as a matter of fact, continued in the service of the government as civil employés in connection with the ordnance survey."

"There are three societies engaged in the task of finding employment for the above classes of soldiers, viz.: the National Association for the Employment of Reserve Soldiers, etc., the Army and Navy Pensioners' Employment Agency, and the Corps of Commissionaries."

"*The National Association for the Employment of Reserve Sooldiers.*—This society deals more particularly with the reservists, but does not confine itself strictly to them, ordinary discharged soldiers also being helped, except when they are pensioners.* The society claims that only men of good character are ever recommeded for employment, and further states that no fees are charged by the central association or its branches either to the men or the employers. The society has altogether 28 agencies in London and the principal industrial centres, besides the 43 regimental district associations to which further reference will be made. The men are registered at the time of discharge, the officer by whom the discharge is carried out acting as a kind of outlying agency. Individual applications are also received after discharge. The society, having taken care to satisfy itself as to the qualifications of the men, then addresses the employers by means of circulars and advertisements. Personal visits are also paid to large employers. The newspapers are looked

* Pensioners are registered when specially recommended.

at every morning, and replies on behalf of the men are sent to suitable advertisements. The result is seen in the fact that of the 6,331 registered in 1892 employment was found for 2,838 men. The number registered, it will be noticed, is not nearly the total of the men thrown on the labor market by the army in 1892. It should be remembered, however, that 1,902 were discharged for bad conduct, 2,795 were invalided, 2,798 were pensioners, and that, apart from the weeding out done by the officials of the society, a certain proportion of the 29,000 referred to found employment at once by means of friends in civil life, and do not in consequence figure as applicants before the society.

"The growth of the work done by the society is readily shown by the following table:

Year.	No. of men placed in employment.	Year.	No. of men placed in employment.
1885-6	174	1889-90	1,890
1886-7	470	1890-91	2,097
1887-8	1,013	1891-2	2,614
1888-9	1,462	1892-3	2,838

"The figures for 1892-3 do not include the number of men found employment by means of the 43 regimental branches which have been recently established by the officers commanding in the various counties and districts in coöperation with the resident and county authorities, in order to provide local employment for soldiers on their return home to civil life. This is an important development, and in the first year (1892-3) the number of men found employment in this way was 1,048 which, added to the number given in the previous table for that year, yield a total of 3,886.

"It may be added that the society is supported by voluntary subscriptions and donations, and by a grant from the government (increased this year from £200 to £500), and is managed by a committee consisting almost entirely of officers of the army. The total expenses in 1892-3 amounted to £632.

"*The Army and Navy Pensioners' Employment Society* was established in 1855, and reconstituted in 1859, with the object of 'registering the names, addresses, characters, etc., of military and naval pensioners from Her Majesty's service, and procuring for them such employment as they may be capable of undertaking.' It has a head office in London, and branches at Dublin, Glasgow, and Manchester, and is conducted on much the same lines as the previously described association.

"The report for the year ended December 31, 1892, shows that a total of 657 men had been registered at the head office and branches, and that 2,650 places had been obtained. It must be noted that 2,650 places does not necessarily mean that number of separate men, the exact number of whom is not ascertainable from the report.

"At present the constitution of the society only admits of the registration of pensioners, but the council of the society have decided that reserve men may be recommended, provided no pensioners equally suitable are available,

'and as a result 202 places were passed over to reserve men,' and this employment is in addition to the 2,650 places previously mentioned.

"*The Corps of Commissionaires.*—This corps was established in 1859, with the object of finding employment for pensioners and others from the army.

"The corps has branches termed 'out-quarter divisions' at Belfast, Birmingham, Edinburgh, Glasgow, Leeds, Liverpool, Manchester, and Nottingham, and is supported partly by regimental and other subscriptions and donations, and partly by an annual tax of 10s. per head paid by permanent employers of the men. The latter yielded £645 out of the total income of £2,422 in the year 1892.

"*Agencies for Discharged Prisoners.*—The question of the assistance of discharged prisoners by the provision of employment or otherwise, belongs properly rather to an analysis of crime than of want of employment. A considerable proportion, however, of those discharged from local prisons hardly belong to the criminal classes, and the difficulty that they meet with in obtaining work where a character is required is no small factor in the unemployed problem.

"In 1877 the 'Central Committee of Discharged Prisoners' Aid Societies' was formed to promote combined action amongst the Discharged Prisoners' Aid Societies, the establishment of such a society in connection with every gaol, and to further the efficiency of such societies. In 1878 there were 38 prisons which had no aid society connected with them. In 1887 there was no prison without one, the last gap being filled up in that year. These societies received the support of the commissioners of prisons, who considered that finding employment and helping prisoners after discharge could more effectively be undertaken by outside agencies than directly by the government, and obtained a grant of money from the treasury to be expended for the benefit of discharged prisoners under the supervision of these societies. To them also, if they will receive it, is committed the gratuity earned by each prisoner to expend for his benefit.

"The report of the 'Central Committee' of the work done in 1891 relates to 47 societies, the returns of 14 others not being available for that year. The total number of discharged prisoners dealt with by the societies making returns was 18,127.

"Until employment is found the agent sees that the man under his charge has decent board and lodging, and that he does the best he can himself to find work.

"The Salvation Army has a department called the 'Prison Gate Brigade,' for providing work, food, and shelter for discharged prisoners, and for such 'first offenders' as may be handed over by the magistrates to the charge of the army."

As formerly stated, however, most of these older organizations deal only with specific classes of men. Those of a general character, described above, were, at the time of the report from which most of

this data is obtained, new, experimental, and many were considered even then as temporary. In his summary Hon. H. Lewellyn Smith, Commissioner of Labor, speaking of these free public employment agencies, says:

"There is no reason to suppose that they have anything like reached their limits, and in the present experimental stage of the problem it is desirable to encourage and watch every carefully devised fresh experiment in this direction."

This was penned in 1893. Most of the institutions referred to had sprung into existence in 1892 or 1893 to meet the sudden and enormous demand for employment. Most of those however that were considered temporary, still exist, and others have sprung up since the above report was published, and some since the revival of industry in England. For instance the "Islington Vestry" of Islington, London, established a free public employment office in 1894; the Hackney vestry in 1895. Outside of London the Borough of Plymouth opened an employment office in 1894; the city of Liverpool in 1894, and the city of Glasgow, Scotland, in 1896.

The following tables show the work done by these offices by years from 1895 to and including the first seven months of 1898:

Summary of Business done by British Free Public Employment Offices, by years.

TABLE NO. 1.

LONDON. 1895.

Name of Bureau.	Applications for Work.	Offers of Work.	Situations Found.
St. Pancras— College street	3,554	1,058	2,541
Battersea— Lavender Hill	3,422	295	807
Islington— Bornsbury street	4,211	a 2,223	2,256
St. Martins— Town Hall	b 795	b 471	b 280
Salvation Army— Whitechapel Road	c 14,950	c 524	c 16,701
Total for London	26,932	4,581	22,585
Salford	729	128	233
Ipswich	712	449	484
Plymouth	3,792	542	2,921
Liverpool	2,647	63	64
Grand total all England	34,812	5,763	26,287

TABLE No. 2.

LONDON, 1896.

Name of Bureau.	Applications for Work.	Offers of Work.	Situations Found.
St. Pancras	2,083	830	1,701
Battersea	2,712	254	629
Islington	3,128	a 2,411	2,267
St. Martens	1,096	725	444
Salvation Army	9,133	187	9,335
Total for London	18,152	4,409	14,376
Salford	574	122	157
Ipswich	636	351	319
Plymouth	1,109	1,165	676
Liverpool	1,915	41	b 63
Total for all England	22,386	6,088	15,591

a The figures given for each month in this office are the number of situations offered by employers, and not the number of employers who applied for workmen.

b No report for March.

c No report for January, February and August.

TABLE No. 3.

LONDON, 1897.

Name of Bureau.	Applications for Work.	Offers of Work.	Situations Found.
St. Pancras	1,658	2,000	1,470
Battersea	1,448	421	429
Islington	3,171	862	1,969
St. Martens	1,190	1,065	508
Hackney—			
Graham Good	1,605	465	1,214
Salvation Army	3,100	426	2,840
Y. W. C. A. No. 1—			
George street	4,649	5,738	1,052
Y. W. C. A. No. 2—			
Hanover Square	927	1,077	410
Total for London	17,748	12,054	9,892
Salford	544	137	130
Ipswich	432	528	320
Plymouth	1,426	2,356	944
Liverpool	1,946	132	94
Glasgow	3,585	1,220	775
Total for England	25,681	16,427	12,155

TABLE NO. 4.

LONDON, 1898, SEVEN MONTHS, JANUARY TO JULY INCLUSIVE.

Name of Bureau	Applicat'n for Work.	Offers of Work.	Situations Found.
St. Pancras	1,498	1,283	721
Battersea	1,111	274	347
Islington	2,081	604	1,120
St. Martins	666	649	262
Hackney	768	183	653
Salvation Army	1,666	281	1,801
M. A. B. Y. S., No. 1	2,709	2,959	603
M. A. B. Y. S., No. 2	532	779	244
Total for London—1898	11,031	7,012	5,751
Salford	231	69	69
Ipswich	194	347	164
Plymouth	1,919	1,318	636
Liverpool	1,521	65	45
Glasgow	2,386	1,072	787
Total for all England	16,382	9,883	7,452

NEW ZEALAND.

The data for New Zealand is drawn for the most part from the Report of the British Department of Labor, on "Agencies and Methods for Dealing with the Unemployed," pp. 349-355.

"During the severe depression of trade which for some time past has prevailed throughout the Australasian Colonies, many schemes have been started by the various Colonial Governments to assist unemployed persons by helping them to obtain work.

"A detailed account of the action of the Government in New Zealand with regard to the unemployed is given below, based on the two last annual reports of the Bureau of Industries.

"The Report of the Bureau, presented in July 1892 to poth Houses of the General Assembly, states that:

"A Bureau of Industries was established by the New Zealand Government in June 1891, under the direction of the Hon. W. R. Reeves, Minister of Education and Justice. The objects desired by the Government were the compilation of statistics concerning the condition of labour generally; the establishment of agencies for reporting the scarcity or overplus of workers in particular districts; the transfer of such workers from overcrowded localities to places needing labour; and, generally, the control of all industries for the physical and moral benefit of those engaged therein.

"The pressing difficulty at the time the bureau was inaugurated was the presence of 'unemployed' labour in the chief towns of the colony. The centralizing tendency of modern institutions is one of the predisposing causes of this plethora of workmen appearing in the cities, aided by the displacement of hands by labour-saving machinery on farms; but these influences were

greatly augmented by the cessation (or contraction) of public works consequent on the exhaustion of foreign loans. It was necessary that some outward set should be given to the human tide and that every facility should be given to labourers to proceed to available work in out-districts.

"For this purpose 200 agencies were established, for economical reasons the agents being selected from officers in the Government service, and in the country districts the duties generally being alloted to sergeants of police and local constables, as these officers are thoroughly acquainted with the needs and capabilities of the population surrounding them. These agents forward on the last day of every month a schedule stating particulars as to unemployed persons in their district, and make report as to the various works, private and public (if any), in their locality needing more workmen. In this manner the minus and plus quantities of available labour can be generally equalized.

"On unemployed persons presenting themselves for engagement their names are entered upon schedules, which declare (for statistical purposes only) the age, dependent family, time out of work, etc., of each applicant; and suitable employment (if possible) is offered, men with families having preference.

The employment offices so inaugurated have not, of course, all become permanent. The following table shows the business done from April 1, 1892, to March 31, 1893, at the offices of the five principal districts, namely: Auckland, Christ-church, Dunedin, Wellington and Gisborne.

TABLE Z.

	Auckland.....	Christ-church..	Dunedin	Wellington	Gisborne	Total.....
Total number of situations secured by the bureau.....	372	547	763	1,991	201	3,874
Total number of persons dependent upon applicants	576	1,675	2,265	2,951	335	7,802
Number sent to private employment.....	363	240	454	1,260	201	2,518
Number sent to government works.	9	307	309	731	.....	1,356

The following table prepared from the report given in the Journal of the New Zealand Department of Labor, for September 16, 1898, shows the work done by these offices during August, 1898. Atten-

tion is called to the large increase in the number of offices considered permanent:

	Auckland	Gisborne and Hawke Bay.	Taranaki	Wellington, South	North Canterbury	South Canterbury	Westland	North Otago.	Dunedin	Southland	Wellington, North	Total
Total number of persons receiving employment	43	21	2	119	4	1	28	3	29	2	24	(b) 276
Number of persons dependent on applicants	76	59	6	205	11	(a)	74	5	114	8	26	584
Number sent to private employment	25	(a)	....	41	1	1	....	....	2	....	....	71
Number sent to government works	18	21	2	78	3	(a)	28	3	26	2	24	205

(a) Not reported.

(b) In addition to this 35 domestic servants secured situations through the Woman's Branch of the Department of Labor during the month of August, 1898.

NOTE.—At a recent meeting of the Colonial Institute in London, a paper was read by Lord Onslow, formerly Governor General of Australia, on "State Socialism and Labor Government in Antipodean Britain." Lord Onslow, probably the most conservative of British peers, said the socialism of which he should speak, and that with somewhat of approval, was not that which generally claims public attention. "It is," said he, "a practical attempt by the state to make its territory a good place to live in. The state endeavors to do this by undertaking many duties, which, under some governments, are left to private enterprise." Among those receiving Lord Onslow's approbation were the New Zealand government free employment offices. The following extract from his address may be of interest:

"The whole secret of the democratic advances in New Zealand and Australia is the power of the labor vote. The trades unions are exceedingly powerful, in spite of the failure of the great strike of 1890, and they saw that a more likely weapon to secure purpose was to be found in parliamentary interference. In New Zealand the 1891 election was fought upon the labor issue, and the labor members returned influenced subsequent legislation to a very great extent. A number of labor representatives are in the New Zealand lower house, among them a lamplighter, with reference to whom the following resolution was passed by the town council, for which he lit the lamps when parliament was not sitting: 'That leave of absence be given to the borough turncock and lamplighter during the session of parliament, and that his son be accepted as a substitute.' Among the 'peers' nominated for the upper house was a boiler-maker, who was at work inside a boiler when a telegram came for him from the governor announcing his appointment to the legislative council. At first he disbelieved the voice of the messenger announcing the delivery of so unusual a missive as a telegram, but on becoming convinced of its reality, said: 'Well, shove it through the hole at the top,' and thus the boiler-maker became aware that he was entitled to the prefix 'Hon.' But, in Lord Onslow's opinion, the boiler-maker made a good member of the New Zealand house of lords, and showed himself capable of exercising an independent judgment."

AUSTRALIA.

"Besides the New Zealand Government, most of the Australian Colonies have taken steps to deal with the unemployed. For example, in Victoria, a bureau was established by the government in June, 1892, at Melbourne, and agencies were opened at about fifty post-offices in the colony under the management of local postmasters. These were discontinued May 22, 1893.

"The Government of New South Wales opened a bureau in February, 1892, and according to the first annual report, issued in March, 1893, 15,779 persons had been registered during the year, and employment had been found for 8,154. An increased number of unemployed were coming from other colonies, and from 400 to 600 men were in daily attendance at the bureau looking for work.

"At Brisbane, in Queensland, a government labor bureau was established in 1886, and branches formed. According to a report for 1892, dated May, 1893, the total number registered at Brisbane and the branch offices amounted to 7,033, of whom 4,230 were placed in situations."

GERMANY.

It is impossible from the obtainable data to give a very satisfactory account of free public employment offices in Germany. For while a large number of such institutions exist in the various municipalities of the empire, and have existed since 1865, they seem to be required to report to no one. They are entirely municipal in their organization;* though some that are organized as charities by local societies, receive subsidies from the government. Such statistical information as can be obtained from them comes through the *Deutcher Reichs-Anzeiger* and is often combined with data from charitable employment agencies, which, while free, are *not public* institutions, except in the sense that they are subsidized.

The following quotations are made from pages 44 and 142 of the British *Labour Gazette,* Vol. .., 1893:

"The *Deutcher Reichs-Anzeiger* publishes statistics showing the results achieved during 1892 by the labor registry at Stuttgart. During the year there were 6,539 applications from employers and 8,433 from workers. At the end of the year 66 of the employers' applications remained to be dealt with. Since its establishment in 1865 it has dealt with 479,450 applications, and obtained work abroad for 14,107 persons. Unlike the Berlin labor registry, the bulk of applications relate to skilled labor. No registry is kept for female labor. The *Handels Museum* reports that 11,672 persons applied to the Berlin labor registry for work during 1892, the number of vacancies being 7,949, and the number of persons placed 7,552. In the previous year there were 13,459 applicants, 8,011 vacancies, and 7,376 persons placed. The same paper reports that a free registry for 'casual laborers' has been opened in Hamburg

* So far as we are aware, there is nothing in English which describes the organization of these offices. The best information concerning them is said to be found in a book by George Schanz, entitled, "Zur Frage der Arbeitslosen-Verschicherung," published by C. C. Buckner, Bamberg price 6½ marks.

since the beginning of April, It is chiefly used by the Municipal Quay Administration, the Hamburg American line, and a few other transport enterprises. During April work was secured for 3,462 out of 6,953 applicants.

"In conformity with an order recently issued by the governor of Liegnitz, in Prussian Silesia, 16 free municipal labor registries have been established in towns of the district with a population exceeding 10,000. The bulk of the unemployed are agricultural laborers, and for the purpose of relieving the towns, the governor now proposes the establishment of offices in the rural districts, in constant communication with the nearest towns, and charged with the registration of applications for agricultural laborers."

The British *Labour Gazette* for July, 1897, also contains the following notice:

"In a report on the work of public employment registries in Germany in 1896, annexed to the report of the Berlin Association for registering Labour, 77 registries are dealt with, of which 52 are municipal institutions, and 25 are registries similar to that of Berlin and managed by societies or groups of societies existing for the purpose of bringing employers and work people together. The total number of applications from employers at 33 municipal registries for which particulars covering the whole of 1896 could be given was 107,050, the number of applications from work people being 141,817, and that of situations found 71,630. Similar information for 22 registries managed by societies of the kind referred to show totals of 91,371 applications from employers, 134,561 from work people, and 123,144 situations found."

The *Labour Gazette*, which is the monthly publication of the English Labor Department, in its issue of August, 1898, page 233, has the following report of German public employment offices:

"The total number of situations offered by employers in July at 45 of the municipal *Arbeitsmarkt* was 29,714, as compared with 30,563 in the preceding month, and 29,182 in July, 1897. The number of situations sought during the month was 34,068, compared with 35,097 in the previous month, and 31,814 in July, 1897. The number of situations found was 20,941, compared with 21,095 in June, and 20,092 in July, 1897."

The following statement has been prepared from the data found in the *Labour Gazette*. The number of offices reporting each month is given, though these are not always the same, and the number includes not only the free public municipal offices, but those of a mixed character as noted above.

Summary of business done by German public employment offices for 13 months, July, 1897, to July, 1898, both inclusive:

Date of Report.	Number of offices reporting.	Number of applications for work.	Number of applications for help.	Number of situations secured.
July, 1897	39	29,278	26,608	a 19,113
August, 1897	41	30,219	27,348	a 19,432
September, 1897	45	38,008	32,496	a 24,422
October, 1897	41	30,184	26,023	a 19,868
November, 1897	41	21,254	18,891	a 15,979
December, 1897	41	21,602	13,958	a 11,490
January, 1898	46	30,769	19,473	a 13,648
February, 1898	46	28,423	20,134	a 13,863
March, 1898	48	42,492	32,689	a 21,043
April, 1898	44	35,358	30,776	a 20,891
May, 1898	49	38,786	25,940	a 18,719
June, 1898	51	36,828	32,378	a 22,299
July, 1898	45	34,068	29,714	a 20,941
Totals	.....	417,269	336,428	a 241,708

A more recent number of the *Labour Gazette* contains the following report of the British consul at Dünseldorf concerning the free employment registry at Cologne:

The employment registry was established towards the end of 1894 by a joint federation of employers' and workmen's societies. The municipality provides the offices, and gives an annual subsidy of £330, which practically suffices to pay the working expenses.

The operations of the employment registry are controlled by a board composed of equal numbers of representatives of employers' and workmen's societies, and were as follows in each of the years (ended June (30th) 1896-99:

Year ended June 30th.	No. of Situation.		
	Offered.	Sought.	Found.
1896	11,512	13,908	10,055
1897	15,560	15,743	12,124
1898	20,432	19,664	15,096

The number of situations sought in the men's branch in the latest of these years was 14,423 (compared with 11,038 situations offered in that branch), of which 4,953 were situations sought by agricultural labourers or day labourers; 2,224 by smiths, fitters, etc.; 1,966 by porters, etc.; and 1,447 by joiners, wheelwrights, coopers, etc. The situations applied for in the same year in women's branch numbered 5,241 (compared with 9,394 situations offered in that branch), of which 3,272 were situations sought by domestic servants (cooks, etc.,) and 1,565 by laundresses, charwomen, etc.

a "This last set of figures is subject to some deduction, since in some registries a situation is counted twice, viz: once to the employer and once to the workman."—*British Labour Gazette.*

The house agency department, intended for the free use of workmen, shop assistants, minor clerks, etc., was added to the registry of April 1st, 1898, the municipality defraying the initial cost (£40), and granting an annual subvention of £150 for working expenses. During the first three months 413 dwellings (92 containing one room, 123 two rooms, 90 three, 53 four, and 55 five or more) were offered, and 1,198 (102 to contain one room, 500 two rooms, 380 three, 137 four, and 79 five or more) were applied for through the registry.

BAVARIA.

The British *Labour Gazette*, August 1897, translated from the *Deutcher-Anzeiger* the following notice:

"The Clearing House System of Labour Registers in Bavaria:—The municipal employment registries of Kaiserslantern is now a center for focussing and redistributing information as to applications for work and for work-people received at the 9 outlying public registries of the Palatinate. The lists of situations offered and applied for at the outlying registries are mailed by the latter on Tuesdays and Fridays to the head office in Kaiserslantern, when they are embodied with the applications received at that office in a general list, copies of which are sent to the outlying offices on Wednesdays and Fridays to be posted up, or otherwise brought to the notice of persons likely to be interested. The cost is bourne by the municipality of Kaiserslantern."

No data showing the volume of business done by these Bavarian employment offices is accessible at this time. However, the fact that such institutions have commended themselves alike to the people and the government officials is witnessed by the practical endorsement and extension of them contained in the decree of the Bavarian Ministry of the Interior, dated May 1, 1898.

The following summary of the decree is translated by the *Labour Gazette* from the *Allgemeine Zeitung:*

"A decree of the Bavarian Ministry of the Interior, dated May 1, provides for the creation of clearing house arrangements in relation to the labour registries of that kingdom. There are to be 6 district registries, each of which will coöperate with the outlying registries situated within the area assigned to it. The outlying registries will coöperate with the communal administrations. Employers in outlying localities when in need of workmen, will apply to the nearest local labour registry or to the district registry. Workmen in outlying districts in search of employment apply to the communal authority of their town, etc., filling in a form which that authority will forward to the nearest local registry or, failing in that, to the district registry. A local registry receiving an application (from employer or workman) in the first instance will itself endeavor to supply the want, and if unable to do so will forward the application to the district registry with which it is affiliated.

"The district registries will draw up lists of vacant situations and of applications for work which they have been unable to meet, and may distribute the same amongst communes of more than 3,000 inhabitants situated within the district. With respect to agricultural labourers, the district committee is to publish the necessary details at regular intervals in certain newspapers."

RUSSIA.

The British *Labour Gazette* for March, 1898, qnotes from the *Soziale Praxis* as follows:

"*Labour Registries at Moscow*:—*Soziale Praxis* gives particulars concerning the working of certain labour registries at Moscow, and states that a commission has been appointed charged with the duty of taking steps toward the establishment of a municipal labour registry, and on the recommendation of this body a provisional labour registry has been opened by the municipality which, between September and November 1897, found situations for applicants in more than 2,000 cases. It has now been determined to establish a central registry for all occupations, on the lines of those at Munich."

THE LAWS OF OTHER STATES AND THE RESULTS OF THEIR OPERATION.

The Ohio Law.

The first of the United States to try the experiment of free public employment offices was Ohio. The Cincinnati Labor Congress, composed of delegates from all the trade and labor unions of that city, began the agitation for "free public employment offices," and in 1890 this congress drafted a bill which it requested the state legislature to pass. The bill was introuced in the Senate as drafted, by State Senator M. C. Corcoran, of Cincinnati. In its original shape it made the free employment offices branches of the State Bureau of Labor Statistics, fixed the salaries of their officers and placed the entire expense upon the state. The Senate, however, saw fit to amend the bill so as to require the salaries of superintendents to be fixsd and paid by the city councils of the cities in which the offices were located; and while the law fixed the salary of the clerks it required the cities to pay these salaries, leaving only the general expenses of these offices to be borne by the state. The House of Representatives tried to amend the bill as it passed the Senate by substituting the original bill, which it passed; but the Senate refused to concur, and in joint conference the House was forced to yield.

The law passed April 28, 1890, with an amendment (Section 308 a), which was passed the next year, i. e., March 24, 1891, is as follows:

AN ACT TO AMEND SECTION 308 OF THE REVISED STATUTES OF OHIO.

SECTION 1. Be it enacted by the General Assembly of the State of Ohio, that Section 308 of the Revised Statutes be so amended as to read as follows:

SEC. 308. The commissioner shall have an office in the state house, which shall be a bureau of statistics of labor, and he shall collect, arrange and systemize all statistics relating to the various branches of labor in the state,

and especially those relating to the commercial, industrial, social, educational and sanitary conditions of the laboring classes. Said commissioner is hereby authorized and directed, immediately after the passage of this act, to organize and establish in all cities of the first class, and cities of the first and second grade of the second class in the State of Ohio, a free public employment office, and shall appoint one superintendent for each of said offices to discharge the duties hereinafter set forth. Said superintendents shall cause to be posted in front of their said offices on a sign board, or in a suitable place on the building where such offices are located, the words, "Free Public Employment Office." It shall be the duty of such superintendents to receive all applications for labor of those desiring employment and those desiring to employ labor, and record their names in a book kept for that purpose, designating opposite the name of each applicant the character of employment or labor desired, and the address of such applicant. Each of the said superintendents shall be provided with such clerical assistance as in the judgment of the commissioner may appear necessary for properly conducting the duties of their several offices.

No compensation or fee shall, directly or indirectly, be charged to or received from any person or persons seeking employment, or any person or persons desiring to employ labor through any of said offices. Said superintendents shall make a weekly report on Thursday of each week to said commissioner of all persons desiring to employ labor, and the class thereof, and all persons applying for employment through their respective offices, and the character of employment desired by each applicant; also, of all persons securing employment through their respective offices and the character thereof, and a semi-annual report of the expense of maintaining such offices. Said commissioner shall cause to be printed weekly a list of all applicants and the character of employment desired by them, and of those desiring to employ labor, and the class thereof, received by him from the respective offices aforesaid, and cause a true copy of such list on Monday of each week to be mailed to the superintendent of each of said offices in the state, which said list by the superintendent shall be posted immediately, on receipt thereof, in a conspicuous place in his office, subject to the inspection of all persons desiring employment. Said superintendents shall perform such other duties in the collection of labor statistics as said commissioner shall determine. Any superintendent or clerk, as herein provided, who directly or indirecty charges or receives any compensation from any person whomsoever in securing employment, or labor for any other person, or persons, as provided in this act, shall be deemed guilty of a misdemeanor, and be fined in any sum not exceeding fifty dollars and imprisoned in the county jail or workhouse not exceeding 30 days. The superintendent of each of said offices shall receive a salary, to be fixed by the council of such city, payable monthly. The clerk or clerks required in any such offices, shall receive a salary of not more than fifty dollars per month; provided the compensation of such superintendents and clerks so appointed shall be paid out of the city treasury, in which such free public employment office may be located.

Sec. 2. That said original section 308 of the revised statutes be and the same is hereby repealed.

Sec. 3. This act shall take effect and be in force from and after its passage.

Sec. 1. Be it enacted by the general assembly of the State of Ohio, That section 308 of the Revised Statutes be supplemented with the following section:

Sec. 308a. The tenure of office for all superintendents and clerks of free public employment offices shall be two years from the date of appointment, but the commissioner of labor statistics shall have the power of removing any of such superintendents and clerks for good and sufficient cause, and alll appointments and removals of such superintendents and clerks shall be made with the consent of the governor.

Sec. 2. This act shall take effect and be in force from and after its passage.

A fair share of public attention was at once attracted to this law, and from the various public discussions of the matter, we clip parts of a paper prepared by Hon. D. J. Ryan, then Secretary of State of Ohio.

"This law is the first of its kind passed in this country, and, with the possible exception of some foreign offices, there is nothing with which it can be compared. It has for its mission as proper and legitimate an object of state legislatisn as can be well thought of—that is, the reduction of unemployed labor to a minimum. Legislation of this kind is usually received by the average citizen with distrust and debate. It strikes him as a direct interference of the state with private affairs, and as being beyond the legitimate province of legislation. Public opinion in Ohio has not passed such a judgment on this law. It has been generally received with approbation in the cities where it has been put into effect. This is due to two reasons: First, that the law is not a piece of political legislation; it passed both branches of the legislature with practical unanimity, receiving with equal strength the support of both political parties. It was as clear and clean a piece of non-partisian legislation as ever passed our general assembly. The second reason is that the law has been economically enforced, and has proved successful in its operation. * * * *

"The distinguishing merit of this system is that the information is given free and reliable. As a rule private employment officers are a fraud. They accept fees and applications from all quarters, whether there is any probability of fulfilling the demand or not, and in too many cases they have developed into down right swindles. The desire for gain on the part of the proprietors is the greatest temptation to be false to the unemployed. Applications are taken and fees received when there is not the slightest prospect of success in finding the idle workman a place for his anxious hands to labor. On the other hand, applications are received from employers, and men and women

recommended for work who are useless and without character, so that for the workman, on one side, it is a swindle, and for the employer, on the other side, it is a cheat. When the agent of an employment office is clothed with official character, as under the Ohio law, and rendered absolutely independent of the necessity to recommend anybody and everybody, and promise anything and everything, we reach the highest stage of success in employment agencies. It is this condition that gives character and standing to the officer in charge.

"The incidental reference heretofore made, to the duty of the state to lessen as much as possible the number of the unemployed is the strongest reason for the establishment of free employment agencies. Idle hands are prone to mischief, and the disturbances possible from unemployed labor, willing to work and yet with no prospects of obtaining it, are historical in their danger. As a rule the unemployed gravitate to the cities, and the larger the city the larger the gravitation of unemployed labor. It is proper, that these agencies should be established in the great cities of the state, because there they come in contact with the men and women who most need them. The capital that owns the mine, the factory or the mill, or the farmer that desires hands for his harvest, can send to this center of labor and procure the necessary help to carry them through the necessity of their demands.

"Are there any objections to the law as it stands in its present shape? Yes. The provisions which places it in the power of the cities wherein the employment agent acts, to fix his salary, is detrimental to a wholesome operation of the law. It places it at the mercy of municipal politicians, and induces official disturbances that materially impair its efficiency. The purpose of the law is to benefit the entire people of the state. It is to the advantage of every citizen, whether he lives in the city or in the country, that as many men should be employed as possible. Industry and employment conduce to the peace and prosperity of all, and all should bear the expense of a machinery which has that for an object, or tends to that end. The expenses, therefore, of salaries and clerical work attendant upon the operation of free employment agencies should be paid from the state treasury, and should not be dependent upon the whims of a city council. * * * *

* * "The law has been administered honestly and with profit, and the indications are that it will continue to be so. Viewed from every standpoint at this time, this new experimet in Ohio can be regarded as a law which benefits the people at large, and as one which is especially profitable to the employer and unemployed."

The objections which experience has developed to many of the provisions of this Ohio law will be considered when we come to the discussion of the bill proposed for enactment in this State. However, we may quote here from the report made by Hon. John McBride, who, as Commissioner of Labor for Ohio at that time, was charged by the law with the duty of organizing the offices.

"As the law was passed on the last day of the legislative session, I was compelled to wait until May 6 before obtaining a certified copy from the Secretary of State.

"The objects sought to be obtained by the law are good, but the law itself is one of those curiosities which are sometimes born of loosely constructed or hastily considered legislative enactments. The law, it will be observed, both authorized and directed the commissioner to proceed immediately to organize the "Free Public Employment Offices," and to appoint superintendents and clerks for the same.

"To organize the offices necessitated the securing of salaries to be paid out of the treasuries of the several cities in which the offices are located, yet it leaves it optional with said cities as to whether they shall or shall not pay these salaries. I sent certified copies of the law to each of the city councils and, either by letter or in person, asked that an ordinance be passed fixing salaries of superintendents and clerks. All of the cities complied with my request, although some of them were late in doing so, and Toledo only provides for a superintendent."

The starting of the offices dates from or nearly from the appointments which were made as follows: Toledo, June 4; Cleveland, June 23; Dayton, June 26; Cincinnati, July 15; Columbus, August 11. The offices were therefore in operation not more than five months on an average in 1890, and yet the commissioner was enabled to make a very respectable showing of work done for the year, as follows:

FREE PUBLIC EMPLOYMENT OFFICES IN OHIO FOR THE YEAR 1890.

	Situations Wanted.		Help Wanted.		Positions Secured.	
	Males.	Females.	Males.	Females.	Males.	Females.
Cincinnati	4,763	1,818	2,803	2,787	1,830	1,126
Cleveland	2,523	1,277	3,189	1,231	1,333	847
Columbus	1,965	710	1,192	722	684	525
Toledo	2,334	719	2,885	1,083	1,329	497
Dayton	2,944	1,083	1,384	878	399	418
Totals	14,529	5,607	11,453	6,701	5,575	3,413

Analyzing and commenting on these tables the commissioner said:

"The amount of 'help wanted' was 90.2 per cent of 'situations wanted.' 'Positions secured' was 49.5 per cent of 'help wanted.' 'Positions secured' was 44.6 per cent of 'situations wanted.'

From the fact that offices had to be rented and furnished, and that there was no money for advertising purposes, the work done by the 'free public employment offices' during the short time reported is creditable alike to the officials in charge of the offices and to the state.

"If the 8,982 persons who secured work through the free employment offices had obtained work through the private employment agencies, it is fair to assume that the cost of such services would have averaged $3 per capita for males and $1 for females, or a total of $20,132, which has been saved to the willing, yet poor and needy working men and women by the state law.

"This saving in dollars and cents may appear large in the eyes of those not familiar with the patronage given to employment agencies, but as there are at least twelve well known private employment agencies now running in cities in which the free offices are located, and as many more scattered over the smaller cities of the state, it is evident that nearly one hundred persons live and thrive through the profits derived from such private agencies. This would indicate that nearly one hundred thousand dollars is annually spent by working men and women in efforts to secure employment through the assistance of employing agencies, and if this sum can be saved to the honest toilers of Ohio by the expenditure of about ten thousand dollars annually on the part of the state for the maintaining of free employment offices conducted by officials obliged to make honest and energetic efforts to furnish help to employers of labor and to aid idle labor in securing honorable employment, it should be done."

The result of the first full year's operations of the offices, i. e. 1891, was given in the Ohio report for 1891 as follows:

Free Public Employment Offices in Ohio for the Year 1891.

	Situations Wanted.		Help Wanted.		Positions Secured.	
	Males.	Females.	Males.	Females.	Males.	Females.
Cincinnati	4,811	3,429	3,369	3,291	2,312	2,129
Cleveland	6,308	3,830	925	3,471	886	2,508
Columbus	3,128	1,739	1,534	2,268	915	1,481
Toledo	3,859	1,799	2,481	2,479	2,064	1,391
Dayton	3,351	2,118	1,386	2,004	790	1,119
Total	21,457	12,914	9,695	13,513	6,967	8,628

Discussing the work of these offices for the year, and the theory of the law, Commissioner McBride said in his report for 1892:

"From a plain business standpoint, it will be seen that a public employment office affords great possibilities for usefulness in every large community, but there is still another light in which the subject should be viewed, that of humanity. For years the working people have been victimized by the private intelligence office or employment bureau. Stories of the most outrageous practices have been told and verified in connection with these concerns. The business has never attained any standing, and investigation has shown that those engaged in it were, as a rule, irresponsible and unscrupulous persons, who speculate upon the cupidity of the unemployed and, by holding up false inducements, succeed in swindling them out of thousands of dollars every

year. The state passes laws to protect the people against other forms of fraud, and, the facts being brought to notice, it would be little short of criminal did she not attempt the suppression of the private intelligent office abuse. It was one of the chief aims of the measure creating the free public employment offices to accomplish this result.

"Proceeding further upon the humane side of the question, it must be acknowledged that all those who lack the means of making a livelihood, who have no regular employment, are unfortunate. It is a condition in which at one time or another the great mass of people find themselves. The possessor of a remunerative position today may tomorrow be forced to join the ranks of the idle. He may be in immediate want, but his capital is wasting and he feels himself the victim of adverse circumstances until he gets work again. Since want of employment is a misfortune liable to befall anyone, it is in a sense general in its character, and it is no more than right that the state or community should do all in its power to alleviate such common adversity. As idleness begets mischief self-interest should prompt society to furnish every relief possible. It should make the paths to industry as pleasant and accessible as lies in its power, and obviate, in some degree at least, the humiliation which comes of seeking employment from door to door. The rebuffs which the applicant is forced to receive often lessens his own self-respect and galls his manhood. Disappointment and lack of sympathy is liable to sour the most honest nature. Weighed down by a sense of society's indifference to his welfare, he becomes morbid, and views life through a distorted vision. It is safe to assume that any expense incurred in helping to bring employment within the reach of those seeking it, is more than repaid by a reduction of pauperism and crime."

The following table gives a summary of the work done in 1892:

Free Public Employment Offices in Ohio for the Year 1892.

	Situations Wanted.		Help Wanted.		Positions Secured.	
	Male.	Female.	Male.	Female.	Male.	Female.
Cincinnati	3,139	2,789	1,980	2,782	1,497	1,613
Cleveland	3,655	3,539	1,162	4,587	1,000	2,664
Columbus	2,908	1,658	2,013	2,162	1,244	1,152
Toledo	3,160	1,964	1,810	2,654	1,361	1,442
Dayton	2,671	1,474	1,282	1,770	883	989
Totals	15,533	11,424	8,247	13,955	5,985	7,860

Total number of situations wanted	26,957
Total number help wanted	22,202
Total number situations secured	13,845
Total number entries made	63,845

The "help wanted" amounted to 82.36 per cent of the "situations wanted"; the "positious secured" to 62.35 per cent of "help wanted," and the "positions secured" to 51.36 per cent of "situations wanted."

These percentages do not do the office full justice, for the reason that the "situations wanted" includes a large transient class which, after registering their names, never call again. Eliminating this element a much larger per cent of "situations secured" would be shown. Neither do the above figures give credit for the advance made in the character of the employment furnished, or the higher average of the applicants for work. In these particulars the offices have recently made rapid strides.

In addition to the above comments on the table, the Commissioner took occasion to say:

"The private intelligence office evil has been completely eradicated in three of the cities (Columbus, Toledo and Dayton) where the free system has been established, but a few of these concerns manage to still exist in Cleveland and Cincinnati. With the growth of the free offices they will eventually disappear; but they should be made objects of surveillance on the part of labor organizations, to the end that their dishonest practices may be exposed and the unemployed warned against them. It has been suggested, as a speedy means of rooting them out, that the friends of labor agitate the passage of a municipal ordinance, requiring the payment of a high license, to be revoked when one well authenticated case of fraud is reported."

In the report for 1893, Commissioner W. T. Lewis said:

"A very gratifying showing is made by the public employment offices for 1893. Notwithstanding the sudden change from a general business prosperity to one of great depression, but a slight falling off in the entire state is shown in the number of situations secured through their agency. Taking into account the difference in the two years with respect to industrial conditions, this is equal to a large gain.

"The agitation in favor of adopting the public employment office system still continues in other states, and letters of inquiry regarding the workings of the same come from all parts of the country. An early acquiescence to public sentiment on behalf of lawmakers by authorizing the opening up of the work is now assured in several states."

In the following tables will be found the work of each office:

Free Public Employment Offices in Ohio for the Year 1893.

	Situations Wanted.		Help Wanted.		Positions Secured.	
	Males.	Females.	Males.	Females.	Males.	Females.
Cincinnati	2,740	2,536	1,344	2,531	933	1,541
Cleveland	2,964	4,157	933	2,671	768	2,825
Columbus	3,219	2,060	1,142	1,879	1,165	1,165
Toledo	2,194	2,099	792	2,032	579	1,477
Dayton	3,052	1,833	1,613	2,290	1,121	1,627
Totals	14,169	12,685	5,826	11,403	4,566	8,635

Total number situations wanted	26,854
Total number help wanted	17,229
Total number situations secured	13,201
Total number of entries made	57,284

The "help wanted" amounted to 64.16 per cent of the "situations wanted;" the "positions secured" amounted to 76.62 per cent of the "help wanted;" the "position s secured" amounted to 49.16 per cent of the "situations wanted."

The following year the same Commissioner said:

"In 1894 the five free public employment offices of the state found work for nearly 10,000 people. Although this is a falling off of 3,000 compared with 1893, the showing is a very satistactory one, when it is remembered that the dullness in all lines of industry has been more widespread this year than last. Every possible avenue of employment has been eagerly besieged by applicants, in advance of vacancies, and apparently employers had no need of going beyond their own doors to secure all the help desired. But the fact is that they find the use of a labor exchange the most satisfactory method of obtaining employés."

The free employment office system has, however, a broader purpose than to merely provide a convenience to the employer. That purpose is to relieve the unemployed of the misfortune of idleness and restore them to the opporunity of earning a livelihood. In pursuit of this object the employment offices have necessarily failed in the full accomplishment of their aims, because there has not been work for all. But in thousands of cases they have turned actual or threatened distress into comfort, and thus largely detracted from the sum total of adversity. The work accomplished by the public employment offices during the depression of the past year argues more for their practicability and permanency than a many times greater showing in a time of prosperity.

Free Public Employment Offices in Ohio for the year 1894.

	Situations Wanted.		Help Wanted.		Positions Secured.	
	Males.	Females.	Males.	Females.	Males.	Females.
Cincinnati	2,778	3,162	297	1,383	267	1,144
Cleveland	2,942	3,517	283	2,065	273	1,846
Columbus	2,672	2,226	605	1,852	456	1,343
Toledo	2,472	1,950	441	1,693	367	1,359
Dayton	3,657	3,761	800	2,447	777	1,934
Totals	14,521	14,616	2,426	9,440	2,140	7,626

The work done by these offices in 1895 is shown below:

Free Public Employment Offices in Ohio for the year 1895.

	Situations Wanted.		Help Wanted.		Positions Secured.	
	Males.	Femeles.	Males.	Females.	Males.	Females.
Cincinnati	2,442	2,774	326	1,995	319	1,592
Cleveland	1,980	2,732	450	2,963	444	2,009
Columbus	2,887	2,187	725	2,358	499	1,590
Toledo	3,167	1,649	645	1,659	547	1,236
Dayton	3,689	4,451	905	3,197	868	2,621
Totals	14,165	13,793	3,041	12,172	2,677	9,048

A similar table for 1896 follows:

Free Public Employment Offices in Ohio for the year 1896.

	Situations Wanted.		Help Wanted.		Positions Secured.	
	Males.	Females.	Males.	Females.	Males.	Females.
Cincinnati	1,821	2,181	262	1,568	237	1,233
Cleveland	1,290	3,479	323	3,720	323	2,691
Columbus	3,422	2,476	700	2,350	585	1,928
Dayton	3,578	4,957	884	3,109	800	2,696
Toledo	2,557	1,937	909	1,885	836	1,616
Totals	12,668	15,030	3,078	12,632	2,781	10,164

The Commissioner of Labor for Ohio, Hon. William Ruehrwein, in his report for 1897, says of the free public employment offices, pp. 11–12:

"The free public employment offices are in a healthy condition and continue to do good work. It has been the aim of the department to have them located in the most convenient places. While we can not always get the location that we would deem the most desirable, yet they are so situated that the people can easily find them. * * *

"The law creating them was, undoubtedly, an experimental departure in legislation. The result of that act has been a success. I am glad to say that

these offices stand well in favor with employers of labor, and workingmen and women consider it a great privilege to have a place of this kind in their city where they can go for information or to secure employment without being charged a fee or being imposed upon in any way. If the kind of work they desire can be had they get it freely. The army of idle men seeking situations has been alarmingly great in cities at times, and few of our people are cognizant of the expense to which the laboring people are often subject in seeking employment through private intelligence offices.

"Before the inauguration of the free employment offices by the State, these pay offices were springing up on every corner and were getting fat by their methods of doing business. There are now few of them left and where they still exist they are not working in that high-handed manner as was the case a few years ago."

The following summary of the work done by these offices in 1897 has been prepared for this report:

Free Public Employment Offices in Ohio for the year 1897.

	Situations Wanted.			Help Wanted.			Positions Secured.		
	Male.	F'male	Total.	Male.	F'male	Total.	Male.	F'male	Total.
Cincinnati	1,399	1,606	3,005	163	905	1,068	160	764	924
Cleveland	2,648	3,244	5,928	919	3,320	4,239	855	2,608	3,463
Columbus	3,725	1,192	4,917	798	2,635	3,433	610	2,424	3,034
Dayton	2,870	3,729	6,599	759	2,731	3,490	806	3,015	3,821
Toledo	2,481	3,527	6,008	1,650	3,527	5,177	1,481	4,324	5,805
Total	13,159	13,298	26,457	42,891	13,118	17,407	3,912	13,135	17,047

The recapitulation given below constitutes a summary of the business done by all the Ohio offices for seven and a half years from the date of establishment up to January 1, 1898:

Free Public Employment Offices in Ohio for seven and a half years:

	Situations Wanted.			Help Wanted.			Positions Secured.		
	Male.	F'male	Total.	Male.	F'male	Total.	Male.	F'male	Total.
Cincinnati	23,893	20,294	44,187	10,544	17,242	27,786	7,555	11,142	13,697
Cleveland	24,346	25,775	50,121	8,186	24,028	32,214	5,882	17,998	32,880
Columbus	23,926	14,248	38,174	8,709	16,226	24,935	6,158	11,608	17,766
Dayton	25,812	23,406	49,418	9,013	18,426	27,439	6,444	14,419	20,863
Toledo	22,224	15,644	37,868	11,613	17,012	28,625	8,564	13,342	21,906
Total	120,201	99,367	219,568	48,065	92,934	140,999	34,603	68,507	103,112

This work is no longer an experiment. These offices have existed now eight years, and while it is to be regretted that the law did not pass as it was drafted by the Cincinnati labor congress, and as it

passed the lower house, yet even in its present shape it is a great boon to the work-seeking people of Ohio. The law should, however, place these offices under the complete control of the state, paying the entire expense from the state treasury. They should be adjuncts of the Bureau of Labor Statistics in the state, as through them most interesting statistical studies of social conditions can be made at a trifling expense.

As showing how well these institutions stand with the people of Ohio, a few extracts are given from the reports which the superintendents have from time to time made to the commissioner of labor:

"It is a common expression from persons who come to the office to employ labor to say, 'this institution is a blessing and should be continued.'

"Persons employing females for domestic service have nothing but the highest praise for the office, as there is no class of people who need the assistance of the office more than the persons employing domestics, as that class of help is continually changing. A gread deal of the changing was due to the misrepresentations made by private employment offices as to the character and qualification of the help furnished. The more the help changed the more the fees went into the coffers of the private employment agent. There is no incentive in an office of this kind to misrepresent the qualifications of an applicant, but rather to lay the matter fairly and squarely before the persons wishing to secure their services. The same applies to persons seeking employment. They are sent to a place where service is required with a direct understanding of the qualifications they must have and the remuneration they are to receive for their services. If they accept they go into the employ of those securing their services of their own free will, without any persuasion or inducement being used, as is done under the working of a private office. It can easily be seen what an improvement this must be in this branch of service, as this office is not a 'go-between,' and has no contract to fill with either party, but deals justly and honestly and serves the best interest of all persons concerned.

"Working men and women consider it a great privilege to have a bureau of this kind in their city, where they can go for information or secure employment without being charged a fee or being imposed upon in any way. If the kind of employment they desire can be had, they get it freely and are told the chances of securing such employment through the office. No person is encouraged to depend on the office for any kind of work unless there is a chance of securing it. When the office was established it was thought by a great many of our working people that it would be used to furnish cheap labor for employers. Such has not been the case, as any class of labor employed through the office receives as high wages as is paid in any similar branch of industry. It is a settled fact that the office will not create a demand for cheap labor. The question of wages depends solely on the fairness of the employer, and his need of help; and with persons seeking employment,

how much they consider their services worth and what position they are in to back up their demand. All classes of labor seek recognition for their services through the office, educational, mechanical and common labor.

"Before this office was started it was considered a bonanza to run an employment office in this city. It is hard to tell how many of those offices are in this city, as they are scattered all over. Any person can go into the business, hang out his sign, advertise in the daily papers that he secures good positions for men, women, boys and girls. He will have plenty of applicants and be in a good position to swindle innocent and unsuspecting people.

"There is no doubt that their advertisements bring them quite a number of applicants. I have received a number of letters from different parts of the state from persons who were taken in by their advertisements and who sent them money to secure some of the good and responsible positions which they claim they can secure. Many come to the city through their advertisements, thinking it easy to secure work, only to find that they have been duped and have come to a place where there are thousands of men out of employment."

Another report:—

"It is generally conceded by employers of mechanical labor as well as employers of domestic help that the office is not only beneficial, but just at present a necessity. Ladies, who heretofore could not be induced under any circumstances to patronize an employment office, seem to have the fullest confidence in the ability and willingness of this office to furnish them with competent and acceptable help. This office is looked upon in high city official quarters as an institution of great seeming benefits to Toledo, inasmuch as it relieves, in procuring help for distressed families in need of work, the city infirmary and other charitable institutions supported at the expense of the public. Another beneficial factor of the free employment office is this. Prior to the establishment of this office, employers of labor in this city and the surrounding towns were obliged to pay in sums said to aggregate $5,000 per year as tribute to the alleged private bureaus which then existed. This sum is saved annually, it is safe to say, to the citizens of Toledo and the suburban towns by the fact that this office exists.

"When this branch of the bureau was established eighteen months ago, we had in this city several private labor offices, so-called, where applicants were charged from 50 cents to $5.00 for services promised. The result was that the commission paid was retained, while the positions promised were never secured for applicants. Consequently, upon the establishment of this office these offices have totally disappeared.

"The office referred to gave us but little trouble after the establishment of this branch, although the proprietors for some time made a vigorous kick, at what they were pleased to term an infringement on the rights of private citizens."

The Montana Law.

Montana was the second state to create free public employment offices by legislative enactment. The creating act as it finally passed was an amendment to one section of the law creating the Bureau of Labor Statistics, and was as follows:

"And it shall be the further duty of said commissioner within thirty days after the passage of this act, to establish and maintain in connection with the said bureau, a free public employment office. Said commissioner shall receive all applications for help made to him by any person, company or firm, and all applications made to him for employment by any person or persons, and record their names in a book kept for that purpose, designating opposite the name of each person the kind and character of help wanted, or the kind and character of employment desired, and the postoffice address of the applicant.

"It shall be the duty of said commissioner to send by mail to all applicants for help the name and postoffice address of all applicants for employment, and such other information as he may possess that may bring to their notice the names and postoffice addresses of such unemployed laborers, mechanics, artisans, or teachers as they may require. No compensation or fee whatsoever shall, directly or indirectly, be charged or received from any person or persons applying for help, or from any person or persons applying for employment to said office. Said commissioner or any clerk or other person in his employ, charging or receiving any compensation or fee from any applicant for employment whomsoever, as provided in this act, shall be deemed guilty of a misdemeanor, and upon conviction shall be fined in any sum not exceeding one hundred dollars, or imprisonment not exceeding thirty days. Any application for help, or any application for employment made to said office, shall be void after thirty days from its receipt by said commissioner, unless renewed by the applicant. Every applicant for help shall notify said commissioner by mail within three days after the required help designated in his or her application has been secured. Said notice shall contain the name and the last postoffice address of each employe secured through said employment office; and any refusal or failure by any applicant for help to so notify said commissioner shall thereafter bar the applicant from all further rights and privileges of said employment office, at the discretion of said commissioner.

"Applicants for help shall be construed to mean employers wanting employés, and applicants for employment shall be construed to mean persons wanting work to do.

"It shall be lawful for the common council of any incorporated city within this state to provide by ordinance for the establishment of a free public employment office, to be conducted on the same general plan indicated by the provisions of this act, and to provide for the expenses thereof out of the revenues of the city in which the same is so established: *Provided*, That any free employment office established by the common council of any city in this state

shall be required to report weekly to the commissioner, giving a detailed account of the transactions of said office and the names and addresses of all applicants; and said commissioner shall be required to make a corresponding report weekly to each free employment office so established by any incorporated city within this State.

"The annual report of the Commissioner of Agriculture, Labor and Industry shall contain a detailed account of the transactions of all free employment offices within the state, showing the number of applicants for help, and the number of applicants for employment, male and female, and the number securing employment through said offices, and the expenses thereof.

"It shall also be the duty of the commissioner to post a printed notice of this act in a conspicuous place in each employment office so established. It shall also be his duty to post in front of such office on a sign board, or in a conspicuous place on the outside of the buildings where such offices are located, the words "Free Public Employment Office."

"The privileges of this section shall extend only to those out of employment and residing within the state."

The Fourth Annual Report of the Montana Bureau of Agriculture, Labor and Industry contains the first report of the employment office at Helena, which was started under this act. Commissioner Hill says, page 18:

"At the fourth session of the legislative assembly the house committee on labor took up the bill prepared by Hon. Michael Corbett, one of its members, providing for a free public employment office at the capital of the state, to be conducted in connection with this bureau, and also making optional provision for auxillary offices in other cities of the state, and succeeded finally in getting a bill through, not wholly as they desired, but in somewhat better form than at one time seemed possible. It was deemed better to so accept it and trust to future remedial legislation, than to have the matter altogether fail. The general features of the bill introduced were not laid on the lines of the Ohio system, which had been in operation some years, but on those of the measure presented to the Iowa Legislature by Labor Commissioner Sovereign. The provisions relating to it appear in section 765 of the political code, as an amendment to the act creating this bureau, and were at first added to its duties without making any provision whatever for the additional expense of maintaining it. An amendment was finally secured through the efforts of the labor committee, permitting and providing for the employment of a clerk to attend to the duties in a location necessarily separate from the statistical department of the bureau, but no additional provision was made at any time for rent, fuel, light, postage, printing, telephone, messenger service, or that very necessary item in efficiently conducting a public employment office—advertising. Especially is this latter essential in establishing a new system, to bring it and keep it before employers, as well as those seeking employment, until they have become thoroughly familiarized with the idea. The alternative, to keep the matter vividly before the public, is to rely on the gratuitous services of the newspaper press, and when it is considered that the pay agencies, and many

persons seeking employment or help, do largely advertise in the newspapers and pay for the same, and that such business would decrease in proportion as the free employment business increased, it would be asking more than is reasonable from the press that it should gratuitously and continuously advocate the free office even in general terms. The state should do business in a business way, as individuals have to do. This same difficulty presented itself in Ohio, although the offices in other respects were well equipped and maintained, and the recommendations of the commissioner had early and favorable attention by the legislature.

"The conduct of the Montana office was therefore undertaken under very inauspicious conditions for developing the best possibilities, but no more liberal measure could be obtained. It was believed by those who had given the subject thought that the free public employment system, although having as yet scarcely passed the experimental stage in the one or two states that had tried it, had much merit, and that it might be advantageously adopted in Montana. It was therefore deemed better to accept the measure, insufficient as it was for the most favorable results, and trust to future remedial legislation than to have the measure altogether fail, especially as the provision relating to auxiliary offices in other cities was sufficiently flexible to permit the municipal authorities to establish and maintain them under more favorable conditions.

"Following are given tables showing the applications made and filled and the classes of occupation sought. Blanks are sent out to those desiring situations; similar blanks are furnished those seeking help; but numerous instances have come to the notice of the clerk in charge where neither employer nor employé made returns to the office, and it is his belief a much larger number of applications have been filled than those given below, which are only of the returns actually made to the office. While, as a matter of fact, the securing of the situation to the applicant is the important consideration it would benefit the office and enable a fairer showing of the results were all applicants considerate enough to make returns:"

Free Public Employment Office in Montana from April 1 to December 31, 1895.

Months-1895.	Applicants for Employment.		Applicants for Help.		*Positions Secured.	
	Male.	Female.	Male.	Female.	Male.	Female.
April	139	61	19	62	12	20
May	70	69	28	67	22	27
June	28	62	22	71	14	41
July	73	53	30	74	28	42
August	62	43	35	90	30	38
September	31	42	27	62	20	28
October	28	56	30	50	19	26
November	17	28	11	41	8	10
December	28	33	15	61	14	31
Total by sexes	476	447	217	578	167	263
Totals, both sexes		923		795		430

*The figures given in these columns only include those of whom actual return was made to the office.

The following table shows the work done by this office from the date of the preceding table to the close of the office by the repeal of the law:

Period Covered.	Applicants for Work.			Applicants for Help.			Positions Secured.		
	Male ...	Female.	Total...	Male ...	Female.	Total...	Male ...	Female.	Total...
Dec. 1895 to Nov 1896, inclusive.....	538	428	966	214	659	873	305	302	607
Dec. 1896 to March 1897, inclusive.....	27	91	118	17	122	139	14	79	93

The expense of the office from December 1, 1895, to November 30, 1896, is here given:

Salary of clerk in charge 12 months, $1,200; rent of office, $240; printing and posting, $20; fuel and lights, $11.88; postage, $10; total, $1,481.88.

The law was repealed March 4, 1897, and one enacted which enables municipalities to establish such offices if they so desire. This law follows:

"Section 776. It shall be lawful for the common council of any incorporated city within this State to provide for the establishment of a free public employment office to be conducted on the most approved plans, and to provide for the expenses thereof out of the revenues of the city in which the same is established. The annual report of the commissioner of agriculture, labor and industry shall contain a detailed account of the transactions of all free employment offices within the State, showing the number of applicants for help, the number of applicants for employment, male and female, the number securing employment through said officers and the expense thereof."

So far no city in the state has established such offices. The defects of the Montana law are sufficiently glaring, and would pre-destine offices established under it to failure in any state. The degree of success attained by the office, established as a part of the labor bureau, with its office in the state capitol, in a town the size of Helena, without reasonable funds for its maintenance, is to be taken rather as a tribute to the possibilities of free public employment offices under reasonable conditions, and in cities sufficiently large to require them. Under date of November 18, 1898, Commissioner Calderhead of the Montana Bureau of Labor writes:

"It was never much of a success in this state for the reason that there was not the interest displayed that the importance of the matter demanded. If the office had been established at Butte, where the demand for employment is greatest, the showing would have been better."

The Montana experiment can hardly be considered of value in considering the matter for Illinois, as the failure, so far as it was a failure, resulted from the absence of sufficient population to require the services of such bureau; and from an inadequate law.

The Nebraska Law.

A free employment department of the Nebraska Bureau of Labor Statistics was created by the legislature of that state April 13, 1897. The law is as follows:

"Sec. 2071. The commissioner of labor is hereby authorized and directed, within thirty days after the passage of this amendment, to establish and maintain in the office of the bureau of labor and industrial statistics, and in connection therewith, a free public employment office. The deputy commissioner shall receive all applications made to him for employment by any person or persons and record their names in a book kept for that purpose, designating the kind and character of help wanted or the kind and character of employment desired, and the postoffice address of the applicant. It shall be the duty of said deputy to send by mail to all applicants for help, the name and postoffice address of such applications for employment as in his judgment will meet their respective requirements and such other information as he may possess that will bring to their notice the names and post office addresses of such unemployed laborers, mechanics, artisans or teachers as they may require. No compensation or fee whatsoever shall directly or indirectly be charged or received from any person or persons applying for help, or any person or persons applying for employment through the bureau of labor. Said deputy or any clerk connected with the bureau, who shall accept any compensation or fee from any applicant for help or any applicant for employment, for services as provided in this act, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in a sum not less than twenty-five dollars nor more than one hundred dollars for each offense, or imprisoned not to exceed thirty days. Any application for help or any application for employment made to said office shall be null and void after thirty days from its receipt by said deputy, unless renewed by the applicant. Every applicant for help shall notify said deputy commissioner by mail immediately after the required help designated in his or her application has been secured, and every applicant for employment shall notify said deputy immediately after securing the same. Such notice shall contain the name and last preceding post office address of each employer or employé secured through such employment office, and any failure or refusal to thus notify said deputy commissioner shall bar such applicant from all future rights and privileges of

said employment office at the discretion of said deputy. Applicants for help shall be construed to mean employers wanting employés, and applicants for employment shall be construed to mean persons wanting work to do.

"Approved by the governor April 13, 1897.

No data is as yet available as to the work done by the office established by this law, nor the expense of maintaining it. It is, however, very apparent that the initial free public employment office in Nebraska should have been located in Omaha, instead of Lincoln, and even if established in the latter city, should not have been located in the state capitol. The vultures and harpies who wish to prey upon the unemployed open employment agencies near union depots, so that the emigrant shall see it first upon leaving his train. The private employment agency shark locates in the district populous with the poor; he rents a room next door to the "Beds-10-cents" hotel, and if the free public employment office is to checkmate his villainies, and do good to the unemployed poor, it must locate where they are; and not in state capitols nor on the boulevards. Again, while there is a bond of union between free public employment offices and bureaus of labor statistics, and this bond should be incorporated into the law, yet the functions of the latter are so entirely distinct from the former, that any attempt to unite them absolutely, as is contemplated by the Nebraska and Montana laws, is certain to impair the usefulness of, and likely to ultimately destroy, both.

THE NEW YORK LAW.

Free public employment offices were created in New York by a law approved May 25, 1896, which was, however, repealed and a substitute enacted May 13th, 1897, as follows:

ARTICLE III.—FREE PUBLIC EMPLOYMENT BUREAUS.

SEC. 40. Free Public Employment Bureaus in Cities of the First Class.—The commissioner of labor statistics shall organize and establish in all cities of the first class a free public employment bureau, for the purpose of receiving applications of persons seeking employment, and applications of persons seeking to employ labor. No compensation or fee shall be charged or received, directly or indirectly, from persons applying for employment or help through any such bureau. Such commissioner shall appoint for each bureau so organized, and may remove for good and sufficient cause, a superintendent and such clerical assistants as, in his judgment, may be necessary for the proper administration of the affairs thereof. The salaries of such superintendents and clerks shall be fixed by the commissioner. Such salaries and the expenses of such bureaus shall be paid in the same manner as other expenses of the bureau of labor statistics.

SEC. 41. Duties of Superintendent.—The superintendent of each free public employment bureau shall receive and record, in a book to be kept for that purpose, the names of all persons applying for employment or for help, designating opposite the name and address of each applicant the character of employment or help desired. Each such superintendent shall report, on Thursday of each week, to the commissioner of labor statistics, the names and addresses of all persons applying for employment or help during the preceding week, the character of the employment or help desired, and the names of the persons receiving employment through his bureau. Such superintendent shall also perform such other duties in the collection of labor statistics, and in the keeping of books and accounts of his bureaus, as the commissioner may require, and shall report semi-annually to the commissioner of labor statistics the expense of maintaining his bureau.

SEC. 42. Applications—List of Applicants.—Every application for employment or help made to a free public employment bureau shall be void after thirty days from its receipt, unless renewed by the applicant.

"The commissioner of labor statistics shall cause two copies of a list of all applicants for employment or help, and the character of the employment or help desired, received by him from each free public employment bureau, to be mailed on Monday of each week to the superintendent of each bureau, one of which copies shall be posted by the superintendent, immediately on receipt thereof, in a conspicuous place in his office, subject to the inspection of all persons desiring employment or help, and the other shall be filed in his office for reference.

SEC. 43. Applicants for Help—When to Notify Superintendent.—If an applicant for help has secured the same, he shall, within ten days thereafter, notify the superintendent of the bureau to which application therefor was made. Such notice shall contain the name and last preceding address of the employés received through such bureau. If any such applicant neglects to so notify such superintendent, he shall be barred from all future rights and privileges of such employment bureau, at the discretion of the commissioner of labor statistics, to whom the superintendent shall report such neglect."

The report of the New York Bureau of Labor Statistics for 1896 states that from the date of the establishment of the free employment bureau in New York City on July 20, 1896, to January 1, 1897, 8,040 applicants for labor were registered, of whom 6,458 were males, and 1,582 were females; and that 948 applications for help were received, of which 332 were for males and 616 for females; and that positions were secured for 218 males and 265 females. . . .

For the year ending December 31, 1897, the report of the New York Bureau of Labor Statistics states that there were 7,315 applicants for employment, of whom 3,996 were males and 3,319 were

females; that there were 2,052 applications for help, of which 418 were for males and 1,634 for females; and that situations were secured for 378 males and 1,127 females, a total of 1,505.

The Superintendent of the New York City office in his report for 1897 says:

"When the New York Free Employment Bureau was opened it was felt in certain circles that the public would not understand its functions, and the people would take it for granted that it was a bureau founded by the state to give employment, and that all that was required to find such was to fill out one of our blanks and in due time the applicant would be given employment. No such impression is shared by our patrons. They understand just what this bureau is, namely, 'An office for the purpose of receiving all applications for labor on the part of those seeking employment, and all applications for help on the part of those desiring to employ labor.'"

During the year ending December 31, 1897, there were 7,315 persons who made application for employment. Of these, 3,996 were men, and 3,319 were women.

Upon each person filing his or her application, as the case might be, an inquiry was mailed to the last employer asking as to the character and ability of such person, and it gives us great pleasure to be able to assert that the answers received were such as to demonstrate beyond doubt the honesty and ability of the applicants.

"It has often been stated that none but the careless and indolent remain unemployed, and there is work enough for all to do. Such is not the case. Our table giving the 'Duration of Idleness' in the various trades and callings clearly proves that the labor market is far from being in good condition. It is, however, pleasant to note that as the year advanced things began to brighten up and conditions improved very much.

"In the month of April we moved from our original location to our present address, in order that with enlarged quarters we might be able to meet the increased demands made on the bureau through pressure of business.

"During the year we were enabled to place over 20 per cent of our applicants in permanent positions, and the reports from their employers have been to the effect that they rendered services acceptable to those who employed them.

"Our applicants for employment have covered 70 trades and callings. Every branch of human energy has found its way to the bureau, seeking an outlet.

"It has often been asserted that people who are habituated to city life, under no circumstances take employment in rural districts. Our experience has been to the contrary, as very many are willing to take and did take em-

ployment outside of the city. Men and women have obtained employment through this bureau in almost every section of the state, and many of them in the neighboring states.

"A comparison of the work of the free employment bureau during the five months of its operations in 1896 with the twelve months of 1897 shows that while in the former period 8,040 persons applied for situations, in the latter but 7,315 applications were made. The explanation of this decrease, noticeably large compared with the difference in time of the two periods, is, in large part, the exaggerated expectations aroused upon the opening of the bureau, which were noted above.

"The number of situations secured through the bureau in 1896 was 444, or 5.5 per cent of the total number of applications. During 1897, however, over 20 per cent of the applicants found positions, a notable increase. But, again, the increase, or rather the relatively small percentage for 1896, is doubtless partly due to the abnormally large number of applicants in that year."

Of the men who registered for situations in 1897, 1,560 were native born, 2,436 were foreigners.

The following tables are of interest as showing the social condition of applicants for work.

Table Showing the Number of Applicants Who Have Children and Dependent Children.

Applicants reporting that they have children.					Applicants reporting that they have dependent children.				
Number of children per applicant.	Men	Women	Total	Total number of children	Number of children per applicant.	Men	Women	Total	Total number of children
1	194	208	402	402	1	173	185	358	358
2	192	78	270	540	2	150	64	214	428
3	119	32	151	453	3	98	15	113	339
4	75	14	89	356	4	62	12	74	296
5	36	6	42	210	5	30	6	36	180
7	16	1	17	102	6	10	.....	10	60
8	10	3	13	91	7	3	.....	3	21
9	5	.....	5	40	8	1	.....	1	8
10	1	.....	1	9	13	1	.....	1	3
13	2	.....	2	20					
.....	1	.....	1	13					
	651	342	993	2,236		528	282	810	1,703

Age of Applicants.

AGE OF APPLICANT.	Men.	Women.	Total.
Under twenty years	373	231	604
Twenty to thirty years	1,850	1,447	3,297
Thirty to forty years	1,041	702	1,743
Forty to fifty years	515	755	1,270
Fifty to sixty years	177	184	361
Over sixty years	40	.....	40
Totals	3,996	3,319	7,315

As yet but one office has been opened in the State of New York, although the law is applicable to Buffalo as well. The legislature appropriates $5,000 per annum for the use of the New York City office. The clerical force consists of a superintendent, whose salary is $1,500; a stenographer at $900, and a clerk at $780 per annum.

THE CALIFORNIA LAW.

The bureau of labor statistics in two states, namely, California and Missouri, have opened free public employment offices without waiting for legislation. The first of these was California, where, upon the failure of the legislature to act, certain business men offered annual assistance.

A free employment department was opened in San Francisco by the State Bureau of Labor Statistics, on July 15, 1895. The work of the department was carried on under the regular appropriations for the bureau aided by a subscription of $1,000 made by prominent business men and establishments.

The system upon which the department is conducted is as follows:

"Each applicant for help is required to fill out a blank specifying the number and sex of employés desired, the kind of work to be performed and the wages to be paid. Applications for employment are made upon blanks furnished by the department, giving the applicant's name, address, occupation, years experience, wages wanted, nationality, citizenship, literacy, age, conjugal condition, number in family dependent upon applicant, reasons for being unemployed, and references. The data contained in these applications are entered in separate books kept for the purpose, properly indexed. Each applicant for employment who is sent to fill a position is furnished with a card addressed to the prospective employer stating that the bearer is sent to take a position, at specified wages, of a character described in the card; he is also furnished with two postal cards to be delivered to his employer, one of which is to be used by the latter in notifying the department of the employment of the applicant for work; and the other in notifying the department of his discharge and the cause thereof."

The Seventh Biennial Report of the California Bureau of Labor Statistics, 1895–96, contains the latest available information concerning the workings of the free employment department; the report referred to states that from July 15, 1895, to August 1, 1896, 18,920 applications for employment were registered, of which 14,250 were made by males and 4,669 by females, also that positions were secured for 3,314 males and 4,669 females.

The Missouri Law.

The legislature failing to enact the bill so earnestly recommended by the bureau of labor under Commissioner Hall, nothing further was done until the appointment of Commissioner Rozelle, who is an enthusiast upon this subject. Finding that the offices and rooms by the factory inspectors in St. Louis could be made available for his purpose, and that his regular appropriation could be used to employ clerks therefor, he at once opened a St. Louis office as an adjunct to his bureau, and has given to it his personal attention and untiring energies.

The free employment department was opened on the first Monday in October, 1897, and the 19th annual report of the Missouri Bureau of Labor Statistics states that during the month ending October 30, 1897, 1,748 applications for employment were received, of which 1,511 were made by males, and 237 by females; that 787 applications for help were received, of which 521 were for males and 266 were for females; and that 283 males and 223 females procured employment. The following account of the workings of the office is given in the report above referred to.

"Applicants for employment are required to file their applications on a blank furnished by the department, giving their name, address, age, sex, nativity, kind of employment desired, wages required, where last employed, cause of idleness, references to character, etc. All such applications are registered for thirty days and then dropped from the list where employment is not secured. Applicants have the privilege of renewing application every thirty days if they desire, until employment is secured. Persons desiring help are required to file an application in the same manner on a blank furnished by the department, stating in exact terms the kind of labor wanted, wages, term of service, etc., which application is also registered for the term of thirty days or until help is secured.

"Whenever applications are received and registered a number of parties making application for the position designated are promptly notified by postal card and given the address of the applicant for service. In this way the unemployed and the employer are brought together with little difficulty, and at no more expense than the cost of a postage stamp.

"All possible care is taken to prevent the registration of irresponsible persons. Through the agency of the press, whose indorsement and coöperation has been the most cordial, the benefits of the system are becoming known in every section of the state, and the department is growing in the confidence and esteem of large employers of labor.

"Nearly 30 per cent of the applicants secured employment through the department during the first month of its existence, and the percentage should increase. Thus far, only three persons have been required to do the work. Additional help would enable the bureau to establish another branch of the department at Kansas City."

The Commissioner further says:

"That the work of the department is appreciated by the people of the state and of St. Louis, especially, goes without saying. The results are beyond anything expected, and the work has already reached a point that taxes to the utmost the limited force in charge."

In the twentieth annual report of the Missouri Bureau of Labor, Statistics and Inspection, covering the year ending November 5th, 1898, Commissioner Rozelle reports in regard to the free employment department of his bureau as follows:

"As heretofore stated, the free employment office in this state was opened in 1897 in connection with the office of the State Factory Inspector, 915–916 Chemical building, St. Louis, Mo.

"Owing to the failure of the St. Louis authorities to appoint a factory inspector, as provided by law, it was felt that the state inspector was not justified in giving all of his time to St. Louis, to the exclusion of other cities, hence the necessity of turning the office to practical account suggested the free employment agency in connection with the other work of the department, without extra expense to the state. Practically the same force employed in the inspector's office has conducted the work in the free employment department.

"With a slight increase in the office force much better results would have been obtained. At no time were more than three persons employed, and much of the time only two, including the superintendent.

"While no legislative authority was sought prior to the inauguration of the system, the matter was communicated to the Governor who endorsed the plan, and since it has been in operation it has been warmly espoused by the press and public. It is gratifying indeed that not one single protest has been made anywhere throughout the state against the operation of this department, but on the contrary words of commendation and praise come from every quarter, from the employers and employés alike.

"The bringing together of the employer in need of help and the worthy unemployed seeking work, free of expense to both and at a minimum cost, is

the chief function of the state employment office. The state itself can not furnish employment and the class who patronize this department so understand."

During the year 7,783 applicants for positions were registered, and 4,661 applications for help were filled. Of the applicants for positions 5,680 were males, and 2,103 were females. To show the general character of the work done the following details are copied from the report:

"The orders for help received and filled from October 1, 1897, to October 1, 1898, inclusive, are as follows:

Situations Secured by the St. Louis Office.

Miscellaneous	144	Janitors, porters and watchmen	20
Seamstresses and dressmakers	89	Laborers (miscellaneous)	573
Bakers	16	Laundresses and laundrymen	76
Cooks and helpers	280	Mechanics	166
Carpenters	41	Nurses	89
Collectors	17	Printing trades	25
Drivers and teamsters	89	Office help and boys	142
Dairymen	14	Professional	31
Farm help	167	Private place	57
Factory help (miscellaneous)	11	Solicitors and salesmen	1,064
Governesses, companions, teachers	19	Stenographers	82
House help	1,344		
Hotel and restaurant help	105	Total	4,661

"Under the head of "professional," the following occupations are included: advance agent for lecturer, portrait painter, civil engineer, physicians, druggists, newspapermen, dentists, female druggists, lawyers, teacher of clay modeling, specialists in Belles Lettres, history, etc., photograph artist, promoter and piano player.

"Under "mechanics" are wagon-makers, cobblers, carriage blacksmiths, plasterers, bricklayers, smoke-stack painters, butchers, barbers, brass and iron molders, blacksmith and horse-shoers, bridge and structural iron-workers, carriage painters, shoe-fitters, upholsterer, shoemaker, matchers and rip-saw men, engineers, firemen, tinners, granite-cutters, hoisting engineers, electrical eegineers, machinists, brass-finishers, metal-polishers, core-makers, plumbers, gas-fitters, wood-working machine hands, marble-cutters, sign-writers, paper-hangers, cabinet-makers, bench-molders, sheet-iron workers and tailors.

"Miscellaneous orders include vinegar pickle men, men with covered wagons, soap-makers, meat-cutters, prospectors, auctioneers, clay pit men, description writers, candy-makers, tobacco stemmers, dyers and cleaners, educated women for drapery departments, experts on tobacco growing, girls for leather work, manicurists, hoop-pole shavers, curb-stone setters, stone-sawers, machine draughtsmen, armature winders, men to operate steam drills, bicycle repairers, steam-hammer men, photographers, telegraphers, bottlers, box nailers, granitoid workers, single-tree makers and vise makers."

Applications Made at the St. Louis Office.

Bricklayers	15	House-help, female	1,018
Blacksmiths and horse shoers	108	Hotel, restaurant help—male	108
Brewers	17	Hotel, restaurant help—female	131
Bakers	49	Laundry workers—female	34
Butchers	22	Miscellaneous mechanics	394
Barbers	4	Nurses, female	136
Cooks and helpers—males	146	Office help, male	749
Cooks and helpers—females	157	Office help—female	92
Collectors	107	Boys	362
Coachmen	22	Porters and watchmen	479
Carpenters	154	Printers and print trades	54
Cigar makers	1	Professional	132
Dairymen	19	Private place, (general work)	171
Drug clerks	10	Stenographers—male	108
Seamstresses and milliners	163	Stenographers—female	292
Engineers and firemen	216	Salesmen and solicitors	548
Electrical workers	37	Saleswomen and female solicitors	51
Farm help	242	Teamsters and drivers	278
Laborers	908	Teachers—male	12
Grocery clerks	151	Teachers and companion—female	52
Gardeners	34	Total	7,783

"Orders have been received from the following states and countries: Illinois, Arkansas, Tennessee, Kansas, Texas, New Mexico, Alabama, Louisiana, Indian Territory, Kentucky, Georgia, Indiana, Mississippi, Iowa, Oklahoma Territory, Ohio, Nebraska, Old Mexico, and Montana."

Another statement of the Commissioner is of special interest:

"Not the least service rendered the public by the establishment of the state free employment department has been the decimation of the fraudulent 'employment agencies,' so-called, especially in St. Louis, where sixteen of these concerns were said to exist only a year ago, only four are now to be found."

"The methods" continued the report, of these concerns in entrapping the unwary are almost beyond belief; but the daily complaints to the officers of the law confirms their truthfulness."

CONSENSUS OF OPINION.

Hon. Carroll D. Wright.

In an article on "The Value and Influence of Labor Statistics," published in *The Engineering Magazine* for November, 1893, the Hon. Carroll D. Wright, United States Commissioner of Labor, says:

"In some of the western states there have grown up during the past few years some of the most rascally practices on the credulity of the workingman that have ever been known. They are robberies of the meanest sort, for they not only rob a man of his money, but in many instances of his manhood. The practice I refer to is that of a certain class of employment offices, located usually in the rear of some beer saloon, which advertise that a large number of men are wanted for labor in a certain city, but almost always at a distance. In a western city one of the offices advertised for one thousand men to proceed immediately to Washington, where employment would be furnished at $1 per day. Hundreds of men responded to this advertisement. They were obliged to pay down $3 or $4, as the case might be or as the rascality of the manager might demand, and then the men were put off by various excuses for several days, until they began to clamor for their contract. When they became too demonstrative, the manager would pay back a part of the sum advanced for the sake of integrity. Meantime, however, these hundreds of men, loafing about his beer saloon, had expended more of less money for beer, in addition to the fee paid for the supposed employment. In one city an advertisement appeared for a large number of men to be shipped to Iowa, while in Iowa an advertisement appeared for a large number of men to be shipped to the very placa of the first call. The bureaus in some of the States where such practices have been carried on have collected the information relative to these offices, and have exposed the swindle perpetrated upon the wage receiver. Much good is being derived from these reports, and it is confidently expected that, in addition to the laws already passed, others of a stringent nature will follow and the evil practice be eradicated."

The Commissioners of Labor.

At the ninth national convention of the Officials of Bureaus of Labor Statistics in the United States, held at Denver, Colorado, May 24-28, 1892, the subject of employment agencies and free public

employment offices was the principal one discussed. During the discussion of the evils arising from dishonest private agencies, a number of statements were made by the commissioners present that are worth repeating here.

Commissioner Hall of Missouri said:

"One of the most important investigations I now have on hand is that of employment agencies. I think that the next Missouri Legislature will enact a law establishing free employment bureaus, similar to the law now in operation in Ohio. In St. Louis and Kansas City I find, for instance, that there are twenty-eight of these labor agencies, which claim that during the year 1890 they obtained employment for 121,000 people, collecting a fee from each of from $1 to $4, making a total of over $240,000 collected from poor people seeking employment. This enormous sum was collected from a class of people who can ill afford to lose it. One of the most despicable features of these agencies is, that quite a number are run in connection with, and in some cases directly in, saloons. It is the habit of these people to advertise in the morning papers for one or two hundred men for work at some distant point, transportation to be furnished free, and wages from 50 cents to $1 higher than is usually paid. This advertisement rarely fails to bring numerous responses. The men are required to deposit a fee of $1, and are told to wait around in the immediate vicinity until transportation can be obtained. Of course the saloon is the only convenient place where these men can wait. With the prospects of a good job ahead, the men naturally feel good, and in the majority of cases patronize the bar freely. Of course no transportation comes that day, and at night, if inquiries are made, plausible excuses are given, and the men are told to call around again in the morning, early. In the morning the same kind of a talk is made, and the men still hang around. This kind of thing is kept up until the protests become vigorous, and then the dollar fee is returned—which not infrequently goes to the bar. But meanwhile the saloon has taken in from $3 to $5 from each of the applicants. There is no law by which these operations can be reached at present. Now, if we can devise some way by which we can save these working people this great amount of money and give them reliable information, we have done a great work."

Hon. Geo. W. Walts, Commissioner for California, said:

"California has had some experience with this same evil, and attempts have been made to guard against it. At the last session of our Legislature a bill providing for the establishment of free employment agencies under the direction of the bureau of labor statistics was introduced, but never reached final consideration. So far nothing practical has been done. You must understand that on the coast we have, at times, many immigrants, who, being ignorant of the country, become easy prey to the wiles of the dishonest employment agent. We have had, also, considerable numbers landed in our state, penniless, through the misrepresentations of eastern employment

agencies; for you must remember that the fascination of California is not easily resisted, even by the rogues in employment bureaus. The subject is being considered by our people, and will undoubtedly be reached in time and satisfactorily disposed of."

A free public employment office was opened by the California Bureau of Labor Statistics in 1895, as has been shown. During the discussion at the ninth convention, above referred to, the relative merits of various schemes to regulate and control private employment agencies, were brought out and compared with public employment offices. The idea of regulating private agencies by means of licenses, requiring a bond for honesty, has been repeatedly suggested and tried, and quite a number of bills for free public employment offices have been "side-tracked" in various state legislatures by counter-bills proposing to license, regulate and control.

The discussion was begun by Mr. Bodine, Commissioner for Colorado, who said:

"Colorado suffered for years from this employment agency business. They used to be conducted here in saloons, but they didn't very often pay the dollar back. Last year a law was enacted to regulate the agencies. A man must now give a $2,000 bond, and the bond can not be a straw bond, because the law requires that the surety shall be a taxpayer; and a license of $100 a year is charged by the cities. The law provides that the license shall be issued to do business at a specefied number; the application is then investigated, and if the number has a saloon license no employment-agency license will be granted to the applicant.

"Another thing, the criminal court docket is filled, page after page, with 'said agent charged $25 for securing employment for John Doe. Case continued.' The last entry being 'case dismissed,' or 'case compromised.' This entry is secured because the applicant who has been swindled had neither the time nor means to wait for the law's delay. The agent, knowing this, secures a continuance or compromise for a very small amount."

Commissioner Powers, of Minnesota, said:

"Minnesota has a law similar to that in Colorado, but there appears to be plenty of ways to get around the law. Agencies give straw bonds, and have straw bondsmen in case of arrest. The evils of this system are well known; but the law does not seem to help it much. This is an important question, and I am glad to see it taken up and discussed.

"Ohio has a law on this subject, the working of which cost $10,000 in one year, and saved some $200,000 to the people. This shows its practicability. I do not know how you are going to get at the poor fellow who is duped in one state and does not find it out until he gets into another state. You can not make a law that is operative outside of the state where it is enacted. As much as I would like to see this evil abolished, I have not much faith in city

councils nor their ordinances; because city councils, as a rule, will not revoke a license so long as the money is paid, and good faith is apparent, no matter what is done under cover."

The following resolution, drafted by Hon. Horace G. Wadlin, of Massachusetts, was, as a result of the discussion above referred to, unanimously adopted:

"*Resolved*, That the commissioners of labor of the different states recommend to the legislatures of their different states the consideration of the advisability of creating free public employment offices, under state control and supervision; and be it further

"*Resolved*, That the secretary of this Association be requested to send a copy of this resolution to the commissioner of each state that is not represented in this convention."

Speaking to this resolution Mr. Hall said:

"I think no more important matter could come before this Association than the one of free employment agencies. Their establishment means the abolishment of a great stumbling-block now in the path of every unemployed workingman.

"The evils of labor agencies are commonly known. In the majority of cases I believe all that will be necessary is to call the attention of the legislatures to the evil, and cite them to the practical remedy now in use in Ohio. The legislatures generally meet in January, and that is when we want to take action."

Mr. C. J. Driscoll, Ex-Commissioner of Colorado, said:

"I think we should take this resolution up and pass it without delay. have spoken of the evils that are practiced under the present system of employment agencies; but it is not men alone who suffer; these agencies are helping to fill the ranks of prostitutes. It not infrequently occurs that gnorant working-girls are sent by these agency sharks to houses of ill-fame, and once there, their downfall is accomplished by flattery or force. They very rarely escape unscathed. Is not this an evil that needs immediate attention? The strong arm of the state is the most effective power that can be invoked to correct the evils that seem to be a part and parcel of many of these agencies, at least in the West."

Mr. J. R. Sovereign, of Iowa, said:

"I hope this resolution will pass. As a matter of simple justice to labor, every state in the Union should have free public employment offices. The laboringman out of employment can receive no benefit from private employment offices, however well they may be managed, except he has the money with which to pay for it. The laboringman who needs a situation most is the man without a dollar. He must sell his labor, starve, or go to jail. Nothing is a greater strain on the morals of a laboringman than to be out of employment and money at the same time. To tramp is degrading; the very word

"tramp" is repulsive and offensive. I believe that it is proper that the state should make it as easy as possible for the willing, yet needy, laboring people to secure employment. With employment it is easy for the laborer to do right; without it, it is easy for him to do wrong. It is the first duty of government to make it easy for the people to do right, and hard for them to do wrong. When I investigated the subject of private employment agencies, I also made a careful examination of the free public employment offices in Ohio, and found them very beneficial, rendering help alike to both employer and employé."

Other Authorities.

Under an act of the Legislature of Massachusetts, approved April 12, 1894, the Governor of that state appointed Hon. David R. Dewey, David F. Moreland and Haven C. Perham, as commissioners to "Investigate the Subject of the Unemployed." Among the recommendations of this board to the state legislature, in 1895, was the establishment by the state of free public employment offices.

In 1892 the Missouri Bureau of Labor Statistics sent a special agent to Ohio to investigate and report upon the public employment offices of that state. Reviewing the work of these offices, the Missouri commissioner closes his report as follows:

"In view of what is set forth, I take great pleasure in renewing the recommendations I had the honor of making a year ago—that two free employment agencies be established in Missouri, one at St. Louis and the other at Kansas City."

In his message to the General Assembly of Iowa, Governor Boies, in 1892, said:

"Few of our people are cognizant of the expense to which laboringmen and women are often subjected in seeking employment through private intelligent offices. * * * In nothing is the state more deeply interested than in the continuous employment of its laboring classes. Any system which would furnish reliable information to both employers and employés of the wants of each in the labor markets of the state, could not fail to prove of great value to both. The commissioner of labor statistics recommends the establishment of a free employment agency in connection with his office, through which it shall be practicable for those seeking employment and those in search of employés to acquire reliable information without expense to either. I most heartily concur in this recommendation."

Nor is the appreciation of and desire for free employment offices confined to workingmen and commissioners of labor bureaus. Political economists of the later school generally endorse the principle involved and commend the work of the officers.

Dr. Richard T. Ely, Professor of Political Economy in the University of Wisconsin, in his book on "Socialism and Social Reforms," page 331, says:

"Another method of giving at least an assured minimum income to large numbers, in fact, to all who can work, is through provision of employment. The private employment agency is not equal to the test. The evils connected with it are such that it perhaps produces more harm than good; and an agent of the United States Department of Labor, who has observed its workings, has declared that the employment agency is the vilest vulture that ever preyed upon a decaying body. It assists in the reduction of wages by bringing men to places where there is already a superabundant supply of labor, and in every way ministers to greed and lust. The State of Ohio has established public employment offices in several large cities, and the claim is made for these that they have produced beneficial results. New England has also established similar institutions with like beneficial results."

In an address before the World's Fair Labor Congress in Chicago, August 30, 1893, one of the speakers said, with a perhaps not unnatural bitterness:

"Another feature of modern industrialism which is proving a potent force in the disintegration of families, is the employment agency. It is the auction-block of the wage-system. While New York City is threatened with bread-riots, while in Buffalo and every industrial center in the State of New York, factories are closed or running five hours per day, five days per week, West Madison street has a flaming sign—"4,000 men wanted in New York State to work on railroads; good wages; free transportation." These men pay the employment office one dollar each, possibly their last dollar. The railroads transport the 4,000, its officials knowing at the time they want only 350. But the presence of the 4,000 will make it easy to make their own terms with the 350 they want. The employment office has made $4,000; the railroad corporation has an overcrowded labor market as a menace to the refractory.

"The remainder of these men are a thousand miles from the homes they left, buoyant with the hope of soon earning some money to send to the wife and babies. Out of work, away from home, they degenerate morally and physically until, in Chicago there is another batch of deserted wives, in New York another set of tramps. The employment agencies of this and all other cities are the vilest vultures that ever preyed upon a corpse. Their victims are the men who are out of work and want work. They make most when times are hardest and their victims can least afford to be fleeced. The farther they can ship their victims the better they like it; and, as the Iowa and Missouri Bureaus of Labor Statiscs have shown, the corporations of the west would rather give free transportation to five hundred men from a distance than to employ the one hundred men they need directly from the neighborhood of the work to be done. The farther they can get a man from home the better terms they can make with him."

FUTILITY OF ATTEMPTING TO REGULATE PRIVATE AGENCIES.

EXPERIENCE IN MASSACHUSETTS.

Massachusetts has legislated for many years with a view to regulating and controlling private employment agencies.

Section 26 of chapter 102 of the public statutes provides that "whoever, without a license therefor, establishes or keeps an intelligence office for the purpose of obtaining or giving information concerning places of employment for domestics, servants or other laborers, except seamen, or for the purpose of procuring or giving information concerning such persons for or to employers, or for the purpose of procuring or giving information concerning employment in business, shall pay a fine of ten dollars for each day such office is so kept;" and by section 27 of the same chapter it is provided that "the mayor and alderman of any city, except Boston, and in Boston the police commissioners, and the selectmen of any town may, for the purposes mentioned in the preceding section, grant licenses to suitable persons, subject to the provisions of sections 124 to 127 inclusive, and may revoke the same at pleasure. They shall receive one dollar for each license so granted." The provisions of sections 124 to 157 inclusive, referred to in this section, relate to the form of license, the manner in which it shall be recorded, etc., and the month in each year within which the license shall take effect. Licenses must be renewed annually. In chapter 311 of the acts of 1888 it is provided that "whoever as proprietor or keeper of an intelligence or employment office, either personally or through an agent or employé, sends any woman or girl to enter (as an inmate or a servant) any house of ill-fame or other place resorted to for the purpose of prostitution, the character of which could have been ascertained by him on reasonable inquiry, shall for each offense be punished by fine of not less than fifty nor more than two hundred dollars."

The police commission of Boston, acting under the provisions of this law, attach conditions to the licenses issued to private employment agencies tending to regulate the fees to be charged, etc. This condition is as follows:

"Every licensed keeper of an intelligence office shall be entitled to receive of each female, at the time of application for a place, a sum not exceeding 50 cents; and of each male who may make such application a sum not exceeding $1; and of each person making application for female servants a sum not

exceeding 50 cents, and for a male servant a sum not exceeding $1, for which a receipt shall be given at the time; and in case no servant or place of employment is obtained within six days from the date of payment, the money shall be refunded, except as follows: If either male or female shall be sent to a situation, and make an engagement, and go to work, and for any reason shall not remain at the place, neither party shall be entitled to have the payment returned."

The board of police also prescribes a form of receipt to be given to male applicants for situations, which is as follows:

Received of Mr. ————, one dollar in advance to pay for procuring him a situation for work; said amount to be refunded to him on presentation of this receipt, if no situation is obtained for him at the expiration of six days from this date."

In 1894 the legislature passed a law, of which sections 1 and 2 are the most important, as follows:

"Section 1. The keeper of an intelligence office shall not receive or accept any sum of money from a person seeking employment through the agency of such office, unless employment of the kind demanded is furnished.

"Section 2. If a person receiving employment through the agency of an intelligence office is discharged within ten days from the time of entering upon such employment, and such discharge is not caused by the inability, incompetency or refusal of such person to perform the work required, or by other fault of the person employed, the keeper of such intelligence office shall refund to such person on demand five-sixth of any sum paid to such keeper by the employer on account of such employment."

The law provides a penalty of from $25 to $50 for each violation.

The system, rigid as it appears to be, does not work well, and many employment agencies evade its provisions. The teachers' employment agencies of Boston, for instance, charge 5 per cent of the first year's salary of each applicant for whom a situation is secured, and evade the law by claiming that they are dealing with professional service, and not with labor. Mr. Waldin, in his report for 1893, says:

"Registration offices under state or municipal control, by means of which the employing class, and those seeking employment may be put into communication with one another, are earnestly advocated by many as a step toward relieving the distress caused by constantly recurring periods of unemployment * * * * and their establishment in Massachusetts has been under discussion."

Experience in Ohio.

The Hon. Samuel M. Jones, mayor of the city of Toledo, in his second annual message to the common council of that city, delivered October 24, 1898, recommends the repeal of all licenses to employment agencies. His language follows:

"You should at once repeal the ordinance licensing employment agencies, and make the carrying on of the business of an employment bureau within the city limits unlawful."

The State of Ohio is unique in having a law providing for free employment agencies in certain cities, of which Toledo is one, and the city bears the expense of conducting the office. The absurdity of licensing a private enterprise to carry on the same class of work in

competition with the city is apparent. But the infamy of this sort of business can only be understood when we reflect that our people do not go to an employment agency to seek for work save as a last extremity, and that the city should then license an individual to make a profit out of this distressed class of people is a flagrant wrong that should be stopped as soon as it is possible to enact the necessary legislation. The state has made a most commendable beginning in the right direction by establishing free employment agencies. Let us supplement this work by enlarging the field of their operations in every possible way so that all of the people may contribute their mite toward finding employment for those who are in need of it.

Mr. A. D. Fassett, Superintendent of Free Public Employment Office for Toledo, Ohio, for 1896, reports as follows:

"All of the cities permit competing paid agencies, which do a large business, regardless of the fact that the state agency does its work without expense to either the parties seeking work or wanting work done.

"The opposition thrives on the misfortunes of others. When I took charge of the Toledo office last July, there were four paid employment offices doing business here. There is no more conscience in the make-up of these offices than is to be found in flint rock. The element of gain enters into every transaction. For the fee that is in it one of these agencies would send an innocent young girl to a bagnio or a harlot to a virtuous family. When times are hard, the applicant for work is told the truth at the state agency that there is nothing for them. He is told at the paid agency that there are some good jobs for which a deposit is required. If the money is forthcoming he is told that this pays for the services of the agency in trying to place him. One out of a hundred, possibly, so paying, gets a job. The public never hears of these robberies, because the victims are poor, in no position to secure redress. If they should apply to the authorities they learn that the agency is licensed by the city and in turn authorized to perpetrate such outrages. Herein lies one of the principal drawbacks to the successful operation of the state's agencies. It is difficult for the state agent to reach the ear of the public, as the paid agencies advertise liberally and the state agencies do not. However, the newspapers of Toledo, especially the *Bee* and the *News*, have rendered me much assistance. The superintendent of the agency should place his heart in the work, as few have his opportunities for doing good. Without the assistance of city legislators, who could if they would, outlaw the paid agencies, he ought to be able to drive them out of business."

By reference to preceding pages relating to the experience of France in establishing free public offices for the relief of the unemployed in Paris and other cities, it will be observed that the first attempt to create such offices was in the form of a bill which the Chamber of Deputies rejected and referred to the Municipal Council of Paris as being a matter for local rather than national legislation. The Municipal Council failed to act upon the measure but eventually a decree was promulgated by Louis Napoleon, possessing the force of law, the intent of which was to license and regulate the private employment registries of Paris, Under the restrictions of this decree these offices were subsequently operated, until the necessity for placing the business wholly under government management and control was finally fully recognized and the free public offices established.

OTHER OPINIONS.

The disfavor in which all schemes for licensing and regulating private employment agencies are held by labor men, is illustrated by the following extract from an address delivered at one of the "Hull House" economic conferences some time ago.

"With few exceptions the methods employed by legislators have been the usual ones, 'regulation.' It is curious that when the members of a state legislature are shown an evil, their first thought is to 'regulate' it by making it a source of income to the state. There was a bill before the Colorado legislature to establish free state employment agencies, but that bill was defeated by one which promised to regulate by dividing the spoils.

"Colorado has a state law requiring employment agents to give a bond of two thousand dollars against fraudulent treatment of customers; and the cities further 'regulate' them by making them pay one hundred dollars license tax. Colorado has now twenty-one employment agencies; most of them in Denver.

"The Minnesota legislature likewise wants some of the last pennies wrung from the pockets of the idle workmen by employment agencies.

"The New York State legislature and the city of New York have each devised successful divisors, and now share in the proceeds of human-labor. All this is, however, of no benefit to the work-seeking men. If it harass the employment agent by making him give up some of his gain in the form of license, then must he wrench the more from his victims to keep even. It also induces him to send laborers to the remotest possible point as an insurance against their return to prosecute him."

The following extracts from the same address are given as touching the general subject:

"The interstate character of the business should interest Congress and a bill, similar to the Blair Labor Bill, but incorporating the employment office features of the Ohio law, should be passed. If Congress doubts its jurisdiction, let it investigate the matter and see what percentage of the droves of men shipped from state to state by employment agencies find employment when they get to their destination. Let them learn for themselves how many miners and railroad laborers, lured by employment agencies and carried free by the railroads to Iowa, Minnesota, Wyoming and Organ, have found there a crowded labor market, or a strike, or a pending reduction of wages, and been forced to tramp penniless and hungry back to their families and the places they started from.

"Everywhere in our land are 'Signal Service Stations' equipped at great expense to watch the wind blow. At one-tenth of the expense employers of labor and idle labor seeking employment could be brought together legitimately in every town and hamlet from Maine to California without expense to either. No fault is found with the 'Signal Service Stations;' but how much more human happiness would grow out of the Labor Signal Station.

"Even if the employment agencies of the cities were as honest as they are dishonest, they could be of no benefit to the laboring man out of employment unless he has money to pay the fees. The man who needs a situation most is the man without a dollar. To him the employment agency, honest or dishonest, may as well be in the New Jerusalem. Idleness is perhaps the greatest source of crime, and crime is the most expensive luxury the states and nation are enjoying just now."

THE SITUATION IN CHICAGO.

Doubtless many of the private employment agencies in Chicago are conducted with some degree of honesty; doubtless they do secure many positions for those from whom they receive fees; but there is every reason to believe that the most active of the Chicago agencies are worse than the worst of those described by reports from other states. The city is known to be honey-combed by private employment agencies, large and small, but as all of them do not see fit to have themselves so classified in the city directory, it is impossible to tell the number.

For many years it was the practice to issue a city license to private employment agencies, but in 1896 the ordinance was abolished, and no license has since been required. Tne record shows that during the last year in which the ordinance was in force, 196 licenses were issued at $100 each. This number seems small to one familiar with surface indications in all parts of the city, and possibly none but the better class ever gave themselves the trouble to purchase licenses; yet the fact is, that 196 of them did pay into the city treasury $19,600 for the privilege of exploiting the unemployed poor of the city for one year.

A local newspaper printed in Iron Mountain, Michigan, referred some time ago to the case of twelve men who had paid a well-known and still existing Chicago labor agency one dollar each for being sent to work on a large railroad contract at Iron Mountain. The railroad contractor had placed no order for men and could use none; so the twelve men had tried work in the pineries; not being used to that work, they had been dismissed; had reached Iron Mountain nearly starved and frozen, and the police department of Iron Mountain, as an act of charity, had arrested them on a charge of vagrancy and was providing them with shelter and food in the city jail until the weather got less severe.

During the recent severe industrial depression, it was charged through several of the Chicago papers, that certain sub-contractors clearing up the wreckage at the World's Fair Grounds, would employ only men who applied for work through a certain private employment agency; that each of the men gave the labor agency an order on their prospective employer for five dollars, to be paid from their first earnings; that they were allowed to work until they had earned a little more than enough to pay the labor agent, when they were discharged, and could only get back by going again to the labor

agency. These reports in the newspapers concerning this case were never denied by the contractors nor the labor agency, and while this bureau does not wish to vouch for their truthfulness, the practical similarity between these cases and those verified and reported by the officials of other states makes the acceptance of these statements possible.

The fees charged by Chicago private employment agencies are from one dollar up. A very few agencies, like the Mercantile Employment Agency, require no deposit in advance, but charge the whole of the applicant's first week's wages for their services. In these cases fees range from $2.50 to $25 each, according to the positions secured. By far the greater number of agencies require a deposit of one dollar and a part or all of the first week's or month's pay. Some of those requiring a deposit, will, upon frequent and urgent demand, return one-half of the deposit in case of failure to secure positions, the other half being retained, it is said, to pay for the advertising. Seldom, however, is anything refunded, and among the worst agencies the policy of shipping men to the remotest possible point to prevent prosecution, or demand for refund, is constantly adhered to.

The private employment agencies for domestic servants in Chicago, as elsewhere, charge a fee both ways, i. e., from the applicant for work and the applicant for help. That they agree to do nothing, is shown from the following copy of tickets issued to Chicago:

CHICAGO EXCHANGE.

LADIES' EMPLOYMENT BUREAU.

641 West Madison Street.

---

4 WEEKS' TICKET.

PRICE..... DATE.....189..

NAME.....

This ticket was purchased for the privilege to call at this office and interview servants, for advice, instructions, etc., regarding help, and with the understanding that there would be no refund, and that the AGENCY makes no guarantee.

MRS. CLARK, Prop'r.

That they do no more than the nothing they agree to do, could be testified to by many thousands of house-wives and domestics of Chicago.

Some idea of the magnitude of the business done by these agencies in Chicago, may be drawn from the fact that 600,934 persons registered for situations in one year in Boston, where these agencies are under great restrictions. It is true this does not mean that number of different individuals, since the same person often tries several agencies, or registers more than once during the year, yet the figure quoted does show the number of registration fees collected, and at the minimum Boston price of fifty cents, this meant the extortion of

over $300,000 per year from the unemployed of that city, and would mean at the uncontrolled prices charged in Chicago, practically a million dollars.

Commissioner Hall, of Missouri, showed in a report already referred to, that the admitted receipts of the employment agencies for men in Kansas City alone, was $64,464; while those for women received $6,103.50, a total of $70,567.50 for one year; and Mr. Hall states that in his opinion, these admitted receipts do not represent one-half the amount actually received by the agencies in question.

It is believed, therefore, that the cost of maintaining the free public employment offices, created by the bill which is herewith submitted to the General Assembly of Illinois, will not be one-half of one per cent of the amount paid to fraudulent private agencies every year, especially in years of industrial depression.

By way of emphasizing the recognized need for free information of this character, attention should be drawn to a number of philanthropic and charitable employment bureaus which exist in Chicago and make no charge to either partty. Very many churches have employment features; at one time the Hull House maintained an employment office; many, if not most of the trade unions have this feature more or less developed, restricted usually, however, to the trades interested; newspapers—notably the Chicago Inter-Ocean—have in periods of stress, given columns of valuable advertising space, free, to those seeking employment.

Some of the great department stores have free employment bureaus for the accommodation of customers. Up to September 1, 1898, Siegel, Cooper & Co. had conducted such a bureau in their store for several years. The number of applicants for work ran up to 200 and 300 per day, and places filled, or situations secured to 100 and 150 per day. Naturally this became burdensome and the bureau was abolished. Only female domestic and restaurant help was registered. September 1, or about that time, A. M. Rothschild & Co. opened a free employment bureau on the fifth floor of their department house. During the sixteen weeks, ending December 19, 1898, there were 3,957 applicants for work, and 2,591 permanent positions secured by this firm through their employment bureau, besides some ten or twelve temporary positions secured daily at restaurants. This restaurant help is not registered, but is sent out immediately on the call of any restaurant for additional help. This bureau only registers female domestic help, and in this alone has averaged 247 applicants for work per week.

Naturally these charitable employment bureaus conducted by societies or firms, do no feel justified in advertising for positions for the unemployed, nor in giving the time of competent men to the work of soliciting the coöperation of large employers of labor. They have not the facilities nor machinery for securing positions that a state free employment office would have. While they are doing good work, all and more than society has a right to expect of any of its members, yet they are inherently inadequate to the needs, and should be supplemented by the more thoroughly organized, equipped, and energetic offices conducted by the State.

CONCLUSION.

The foregoing somewhat lengthy treatment of this subject is justified by the consideration that very little is generally known either concerning the hardships which the private agencies impose upon multitudes of worthy and willing poor, or, on the other hand, concerning the efforts which have been made through governmental agencies, in this and other countries, to deliver the working people from this form of wrong. Therefore, information on this subject has been sought from every source and has been gathered here in rather large measure.

The story as here told and retold carries its own convincing conclusion as to the reality of the disabilities suffered by a large class who are least able to bear them, and the entire feasibility and possible success of relief measures undertaken by the State. It is doubtless true that the destitute unemployed in large cities constitute for the time a dependent class, as helpless as and more dangerous to the body politic than those unfortunates who are so abundantly provided for by public charities. Present conditions develop a class who prey upon the extremities of the needy people, and thus aggravate not only the individual desperation but the social disease which that begets and which it is easily within the power of the State to anticipate and alleviate. The exhibit of the results of public effort a home and abroad, directed to such alleviation, is intended to draw attention to the present need of legislation in this State.

As showing the extent of the field for such legislation in our own borders, it is developed, in the foregoingpa ges, that in the city of Boston, with less than half the population of Chicago, 119 private employment agencies received over six hundred thousand applications for work in a year; also that in St. Louis six private agencies received over one hundred thousand applications in a year, and that in Kansas City eighty-eight thousand applications were made in a year to twelve private agencies; moreover, that all these figures are probably understatements, having been obtained from the private agents themselves, all whose interests lie in minimizing the real number. But assuming the substantial completeness of the figures given for the city of Boston, which are doubtless the most trustworthy we have, and applying them to the 196 private agencies which were licensed in the city of Chicago in 1896, we are confronted with the startling probability that approximately a million applications for work must be made in the course of a year, to these tribute-gathering offices in that city.

Again, referring to the foregoing text for evidence of the efficiency of the free service rendered at public cost by various home and foreign governments, we find that partial returns from the various municipal offices in the city of Paris show that, in the year 1897, employment was secured, without cost to the applicant, for 47,979 persons, and that, in the first ten months of 1898, work was found for 26,270 others, and this, notwithstanding the fact that free agencies are also maintained in that city by 421 different trade unions, by 76 convents and by 59 friendly societies.

The five so-called "labor bureaus" in London and five in other cities of England, together with the agencies of the Salvation Army and of the Association for Befriending Young Servants, secured situations, free of charge, in 1898, for 14,904 persons out of 16,382 who made applications; in addition to these, 15 temporary registries were established for various periods, and special permanent offices have long been maintained in London for securing, without charge, employment for Seamen, for Discharged Soldiers, for Reserve Corps Soldiers, for Army and Navy Pensioners, and for Discharged Prisoners.

The free employment agencies in Germany secured, during the year ending July, 1898, occupation for 222,595 idle persons out of 387,991 who sought occupation.

The result of the operation of the law creating offices of this kind in the state of Ohio is found in a foregoing table to be a total of 103,112 situations secured in the five cities, Cincinnati, Cleveland, Columbus, Dayton and Toledo. In St. Louis an office imperfectly equipped obtained situations in 1898 for 4,661 men and women out of work. The California office, in 1896, had 18,920 applications and found places for 7,983 unemployed poor.

Attention is drawn to the further fact of significance that it is not alone those who patronize the private agencies who need the sort of relief afforded by a free public service. There is a class who have no last dollar to lose, who have already lost it, in the intelligence office or in the purchase of bread, and who can not even command the equivocal services of the private agency. One man conducting such an office in St. Louis says that only about half the number applying to him for work are able to pay the fee necessary for registration. What shall be said of these? The man who needs employment most of all is the man who really has nothing at all. These are the submerged, the helpless, the hopeless, a constant menace to society, for whom there is no relief except in such State help as will enable them to recover their footing and again become self-helping contributors to the common weal.

The foregoing principal facts and considerations, gleaned from the enlarged statements of the preceding pages, emphasize the two points it is desired to make, namely: That a great and expanding field undoubtedly exists in Chicago for the beneficent intervention of the State on behalf of the great number of unemployed which must always be found in that city; and second, that such intervention is prolific of promise of great public as well as private good, at a cost which must be regarded as trifling in comparison with the benefits legitimately to be expected from it.

England, France, Germany, Bavaria, New Zealand, Australia, and even Russia, representatives alike of the oldest and of the youngest civilizations, as well as numerous states in this country, have all reached the common conviction by a common experience, that the needs of the unemployed are of legitimate concern to the State.

Illinois is the seat of the second city, in size and consequence, in the country, having an industrial population conglomerate in character, always congested, restless, largely transient, drawn from everywhere by the allurement of possible employment which it is always difficult to obtain. No field could be wider, no need more imperative, than this for the permanent establishment of state employment offices for the gratuitous guidance and assistance of that large contingent which must always be out of work, and always seeking, often blindly for it.

GAS-WORKS TABLES.

TABLE I.—*Gas Works—Plants, Distributing*

Plant number	Ownership.	Year constructed	Present ownership dates from	Generating Plant—Coal Gas.			
				Style of Setting.	Boilers. Number.	Boilers. Total rated capacity—H. P.	Daily capacity—cubic feet.
1	Private.	1887	1890	*b*	....	.....	10,000
2	"	1895	1895	.....	....	.....	.....
3	"	1875	1894	.....	....	.....	.....
4	"	1882	1882	Regenerative	1	10	30,000
5	"	1874	1874	*b*	1	20	20,000
6	"	1868	1890	Regenerative	1	*e* 100	25,000
7	"	1892	1892	.....	....	.....	.....
8	"	1875	1878	Plain	....	.....	20,000
9	"	1889	1889	"	1	60	30,000
10	"	1876	1884	.....	....	.....	.....
11	"	1880	1880	.....	....	.....	.....
12	"	1876	1878	Plain	1	40	40,000
13	"	1874	1892	"	1	20	65,000
14	"	1858	1888	Regenerative	1	30	60,000
15	"	1873	1895	*b*	1	25	100,000
16	"	1869	1869	Plain	2	*e* 100	45,000
17	"	1870	1891	Regenerative	1	40	40,000
18	"	1874	1882	Plain	1	30	120,000
19	"	1868	1897	.....	....	.....	.....
20	"	1885	1885	Regenerative	2	30	200,000
21	"	1855	1895	"	2	120	150,000
22	"	*b*	1893	"	2	200	120,000
23	"	1865	1865	"	4	100	75,000
24	"	1869	1895	.....	....	.....	.....
25	"	1853	1853	Regenerative	1	60	288,000

b Not reported.
c Including super heater.
d Including wash box.

Equipment and Apparatus Owned.

Generating Plant—Water Gas.				Purifying Plant.			Gas Holders.		Street Mains.				Meters.		Plant number.
	Boilers.								Size (diameter, inches.)						
Generators	Number	Total rated capacity—H. P.	Daily capacity—cubic feet	Condensers	Scrubbers	Purifying boxes	Number	Total capacity—cubic feet	Largest	Smallest	Average	Total length in miles	Prepayment	Other	
					1		1	4,000	4	1	1.33	13.34		196	1
c 2	1	40	120,000	1	1	*d* 3	1	30,000	8	3	4.83	2.34		70	2
1	1	35	35,000	1	1	2	2	15,000	6	2	3.91	1.53		140	3
				1	1	4	1	10,000	6	2	3.21	5.5		150	4
				1	1	4	1	20,000	6	2	3.53	8		300	5
1	1	*e* 100	50,000	1	1	4	1	12,000	6	2	3.41	3.04		210	6
1	1	35	40,000		1	1	1	20,000	8	1	3.93	4.94		250	7
				1	1	4	2	34,000	6	2	4.12	5		275	8
				1	1	4	1	20,000	6	2	2.84	9.66		300	9
1	1	25	125,000	1	1	4	1	15,000	*b*	*b*	*b*	12		450	10
1	2	105	60,000	1	1	4	2	26,000	8	1	2.24	19.01		375	11
				1	1	4	1	35,000	8	1	2.63	14		604	12
				1		4	1	35,000	8	1	3.63	10.5		600	13
				2	2	4	1	30,000	6	$1\frac{1}{2}$	3.38	5.5		411	14
				1	1	4	2	32,000	8	$1\frac{1}{4}$	2.89	15.32		625	15
				2	1	4	2	61,000	6	1	3.26	9.14		650	16
				3	1	4	1	50,000	12	3	5.16	11.75		700	17
				3	1	4	1	60,000	8	$1\frac{1}{4}$	4.27	8.5		525	18
1	*f*	*f*	250,000	1	1	4	2	48,000	6	3	4.41	17.24	3	973	19
1	1	15	130,000	1	3	6	1	40,000	8	3	4.47	25		700	20
				1	1	2	2	68,000	12	$1\frac{1}{4}$	3.85	17.19	36	912	21
2	2	200	672,000	2	2	6	2	85,000	12	3	*b*	19.89		1,500	22
2			250,000	2	2	4	3	245,000	16	2	*b*	30	30	1,370	23
2	2	110	350,000	1	2	4	2	365,000	16	4	6.09	33.33		2,893	24
2			90,000	2	1	4	3	270,000	10	2	4.35	21.89		3,116	25

e Power furnished to another plant.

f Power furnished by another plant.

TABLE II.—*Gas Works—Fuel and Water Conditions.*

Plant number	Ownership.	Fuel.					Water supply — cost per year.
		Coal.		Other.			
		Kind.	Cost per 2,000 pounds.	Kind.	Unit of price.	Cost per unit.	
1	Private.			Wood	Cord	$3 50	
2	"	Bituminous	$0 65				$200 00
3	"	*a* Bituminous	1 10				25 00
4	"	Bituminous	1 50	Coke	*b*	*b*	30 00
5	"	Bituminous	1 65	"	*b*	*b*	10 00
6	"	*a* Bituminous	18¾				150 00
7	"	Bituminous	1 21				30 00
8	"			Coke	*b*	*b*	40 00
9	"			"	*b*	*b*	
10	"	Bituminous	90				20 00
11	"	Bituminous	1 75				100 00
12	"	Bituminous	1 37½	Coke	*b*	*b*	
13	"	*a* Bituminous	50	"	*b*	*b*	
14	"			"	*b*	*b*	50 00
15	"	*a* Bituminous	65	"	*b*	*b*	60 00
16	"			"	*b*	*b*	25 00
17	"	Bituminous	85	"	*b*	*b*	50 00
18	"			"	*b*	*b*	
19	"	Bituminous	*c*				73 00
20	"	Bituminous	1 05				75 00
21	"	Bituminous	1 55	Coke	*b*	*b*	
22	"	*a* Bituminous	1 10	"	*b*	*b*	
23	"	Bituminous	1 60	"	*b*	*b*	120 00
24	"	Bituminous	1 85				59 00
25	"	Bituminous	3 10	Coke	*b*	*b*	342 00

a Slack.

b No cost. By-product from gas coal used.

c $1.15 and $3.00.

TABLE III.—*Gas Works—Investment.*

Plant number	Ownership	Land.		Building.		Manufacturing Equipment.		Holders.		Mains.		Meters.		Teams, Tools and Other Accessories.		Total investment.	Plant number
		Cost	Per cent of total investment.	Cost	Per cent of total investment.	Cost.	Per cent of total investment.	Cost.	Per cent of total investment.	Cost.	Per cent of total investment.	Cost.	Per cent of total investment.	Cost.	Per cent of total investment.		
1	Private ...	$600	3.18	$1,000	5.30	$5,000	26.49	$3,000	15.89	$7,275	38.54	$2,000	10.60	.....	.....	$18,875	1
2	" ..	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	32,339	2
3	" ..	850	5.00	3,000	17.65	*b*	*b*	*b*	*b*	*c* 12,400	*e*	650	3.82	$100	0.59	17,000	3
4	" ..	500	2.08	5,000	20.83	4,500	18.75	3,000	12.50	10,000	41.67	1,000	4.17	.....	.....	24,000	4
5	" ..	500	.83	2,250	3.75	10,000	16.67	5,000	8.33	40,000	66.67	2,150	3.58	100	.17	60,000	5
6	" ..	1,000	3.33	3,000	10.00	10,000	33 34	3,200	10.67	9,000	30.00	2,800	9.33	1,000	3.33	30,000	6
7	" ..	600	2.37	1,800	7.10	6,350	25 05	4,000	15.78	11,000	43.39	1,600	6.31	.....	.....	25,350	7
8	" ..	500	1.66	800	2.67	2,000	6.67	6,000	20.00	18,200	60.67	2,000	6.67	500	1.66	30,000	8
9	" ..	500	.66	7,500	9.87	15,000	19.74	12.000	15.79	37,000	48.68	2,400	3.16	1,600	2.10	76,000	9
10	" ..	1,500	3.33	2,000	4.44	7,500	16.67	4,000	8.89	25,400	56.44	3,000	6.67	1,600	3.56	45,000	10
11	" ..	3,500	7.29	3,500	7.29	10,000	20.83	5,000	10.42	23,400	48.75	2,500	5.21	100	.21	48,000	11
12	" ..	5,543	7.59	4,000	5.48	8,900	12.19	6,000	8.21	44,656	61.15	3,610	4.94	321	.44	73,030	12
13	" ..	4,000	6.67	3,000	5.00	15,000	25.00	5,000	8.33	30,000	50.00	2,000	3.33	1,000	1.67	60,000	13
14	" ..	3,000	3.16	5,000	5.27	25,000	26.33	7,000	7.37	48,442	51.02	5,000	5.27	1,500	1.58	94,942	14
15	" ..	13,000	13.00	12,000	12.00	25,000	25.00	5,000	5.00	35,000	35.00	8,000	8.00	2,000	2.00	100,000	15
16	" ..	700	1.60	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	43,700	16
17	" ..	6,500	5.90	18,000	7.26	28,000	25.42	8,000	7.26	50,000	45.40	7,000	6.36	2,636	2 40	110,136	17
18	" ..	5,000	4.00	15,000	12.00	10,000	8.00	24,000	19.20	65,000	52.00	5,000	4.00	1,000	.80	125,000	18
19	" ..	5,000	3.76	20,000	15.03	25,000	18.79	14,000	10.52	60,000	45.10	6,500	4.88	2,551	1.92	133,051	19
20	" ..	4,500	3.91	15,000	13.04	35,100	30.52	10,000	8.70	39,500	34.35	10,000	9.13	400	.35	115,000	20
21	" ..	900	.98	1,200	1.31	15,000	16.31	10,000	10.87	57,415	62.44	5,691	6.19	1,750	1.90	91,956	21
22	" ..	5,000	2.08	10,000	4.15	100,000	41.49	25,000	10.37	85,000	35.27	15,000	6.22	1,000	.42	241,000	22
23	" ..	5,000	4.00	5,000	4.00	15,000	12.00	30,000	24.00	56,700	45.36	12,800	10.24	500	.40	125,000	23
24	" ..	*d*	*d*	8,040	4.44	17,980	9.92	46,350	25.58	92,521	51.06	14,814	8.17	1,500	.83	181,205	24
25	" ..	8,780	2.05	20,000	4.67	194,607	45.44	32,186	7.52	110,176	25.73	47,083	10.99	15,435	3.60	428,267	25

a Not reported.
b Included in cost of mains.
c Including cost of manufacturing equipment and holders.
d The land is leased.
e Not obtainable, for reasons stated in note *c*.

TABLE IV.—*Gas*

Plant number	Ownership	From Sale of Gas.					
		For lighting		For cooking and heating.		For power.	
		Amount	Per cent of total gross income	Amount	Per cent of total gross income	Amount	Per cent of total gross income
1	Private	$5,297	83.92	$1,000	15.84	.....	.....
2	"	1,483	80.47	360	19.53	.....	.....
3	"	*a* 3,321	*a* 100.00	*b*	*b*	.....	.....
4	"	4,841	70.83	1,247	18.24	.....	.....
5	"	3,000	48.02	2,805	44.90	$36	0.58
6	"	4,062	67.77	535	8.93	32	.53
7	"	4,440	79.07	1,080	19.23	60	1.07
8	"	3,734	45.56	3,437	41.93	.....	.....
9	"	5,964	70.88	1,425	16.94	144	1.71
10	"	9,375	69.65	3,125	23.22	.....	.....
11	"	9,169	79.67	1,835	15.94	105	.91
12	"	6,874	54.30	2,210	17.46	180	1.42
13	"	9,971	60.01	3,071	18.48	148	.89
14	"	5,250	45.00	4,780	40.97	.....	.....
15	"	10,500	57.46	3,500	19.15	.....	.....
16	"	10,247	60.23	4,927	28.96	37	.22
17	"	12,028	64.75	4,000	21.53	148	.80
18	"	10,013	43.84	8,400	36.78	70	.31
19	"	18,201	60.51	5,201	17.29	40	.13
20	"	10,327	33.00	9,000	28.76	2,000	6.39
21	"	29,704	73.67	.....	.....	50	.12
22	"	25,916	63.27	10,840	26.47	.....	.....
23	"	25,886	68.20	8,500	22.40	.....	.....
24	"	50,406	67.32	22,375	29.88	900	1.20
25	"	55,874	65.05	20,251	23.58	.....	.....

a Including amount received for gas sold for cooking and heating.

Works—Gross Income.

TOTAL.		FROM RENTS AND SALES OF APPLIANCES.		FROM SALES OF BY PRODUCTS AND RESIDUALS.		FROM ALL OTHER SOURCES.		Total gross income	Plant number.
Amount.	Per cent of total gross income.	Amount.	Per cent of total gross income.	Amount.	Per cent of total gross income.	Amount.	Per cent of total gross income.		
$6,297	99.76	.....	.....	.....	.....	$15	0.24	6,312	1
1,843	100.00	.....	.....	.....	.....	.....	.....	1,843	2
3,321	100.00	.....	.....	.....	.....	.....	.....	3,321	3
6,088	89.07	$417	6.10	$330	4.83	.....	.....	6,835	4
5,841	93.50	210	3.36	146	2.34	50	.80	6,247	5
4,629	77.23	1,000	16.68	340	5.67	25	.42	5,994	6
5,580	99.37	.....	.....	5	.09	30	.54	5,615	7
7,171	87.49	450	5.49	575	7.02	.....	.....	8,196	8
7,533	89.53	.....	.....	881	10.47	.....	.....	8,414	9
12,500	92.87	960	7.13	.....	.....	.....	.....	13,460	10
11,109	96.52	400	3.48	.....	.....	.....	.....	11,509	11
9,264	73.18	1,100	8.69	2,296	18.13	.....	.....	12,660	12
13,190	79.38	1,985	11.95	1,440	8.67	.....	.....	16,615	13
10,030	85.97	281	2.41	1,355	11.62	.....	.....	11,666	14
14,000	76.61	1,400	7.66	1,775	9.71	1,100	6.02	18,275	15
15,211	89.41	315	1.85	1,256	7.38	232	1.36	17,014	16
16,176	87.08	182	.98	2,219	11.94	.....	.....	18,577	17
18,483	80.93	1,611	7.05	2,736	11.98	9	.04	22,839	18
23,442	77.93	5,016	16.68	1,370	4.56	251	.83	30,079	19
21,327	68.15	5,725	18.30	4,240	13.55	.....	.....	31,292	20
29,754	73.79	4,269	10.59	6,231	15.46	65	.16	40,319	21
36,756	89.74	2,134	5.21	2,067	5.05	.....	.....	40,957	22
34,386	90.60	.....	.....	3,568	9.40	.....	.....	37,954	23
73,681	98.40	756	1.01	444	.59	.....	.....	74,881	24
76,125	88.63	.....	.....	9,503	11.06	266	.31	85,894	25

b Included in amount received for gas sold for lighting.

TABLE V.—*Gas Works*—

Plant number.	Ownership.	Report for the year ending—	General Expenses.								Wages.	
			Salaries of officers, superintendents, clerks, etc.	Office supplies and expenses	Insurance	Legal expenses and damages	Licenses and royalties	Other	Total	Per cent of total manufacturing cost of production	Total	Per cent of total manufacturing cost of production
1	Private	April 30, 1898	$413	$22	.....	.....	.....	.....	$435	10.37	$660	15.73
2	"	June 30, 1898	720	96	$83	.....	.....	.....	899	17.97	1,386	27.70
3	"	Jan. 1, 1898	600	15	.....	.....	.....	.....	615	14.20	780	18.02
4	"	May 1, 1898	1,056	34	31	.....	.....	.....	1,121	14.15	1,190	15.02
5	"	Dec. 31, 1897	500	46	.....	.....	.....	.....	546	6.84	1,463	18.32
6	"	Dec. 31, 1897	520	33	22	.....	.....	$167	742	10.59	2,410	34.39
7	"	Feb. 15, 1898	480	42	37	.....	.....	.....	559	11.65	725	15.12
8	"	Dec. 31, 1897	918	180	10	.....	.....	.....	1,108	18.55	1,440	24.11
9	"	Nov. 30, 1897	1,300	150	.....	.....	.....	100	1,550	14.32	2,110	19.50
10	"	May 1, 1898	2,000	400	.....	.....	.....	.....	2,400	22.78	660	6.26
11	"	Dec. 31, 1897	1,800	255	.....	$25	.....	.....	2,080	19.95	1,188	11.39
12	"	Dec. 31, 1897	750	275	15	.....	.....	.....	1,040	8.21	1,875	14.80
13	"	Jan. 1, 1898	1,320	212	10	133	.....	50	1,725	12.74	2,100	15.51
14	"	Dec 31, 1897	1,800	242	17	.....	.....	.....	2,059	15.09	2,107	15.44
15	"	April 1, 1898	1,200	136	.....	.....	.....	.....	1,336	9.52	2,400	17.10
16	"	Dec. 31, 1897	740	64	.....	.....	.....	10	814	7.39	3,150	28.61
17	"	May 1, 1898	1,100	144	.....	.....	.....	.....	1,244	8.69	5,109	35.67
18	"	Dec. 31, 1897	1,440	220	110	.....	.....	360	2,130	8.90	8,364	34.96
19	"	Mar. 31, 1898	2,175	635	.....	.....	.....	737	3,547	10.70	3,957	11.94
20	"	Jan. 1.1898	3,000	1,100	25	.....	.....	.....	4,125	13.75	4,488	14.97
21	"	Dec. 31, 1897	3,980	707	35	.....	.....	.....	4,722	18.71	4,560	18.06
22	"	Oct. 1, 1897	3,978	869	888	.....	.....	.....	5,735	14.28	4,440	11.06
23	"	Jan. 1, 1898	2,460	625	.....	.....	.....	.....	3,085	11.30	5,040	18.46
24	"	Dec. 31, 1897	5,280	1,826	118	150	.....	2,124	9,498	19.69	6,670	13.83
25	"	May 31, 1898	5,070	773	51	35	.....	.....	5,929	9.27	7,312	11.44

a Not obtainable, cost not reported.

b Not obtainable, total investment exclusive of land not reported.

c Also coke, by-product of gas plant used as retort fuel.

Cost of Production (First Part).

Materials and Supplies.					General Distributing Expenses.		Maintenance.							Plant number.
							Actual Disbursements for Repairs and Renewals.							
							On works.		On mains.		Other.	Total.	Per cent of total investm't exclusive of land	
Fuel.	Materials used in manufacture	Other supplies	Total	Per cent of total manufacturing cost of production	Totals	Per cent of total manufacturing cost of production	Total	Per cent of cost	Total	Per cent of cost				
$400	$1,215	$12	$1,627	38.77	$130	3.10	$300	6.00	.....	.....	.....	$300	1.64	1
50	756	155	961	19.21	46	.92	124	*a*	.....	.....	.....	124	*b*	2
226	1,320	9	1,555	35.91	.....	.....	307	*a*	.....	.....	$122	429	2.65	3
c 42	1,295	55	1,392	17.57	1,119	14.13	975	21.67	.....	.....	25	1,000	4.25	4
c 169	1,470	10	1,649	20.65	1,886	23.61	442	4.42	$59	.15	.....	501	.84	5
c 113	1,158	45	1,316	18.78	1,150	16.41	.....	.....	.....	.....	.....	.....	.....	6
147	2,018	35	2,200	45.87	35	.73	40	.63	.....	.....	.....	40	.16	7
d	1,877	40	1,917	32.10	450	7.54	70	3.50	130	.71	.....	200	.68	8
d	1,392	235	1,627	15.03	1,056	9.76	275	1.83	72	.19	282	629	.83	9
151	1,995	20	2,166	20.56	1,525	14.47	375	5.00	50	.20	.....	425	.98	10
303	2,542	20	2,865	27.47	1,025	9.83	200	2.00	650	2.78	.....	850	1.91	11
c 260	3,416	89	3,765	29.72	1,065	8.40	567	6.37	275	.62	144	986	1.46	12
c 100	3,500	100	3,700	27.33	1,614	11.92	300	2.00	300	1.00	150	750	1.34	13
d	4,441	100	4,541	33.28	281	2.06	.....	.....	150	.31	10	160	.18	14
c 59	5,060	85	5,204	37.08	1,442	10.28	162	.65	.....	.....	.....	162	.19	15
d	1,665	135	1,800	16.35	937	8.51	400	*a*	400	*a*	70	870	2.02	16
c 66	3,496	84	3,646	25.46	218	1.52	600	2.14	.....	.....	196	796	.77	17
d	5,123	160	5,283	22.08	2,447	10.23	.....	.....	.....	.....	.....	.....	.....	18
1,609	4,702	*f* 289	6,600	19.91	4,576	13.80	4,073	16.29	1,101	1.84	605	5,779	4.51	19
920	6,059	100	7,079	23.61	6,475	21.59	2,574	7.33	522	1.32	.....	3,096	2.80	20
c 242	8,603	185	8,430	33.40	4,555	18.04	.....	.....	195	.34	60	255	.28	21
c 1,160	10,880	1,691	13,671	34.05	4,113	10.25	.....	.....	691	.81	.....	691	.29	22
1,429	10,076	50	11,555	42.32	1,000	3.66	200	1.33	300	.53	124	624	.52	23
1,037	11,451	322	12,810	26.55	6,092	12 63	3,000	16.69	6,006	6.49	.....	9,006	4.97	24
c 644	23,280	14	23,938	37.43	100	.16	800	.41	2,000	1.82	1,547	4,347	1.04	25

d By-product from gas coal used.

f Including $180.00 paid for steam power rented.

TABLE V.—*Gas Works*—

Plant number	OWNERSHIP.	MAINTENANCE.							
		ESTIMATED DEPRECIATION.							
		ON BUILDINGS.		ON MANUFACTURING EQUIPMENT.		ON DISTRIBUTING SYSTEM, METERS AND APPARATUS.		TOTAL.	
		Total	Per cent of cost.	Total	Per cent of cost.	Total	Per cent of cost.	Amount	Per cent of total investment exclusive of land
1	Private	$30	3.00	$400	8.00	$614	5.00	$1,044	5.71
2	"	*a*	*a*	*a*	*a*	*c* 1,587	*f*	1,587	*b*
3	"	45	1.50	*d* 868	*g*	*e* 38	*e*	951	5.89
4	"	250	5.00	450	10.00	1,400	10.00	2,100	8.94
5	"	23	1.00	500	5.00	1,418	3.00	1,941	3.26
6	"	90	3.00	500	5.00	800	5.00	1,390	4.79
7	"	90	5.00	317	5.00	830	5.00	1,237	5.00
8	"	16	2.00	40	2.00	801	3.00	857	2.90
9	"	150	2.00	1,050	7.00	2,650	5.00	3,850	5.10
10	"	40	2.00	600	8.00	2,720	8.00	3,360	7.72
11	"	70	2.00	800	8.00	1,550	5.00	2,420	5.44
12	"	320	8.00	890	10.00	2,729	5.00	3,939	5.84
13	"	90	3.00	900	6.00	2,660	7.00	3,650	6.52
14	"	150	3.00	1,250	5.00	3,097	5.00	4,497	4.89
15	"	240	2.00	1,250	5.00	2,000	4.00	3,490	4.01
16	"	*a*	*a*	*a*	*a*	*c* 3,440	*f*	3,440	8.00
17	"	160	2.00	1,120	4.00	2,029	3.00	3,309	3.19
18	"	450	3.00	500	5.00	4,750	5.00	5,700	4.75
29	"	300	1.50	1,750	7.00	6,644	8.00	8,694	6.79
20	"	300	2.00	1,404	4.00	3,020	5.00	4,724	4.28
21	"	24	2.00	450	3.00	2,246	3.00	2,720	2.99
22	"	200	2.00	5,000	5.00	6,300	5.00	11,500	4.88
23	"	250	5.00	750	5.00	5,600	5.00	6,000	5.00
24	"	161	2.00	899	5.00	3,104	2.00	4,164	2.30
25	"	400	2.00	11,677	6.00	10,244	5.00	22,321	5.32

a Included in depreciation on distribution system, meters and apparatus.

b Not obtainable, total investment exclusive of land not reported.

c Including depreciation on buildings and manufacturing equipment.

d Including depreciation on holders and mains.

Cost of Production—(Second Part).

Total.			Total Cost of Production		Taxes.			Total Cost of Production and Taxes.		Plant number.
Amount	Per cent of total investment exclusive of land	Per cent of total manufacturing cost of production	Including estimated depreciation	Excluding estimated depreciation	Real estate and personal	Franchise and income	Total	Including estimated depreciation	Excluding estimated depreciation	
$1,344	7.35	32.03	$4,196	$3,152	$73	.....	$73	$4,269	$3,225	1
1,711	*b*	34.20	5,003	3,416	256	.....	256	5,259	3,672	2
1,380	8.54	31.87	4,330	3,379	41	.....	41	4,371	3,420	3
3,100	13.19	39.13	7,922	5,822	99	.....	99	8,021	5,921	4
2,442	4.10	30.58	7,986	6,046	58	.....	58	8,044	6,104	5
1,390	4.79	19.83	7,008	5,618	164	.....	164	7,172	5,782	6
1,277	5.16	26.63	4,796	3,559	131	.....	131	4,927	3,690	7
1,057	3.58	17.70	5,972	5,115	257	.....	257	6,229	5,372	8
4,479	5.93	41.39	10,822	6,972	164	.....	164	10,986	7,136	9
3,785	8.70	35.93	10,536	7,176	200	.....	200	10,736	7,376	10
3,270	7.35	31.36	10,428	8,008	364	$42	406	10,834	8,414	11
4,925	7.30	38.87	12,670	8,731	433	.....	433	13,103	9,164	12
4,400	7.86	32.50	13,539	9,889	207	.....	207	13,746	10,096	13
4,657	5.07	34.13	13,645	9,148	712	.....	712	14,357	9,860	14
3,652	4.20	26.02	14,034	10,544	511	.....	511	14,545	11,055	15
4,310	10.02	39.14	11,011	7,571	192	.....	192	11,203	7,763	16
4,105	3.96	28.66	14,322	11,013	666	.....	666	14,988	11,679	17
5,700	4.75	23.83	23,924	18,224	505	.....	505	24,429	18,729	18
14,473	11.30	43.65	33,153	24,459	1,253	.....	1,253	34,406	25,712	19
7,820	7.08	26.08	20,987	25,263	395	.....	395	30,382	25,658	20
2,975	3.27	11.79	25,242	22,522	1,205	.....	1,205	26,447	23,727	21
12,191	5.17	30.36	40,150	28,650	896	.....	896	41,046	29,546	22
6,624	5.52	24.26	27,304	21,304	929	....	929	28,233	22,233	23
13,170	7.27	27.30	48,240	44,076	702	.....	702	48,942	44,778	24
26,668	6.36	41.70	63,947	41,626	2,621	.....	2,621	66,568	44,247	25

e Not including depreciation on holders and mains.

f Not obtainable for reasons stated in note *c*.

g Not obtainable for reasons stated in note *d*.

TABLE VI.—*Gas Works*—

Plant number.	OWNERSHIP.	Report for the year ending—	Candle power of gas at works.	QUANTITY OF GAS TO BE ACCOUNTED FOR.		
				On hand at beginning of year—cubic feet.	Made during year—cubic feet.	Total—cubic feet.
1	Private	April 30, 1898	20	2,000	1,142,180	1,144,180
2	"	June 30, 1898	22	5,000	1,721,000	1,726,000
3	"	Jan. 1, 1898	24	6,022	2,198,200	2,204,222
4	"	May 1, 1898	18	7,000	3,084,957	3,091,957
5	"	Dec. 31, 1897	17	10,000	3,912,807	3,922,807
6	"	Dec. 31, 1897	22	6,000	3,940,130	3,946,130
7	"	Feb. 15, 1898	18	10,000	4,639,000	4,649,000
8	"	Dec. 31, 1897	....	18,000	6,550,000	6,568,000
9	"	Nov. 30, 1897	17	15,000	6,636,770	6,651,770
10	"	May 1, 1898	23	7,000	7,612,000	7,619,000
11	"	Dec. 31, 1897	22	5,000	8,440,000	8,445,000
12	"	Dec. 31, 1897	20	35,000	9,170,800	9,205,800
13	"	Jan. 1, 1898	18	20,000	10,386,915	10,406,915
14	"	Dec. 31, 1897	18	5,600	10,732,900	10,738,500
15	"	April 1, 1898	20	32,000	12,768,670	12,800,670
16	"	Dec. 31, 1897	16	10,000	14,060,720	14,070,720
17	"	May 1, 1898	18	20,000	14,203,500	14,223,500
18	"	Dec. 31, 1897	17	27,303	15,377,100	15,404,403
19	"	Mar. 31, 1898	22	40,000	19,212,000	19,252,000
20	"	Jan. 1, 1898	23	38,000	23,455,900	23,493,900
21	"	Dec. 31, 1897	18	16,500	24,609,300	24,625,800
22	"	Oct. 1, 1897	22	50,000	33,217,000	33,267,000
23	"	Jan. 1, 1898	23	200,000	35,000,000	35,200,000
24	"	Dec. 31, 1897	23	200,000	62,404,000	62,604,000
25	"	May 31, 1898	17½	200,200	66,972,900	67,173,100

a Including quantity used at works and offices.

b Included in quantity lost by leakage.

c Included in quantity of gas sold.

—*Results of Operation.*

QUANTITY OF GAS ACCOUNTFD FOR.								Plant unmber.....
Lost by Leakage.		Used at Works and Offices.		Sold.		On Hand at End of Year.		
Cubic feet.	Per cent of total.	Cubic feet.	Per cent of total.	Cubic feet.	Per cent of total.	Cubic feet.	Per cent of total.	
104,016	9.09	18,000	1.57	1,020,164	89.16	2,000	0.18	1
356,000	20.63	20,200	1.17	1,344,800	77.91	5,000	.29	2
a 300,700	*a* 13.64	*b*	*b*	1,897,500	86.09	6,022	.27	3
175,000	5.66	80,000	2.59	2,829,957	91.53	7,000	.22	4
456,934	11.65	60,000	1.53	3,393,873	86.52	12,000	.30	5
1,149,000	29.12	220,900	5.60	2,570,230	65.13	6,000	.15	6
260,000	5.59	50,000	1.08	4,329,000	93.12	10,000	.21	7
1,000,000	15.23	100,000	1.52	5,450,000	82.98	18,000	.27	8
856,000	12.87	36,000	.54	5,749,770	86.44	10,000	.15	9
510,000	6.69	40,000	.53	7,062,000	92.69	7,000	.09	10
750,000	8.88	84,000	.99	7,606,000	90.07	5,000	.06	11
1,058,100	11.49	345,000	3.75	7,767,700	84 38	35,000	.38	12
1,354,815	13.02	*c*	*c*	*a* 9,032,100	*a* 86 79	20,000	.19	13
3,602,700	33.55	105,800	.98	7,000,000	65.19	30,000	.28	14
1,605,670	12.54	120,000	.94	11,043,000	86.27	32,000	.25	15
750,000	5.33	50,000	.36	13,250,720	94.17	20,000	.14	16
1,777,800	12.50	1,567,600	11.02	10,856,600	76.33	21,500	.15	17
2,254,726	14.64	320,400	2.08	12,799,100	83.09	30,177	.19	18
940,000	4.88	240,000	1.25	18,032,000	93.66	40,000	.21	19
1,928,300	8.21	527,100	2.24	21,000,500	89.39	38,000	.16	20
1,573,000	6.39	401,300	1.63	22,627,500	91.88	24,000	.10	21
6,785,000	20.40	420,000	1.26	26,012,000	78.19	50,000	.15	22
3,500,000	9.94	240,000	.68	31,260,000	88.81	200,000	.57	23
2,172,300	3.47	355,000	.57	59,876,700	95.64	200,000	.32	24
13,735,800	20.45	310,100	.46	52,960,100	78.84	167,100	.25	25

TABLE VII.—*Gas Works*—

Plant number.	REPORT FOR YEAR ENDING—	GROSS			
		FROM PUBLIC SERVICE.		FROM COMMERCIAL SERVICE.	
		Amount.	Per cent of total gross income.	Amount.	Per cent of total gross income.
1	April 30, 1898	$297	4.70	$6,000	95.06
2	June 30, 1898	54	2.93	1,789	97.07
3	January 1, 1898	.....	.....	3,321	100.00
4	May 1, 1868	1,655	24.21	4,433	64.86
5	December 31, 1897	.....	.....	5,841	93.50
6	December 31, 1897	80	1.34	4,549	75.89
7	February 15, 1898	.....	.....	5,580	99.38
8	December 31, 1897	.....	.....	7,171	87.49
9	November 30, 1897	2,440	29.00	5,093	60.53
10	May 1, 1898	.....	.....	12,500	92.87
11	December 31, 1897	1,932	16.79	9,177	79.74
12	December 31, 1897	112	.89	9,152	72.29
13	January 1, 1898	.....	.....	13,190	79.39
14	December 31, 1897	.....	.....	10,030	85.98
15	April 1, 1898	.....	.....	14,000	76.61
16	December 31, 1897	926	5.44	14,285	83.96
17	May 1, 1898	.....	.....	16,176	87.08
18	December 31, 1897	.....	.....	18,483	80.93
19	March 31, 1898	.....	.....	23,442	77.93
20	January 1, 1898	.....	.....	21,327	68.15
21	December 31, 1897	527	1.31	29,227	72.49
22	October 1, 1897	156	.38	36,600	89.36
23	January 1, 1898	.....	.....	34,386	90.60
24	December 31, 1897	2,116	2.83	71,565	95.57
25	May 31, 1898	.....	.....	76,125	88.63

Profit and Loss.

INCOME.			Total cost of production, including depreciation and taxes.	NET PROFIT.			Net loss.	Plant number.
FROM ALL OTHER SOURCES.		Total.		Amount.	Per cent of gross income.	Per cent on total investment.		
Amount.	Per cent of total gross income.							
$15	0.24	$6,312	$4,269	$2,043	32.37	10.82	.....	1
.....	.....	1,843	5,259	.....	.....	.....	$3,416	2
.....	.....	3,321	4,371	.....	.....	.....	1,050	3
747	10.93	6,835	8,021	.....	.....	.....	1,186	4
406	6.50	6,247	8,044	.....	.....	.....	1,797	5
1,365	22.77	5,994	7,172	.....	.....	.....	1,178	6
35	.62	5,615	4,927	688	12.25	2.71	.....	7
1,025	12.51	8,196	6,229	1,967	24.00	6.56	.....	8
881	10.47	8,414	10,986	.....	.....	.....	2,572	9
960	7.13	13,460	10,736	2,724	20.24	6.05	.....	10
400	3.47	11,509	10,834	675	5.86	1.41	.....	11
3,396	26.82	12,660	13,103	.....	.....	.....	443	12
3,425	20.61	16,615	13,746	2,869	17.27	4.78	.....	13
1,636	14.02	11,666	14,357	.....	.....	.....	2,691	14
4,275	23.39	18,275	14,545	3,730	20.41	3.73	.....	15
1,803	10.60	17,014	11,203	5,811	34.15	13.30	.....	16
2,401	12.92	18,577	14,988	3,589	19.32	3.26	.....	17
4,356	19.07	22,839	24,429	.....	.....	.....	1,590	18
6,637	22.07	30,079	34,406	.....	.....	.....	4,327	19
9,965	31.85	31,292	30,382	910	2.91	.79	.....	20
10,565	26.20	40,319	26,447	13,872	34.41	15.09	.....	21
4,201	10.26	40,957	41,046	.....	.....	.....	89	22
3,568	9.40	37,954	28,233	9,721	25.61	7.78	.....	23
1,200	1.60	74,881	48,942	25,939	34.64	14.31	.....	24
9,769	11.37	85,894	66,568	19,326	22.50	4.51	.....	25

TABLE VIII.—*Gas Works*—

Plant number	OWNERSHIP.	REPORT FOR YEAR ENDING—	LIGHTING								
			GAS CONSUMED BY PRIVATE USERS.								
			ORDINARY METER SERVICE.		PREPAYMENT METER SERVICE.						
			Quantity used during year—cubic feet	Price per 1,000 cubic feet	Meter in service	Quantity used during year—cubic feet	Unit of price	Price per 1,000 cubic feet	Total quantity—cubic feet
1	Private	April 30, 1898	781,250	*a* $8 00					781,250
2	"	June 30, 1898	992,000	1 50					992,000
3	"	Jan. 1, 1898	*c* 1,897,500	*d* 2 00					1,897,500
4	"	May 1, 1898	1,568,504	*g* 2 50					1,568,504
5	"	Dec. 31, 1897	1,500,000	*h* 2 72					1,500,000
6	"	"	2,152,430	2 00					2,152,430
7	"	Feb. 15, 1898	3,417,000	*i* 2 00					3,417,000
8	"	Dec. 31, 1898	2,700,000	1 50					2,700,000
9	"	Nov. 30, 1897	2,374,300	*j* 1 50					2,374,300
10	"	May 1, 1898	5,296,500	*m* 2 00					5,296,500
11	"	Dec. 31, 1897	4,857,000	*n* 1 50					4,857,000
12	"	"	5,295,700	*o* 2 00					5,295,700
13	"	Jan. 1, 1898	6,647,400	*q* 1 75					6 647,400
14	"	Dec. 31, 1897	3,500,000	*r* 1 60					3,500,000
15	"	April 1, 1898	8,266,000	*t* 1 50					8,266,000
16	"	Dec. 31, 1897	7,169,500	*v* 1 50					7,169,500
17	"	May 1, 1898	8,043,450	*y* 1 60					8,043,450
18	"	Dec. 31, 1897	6,749,100	*z* 1 60					6,749,100
19	"	Mar. 31, 1898	13,990,000	*aa* 1 50	3	10,000	$0 25	$1 50	14,000,000
20	"	Jan. 1, 1898	10,000,500	*bb* 1 50					10,000,500
21	"	Dec. 31, 1897	*c* 22,387,737	*ee* 1 35	36	62,263	25	1 35	22,450,000
22	"	Oct. 1, 1897	17,496,400	*ii* 2 00					17,496,400
23	"	Jan. 1, 1898	22,445,000	*jj* 1 40	30	1,000,000	25	*jj* 1 40	23,445,000
24	"	Dec. 31, 1897	35,769,300	*kk* 1 50					35,769,300
25	"	May 31, 1898	36,759,000	*q* 1 75					36,759,000

Prices of Light, etc., Service.

Plant number	Gas Consumed by Municipality.										
	Total quantity—cubic feet	Contract Service.								Ordinary Meter Service.	
		Other lamps.				Welsbach type lamps.					
		Price (when bought) or cost (when made) per lamp per year	Total hours of service during year	Capacity—cubic feet per hour	Number in service	Price includes mantle renewals	Price (when bought) or cost (when made) per lamp per year	Total hours of service during year	Number in service	Price (when bought) or cost (when made) per 1,000 cubic feet	Quantity used during year—cubic feet
1	30,581	$18 00	11,800	1	118					$6 40	18,781
2	64,800	18 00	12,000	5.4	3						
3											
4	430,220	22 00	80,884	5	73					1 90	26,000
5											
6	39,800									2 00	39,800
7											
8											
9	2,043,630	15 25	340,640	6	160						
10											
11	1,380,000	21 00	230,000	6	92						
12	62,400	16 00	10,234	6	7						
13											
14											
15											
16	1,394,120	7 00	263,704	5	119					*w*	75,600
17											
18											
19											
20											
21	127,500					Yes	$19 50	37,908	27		
22	115,600									*ii* 2 00	115,600
23											
24	832,000	18 00	235,410	4	133						
25											

TABLE VIII.—*Concluded.*

Plant number	OWNERSHIP.	COOKING AND HEATING.				POWER.				Plant number
		APPLIANCES IN SERVICE.		Quantity of gas consumed during year—cubic feet	Price per 1,000 cubic feet	GAS ENGINES.		Quantity of gas consumed during year—cubic feet	Price per 1,000 cubic feet	
		Stoves	Other			Number in service	Total capacity—horse power			
1	Private	117	.....	208,333	*b* $8 00	.....	.....	.....	.....	1
2	"	10	8	288,000	1 25	.....	.....	.....	.....	2
3	"	*e*	*e*	*f*	1 50	.....	.....	.....	.....	3
4	"	65	4	831,233	1 50	.....	.....	.....	.....	4
5	"	150	20	1,869,873	1 50	1	7	24,000	$1 50	5
6	"	58	17	356,600	1 50	1	2	21,400	1 50	6
7	"	60	.....	864,000	*i* 2 00	2	7	48,000	1 25	7
8	"	30	10	2,750,000	1 25	.....	.....	.....	.....	8
9	"	125	5	1,187,850	*k* 1 25	3	7½	144,000	*l* 1 25	9
10	"	140	50	1,765,500	*m* 2 00	.....	.....	.....	.....	10
11	"	150	25	1,299,000	*n* 1 50	1	10	70,000	*n* 1 50	11
12	"	205	1	2,209,600	*p* 1 50	4	18	200,000	*p* 1 50	12
13	"	200	12	2,274,700	*q* 1 60	4	5	110,000	*q* 1 60	13
14	"	208	12	3,500,000	*s* 1 60	.....	.....	.....	.....	14
15	"	450	.....	2,777,000	*u* 1 50	.....	.....	.....	.....	15
16	"	400	8	4,650,600	*x* 1 50	1	2	37,100	1 00	16
17	"	250	.....	2,714,450	*y* 1 60	1	7	98,700	*y* 1 60	17
18	"	300	36	6,000,000	1 40	2	4½	50,000	1 40	18
19	"	300	150	4,000,000	*aa* 1 50	1	1	32,000	*aa* 1 50	19
20	"	350	150	8,500,000	*cc* 1 25	15	145	2,500,000	*dd* 1 00	20
21	"	*ff*	*gg* 470	*f*	1 35	1	15	50,000	1 00	21
22	"	550	*e*	8,400,000	*ii* 2 00	.....	.....	.....	.....	22
23	"	*e*	*e*	7,815,500	*jj* 1 40	.....	.....	.....	.....	23
24	"	1,130	200	22,375,400	*ll* 1 50	4	16	900,000	*ll* 1 50	24
25	"	*e*	*e*	16,201,100	*mm* 1 75	.....	.....	.....	.....	25

a Discounts are allowed as follows on monthly bills: On all amounts up to $5.00, ten per cent; $5.01 to $10.00, fifteen per cent; $10 01 to $20.00, twenty per cent; over $20.00, twenty five per cent; 1,000 feet of this oil gas is said to be equal to 4,000 feet of ordinary coal gas.

b All consumers are allowed a discount of 40 per cent on bills, making a net rate of $4.80 per 1,000 cubic feet.

c Includes quantity used for cooking and heating.

d If over 3,000 cubic feet per month is used, the price is $1.50 per 1,000 cubic feet.

e Not reported.

f Included in amount sold for private lighting.

g If bills are paid by the 10th of the month, the following rates are charged: Under 1,000 cubic feet, $2.00: 1,000 and under 3,000 cubic feet, $1.90; 3,000 to 5,000 cubic feet, $1.75; 5,000 cubic feet and over, $1.60.

h If 5,000 cubic feet or over is used per month, the price is $2.30 per 1,000 cubic feet. For combined service, lighting and cooking and heating, the price is $1.50 per 1,000 cubic feet.

i On 500 and less than 1,000 cubic feet (used monthly), $1.75; 1,000 and less than 3,000 cubic feet, $1.50; 3,000 and less than 10,000 cubic feet, $1.25; 10,000 and less than 20,000, $1.15; on 20,000 and over, $1.00.

j A discount of 5 cents per 1,000 cubic feet is made if bills are paid within 5 days. The price charged hotels is $1.05 per 1,000 cubic feet, and the price charged churches is $0.75 per 1,000 cubic feet.

k If 10,000 cubic feet or over is used per month, the price is $1.00 per 1,000 cubic feet. A discount of 5 cents per 1,000 cubic feet is allowed for prompt payment.

l For 5,000 and under 10,000 cubic feet per month, the price is $1.00 per 1,000 cubic feet, for 10,000 cubic feet and over, the price is 75 cents. On amounts under 5,000 feet, a discount of 5 cents per 1,000 cubic feet is allowed for prompt payment.

m If bills are paid by the 10th of the month, the following discounts are allowed: On the first 1,000 cubic feet, 25 cents: on all over 1,000 cubic feet, 5 cents for 100 cubic feet.

n Discounts are allowed as follows to large consumers: On from 10,000 to 20,000 cubic feet per month, 10 cents per 1,000 cubic feet; from 20,000 and upward, 20 cents per 1,000 cubic feet.

o If bills are paid by the 10th of the month, the following rates are charged: For less than 3,000 cubic feet per month, $1.50; 3,000 to 6,000, $1.40; over 6,000 cubic feet, $1.25. A special rate of $1.00 per 1,000 feet is allowed a few consumers.

p If bills are paid by the 10th of the month, the following rates are charged: For less than 5,000 cubic feet per month, $1.00; over 5,000 cubic feet, 90 cents.

q If bills are paid by the 10th of the month, a discount of 25 cents per 1,000 cubic feet is made.

r If bills are paid by the 6th of the month, a discount of 10 cents per 1,000 cubic feet is made.

s If bills are paid by the 6th of the month, the following rates are charged: For 1,000 cubic feet, $1.50; for 3,000 cubic feet, $1.40; for 5,000 cubic feet, $1.25; for 10,000 cubic feet, $1.00.

t If bills are paid by the 10th of the month, a discount of 10 cents per 1,000 cubic feet is made when 1,000 feet or over is used. For combined service, lighting and cooking and heating, the price is $1.25 per 1,000 feet, if paid by the 10th of the month.

u If bills are paid by the 10th of the month, a discount of 25 cents per 1,000 cubic feet is made when 1,000 feet or over is used.

v If bills are paid by the 10th of the month, a discount of 10 per cent is made on amounts up to 5,000 cubic feet; from 5,000 feet upwards, the discount is 20 per cent.

w Seven months in the year, $1.21½ per 1,000 cubic feet; the other five months, $1.00 per 1,000 cubic feet.

x From May 1st to October 1st, the price is $1.20 per 1,000 cubic feet for cooking and heating; a discount is allowed of 10 per cent on 1,000 to 5,000 cubic feet, and 20 per cent on 5,000 and upward.

y From 3,000 to 10,000 cubic feet, the price is $1.50 per 1,000; from 10,000 cubic feet and upward, the price is $1.40 per 1,000 cubic feet.

z For prompt payment of bills, a discount of 20 to 30 per cent is made.

aa Over 1,000 feet and under 5,000 feet, $1.25; over 5,000 and under 10,000 feet, $1.15; over 10,000 feet and under 25,000 feet, $1.00. Bills not paid by 15th of month, have a penalty of 10 per cent added.

bb Rate to stores is $1.25 per 1,000 feet. For 5,000 and under 10,000 feet per month, the rate is $1.00; 10,000 and under 20,000 feet, $0.80; 20,000 feet and over, $0.60 cents per 1,000 feet.

cc For 5,000 and under 10,000 feet per month, the rate is $1.00; 10,000 and under 20,000 feet, $0.80; 20,000 feet and over, $0.60 per 1,000 feet.

dd For 10,000 and under 20,000 feet per month, the rate is $0.80; 20,000 feet and over, $0.60 per 1,000 feet.

ee If the consumer pays in advance for 100,000 feet, the price $1.15 per 1,000 feet.

ff Included in "other appliances."

gg Includes "stoves."

ii Subject to the following discounts on gross monthly bills: Over $1.00 to $3.00, 10 per cent; over $3.00 to $20.00, 14⅔ per cent; over $20.00 to $50.00, 20 per cent; over $50.00 to $100.00, 25 per cent; exceeding $100.00, 27½ per cent. From these rates a discount of 12½ per cent is allowed if the bills are paid by the 10th of the month.

jj If paid by the 15th of the month, for 3,000 to 5,000 feet consumed per month, the rate is $1.20 per 1,000 feet; 5,000 feet and over, $1.00 per 1,000 feet.

kk A discount of 10 per cent is made if bils are paid by the 10th of the month.

ll A discount of 33⅓ per cent is made if bills are paid by the 10th of the month.

mm A discount ot 75 cents per 1,000 feet is made if bills are paid by the 10th of the month.

Electric Light and Power Plants

TABLES.

TABLE I.—*Electric Light, etc., Plants—Plants, Distribution*

Plant number	OWNERSHIP.	Year constructed	Present ownership dates from	STEAM POWER PLANT.			
				ENGINES.		BOILERS.	
				Number.	Total rated capacity—H. P.	Number.	Total rated capacity—H. P.
1	Municipal	1895	1895	1	40	2	100
2	"	1892	1892	1	50	1	50
3	"	1895	1895	1	50	2	140
4	Private	1891	1893	1	50	2	100
5	"	1890	1890	1	54	1	*a* 100
6	Municipal	1894	1894	1	60	2	*a* 155
7	Private	1890	1890	2	70	2	110
8	"	1892	1892	1	72	1	60
9	"	1891	1891	1	75	1	80
10	"	1887	1889	1	75	2	150
11	"	1887	1887	1	80	2	*a* 120
12	"	1887	1887	1	80	1	80
13	"	1893	1893	1	80	1	100
14	Municipal	1891	1893	1	80	2	140
15	Private	1891	1891	1	85	2	145
16	Municipal	1896	1896	1	90	2	120
17	Private	1893	1893	1	100	1	120
18	"	1892	1892	1	100	2	120
19	"	1893	1893	1	100	2	160
20	"	1893	1893	1	100	2	200
21	"	1895	1895	1	100	2	100
22	Municipal	*b*	1888	*c*	*c*	*c*	*c*
23	Private	1883	1892	2	115	1	100
24	Municipal	1892	1892	2	120	2	120
25	Private	1887	1887	2	120	2	160
26	"	1896	1896	1	120	1	100
27	"	1891	1895	1	120	1	120
28	Municipal	1895	1895	1	125	2	250
29	"	1896	1896	1	125	1	100
30	Private	1896	1896	1	125	2	200
31	"	1890	1890	1	125	2	100
32	Municipal	1894	1894	1	130	2	120
33	Private	1894	1894	2	130	2	175
34	"	1889	1893	2	130	2	170
35	Municipal	1891	1891	.....	.....	.....	.....
36	"	1892	1892	1	135	1	100
37	Private	1894	1894	1	140	1	150
38	"	1891	1891	1	150	2	160
39	"	1892	1892	1	150	2	120
40	"	1894	1895	1	150	3	150
41	"	1891	1898	1	150	2	180
42	Municipal	1885	1885	1	150	2	250
43	Private	1890	1890	1	150	2	160
44	Municipal	1894	1894	1	150	3	270
45	"	1886	1891	2	155	1	65
46	Private	1889	1889	2	160	2	250
47	Municipal	1896	1896	2	160	2	160
48	"	1895	1895	1	175	2	200
49	"	1889	1889	2	185	3	180
50	Private	1889	1889	1	185	2	130
51	"	1888	1888	2	190	2	150
52	"	1889	1889	2	200	3	210
53	"	1888	1888	3	200	4	300
54	Municipal	1887	1887	1	200	1	175
55	Private	1891	1891	2	205	1	170
56	Municipal	1884	1889	2	205	2	200
57	Private	1888	1888	2	210	2	250
58	"	1888	1888	2	215	3	300
59	"	1890	1890	2	225	2	200
60	"	1894	1895	1	250	*a*	*a*
61	"	1887	1893	1	250	2	200
62	"	1887	1887	2	250	2	250
63	"	1892	1892	2	275	2	180
64	"	1891	1891	3	275	3	240
65	Municipal	1884	1384	3	280	3	300
66	Private	1887	1887	2	280	4	320
67	"	1892	1892	2	285	2	200

Circuits and Apparatus Owned—Private and Municipal Plants.

Water Power Plant—Water Wheels.		Electric Power Plant.						Plant number.
		Direct Current Constant Voltage Dynamos.		Direct Current Constant Amperage Dynamos.		Alternating and Multiphase Current Dynamos.		
Number.	Total rated capacity—H. P.	Number.	Total kilowatt capacity.	Number.	Total kilowatt capacity.	Number.	Total kilowatt capacity.	
				1	25			1
				1	14⅔			2
				1	22½			3
						1	25	4
				1	31½			5
				1	30			6
		3	31½	2	26			7
		2	24	1	17½			8
						1	37	9
		2	40					10
				1	25			11
				1	15	1	30	12
		1	19			1	35	13
						1	60	14
						1	58	15
				1	28			16
				1	11½	1	35	17
		2	50					18
				1	20	1	40	19
						1	60	20
						1	75	21
				2	55			22
				2	25	1	60	23
				1	28	1	32	24
				4	80			25
		1	50	1	45			26
				1	20	2	75	27
				4	54			28
				1	19	1	50	29
				1	28⅘	1	50	30
				2	24	1	60	31
				2	18½	1	35	32
				1	8½	2	56	33
				2	31½	1	50	34
c	*c*			3	75			35
				2	75			36
				1	27	1	70	37
						1	45	38
		1	20			1	40	39
				1	10	1	56	40
				1	45	1	25	41
				3	86½			42
				1	36	1	60	43
						2	130	44
		4	90					45
						2	64	46
				1	25	1	50	47
				2	100			48
						2	110	49
				2	35	2	120	50
				1	30	1	75	51
				1	28⅘	2	37¼	52
		4	60	2	45			53
				5	125			54
				2	40	2	62½	55
				3	115			56
				1	22½	1	75	57
						2	133	58
		1	70	2	30	2	130	59
				2	41½	1	60	60
				1	60	1	70	61
		4	140					62
				1	25	2	75	63
				2	35	2	100	64
				2	30	2	60	65
				3	70	1	120	66
						2	75	67

TABLE I.—

Plant number	OWNERSHIP.	Year constructed	Present ownership dates from	STEAM POWER PLANT.			
				ENGINES.		BOILERS.	
				Number.	Total rated capacity—H. P.	Number.	Total rated capacity—H. P.
68	Private	1892	1897	2	295	2	200
69	"	1890	1891	2	330	3	240
70	"	1891	1891	2	335	2	160
71	Municipal	1889	1889	2	350	3	375
72	Private	1883	1888	4	395	3	625
73	"	*b*	1891	2	250	5	500
74	"	1890	1890	.....	.....	.....	.....
75	"	1889	1891	2	400	3	300
76	"	1886	1892	2	400	4	340
77	Municipal	1883	1883	3	445	3	300
78	Private	1890	1890	2	600	3	260
79	"	1885	1885	5	600	4	700
80	Municipal	1882	1882	5	620	4	600
81	Private	1890	1894	5	640	4	504
82	"	1893	1895	2	650	2	625
83	"	1884	1884	1	100	*c*	*c*
84	"	1886	1886	5	815	5	775
85	"	1894	1894	6	1,200	6	900
86	Municipal	1896	1896	2	1,300	4	1,000
87	"	1887	1887	12	2,425	17	3,100

a Steam furnished by another plant.

b Not reported.

c Gas engine used

Continued.

Water Power Plant—Water Wheels.		Electric Power Plant.						Plant number
		Direct Current Constant Voltage Dynamos.		Direct Current Constant Amperage Dynamos.		Alternating and Multiphase Current Dynamos.		
Number.	Total rated capacity—H. P.	Number.	Total kilowatt capacity.	Number.	Total kilowatt capacity.	Number.	Total kilowatt capacity.	
.....	.....	.....	.....	1	40	2	104	68
.....	.....	.....	.....	2	36	2	105	69
.....	.....	.....	.....	1	12	1	44	70
.....	.....	.....	.....	6	162½	.....	.....	71
.....	.....	4	220	2	48	2	65	72
7	146	9	375	.....	.....	1	180	73
4	400	2	30	1	25	1	120	74
.....	.....	2	60	3	90	1	75	75
.....	.....	.....	.....	4	85	2	150	76
.....	.....	.....	.....	3	120	1	45	77
.....	.....	2	60	3	70	.....	.....	78
.....	.....	.....	.....	10	350	2	120	79
.....	.....	.....	.....	10	275	1	25	80
.....	.....	.....	.....	4	120	2	158	81
.....	.....	1	75	1	44	1	300	82
2	555	.....	.....	3	45	2	145	83
.....	.....	4	314	10	202½	2	190	84
.....	.....	.....	.....	8	320	2	390	85
.....	.....	.....	.....	9	720	1	60	86
.....	.....	.....	.....	18	897	.....	.....	87

TABLE I.—

Plant number.	OWNERSHIP.	LINE CONSTRUCTION.					
		MAIN WIRES.		FEEDER WIRES.		MILES OF STREET SERVED.	
		Length in miles.	Weight of copper—pounds.	Length in miles.	Weight of copper—pounds.	From underground lines.	From aerial lines.
1	Municipal	3.00	789				2.50
2	"	10.00	3,978				10.00
3	"	14.00	5,866				10 00
4	Private.	4.00	1,451				2.00
5	"	10.00	4,188				7.00
6	Municipal	11.00	4,607				4.50
7	Private.	24.00	5,430	0.25	325		9.00
8	"	6.00	5,026				2.00
9	"	17.00	6,792	.13	74		3.00
10	"	2.50	7,871	.19	508		.75
11	"	7.00	2,957				7.00
12	"	12.25	6,441	2.00	528		7.00
13	"	10.25	3,321				6.00
14	Municipal	11.50	3,450				7.00
15	Private.	15.00	5,852				11.00
16	Municipal	11.00	5,203				7.00
17	Private.	8.25	2,250				3.00
18	"	20.60	10,600	2.00	3,400		6.00
19	"	14.00	3,033				5.00
20	"	12.00	5,034				6.00
21	"	26.00	9,060				8.00
22	Municipal	18.00	7,452				18.00
23	Private	10.00	5,870				2.50
24	Municipal	8.75	4,219				5.50
25	Private.	*d* 39.00	*d* 15,372	2.25	3,098		7.75
26	"	8.00	7,148				5.00
27	"	28.00	7,000				7.00
28	Municipal	9.00	4,500				8.00
29	"	18.00	6,605				6.00
30	Private.	12.40	8,903				9.70
31	"	44.00	10,663				18.00
32	Municipal	9.00	2,367				5.00
33	Private.	8.00	3,380				4.00
34	"	16.00	6,495				12.00
35	Municipal	14.75	6,177				9.00
36	"	18.00	7,600				12.00
37	Private.	12.00	5,244				4.00
38	"	15.00	6,293	.50	166		7.50
39	"	30.00	9,981				8.00
40	"	19.00	5,910				12.00
41	"	9.50	3,985				6.50
42	Municipal	34.00	14,246				25.00
43	Private.	6.00	2,785				3.00
44	Municipal	19.00	3,971				4.50
45	"	25.00	36,000	2.50	5,023		7.75
46	Private.	55.00	9,109				12.00
47	Municipal	36.00	15,084				12.00
48	"	42.00	17,630				23.50
49	"	70.00	26,250				20.00
50	Private.	23.00	13,651				16.00
51	"	13.00	5,454				10.00
52	"	17.00	6,656				10.00
53	"	27.50	14,692	.57	5,400		20.00
54	Municipal	60.00	25,129				43.00
55	Private.	20.00	8,376				9.50
56	Municipal	30.00	12,570				22.00
57	Private.	28.00	11,732				10.00
58	"	15.00	4,657				8.00
59	"	100.00	50,000				40.00
60	"	13.86	6,067				6.00
61	"	22.00	6,681	3.00	790		12.00
62	"	60.75	19,707				20.25
63	"	10.50	3,467				7.00
64	"	17.25	5,773				7.00
65	Municipal	32.75	13,716				7.33
66	Private.	17.00	13,057	7.00	1,996		13.00
67	"	10.00	4,188				5.00

Continued.

Transformers.			Lamps Connected.			Plant number.
Number.	Voltage of primary current.	Total output—capacity in watts.	Arc.	Incandescent.	Total H. P. of stationary motors connected.	
.....	.....	.....	28	.....	.....	1
.....	.....	.....	26	.....	.....	2
.....	.....	.....	50	.....	.....	3
25	1,000	30,500	.....	224	4⅝	4
.....	.....	.....	41	18	.....	5
.....	.....	.....	64	.....	.....	6
.....	.....	.....	20	721	.....	7
.....	.....	.....	22	200	.....	8
35	1,000	60,000	.....	1,296	.....	9
.....	.....	.....	.....	1,007	.....	10
.....	.....	.....	52	.....	.....	11
42	1,000	39,500	30	704	¼	12
26	1,000	44,000	27	526	.....	13
35	1,000	58,500	.....	1,098	.....	14
31	1,000	54,750	.....	999	.....	15
.....	.....	.....	59	.....	.....	16
16	1,250	46,000	28	1,200	¾	17
.....	.....	.....	24	1,047	.....	18
32	1,000	42,000	26	1,288	.....	19
75	1,000	57,250	32	800	.....	20
40	1,000	52,640	24	1,359	.....	21
.....	.....	.....	100	.....	.....	22
11	*b*	40,750	29	700	.....	23
21	1,000	39,600	37	686	.....	24
.....	.....	.....	.....	1,320	.....	25
.....	.....	.....	24	502	¼	26
38	1,150	51,250	35	1,221	1/16	27
.....	.....	.....	80	12	.....	28
20	1,000	44,900	37	1,000	.....	29
36	1,000	59,500	44	1,235	1	30
44	1,200	86,150	30	2,230	.....	31
12	1,000	36,000	27	700	.....	32
33	1,000	63,750	17	1,770	.....	33
42	1,000	106,650	63	1,493	½	34
.....	.....	.....	136	.....	.....	35
.....	.....	.....	104	.....	.....	36
14	1,000	36,000	43	710	.....	37
29	1,000	56,000	.....	1,200	.....	38
110	1,000	129,500	37	4,400	.....	39
24	1,150	45,500	31	2,020	⅜	40
32	1,040	33,250	25	818	.....	41
.....	.....	.....	156	.....	.....	42
13	1,040	69,700	24	1,150	.....	43
117	1,000	180,900	64	2,300	.....	44
.....	.....	.....	.....	2,283	3	45
63	1,000	84,000	.....	2,186	.....	46
32	1,000	44,500	55	1,000	.....	47
.....	.....	.....	146	.....	.....	48
206	1,000	213,250	.....	4,670	.....	49
13	1,140	51,000	97	1,279	.....	50
27	1,000	57,950	35	1,212	.....	51
65	1,000	65,350	56	1,244	.....	52
.....	.....	.....	103	2,018	.....	53
.....	.....	.....	207	.....	.....	54
46	1,040	38,000	57	596	.....	55
.....	.....	.....	181	.....	.....	56
43	1,100	132,500	.....	3,500	.....	57
104	1,000	172,790	.....	1,428	¾	58
250	1,040	250,000	51	4,000	81	59
37	1,000	92,400	48	1,600	.....	60
39	2,080	81,700	47	1,350	.....	61
.....	.....	.....	.....	2,492	.....	62
37	1,000	39,300	34	1,200	.....	63
67	1,000	124,500	108	3,101	.....	64
88	1,000	165,250	60	2,829	.....	65
71	1,000	134,750	167	2,016	.....	66
10	1,000	31,800	.....	2,690	⅝	67

TABLE I.—

Plant number.	OWNERSHIP.	LINE CONSTRUCTION.					
		MAIN WIRES.		FEEDER WIRES.		MILES OF STREET SERVED.	
		Length in miles.	Weight of copper—pounds.	Length in miles.	Weight of copper—pounds.	From underground lines.	From aerial lines.
68	Private	28.00	9,085				14.00
69	"	10.00	6,487				8.00
70	"	20.00	10,693	.20	73		15.00
71	Municipal	50.00	25,670				45.00
72	Private	34.00	16,500	18.00	16,500		25.00
73	"	125.00	52,351				30.00
74	"	20.00	14,400	1.00	800		15.00
75	"	40.00	19,127	1.75	2,947		15.00
76	"	29.00	20,200				14.00
77	Municipal	20.00	10,560			15.00	
78	Private	23.00	9,637	.57	1,920		16.00
79	"	100.00	66,600				40.00
80	Municipal	45.00	23,760			30.00	
81	Private	154.00	64,526			2.00	50.00
82	"	52.00	49,356				20.00
83	"	29.00	15,000	1.50	900		11.00
84	"	56.00	28,584	2.25	6,023		40.00
85	"	104.00	43,556	25.00	6,584		31.00
86	Municipal	74.00	39,072			26.50	
87	"	220.40	92,348			83.00	

Concluded.

Transformers.			Lamps Connected.			Plant number.
Number.	Voltage of primary cutrent.	Total output—capacity in watts.	Arc.	Incandescent.	Total H. P. of stationary motors connected.	
39	1,040	67,150	52	2,355	.....	68
30	1,100	78,800	47	3,210	.....	69
59	1,100	40,500	26	594	.....	70
.....	.....	.....	307	.....	.....	71
76	1,000	100,500	65	4,000	$127\frac{1}{2}$	72
175	1,000	350,000	445	6,500	86	73
20	1,040	56,700	29	1,601	3	74
30	1,000	77,250	64	2,890	$26\frac{1}{2}$	75
b	1,000	*b*	126	4,012	.....	76
9	2,200	12,000	244	900	.....	77
.....	.....	.....	138	1,165	.....	78
100	1,040	317,500	251	5,000	40	79
6	1,000	12,750	490	503	.....	80
482	1,000	978,750	266	14,000	3	81
136	2,000	283,500	120	14,030	$247\frac{1}{4}$	82
81	1,040	193,100	85	2,974	18	83
114	1,100	198,000	398	2,350	$185\frac{1}{2}$	84
92	2,000	221,700	456	8,000	.....	85
12	2,000	25,000	777	300	.....	86
.....	.....	.....	1,321	.....	.....	87

d Including 18 miles and 1,875 pounds not in use.

TABLE II.—*Electric Light, etc., Plants—Fuel and Water Conditions—Private and Municipal Plants.*

Plant number	OWNERSHIP.	FUEL.					Water supply—cost per year.	WATER POWER PURCHASED.	
		COAL.		OTHER.					
		Kind.	Cost per 2,000 lbs.	Kind.	Unit of price.	Cost per unit.		Quantity H.P.	Cost per H.P.
1	Municipal	Bituminous	$2 90	Wood	*a*	*a*			
2	"	"	95				$100		
3	"	"	1 85				30		
4	Private	"	33½				25		
5	"	"	18¾				50		
6	Municipal	"	1 20–1 90				30		
7	Private	"	95				175		
8	"	"	1 00				32		
9	"	"	2 50				24		
10	"	"	1 35				10		
11	"	"	90				50		
12	"	"	1 40				120		
13	"	"	1 25						
14	Municipal	"	1 41				50		
15	Private	"	2 07½						
16	Municipal	"	3 00						
17	Private	"	85				35		
18	"	"	1 60						
19	"	"	40				120		
20	"	"	1 00–1 60						
21	"	"	60				175		
22	Municipal	*b*	*b*	*b*	*b*	*b*	*b*		
23	Private	Bituminous	50				48		
24	Municipal	"	1 30				33		
25	Private	"	1 20				60		
26	"	"	1 25				104		
27	"	"	95						
28	Municipal	"	1 49				100		
29	"	"	1 50						
30	Private	"	70				10		
31	"	"	1 25						
32	Municipal	"	3 00						
33	Private	"	60				50		
34	"	"	1 00–1 40				100		
35	Municipal							*a*	*a*
36	"	Bituminous	85						
37	Private	"	1 35				90		
38	"	"	1 25				100		
39	"	"	1 20				40		
40	"	"	75						
41	"	"	65				60		
42	Municipal	"	0 60–1 50				100		
43	Private	"	2 00				50		
44	Municipal	"	2 00						
45	"	"	90				100		
46	Private	"	70				100		
47	Municipal	"	2 00						
48	"	"	1 12				100		
49	"	"	1 90						
50	Private	"	1 50				20		
51	"	"	1 50				160		
52	"	"	0 65–1 50				250		
53	"	"	1 45				179		
54	Municipal	"	1 62				9		
55	Private	"	*c*				100		
56	Municipal	"	2 00				50		
57	Private	"	2 00				40		
58	"	"	1 70–1 83				230		
59	"	"	1 46						
60	"	*b*		*b*			*b*		
61	"	Bituminous	0 75–0 90				163		
62	"	"	1 75				200		
63	"	"	1 00				50		
64	"	"	1 75				155		
65	Municipal	"	2 84				202		
66	Private	"	1 25						
67	"	"	1 65				50		

TABLE II.—Concluded.

Plant number	OWNERSHIP.	FUEL.					Water supply—cost per year	WATER POWER PURCHASED.	
		COAL.		OTHER.					
		Kind.	Cost per 2,000 lbs.	Kind.	Unit of price	Cost per unit.		Quantity H. P.	Cost per H. P.
68	Private	Bituminous	$1 05				$46		
69	"	"	11				280		
70	"	"	1 90				10		
71	Municipal	"	1 65				300		
72	Private	"	1 15				520		
73	"	"	90						
74	"								
75	"	Bituminous	67½				180		
76	"	"	0 82-1 17				100		
77	Municipal	"	1 95-2 10						
78	Private	"	2 00				200		
79	"	"	1 65				240		
80	Municipal			Crude petrl'm	Bbl.	$0 75	200		
81	Private			"	"	67½	258		
82	"	Bituminous	1 25						
83	"			Artificial gas	1000ft	60		555	*a*
84	"	Bituminous	1 00				150		
85	"	"	18				300		
86	Municipal	"	2 50						
87	"	"	3 00				4,500		

a Not reported.
b None used—steam power purchased.
c $0.75, $0.95, $1.00, $1.14, $1.50 and $1.75.

TABLE III.—*Electric Light, Etc., Plants—*

Plant No.	Ownership.	Preliminary Expenses.		Land.		Buildings.	
		Cost.	Per cent of total investment.	Cost.	Per cent of total investment.	Cost.	Per cent of total investment.
1	Municipal			$500	6.25	$1,000	12.50
2	"			*a*	*a*	*a*	*a*
3	"	$60	0.75	200	2.48	300	3.72
4	Private			500	5.00	*b*	*b*
5	"			600	6.67	800	8.89
6	Municipal	145	2.03	200	2.81	469	6.59
7	Private			175	1.87	1,400	14.93
8	"			300	3.85	500	6.41
9	"			400	2.39	2,005	12.01
10	"			300	2.91	300	2.91
11	"			*e*	*e*	1,000	16.13
12	"			*a*	*a*	*a*	*a*
13	"			*f* 1,000	*g*	1,200	8.00
14	Municipal			300	2.87	800	7.66
15	Private			400	3.01	1,000	7.54
16	Municipal	200	2.41	500	6.03	1,054	12.70
17	"			200	1.21	1,400	8.49
18	"			*h*	*h*	3,000	17.65
19	"			800	6.55	2,300	18.84
20	"			125	.82	1,300	8.55
21	"			*i*	*i*	1,300	10.81
22	Municipal			*b*	*b*	*b*	*b*
23	Private			*h*	*h*	500	3.33
24	Municipal			300	1.75	700	4.08
25	Private			1,000	4.45	1,000	4.45
26	"			225	2.52	1,500	16.81
27	"			500	3.34	1,800	12.00
28	Municipal			*e*	*e*	1,000	9.09
29	"	187	1.56	200	1.67	1,000	8.33
30	Private			*i*	*i*	1,200	7.72
31	"			500	2.17	3,200	13.91
32	Municipal	60	.35	500	2.94	1,000	5.88
33	Private			350	4.05	1,100	12.72
34	"			*a*	*a*	*a*	*a*
35	Municipal			*j*	*j*	*j*	*j*
36	"			*h*	*h*	900	5.00
37	Private			200	1.54	1,000	7.69
38	"			500	3.12	1,500	9.38
39	"			500	2.38	1,000	4.76
40	"			200	1.49	2,000	14.93
41	"			500	2.50	1,500	7.50
42	Municipal			1,250	3.42	3,250	8.90
43	Private			600	3.66	1,000	6.09
44	Municipal	100	.37	500	1.85	1,000	3.71
45	"			350	1.82	800	4.16
46	Private			300	1.00	3,000	10.02
47	Municipal			300	2.05	800	5.47
48	"	694	2.73	2,406	9.47	1,874	7.37
49	"			2,000	6.38	2,000	6.38
50	Private			1,000	3.57	3,000	10.71
51	"			350	1.95	200	1.11
52	"			300	1.17	1,700	6.64
53	"			300	.66	2,500	5.54
54	Municipal			*a*	*a*	*a*	*a*
55	Private			1,600	5.00	2,200	6.88
56	Municipal			2,000	4.00	5,000	10.00
57	Private			1,500	4.41	1,750	5.15
58	"			600	2.34	2,000	7.81
59	"			800	1.97	3,750	9.23
60	"			*k b*	*k b*	600	4.74
61	"			265	1.01	2,000	7.62
62	"			1,000	3.12	4,000	12.48
63	"			400	1.60	3,700	14.80
64	"			525	1.35	1,200	3.07
65	Municipal			3,000	10.58	3,000	10.58
66	Private			600	1.58	4,316	11.36
67	"			350	1.59	1,200	5.46
68	"			800	4.43	500	2.77
69	"			1,000	5.72	3,500	20.00
70	"			200	1.51	1,300	9.81
71	Municipal			300	.36	35,000	42.02

Investment, Private and Municipal Plants.

Steam Power Plant		Electric Power Plant.		Distributing Circuits, Lamps and Apparatus.		Total investment.	Plant No.....
Cost.	Per cent of total investme't	Cost.	Per cent of total investment.	Cost.	Per cent of total investment.		
$1,000	12.50	$1,500	18.75	$4,000	50.00	$8,000	1
500	15.62	700	21.88	2,000	62.50	3,200	2
2,000	24.81	1,000	12.41	4,500	55.83	8,060	3
b	*b*	*b*	*b*	*b*	*b*	10,000	4
2,100	23.33	3,000	33.33	2,500	27.78	9,000	5
2,069	29.06	2,000	28.09	2,237	31.42	7,120	6
2,500	26.67	1,800	19.20	3,500	37.33	9,375	7
2,700	34.61	2,876	36.87	1,424	18.26	7,800	8
6,724	40.26	2,101	12.58	5,471	32.76	16,701	9
c 3,500	*d*	3,200	31.07	3,000	29.13	10,300	10
1,000	16.13	1,500	24.19	2,700	43.55	6,200	11
3,000	20.00	4,000	26.67	8,000	53.33	15,000	12
4,000	26.67	3,600	24.00	5,200	34.67	15,000	13
2,500	23.92	3,000	28.71	3,850	36.84	10,450	14
2,600	19.60	5,500	41.46	3,767	28.39	13,267	15
1,790	21.57	1,514	18.24	3,240	39.05	8,298	16
3,400	20.61	4,000	24.24	7,500	45.45	16,500	17
2,300	13.53	2,500	14.70	9,200	54.12	17,000	18
4,075	33.39	2,100	17.21	2,931	24.01	12,206	19
2,700	17.76	2,000	13.16	9,075	59.71	15,200	20
1,900	15.81	2,254	18.75	6,568	54.63	12,022	21
b	*b*	*b*	*b*	*b*	*b*	12,500	22
2,000	13.33	8,500	56.67	4,000	26.67	15,000	23
4,500	26.27	4,500	26.27	7,133	41.63	17,133	24
8,000	35.55	5,000	22.22	7,500	33.33	22,500	25
2,200	24.65	3,000	33.61	2,000	22.41	8,925	26
2,700	18.00	5,000	33.33	5,000	33.33	15,000	27
2,500	22.73	3,500	31.82	4,000	36.36	11,000	28
4,000	33.33	2,500	20.83	4,113	34.28	12,000	29
3,526	22.69	3,600	23.17	7,214	46.42	15,540	30
3,300	14.35	5,000	21.74	11,000	47.83	23,000	31
2,500	14.71	3,000	17.65	9,940	58.47	17,000	32
2,200	25.43	2,000	23.12	3,000	34.68	8,650	33
2,000	11.11	7,000	38.89	9,000	50.00	18,000	34
j	*j*	6,000	37.37	10,055	62.63	16,055	35
3,500	19.44	5,000	27.78	8,600	47.78	18,000	36
3,000	23.08	5,000	38.46	3,800	29.23	13,000	37
4,000	25.00	4,000	25.00	6,000	37.50	16,000	38
3,500	16.67	2,800	13.33	13,200	62.86	21,000	39
4,000	29.85	3,000	22.39	4,200	31.34	13,400	40
3,000	15.00	2,000	10.00	13,000	65.00	20,000	41
6,000	16.44	9,000	24.66	17,000	46.58	36,500	42
2,000	12.18	6,000	36.55	6,815	41.52	16,415	43
3,000	11.11	3,000	11.11	19,400	71.85	27,000	44
1,700	8.83	4,500	23.37	11,902	61.82	19,252	45
4,500	15 02	8,000	26.71	14,154	47.25	29,954	46
1,500	10.25	3,000	20.51	9,030	61.72	14,630	47
5,200	20.46	5,670	22.31	9,570	37.66	25,414	48
7,000	22.33	6,000	19.14	14,346	45.77	31,346	49
5,000	17,86	14,000	50.00	5,000	17.86	28,000	50
4,000	22.22	4,500	25.00	8,950	49.72	18,000	51
7,000	27.33	5,000	19.52	11,613	45.34	25,613	52
4,000	8.86	15,000	33.22	23,355	51.72	45,155	53
8,460	16.44	23,000	44.69	20,000	38.87	51,460	54
4,500	14.06	6,500	20.31	17,200	53.75	32,000	55
10,000	20.00	8,000	16.00	25,000	50.00	50,000	56
5,300	15.59	4,100	12.06	21,350	62.79	34,000	57
6,000	23.44	8,000	31.25	9,000	35.16	25,600	58
6,700	16.48	4,400	10.82	25,000	61.50	40,650	59
1,800	14.23	3,600	23.72	7,250	57.31	12,650	60
10,000	38.07	6,000	22.84	8,000	30.46	26,265	61
6,797	21.20	8,259	25.76	12,000	37.44	32,056	62
4,200	16.80	3,700	14.80	13,000	52.00	25,000	63
7,000	17 92	15,000	38.40	15,336	39.26	39,061	64
5,037	17.76	9,226	32.53	8,096	28.55	28,359	65
8,270	21.78	6,445	16.97	18,348	48.31	37,979	66
8,000	36.26	5,000	22.73	7,450	33.86	22,000	67
4,000	22.16	3,000	16.62	9,750	54.02	18,050	68
3,000	17.14	3,500	20.00	6,500	37.14	17,500	69
4,650	35.10	4,100	30.94	3,000	22.64	13,250	70
12,000	14.41	10,000	12.00	26,000	31.21	83,300	71

TABLE III.—*Electric Light, Etc., Plants—Investment, Private and Municipal Plants*—Concluded.

Plant number	Ownership	Preliminary Expenses.		Land.		Buildings.		Steam Power Plant.		Electric Power Plant.		Distributing Circuits, Lamps and Apparatus.		Total investment.	Plant number
		Cost	Per cent of total investment	Cost	Per cent of total investment	Cost	Per cent of total investment	Cost	Per cent of total investment	Cost	Per cent of total investment	Cost	Per cent of total investment		
72	Private			2,500	3.01	8,000	9.62	$16,000	19.24	$12,900	15.52	$43,735	52.61	$83,135	72
73	"			c108,000	d	10,000	3.60	60,000	21.58	40,000	14.39	60,000	21.58	278,000	73
74	"			2,000	5.71	7,000	20.00	7,000	20.00	11,000	31.43	8,000	22.86	35,000	74
75	"			600	1.20	3,000	6.00	9,000	18.00	5,500	11.00	31,900	63.80	50,000	75
76	"			800	2.28	5,000	14.29	7,500	21.43	14,500	41.43	7,200	20.57	35,000	76
77	Municipal			10,000	12.12	15,000	18.18	12,000	14.54	9,000	10.90	36,529	44.26	82,529	77
78	Private			850	1.60	6,150	11.60	15,000	28.30	8,000	15.10	23,000	43.40	53,000	78
79	"			1,000	1.33	5,000	6.67	15,000	20.00	25,000	33.33	29,000	38.67	75,000	79
80	Municipal			10,000	6.58	13,000	8.55	30,000	19.74	15,000	9.87	84,000	55.26	152,000	80
81	Private			e	e	10,000	5.88	35,000	20.59	50,000	29.41	75,000	44.12	170,000	81
82	"			4,000	4.00	5,000	5.00	16,000	16.00	21,000	21.00	54,000	54.00	100,000	82
83	"			k b	k b	3,000	8.08	8,000	21.53	7,000	18.84	19,150	51.55	37,150	83
84	"			e	e	7,000	4.06	32,500	18.84	32,000	18.55	101,000	58.55	172,500	84
85	"			1,200	1.19	9,500	9.44	20,000	19.86	20,000	19.86	50,000	49.65	100,700	85
86	Municipal			25,000	11.11	45,000	20.00	30,000	13.33	30,000	13.33	95,000	42.23	225,000	86
87	"			45,557	5.71	84,524	10.00	120,941	15.17	54,209	6.80	492,180	61.72	797,411	87

a Land and buildings leased.
b Not reported.
c Including $1,000 paid for moving plant.
d Not obtainable for reasons stated in note *c*.
e Land donated.
f Including cost of construction of a pond.
g Not obtainable for reasons stated in note *f*.
h Land leased.
i Land leased; rent free.
j Land, buildings and steam power plant leased.
k Including $100,000 for water power.

TABLE IV.—*Electric Light, etc., Plants—Sources of Funds Used in the Investment—Municipal Plants.*

Plant number	TOTAL INVESTMENT.	AMOUNT DERIVED FROM—			BONDS.					
		Taxation.	Transfers from funds on hand.	Issues of bonds.	Total amount outstanding	DATE OF— Issue.	DATE OF— Maturity	Rate per cent of interest.	Coin or gold	Am't per $100 par realized from sale.
1	$8,000	$8,000	.....	.....	.....	.....	.....	.....	.....	.....
2	3,200	.....	$3,200	.....	.....	.....	.....	.....	.....	.....
3	8,060	.....	8,060	.....	.....	.....	.....	.....	.....	.....
6	7,120	.....	860	$6,000	$6,000	1894	*a*	6	Coin ..	$104 33
14	10,450	.....	10,450	.....	.....	.....	.....	.....	.....	.....
16	8,298	6,600	1,698	.....	.....	.....	.....	.....	.....	.....
22	12,500	*b* 4,500	.....	.....	.....	.....	.....	.....	.....	.....
24	17,133	.....	3,467	13,667	13,667	1892	1902-1920	7	Coin ..	*c*
28	11,000	.....	11,000	.....	.....	.....	.....	.....	.....	.....
29	12,000	*d* 12,000	.....	.....	.....	.....	.....	.....	.....	.....
32	17,000	3,500	.....	13,500	9,000	1894	*e*	6	Coin ..	100 00
35	16,055	16,055	.....	.....	.....	.....	.....	.....	.....	.....
36	18,000	.....	18,000	.....	.....	.....	.....	.....	.....	.....
42	36,500	.....	36,500	.....	.....	.....	.....	.....	.....	.....
44	27,000	20,000	.....	7,000	7,000	1894	1906	6	Coin ..	100 00
45	19,252	.....	19,252	.....	.....	.....	.....	.....	.....	.....
47	14,630	4,630	.....	10,000	8,000	1896	*f*	6	Coin ..	100 00
48	25,414	25,414	.....	.....	.....	.....	.....	.....	.....	.....
49	31,346	.....	11,346	20,000	.....	1889	*g*	6	Coin ..	100 00
54	51,460	.....	51,460	.....	.....	.....	.....	.....	.....	.....
56	50,000	.....	34,000	16,000	.....	1889	1892	5	Coin ..	100 00
65	28,359	20,000	8,359	.....	.....	.....	.....	.....	.....	.....
71	83,300	83,300	.....	.....	.....	.....	.....	.....	.....	.....
77	82,529	82,529	.....	.....	.....	.....	.....	.....	.....	.....
80	152,000	152,000	.....	.....	.....	.....	.....	.....	.....	.....
86	225,000	225,000	.....	.....	.....	.....	.....	.....	.....	.....
87	797,411	797,411	.....	.....	.....	.....	.....	.....	.....	.....

a 1904, 1905, 1906, 1907, 1908, 1909.
b Not including $8,000 donated.
c Not reported.
d $9,600 derived from liquor license.
e $1,500 in 1896 and $1,500 annually thereafter.
f $2,000 annually.
g 1891, 1892, 1893, 1894.

TABLE V.—*Electric Light, etc., Plants—*

Plant number	OWNERSHIP.	FROM LIGHTING.				
		ARC SERVICE.		INCANDESCENT SERVICE.		TOTAL.
		Amount.	Per cent of total gross income.	Amount.	Per cent of total gross income.	Amount.
1	Municipal					
2	"					
3	"	$96	100.00			$96
4	Private			$1,246	81.76	1,246
5	"	3,430	92.40	282	7.60	3,712
6	Municipal	1,610	100.00			1,610
7	Private	1,260	28.87	3,019	69.18	4,279
8	"	1,595	50.55	1,560	49.45	3,155
9	"			4,071	98.48	4,071
10	"			2,740	100 00	2,740
11	"	4,000	100.00			4,000
12	"	2,160	40.00	3,234	59.89	5,394
13	"	2,970	53.36	2,446	43.95	5,416
14	Municipal			2,282	87.70	2,282
15	Private			4,700	98.41	4,700
16	Municipal					
17	Private	2,305	36.43	3,742	59.15	6,047
18	"	1,536	29.54	3,664	70.46	5,200
19	"	1,821	40.80	2,608	58.42	4,429
20	"	1,391	33.13	2,038	48.88	3,419
21	"	1,728	30.25	2,774	48.57	4,502
22	Municipal					
23	Private	2,082	48.95	1,971	46.35	4,053
24	Municipal			2,006	92.02	2,006
25	Private			2,904	93.08	2,904
26	"	1,200	28.69	1,702	40.70	2,902
27	"	2,355	33.02	4,713	66.07	7,068
28	Municipal					
29	"			2,500	100.00	2,500
30	Private	2,640	34.29	3,400	44.16	6,040
31	"	2,010	32.10	4,002	63.91	6,012
32	Municipal			1,415	100.00	1,415
33	Private	1,020	16.09	4,620	72.87	5,640
34	"	4,050	54.18	*a* 3,414	*b*	7,464
35	Municipal					
36	"					
37	Private	3,756	54.62	3,120	45.38	6,876
38	"			4,272	100.00	4,272
39	"	2,760	45.34	3,295	54.13	6,055
40	"	1,488	31.33	3,165	66.65	4,653
41	"	2,100	35.53	3,531	59.73	5,631
42	Municipal					
43	Private	2,100	40.90	3,000	58.42	5,100
44	Municipal			2,676	100.00	2,676
45	"			4,118	68.00	4,118
46	Private			7,140	88.72	7,140
47	Municipal			1,391	100.00	1,391
48	"					
49	"			5,714	99.48	5,714
50	Private	6,000	65.22	3,000	32.61	9,000
51	"	2,520	49.90	2,510	49.70	5,030
52	"	6,681	46.84	7,258	50.88	13,939
53	"	6 700	52.74	5,979	47.07	12,679
54	Municipal					
55	Private	5,980	56.68	2,500	23.70	8,480
56	Municipal					
57	Private			6,336	83.45	6,336
58	"			10,190	99.82	10,190
59	"	2,763	32.91	4,173	49.71	6,936
60	"	3,618	49.96	3,624	50.04	7,242
61	"	4,230	45.96	4,614	50.13	8,844
62	"			7,101	93.40	7,101
63	"	2,720	42.04	3,500	54.10	6,220
64	"	6,789	46.17	7,916	53.83	14,705
65	Municipal	192	2.09	8,810	96.08	9,002

Gross Income—Private and Municipal Plants.

From Stationary Motor Service.		From Electric Railway Service.		From All Other Sources.		Total gross income.	Plant number
Amount.	Per cent of total gross income.	Amount.	Per cent of total gross income.	Amount.	Per cent of total gross income.		
							1
							2
						$96	3
$278	18.24					1,524	4
						3,712	5
						1,610	6
				$85	1.95	4,364	7
						3,155	8
				63	1.52	4,134	9
						2,740	10
						4,000	11
6	.11					5,400	12
				150	2.69	5,566	13
				320	12.30	2,602	14
				76	1.59	4,776	15
							16
90	1.42			190	3.00	6,327	17
						5,200	18
				35	.78	4,464	19
				750	17.99	4,169	20
				1,210	21.18	5,712	21
							22
				200	4.70	4,253	23
				174	7.98	2,180	24
				216	6.92	3,120	25
5	.12			1,275	30.49	4,182	26
15	.21			50	.70	7,133	27
							28
						2,500	29
40	.52			1,619	21.03	7,699	30
				250	3.99	6,262	31
						1,415	32
				700	11.04	6,340	33
c	*c*			11	.15	7,475	34
							35
							36
						6,876	37
						4,272	38
				32	.53	6,087	39
6	.13			90	1.89	4,749	40
				280	4.74	5,911	41
							42
				35	.68	5,135	43
						2,676	44
50	.82			1,888	31.18	6,056	45
				908	11.28	8,048	46
						1,391	47
							48
				30	.52	5,744	49
				200	2 17	9,200	50
				20	.40	5,050	51
				325	2.28	14,264	52
				24	.19	12,703	53
							54
				2,070	19.62	10,550	55
							56
				1,257	16.55	7,593	57
18	.18					10,208	58
900	10.72			559	6.66	8,395	59
						7,242	60
				360	3.91	9,204	61
				502	6.60	7,603	62
				250	3.86	6,470	63
						14,705	64
				168	1.83	9,170	65

Per cent of total gross income.
100.00
81.76
100.00
100.00
98.05
100.00
98.48
100.00
100.00
99.89
97.31
87.70
98.41
95.58
100.00
99.22
82.01
78.82
95.30
92.02
93.08
69.39
99.09
100.00
78.45
96.01
100.00
88.96
99.85
100.00
100.00
99.47
97.98
95.26
99.32
100.00
68.00
88.72
100.00
99.48
97.83
99.60
97.72
99.81
80.38
83.45
99.82
82.62
100.00
96.09
93.40
96.14
100.00
98.17

TABLE V.—

Plant number	OWNERSHIP.	FROM LIGHTING.				
		ARC SERVICE.		INCANDESCENT SERVICE.		TOTAL.
		Amount.	Per cent of total gross income.	Amount.	Per cent of total gross income.	Amount.
66	Private	$6,396	52.01	$4,452	36.20	$10,848
67	"	.....	.....	*a* 5,178	*b*	5,178
68	"	3,672	34.49	5,368	50.42	9,040
69	"	3,486	40.42	4,938	57.26	8,424
70	"	1,716	28.89	3,924	66.06	5,640
71	Municipal	.....	.....	.....	.....	.....
72	Private	5,460	30.75	9,213	51.89	14,673
73	"	32,040	65.93	13,400	27.57	45,440
74	"	1,845	36.97	2,870	57.52	4,715
75	"	5,760	41.15	6,300	45.01	12,060
76	"	10,372	62.82	5,988	36.27	16,360
77	Municipal	.....	.....	.....	.....	.....
78	Private	9,260	61.49	5,800	38.51	15,060
79	"	18,875	72.04	7,000	36.72	25,875
80	Municipal	.....	.....	.....	.....	.....
81	Private	17,342	45.66	20,145	53.04	37,487
82	"	7,500	21.04	22,800	63.95	30,300
83	"	3,285	24.89	5,943	45.02	9,228
84	"	25,875	63.17	7,592	18.54	33,467
85	"	46,044	79.08	12,180	20.92	58,224
86	Municipal	.....	.....	.....	.....	.....
87	"	.....	.....	.....	.....	.....

a Including income from stationary motor service.
b Not obtainable for reasons stated in note *a*.
c Included in income from incandescent lighting.

Concluded.

From Stationery Motor Service.		From Electric Railway Service.		From All Other Sources.		Total gross income.	Plant number.
Amount.	Per cent of total gross income.	Amount.	Per cent of total gross income.	Amount.	Per cent of total gross income.		
				$1,450	11.79	$12,298	66
c	c			119	2.25	5,297	67
				1,606	15.09	10,646	68
				200	2.32	8,624	69
				300	5.05	5,940	70
							71
$2,616	14.73			467	2.63	17,756	72
2,696	5.55			462	.95	48,598	73
150	3.01			125	2.50	4,990	74
1,200	8.57			737	5.27	13,997	75
				150	.91	16,510	76
							77
						15,060	78
325	1.24					26,200	79
							80
10	.03			481	1.27	37,978	81
5,000	14.03			350	.98	35,650	82
550	4.17			3,422	25.92	13,200	83
7,404	18.08			88	.21	40,959	84
						58,224	85
							86
							87

TABLE VI.—*Electric Light, Etc., Plants—Cost of Pro-*

Plant Number	Ownership.	Report for the Year Ending—	General Expenses.								Wages.		Sup-	
			Salaries of officers, superintendents, clerks, etc	Office supplies and expenses	Insurance	Legal expenses and damages	Licenses and royalties	Other	Total	Per cent of total manufacturing cost of production	Total	Per cent of total manufacturing cost of production	Fuel	Power house supplies
1	Municipal	Dec. 31, 1897	$306	....	....	.....	....	....	$306	13.78	$360	16.21	$675	$35
2	"	April 30, 1898	22	$8	....	.....	....	....	30	1.72	475	27.22	400	136
3	....	April 18, 1898	136	30	$91	.....	....	....	257	9.29	1,380	49.87	413	66
4	Private	Dec. 31, 1897	1,220	64	....	.....	....	$10	1,294	36.85	1,035	29.48	171	56
5	"	"	390	17	33	.....	....	83	524	17.46	1,200	39.99	37	100
6	Municipal	April 2, 1898	21	1	20	.....	....	....	42	1.51	585	20.98	972	141
7	Private	Jan. 1, 1898	350	5	50	.....	....	....	405	11.59	920	26.33	808	260
8	"	Dec. 31, 1897	300	10	12	.....	....	150	472	19.96	700	29.60	450	102
9	"	May 1, 1898	738	19	50	.....	....	....	807	29.66	542	19.92	668	70
10	"	Dec. 31, 1897	500	42	....	10	....	....	552	13.92	517	13.03	1,276	93
11	"	May 1, 1898	660	131	3	.....	....	25	819	19.62	1,080	25.87	1,049	71
12	"	April 1, 1897	600	46	115	.....	....	180	941	17.52	960	17.87	1,300	180
13	"	———, 1897	720	165	100	.....	....	....	985	23.39	1,200	28.50	625	200
14	Municipal	May 1, 1898	720	5	29	.....	....	....	754	19.83	420	11.05	1,321	84
15	Private	Dec. 31, 1897	175	25	65	.....	....	....	265	6.50	825	20.25	1,135	45
16	Municipal	June 18, 1898	31	15	38	.....	....	....	84	3.31	1,020	40.22	693	71
17	Private	June 30, 1898	600	100	33	.....	....	....	733	13.66	1,820	33.92	765	255
18	"	Jan. 1, 1898	1,200	100	100	.....	....	....	1,400	20.20	1,780	25.69	1,600	110
19	"	Oct. 1, 1897	860	95	85	.....	....	25	1,065	23.91	1,320	29.64	462	244
20	"	Aug. 1, 1898	600	3	....	.....	....	....	603	18.66	420	13.00	1,000	45
21	"	Sept. 15, 1897	550	37	33	.....	....	120	740	17.87	1,190	28.74	826	190
22	Municipal	Mar. 31, 1898	150	....	....	.....	....	....	150	2.55	1,440	24.49	.....	....
23	Private	Jan. 1, 1898	660	106	120	67	....	100	1,053	22.18	1,025	21.59	547	198
24	Municipal	May 15, 1898	360	3	18	.....	....	....	381	14.39	525	19.83	407	57
25	Private	Dec. 31, 1897	1,080	94	100	50	....	25	1,349	21.62	1,380	22.11	1,440	185
26	"	"	840	15	....	.....	....	....	855	24.46	620	17.73	900	159
27	"	July 1, 1898	720	100	63	15	....	50	948	13.86	1,470	21.50	1,384	123
28	Municipal	May 1, 1898	547	25	15	.....	....	125	712	23.51	480	15.85	772	121
29	....	April 30, 1898	.....	10	....	.....	....	....	10	0.34	1,200	41.03	900	80
30	Private	June 30, 1898	1,200	68	115	.....	....	43	1,426	28.30	1,212	24.06	1,166	156
31	"	Jan. 1, 1898	900	10	105	.....	....	....	1,015	13.87	1,340	18.30	1,875	91
32	Municipal	Dec. 31, 1897	180	40	....	.....	....	....	220	6.35	540	15.59	1,444	79
33	Private	May 20, 1897	800	56	42	.....	....	....	898	21.54	1,315	31.54	1,095	67
34	"	June —, 1898	1,120	96	....	.....	....	120	1,336	18.21	2,400	32.72	1,622	135
35	Municipal	April 6, 1898	300	....	120	.....	....	....	420	6.57	1,080	16.89	.....	....
36	"	May 1, 1898	900	1	165	1,300	....	....	2,366	34.23	1,380	19.97	674	46
37	Private	Dec. 31, 1897	600	23	....	.....	....	....	623	12.58	1,380	27.86	1,620	228
38	"	May 1, 1898	600	85	70	.....	....	....	755	16.33	1,000	21.62	730	140
39	"	Dec. 31, 1897	1,480	....	....	.....	....	....	1,480	19.81	1,370	18.34	1,750	151
40	"	Nov. 30, 1897	950	39	24	.....	....	....	1,013	37.03	445	16.26	315	27
41	"	Mar. 1, 1898	480	5	....	.....	....	....	485	12.36	480	12.24	780	147
42	Municipal	April 30, 1898	610	10	85	.....	....	....	705	8.38	2,753	32.73	843	160
43	Private	"	413	22	45	.....	....	....	480	10.83	720	16.24	1,500	82
44	Municipal	"	322	35	94	.....	....	....	451	9.64	960	20.52	672	162
45	"	June 30, 1897	300	80	119	.....	....	....	499	6.56	2,070	27.22	607	205

duction—Private and Municipal Plants—(First Part.)

PLIES.				MAINTENANCE.										
				ACTUAL DISBUREMENTS FOR REPAIRS AND RENEWALS.										
				ON BUILDINGS.		ON STEAM POWER PLANT.		ON ELECTRIC POWER PLANT.		ON DISTRIBUTING CIRCUITS, LAMPS AND APPARATUS.			TOTAL.		
Lamp supplies	Other	Total	Per cent of total manufacturing cost of production	Total	Per cent of cost.	Total	Per cent of cost.	Total	Per cent of cost.	Total	Per cent of cost.	Other	Amount.	Per ct. of total investment, exclusive of land.	Plant Number
$85	.....	$795	35.79	$24	2.40	$68	6.80	$40	2.67	$243	6.08	.....	$375	5.00	1
153	$39	728	41.72	45	*a*	171	34.20	15	2.14	80	4.00	$6	317	*b*	2
157	.....	636	22.99	.....	.....	*c* 68	*d*	*e*	*e*	.....	.....	.....	68	0.86	3
.....	5	232	6.61	20	*a*	10	*a*	.....	.....	350	*a*	.....	380	4.00	4
145	200	482	16.06	.....	.....	.....	.....	250	8.33	125	5.00	.....	375	4.46	5
138	7	1,258	45.12	80	17.06	225	10.87	52	2.60	.....	.....	76	433	6.26	6
233	.....	1,301	37.24	80	5.71	.....	.....	10	0.56	20	0.57	180	290	3.15	7
86	35	673	28.48	10	2.00	35	1.30	25	0.87	75	5.27	.....	145	1.93	8
40	.....	778	28.59	72	3.59	*f*	*f*	*g* 54	*h*	51	0.93	8	185	1.13	9
88	.....	1,457	36.73	.....	.....	300	8.57	18	0.56	300	10.00	75	693	6.93	10
355	.....	1,475	35.34	.....	.....	50	5.00	50	3.33	200	7.41	.....	300	4.84	11
250	.....	1,730	32.21	.....	.....	100	3.33	50	1.25	.....	.....	150	300	*b*	12
310	25	1,160	27.55	.....	.....	110	2.75	65	1.81	17	0.33	50	242	1.73	13
280	9	1,694	44.55	.....	.....	50	2.00	20	0.67	30	0.78	.....	100	0.98	14
358	61	1,599	39.25	115	11.50	191	7.35	54	0.98	289	7.67	.....	649	5.04	15
189	34	987	38.92	.....	.....	.....	.....	26	1.72	38	1.17	.....	64	0.82	16
410	110	1,540	28.70	150	10.71	100	2.94	.....	.....	250	3.33	.....	500	3.07	17
270	.....	1,980	28.58	.....	.....	.....	.....	400	16.00	100	1.09	.....	500	2.94	18
224	100	1,030	23.12	25	1.09	150	3.68	100	4.76	99	3.38	.....	374	3.28	19
261	.....	1,306	40.42	.....	.....	.....	.....	75	3.75	25	0.28	.....	100	0.66	20
320	.....	1,336	32.26	20	1.54	10	0.53	5	0.22	30	0.46	10	75	0.62	21
350	200	*i* 3,050	*j*	.....	.....	.....	.....	*k*	*k*	300	*a*	.....	300	*b*	22
210	200	1,155	24.32	25	5.00	50	2.50	200	2.35	200	5.00	.....	475	3.17	23
221	218	903	34.12	3	0.43	.....	.....	.....	.....	52	0.73	.....	55	0.33	24
216	100	1,941	31.11	25	2.59	75	0.94	25	0.50	.....	.....	.....	125	0.58	25
432	.....	1,491	42.65	.....	.....	5	0.23	10	0.33	25	1.25	.....	40	0.46	26
355	196	2,059	30.11	25	1.39	80	2.96	315	6.30	140	2.80	530	1,090	7.52	27
249	50	1,192	39.37	.....	.....	.....	.....	.....	.....	.....	.....	124	124	1.13	28
180	10	1,170	40.00	25	2.50	.....	.....	5	0.20	35	0.85	10	75	0.64	29
394	.....	1,716	34.06	.....	.....	63	1.79	18	0.50	5	0.07	.....	86	0.55	30
327	33	2,326	31.77	15	0.47	25	0.76	65	1.30	195	1.77	.....	300	1.33	31
30	.....	1,553	44.85	.....	.....	.....	.....	40	1.33	218	2.19	.....	258	1.56	32
348	.....	1,510	36.22	.....	.....	15	0.68	100	5.00	.....	.....	15	130	1.56	33
138	20	1,915	26.10	20	*a*	75	3.75	5	0.07	155	1.72	.....	255	*b*	34
812	171	*l* 3,975	*m*	.....	.....	.....	.....	50	0.83	127	1.26	.....	177	*b*	35
619	.....	1,339	19.37	59	6.56	71	2.03	78	1.56	104	1.21	76	388	2.16	36
149	20	2,017	40.72	.....	.....	.....	.....	300	6.00	3	0.08	.....	303	2.37	37
100	.....	970	20.97	.....	.....	.....	.....	.....	.....	370	6.17	10	380	2.45	38
242	.....	2,143	28.98	60	6.00	41	1.17	42	1.50	380	2.88	150	673	3.28	39
220	.....	562	20.54	.....	.....	10	0.25	.....	.....	.....	.....	10	20	0.15	40
266	.....	1,193	30.41	.....	.....	15	0.50	60	3.00	10	0.08	.....	85	0.44	41
482	340	1,825	21.69	.....	.....	.....	.....	288	3.20	66	0.39	287	641	1.82	42
90	.....	1,672	37.72	.....	.....	.....	.....	40	0.67	40	0.59	10	90	0.57	43
372	28	1,234	23.37	.....	.....	80	2.67	260	8.67	210	1.08	.....	550	2.08	44
600	2,057	3,469	45.61	58	7.25	80	4.71	.....	.....	54	0.45	.....	192	1.02	45

a Not obtainable; cost not reported.
b Not obtainable; total investment exclusive of land not reported.
c Including disbursements for repairs and renewals on electric power plant.
d Not obtainable for reasons stated in note *c*.
e Included in disbursements for repairs and renewals on steam power plant.
f Included in disbursements for repairs and renewals on electric power plant.
g Including disbursements for repairs and renewals on steam power plant.
h Not obtainable for reasons stated in note *g*.
i Including $2,500 paid for power and repairs on electric power plant.
j Not obtainable for reasons stated in note *i*.
k Included in total supplies.
l Including $2,992 paid for power.
m Not obtainable for reasons stated in note *l*.

TABLE VI.—*Electric Light, Etc., Plants—Cost of Pro-*

Plant Number	Ownership.	Report for the Year Ending—	General Expenses.								Wages.		Sup-	
			Salaries of officers, superintendents, clerks, etc	Office supplies and expenses	Insurance	Legal expenses and damages	License and royalties	Other	Total	Per cent of total manufacturing cost of production	Total	Per cent of total manufacturing cost of production	Fuel	Power house supplies
46	Private	Dec. 31, 1897	$600	$45	$123	.....	....	....	$768	9.16	$2,180	26.02	$1,050	$208
47	Municipal	Jan. 31, 1898	180	10	88	.....	....	....	278	6.46	1,158	26.91	1,312	87
48	"	Dec. 31, 1897	1,200	....	176	.....	....	....	1,376	16.14	2,576	30.22	1,209	186
49	....	" "	1,170	85	157	.....	....	....	1,412	18.08	1,262	16.16	2,662	41
50	Private	April 12, 1898	1,500	60	90	.....	....	....	1,650	14.91	2,700	24.40	1,300	90
51	"	Dec. 31, 1897	950	25	....	.....	....	....	975	20.14	1,040	21.48	1,200	260
52	"	June 30, 1898	720	133	83	.....	....	....	936	10.38	2,680	29.73	1,153	403
53	"	Jan. 31, 1898	900	49	....	.....	....	....	949	8.27	2,400	20.90	2,175	246
54	Municipal	Jan. 1, 1898	334	....	....	.....	....	....	334	2.64	5,700	45.14	1,493	146
55	Private	Dec. 31, 1897	600	25	33	$600	....	....	1,258	14.12	2,280	25.59	1,941	156
56	Municipal	"	536	19	100	.....	....	$147	802	5.67	4,620	32.65	3,229	221
57	Private	Mar. 15, 1898	400	65	25	25	....	30	545	7.90	1,140	16.54	2,826	183
58	"	Oct. 4, 1897	1,440	117	33	.....	....	....	1,590	17.74	1,680	18.74	2,016	290
59	"	July 15, 1898	480	95	48	.....	....	....	623	5.68	2,806	25.58	2,664	350
60	"	Aug. 31, 1897	50	15	37	.....	....	....	102	2.13	*e* 2,080	43.49	*e*	*e* 72
61	"	Dec. 31, 1897	600	140	48	100	....	....	888	12.62	1,665	23.67	1,379	293
62	"	June 1, 1898	2,396	90	119	250	....	75	2,930	29.94	1,295	13.13	1,853	387
63	"	Dec. 11, 1897	300	55	....	.....	....	....	355	7.42	1,200	25.07	900	105
64	"	Feb. 22, 1898	1,200	167	308	.....	....	....	1,675	12.43	3,480	25.82	3,150	330
65	Municipal	April 30, 1898	1,330	....	32	.....	....	....	1,362	11.65	3,260	27.88	4,810	321
66	Private	Dec. 31, 1897	750	215	45	.....	....	45	1,055	8.61	2,460	20.07	2,620	198
67	"	July —, 1898	1,900	39	58	.....	....	15	2,012	36.75	675	12.33	1,336	107
68	"	July 1, 1898	1,140	37	71	.....	....	69	1,317	14.67	1,875	20.89	1,740	176
69	"	Jan. 31, 1898	2,040	44	120	.....	....	....	2,204	27.80	2,160	27.24	280	405
70	"	May 1, 1898	360	10	....	.....	....	....	370	9.09	1,200	29.48	1,262	25
71	Municipal	April 30, 1898	690	10	400	.....	....	....	1,100	5.52	7,800	39.17	4,000	415
72	Private	Mar. 31, 1898	3,215	500	525	.....	....	738	4,978	20.79	4,316	18.03	5,545	895
73	"	April 30, 1898	3,840	730	600	.....	....	....	5,170	19.23	7,500	27.89	3,305	165
74	"	Dec. 31, 1897	1,200	15	....	.....	....	....	1,215	25.93	1,260	26.90	.....	12
75	"	" "	1,200	506	160	.....	....	....	1,866	17.88	2,730	26.16	1,350	365
76	"	Feb. 8, 1898	1,000	100	300	.....	....	....	1,400	10.42	3,304	24.60	2,850	360
77	Municipal	Mar. 31, 1898	660	80	....	.....	....	....	740	5.05	6,168	42.07	2,891	351
78	Private	June 29, 1898	1,724	86	225	.....	....	....	2,035	16.36	2,280	18.33	3,134	465
79	"	Jan. 1, 1898	2,460	625	500	.....	....	....	3,585	14.44	5,880	23.68	5,356	540
80	Municipal	Nov. 30, 1897	1,000	158	....	.....	....	....	1,158	3.91	9,118	30.76	7,947	1303
81	Private	Dec. 31, 1897	2,400	495	507	166	....	595	4,163	12.84	5,685	17.53	7,811	454
82	"	Feb. —, 1898	5,000	576	250	250	....	....	6,076	25.87	4,902	20.87	4,500	300
83	"	Jan. 1, 1898	2,880	80	....	.....	....	200	3,160	28.82	1,950	17.79	569	73
84	"	Sept. 30, 1897	1,000	341	475	905	....	50	2,771	6.45	11,649	27.12	11,717	764
85	"	June 1, 1897	2,200	100	1000	600	....	....	3,900	14.53	10,750	40.06	1,922	946
86	Municipal	Dec. 31, 1897	2,200	150	350	.....	....	....	2,700	6.37	17,214	40.62	9,560	656
87	"	" "	3,000	963	....	.....	....	2500	6,463	5.33	50,456	41.64	29,064	5881

a Including disbursements for repairs and renewals on distributing circuits, lamps and apparatus.

b Not obtainable for reasons stated in note *a*.

c Included in disbursements for repairs and renewals on electric power plant.

d Not obtainable; total investment, exclusive of land, not reported.

e Power furnished by another plant. The amount paid for same is included in tota supplies, but can not be distributed among the various items.

f Not obtainable for reasons stated in note *e*.

g Including $2,200 paid for water power.

h Not obtainable for reasons stated in note *g*.

duction—Private and Municipal Plants—(First Part.)

PLIES.				MAINTENANCE.										
				ACTUAL DISBURSEMENTS FOR REPAIRS AND RENEWALS.										
				ON BUILDINGS.		ON STEAM POWER PLANT.		ON ELECTRIC POWER PLANT.		ON DISTRIBUTING CIRCUITS, LAMPS AND APPARATUS.		OTHER.	TOTAL.		
Lamp supplies	Other	Total	Per cent of total manufacturing cost of production	Total	Per cent of cost.	Total	Per cent of cost.	Total	Per cent of cost.	Total	Per cent of cost.		Amount	Per ct. of total investment, exclusive of land	Plant Number
$189	$25	$1,472	17.57	.....	.....	$95	2.11	$222	2.78	$640	4.52	$277	$1,234	4.16	46
101	.....	1,500	34.85	.....	.....	.....	.....	*a* 224	*b* 1.86	*c*	*c*	.....	224	1.56	47
584	389	2,368	27.78	$105	5.60	.....	.....	.....	.....	75	.78	.....	180	.78	48
31	.....	2,734	35.02	.....	.....	123	1.76	.....	.....	97	.68	56	276	.94	49
424	.....	1,814	16.40	200	6.67	250	5.00	700	5.00	1,300	26.00	.....	2,450	9 07	50
300	.....	1,760	36.36	.....	.....	50	1.25	.....	.....	100	1.12	150	300	1.70	51
645	217	2,418	26.82	100	5.88	200	2.86	700	14.00	600	5.17	67	1,667	6.59	52
409	180	3,010	26.21	84	3.36	200	5.00	200	1.33	410	1.76	.....	894	1.99	53
527	.....	2,166	17.15	.....	.....	50	.59	59	.26	845	4.23	41	.995	*d*	54
427	.....	2,524	28.33	12	.55	300	6.67	150	2.31	490	2.85	300	1,252	4.12	55
710	203	4,363	30.84	72	1.44	128	1.28	575	7.19	376	1.50	212	1,363	2.84	56
200	.....	3,209	46.55	.....	.....	86	1.62	128	3.12	213	1.00	.....	427	1.31	57
378	15	2,699	30.11	300	15.00	300	5.00	182	2.28	152	1.69	300	1,234	4.94	58
335	256	3,605	32.87	.....	.....	75	1.12	300	6.82	350	1.40	31	756	1.90	59
191	30	*e* 1,793	*f*	.....	.....	.....	.....	73	2.43	150	2.07	.....	223	1.76	60
500	.....	2,172	30.88	10	.50	50	.50	50	.83	650	8.13	149	909	3.50	61
329	25	2,594	26.51	115	2.88	100	1.47	45	.54	890	7.42	20	1,170	3.77	62
135	.....	1,140	23.81	.....	.....	.....	.....	.....	.....	100	.77	75	175	.71	63
585	.....	4,065	30.16	.....	.....	300	4.29	200	1.33	104	.68	.....	604	1.57	64
304	34	5,469	46.78	.....	.....	.....	.....	.....	.....	169	2.09	.....	169	.66	65
472	1,000	4,290	35.01	41	.95	219	2.65	141	2.19	914	4.98	.....	1,215	3.25	66
209	6	1,658	30.26	.....	.....	.....	.....	.....	.....	28	.38	.....	28	.13	67
418	700	3,034	33.79	300	60.00	178	4.45	249	8.30	525	5.38	.....	1,252	7.26	68
455	800	1,940	24.47	.....	.....	100	3 33	250	7.14	100	1.54	150	600	3.64	69
364	.....	1,651	40.57	.....	.....	.....	.....	.....	.....	64	2.13	.....	64	.49	70
1,335	.....	5,750	28.87	.....	.....	.....	.....	800	8.00	575	2.21	650	2,025	2.44	71
634	.....	7,074	29.54	.....	.....	1,183	7.39	200	1.55	720	1.65	163	2,266	2.81	72
2,100	.....	5,570	20.71	.....	.....	.....	.....	500	1.25	650	1.08	.....	1,150	.68	73
233	10	255	5.44	.....	.....	.....	.....	.....	.....	.....	.....	125	125	.38	74
848	.....	2,563	24.56	.....	.....	180	2.00	800	14.55	300	.94	.....	1,280	2.59	75
490	200	3,900	29.04	.....	.....	240	3.20	160	1.10	750	10.42	608	1,758	5.14	76
633	179	4,054	27.65	.....	.....	212	1.77	310	3.44	.....	.....	.....	522	.72	77
830	.....	4,429	35.60	.....	.....	233	1.55	333	4.16	18	.08	.....	584	1.12	78
1,300	.....	7,196	28.97	113	2.26	3,256	21.71	.....	.....	2,005	6.91	.....	5,374	7.26	79
1,234	413	10,897	36.76	25	.19	414	1.38	574	3.83	296	.35	.....	1,309	.92	80
1,558	.....	9,823	30.30	80	.80	90	.26	170	.34	460	.61	.....	800	.47	81
1,250	.....	6,050	25.76	.....	.....	500	3.13	300	1.43	750	1.39	.....	1,550	1.61	82
679	18	*g* 3,539	*h*	40	1.33	110	1.38	95	1.36	161	.84	80	486	1.31	83
1,761	.....	14,242	33.16	.....	.....	1,596	4.91	1,444	4.51	287	.28	.....	3,327	1.93	84
2,141	1,052	6,061	22.58	100	1.05	300	1.50	400	2.00	300	.60	53	1,153	1.16	85
1,960	972	13,148	31.03	.....	.....	140	.47	320	1.07	206	.22	.....	666	.33	86
4,993	1,014	40,952	33.79	365	.43	6,220	5.14	985	1.82	12,493	2.54	3,256	23,319	3.10	87

TABLE VI.—*Electric Lights, Etc., Plants: Cost of Production,*

Plant number.	Ownership.	MAINTENANCE.									
		Estimated Depreciation.									
		On Buildings		On Steam Power Plant.		On Electric Power Plant.		On Distributing Circuits, Lamps & Apparatus.		Total.	
		Total	Per cent of cost.	Total.	Per cent of cost.	Total.	Per cent of cost.	Total.	Per cent of cost.	Am't.	Per cent of total investment exclusive of land
1	Municipal	$20	2.00	$50	5.00	$75	5.00	$240	6.00	$385	5.13
2	"	.....	.....	25	5.00	70	10.00	100	5.00	195	*a*
3	"	6	2.00	100	5.00	50	5.00	270	6.00	426	5.42
4	Private	*b*	*b*	*b*	*b*	*b*	*b*	*c* 570	*d*	570	6.00
5	"	40	5.00	105	5.00	150	5.00	125	5.00	420	5.00
6	Municipal	9	1.92	104	5.03	200	10.00	157	7.02	470	6.79
7	Private	28	2.00	125	5.00	180	10.00	245	7.00	578	6.28
8	"	25	5.00	135	5.00	144	5.01	71	4.99	375	5.00
9	"	20	1.00	168	2.50	84	4.00	137	2.50	409	2.51
10	"	3	1.00	125	3.57	320	10.00	300	10.00	748	7.48
11	"	30	3.00	50	5.00	150	10.00	270	10.00	500	8.06
12	"	.....	.....	240	8.00	400	10.00	800	10.00	1,440	*a*
13	"	24	2.00	160	4.00	180	5.00	260	5.00	624	4.46
14	Municipal	24	3.00	125	5.00	300	10.00	385	10.00	834	8.22
15	Private	50	5.00	130	5.00	330	6.00	226	6.00	736	5.72
16	Municipal	21	1.99	09	5.03	76	5.02	194	5.99	381	4.89
17	Private	28	2.00	170	5.00	200	5.00	375	5.00	773	4.74
18	"	30	1.00	69	3.00	250	10.00	920	10.00	1,269	7.47
19	"	46	2.00	204	5.01	210	10.00	205	6.99	665	5.83
20	"	13	1.00	135	5.00	200	10.00	454	5.00	802	5.32
21	"	20	1.54	95	5.00	225	9.98	460	7.00	800	6.66
22	Municipal	.....	.....	.....	.....	420	*e*	520	*e*	940	*a*
23	Private	25	5.00	100	5.00	595	7.00	320	8.00	1,040	6.93
24	Municipal	21	3.00	180	4.00	225	5.00	357	5.00	783	4.65
25	Private	20	2.00	400	5.00	500	10.00	525	7.00	1,445	6.72
26	"	30	2.00	110	5.00	210	7.00	140	7.00	490	5.63
27	Private	36	2.00	135	5.00	500	10.00	600	12.00	1,271	8.76
2	Municipal	20	2.00	125	5.00	175	5.00	200	5.00	520	4.73
29	"	20	2.00	120	3.00	125	5.00	205	4.98	470	3.98
30	Private	24	2.00	106	3.01	180	5.00	288	3.99	598	3.85
31	"	160	5.00	330	10.00	750	15.00	1,100	10.09	2,340	10.40
32	Municipal	20	2.00	125	5.00	150	5.00	597	6.00	892	5.41
33	Private	.....	.....	66	3.00	100	5.00	150	5.00	316	3.81
34	"	.....	.....	100	5.00	700	10.00	630	7.00	1,430	*a*
35	Municipal	.....	.....	.....	.....	240	4.00	503	5.00	743	*a*
36	"	9	1.00	70	2.00	500	10.00	860	10.00	1,439	7.99
37	Private	40	4.00	150	5.00	250	5.00	190	5.00	630	4.92
48	"	120	8.00	400	10.00	400	10.00	600	10.00	1,520	9.81
49	"	30	3.00	175	5.00	280	10.00	1,320	10.00	1,805	8.81
40	"	40	2.00	80	2.00	240	8.00	336	8.00	696	5.27
41	"	30	2.00	150	5.00	200	10.00	1,300	10.00	1,680	8.61
42	Municipal	98	3.02	300	5.00	900	10.00	1,190	7.00	2,488	7.06
43	Private	30	3.00	160	8.00	600	10.00	681	9.99	1,471	9 30
44	Municipal	20	2.00	150	5.00	150	5.00	1,164	6.00	1,484	5.60
45	"	24	3.00	85	5.00	315	7.00	952	8.00	1,376	7.28
46	Private	60	2.00	450	10.00	800	10.00	1,415	10.00	2,725	9.19
47	Municipal	16	2.00	75	5.00	150	5.00	903	10.00	1,144	7.98
58	"	75	4.00	234	4.50	567	10.00	1,148	12.00	2,024	8.80
59	"	40	2.00	350	5.00	300	5.00	1,434	10.00	2,124	7.24
50	Private	150	5.00	400	8.00	1,400	10.00	500	10.00	2,450	9.07
51	"	14	7.00	80	2.00	225	5.00	447	4.99	766	4.34
52	"	34	2.00	350	5.00	350	7.00	580	4.99	1,314	5.19
5	"	75	3.00	320	8.00	1,500	10.00	2,335	10.00	4,230	9.43
54	Municipal	.....	.....	423	5.00	1,610	7.00	1,400	7.00	3,433	*a*
55	Private	55	2.50	225	5.00	455	7.00	860	5.00	1,595	5.25
56	Municipal	100	2.00	500	5.00	400	5.00	2,000	8.00	3,000	6.25

Private and Municipal Plants (Second Part).

MAINTENANCE.			TOTAL COST OF PRODUCTION.		Taxes	TOTAL COST OF PRODUCTION AND TAXES.		Plant number
TOTAL.								
Am't.	Per cent of total investment exclusive of land	Per cent of total manufacturing cost of production	Including estimated depreciation	Excluding estimated depreciation		Including estimated depreciation	Excluding estimated depreciation	
$760	10.13	34.22	$2,221	$1,836	.....	$2,221	$1,836	1
512	a	29.34	1,745	1,550	.....	1,745	1,550	2
494	6.28	17.85	2,767	2,341	.....	2,767	2,341	3
950	10.00	27.06	3,511	2,941	$353	3,864	3,294	4
795	9.46	26.49	3,001	2,581	55	3,056	2,636	5
903	13.05	32.39	2,788	2,318	.....	2,788	2,318	6
868	9.43	24.84	3,494	2,916	59	3,553	2,975	7
520	6.93	21.99	2,365	1,990	37	2,402	2,027	8
594	3.64	21.83	2,721	2,312	443	3,164	2,755	9
1,441	14.41	36.32	3,967	3,219	9	3,976	3,228	10
800	12.90	19.17	4,174	3,674	236	4,410	3,910	11
1,740	a	32.40	5,371	3,931	61	5,432	3,992	12
866	6.19	20.56	4,211	3,587	303	4,514	3,890	13
934	9.20	24.57	3,802	2,968	.....	3,802	2,968	14
1,385	10.76	34.00	4,074	3,338	39	4,113	3,377	15
445	5.71	17.55	2,536	2,155	.....	2,536	2,155	16
1,273	7.81	23.72	5,366	4,593	73	5,439	4,666	17
1,769	10.41	25.53	6,929	5,660	75	7,004	5,735	18
1,039	9.11	23.33	4,454	3,789	158	4,612	3,947	19
902	5.98	27.92	3,231	2,429	102	3,333	2,531	20
875	7.28	21.13	4,141	3,341	167	4,308	3,508	21
1,240	a	21.09	5,880	4,940	.....	5,880	4,940	22
1,515	10.10	31.91	4,748	3,708	103	4,851	3,811	23
838	4.98	31.66	2,647	1,864	.....	2,647	1,864	24
1,570	7.30	25.16	6,240	4,795	173	6,413	4,968	25
530	6.09	15.16	3,496	3,006	52	3,548	3,058	26
2,361	16.28	34.53	6,838	5,567	83	6,921	5,650	27
644	5.85	21.27	3,028	2,508	.....	3,028	2,508	28
545	4.62	18.63	2,925	2,455	.....	2,925	2,455	29
684	4.40	13.58	5,038	4,440	95	5,133	4,535	30
2,640	11.73	36.06	7,321	4,981	80	7,401	5,061	31
1,150	6.97	33.21	3,463	2,571	.....	3,463	2,571	32
446	5.37	10.70	4,169	3,853	275	4,444	4,128	33
1,685	a	22.97	7,336	5,906	210	7,546	6,116	34
920	a	14.38	6,395	5,652	.....	6,395	5,652	35
1,827	10.15	26.43	6,912	5,473	.....	6,912	5,473	36
933	7.29	18.84	4,953	4,323	122	5,075	4,445	37
1,900	12.26	41.08	4,625	3,105	65	4,690	3,170	38
2,478	12.09	33.17	7,471	5,666	28	7,499	5,694	39
716	5.42	26.17	2,736	2,040	299	3,035	2,339	40
1,765	9.05	44.99	3,923	2,243	26	3,949	2,269	41
3,129	8.88	37.20	8,412	5,924	.....	8,412	5,924	42
1,561	9.87	35.21	4,433	2,962	73	4,506	3,035	43
2,034	7.68	43.47	4,679	3,195	.....	4,679	3,195	44
1,568	8.30	20.61	7,606	6,230	.....	7,606	6,230	45
3,959	13.35	47.25	8,379	5,654	366	8,745	6,020	46
1,368	9.54	31.78	4,304	3,160	.....	4,304	3,160	47
2,204	9.58	25.86	8,524	6,500	.....	8,524	6,500	48
2,400	8.18	30.74	7,808	5,684	.....	7,808	5,684	49
4,900	18.14	44.29	11,064	8,614	142	11,206	8,756	50
1,066	6.04	22.02	4,841	4,075	119	4,960	4,194	51
2,981	11.78	33.07	9,015	7,701	556	9,571	8,257	52
5,124	11.42	44.62	11,483	7,253	200	11,683	7,453	53
4,428	a	35.07	12,628	9,195	.....	12,628	9,195	54
2,847	9.37	31.96	8,909	7,314	94	9,003	7,408	55
4,363	9.09	30.84	14,148	11,148	.....	14,148	11,148	56

Table VI.

Plant number.	Ownership.	MAINTENANCE									
		Estimated Depreciation.									
		On Buildings		On Steam Power Plant.		On Electric Power Plant		On Distributing Circuits, Lamps & Apparatus.		Total.	
		Total	Per cent of cost.	Total.	Per cent of cost.	Total.	Per cent of cost.	Total.	Per cent of cost.	Total.	Per cent of total investment exclusive of land
57	Private	$35	2.00	$265	5.00	$205	5.00	$1,068	5.00	$1,573	4.48
58	"	30	1.50	300	5.00	800	10.00	630	7.00	1,760	7.04
59	"	38	1.01	201	3.00	440	10.00	2,500	10.00	3,179	7.98
60	"	18	3.00	54	3.00	150	5.00	363	5.01	585	4.63
61	"	40	2.00	500	5.00	300	5.00	560	7.00	1,400	5.38
62	"	40	1.00	340	5.00	826	10.00	600	5.00	1,806	5.81
63	"	37	1.00	210	5.00	370	10.00	1,300	10.00	1,917	7.79
64	"	60	5.00	560	8.00	1,500	10.00	1,534	10.00	3,654	9.48
65	Municipal	60	2.00	252	5.00	553	5.99	567	7.00	1,432	5.65
66	Private	129	2.99	992	12.00	645	10.01	1,468	8.00	3,234	8.65
67	"	30	2.50	400	5.00	300	6.00	372	4.99	1,102	5 09
68	"	25	5.00	200	5.00	300	10.00	975	10.00	1,500	8.69
69	"	70	2.00	150	5.00	350	10.00	455	7.00	1,025	6.21
70	"	26	2.00	232	4.99	287	7.00	240	8.00	785	6.02
71	Municipal	700	2.00	480	4.00	500	5.00	1,560	6.00	3,240	3.90
72	Private	160	2.00	800	5.00	1,290	10.00	3,061	7.00	5,311	6.59
73	"	100	1.00	1,800	3.00	2,000	5.00	3,600	6.00	7,500	4.41
74	"	140	2.00	280	4.00	770	7.00	640	8.00	1,830	5.54
75	"	30	1.00	360	4.00	330	6.00	1,276	4.00	1,996	4.04
76	"	150	3.00	750	10.00	1,450	10.00	720	10.00	3,070	8.98
77	Municipal	300	2.00	600	5.00	450	5.00	1,826	5.00	3,176	4.37
78	Private	123	2.00	750	5.00	400	5.00	1,840	8.00	3,113	5.97
7	"	100	2.00	.....	.....	1,250	5.00	1,450	5.00	2,800	3.78
80	Municipal	260	2.00	1,500	5 00	1,200	8.00	4,200	5.00	7,160	5.04
81	Private	200	2.00	1,750	5.00	2,500	5.00	7,500	10.00	11,950	7.03
82	"	150	3.00	800	5.00	1,260	6.00	2,700	5.00	4,910	5.12
83	"	90	3.00	240	3.00	350	5.00	1,149	6.00	1,829	4.92
84	"	350	5.00	1,625	5.00	1,920	6.00	7,070	7.00	10,965	6.35
85	"	475	5.00	1,000	5.00	1,000	5.00	2,500	5.00	4,975	5.00
86	Municipal	900	2.00	1,500	5.00	1,500	5.00	4,750	5.00	8,650	4.33
87	"	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

a Not obtainable; total investment exclusive of land not reported.

b Included in depreciation on distributing circuits, lamps, and apparatus.

c Including depreciation on buildings, steam power plant, and electric power plant.

d Not obtainable for reasons stated in note *b*.

e Not obtainable: cost not reported.

—Concluded.

MAINTENANCE.			TOTAL COST OF PRODUCTION.		TAXES.	TOTAL COST OF PRODUCTION AND TAXES.		PLANT NUMBER.
TOTAL.								
Am't.	Per cent of total investment exclusive of land.	Per cent of total manufacturing cost of production.	Including estimated depreciation.	Excluding estimated depreciation.		Including estimated depreciation.	Excluding estimated depreciation.	
$2,000	6.15	29.01	$6,894	$5,321	$155	$5,476	$7,049	57
2,994	11.98	33.41	8,963	7,203	333	7,536	9,296	58
3,935	9.88	35.87	10,969	7,790	227	8,017	11,196	59
808	6.39	16.89	4,783	4,198	79	4,277	4,862	60
2,309	8.88	32.83	7,034	5,634	255	5,889	7,289	61
2,976	9.58	30.42	9,785	7,979	143	8,122	9,928	62
2,092	8.50	43.70	4,78:	2,870	125	2,995	4,912	63
4,258	11.05	31.59	13,478	9,824	261	10,085	13,739	64
1,601	6.31	13.69	11,692	10,260	.....	10,260	11,692	65
4,449	11.90	36.31	12,254	9,020	217	9,237	12,471	66
1,130	5.22	20.64	5,475	4,373	163	4,536	5,638	67
2,752	15.95	30.65	8,978	7,478	364	7,842	9,342	68
1,625	9.85	20.49	7,929	6,904	352	7,256	8,281	69
849	6.51	20.86	4,070	3,285	80	3,365	4,150	70
5,265	6.34	26.44	19,915	16,675	.....	16,675	19,915	71
7,577	9.40	31.64	23,945	18,634	635	19,269	24,580	72
8,650	5.09	32.17	26,890	19,390	4,124	23.514	21,014	73
1,955	5.92	41.73	4,685	2,855	268	3,123	4,953	74
3,276	6.63	31.40	10,435	8,439	392	8,831	10,827	75
4,828	14.12	35.94	13,432	10,362	644	11,006	14,076	76
3,698	5.09	25.23	14,660	11,484	.....	14,660	11,484	77
3,697	7.09	29.81	12,441	9,328	$383	9,711	12,824	78
8,174	11.04	32.91	24,835	22,035	558	22,593	25,393	79
8,469	5.96	28.57	29,642	22,483	.....	22,483	29,642	80
12,750	7.50	39.33	32,421	20,471	713	21,184	33,134	81
6,460	6.73	27.50	23,488	18,578	773	19,351	24,261	82
2,315	6.23	21.11	10,964	9,135	178	9,313	11,142	83
14,292	8.28	33.27	42,954	31,989	873	32,862	43,827	84
6,128	6.16	22.83	26,839	21,864	3,737	25,601	30,576	85
9,316	4.66	21.98	42,378	33,728	.....	33,728	42,378	86
23,319	3.10	19.24	121,190	121,190	.....	121,190	121,190	87

TABLE VII.—*Electric Light, etc., Plants—Certain Additional Elements Theoretically Entering into the Cost in Municipally Owned Plants.*

Plant number	Estimated rental value of the quarters occupied—rent free	Estimated taxes	Interest on total investment	Total additional cost	ADDITIONAL COST PER UNIT.					
					ARC LIGHTING PER KILOWATT HOUR.		INCANDESCENT LIGHTING.			
					Maximum.	Minimum.	C. P. of lamp	Unit.	Maximum.	Minimum.
1	.....	$86	$400	$486	$0.0349	$0.0349	.....	.....	.....	.....
2	.....	57	192	249	.0050	.0050	.....	.....	.....	.....
3	$60	108	403	571	.0120	.0120	.....	.....	.....	.....
6	.....	72	427	499	.0466	.0466	.....	.....	.....	.....
14	24	55	627	706	.....	.....	30	Lamp per year	$7.2041	$7.2041
16	.....	55	415	470	.0160	.0160	.....	.....	.....	.....
22	60	88	750	898	.0038	.0038	.....	.....	.....	.....
24	.....	287	1,199	1,486	.0496	.0496	.....	.....	.....	.....
28	.....	119	550	669	.0051	.0051	16	Lamp per year	.9139	.9139
29	.....	283	540	823	.0223	.0223	.....	.....	.....	.....
32	100	167	1,020	1,287	.1161	.1161	.....	.....	.....	.....
35	.....	286	803	1,089	.0045	.0045	.....	.....	.....	.....
36	.....	111	900	1,011	.0070	.0070	.....	.....	.....	.....
42	.....	511	1,825	2,336	.0141	.0141	.....	.....	.....	.....
44	100	270	1,620	1,990	.0640	.0640	.....	.....	.....	.....
45	.....	164	963	1,127	.....	.....	16	Lamp per year	4.0250	4.0250
..	.....	.....	.....	.....	.....	.....	32	"	8.0500	8.0500
47	30	120	731	881	.0178	.0178	.....	.....	.....	.....
48	.....	170	1,144	1,314	.0085	.0085	.....	.....	.....	.....
49	180	210	1,567	1,877	.....	.....	32	Lamp per year	10.7257	10.7257
54	360	659	2,573	3,592	.0136	.0136	.....	.....	.....	.....
56	.....	378	2,500	2,878	.0144	.0144	.....	.....	.....	.....
65	120	221	1,702	2,043	.0225	.0225	16	Lamp per year	4.4917	4.4917
71	120	1,326	3,332	4,778	.0112	.0112	.....	.....	.....	.....
77	.....	685	2,889	3,574	.0115	.0115	16	Lamp per year	1.1544	1.1544
80	.....	1,280	5,320	6,600	.0089	.0089	16	"	1.7816	1.7816
86	.....	1,828	7,875	9,703	.0097	.0097	16	"	1.9488	1.9488
87	.....	7,312	27,910	35,222	.0148	.0148	.....	.....	.....	.....

TABLE VIII.—*Electric Light, Etc., Plants. Profit and Loss—Private Plants.*

Plant number	Report for Year Ending	Gross Income. From public service. Amount	Gross Income. From public service. Per cent of total gross income	Gross Income. From commercial service. Amount	Gross Income. From commercial service. Per cent of total gross income	Gross Income. From all other sources. Amount	Gross Income. From all other sources. Per cent of total gross income	Gross Income. Total	Total cost of production, including depreciation and taxes	Net Profit. Amount	Net Profit. Per cent of gross income	Net Profit. Per cent on total investment	Net loss
4	Dec. 31, 1897	$225	14 76	$1,021	67.00	$278	18.24	$1,524	$3,864	.....	.....	.....	$2,340
5	"	2,530	68.16	1,182	31.84	.....	.....	3,712	3,056	$656	17.67	7.29	.....
7	Jan. 1, 1898	1,296	29.70	2,983	68.35	85	1.95	4,364	3,553	811	18.58	8.65	.....
8	Dec. 31, 1897	1,595	50.55	1,560	49.45	.....	.....	3,155	2,402	753	23.87	9.65	.....
9	May 1, 1898	1,402	33 92	2,669	64.56	63	1.52	4,134	3,164	970	23.46	5.81	.....
10	Dec. 31, 1897	.....	.....	2,740	100.00	.....	.....	2,740	3,976	.....	.....	.....	1,236
11	May 1, 1898	4,000	100.00	.....	.....	.....	.....	4,000	4,410	.....	.....	.....	410
12	April 1, 1897	1,986	36.78	3,408	63.11	6	.11	5,400	5,432	.....	.....	.....	32
13	—— —, 1897	3,066	55.08	2,350	42.22	150	2.70	5,566	4,514	1,052	18.90	7.01	.....
15	Dec. 31, 1897	1,366	28.60	3,334	69.81	76	1.59	4,776	4,113	663	13.88	5.00	.....
17	June 30, 1898	2,125	33.59	3,922	61.99	280	4.42	6,327	5,439	888	14.04	5.38	.....
18	Jan. 1, 1898	1,068	20.54	4,132	79.46	.....	.....	5,200	7,004	.....	.....	.....	1,804
19	Oct. 1, 1897	1,876	42.03	2,553	57.19	35	.78	4,464	4,612	.....	.....	.....	148
20	Aug. 1, 1898	1,381	33.13	2,038	48.88	750	17.99	4,169	3,333	836	20.05	5.50	.....
21	Sept. 15, 1897	1,577	27.61	2,925	51.21	1,210	21.18	5,712	4,308	1,404	24.58	11.68	.....
23	Jan. 1, 1898	.....	.....	4,053	95.30	200	4.70	4,253	4,851	.....	.....	.....	598
25	Dec. 31, 1897	.....	.....	2,904	93.08	216	6.92	3,120	6,413	.....	.....	.....	3,293
26	"	1,222	29.22	1,680	40.17	1,280	30.61	4,182	3,548	634	15.16	7.10	.....
27	July 1, 1898	1,860	26.08	5,208	73.01	65	.91	7,133	6,921	212	2.97	1.41	.....
30	June 30, 1898	2,657	34.51	3,383	43.94	1,659	21.55	7,699	5,133	2,566	33.33	16.51	.....
31	Jan. 1, 1898	1,512	24.15	4,500	71.86	250	3.99	6,262	7,401	.....	.....	.....	1,139
33	May 20, 1897	180	2.84	5,460	86.12	700	11.04	6,340	4,444	1,896	29.91	21.92	.....
34	June —, 1898	3,611	48.31	3,853	51.54	11	.15	7,475	7,546	.....	.....	.....	71
37	Dec. 31, 1897	3,240	47.12	3,636	52.88	.....	.....	6,876	5,075	1,801	26.19	13.85	.....
38	May 1, 1898	1,451	33.97	2,821	66 03	.....	.....	4,272	4,690	.....	.....	.....	418
39	Dec. 31, 1897	1,752	28.78	4,303	70.69	32	.53	6,087	7,499	.....	.....	.....	1,412
40	Nov. 30, 1897	1,673	35.23	2,980	62.75	96	2.02	4,749	3,035	1,714	36.09	12.79	.....
41	Mar. 1, 1898	2,271	38.42	3,360	56.84	280	4.74	5,911	3,949	1,962	33.19	9.81	.....
43	Apr. 30, 1898	1,600	31.16	3,500	68.16	35	.68	5,135	4,506	629	12.25	3.83	.....
46	Dec. 31, 1897	3,450	42.87	3,690	45.85	908	11.28	8,048	8,745	.....	.....	.....	697
50	Apr. 12, 1898	3,000	32.61	6,000	65.22	200	2.17	9,200	11,206	.....	.....	.....	2,006
51	Dec. 31, 1897	2,530	50.10	2,500	49.50	20	.40	5,050	4,960	90	1.78	.50	.....
52	June 30, 1898	5,820	40.80	8,119	56.92	325	2.28	14,264	9,571	4,693	32.90	18.32	.....
53	Jan. 31, 1898	6,835	53.80	5,843	46.00	25	.20	12,703	11,683	1,020	8.03	2.26	.....
55	Dec. 31, 1897	5,500	52.13	2,980	28.25	2,070	19.62	10,550	9,003	1,547	14.66	4.83	.....
57	Mar. 15, 1898	.....	.....	6,337	83.46	1,256	16.54	7,593	7,049	544	7.16	1.60	.....
58	Oct. 4, 1897	3,456	33.85	6,734	65.97	18	.18	10,208	9,296	912	8.93	3.56	.....
59	July 15, 1898	1,467	17.47	5,469	65.15	1,459	17.38	8,395	11,196	.....	.....	.....	2,801
60	Aug. 31, 1897	3,198	44.16	4,044	55.84	.....	.....	7,242	4,862	2,380	32.86	18.81	.....
61	Dec. 31, 1897	4,230	45.96	4,614	50.13	360	3.91	9,204	7,289	1,915	20.81	7.29	.....
62	June 1, 1898	2,880	37.88	4,221	55.52	502	6.60	7,603	9,928	.....	.....	.....	2,325
63	Dec. 11, 1897	2,720	42.04	3,500	54.10	250	3.86	6,470	4,912	1,558	24.08	6.23	.....
64	Feb. 22, 1898	2,940	19.99	11,765	80.01	.....	.....	14,705	13,739	966	6.57	2.47	.....
66	Dec. 31, 1897	4,560	37.08	6,288	51.13	1,450	11.79	12,298	12,471	.....	.....	.....	173
67	July —, 1898	.....	.....	5,178	97.75	119	2.25	5,297	5,638	.....	.....	.....	341
68	July 1, 1898	3,920	36.82	5,120	48.09	1,606	15.09	10,646	9,342	1,304	12.25	7.22	.....
69	Jan. 31, 1898	3,198	37.08	5,226	60.60	200	2.32	8,624	8,281	343	3.98	1.96	.....
70	May 1, 1898	2,274	38.28	3,366	56.67	300	5.05	5,940	4,150	1,790	30.13	13.51	.....
72	Mar. 31, 1898	.....	.....	14,673	82.64	3,083	17.36	17,756	24,580	.....	.....	.....	6,824
73	Apr. 30, 1898	19,440	40.00	26,000	53.50	3,158	6.50	48,598	31,014	17,584	36.18	6.33	.....
74	Dec. 31, 1897	1,465	29.36	3,250	65.13	275	5.51	4,990	4,953	37	.74	.11	.....
75	"	5,760	41.15	6,300	45.01	1,937	13.84	13,997	10,827	3,170	22.65	6.34	.....
76	Feb. 22, 1898	8,788	53.23	7,572	45.86	150	.91	16,510	14,076	2,434	14.74	6.95	.....
78	June 29, 1898	7,100	47.14	7,960	52.86	.....	.....	15,060	12,824	2,236	14.85	4.22	.....
79	Jan. 1, 1898	13,875	52.96	12,000	45.80	325	1.24	26,200	25,393	807	3.07	1.08	.....
81	Dec. 31, 1897	16,480	43.39	21,007	55.32	491	1.29	37,978	33,134	4,844	12.75	2.85	.....
82	Feb. —, 1898	300	.84	30,000	84.15	5,350	15.01	35,650	24,261	11,389	31.95	11.39	.....
83	Jan. 1, 1898	103	.78	9,125	69.13	3,972	30.09	13,200	11,142	2,058	15.59	5.54	.....
84	Sept. 30, 1897	19,350	47.24	14,117	34.47	7,492	18.29	40,959	43,827	.....	.....	.....	2,868
85	June 1, 1897	44,004	75 58	14,220	24.42	.....	.....	58,224	30,576	27,648	47.49	27.46	.....

TABLE IX.—*Electric Light, etc., Plants—Prices (Private Plants) and*

Plant number.	OWNERSHIP.	Report for year ending—	Type of lamp.	ARC LIGHTING.						
				Watts per lamp.	No. of Lamps in Service.		Prices Per Kilowatt Hour to Private Users.		Prices (When Bought) or Cost (When Made) Per Kilowatt Hour to Municipacity.	
					Private.	Municipal.	Maximum.	Minimum.	Maximum.	Minimum.
1	Municipal	Dec. 31, 1897	c. a. o. arc	450	....	28	.....	.....	$0.1597	$0.1597
2	Municipal	April 30, 1898	"	480	....	26	.....	.....	.0351	.0351
3	Municipal	April 18, 1898	"	450	1	49	$0.0988	$0.0988	.0561	.0561
4	Private	Dec. 31, 1897	a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
5	Private	Dec. 31, 1897	c. a. o. arc	475	10	31	.0752	.0752	.0682	.0682
			c. a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
6	Municipal	April 2, 1898	c. a. o. arc	400	28	36	.2187	.1009	.1101	.1101
7	Private	Jan. 1, 1898	"	450	20	....	.0950	.0831	.....	.....
			c. v. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
8	Private	Dec. 31, 1897	c. a. o. arc	500	....	22	.....	.....	.0671	.0671
			c. v. incand	....	....	....	.....	.....	.....	.....
9	Private	May 1, 1898	a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
10	Private	Dec. 31, 1897	c. v. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
11	Private	May 1, 1898	c. a. o. arc	450	....	50	.....	.....	.0549	.0549
12	Private	April 1, 1897	"	480	4	26	.0833	.0833	.0833	.0833
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
13	Private	———, 1897	c. v. o. arc	450	....	27	.....	.....	.0613	.0613
			a. incand	....	....	....	.....	.....	.....	.....
14	Municipal	May 1, 1897	"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
15	Private	Dec. 31, 1897	"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
16	Municipal	June 18, 1898	c. a. o. arc	450	....	59	.....	.....	.0865	.0865
17	Private	June 30, 1898	a. o. arc	405	3	....	.0823	.0823	.....	.....
			c. a. o. arc	450	....	25	.....	.....	.0656	.0656
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
18	Private	Jan. 1, 1898	c. v. o. arc	340	20	4	.1961	.1961	.1373	.1373
			c. v. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
19	Private	Oct. 1, 1897	a. o. arc	400	2	....	.1500	.1500	.....	.....
			c. a. o. arc	500	....	24	.....	.....	.0676	.0676
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
20	Private	Aug. 1, 1898	a. o. arc	300	....	32	.....	.....	.0799	.0799
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
21	Private	Sept. 15, 1897	a. o. arc	396	3	....	.1665	.1665	.....	.....
			"	340	....	21	.....	.....	.0956	.0956
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....

a Lamps furnished in groups ranging from 1 to 36 lamps, at average prices per lamp per month ranging from $1.00 to $0.1041.

Cost of Production (Municipal Plants) of Light and Power Service.

Candle power of lamps	INCANDESCENT LIGHTING. No. of Lamps in Service. Private	Municipal	Prices Per Unit to Private Users. Unit	Maximum	Minimum	Prices (When Bought) or Cost (When Made) Per Unit to Municipality. Unit	Maximum	Minimum	Motor service prices to users.	Plant number
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
16	109	25	L'p per mo	$0.7500	$0.7500	L p per mo	$0.7500	$0.7500	$1.50 per motor per mo.	4
16	65	.....	Amp. hr...	.0075	.0075	.....	.....	.....	$2.50 per motor per mo.	
16	18	.....	Kw. hr....	.1000	.1000	.....	.....	.....		
25	7	.....	"	.1000	.1000	.....	.....	.....		
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	5
25	16	.....	L'p per mo	1.7500	1.2500	.....	.....	.....		
50	2	.....	"	1.7500	1.2500	.....	.....	.....		
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	7
16	160	15	L'p per mo	.7500	.5000	L'p per mo	.7500	.7500		
16	460	.....	Kw. hr....	.1500	.1500	.....	.....	.....		
25	.....	86	.....	.....	.....	L'p per yr.	13.5000	13.5000		
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	8
16	200	.....	L'p per mo	.6500	.6500	.....	.....	.....		
16	223	28	"	.7000	.3000	L'p per mo	.6000	.6000	.....	9
16	793	.....	L'p per hr.	.0100	.0100	.....	.....	.....		
25	.....	72	.....	.....	.....	L'p per yr.	16.6667	16.6667		
16	764	.....	L'p per hr.	.0100	.0100	.....	.....	.....	.....	10
16	243	.....	L'p per mo	1.0000	.5000	.....	.....	.....		
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	11
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	12
16	140	19	L'p per hr	.0100	.0100	L'p per mo	.5000	.5000	$0.70 per motor per mo.	
16	545	.....	L'p per mo	.7500	.3000	.....	.....	.....		
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	13
16	500	20	L'p hr	.0100	.0100	L'p per mo	.4000	.4000		
16	735	.....	"	.0075	.....	.....	.....	.....	.....	14
16	265	.....	L'p per mo	1.2500	.5000	.....	.....	.....		
30	.....	98	.....	.....	.....	L'p per yr.	12.2449	12.2449		
16	525	.....	L'p hr .. .	.0100	.0100	.....	.....	.....	.....	15
16	375	.....	L'p per mo	.9000	.5500	.....	.....	.....		
30	.....	99	.....	.....	.....	L'p per mo	1.1500	1.1500		
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	16
..	.....	.....	.....	.....	.....	.....	.....	.....	$1.25 per motor per mo.	17
..	.....	.....	.....	.....	.....	.....	.....	.....		
16	400	.....	Kw. hr....	.1000	.1000	.....	.....	.....		
16	800	.....	L'p per mo	.9000	.4000	.....	.....	.....		
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	18
16	150	12	L'p per mo	6.500	6.500	L'p per mo	1.0000	1.0000		
16	850	.....	L'p hr	.0100	.0100	.....	.....	.....		
32	.....	35	.....	.....	.....	L'p per mo	1.4000	1.4000		
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	19
..	.....	.....	.....	.....	.....	.....	.....	.....		
16	396	.....	*a*	*a*	*a*	.....	.....	.....		
16	867	.....	Kw. hr....	.1500	.1500	.....	.....	.....		
32	12	5	*b*	*b*	*b*	L'p per yr.	15.0000	15.0000		
32	8	.....	Kw. hr....	.1500	.1500	.....	.....	.....		
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	20
16	650	.....	L'p per mo	.5000	.1500	.....	.....	.....		
16	150	.....	Kw. hr....	.1000	.1000	.....	.....	.....		
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	21
..	.....	.....	.....	.....	.....	.....	.....	.....		
16	300	9	L'p per mo	.7000	.5000	L'p per mo	.6000	.6000		
16	1,000	.....	Kw. hr....	.1500	.1500	.....	.....	.....		
32	50	.....	L'p per mo	.9000	.9000	.....	.....	.....		

b 12 lamps furnished in a group at $5.00 per month.

Table IX.—

Plant number	OWNERSHIP.	Report for year ending—	Type of lamp.	ARC LIGHTING.						
				Watts per lamp.	No. of Lamps in Service.		Prices Per Kilowatt Hour to Private Users.		Prices (When Bought) or Cost (When Made) Per Kilowatt Hour to Municipality.	
					Private.	Municipal.	Maximum.	Minimum.	Maximum.	Minimum.
22	Municipal	Mar. 31, 1898	c. a. o. arc	600	....	100	.....	.....	$0.0246	$0.0246
23	Private	Jan. 1, 1898	c. v. o. arc	600	29	....	$0.0735	$0.0735	.....	.....
			a. incand	....	....	....	.....	.....	.....	.....
24	Municipal	May 15, 1898	c. a. o. arc	450	....	37	.....	.....	.0156	.0156
			a. incand	....	....	....	.....	.....	.....	.....
25	Private	Dec. 31, 1897	c. a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
26	Private	Dec. 31, 1897	c. a o. arc	340	....	24	.....	.....	.0662	.0662
			c. v. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
27	Private	July 1, 1898	c. a. o. arc	340	25	10	.1235	.1235	.0918	.0918
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
28	Municipal	May 1, 1898	c. a. o. arc	450	....	80	.....	.....	.0230	.0230
			c. a. incand	....	....	....	.....	.....	.....	.....
29	Municipal	April 30, 1898	c. a. o. arc	450	....	37	.....	.....	.0115	.0115
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
30	Private	June 30, 1898	c. a. o. arc	480	....	44	.....	.....	.0564	.0564
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
31	Private	June 1, 1898	c. a. o. arc	350	25	5	.1117	.1117	.1404	1.404
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
32	Municipal	Dec. 31, 1897	c. a. o. arc	450	....	27	.....	.....	.1848	.1848
			a. incand	....	....	....	.....	.....	.....	.....
33	Private	May 20, 1897	c. a. o. arc	450	16	1	.0926	.0926	.0926	.0926
			a. incand	....	....	....	.....	.....	.....	.....
34	Private	June —, 1898	a. o. arc	450	8	....	.1483	.0818	.....	.....
			a. i. arc	450	1	....	.0818	.0818	.....	.....
			c. a. o. arc	450	....	54	.....	.....	.0652	.0652
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
35	Municipal	April 6, 1898	c. a. o. arc	450	....	136	.....	.....	.0262	.0262
36	Municipal	May 1, 1898	"	450	....	104	.....	.....	.0476	.0476
37	Private	Dec. 31, 1897	"	450	7	36	.1323	.1323	.0903	.0903
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
38	Private	May 1, 1898	"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
39	Private	Dec. 31, 1897	c. v. o. arc	500	5	22	.1000	.1000	.0667	.0582
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
40	Private	Nov. 30, 1897	c. a. o. arc	250	....	31	.....	.....	.1067	.1067
			a. incand	....	....	....	.....	.....	.....	.....
41	Private	Mar. 1, 1898	c. a. o. arc	500	....	25	.....	.....	.0519	.0519
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....

c Not including 174 lamps on special contract, of which 82 are in churches on ½ rates, 40 lamps for which prices range from $0.19½ to $6.17½ per lamp per month, and 52 for which $4.00 is charged for first night, $3.00 for second night, and $2.00 for third and each subsequent night.

d Lamps furnished in groups ranging from 1 to 21 lamps and over at average prices per lamp per month, ranging from $0.75 to $0.40.

Continued.

INCANDESCENT LIGHTING.										Plant number
Candle power of lamps	No. of Lamps in Service.		Prices Per Unit to Private Users.			Prices (When Bought) or Cost (When Made) Per Unit to Municipality.			Motor service prices to users.	
	Private	Municipal	Unit	Maximum	Minimum	Unit	Maximum	Minimum		
										22
										23
16	700		L'p per mo	$0.6000	$0.3000					
										24
16	c 512		L'p per mo	.5000	.3000					
16	600		"	.1000	.1000					25
20	700		"	.2500	.2500					
32	20		"	.3500	.3500					
										26
16	500	1	L'p per mo	.6000	.5500	L'p per mo	$0.6000	$0.6000	$1.50 per motor per mo.	
32		1				"	1.2000	1.2000		
									$15 per motor per yr.	27
16	1,150		L'p per mo	.9000	.5000					
32		71				L'p per mo	1.2667	1.2667		
										28
16		12				L'p per yr.	4.1366	4.1366		
										29
8	150									
16	800		*d*	*d*	*d*					
32	50									
										30
16	555	2	L'p per mo	.7500	.1667	L'p per yr.	8.6400	8.6400	$1.00 per motor per mo.	
16	678		Kw. hr.	.1500	1.000					
										31
16	150		L'p per mo	.6000	.6000					
16	2,000		Kw. hr.	.1600	.1600					
32		80				L'p per mo	1.2000	1.2000		
										32
16	700		L'p per mo	.4000	.2000					
										33
16	1,750	20	*e*	*e*	*e*	L'p per yr.	6.0000	6.0000		
									$0.135 per kw. hr.	34
16	250	13	L'p per mo	.6500	.6500	L'p per yr.	7.8000	7.8000		
16	1,230		Kw. hr.	.1350	.1000					
										35
										36
										37
16	700		Kw. hr.	.0468	.0468					
50	10		"	.0468	.0468					
16	1,100		L'p per mo	.8500	.5500					38
25		72				L'p per yr.	20.1500	20.1500		
32	28		L'p hr.	.0100	.0100					
										39
16	400		L'p per mo	.7500	.7500					
16	4,000		L'p hr.	.0100	.0100					
										40
16	2,000	20	L'p per mo	.8000	.7000	L'p per mo	.8000	.7500	$0.80 to $0.30 per motor per mo.	
										41
16	725	11	L'p per mo	.8000	.5000	*a*	*a*	*a*		
16	75		L'p hr.	.0100	.0100					
32		7				*b*	*b*	*b*		

e Some lamps furnished at $0.01 per lamp per hour and some at from $0.65 to $0.40 per lamp per month. The number furnished at the various rates not reported.

a 11 lamps furnished at $3.75 per month.

b 7 lamps furnished at $10.50 per month.

Table IX.—

Plant number	OWNERSHIP.	Report for year ending—	Type of lamp.	ARC LIGHTING.						
				Watts per lamp.	No. of Lamps in Service.		Prices Per Kilowatt Hour to Private Users.		Prices (When Bought) or Cost (When Made) Per Kilowatt Hour to Municipality.	
					Private.	Municipal.	Maximum.	Minimum.	Maximum.	Minimum.
42	Municipal	April 30, 1898	c. a. o. arc	480	....	156	.....	.....	$0.0507	$0.0507
43	Private	April 30, 1898	"	420	3	....	$0.1190	$0.1190	.....	.....
			"	500	....	13	.....	.....	.0889	.0889
			c. a. i. arc	500	4	4	.1000	.1000	.0889	.0889
			a. incand	....	....	....	.....	.....	.....	.....
44	Municipal	April 30, 1898	a. o. arc	375	....	64	.....	.....	.0644	.0644
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
45	Municipal	June 30, 1897	c. v. i	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
46	Private	Dec. 31, 1897	a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
47	Municipal	Jan. 31, 1898	c. a. o. arc	450	....	55	.....	.....	0.0587	0.0587
			a. incand	....	....	....	.....	.....	.....	.....
48	Municipal	Dec. 31, 1897	c. a. o. arc	500	....	146	.....	.....	.0552	.0552
49	Municipal	Dec. 31, 1897	a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
50	Private	April 12, 1898	c. a. o. arc	315	50	47	0.1587	0.1164	.1358	.0762
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
51	Private	Dec. 31, 1897	c. a. o. arc	450	....	35	.....	.....	.0521	.0521
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
52	Private	June 30, 1898	c. a. o. arc	480	12	42	.0889	.0889	.0752	.0627
			a. i. arc	364	2	....	.0827	.0827	.....	.....
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
53	Private	Jan. 31, 1898	c. a. o. arc	450	....	103	.....	.....	.0679	.0679
			c. v. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
54	Municipal	Jan. 1, 1898	c. a. o. arc	500	....	207	.....	.....	.0480	.0480
55	Private	Dec. 31, 1897	"	450	4	44	.1852	.1852	.1034	.1034
			a. o. arc	415	9	....	.2000	.2000	.....	.....
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
56	Municipal	Dec. 31, 1897	c. a. o. arc	450	....	181	.....	.....	.0718	.0710
57	Private	Mar. 15, 1898	a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
58	Private	Oct. 4, 1897	"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
59	Private	July 15, 1898	c. a. i. arc	450	18	33	.0889	.0889	.0274	.0274
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			.....	....	....	....	.....	.....	.....	.....
			.....	....	....	....	.....	.....	.....	.....
60	Private	Aug. 31, 1897	c. a. o. arc	475	7	41	.0810	.0810	.0412	.0412
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
61	Private	Dec. 31, 1897	c. a. o. arc	430	....	47	.....	.....	.0523	.0523
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
62	Private	June 1, 1898	c. v. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....

c Also lamps furnished residences at from $5.00 to $3.00 per residence per month.

d 50 lamps furnished in a group at $65.00 per year.

e $0.10 per kilowatt hour if the bill amounts to $5.00 per month.

Continued.

Candle power of lamps	INCANDESCENT LIGHTING. No. of Lamps in Service. Private	Municipal	Prices Per Unit to Private Users. Unit	Maximum	Minimum	Prices (When Bought) or Cost (When Made) Per Unit to Municipality. Unit	Maximum	Minimum	Motor service prices to users.	Plant number
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	42
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	43
..	.....	.....	.....	.....	.....	.....	.....	.....		
16	1,150	.....	L'p per mo	$0.6000	$0.6000	.....	.....	.....		
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	44
16	1,550	.....	L'p per mo	*c* .7500	*c* .4000	.....	.....	.....		
16	50	.....	*d*	*d*	*d*	.....	.....	.....		
16	700	.....	Kw. hr....	.1500	.1500	.....	.....	.....		
16	400	140	L'p per mo	1.0000	.5000	L'p per yr.	$5.5357	$5.5357	$1.25 per kw. hr.....	45
16	1,573	.....	Kw. hr....	*e* .1250	*e* .1250	.....	.....	.....		
32	100	70	"	*e* .1250	*e* .1250	L'p per yr	11.0714	11.0714		
16	2,000	.....	Kw. hr....	*d* .1800	*d* .1000	.....	.....	.....	.....	46
16	.....	161	.....	.....	.....	L'p per yr.	17.3400	17.3400		
32	.....	25	.....	.....	.....	"	31.6800	31.6800		
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	47
16	1,000	.....	Amp. hr ..	.0050	.0050	.....	.....	.....		
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	48
16	4,495	.....	Amp. hr ..	.0050	.0050	.....	.....	.....	.....	49
32	.....	175	.....	.....	.....	L'p per yr.	11.7943	11.7943		
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	50
16	679	.....	L'p per hr.	1.2500	.5500	.....	.....	.....		
16	600	.....	Kw. hr....	.1500	.1500	.....	.....	.....		
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	51
16	420	12	Kw. hr....	.1500	.1500	Kw. hr....	.1500	.1500		
16	*b* 550	.....	L'p per mo	.8000	.2150	.....	.....	.....		
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	52
..	.....	.....	.....	.....	.....	.....	.....	.....		
16	477	.....	Kw. hr....	.0090	.0090	.....	.....	.....		
16	742	25	L'p per mo	1.2500	.5000	L'p per yr.	12.0000	12.0000		
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	53
16	1,758	.....	L'p hr.....	.0100	.0100	.....	.....	.....		
16	242	18	L'p per mo	1.0000	.5000	*c*	*c*	*c*		
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	54
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	55
..	.....	.....	.....	.....	.....	.....	.....	.....		
16	558	.....	Kw. hr....	.2000	.2000	.....	.....	.....		
32	32	.....	"	.2000	.2000	.....	.....	.....		
50	6	.....	"	.2000	.2000	.....	.....	.....		
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	56
16	500	.....	L'p per mo	.7500	.7500	.....	.....	.....	.....	57
16	300	.....	Amp. hr..	.0100	.0100	.....	.....	.....		
16	614	181	L'p per mo	.7500	.7500	c. p. per yr	2.0000	1.0000	$0.75 per motor per mo	58
16	580	.....	Kw. hr....	.2200	.2200	.....	.....	.....		
32	53	.....	"	.2200	.2200	.....	.....	.....		
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	59
16	1,038	.....	L'p per mo	.7500	.1000	.....	.....	.....		
16	2,962	.....	L'p. hr....	.0100	.0100	.....	.....	.....	$3.00 per motor per mo	
..	.....	.....	.....	.....	.....	.....	.....	.....	$5.00 per motor per mo	
..	.....	.....	.....	.....	.....	.....	.....	.....	$0.03 per H. P. per hr..	
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	60
16	700	.....	L'p per mo	.3000	.3000	.....	.....	.....		
16	900	.....	Kw. hr....	.0075	.0075	.....	.....	.....		
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	61
16	450	.....	Kw. hr....	.2000	.2000	.....	.....	.....		
16	900	.....	L'p per mo	.7500	.3750	.....	.....	.....		
16	2,279	.....	"	.6000	.6000	.....	.....	.....	.....	62
32	85	128	"	.6000	.6000	L'p per yr.	22.5000	22.5000		

a Subject to a discount of 20 per cent.
b Not including 230 lamps furnished at various prices not reported.
c 18 lamps furnished at $11.25 per month.

Table IX—

Plant number	OWNERSHIP.	Report for year ending—	Type of lamp.	ARC LIGHTING.						
				Watts per lamp	No. of Lamps in Service.		Prices Per Kilowatt Hour to Private Users.		Prices (When Bought) or Cost (When Made) Per Kilowatt Hour to Municipality.	
					Private	Municipal	Maximum	Minimum	Maximum	Minimum
63	Private	Dec. 11, 1897	c. a. o. arc	500	....	34	.....	.....	.0741	.0741
			a. incand	....	....	....	.....	.....	.....	.....
64	Private	Feb. 22, 1898	c. a. o. arc	350	73	35	.1190	.1100	.0909	.0909
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
65	Municipal	April 30, 1898	c. a. o. arc	480	2	58	.0794	.0794	.0278	.0278
			a. incand	....	....	....	.....	.....	.....	.....
66	Private	Dec. 31, 1897	c. a. o. arc	450	42	125	.1000	.0778	.0667	.0667
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
67	Private	July —, 1899	"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
68	Private	July 1, 1898	c. a. o. arc	500	....	52	.....	.....	.0480	.0480
			a. incand	....	....	....	.....	.....	.....	.....
69	Private	Jan. 31, 1898	c. a. o. arc	450	6	41	.0684	.0684	.0435	.0435
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
70	Private	May 1, 1898	c. a. o. arc	450	15	11	.0679	.0679	.0679	.0679
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
71	Municipal	April 30, 1898	c. a. o. arc	512	....	307	.....	.....	.0467	.0467
72	Private	Mar. 31, 1898	c. v. i. arc	250	32	....	.2154	.2154	.....	.....
			c. a. o. arc	480	33	....	.1122	.1122	.....	.....
			c. v. incand	....	....	....	.....	.....	.....	.....
			a. incand	....	....	....	.....	.....	.....	.....
			.....	....	....	....	.....	.....	.....	.....
73	Private	April 30, 1898	c. v. o. arc	500	175	270	.0361	.0361	.0361	.0361
			a. incand	....	....	....	.....	.....	.....	.....
			.....	....	....	....	.....	.....	.....	.....
74	Private	Dec. 31, 1897	c. a. o. arc	500	8	21	.0301	.0301	.0326	.0326
			c. v. incand	....	....	....	.....	.....	.....	.....
			a. incand	....	....	....	.....	.....	.....	.....
			c. a. i.	....	....	....	.....	.....	.....	.....
75	Private	Dec. 31, 1897	c. a. o. arc	500	....	64	.....	.....	.0556	.0556
			c. v. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			.....	....	....	....	.....	.....	.....	.....
			a. incand	....	....	....	.....	.....	.....	.....
76	Private	Feb. 8, 1898	c. a. o. arc	500	26	100	.0563	.0563	.0567	.0567
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
77	Municipal	Mar. 31, 1898	c. a. o. arc	450	....	244	.....	.....	.0473	.0473
			a. incand	....	....	....	.....	.....	.....	.....
78	Private	June 29, 1898	c. a. o. arc	450	38	100	.0798	.0798	.0832	.0832
			c. v. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
79	Private	Jan. 1, 1898	c. a. o. arc	450	56	185	.0635	.0593	.0556	.0556
			a. o. arc	450	10	....	.0926	.0593	.....	.....
			a. incand	....	....	....	.....	.....	.....	.....

a Some lamps furnished at $0.01 per lamp hour and some at from $1.00 to $0.80 per lamp per month. The number furnished at the various rates not reported.

c Not including 590 lamps furnished in groups ranging from 3 to 75 lamps at average prices per lamp per month ranging from $0.7500 to $0.1538.

d Lamps furnished in groups ranging from 1 to 20 lamps and over at average prices ranging from $5.00 to $1.50 per group per month for dwellings, $0.65 to $0.45 per lamp per month for stores, service to 9 p. m., and $0.80 to $0.75 per lamp per month for saloons, service to 11 p. m.

Continued.

INCANDESCENT LIGHTING.										Plant number.
Candle power of lamps.	No. of Lamps in Service.		Price Per Unit to Private Users.			Prices (When Bought) or Cost (When Made) Per Unit to Municipality.			Motor service prices to users.	
	Private	Municipal	Unit	Maximum	Minimum	Unit.	Maximum	Minimum		
16	1,200		*a*	*a*	*a*					63
16	342		L'p per mo	.7500	.5000					64
16	2,759		Kw. hr.	.2000	.1600					
16	2,756	103	Kw. hr.	.2000	.2000	L'p per yr.	5.5448	5.5448		65
16	475		Kw. hr.	.1000	.1000					66
16	1,525		L'p per mo	.4000	.1000	L'p per mo	.3000	.3000		
16	1,287		1,000 watts	.2000	.2000				$0.20 per kw. hour	67
16	*c* 223		L'p per mo	1.0000	.4000					
16	2,300	55	*d*	*d*	*d*	L,p per yr.	4.5000	4.5000		68
16	3,200		L'p per mo	.2200	.1400					69
32	10		"	.4400	.4400					
16	388		L'p per mo	.4000	.4000					70
16	100		Kw. hr.	.1000	.1000					
32		106				L'p per mo	1.2250	1.2250		71
										72
16	2,500		Kw. hr.	.1800	.1000				$3.00 per motor per mo	
16	1,500		"	.1800	.1000					
									$0.07 per kw hr	
16	6,500		Amp. hr.	.0075	.0050				$2.50 per H. P.	73
									$0.0075 to $0.005 per amp. hr	
16	400		L'p per mo	.3000	.3000					74
16	1,179	21	"	.3000	.3000	L'p per mo	.3000	.3000	$2.00 per mo. per mot'r	
100	1					L'p per yr.	24.0000	24.0000		
									$0.20 to $0.15 per kw.hr	75
16	520		Kw. hr.	.2000	.1500				$2.50 per motor per mo	
16	270		L'p per mo	1.0000	.6000				$5.50 to $2.50 per motor per mo	
16	2,100		Kw. hr.	.2000	.1500					
16	4,000		*e*	*e*	*e*					76
32		12				L'p per yr.	24.0000	24.0000		
16		900				L'p per yr.	4.7351	4.7351		77
16	1,000		L'p per mo	.7500	.5500					78
16	165		Kw. hr.	.1000	.1000					
										79
16	5,000		Kw. hr.	.1500	.1000				$0.10 per kw. hr.	

e Lamps furnished to dwellings in groups ranging from 1 to 40 lamps at average prices per lamp per month ranging from $1.50 to $0.10; lamps also furnished to barber shops at $0.50 per lamp per month, service to 8 p. m., except Saturdays: to saloons at $0.85 per lamp per month, service to 12 p. m., and to other consumers at $0.65 per lamp per month, service to 8 m., except Saturdays.

Table IX—

Plant number	OWNERSHIP.	Report for for ending—	Type of lamp.	ARC LIGHTING.						
				Watts per lamp	No. of Lamps in Service.		Prices Per Kilowatt Hour to Private Users.		Prices (When Bought) or Cost (When Made) Per Kilowatt Hour to Municipality.	
					Private	Municipal	Maximum	Minimum	Maximum	Minimum
80	Municipal ..	Nov. 30, 1897	c. a. o. arc	450	....	490	.....	.....	.0400	.0400
			a. incand	....	....	....	.....	.....	.....	.....
81	Private	Dec. 31, 1897	a. o. arc	450	17	....	.1135	.1135	.....	.....
			c. a. o. arc	450	....	249	.....	.....	.0651	.0651
			a. incand	....	....	....	.....	.....	.....	.....
82	Private	Feb. —, 1898	c. v. i. arc	450	5	....	.0519	.0519	.....	.....
			c. a. o. arc	560	80	....	.0417	.0417	.....	.....
			a. o. arc	500	35	....	*b* .2000	*b* .2000	.....	.....
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
83	Private	Jan. 1, 1898	c. a. o. arc	480	85	....	.1028	.0514	.....	.....
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
84	Private	Sept. 30, 1897	c. a. o. arc	450	135	....	.1259	.0617	.....	.....
			a. o. arc	450	5	....	.0593	.0296	.....	.....
			c. v. o. arc	450	....	258	.....	.....	.0772	.0772
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
85	Private	June 1, 1897	c. a. o. arc	450	45	....	.1778	.0825	.....	.....
			"	500	34	377	.0109	.0400	.0756	.0450
			a. incand	....	....	....	.....	.....	.....	.....
			"	....	....	....	.....	.....	.....	.....
86	Municipal ..	Dec. 31, 1897	c. a. o. arc	450	....	777	.....	.....	.0426	.0426
			a. incand	....	....	....	.....	.....	.....	.....
87	Municipal ..	Dec. 31, 1897	c. a. o. arc	450	....	1321	.....	.....	.0510	.0510

a Subject to discount of 10 per cent if paid by the 5th of the month.

b Subject to discount of from 10 to 60 per cent for prompt payment.

c $0.10 per kilowatt hour if bill amounts to $5.00 per month.

Concluded.

Candle power of lamps	INCANDESCENT LIGHTING. No. of Lamps in Service. Private	Municipal	Price Per Unit to Private Users. Unit	Maximum	Minimum	Prices (When Bought) or Cost (When Made) Per Unit to Municipality. Unit	Maximum	Minimum	Motor service prices to users.	Plant number
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	80
16	.....	503	.....	.....	.....	L'p per yr.	8.0017	8.0017	.....	
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	81
16	13,800	200	L'p hr.....	*a* .0100	*a* .0100	L'p hr.....	.0050	.0050	$0.20 per kw. hr. (*a*) ...	
..	.....	.....	.....	.....	.....	.....	.....	.....	$0.20 to $0.11 per kw.hr.	82
..	.....	.....	.....	.....	.....	.....	.....	.....		
..	.....	.....	.....	.....	.....	.....	.....	.....	$5.00 per H. P. per mo.	
4	1,600	.....	Amp. hr ..	*b* .0200	*b* .0200	.....	.....	.....	$6.00 to $1.50 per motor per mo	
10	2,400	.....	" ..	*b* .0200	*b* .0200	.....	.....	.....		
16	7,000	.....	" ..	*b* .0200	*b* .0200	.....	.....	.....		
16	2,500	30	L'p per mo	1.0000	.5000	L'p per mo	.8333	.8333		
32	500	.....	Amp. hr ..	*b* .0200	*b* .0200	.....	.....	.....		
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	83
10	96	2	Kw. hr....	*c* .1250	*c* .1250	L'p per mo	.2500	.2500	$5.00 to $1.75 per motor per mo	
16	2,418	4	"	*c* .1250	*c* .1250	"	.4000	.4000	$5.00 per H. P. per mo.	
20	213	13	"	*c* .1250	*c* .1250	"	.5000	.5000		
32	220	.....	"	*c* .1250	*c* .1250	.....	.....	.....		
50	8	.....	"	*c* .1250	*c* .1250	.....	.....	.....		
..	.....	.....	.....	.....	.....	.....	.....	.....	$0.10 per kw hr.....	84
..	.....	.....	.....	.....	.....	.....	.....	.....	$1.50 per motor per mo	
..	.....	.....	.....	.....	.....	.....	.....	.....	$3.50 to $2.50 per H. P. per mo	
16	1,700	.....	L'p per mo	1.2500	.3000	.....	.....	.....		
16	600	.....	Kw. hr....	.1500	.1500	.....	.....	.....		
32	50	.....	"	.1500	.1500	.....	.....	.....		
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	85
..	.....	.....	.....	.....	.....	.....	.....	.....		
16	4,000	1,000	Kw. hr....	.1200	.1200	Kw. hr....	.0600	.0600		
16	3,000	.....	L'p per mo	.9000	.4500	.....	.....	.....		
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	86
16	.....	300	.....	.....	.....	L'p per yr.	8.5115	8.5115		
..	.....	.....	.....	.....	.....	.....	.....	.....	.....	87

Water Works Tables.

TABLE I.—*Water Works—Plant, Distributing Equipment and*

Plant number	OWNERSHIP.	Year constructed	Present ownership dates from—	SOURCE OF SUPPLY.				
				Character	Distance from pumping works or mains—feet	CONDUITS FROM SOURCE OF SUPPLY TO PUMPING WORKS OR MAINS.		
						Character	DIMENSIONS. Length—feet	DIMENSIONS. Diameter—Inches
1	Municipal	1895	1895	Wells	20			
2	"	1889	1889	"	15			
3	"	1890	1890	"				
4	"	1887	1887	"				
5	"	1889	1889	"	*b*			
6	"	1891	1891	"				
7	"	1893	1893	"				
8	"	1894	1894	"				
9	"	1895	1895	"				
10	"	1887	1887	"	60			
11	"	1878	1878	"				
12	"	1894	1894	"				
13	"	1887	1887	"	*d*			
14	"	1894	1894	"	20			
15	"	1894	1894	"	*e*			
16	"	1892	1892	"				
17	"	1893	1893	"	*f*			
18	"	1896	1896	"				
19	"	1893	1893	"	100			
20	"	1888	1888	Lake	150			
21	"	1894	1894	Wells				
22	"	1893	1893	"				
23	Private	1895	1895	"	200			
24	Municipal	1883	1883	"	20			
25	"	1896	1896	"				
26	"	1894	1894	"				
27	"	1893	1893	"				
28	"	1893	1893	"	25			
29	"	1876	1876	"	1,000			
30	"	1888	1888	"				
31	"	1892	1892	River	300			
32	"	1894	1894	Wells				
33	"	1887	1887	"				
34	"	1887	1887	"				
35	"	1888	1888	"	130			
36	"	1891	1891	"				
37	"	1883	1883	"				
38	"	1894	1894	River	500			
39	"	1894	1894	Wells	25			
40	"	1887	1887	"	20			
41	"	1883	1883	"	*g*			
42	"	1878	1878	Creeks	50			
43	"	1894	1894	River	1,000			
44	Private	1895	1895	"	75			
45	Municipal	1888	1888	Wells	40			
46	"	1876	1876	"	100			
47	"	1893	1893	"	50			
48	"	1892	1892	"	1,000	Cast iron pipe	1,090	14
49	"	1884	1884	"	15			
50	"	1889	1889	"	12			
51	"	1889	1889	"	80			
52	"	1893	1893	"	20			
53	Private	1885	1886	"				
54	Municipal	1887	1887	"	1,200			
55	Private	1889	1890	Creek	7,920			
56	"	1891	1891	Lakes				
57	"	1886	1895	Well	300			
58	Municipal	1892	1892	Creek	40			
59	"	1875	1875	River	365	Cast iron pipes	750	12
60	Private	1883	1890	Wells	40			
61	"	1882	1882	"				

Apparatus Owned—Private and Municipal Plants—(First Part).

KIND OF DISTRIBUTION.																	Plant number
GRAVITY.		RESERVOIR.			TANK.					STANDPIPE.				DIRECT PUMPING.			
							DIMENSIONS.					DIMENSIONS.		PRESSURE.			
Head of water—feet	Total storage capacity—gallons	Number in use	Head of water—feet	Total storage capacity—gallons	Number in use	Head of water—feet	Diameter—feet	Height—feet	Total storage capacity—gallons	Number in use	Head of water—feet	Diameter—feet	Height—feet	Ordinary service	Fire service	Total daily capacity—gallons	
.....	.....	..	....	.....	1	65	20	22	51,702	..	....	....	....	*a*	150	144,000	1
.....	.....	..	....	.....	1	56	12½	60	55,080	..	....	....	....	*a*	100	500,000	2
.....	.....	..	....	.....	..	....	.....	....	.....	1	130	11	35	*a*	175	630,000	3
.....	.....	..	....	.....	1	67	20	18	42,301	..	....	....	....	....	....	.....	4
.....	.....	..	....	.....	1	130	*c* 11½	36	26,581	..	....	....	....	*a*	125	759,200	5
.....	.....	..	....	.....	1	105	24	20	67,682	..	....	....	....	....	....	.....	6
.....	.....	..	....	.....	..	....	.....	....	.....	1	100	12	100	....	....	.....	7
.....	.....	..	....	.....	1	73	20	24	56,402	..	....	....	....	*a*	150	1,200,000	8
.....	.....	..	....	.....	1	50	11	50	35,545	..	....	....	....	*a*	150	990,000	9
.....	.....	..	....	.....	1	146	30	35	185,069	..	....	....	....	....	....	.....	10
.....	.....	..	....	.....	..	....	.....	....	.....	..	....	....	....	20	100	1,500,000	11
.....	.....	..	....	.....	1	75	12	48	40,609	..	....	....	....	*a*	140	260,000	12
.....	.....	..	....	.....	1	80	24	18	60,914	..	....	....	....	....	....	.....	13
.....	.....	..	....	.....	..	....	.....	....	.....	1	112	12	70	....	....	.....	14
.....	.....	..	....	.....	1	135	20	25	58,752	..	....	....	....	*a*	100	1,250,000	15
.....	.....	..	....	.....	..	....	.....	....	.....	1	137	12	110	....	....	.....	16
.....	.....	..	....	.....	..	....	.....	....	.....	1	126	12	110	*a*	70	200,000	17
.....	.....	..	....	.....	1	78	11	48	34,123	..	....	....	....	*a*	175	864,000	18
.....	.....	..	....	.....	1	80	12	40	33,841	..	....	....	....	*a*	100	1,500,000	19
.....	.....	..	....	.....	1	165	16	20	30,081	..	....	....	....	*a*	120	500,000	20
.....	.....	..	....	.....	..	....	.....	....	.....	1	136	16	90	*a*	100	1,000,000	21
.....	.....	..	....	.....	1	60	15	16	21,151	..	....	....	....	*a*	80	150,000	22
.....	.....	..	....	.....	..	....	.....	....	.....	..	....	....	....	60	120	850,000	23
.....	.....	..	....	.....	..	....	.....	....	.....	1	107	12	100	*a*	90	1,500,000	24
.....	.....	..	....	.....	..	....	.....	....	.....	1	130	15	100	*a*	100	1,250,000	25
.....	.....	..	....	.....	..	....	.....	....	.....	1	146	12	125	*a*	125	2,000,000	26
.....	.....	..	....	.....	1	78	12½	48	44,064	..	....	....	....	*a*	120	650,000	27
.....	.....	..	....	.....	1	83	11	48	34,123	..	....	....	....	*a*	120	750,000	28
.....	.....	..	....	.....	..	....	.....	....	.....	1	155	15	135	*a*	120	1,000,000	29
.....	.....	..	....	.....	..	....	.....	....	.....	..	....	....	....	40	125	2,500,000	30
.....	.....	..	....	.....	..	....	.....	....	.....	1	122	12	104	*a*	150	2,000,000	31
.....	.....	..	....	.....	..	....	.....	....	.....	..	....	....	....	45	150	494,000	32
.....	.....	..	....	.....	1	68	24	16	54,146	..	....	....	....	*a*	40	345,000	33
.....	.....	..	....	.....	1	84	24	20	67,682	..	....	....	....	....	....	.....	34
.....	.....	..	....	.....	..	....	.....	....	.....	..	....	....	....	45	48	1,250,000	35
.....	.....	..	....	.....	..	....	.....	....	.....	1	123	13	52	....	....	.....	36
.....	.....	..	....	.....	1	72	32	38	112,302	..	....	....	....	....	....	.....	37
.....	.....	..	....	.....	..	....	.....	....	.....	..	....	....	....	80	200	500,000	38
.....	.....	..	....	.....	..	....	.....	....	.....	1	143	15	100	*a*	120	1,250,000	39
.....	.....	..	....	.....	2	130	20	22	103,404	..	....	....	....	*a*	80	1,000,000	40
.....	.....	..	....	.....	..	....	.....	....	.....	..	....	....	....	40	42	2,640,000	41
.....	.....	..	....	.....	1	110	22	41	116,587	..	....	....	....	*a*	80	2,000,000	42
.....	.....	..	....	.....	..	....	.....	....	.....	1	136	12	116	....	....	.....	43
.....	.....	..	....	.....	..	....	.....	....	.....	1	146	16	126	*a*	120	2,000,000	44
.....	.....	..	....	.....	1	68	10	36	21,151	..	....	....	....	*a*	110	432,000	45
.....	.....	..	....	.....	..	....	.....	....	.....	..	....	....	....	40	80	1,350,000	46
.....	.....	..	....	.....	..	....	.....	....	.....	1	180	20	100	*a*	150	1,500,000	47
.....	.....	..	....	.....	..	....	.....	....	.....	1	156	18	100	*a*	*b*	2,000,000	48
.....	.....	..	....	.....	..	....	.....	....	.....	..	....	....	....	40	120	1,000,000	49
.....	.....	..	....	.....	..	....	.....	....	.....	..	....	....	....	70	120	2,140,000	50
.....	.....	..	....	.....	1	70	15	35	47,589	..	....	....	....	*a*	120	500,000	51
.....	.....	..	....	.....	1	103	11	48	31,603	..	....	....	....	*a*	100	1,500,000	52
.....	.....	..	....	.....	..	....	.....	....	.....	1	120	15	120	*a*	165	3,000,000	53
.....	.....	..	....	.....	..	....	.....	....	.....	..	....	....	....	40	110	1,000,000	54
.....	.....	..	....	.....	..	....	.....	....	.....	1	140	10	120	*a*	140	1,500,000	55
.....	.....	..	....	.....	..	....	.....	....	.....	..	....	....	....	40	120	2,750,000	56
.....	.....	..	....	.....	..	....	.....	....	.....	1	161	12	126	*a*	100	1,000,000	57
.....	.....	..	....	.....	..	....	.....	....	.....	1	150	11 11/12	48	*a*	125	2,000,000	58
.....	.....	..	....	.....	..	....	.....	....	.....	..	....	....	....	85	140	7,000,000	59
.....	.....	..	....	.....	1	240	40	30	282,009	..	....	....	....	*a*	160	2,500,000	60
.....	.....	..	....	.....	..	....	.....	....	.....	1	112	15	88	....	....	.....	61

Table I.—

Plant number	OWNERSHIP.	Year constructed	Present ownership dates from—	SOURCE OF SUPPLY.		CONDUITS FROM SOURCE OF SUPPLY TO PUMPING WORKS OR MAINS.		
				Character	Distance from pumping works or mains—feet	Character	DIMENSIONS. Length—feet	DIMENSIONS. Diameter—inches
62	Private	1886	1886	River	100			
63	"	1887	1894	Wells				
64	Municipal	1886	1892	"	40			
65	"	1874	1874	Lake	5,000	Iron pipe	5,000	24
66	Private	1889	1889	River	250			
67	Municipal	1888	1889	*c* Lake	450	Cast iron pipes	900	8
68	"	1895	1895	Wells	200			
69	"	1887	1887	River	75			
70	Private	1886	1886	"	1,320	Open race & pipes	276	16
71	Municipal	1885	1885	Wells	240	Stone	750	4
72	Private	1891	1891	River				
73	Municipal	1875	1875	Wells	700			
74	"	1888	1888	*j* Springs	14,520	Terra cotta pipe	14,520	24
75	"	1881	1883	River	150	Cast iron pipes	1,650	20
76	"	1875	1875	Wells	800	"	2,232	*k*
77	"	1878	1883	"	1,000			
78	"	1882	1882	River	2,065	Cast iron pipes	4,130	*l*
79	"	1866	1866	Wells	50			
80	"	1874	1874	Lake	2,600	Cast iron pipe	2,600	30
81	"	1873	1873	River	300	"	*h*	24
82	"	1851	1851	Wells& Lk	23,760	Brick tunnels	*m*	*m*

a Used only in case of fire.

b One at works; one, 110 feet.

c Tapering to 10.83 feet.

d One at works; one, 50 feet.

e One, 900 feet; two, each 50 feet.

f One, 40 feet; one, 6 feet.

g One at works; one, 20 feet; two, each 35 feet.

h Not reported.

i Also creek when water in lake is low.

j Also wells.

k Six to 24 inches.

l One 30 inches; and one 20 inches.

m One, 18,590 feet long and 5 feet in diameter; one, 43,651 feet long and 6 feet in diameter; one, 54,066 feet long and 7 feet in diameter; one, 9,655 feet long and 8 feet in diameter.

Continued.

KIND OF DISTRIBUTION.																Plant number
GRAVITY.		RESERVOIR.			TANK.				STANDPIPE.				DIRECT PUMPING.			
						DIMENSIONS.				DIMENSIONS.			PRESSURE.			
Head of water—feet	Total storage capacity—gallons	Number in use	Head of water—feet	Total storage capacity—gallons	Number in use	Head of water—feet	Diameter—feet	Height—feet	Total storage capacity—gallons	Number in use	Head of water—feet	Diameter—feet	Height—feet	Ordinary service	Fire service	Total daily capacity—gallons	
.....	.....	..	....	.....	..	....	.....	....	.....	1	157	20	124	60	100	2,000,000	62
.....	.....	..	....	.....	..	....	.....	....	.....	..	....	...	....	35	120	3,495,000	63
.....	.....	..	....	.....	..	....	.....	....	.....	1	155	15	128	70	120	3,000,000	64
.....	.....	..	....	.....	..	....	.....	....	.....	..	....	...	....	60	145	4,000,000	65
.....	.....	..	....	.....	..	....	.....	....	.....	1	218	15	150	65	125	1,750,000	66
.....	.....	..	....	.....	..	....	.....	....	.....	..	....	...	....	95	150	2,000,000	67
.....	.....	..	....	.....	..	....	.....	....	.....	1	180	20	100	....	....	.....	68
.....	.....	..	....	.....	..	....	.....	....	.....	1	232	30	95	*a*	100	9,000,000	69
.....	.....	..	....	.....	..	....	.....	....	.....	1	125	20	125	....	....	.....	70
.....	.....	..	....	.....	..	....	.....	....	.....	1	199	18	152	70	120	9,000,000	71
.....	.....	..	....	.....	..	....	.....	....	.....	..	....	...	....	40	100	2,000,000	72
.....	.....	..	....	.....	..	....	.....	....	.....	1	241	8	206	*a*	125	7,000,000	73
.....	.....	..	....	.....	..	....	.....	....	.....	..	....	....	....	75	140	3,500,000	74
.....	.....	..	....	.....	..	....	.....	....	.....	..	....	....	....	60	130	7,000,000	75
.....	.....	..	....	.....	..	....	.....	....	.....	..	....	....	....	50	120	11,500,000	76
.....	.....	..	....	.....	..	....	.....	....	.....	..	....	....	....	60	110	6,000,000	77
.....	.....	..	....	.....	..	....	.....	....	.....	1	253	16	80	60	100	5,000,000	78
.....	.....	1	30	4,000,000	..	....	.....	....	.....	..	....	....	....	25	60	7,000,000	79
.....	.....	..	....	.....	..	....	.....	....	.....	..	....	....	....	40	80	19,000,000	80
.....	.....	1	86	1,500,000	..	....	.....	....	.....	..	....	....	....	*a*	140	8,000,000	81
.....	.....	..	....	.....	..	....	.....	....	.....	..	....	....	....	48	48	346,000,000	82

TABLE I.—*Water Works—Plant, Distributing Equipment and*

Plant number	OWNERSHIP.	KIND OF FILTERS IN USE.	PUMPING EQUIPMENT.							
			STEAM POWER PLANT.				WATER POW. PL'NT			
			BOILERS.		PUMPS.		WATER WHEELS.		PUMPS.	
			Number	Total rated capacity, H. P.	Number	Total rated capacity, gallons	Number	Total rated capacity, H. P.	Number	Total rated capacity, gallons
1	Municipal		....	*a*	1	144,000	....	.....	....	.....
2	"		2	100	3	850,000	....	.....	....	.....
3	"		....	.....	2	630,000	....	.....	....	.....
4	"		....	.....	1	500,000	....	.....	....	.....
5	"		2	70	3	759,200	....	.....	....	.....
6	"		....	.....	1	300,000	....	.....	....	.....
7	"		....	.....	2	150,000	....	.....	....	.....
8	"		1	60	3	1,200,000	....	.....	....	.....
9	"		....	.....	2	990,000	....	.....	....	.....
10	"		2	80	2	1,500,000	....	.....	....	.....
11	"		....	.....	3	1,500,000	....	.....	....	.....
12	"		2	140	1	260,000	....	.....	....	.....
13	"		1	25	2	240,000	....	.....	....	.....
14	"		2	120	1	750,000	....	.....	....	.....
15	"		2	100	2	1,250,000	....	.....	....	.....
16	"		2	100	2	1,050,000	....	.....	....	.....
17	"		1	40	1	200,000	....	.....	....	.....
18	"		....	.....	2	1,152,000	....	.....	....	.....
19	"		2	130	2	1,500,000	....	.....	....	.....
20	"		1	80	1	500,000	....	.....	....	.....
21	"		2	160	2	1,500,000	....	.....	....	.....
22	"		1	30	1	150,000	....	.....	....	.....
23	Private		2	80	2	850,000	....	.....	....	.....
24	Municipal		3	270	2	1,700,000	....	.....	....	.....
25	"		2	160	2	1,400,000	....	.....	....	.....
26	"		2	120	2	2,000,000	....	.....	....	.....
27	"		2	200	3	864,000	....	.....	....	.....
28	Municipal		2	100	2	1,050,000	....	.....	....	.....
29	"		2	120	1	1,000,000	....	.....	....	.....
30	"		2	120	6	3,060,000	....	.....	....	.....
31	"		*b* 2	120	2	2,000,000	....	.....	....	.....
32	"		2	70	2	494,000	....	.....	....	.....
33	"		1	50	4	345,000	....	.....	....	.....
34	"		1	80	2	250,000	....	.....	....	.....
35	"		2	80	2	1,250,000	....	.....	....	.....
36	"		2	80	5	1,373,800	....	.....	....	.....
37	"		....	.....	1	220,000	....	.....	....	.....
38	"		*b* 2	155	1	500,000	....	.....	....	.....
39	"		3	180	1	1,250,000	....	.....	....	.....
40	"		2	140	2	1,000,000	....	.....	....	.....
41	"		3	180	4	2,760,000	....	.....	....	.....
42	"		2	250	4	2,000,000	....	.....	....	.....
43	"		2	120	2	1,000,000	....	.....	....	.....
44	Private	Sand	2	160	2	2,000,000	....	.....	....	.....
45	Municipal		2	80	4	1,296,000	....	.....	....	.....
46	"		1	100	1	1,350,000	....	.....	....	.....
47	"		2	150	2	1,500,000	....	.....	....	.....
48	"		3	195	2	2,000,000	....	.....	....	.....
49	"		....	.....	2	1,000,000	....	.....	....	.....
50	"		2	100	2	2,140,000	....	.....	....	.....
51	"		2	120	2	500,000	....	.....	....	.....
52	"		2	80	2	1,500,000	....	.....	....	.....
53	Private		3	200	8	3,150,000	....	.....	....	.....
54	Municipal		2	120	2	1,000,000	....	.....	....	.....
55	Private	Mechanical	2	200	2	1,500,000	....	.....	....	.....
56	"		2	160	3	2,750,000	....	.....	....	.....
57	"	Sand	2	120	2	1,000,000	....	.....	....	.....
58	Municipal		2	120	2	2,000,000	....	.....	....	.....
59	"		2	120	2	7,000,000	....	.....	....	.....

Apparatus Owned—Private and Municipal Plants (Second Part).

DISTRIBUTING SYSTEM.													
MAINS.				Fire hydrants.	WATER MOTORS.		HYDRA'LIC ELEVAT'RS		METERS.				Plant number.
SIZE (diameter inches).			Total length in miles.		Number	Total rated capacity, H. P.	Number	Total capacity, gallons	Number	SIZE (diameter inches).			
Largest	Smallest	Average								Largest	Smallest	Average	
5.00	4.00	4.27	1.36	15	....	.....	....	.....	.....	.....	.....	.....	1
8.00	4.00	5.60	2.00	31	....	.....	....	.....	30	0.63	0.63	0.63	2
8.00	4.00	4.88	5.00	48	....	.....	....	.....	6	1.00	.75	0.84	3
6.00	3.00	4.08	2.12	65	....	.....	....	.....	.....	.....	.....	.....	4
8.00	4.00	5.57	3.56	32	....	.....	....	.....	19	2.00	.63	1.02	5
8.00	4.00	6.37	1.65	20	....	.....	....	.....	.....	.....	.....	.....	6
6.00	2.00	3.51	3.67	11	....	.....	....	.....	.....	.....	.....	.....	7
8.00	4.00	6.26	1.84	19	....	.....	....	.....	21	1.00	.63	.73	8
10.00	4.00	6.20	4.09	32	....	.....	....	.....	.....	.....	.....	.....	9
10.00	4.00	7.05	1.86	31	1	1.50	....	.....	6	1.00	.63	.78	10
8.00	4.00	5.29	4.64	48	....	.....	....	.....	.....	.....	.....	.....	11
8.00	4.00	5.40	3.07	26	....	.....	....	.....	6	.75	.63	.67	12
8.00	4.00	6.84	1.51	21	....	.....	....	.....	25	2.00	.63	.82	13
8.00	4.00	5.43	4.00	39	....	.....	....	.....	.....	.....	.....	.....	14
8.00	4.00	5.03	5.00	39	....	.....	....	.....	20	.50	.37	.38	15
8.00	4.00	5.52	4.00	40	....	.....	....	.....	97	1.00	.75	.76	16
8.00	4.00	6.03	3.25	50	1	.50	....	.....	.....	.....	.....	.....	17
8.00	4.00	4.89	3.17	29	....	.....	....	.....	.....	.....	.....	.....	18
12.00	4.00	6.15	5.82	30	2	.25	....	.....	.....	.....	.....	.....	19
8.00	1.25	5.29	3.08	24	....	.....	....	.....	.....	.....	.....	.....	20
8.00	4.00	5.39	6.00	51	....	.....	....	.....	35	2.00	.63	.85	21
4.00	2.00	2.16	4.46	9	....	.....	....	.....	.....	....	.....	.....	22
6.00	4.00	4.76	1.50	14	....	.....	....	.....	.....	.....	.....	.....	23
8.00	2.00	4.13	6.09	44	....	.....	....	.....	3	.75	.75	.75	24
12.00	4.00	6.94	6.50	75	....	.....	....	.....	.....	.....	.....	.....	25
12.00	4.00	8.16	8.37	80	....	.....	....	.....	25	1.50	.75	.70	26
8.00	4.00	4.75	4.29	48	....	.....	....	.....	39	1.00	.50	.66	27
8.00	4.00	5.41	4.00	68	....	.....	....	.....	5	1.00	.75	.81	28
10.00	4.00	5.92	8.38	56	....	.....	....	.....	176	1.50	.63	.70	29
10.00	6.00	6.89	5.50	79	....	.....	....	.....	211	6.00	.63	.80	30
10.00	3.00	5.32	6.49	62	2	10.00	....	.....	.....	.....	.....	.....	31
8.00	2.00	5.02	6.00	68	1	.25	....	.....	12	.63	.63	.63	32
8.00	2.00	3.95	2.91	24	....	.....	....	.....	.....	.....	.....	.....	33
6.00	4.00	4.44	2.91	27	....	.....	....	.....	6	.75	.75	.75	34
8.00	3.00	6.50	5.34	27	2	2.06	....	.....	19	1.00	.63	.67	35
8.00	4.00	5.66	2.02	17	....	.....	....	.....	.....	.....	.....	.....	36
8.00	1.00	4.63	3.67	34	2	.50	....	.....	.....	.....	.....	.....	37
8.00	4.00	5.31	1.19	15	4	.75	....	.....	.....	.....	.....	.....	38
10.00	4.00	6.36	9.85	60	....	.....	....	.....	20	1.00	.75	.78	39
8.00	4.00	6.75	15.00	94	....	.....	....	.....	.....	.....	.....	.....	40
12.00	4.00	5.65	9.06	88	....	.....	....	.....	375	2.00	.50	.56	41
12.00	4.00	7.40	9.87	92	....	.....	....	.....	.....	.....	.....	.....	42
10.00	4.00	7.03	4.98	65	7	3.50	....	.....	.....	.....	.....	.....	43
12.00	4.00	7.03	13.09	103	4	1.00	....	.....	.....	.....	.....	.....	44
8.00	.75	3.23	8.37	32	1	1.50	....	.....	19	2.00	.63	.83	45
10.00	3.00	5.90	13.81	171	....	.....	....	.....	72	2.00	.63	.67	46
12.00	1.50	6.36	11.27	86	....	.....	....	.....	58	2.00	.50	.68	47
12.00	2.00	6.40	11.25	101	....	.....	....	.....	24	2.00	.63	.98	48
8.00	3.00	5.33	1.99	29	....	.....	....	.....	.....	.....	.....	.....	49
8.00	4.00	5.43	24.00	148	6	4.50	....	.....	65	2.00	.63	.74	50
8.00	4.00	4.25	8.00	52	10	21.75	....	.....	.....	.....	.....	.....	51
12.00	4.00	5.66	6.10	57	....	.....	....	.....	9	.75	.75	.75	52
12.00	4.00	7.50	10.00	105	....	.....	....	.....	*c*	*c*	*c*	*c*	53
10.00	4.00	5.23	8.25	84	3	2.50	....	.....	64	3.00	.75	.85	54
8.00	4.00	6.21	4.69	65	....	.....	....	.....	.....	.....	.....	.....	55
10.00	4.00	5.63	5.87	47	....	.....	....	.....	.....	.....	.....	.....	56
12.00	4.00	6.13	6.87	52	9	2.25	1	14	2	3.50	2.00	2.85	57
10.00	4.00	6.38	5.89	50	8	15.50	....	.....	.....	.....	.....	.....	58
12.00	2.00	6.42	13.68	61	....	.....	....	.....	.....	.....	.....	.....	59

Table I.—

Plant number	OWNERSHIP.	KIND OF FILTERS IN USE.	PUMPING EQUIPMENT.							
			STEAM POWER PLANT.				WATER POW. PL'NT			
			BOILERS.		PUMPS.		WATER WHEELS.		PUMPS.	
			Number	Total rated capacity, H. P.	Number	Total rated capacity, gallons	Number	Total rated capacity, H. P.	Number	Total rated capacity, gallons
60	Private		2	150	2	2,500,000	....	.....	....	.....
61	"		2	200	2	3,000,000	....	.....	....	.....
62	"	Sand	2	160	2	2,000,000	....	.....	....	.....
63	"		4	475	9	3,495,000	....	.....	....	.....
64	Municipal		3	300	2	3,000,000	....	.....	....	.....
65	"		2	160	2	4,000,000	....	.....	....	.....
66	Private	Mechanical	*b* 3	210	2	1,750,000	....	.....	....	.....
67	Municipal		1	80	2	2,000,000	....	.....	....	.....
68	"		2	200	2	4,000,000	....	.....	....	.....
69	"	Mechanical	2	250	3	9,000,000	....	.....	....	.....
70	Private	"	3	240	3	4,500,000	....	.....	....	.....
71	Municipal		3	310	3	9,000,000	....	.....	....	.....
72	Private	Sand	2	100	2	2,000,000	....	.....	....	.....
73	Municipal		2	250	2	7,000,000	....	.....	....	.....
74	"		4	300	2	4,500,000	....	.....	....	.....
75	"		4	300	2	7,000,000	....	.....	....	.....
76	"		3	450	3	11,500,000	....	.....	....	.....
77	"		4	360	2	6,000,000	....	.....	....	.....
78	"		3	400	2	8,000,000	....	.....	....	.....
79	"		4	240	2	7,000,000	....	.....	....	.....
80	"		2	170	3	19,000,000	....	.....	....	.....
81	"	Sand	2	240	4	8,500,000	....	.....	....	.....
82	"		73	7,025	29	346,000,000	....	.....	....	.....

a Pump is driven by gasoline engine, 15 horse-power.

b Used also for electric light plant.

c Not reported.

Concluded.

DISTRIBUTING SYSTEM.													Plant number.
MAINS.				Fire hydrants.	WATER MOTORS.		HYDRA'LIC ELEVAT'RS		METERS.				
SIZE (diameter, inches).			Total length in miles.		Number	Total rated capacity, H. P.	Number	Total capacity, gallons	Number	SIZE (diameter inches).			
Largest	Smallest	Average								Largest	Smallest	Average	
12.00	4.00	6.09	10.17	109	9	8.50	2	22	.....	.....	.....	.....	60
16.00	.75	5.64	20.35	129	10	8.00	4	180	461	2.00	.50	.67	61
12.00	3.00	6.73	14.55	133	2	4.00	....	.....	1	2.00	2.00	2.00	62
10.00	4.00	5.89	24.00	148	....	.....	....	.....	150	*c*	*c*	*c*	63
16.00	1.25	7.80	25.70	287	....	.....	....	.....	791	2.00	.38	.65	64
14.00	4.00	7.78	24.50	175	4	1.00	....	.....	30	2.00	.38	.70	65
10.00	4.00	5.61	5.68	70	7	24.00	....	.....	.....	.....	.....	.....	66
6.00	3.00	4.63	5.23	35	....	.....	....	.....	.....	.....	.....	.....	67
16.00	4.00	7.79	24.62	152	5	7.50	....	.....	31	1.00	.63	.65	68
24.00	1.00	7.25	41.92	363	6	1.50	7	274	162	6.00	.63	1.31	69
16.00	4.00	7.80	24.18	239	....	.....	....	.....	109	4.00	.63	1.04	70
16.00	4.00	*c*	50.13	440	7	9.00	2	280	1,278	6.00	.50	.57	71
12.50	4.00	*c*	6.00	77	4	3.75	....	.....	4	.75	.75	.75	72
18.00	4.00	6.12	29.73	317	1	3.00	3	*c*	1,868	*c*	*c*	*c*	73
12.00	2.00	5.81	17.30	96	....	.....	....	.....	70	*c*	*c*	*c*	74
18.00	4.00	7.63	20.47	212	5	2.50	....	.....	24	3.00	.75	1.88	75
20.00	1.25	6.03	55.77	371	....	.....	1	*c*	96	2.00	.63	.93	76
16.00	4.00	7.79	27.79	200	....	.....	....	.....	201	2.00	.63	.69	77
16.00	1.50	7.27	28.75	200	....	.....	4	*c*	10	3.00	1.00	2.63	78
24.00	3.00	9.62	49.80	254	....	.....	....	.....	197	8.00	.63	1.53	79
36.00	4.00	8.38	58.66	445	....	.....	....	.....	14	6.00	.38	2.91	80
16.00	4.00	8.20	24.90	174	....	.....	....	.....	305	4.00	.50	.85	81
48.00	3.00	9.31	1,695.85	17,833	*c*	*c*	*c*	*c*	5,396	10.00	.50	1.91	82

TABLE II.—*Water Works—Fuel Conditions—Private and Municipal Plants.*

Plant number.	Ownership.	Fuel.	
		Character of Coal Used.	Cost per 2,000 pounds.
1	Municipal		
2	"	Bituminous	$0 90
3	"		
4	"		
5	"	Bituminous	1 55
6	"		
7	"		
8	"	Bituminous	1 90
9	"		
10	"	Bituminous	1 25
11	"		
12	"	Bituminous	1 41
13	"	"	1 50
14	"	"	3 00
15	"	"	1 03
16	"	"	2 90
17	"	"	85
18	"		
19	"	Bituminous	1 65
20	"	"	1 93
21	"	"	2 15
22	"	"	1 67
23	Private	"	1 40
24	Municipal	"	2 00
25	"	"	2 00
26	"	"	1 90
27	"	"	1 10
28	"	"	1 95
29	"	"	3 00
30	"	"	1 70
31	"	"	1 30
32	"	"	1 50
33	"	"	1 55
34	"	"	1 70
35	"	"	1 50
36	"	"	1 10
37	"		
38	"	Bituminous	1 40
39	"	"	1 90
40	"	"	1 85
41	"	"	1 50
42	"	"	1 49
43	"	"	1 32
44	Private	"	1 58
45	Municipal	"	1 45
46	"	"	2 84
47	"	"	25
48	"	"	90
49	"		
50	"	Bituminous	1 70
51	"	"	1 60
52	"	"	1 60
53	Private	"	1 00
54	Municipal	"	1 55
55	Private	"	72
56	"	"	90
57	"	"	90
58	Municipal	"	1 80
59	"	"	1 34
60	Private	"	1 75
61	"	"	1 72
62	"	"	1 35
63	"	"	1 00
64	Municipal	"	1 60
65	"	"	2 64
66	Private	"	*a*
67	Municipal	"	85
68	"	"	*b*
69	"	"	2 00
70	Private	"	93
71	Municipal	"	1 62

Table II.—Concluded.

Plant number.	Ownership.	Fuel.	
		Character of Coal Used.	Cost per 2,000 pounds.
72	Private	Bituminous	$1 50
73	Municipal	"	1 65
74	"	"	1 75
75	"	"	1 10
76	"	"	*c*
77	"	"	1 43
78	"	"	1 00
79	"	"	1 20
80	"	"	2 74
81	"	"	*d*
82	"	*e*	*f*

a 1,359 tons screenings at $0.65, 180 tons lump at $1.50.

b Slack $1.00 per ton, lump $1.65 per ton.

c $1.59 and $2.90.

d $0.60 for screenings, lump $1.50.

e 13,348 tons anthracite. 56,831 tons bituminous.

f Anthracite $5.33 per ton, bituminous $2.15 per ton.

TABLE III.—*Water Works—Invest-*

Plant number	Ownership	Land.		Constructions for storage at source of supply.		Wells.		Conduits.		Buildings.		Pumping equipment.	
		Cost	Per cent of total investment	Cost	Per cent of total investment	Cost	Per cent of total investment	Cost	Per cent of total investment	Cost	Per cent of total investment	Cost	Per cent of total investment
1	Municipal	$400	5.71	.....	.....	$700	10.00	.....	.....	.....	.....	$1,775	25.36
2	"	1,000	3.85	$1,500	5.77	4,822	18.55	.....	.....	$1,500	5.77	2,500	9.61
3	"	150	.35	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*
4	"	300	1.87	.....	.....	4,100	25.63	.....	.....	400	2.50	1,900	11.87
5	"	250	.62	.....	.....	10,030	24.81	.....	.....	*a*	*a*	2,863	7.08
6	"	300	2.82	.....	.....	4,000	37.65	.....	.....	150	1.41	1,200	11.30
7	"	150	1.35	.....	.....	1,200	10.79	.....	.....	1,000	8.99	1,000	8.99
8	"	400	2.78	.....	.....	2,000	13.89	.....	.....	1,000	6.94	2,200	15.28
9	"	215	.94	633	2.76	3,093	13.48	.....	.....	798	3.48	1,713	7.47
10	"	600	2.76	4,100	18.85	1,200	5.52	.....	.....	2,000	9.19	2,500	11.49
11	"	500	1.34	1,600	4.29	8,500	22.80	.....	.....	2,500	6.70	3,000	8.05
12	"	300	1.92	.....	.....	700	4.49	.....	.....	200	1.28	300	1.92
13	"	150	.74	.....	.....	7,400	36.72	.....	.....	900	4.47	2,000	9.93
14	"	300	2.00	.....	.....	800	5.33	.....	.....	750	5.00	1,000	6.67
15	"	1,000	4.12	.....	.....	1,550	6.38	.....	.....	1,650	6.79	3,238	13.32
16	"	500	1.75	500	1.75	900	3.15	.....	.....	1,000	3.50	4,000	13.98
17	"	150	.92	.....	.....	500	3.08	.....	.....	400	2.47	550	3.39
18	"	2,300	10.34	.....	.....	3,600	16.18	.....	.....	1,500	6.74	2,945	13.24
19	"	800	2.67	800	2.67	600	2.00	.....	.....	2,000	6.66	3,450	11.50
20	"	1,000	4.35	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*
21	"	500	1.67	500	1.67	1,200	4.00	.....	.....	1,500	5.00	4,000	13.33
22	"	165	1.61	.....	.....	2,000	19.52	.....	.....	1,000	9.76	900	8.79
23	Private	800	6.67	.....	.....	3,000	25.00	.....	.....	1,500	12.50	2,360	19.67
24	Municipal	800	1.76	1,200	2.63	2,000	4.40	.....	.....	1,000	2.20	3,000	6.59
25	"	2,000	4.85	2,000	4.85	2,026	4.92	.....	.....	1,000	2.43	3,000	7.28
26	"	1,200	3.08	2,000	5.13	1,400	3.59	.....	.....	2,000	5.13	5,000	12.82
27	"	350	1.24	500	1.78	1,700	6.03	.....	.....	1,700	6.03	1,750	6.21
28	"	500	1.49	.....	.....	3,500	10.45	.....	.....	2,000	5.97	3,500	10.45
29	"	3,000	3.75	5,009	6.25	5,000	6.25	.....	.....	3,000	3.75	10,000	12.50
30	"	3,000	3.71	5,000	6.18	36,000	44.53	.....	.....	4,500	5.56	10,000	12.37
31	"	*a*	*a*	*a*	*a*	*a*	*a*	.....	*a*	*a*	*a*	*a*	*a*
32	"	1,300	4.08	4,838	15.19	3,779	11.85	.....	.....	2,000	6.27	4,300	13.49
33	"	1,000	6.67	.....	.....	5,800	38.67	.....	.....	250	1.67	1,800	12.00
34	"	1,500	6.90	.....	.....	1,600	7.35	.....	.....	700	3.22	1,300	5.98
35	"	300	.95	4,000	12.70	5,000	15.87	.....	.....	1,000	3.17	1,700	5.40
36	"	2,000	5.76	300	.86	1,300	3.74	.....	.....	3,500	10.08	5,640	16.24
37	"	800	4.02	.....	.....	1,500	7.53	.....	.....	400	2.01	2,500	12.55
38	"	100	2.07	.....	.....	.....	.....	$325	6.73	100	2.07	1,040	21.55
39	"	500	1.12	1,000	2.24	2,543	5.68	.....	.....	1,000	2.24	2,500	5.59
40	"	1,400	1.40	.....	.....	4,200	4.19	.....	.....	3,600	3.59	9,000	8.98
41	"	3,000	4.51	.....	.....	16,000	24.06	.....	.....	1,500	2.26	3,039	4.57
42	"	15,000	18.07	22,000	26.51	5,000	6.02	.....	.....	6,000	7.23	3,000	3.61
43	"	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*
44	Private	1,650	1.92	.....	.....	.....	.....	.....	.....	1,000	1.16	3,500	4.08
45	Municipal	250	.41	800	1.30	1,800	2.93	.....	.....	1,000	1.63	4,560	7.43
46	"	4,250	5.97	900	1.26	2,510	3.53	.....	.....	1,550	2.18	7,000	9.84
47	"	850	1.91	.....	.....	7,000	15.73	.....	.....	750	1.68	8,250	18.53
48	"	1,350	1.85	4,250	5.83	8,000	10.97	1,000	1.51	3,000	4.11	5,000	6.86
49	"	*a*	*a*	*a*	*a*	*a*	*a*	.....	*a*	*a*	*a*	*a*	*a*
50	"	200	.25	2,000	2.50	7,000	8.75	.....	.....	1,000	1.25	7,805	9.76
51	"	630	1.88	.....	.....	4,000	11.92	.....	.....	3,000	8.94	5,000	14.89
52	"	900	2.40	.....	.....	2,700	7.20	.....	.....	1,500	4.00	4,500	12.00
53	Private	800	.89	.....	.....	5,000	5.53	.....	.....	10,000	11.06	11,000	12.17
54	Municipal	500	.91	7,500	13.67	1,200	2.19	.....	.....	2,600	4.74	8,800	16.04
55	Private	*b* 1,000	*b* 1.54	3,000	4.62	.....	.....	.....	.....	6,000	9.23	8,000	12.31
56	"	1,500	3.76	5,000	12.54	.....	.....	.....	.....	2,000	5.02	4,500	11.29
57	"	500	1.03	400	.82	2,000	4.11	.....	.....	1,500	3.08	4,900	10.06
58	Municipal	500	1.59	3,005	9.55	.....	.....	.....	.....	1,142	3.63	5,087	16.17
59	"	876	1.25	3,000	4.29	250	.36	1,500	2.14	1,600	2.29	5,000	7.14
60	Private	1,150	.89	3,100	2.62	11,000	8.47	.....	.....	2,500	1.92	22,000	16.94
61	"	1,250	.68	.....	.....	1,500	.82	.....	.....	3,000	1.64	10,000	5.48
62	"	10,000	5.13	.....	.....	.....	.....	.....	.....	20,000	10.26	30,000	15.38

ment—Private and Municipal Plants.

Distributing Reservoirs, Stand Pipes and Tanks.		Filters and Filtration Beds.		Mains.		Meters and Hydrants.		Teams, Tools and Other Accessories.		Total investment.	Plant number.
Cost	Per cent of total investment	Cost	Per cent of total investment	Cost	Per cent of total investment	Cost	Per cent of total investment	Cost	Per cent of total investment		
$1,500	21.43	.....	.....	$2,300	32.86	$250	3.57	$75	1.07	$7,000	1
5,000	19.23	.....	.....	8,048	30.95	1,630	6.27	.....	.....	26,000	2
a	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	42,529	3
2,000	12.50	.....	.....	5,710	35.69	1,590	9.94	.....	.....	16,000	4
a	*a*	.....	.....	*a*	*a*	*a*	*a*	*a*	*a*	40,424	5
1,000	9.41	.....	.....	3,500	32.94	455	4.28	20	.19	10,625	6
5,000	44.97	.....	.....	2,470	22.21	300	2.70	.....	.....	11,120	7
2,000	13.89	.....	.....	5,900	40.97	900	6.25	.....	.....	14,400	8
2,935	12.79	.....	.....	11,068	48.25	736	3.21	1,748	7.62	22,939	9
3,500	16.09	.....	.....	6,000	27.59	1,250	5.75	600	2.76	21,750	10
.....	.....	.....	.....	19,750	52.96	1,440	3.86	.....	.....	37,290	11
4,583	29.39	.....	.....	8,677	55.64	835	5.36	.....	.....	15,595	12
3,500	17.37	.....	.....	5,000	24.81	1,150	5.71	50	.25	20,150	13
2,500	16.67	.....	.....	8,670	57.80	780	5.20	200	1.33	15,000	14
2,950	12.14	.....	.....	12,000	49.38	897	3.69	1,015	4.18	24,300	15
4,500	15.73	.....	.....	15,900	55.59	1,000	3.50	300	1.05	28,600	16
3,675	22.65	.....	.....	10,000	61.63	950	5.86	.....	.....	16,225	17
4,796	21.56	.....	.....	6,263	28.16	673	3.03	166	.75	22,243	18
1,450	4.83	.....	.....	20,000	66.67	900	3.00	.....	.....	30,000	19
a	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	23,000	20
4,000	13.33	.....	.....	16,500	55.00	1,600	5.33	200	.67	30,000	21
1,000	9.76	.....	.....	5,000	48.80	180	1.76	.....	.....	10,245	22
.....	.....	.....	.....	4,000	33.33	340	2.83	.....	.....	12,000	23
5,000	10.99	.....	.....	30,000	65.93	2,000	4.40	500	1.10	45,500	24
8,000	19.42	.....	.....	20,422	49.57	2,250	5.46	500	1.22	41,198	25
4,000	10.26	.....	.....	21,000	53.84	2,400	6.15	.....	.....	39,000	26
3,000	10.64	.....	.....	17,300	61.38	1,700	6.03	185	.66	28,185	27
4,000	11.94	.....	.....	18,291	54.60	1,670	4.98	39	.12	33,500	28
8,000	10.00	.....	.....	44,150	55.19	1,350	1.69	500	.62	80,000	29
.....	.....	.....	.....	17,000	21.03	5,050	6.25	300	.37	80,850	30
a	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	34,267	31
.....	.....	.....	.....	13,964	43.80	1,700	5.33	.....	.....	31,881	32
500	3.33	.....	.....	5,000	33.33	650	4.33	.....	.....	15,000	33
8,000	36.78	.....	.....	8,000	36.78	600	2.76	50	.23	21,750	34
.....	.....	.....	.....	18,700	59.37	800	2.54	.....	.....	31,500	35
11,500	33.12	.....	.....	9,860	28.39	630	1.82	.....	.....	34,730	36
4,000	20.08	.....	.....	9,000	45.18	1,020	5 12	700	3.51	19,920	37
.....	.....	.....	.....	2,962	61.36	300	6.22	.....	.....	4,827	38
5,000	11.18	.....	.....	28,775	64.35	2,900	6.48	500	1.12	44,718	39
2,000	2.00	.....	.....	74,475	74.35	4,000	3.99	1,500	1.50	100,175	40
4,000	6.01	.....	.....	36,361	54.68	2,500	3.76	100	.15	66,500	41
6,000	7.23	.....	.....	22,500	27.11	3,220	3.88	280	.34	83,000	42
a	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	38,205	43
8,000	9.31	800	0.93	68,575	79.83	2,375	2.77	.....	.....	85,900	44
4,800	7.82	.....	.....	46,440	75.63	1,700	2.77	50	0.08	61,400	45
.....	.....	.....	.....	50,000	70.27	4,933	6.93	12	.02	71,155	46
3,500	7.86	.....	.....	20,000	44.93	2,500	5.62	1,664	3.74	44,514	47
9,400	15.89	.....	.....	37,850	51.90	2,727	3.74	250	.34	72,927	48
.....	*a*	.....	*a*	*a*	*a*	*a*	*a*	*a*	*a*	22,499	49
.....	.....	.....	.....	57,370	71.71	4,525	5.66	100	.12	80,000	50
3,343	9.96	.....	.....	16,000	47.66	1,500	4.47	95	.28	33,568	51
6,000	16.00	.....	.....	19,703	52.54	2,200	5.86	.....	.....	37,503	52
9,000	9.95	.....	.....	50,619	55.98	4,000	4.42	.....	.....	90,419	53
.....	.....	.....	.....	31,776	57.90	2,500	4.55	.....	.....	54,876	54
c 8,300	*c*12.77	4,500	6.92	28,825	44.35	1,875	2.88	3,500	5.38	65,000	55
.....	.....	.....	.....	25,800	64.71	1,000	2.51	68	.17	39,868	56
10,000	20.53	500	1.03	27,000	55.44	1,850	3.80	50	.10	48,700	57
3,637	11.56	.....	.....	16,132	51.29	1,575	5.01	378	1.20	31,456	58
.....	.....	.....	.....	55,000	78.57	1,800	2.57	974	1.39	70,000	59
6,500	5.00	.....	.....	78,106	60.13	3,744	2.88	1,500	1.15	129,900	60
6,000	3.29	.....	.....	153,260	83.91	6,410	3.51	1,220	.67	182,640	61
10,000	5.13	8,000	4.10	109,620	56.21	5,380	2.76	2,000	1.03	195,000	62

Table III.—

Plant number	Ownership	Land.		Constructions for storage at source of supply.		Wells.		Conduits.		Buildings.		Pumping equipment.	
		Cost	Per cent of total investment	Cost	Per cent of total investment	Cost	Per cent of total investment	Cost	Per cent of total investment	Cost	Per cent of total investment	Cost	Per cent of total investment
63	Private	$7,500	3.83	$6,500	3.32	$7,000	3.57	.....	.....	$23,000	11.73	$32,000	16.33
64	Municipal	6,802	3.10	13,595	6.20	22,482	10.25	.....	.....	2,820	1.28	20,000	9.12
65	"	5,000	2.86	.....	.....	.....	.....	$23,850	13.63	10,000	5.71	20,000	11.43
66	Private	600	1.17	.....	.....	.....	.....	.....	.....	3,000	5.86	8,000	15.62
67	Municipal	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*
68	"	1,475	.89	3,000	1.82	35,000	21.26	.....	.....	5,000	3.04	20,000	12.15
69	"	4,000	1.26	1,500	.47	.....	.....	.....	.....	10,000	3.16	50,800	16.03
70	Private	11,500	2.68	12,270	2.86	.....	.....	2,750	.64	12,500	2.91	20,500	4.77
71	Municipal	3,000	.83	.....	.....	29,751	8.27	2,500	.70	9,000	2.50	28,793	8.00
72	Private	500	.90	5,000	8.96	5,500	9.86	.....	.....	2,000	3.58	20,300	36.38
73	Municipal	3,300	1.44	.....	.....	40,960	17.85	.....	.....	11,671	5.09	42,112	18.36
74	"	1,890	1.39	.....	.....	2,352	1.73	15,728	11.54	5,000	3.67	14,000	10.28
75	"	1,000	.60	.....	.....	.....	.....	5,000	3.00	12,500	7.49	26,772	16.04
76	"	6,400	1.14	21,000	3.73	48,000	8.52	5,500	.98	35,000	6.21	94,000	16.69
77	"	5,000	1.79	.....	.....	42,000	15.07	.....	.....	31,000	11.13	34,000	12.20
78	"	800	.26	.....	.....	2,500	.83	5,000	1.67	20,000	6.67	60,500	20.17
79	"	15,880	2.01	29,850	3.78	70,000	8.86	.....	.....	15,000	1.90	70,000	8.86
80	"	20,000	4.21	.....	.....	.....	.....	19,700	4.15	30,000	6.32	50,000	10.53
81	"	5,000	1.72	5,000	1.72	.....	.....	8,000	2.76	13,000	4.48	50,500	17.42
82	"	462,286	1.69	.....	.....	18,000	.07	7,002,667	25.60	629,712	2.30	3,458,715	12.65

Concluded.

Distributing Reservoirs, Stand Pipes and Tanks.		Filters and Filtration Beds.		Mains.		Meters and Hydrants.		Teams, Tools and Other Accessories.		Total investment	Plant number
Cost	Per cent of total investment	Cost	Per cent of total investment	Cost	Per cent of total investment	Cost	Per cent of total investment	Cost	Per cent of total investment		
.....	.....	.....	.....	$116,000	59.18	$4,000	2.04	.....	.....	$196,000	63
$4,000	1.82	.....	.....	142,337	64.87	7,175	3.27	$200	.09	219,411	64
.....	.....	.....	.....	106,900	61.09	7,250	4.14	2,000	1.14	175,000	65
7,000	13.66	$6,000	11.71	24,327	47.49	2,100	4.10	200	.39	51,227	66
a	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	14,000	67
10,000	6.07	.....	.....	83,585	50.77	6,250	3.80	329	.20	164,639	68
19,287	6.09	18,100	5.71	196,645	62.07	13,485	4.26	3,000	.95	316,817	69
8,000	1.86	18,735	4.36	192,979	44.91	7,282	1.69	*d* 143,151	*d*33.32	429,667	70
11,000	3.06	.....	.....	262,060	72.82	13,200	3.67	550	.15	359,854	71
.....	.....	5,000	8.96	15,000	26.88	1,500	2.69	1,000	1.79	55,800	72
27,000	11.77	.....	.....	96,816	42.20	7,540	3.29	.....	.....	229,399	73
.....	.....	.....	.....	94,747	69.55	2,304	1.69	200	.15	136,221	74
.....	.....	.....	.....	115,136	68.98	6,500	3.89	.....	.....	166,908	75
.....	.....	.....	.....	334,217	59.33	15,573	2.76	3,612	.64	563,302	76
.....	.....	.....	.....	157,405	56.49	7,240	2.60	2,000	.72	278,645	77
5,000	1.67	.....	.....	199,200	66.40	6,800	2.27	200	.06	300,000	78
45,000	5.70	.....	.....	526,000	66.61	14,000	1.77	4,000	.51	789,730	79
.....	.....	.....	.....	332,200	69.98	17,800	3.75	5,000	1.06	474,700	80
3,500	1.21	52,000	17.93	100,000	34.48	5,320	1.84	47,680	16.44	290,000	81
75,000	.27	.....	.....	15,320,371	56.01	356,660	1.30	30,318	.11	27,353,729	82

a Not reported.
b Cost of land for stand pipes included in cost of stand pipes.
c Including cost of land for stand pipes.
d Including $142,651 expended for removal of plant.

TABLE IV.—*Water Works—Sources of Funds Used in the Investment—Municipal Plants.*

Plant number.....	TOTAL INVESTMENT.	AMOUNT DERIVED FROM—			BONDS.						
		Taxation.	Transfers from funds on hand.	Issues of bonds.	Total amount outstanding	DATE OF—		Rate per cent of interest.	Coin or gold	Am't per $100 par realized from sale.
						Issue.	Maturity			
1	$7,000	$2,300	.....	$4,700	$4,700	1895	*a*	6	Coin ..	$100 00
2	26,000	3,500	.....	22,500	.....	1889	*b*	5	" ..	100 00
3	42,529	.....	$22,029	20,500	13,000	1890	*c* 1910	5	" ..	102 50
4	16,000	.....	.....	16,000	7,000	1887	1907	6	" ..	100 00
5	40,424	.....	13,847	26,577	26,000	*d*	*e*	*f*	" ..	*g*
6	10,625	.....	10,625	.....	.....	.....	.....	.....	.....	.....
7	11,120	.....	1,620	9,500	4,500	*h*	*i*	6	Coin ..	100 00
8	14,400	8,400	.....	6,000	6,000	1894	1914	5	" ..	100 00
9	22,939	5,839	1,050	16,050	13,200	1895	1915	4	" ..	107 00
10	21,750	.....	3,890	17,860	18,000	1887	1907	5	" ..	94 00
11	37,290	16,000	9,290	12,000	.....	1887	*j*	5	" ..	100 00
12	15,595	9,095	.....	6,500	6,500	1894	1914	6	" ..	100 00
13	20,150	.....	5,400	14,750	3,000	*k*	*l*	6	" ..	*m*
14	15,000	3,000	.....	12,000	12,000	1894	1904	6	" ..	100 00
15	24,300	.....	16,300	8,000	8,000	1895	1915	6	" ..	100 00
16	28,600	.....	15,600	13,000	13,000	1892	1902	5	" ..	100 00
17	16,225	16,225	.....	.....	.....	.....	.....	.....	.....	.....
18	22,243	14,243	.....	8,000	8,000	1896	1906	6	Coin ..	100 00
19	30,000	22,200	.....	7,800	7,800	1893	1903	5	" ..	100 00
20	23,000	.....	8,000	15,000	10,500	*n*	*o*	6	" ..	100 00
21	30,000	19,900	.....	10,100	5,000	1894	*p*	5	" ..	101 00
22	10,245	7,245	.....	3,000	1,000	1892	1900	6	" ..	100 00
24	45,500	32,500	.....	13,000	5,000	1883	*q*	6	" ..	100 00
25	41,198	13,198	.....	28,000	28,000	1896	1906	*r*	" ..	100 00
26	39,000	9,550	.....	29,450	29,000	1894	*s*	5	" ..	101 55
27	28,185	.....	19,185	9,000	6,000	1893	1913	6	" ..	100 00
28	33,500	.....	3,500	30,000	30,000	1893	1913	6	" ..	100 00
29	80,000	.....	25,000	55,000	25,000	*t*	*u*	5	" ..	100 00
30	80,850	60,850	.....	20,000	17,000	1887	*v*	*w*	" ..	100 00
31	34,267	.....	6,933	27,333	27,333	1892	*x*	7	" ..	*y*
32	31,881	14,881	.....	17,000	12,000	1894	*z*	5	" ..	100 00
33	15,000	.....	15,000	.....	.....	.....	.....	.....	.....	.....
34	21,750	14,750	.....	7,000	2,500	1887	1900	6	Coin ..	100 00
35	31,500	16,000	.....	15,500	15,500	1888	1908	5	" ..	100 00
36	34,730	7,000	19,230	8,500	4,500	1891	*aa*	6	" ..	100 00

a First bond in 1897 and one each year thereafter.
b Paid at option of city in 1897.
c First one in 1891 and one annually thereafter to 1910.
d First issue 1888, second issue 1889.
e First issue 1898, second issue 1909.
f First issue 6 per cent, second issue 5 per cent.
g First issue $102.10, second issue $102.25.
h 1891, 1893, 1895.
i $1,000 annually.
j $2,000 due in 1889, $2,000 in 1890, $2,000 in 1891, $3,000 in 1892, and $3,000 in 1893.
k First series 1887, second series 1894.
l First issue 1890, second issue 1895.
m First issue $100, second issue $95.
n 1888 and 1889.
o 1891, 1899 and 1908.
p $2,500 in 1897, $2,500 in 1898, $2,500 in 1899, and $2,500 in 1900.
q $3,000 due in 1888, $5,000 due in 1893, $5,000 due in 1898.
r 5 per cent on $14,500, 6 per cent on $13,500.
s 1904 and 1914.
t $30,000 in 1876, $25,000 in 1886.
u $30,000 in 1886, $25,000 in 1906.
v $3,000 due in 1897, $2,000 annually thereafter to 1905, $3,000 due in 1906.
w $7,000 at 6 per cent, $9,000 at 5 per cent, $4,000 at 4 per cent.
x $6,666 due in 1902, $20,667 due in 1920.
y Not reported.
z $2,500 due in 1897 and annually, $2,000 due in 1904.
aa $2,000 due after 5 years, and thereafter $2,000 annually until redeemed.

Table IV.—Continued.

Plant number.....	TOTAL INVESTMENT.	AMOUNT DERIVED FROM—			BONDS.						
		Taxation.	Transfers from funds on hand.	Issues of bonds.	Total amount outstanding	DATE OF— Issue.	DATE OF— Maturity	Rate per cent of interest.	Coin or gold	Am't per $100 par realized from sale.
37	$19,920	$9,920	.....	$10,000	$4,500	*a*	*b*	*c*	Coin ..	$100 00
38	4,827	.....	$4,827	.....	.....	.....	.....	.....	.....	.....
39	44,718	.....	28,539	16,179	16,000	1894	1914	5	Coin ..	101 12
40	100,175	.....	100,175	.....	.....	.....	.....	.....	.....	.....
41	66,500	28,500	.....	38,000	28,000	*d*	*e*	5	Coin ..	100 00
42	83,000	.....	43,000	40,000	36,000	*f*	*g*	*h*	" ..	100 00
43	38,005	27,000	11,005	.....	.....	.....	.....	.....	.....	.....
45	61,400	45,400	.....	16,000	12,500	1888	1908	6	Coin ..	100 00
46	71,155	46,155	.....	25,000	25,000	*i*	*j*	*k*	" ..	100 00
47	44,514	.....	*l* 7,014	37,500	37,500	1894	1914	6	" ..	*m*
48	72,927	.....	30,427	42,500	22,500	1891	*n*	6	" ..	100 00
49	22,499	.....	6,499	16,000	13,000	1884	1904	5	" ..	100 00
50	80,000	.....	25,000	55,000	50,000	*o*	*p*	*q*	" ..	100 00
51	33,568	20,068	.....	13,500	.....	1889	*r*	6	" ..	100 00
52	37,503	.....	9,503	28,000	20,000	1892	*s*	6	" ..	100 00
54	54,876	31,576	.....	23,300	18,000	*t*	*u*	5	" ..	100 00
58	31,456	.....	11,456	20,000	20,000	1892	1912	5	" ..	100 00
59	70,000	.....	30,000	40,000	20,000	*v* 1875	1915	5	" ..	100 00
64	219,411	.....	83,411	136,000	136,000	1892	1912	5	" ..	100 00
65	175,000	77,000	.....	98,000	33,500	*w*	*x*	6	" ..	100 00
67	14,000	.....	6,500	7,500	5,000	*y*	*z*	6	" ..	100 00
68	164,639	.....	1,439	163,200	151,400	*aa*	*bb*	*cc*	Gold ..	102 00
69	316,817	.....	193,719	123,098	111,000	1888	*dd*	5	Coin ..	104 32
71	359,854	.....	164,897	194,957	168,000	*ee*	*ff*	5	" ..	103 70
73	229,399	154,399	.....	75,000	10,000	*gg*	*hh*	8	" ..	100 00
74	136,221	.....	321	135,900	21,400	*ii*	*ii*	6	" ..	100 00
75	166,908	106,908	.....	60,000	60,000	*jj*	*kk*	4½	" ..	100 00
76	563,302	*ll* 380,702	*mm*	182,600	88,600	*nn*	*oo*	*pp*	" ..	100 00
77	278,645	.....	174,957	103,688	99,000	*qq*	*rr*	*ss*	" ..	104 00
78	300,000	225,000	.....	75,000	25,000	1882	1902	5	" ..	100 00
79	789,730	.....	339,730	450,000	450,000	*tt*	*uu*	*vv*	" ..	100 00
80	474,700	.....	414,445	60,255	33,000	*ww*	*xx*	*yy*	Gold ..	103 00
81	290,000	*l* 125,000	.....	165,000	80,000	*zz*	*aaa*	*bbb*	Coin ..	*ccc*
82	27,353,729	2,713,879	*l*18,485,350	6,154,500	4,055,000	*ddd*	*eee*	*fff*	*ggg*	*hhh*

a First series 1882, 2d in 1887, 3d in 1894.
b First due in 1887, 2d in 1897, 3d in 1909.
c First and second 5½ per cent, 3d 5 per cent.
d $16,000 in 1883, $22,000 in 1884.
e $6,000 in 1898, $4,000 in 1899, $10,000 in 1903, $18,000 in 1904.
f First series 1878, 2d series 1893.
g $10,000 in 1893, $10,000 in 1898, $10 000 in 1905, $10,000 in 1910.
h First series 7 per cent, 2d 5 per cent.
i First issue 1884, 2d 1891, 3d 1895, 4th 1897.
j First issue 1904, 2d 1911, 3d 1915, and 4th in 1, 2 and 3 years.
k First, 2d and 4th issues 6 per cent. 3d issue 5 per cent.
l Includes prem. derived from sale of bonds.
m $104 and $106.
n $2,500 in 1892, $5,000 each year thereafter.
o $35,000 in 1888, $15,000 in 1890, $2,000 in 1894, $3,000 in 1895.
p $20,000 in 1903, $30,000 in 1908.
q 5½ per cent on $15,000, 5 per cent on balance.
r $1,500 in 1991, $2,000 yearly thereafter.
s $2,000 in 1895, $2,000 annually, including 1908.
t First series 1887, 2d 1895.
u First series 1907, 2d 1915.
v Refunded 1895.
w Various dates from 1894.
x One bond annually.
y First 1889, 2d 1894.
z 1909 and 1914.
aa 1894 and 1895.
bb 1914 and 1915.
cc 5 per cent and 6 per cent.
dd 1897 $3,000, 1898 $4,000, 1899 $5,000, 1900 $6,000, from 1901 to 1906 $7,000 each year, and in 1907 $58,000.
ee 1885, 1892 and 1894.
ff 1895, 1900, 1905, 1912, 1914.
gg 1875 and 1876.
hh 1890 and 1892 to 1899.
ii Not reported.
jj 1883 and 1894.
kk From 1903 to 1914.
ll Includes amount derived from transfer of funds on hand.
mm Included in amount derived from taxation.
nn Thirteen issues from 1874 to 1894.
oo From 1886 to 1909.
pp From 8 per cent to 4½ per cent.
qq 1888 and 1890.
rr 1895 to 1910.
ss 5½ per cent to 4½ per cent.
tt 1861 to 1887.
uu 1881 to 1907.
vv 8 per cent to 5 per cent.
ww 1874 to 1892.
xx 1894 to 1912.
yy 8 per cent to 4½ per cent.
zz From 1869 to 1893.
aaa From 1879 to 1913.
bbb From 10 per cent to 5 per cent.
ccc From $100.00 to $103.12½.
ddd From 1882 to 1895.
eee From 1898 to 1915.
fff From 3½ per cent to 5 per cent.
ggg Coin or gold, coin, gold.
hhh From $100.00 to $104.65.

TABLE V.—*Water Works—Gross Items—*

Plant number	OWNERSHIP.	FROM SALES OF WATER.					
		By Meter.		By Contract.		Total.	
		Amount.	Per cent of total gross income	Amount.	Per cent of total gross income	Amount.	Per cent of total gross income
1	Municipal	.....	.....	$100	100.00	$100	100.00
2	"	$637	69.54	.....	.....	637	69.54
3	"	316	36.32	554	63.68	870	100.00
4	"	.....	.....	583	98.65	583	98.65
5	"	766	47.40	850	52.60	1,616	100.00
6	"	.....	.....	510	100.00	510	100.00
7	"	.....	.....	810	100.00	810	100.00
8	"	340	44.33	377	49.15	717	93.48
9	"	.....	.....	582	85.34	582	85.34
10	"	120	5.21	2,158	93.66	2,278	98.87
11	"	.....	.....	718	100.00	718	100.00
12	"	71	6.44	1,021	92.56	1,092	99.00
13	"	2,100	85.57	340	13.86	2,440	99.43
14	"	.....	.....	625	100.00	625	100.00
15	"	438	24.28	1,318	73.06	1,756	97.34
16	"	510	46.36	590	53.64	1,100	100.00
17	"	.....	.....	650	100.00	650	100.00
18	"	.....	.....	416	50.98	416	50.98
19	"	.....	.....	713	95.19	713	95.19
20	"	.....	.....	990	100.00	990	100.00
21	"	310	21.75	1,115	78.25	1,425	100.00
22	"	.....	.....	1,200	100.00	1,200	100.00
23	Private	.....	.....	1,500	100.00	1,500	100.00
24	Municipal	27	1.28	2,078	98.72	2,105	100.00
25	"	.....	.....	553	49.20	553	49.20
26	"	449	12.26	3,188	87.06	3,637	99.32
27	"	400	22.36	1,314	73.45	1,714	95.81
28	"	292	14.85	1,659	84.39	1,951	99.24
29	"	2,720	100.00	.....	.....	2,720	100.00
30	"	2,579	66.28	180	4.63	2,759	70.91
31	"	.....	.....	2,726	98.84	2,726	98.84
32	"	165	8.14	1,622	80.02	1,787	88.16
33	"	.....	.....	988	100.00	988	100.00
34	"	78	5.20	1,422	94.80	1,500	100.00
35	"	528	25.21	1,566	74.79	2,094	100.00
36	"	.....	.....	1,892	99.06	1,892	99.06
37	"	.....	.....	1,063	100.00	1,063	100.00
38	"	.....	.....	663	100.00	663	100.00
39	"	200	11.90	1,309	77.92	1,509	89.82
40	"	.....	.....	3,833	94.95	3,833	94.95
41	"	2,865	78.28	150	4.10	3,015	82.38
42	"	.....	.....	4,749	90.96	4,749	90.96
43	"	.....	.....	1,652	100.00	1,652	100.00
44	Private	.....	.....	7,130	100.00	7,130	100.00
45	Municipal	400	8.83	3,733	82.35	4,133	91.18
46	"	3,477	38.51	5,332	59.05	8,809	97.56
47	"	2,500	55.28	1,980	43.79	4,480	99.07
48	"	565	10.47	4,459	82.64	5,024	93.11
49	"	.....	.....	2,070	100.00	2,070	100.00
50	"	2,400	30.77	5,218	66.90	7,618	97.67
51	"	.....	.....	4,000	100.00	4,000	100.00
52	"	138	3.74	3,377	91.59	3,515	95.33
53	Private	3,000	19.91	11,866	78.76	14,866	98.67
54	Municipal	1,780	52.54	1,608	47.46	3,388	100.00
55	Private	.....	.....	7,950	100.00	7,950	100.00
56	"	.....	.....	9,054	100.00	9,054	100.00
57	"	602	9.62	5,647	90.22	6,249	99.84
58	Municipal	.....	.....	1,655	100.00	1,655	100.00
59	"	.....	.....	4,200	100.00	4,200	100.00
60	Private	.....	.....	20,494	94.21	20,494	94.21
61	"	6,454	21.32	22,993	75.94	29,447	97.26
62	"	150	.73	20,200	98.38	20,350	99.11
63	"	600	3.38	16,629	93.80	17,229	97.18
64	Municipal	11,534	98.68	.....	.....	11,534	98.68
65	"	850	11.88	6,220	86.91	7,070	98.79

Private and Municipal Plants.

From Rents and Sales of Meters.		From Permits for Tapping Street Mains.		From All Other Sources.		Total gross income.	Plant number.
Amount.	Per cent of total gross income	Amount.	Per cent of total gross income	Amount.	Per cent of total gross income		
						$100	1
$279	30.46					916	2
						870	3
				$8	1.35	591	4
						1,616	5
						510	6
						810	7
				50	6.52	767	8
				100	14.66	682	9
				26	1.13	2,304	10
						718	11
11	1.00					1,103	12
				14	.57	2,454	13
						625	14
				48	2.66	1,804	15
						1,100	16
						650	17
				400	49.02	816	18
				36	4.81	749	19
						990	20
						1,425	21
						1,200	22
						1,500	23
						2,105	24
				571	50.80	1,124	25
25	.68					3,662	26
				75	4.19	1,789	27
15	.76					1,966	28
						2,720	29
369	9.48			763	19.61	3,891	30
12	.43			20	.73	2,758	31
				240	11.84	2,027	32
						988	33
						1,500	34
						2,094	35
				18	.94	1,910	36
						1,063	37
						663	38
				171	10.18	1,680	39
				204	5.05	4,037	40
645	17.62					3,660	41
				472	9.04	5,221	42
						1,652	43
						7,130	44
200	4.41			200	4.41	4,533	45
76	.84			144	1.60	9,029	46
				42	.93	4,522	47
				372	6.89	5,396	48
						2,070	49
182	2.33					7,800	50
						4,000	51
				172	4.67	3,687	52
				200	1.33	15,066	53
						3,388	54
						7,950	55
						9,054	56
				10	.16	6,259	57
						1,655	58
						4,200	59
				1,260	5.79	21,754	60
725	2.39			105	.35	30,277	61
				182	.89	20,532	62
				500	2.82	17,729	63
22	.19			132	1.13	11,688	64
				87	1.21	7,157	65

Table V.—

Plant number	OWNERSHIP.	FROM SALE OF WATER.					
		By Meter.		By Contract.		Total.	
		Amount.	Per cent of total gross income	Amount.	Per cent of total gross income	Amount.	Per cent of total gross income
66	Private	.....	.....	$9,608	100.00	$9,608	100.00
67	Municipal	.....	.....	2,175	99.95	2,175	99.95
68	"	.....	.....	6,413	99.46	6,413	99.46
69	"	$7,042	25.79	18,734	68.61	25,776	94.40
70	Private	8,000	23.43	26,050	76.29	34,050	99.72
71	Municipal	14,565	57.91	10,295	40.93	24,860	98.84
72	Private	150	1.22	12,155	98.78	12,305	100.00
73	Municipal	13,500	93.69	799	5.55	14,299	99.24
74	"	2,395	17.85	7,989	59.54	10,384	77.39
75	"	1,750	11.23	13,684	87.77	15,434	99.00
76	"	3,006	8.63	29,887	85.79	32,893	94.42
77	"	.....	.....	17,798	100.00	17,798	100.00
78	"	4,500	15.99	23,635	84.01	28,135	100.00
79	"	27,253	50.51	23,945	44.38	51,198	94.89
80	"	6,834	13.09	44,421	85.07	51,255	98.16
81	"	13,582	44.41	17,000	55.59	30,582	100.00
82	"	937,655	29.51	2,123,008	66.81	3,060,663	96.32

Concluded.

From Rents and Sales of Meters.		For Permits for Tapping Street Mains.		From All Other Sources.		Total gross income.	Plant number.
Amount.	Per cent of total gross income	Amount.	Per cent of total gross income	Amount.	Per cent of total gross income		
.....	.....	.....	.....	.....	.....	$9,608	66
.....	.....	.....	.....	$1	.05	2,176	67
.....	.....	.....	.....	35	.54	6,448	68
.....	.....	.....	.....	1,530	5.60	27,306	69
$0.96	$0.28	.....	.....	.....	.....	34,146	70
.....	.....	.....	.....	292	1.16	25,152	71
.....	.....	.....	.....	.....	.....	12,305	72
.....	.....	.....	.....	110	.76	14,409	73
239	1.78	.....	.....	2,795	20.83	13,418	74
156	1.00	.....	.....	.....	.....	15,590	75
.....	.....	.....	.....	1,943	5.58	34,836	76
.....	.....	.....	.....	.....	.....	17,798	77
.....	.....	.....	.....	.....	.....	28,135	78
228	.42	.....	.....	2,528	4.69	53,954	79
.....	.....	.....	.....	959	1.84	52,214	80
.....	.....	.....	.....	.....	.....	30,582	81
38,441	1.21	.....	.....	78,603	2.47	3,177,707	82

TABLE VI.—*Water Works—Cost of Production—*

Plant number	OWNERSHIP	Report for year ending—	GENERAL EXPENSES. Salaries (of officers, superintendents, clerks, etc.	Office supplies and expenses	Insurance	Legal expenses and damages	Licenses and royalties	Other	Total	Per cent of total manufacturing cost of production
1	Municipal	May 1,'98	$90	.....	$15	....	..	....	$105	15.81
2	"	May 2,'98	*a* 60	.....	20	....	..	....	*b* 80	*c*
3	"	April 30,'98	95	$21	25	....	..	....	141	4.13
4	"	"	82	5	....	....	..	....	87	5.62
5	"	"	924	46	30	....	..	$11	1,011	20.56
6	"	June 1,'98	.....	.....	....	....	..	....	.....	.....
7	"	*k*	36	6	....	....	..	....	42	5.59
8	"	April 1,'98	50	.....	....	....	..	....	50	3.79
9	"	"	174	.....	....	....	..	....	174	9.95
10	"	May 1,'98	228	.....	....	....	..	....	228	12.08
11	"	Mar. 30,'98	72	.....	24	....	..	....	96	2.99
12	"	May 1,'98	240	5	29	....	..	....	274	15.60
13	"	Jan. 1,'98	86	10	18	....	..	....	114	3.44
14	"	Dec. 31,'97	180	40	....	....	..	....	220	10.41
15	"	July 24,'98	*a* 54	.....	....	....	..	....	*b* 54	*c*
16	"	Dec. 31,'97	236	45	....	....	..	....	281	10.89
17	"	May 1,'98	50	.....	....	....	..	....	50	2.73
18	"	April 30,'98	118	5	....	....	..	....	123	12.99
19	"	May 1,'98	84	.....	100	....	..	....	184	9.67
20	"	April 19,'98	72	32	....	....	..	....	104	5.53
21	"	Dec. 31,'97	147	50	125	....	..	....	322	13.76
22	"	April 19,'98	46	9	53	....	..	....	108	6 40
23	Private	Dec. 31,'97	180	10	10	....	..	....	200	14.35
24	Municipal	April 30,'98	322	35	94	....	..	....	451	11.54
25	"	Jan. 1,'98	80	10	....	....	..	....	90	4.01
26	"	Mar. 30,'98	55	.....	108	....	..	....	163	3.13
27	"	May 1,'98	48	.....	....	....	..	....	57	2.93
28	"	Dec. 31,'97	426	.....	50	....	..	....	476	14.84
29	"	April 30,'98	512	45	37	....	..	....	594	12.84
30	"	"	930	49	38	....	..	....	1,017	13.08
31	"	May 15,'98	720	7	35	....	..	....	762	17.18
22	"	July 1,'98	471	36	....	....	..	....	507	17.80
33	"	April 20,'98	36	.....	....	....	..	....	36	1.83
34	"	April 30,'98	126	25	39	....	..	....	190	8.59
35	"	April 1,'98	61	10	25	....	..	....	109	4.40
36	"	June 30,'97	50	25	33	....	..	....	108	3.70
37	"	May 1,'98	49	10	....	....	..	....	59	4.34
38	"	April 4,'98	21	1	10	....	..	....	32	2.30
39	"	Dec. 31,'97	270	79	66	....	..	....	415	13.23
40	"	April 18',98	236	40	224	....	..	....	500	6.23
41	"	May 1,'98	276	43	60	....	..	....	379	8.40
42	"	"	535	25	30	....	..	25	615	16.46
43	"	April 30,'98	60	5	63	....	..	....	128	4.47
44	Private	"	1,100	57	....	....	..	....	1,157	26.13
45	Municipal	"	110	21	100	....	..	....	234	4.32
46	"	"	310	25	32	....	..	....	367	6.63
47	"	"	214	39	....	....	..	....	253	10.53
48	"	"	300	80	125	....	..	....	505	7.88
49	"	"	102	23	16	4	..	....	145	5.01
50	"	April 1,'98	756	45	....	....	..	....	801	9.33
51	"	May 1,'98	966	39	30	....	..	2	1,037	29.72
52	"	"	536	13	33	....	..	47	629	22.34
53	Private	Jan. 1,'98	3,000	150	....	....	..	....	3,150	39.43
54	Municipal	May 1,'98	230	10	....	....	..	....	240	4.21
55	Private	Dec. 31,'97	930	125	25	250	..	....	1,330	20.48
56	"	"	600	100	....	50	..	....	750	15.88
57	"	May 1,'98	576	173	12	....	..	....	761	16.11
58	Municipal	April 15,'98	50	41	82	....	..	....	173	4.02
59	"	May 5,'98	206	48	142	....	..	47	443	7.59

Private and Municipal Plants. (First Part).

Wages.		Supplies.						Rebates and worthless bills.	Maintenance.				Plant number.
									Actual Disbursements for Repairs and Renewals.				
									On storage, construction at source of supply and conduits.		On buildings.		
Total.	Per cent of total manufacturing cost of production.	Fuel.	Pumping station supplies.	Filtration supplies.	Other.	Total.	Per cent of total manufacturing cost of production.		Total.	Per cent of cost.	Total.	Per cent of cost.	
$240	36.15	$45	$10	.....	.....	$55	8.28	.....	.....	.....	.....	.....	1
d 480	*e*	238	23	.....	$237	498	26.41	.....	.....	.....	$55	2.33	2
f	*f*	*f*	*f*	.....	.....	*f* 780	*g*	.....	$27	*h*	41	*h*	3
i 30	*j*	*i* 13	*i*	.....	17	*i* 603	*j*	.....	.....	.....	.....	.....	4
480	17.09	989	94	.....	.....	1,083	22.03	.....	.....	.....	214	*h*	5
f	*f*	*f*	*f*	.....	.....	*f* 571	*g*	.....	.....	.....	.....	.....	6
f	*f*	*f*	*f*	.....	.....	*f* 500	*g*	.....	.....	.....	.....	.....	7
480	36.36	523	16	.....	.....	539	40.83	.....	.....	.....	.....	.....	8
f 146	*g*	*f*	*f*	.....	.....	*f* 600	*g*	.....	.....	.....	.....	.....	9
540	28.62	300	396	.....	.....	696	36.88	.....	.....	.....	.....	.....	10
l 60	*m*	*l* 162	*l* 43	.....	.....	*l* 2,005	*m*	.....	.....	.....	.....	.....	11
420	23.90	674	25	.....	.....	699	39.78	.....	.....	.....	.....	.....	12
1,080	32.64	600	15	.....	.....	615	18.59	.....	.....	.....	25	2.78	13
540	25.57	963	15	.....	.....	978	46.31	.....	.....	.....	.....	.....	14
d 711	*e*	276	8	.....	.....	284	20.48	.....	.....	.....	.....	.....	15
630	24.42	825	25	.....	.....	850	32.95	.....	.....	.....	.....	.....	16
580	31.64	230	25	.....	.....	255	13.91	.....	.....	.....	.....	.....	17
120	12.67	188	8	.....	.....	196	20.70	$120	.....	.....	13	.87	18
420	22.08	330	30	.....	.....	360	18.93	.....	.....	.....	.....	.....	19
360	19.14	154	29	.....	.....	183	9.73	.....	77	*h*	.....	.....	20
520	22.21	774	30	.....	.....	804	34.34	.....	.....	.....	.....	.....	21
420	24.88	271	27	.....	.....	298	17.65	.....	.....	.....	.....	.....	22
600	43.04	180	15	.....	50	245	17.58	35	.....	.....	10	.67	23
960	24.56	1,248	40	.....	.....	1,288	32.95	.....	.....	.....	.....	.....	24
400	17.80	404	13	.....	300	717	31.91	.....	.....	.....	.....	.....	25
720	13.85	1,080	.....	.....	123	1,203	23.14	.....	.....	.....	.....	.....	26
660	33.90	695	16	.....	29	740	38.01	.....	.....	.....	.....	.....	27
850	26.50	687	63	.....	30	780	24.31	72	.....	.....	.....	.....	28
1,020	22.05	848	45	.....	.....	893	19.31	.....	.....	.....	332	11.07	29
1,200	15.44	1,578	145	.....	95	1,818	23.38	.....	.....	.....	319	7.09	30
685	15.44	815	113	.....	.....	928	20.92	.....	.....	.....	7	*h*	31
503	17.66	590	51	.....	205	846	29.69	240	.....	.....	.....	.....	32
940	47.74	707	33	.....	.....	740	37.58	.....	.....	.....	.....	.....	33
592	25.39	667	23	.....	.....	690	31.18	.....	.....	.....	.....	.....	34
480	19.37	489	30	.....	.....	510	20.58	.....	.....	.....	.....	.....	35
720	24.68	1,200	184	.....	.....	1,384	47.45	.....	.....	.....	.....	.....	36
f 25	*g*	*f*	*f*	.....	.....	*f* 500	*g*	.....	.....	.....	.....	.....	37
292	20.99	489	65	.....	.....	554	39.83	.....	.....	.....	40	40.00	38
660	21.03	608	88	.....	291	987	31.45	.....	.....	.....	.....	.....	39
1,200	14.96	2,341	35	.....	204	2,580	32.16	.....	.....	.....	30	.83	40
1,200	26.59	645	86	.....	645	1,376	30.49	.....	.....	.....	.....	.....	41
720	19.26	772	71	.....	.....	843	22.56	.....	.....	.....	.....	.....	42
658	22.96	672	113	.....	.....	785	27.39	39	.....	.....	41	*h*	43
900	20.30	490	19	20	.....	529	11.95	.....	.....	.....	5	.50	44
1,020	18.84	1,389	132	.....	400	1,921	35.49	.....	.....	.....	52	5.20	45
1,630	29.45	2,405	22	.....	.....	2,427	43.85	.....	.....	.....	.....	.....	46
1,260	52.46	91	75	.....	.....	166	6.91	.....	.....	.....	.....	.....	47
1,350	21.08	675	48	.....	112	817	12.76	20	.....	.....	100	3.33	48
f	*f*	*f*	*f*	.....	.....	*f* 1,000	*c*	.....	.....	.....	53	*h*	49
1,440	16.78	1,858	160	.....	182	2,200	25.63	750	.....	.....	.....	.....	50
600	17.20	744	40	.....	50	864	24.76	.....	.....	.....	.....	.....	51
1,140	40.48	623	58	.....	.....	681	24.18	.....	.....	.....	.....	.....	52
1,380	17.27	1,185	30	.....	138	1,353	16.94	50	.....	.....	.....	.....	53
1,320	23.17	1,860	110	.....	.....	1,970	34.57	.....	.....	.....	.....	.....	54
800	12.32	400	60	100	.....	560	8.62	.....	500	16.67	50	.83	55
1,000	21.17	1,192	100	.....	10	1,302	27.57	50	300	6.00	.....	.....	56
700	14.82	1,050	72	100	35	1,257	26.60	150	.....	.....	700	46.67	57
720	16.71	726	80	.....	.....	806	18.71	.....	376	12.51	42	3.68	58
1,000	17.13	2,333	24	.....	.....	2,357	40.38	500	256	5.69	186	11.63	59

Table VI.—

Plant number	OWNERSHIP	Report for year ending—	General Expenses.							
			Salaries of officers, superintendents, clerks, etc	Office supplies and expenses	Insurance	Legal expenses and damages	Licenses and royalties	Other	Total	Per cent of total manufacturing cost of production
60	Private	May 1,'98	1,800	52	78	....	..	....	1,930	26.65
61	"	Dec. 31,'97	2,200	262	26	203	..	614	3.305	26.66
62	"	"	2,600	390	50	....	..	....	3,040	25.14
63	"	Nov. 4,'97	1,900	420	400	100	..	500	3,320	22.15
64	Municipal	Mar. 31,,98	1,282	56	....	....	..	....	1,338	8.19
65	"	April 30.'98	2,150	286	33	....	..	....	2,469	22.71
66	Private	June 30,'98	720	113	83	....	..	....	916	14.17
67	Municipal	April 30,'98	*n* 1,160	10	....	....	..	60	*n* 1,230	*e*
68	"	April 6,'98	660	124	134	....	..	22	940	12.04
69	"	Dec. 31,'97	2,800	274	....	60	..	60	3,194	21.14
70	Private	July 31,'97	2,310	725	....	....	..	....	3,035	23.05
71	Municipal	Jan. 1,'98	1,980	212	33	....	..	....	2,225	14.83
72	Private	Jan. 1,'98	2,800	455	25	200	..	20	3.500	29.97
73	Municipal	April 30,'98	1,360	150	200	....	..	250	1,960	11.42
74	"	Mar. 31,'98	900	202	150	....	..	....	1,252	9.44
75	"	April 30,'9[illegible]	1.368	15	140	....	..	....	1,523	10.41
76	Municipal	Dec. 31,'97	2,308	909	67	....	..	278	3,562	11.50
77	"	May 1,'98	1,200	200	....	....	..	500	1,900	8.30
78	"	April 1,'98	1,672	107	200	....	..	....	1,979	11.23
79	"	Feb. 28,'98	3,956	500	50	....	..	....	4,506	9.11
80	"	Dec. 31,.97	3,295	800	489	....	..	....	4,584	14.90
81	"	April 30,'98	800	78	253	....	..	169	1,300	4.25
82	"	Dec. 31,'98	111,281	29,533	....	....	..	....	140,814	7.18

a Salary of superintendent included in wages.
b Not including salary of superintendent.
c Not obtainable for reasons stated in note *b*.
d Including salary of superintendent
e Not obtainable for reosons stated in note *d*.
f Pumping done by contract. The amount paid for same is shown in total supplies, but cannot be distributed among the various items.
g Not obtainable for reasons stated in note *f*.
h Not obtainable; cost not reported.
i Pumping done by contract ten months. The amount paid for same is included in total supplies, but cannot be distributed among the various items.
j Not obtainable for reasons stated in note *i*.
k Not reported
l Pumping done by contract. The amount paid for same is included in total supplies, but cannot be distributed among the various items.
m Not obtainable for reasons stated in note *l*.
n Including wages.
o Included in salaries of officers, superintendents, clerks, etc.
p Included in disbursements for repairs and renewals on pumping equipment.

Concluded.

Wages.		Supplies.						Rebates and worthless bills	Maintenance.				Plant No.
									Actual Disbursements for Repairs and Renewals.				
									On storage, construction at source of supply and conduits.		On buildings.		
Total	Per cent of total manufacturing cost of production	Fuel	Pumping station	Filtration supplies	Other	Total	Per cent of total manufacturing cost of production		Total	Per cent of cost.	Total	Per cent of cost.	
600	8.28	787	24	.....	783	1,594	22.01	26	.....	.....	....	.....	60
2,358	19.02	2,025	70	.....	582	2,677	21.60	131	.....	.....	....	.....	61
1,200	9.93	1,640	40	100	.....	1,780	14.73	.....	.....	.....	....	.....	62
2,036	13.58	1,749	440	.....	200	2,389	15.94	.....	100	1.54	300	1.30	63
4,125	25.24	3,803	622	.....	22	4,447	27.20	.....	.....	.....	....	.....	64
1,500	13.80	2,400	177	.....	.....	2,577	23.71	.....	.....	.....	....	.....	65
1,120	17.33	1,153	435	.....	.....	1,588	24.57	120	.....	.....	100	3.33	66
f	*f*	408	86	.....	.....	494	14.41	50	50	*h*	225	*h*	67
1,252	16.04	1,752	.....	.....	150	1,902	24.36	.....	.....	.....	....	.....	68
4,020	26.60	2,411	217	298	630	3,556	23.53	.....	.....	.....	....	.....	69
2,663	20.22	2,004	1,207	628	.....	3,839	29.15	.....	.....	.....	....	.....	70
3,524	23.50	2,508	204	.....	.....	2,712	18.08	.....	.....	.....	80	.89	71
1,440	12.33	2,737	500	60	.....	3,297	28.23	1,000	.....	.....	....	.....	72
3,180	18.52	1,975	183	.....	150	2,308	13.45	.....	.....	.....	....	.....	73
4,170	31.45	4,704	292	.....	928	5,924	44.68	.....	.....	.....	250	5.00	74
4,200	28.70	3,338	150	.....	.....	3,488	23.83	.....	.....	.....	....	.....	75
8,173	26.40	5,142	1,243	.....	1,866	8,251	26.65	.....	.....	.....	*p*	*p*	76
5,700	24.88	6,000	825	.....	.....	6,825	29.79	.....	.....	.....	....	.....	77
4,654	26.41	4,068	324	.....	46	4,438	25.18	.....	.....	.....	38	.19	78
5,040	10.19	3,650	300	.....	1,278	5,228	10.57	.....	.....	.....	....	.....	79
3,716	12.08	3,768	500	.....	1,423	5,691	18.50	.....	.....	.....	19	.06	80
5,844	19.12	6,191	203	2,122	150	8,666	28.36	.....	.....	.....	362	2.78	81
431,074	21.96	222,755	61,156	.....	45,487	329,398	16.78	.....	44,459	63	*p*	*p*	82

TABLE VI.—*Water Works—Cost of Production*

Plant number	OWNERSHIP.	MAINTENANCE.										
		ACTUAL DISBURSEMENT FOR REPAIRS AND RENEWALS.									TOTAL.	
		ON PUMPING EQUIPMENT.		ON DISTRIBUTING RESERVOIR, STANDPIPES AND TANKS.		ON FILTERS AND FILTRATION BEDS.		ON MAINS AND OTHER DISTRIBUTING EQUIPMENT.		Other		
		Total	Per cent of cost	Total	Per cent of cost	Total	Per cent of cost	Total	Per cent of cost		Amount	Per cent of total investment exclusive of land.
1	Municipal											
2	"	$23	0.92								$78	0.31
3	"			$96	*b*			$215	*b*		379	.89
4	"							199	2.73		199	1.27
5	"	445	15.54	9	*b*			27	*b*	$82	777	1.93
6	"	25	2.08					35	.88		60	58
7	"	15	1.50					83	3.00		98	.89
8	"			66	3.30			45	.66		111	.79
9	"									200	200	.88
10	"											
11	"							318	1.50		318	.86
12	"	109	3.63					102	1.07		211	1.38
13	"	200	10.00					150	2.44	125	500	2.50
14	"	20	2.00					60	.63		80	.54
15	"	79	2.44					11	.09	25	115	.49
16	"	78	1.95					179	1.06		257	.91
17	"	72	13.09							223	305	1.90
18	"	122	4.14							54	189	.95
19	"							62	.30		62	.21
20	"							24	*b*	33	134	.61
21	"							105	.58		105	.36
22	"	560	62.22								560	5.56
23	Private							55	1 27	25	90	.80
24	Municipal	66	2.20					250	.78		316	.71
25	"	90	3.00					166	.73		256	.65
26	"	347	6.94					212	.91	1,778	2,337	6.18
27	"							134	.71	78	212	1.19
28	"	40	1.14								40	.12
29	"			130	1.63			116	.25		578	.75
30	"	1,562	15.62					206	.93	95	2,182	2.80
31	"	354	*b*								361	*a*
32	"	141	3.28								141	.46
33	"	97	5.39	6	1.20						103	.74
34	"	40	3.08							123	163	.80
35	"	40	2.35					350	1.79	53	443	1.42
36	"									50	50	.15
37	"	50	2.00					140	1.40	10	200	1.05
38	"	152	14.62					20	.61	18	230	4.87
39	"	61	2.44	105	2.10			17	.05	9	192	.43
40	"	150	1.67					1,587	2.02		1,767	1.79
41	"	304	10.00	68	1.70			458	1.18	93	923	1 45
42	"	639	21.30					100	.39		739	1.09
43	"			8	*b*			419	*b*	38	506	*a*
44	Private							2	.003	149	156	.19
45	Municipal	226	4.96					87	.18	38	403	.66
46	"							107	.19		107	.16
47	"	236	2.86					50	.22		286	.66
48	"									34	134	.19
49	"	42	*b*					82	*b*	40	217	*a*
50	"	100	1.28					100	.16		200	.25
51	"											
52	"											
53	Private							200	.37	64	264	.29
54	Municipal	537	6.10								537	.99
55	Private	25	.31	100	*b*	$125	2.78	1,175	3.83		1,975	*a*
56	"	150	3.23					20	.07		470	1.22
57	"	200	4.08			300	60.00	175	.61		1,375	2.85

—*Private and Municipal Plants—(Second Part.)*

Estimated Depreciation on cost of works exclusive of land.		Total.			Total Cost of Production.		Taxes.	Total Cost of Production and Taxes.		Plant number.
Total.	Per cent of total investment exclusive of land.	Amount.	Per cent of total investment exclusive of land.	Per cent of total manufacturing cost of production.	Including estimated depreciation.	Excluding estimated depreciation.		Including estimated depreciation.	Excluding estimated depreciation.	
$261	*a*	$264	*a*	33.67	$664	$400	.....	$664	$400	1
750	3.00	828	3.31	43.90	1,886	1,136	.....	1,886	1,136	2
2,119	5.00	2,498	5.89	73.06	3,419	1,300	.....	3,419	1,300	3
628	4.00	827	5.27	53.46	1,547	919	.....	1,547	919	4
1,205	3.00	1,982	4.93	40.32	4,916	3,711	.....	4,916	3,711	5
206	2.00	266	2.58	31.78	837	631	.....	837	631	6
111	1.01	209	1.91	27.83	751	640	.....	751	640	7
140	1.00	251	1.79	19.02	1,320	1,180	.....	1,320	1,180	8
629	2.77	829	3.65	47.40	1,749	1,120	.....	1,749	1,120	9
423	2.00	423	2.00	22.42	1,887	1,464	.....	1,887	1,464	10
736	2.00	1,054	2.86	32.78	3,215	2,479	.....	3,215	2,479	11
153	1.00	364	2.38	20.72	1,757	1,604	.....	1,757	1,604	12
1,000	5.00	1,500	7.50	45.33	3,309	2,309	.....	3,309	2,309	13
294	2.00	374	2.54	17.71	2,112	1,818	.....	2,112	1,818	14
223	.96	338	1.45	24.37	1,387	1,164	.....	1,387	1,164	15
562	2.00	819	2.91	31.74	2,580	2,018	.....	2,580	2,018	16
643	4.00	948	5.90	51.72	1,833	1,190	.....	1,853	1,190	17
199	1.00	388	1.95	40.97	947	748	.....	947	748	18
876	3.00	938	3.21	49.32	1,902	1,026	.....	1,902	1,026	19
1,100	5.00	1,234	5.61	65.60	1,881	781	.....	1,881	781	20
590	2.00	695	2.36	29.69	2,341	1,751	.....	2,341	1,751	21
302	3.00	862	8.55	51.07	1,688	1,386	.....	1,688	1,386	22
224	2.00	314	2.80	22.52	1,394	1,170	$30	1,424	1,200	23
894	2.00	1,210	2.71	30.95	3,909	3,015	.....	3,909	3,015	24
784	2.00	1,040	2.65	46.28	2,247	1,463	.....	2,247	1,463	25
776	2.05	3,113	8.24	59.88	5,199	4,423	.....	5,199	4,423	26
278	1.56	490	2.75	25.16	1,947	1,669	.....	1,947	1,669	27
990	3.00	1,030	3.12	32.11	3,208	2,218	.....	3,208	2,218	28
1,540	2.00	2,118	2.75	45.80	4,625	3,085	.....	4,625	3,085	29
1,557	2.00	3,739	4.80	48.10	7,774	6,217	.....	7,774	6,217	30
1,700	*a*	2,061	*a*	46.46	4,436	2,736	.....	4,436	2,736	31
612	2.00	753	2.46	26.43	2,849	2,237	.....	2,849	2,237	32
150	1.07	253	1.81	12.85	1,969	1,819	.....	1,969	1,819	33
608	3.00	771	3.81	34.84	2,213	1,605	.....	2,213	1,605	34
936	3.00	1,379	4.42	55.65	2,478	1,542	.....	2,478	1,542	35
655	2.00	705	2.15	24.17	2,917	2,262	.....	2,917	2,262	36
574	3.00	774	4.05	57.00	1,358	784	.....	1,358	784	37
283	5.99	513	10.85	36.88	1,391	1,108	.....	1,391	1,108	38
884	2.00	1,076	2.43	34.29	3,138	2,254	.....	3,138	2,254	39
1,975	2.00	3,742	3.79	46.65	8,022	6,047	.....	8,022	6,047	40
635	1.00	1,558	2.45	34.52	4,513	3,878	.....	4,513	3,878	41
820	1.21	1,559	2.29	41.72	3,737	2,917	.....	3,737	2,917	42
750	*a*	1,256	*a*	43.82	2,866	2,116	.....	2,866	2,116	43
1,685	2.00	1,841	2.19	41.59	4,427	2,742	510	4,937	3,252	44
1,835	3.00	2,238	3.66	41.35	5,413	3,578	.....	5,413	3,578	45
1,004	1.52	1,111	1.68	20.07	5,535	4,531	.....	5,535	4,531	46
437	1.00	723	1.66	30.10	2,402	1,965	.....	2,402	1,965	47
3,579	5.00	3,713	5.19	57.97	6,405	2,826	.....	6,405	2,826	48
1,532	*a*	1,749	*a*	60.44	2,894	1,362	.....	2,894	1,362	49
3,192	4.00	3,392	4.25	39.52	8,583	5,391	.....	8,583	5,391	50
988	3.00	988	3.00	28.32	3,489	2,501	.....	3,489	2,501	51
366	1.00	366	1.00	13.00	2,816	2,450	.....	2,816	2,450	52
1,792	2.00	2,056	2 29	25.73	7,989	6,197	745	8,734	6,942	53
1,631	3.00	2,168	3.99	38.05	5,698	4,067	.....	5,698	4,067	54
1,830	*a*	3,805	*a*	58.58	6,495	4,665	218	6,713	4,883	55
1,151	3.00	1,621	4.22	34.32	4,723	3,572	217	4,940	3,789	56
482	1.00	1,857	3.85	39.30	4,725	4,243	883	5,608	5,126	57

Table VI.—

Plant number	OWNERSHIP.	MAINTENANCE. Actual Disbursement for Repairs and Renewals. ON PUMPING EQUIPMENT. Total	ON PUMPING EQUIPMENT. Per cent of cost	ON DISTRIBUTING RESERVOIR, STANDPIPES AND TANKS. Total	ON DISTRIBUTING RESERVOIR, STANDPIPES AND TANKS. Per cent of cost	ON FILTERS AND FILTRATION BEDS. Total	ON FILTERS AND FILTRATION BEDS. Per cent of cost	ON MAINS AND OTHER DISTRIBUTING EQUIPMENT. Total	ON MAINS AND OTHER DISTRIBUTING EQUIPMENT. Per cent of cost	Other	TOTAL. Amount	TOTAL. Per cent of total investment exclusive of land.
58	Municipal	$42	.83	$25	.69	.....	.....	$32	.18	$355	$772	2.49
59	"	272	5.44	.....	.....	.....	.....	55	.10	77	846	1.22
60	Private	80	.36	.....	.....	.....	.....	.....	.....	438	518	.40
61	"	99	.99	.....	.....	.....	.....	200	.13	.....	299	.16
62	"	180	.60	.....	.....	.....	.....	340	.30	.....	520	.28
63	"	450	1.41	.....	.....	.....	.....	200	.17	541	1,591	.84
64	Municipal	1,000	5.00	.....	.....	.....	.....	1,122	.75	62	2,184	1.03
65	"	300	1.50	.....	.....	.....	.....	600	.53	24	924	.54
66	Private	475	5.94	100	1.43	$175	2.92	350	1.32	.....	1,200	2.37
67	Municipal	1,100	*b*	.....	.....	.....	.....	.....	.....	.....	1,375	*a*
68	"	558	2.79	98	.58	.....	.....	254	.28	356	1,266	.78
69	"	742	1.46	.....	.....	.....	.....	472	.22	.....	1,214	.39
70	Private	.....	.....	.....	.....	.....	.....	412	.21	.....	412	.10
71	Municipal	456	1.58	.....	.....	.....	.....	355	.13	294	1,185	.33
72	Private	.....	.....	.....	.....	.....	.....	200	1.21	30	230	.42
73	Municipal	1,500	3.56	50	.19	.....	.....	535	.51	850	2,935	1.30
74	"	540	3.86	.....	.....	.....	.....	1,124	1.16	.....	1,914	1.42
75	"	300	1.12	.....	.....	.....	.....	1,050	.86	756	2,106	1.27
76	"	*c* 1,370	*d*	.....	.....	.....	.....	3,916	1.12	120	5,406	.97
77	"	200	.59	.....	.....	.....	.....	75	.05	.....	275	.10
78	"	224	.54	.....	.....	.....	.....	159	.08	46	567	.19
79	"	.....	.....	.....	.....	.....	.....	16,808	3.11	10,142	26,950	3.48
80	"	302	.60	.....	.....	.....	.....	7,357	2.10	.....	7,678	1.69
81	"	8,375	16.58	.....	.....	.....	.....	316	.30	.....	9,052	3.18
82	"	*c* 46,450	*d*	.....	.....	.....	.....	372,474	2.38	60,388	523,771	1.95

a Not obtainable; total investment exclusive of land not reported.

b Not obtainable; cost not reported.

Concluded.

Estimated Depreciation on cost of works exclusive of land.		Total.			Total Cost of Prodution.		Taxes.	Total Cost of Production and Taxes.		Plant number
Total	Per cent of total investment exclusive of land	Amount	Per cent of total investment exclusive of land	Per cent of total manufacturing cost of production	Including estimated depreciation	Excluding estimated depreciation		Including estimated depreciation	Excluding estimated depreciation	
$1,837	5.94	$2,609	8.43	60.56	$4,308	$2,471	.....	$4,308	$92,471	58
691	1.00	1,537	2.22	26.33	5,837	5,146	.....	5,837	5,146	59
2,575	2.00	3,093	2.40	42.70	7,243	4,668	$966	8,209	5,634	60
3,628	2.00	3,927	2.16	31.67	12,398	8,770	1,319	13,717	10,089	61
5,550	3.00	6,070	3.28	50.20	12,090	6,540	3,460	15,550	10,000	62
5,655	3.00	7,246	3.84	48.33	14,991	9,336	3,809	18,800	13,145	63
4,252	2.00	6,436	3.03	39.37	16,346	12,094	.....	16,346	12,094	64
3,400	2.00	4,324	2.54	39.78	10,870	7,470	.....	10,870	7,470	65
1,519	3.00	2,719	5.37	42.07	6,463	4,944	513	6,976	5,457	66
280	*a*	1,655	*a*	48.36	3,429	3,149	.....	3,429	3,149	67
2,447	1.50	3,713	2.28	47.56	7,807	5,360	.....	7,807	5,360	68
3,128	1.00	4,342	1.39	28.73	15,112	11,984	.....	15,112	11,984	69
3,220	.77	3,632	.87	27.58	13,169	9,949	1,248	14,417	11,197	70
5,353	1.50	6,538	1.83	43.59	14,999	9,646	.....	14,999	9,646	71
2,212	4.00	2,442	4.42	20.91	11,679	9,467	1,285	12,964	10,752	72
6,783	3.00	9,718	4.30	56.61	17,166	10,383	.....	17,166	10,383	73
.....	.....	1,914	1.42	14.43	13,260	13,260	.....	13,260	13,260	74
3,318	2.00	5,424	3.27	37.06	14,635	11,317	.....	14,635	11,317	75
5,569	1.00	10,975	1.97	35.45	30,961	25,392	.....	30,961	25,392	76
8,209	3.00	8,484	3.10	37.03	22,909	14,700	.....	22,909	14,700	77
5,984	2.00	6,551	2.19	37.18	17,622	11,638	.....	17,622	11,638	78
7,736	1.00	34,686	4.48	70.13	49,460	41,724	.....	49,460	41,724	79
9,094	2.00	16,772	3.69	54.52	30,763	21,669	.....	30,763	21,669	80
5,700	2.00	14,753	5.18	48.27	30,563	24,863	.....	30,563	24,863	81
537,829	2.00	1,061,600	3.95	54.08	1,962,886	1,425,057	.....	1,962,886	1,425,057	82

c Including disbursements for repairs and renewals on buildings.

d Not obtainable for reasons stated in note *c*.

TABLE VII.—*Water Works: Results of Operation—Private and Municipal Plants.*

Plant number.	Ownership.	Report for year ending—	Quantity of Water Consumed.				
			By private users.			By municipality (gallons).	Total gallons.
			Meter service (gallons).	Contract unmetered service (gallons).	Total gallons.		
1	Municipal	May 1, 1898	.....	1,150,000	1,150,000	2,500,000	3,650,000
2	"	May 2, 1898	2,123,000	.....	2,123,000	1,527,000	3,650,000
3	"	April 30, 1898	1,268,663	6,115,337	7,384,000	500,000	7,884,000
4	"	"	.....	4,950,000	4,950,000	3,000,000	7,950,000
5	"	"	2,677,571	5,231,656	7,909,227	1,000,000	8,909,227
6	"	June 1, 1898	.....	7,300,000	7,300,000	1,700,000	9,000,000
7	"	*a*	.....	7,500,000	7,500,000	2,500,000	10,000,000
8	"	April 1, 1898	3,500,000	4,000,000	7,500,000	3,450,000	10,950,000
9	"	"	.....	5,000,000	5,000,000	5,950,000	10,950,000
10	"	May 1, 1898	600,000	5,500,000	6,100,000	7,600,000	13,700,000
11	"	Mar. 30, 1898	.....	10,000,000	10,000,000	4,600,000	14,600,000
12	"	May 1, 1898	473,000	10,321,545	10,794,545	4,000,000	14,794,545
13	"	Jan. 1, 1898	10,281,000	2,719,000	13,000,000	2,500,000	15,500,000
14	"	Dec. 31, 1897	.....	12,500,000	12,500,000	5,000,000	17,500,000
15	"	July 24, 1898	1,667,855	10,977,000	12,644,855	4,966,395	17,611,250
16	"	Dec. 31, 1897	3,000,000	10,000,000	13,000,000	5,000,000	18,000,000
17	"	May 1, 1898	.....	10,000,000	10,000,000	8,250,000	18,250,000
18	"	April 30, 1898	.....	6,250,000	6,250,000	12,000,000	18,250,000
19	"	May 1, 1898	.....	10,000,000	10,000,000	8,250,000	18,250,000
20	"	April 19, 1898	.....	18,250,000	18,250,000	91,500	18,341,500
21	"	Dec. 31 1897	2,500,000	11,000,000	13,500,000	5,000,000	18,500,000
22	"	April 19, 1898	.....	17,500,000	17,500,000	1,000,000	18,500,000
23	Private	Dec. 31, 1897	.....	15,000,000	15,000,000	6,900,000	21,900,000
24	Municipal	April 30, 1898	180,000	16,820,000	17,000,000	5,000,000	22,000,000
25	"	Jan. 31, 1898	.....	13,725,000	13,725,000	10,000,000	23,725,000
26	"	Mar. 30, 1898	1,282,250	22,848,236	24,130,486	1,155,000	25,285,486
27	"	May 1, 1898	5,000,000	15,000,000	20,000,000	5,550,000	25,550,000
28	"	Dec. 31, 1897	1,168,000	16,207,000	17,375,000	10,000,000	27,375,000
29	"	April 30, 1898	20,000,000	.....	20,000,000	8,000,000	28,000,000
30	"	"	18,932,000	3,238,000	22,170,000	7,030,000	29,200,000
31	"	May 15, 1898	.....	22,412,000	22,412,000	10,000,000	32,412,000
32	"	July 1, 1898	1,300,000	21,550,000	22,850,000	10,000,000	32,850,000
33	"	April 20, 1898	.....	25,000,000	25,000,000	11,500,000	36,500,000
34	"	April 30, 1898	260,000	32,740,000	33,000,000	3,500,000	36,500,000
35	"	April 1, 1898	2,935,000	28,565,000	31,500,000	5,000,000	36,500,000
36	"	June 30, 1897	.....	35,000,000	35,000,000	1,500,000	36,500,000
37	"	May 1, 1898	.....	19,500,000	19,500,000	20,000,000	39,500,000
38	"	April 4, 1898	.....	45,437,500	45,437,500	187,500	45,625,000
39	"	Dec. 31, 1897	2,500,000	30,000,000	32,500,000	13,500,000	46,000,000
40	"	April 18, 1898	.....	37,500,000	37,500,000	10,000,000	47,500,000
41	"	May 1, 1898	19,100,000	2,000,000	21,100,000	33,250,000	54,350,000
42	"	"	.....	44,000,000	44,000,000	10,750,000	54,750,000
43	"	April 30, 1898	.....	54,750,000	54,750,000	1,500,000	56,250,000
44	Private	"	.....	65,700,000	65,700,000	1,000,000	66,700,000
45	Municipal	"	2,000,000	60,000,000	62,000,000	11,000,000	73,000,000
46	"	"	23,000,000	32,000,000	55,000,000	18,000,000	73,000,000
47	"	"	26,666,000	36,000,000	62,666,000	20,000,000	82,666,000
48	"	June 30, 1897	7,066,000	44,588,100	51,654,100	33,228,962	84,883,062
49	"	April 30, 1898	.....	90,885,000	90,885,000	365,000	91,250,000
50	"	April 1, 1898	20,000,000	53,000,000	73,000,000	20,000,000	93,000,000
51	"	May 1, 1898	.....	100,000,000	100,000,000	4,035,000	104,035,000
52	"	"	701,878	70,000,000	70,801,878	36,308,122	107,010,000
53	Private	Jan. 1, 1898	17,000,000	63,000,000	80,000,000	30,000,000	110,000,000
54	Municipal	May 31, 1898	9,880,000	69,559,000	79,430,000	34,450,000	113,880,000
55	Private	Dec. 31, 1897	.....	142,750,000	142,750,000	7,500,000	150,250,000
56	"	"	.....	157,495,000	157,495,000	3,185,000	160,680,000
57	"	May 1, 1897	8,600,000	80,000,000	88,600,000	80,000,000	168,600,000
58	Municipal	April 15, 1898	.....	160,000,000	160,000,000	10,000,000	170,000,000
59	"	May 5, 1898	.....	155,000,250	155,000,250	30,000,000	185,000,250
60	Private	May 1, 1898	.....	146,000,000	146,000,000	75,000,000	221,000,000
61	"	Dec. 31, 1897	27,799,345	200,000,000	227,799,345	37,000,000	264,799,345
62	"	"	1,500,000	203,812,500	205,312,500	68,437,500	273,750,000
63	"	Nov. 4, 1897	2,400,000	241,350,000	243,750,000	30,000,000	273,750,000
64	Municipal	Mar. 31, 1898	141,870,000	.....	141,870,000	139,683,000	281,553,000
65	"	April 30, 1898	10,000,000	160,912,183	170,912,183	155,000,000	325,912,183

Table VII.—Concluded.

Plant number.....	Ownership.	Report for year ending—	Quantity of Water Consumed.				
			By private users.			By municipality (gallons).	Total gallons.
			Meter service (gallons).	Contract unmetered service (gallons).	Total gallons.		
66	Private	June 30, 1898	.....	320,000,000	320,000,000	10,000,000	330,000,000
67	Municipal ..	April 30, 1898	.....	360,000,000	360,000,000	10,000,000	370,000,000
68	" ..	April 6, 1898	.....	183,000,000	183,000,000	190,000,000	373,000,000
69	" ..	Dec. 31, 1897	80,000,000	268,000,000	348,000,000	55,000,000	403,000,000
70	Private	July 31, 1897	18,000,000	363,000,000	381,000,000	32,000,000	413,000,000
71	Municipal ..	Jan. 1, 1898	145,645,000	297,250,000	442,895,000	55,000,000	497,895,000
72	Private	"	700,000	538,800,000	539,500,000	8,000,000	547,500,000
73	Municipal ..	April 30, 1898	103,846,000	16,300,000	120,146,000	427,354,000	547,500,000
74	" ..	Mar. 31, 1898	24,000,000	550,000,000	574,000,000	10,000,000	584,000,000
75	" ..	April 30, 1898	21,872,000	687,646,410	709,518,410	80,000,000	789,518,410
76	" ..	Dec. 31, 1897	18,000,000	790,537,000	808,537,000	263,512,000	1,072,049,000
77	" ..	May 1, 1898	.....	1,074,125,000	1,074,125,000	45,625,000	1,119,750,000
78	" ..	April 1, 1898	45,000,000	600,000,000	645,000,000	477,841,270	1,122,841,270
79	" ..	Feb. 28, 1898	455,880,000	333,500,000	789,380,000	646,800,000	1,436,180,000
80	" ..	Dec. 31, 1897	75,722,000	899,336,261	975,058,261	500,000,000	1,475,058,261
81	" ..	April 30, 1898	175,775,000	520,000,000	695,775,000	784,225,000	1,480,000,000
82	" ..	Dec. 31, 1897	10,418,385,000	44,460,000,000	54,878,385,000	42,040,397,023	96,918,782,023

a Not reported.

TABLE VIII.—*Water Works—Distribution of Cost of Production—Municipal Plants.*

Plant number.	Total cost of production (including depreciation.)	Income from private users.	Result to the City.	
			Cost.	Profit.
1	$664	$100	$564	
2	1,886	916	970	
3	3,419	870	2,549	
4	1,547	591	956	
5	4,916	1,616	3,300	
6	837	510	327	
7	751	810		$59
8	1,320	767	553	
9	1,749	682	1,067	
10	1,887	2,304		417
11	3,215	718	2,497	
12	1,757	1,103	654	
13	3,309	2,454	855	
14	2,112	625	1,487	
15	1,387	1,804		417
16	2,580	1,100	1,480	
17	1,833	650	1,183	
18	947	816	131	
19	1,902	749	1,153	
20	1,881	990	891	
21	2,341	1,425	916	
22	1,688	1,200	488	
24	3,909	2,105	1,804	
25	2,247	1,124	1,123	
26	5,199	3,662	1,537	
27	1,947	1,789	158	
28	3,208	1,966	1,242	
29	4,625	2,720	1,905	
30	7,774	3,891	3,883	
31	4,436	2,758	1,678	
32	2,849	2,027	822	
33	1,969	988	981	
34	2,213	1,500	713	
35	2,478	2,094	384	
36	2,917	1,910	1,007	
37	1,358	1,063	295	
38	1,391	663	728	
39	3,138	1,680	1,458	
40	8,022	4,037	3,985	
41	4,513	3,660	853	
42	3,737	5,221		1,484
43	2,866	1,652	1,214	
45	5,413	4,533	880	
46	5,535	9,029		3,494
47	2,402	4,522		2,120
48	6,405	5,396	1,009	
49	2,894	2,070	824	
50	8,583	7,800	783	
51	3,489	4,000		511
52	2,816	3,687		871
54	5,698	3,388	2,310	
58	4,308	1,655	2,653	
59	5,837	4,200	1,637	
64	16,346	11,688	4,658	
65	10,870	7,157	3,713	
67	3,429	2,176	1,253	
68	7,807	6,448	1,359	
69	15,112	27,306		12,194
71	14,999	25,152		10,153
73	17,166	14,409	2,757	
74	13,260	13,418		158
75	14,635	15,590		955
76	30,961	34,836		3,875
77	22,909	17,798	5,111	
78	17,622	28,135		10,513
79	49,460	53,954		4,494
80	30,763	52,214		21,451
81	30,563	30,582		19
82	1,962,886	3,177,707		1,214,821

TABLE IX.—*Water Works—Certain Additional Elements Theoretically Entering into the Cost in Municipally Owned Plants.*

Plant number.	Estimated rental value of quarters occupied rent free.	Estimated taxes.	Interest on total investment.	Total additional cost.	Additional cost per 1,000 gallons.
1	$120	$75	$420	$615	$0.2460
2	75	104	1,300	1,479	.9686
3	.....	419	2,126	2,545	5.0900
4	100	105	960	1,165	.3883
5	.....	246	2,021	2,267	2.2670
6	.....	210	638	848	.4988
7	.....	76	672	746	.2992
8	.....	59	720	779	.2258
9	50	198	918	1,166	.1960
10	.....	195	1,088	1,283	.1688
11	100	193	1,864	2,157	.4689
12	24	80	936	1,040	.2600
13	36	150	1,209	1,395	.5580
14	.....	117	900	1,017	.2034
15	.....	29	1,458	1,487	.2994
16	30	285	1,430	1,745	.3490
17	90	53	973	1,116	.1353
18	120	195	1,334	1,649	.1374
19	.....	141	1,500	1,641	.1989
20	.....	275	1,380	1,655	18.0874
21	100	357	1,500	1,957	.3914
22	.....	127	615	742	.7420
24	100	405	2,730	3,235	.6470
25	30	280	2,060	2,370	.2370
26	20	210	1,900	2,130	1.8442
27	.....	40	1,691	1,731	.3119
28	30	286	1,340	1,656	.1656
29	100	365	4,000	4,465	.5581
30	60	814	4,042	4,916	.6993
31	.....	573	2,399	2,972	.2972
32	60	138	1,594	1,792	.1792
33	.....	100	900	1,000	.0870
34	.....	186	1,305	1,491	.4260
35	100	180	1,575	1,855	.3710
36	.....	300	2,084	2,384	1.5893
37	50	448	996	1,494	.0747
38	.....	54	289	343	1.8293
39	100	300	2,236	2,636	.1953
40	100	1,350	5,009	6,459	.6459
41	25	363	3,325	3,713	.1117
42	.....	961	4,150	5,111	4754
43	.....	206	2,660	2,866	1.9107
45	108	246	3,684	4,038	.3671
46	120	741	4,270	5,131	.2851
47	.....	816	2,671	3,487	.1744
48	.....	636	3,646	4,282	.1289
49	7	267	1,125	1,399	3.8329
50	120	356	4,000	4,476	.2238
51	.....	186	1,679	1,865	.4622
52	.....	180	2,250	2,430	.0669
54	72	1,050	2,744	3,866	.1122
58	.....	566	1,573	2,139	.2139
59	.....	718	3,500	4,218	.1406
64	240	871	10,971	12,082	.0865
65	300	406	8,750	9,456	.0610
67	.....	314	840	1,154	.1154
68	15	2,931	8,232	11,178	.0588
69	240	1,890	15,841	17,971	.3267
71	360	4,798	17,992	23,150	.4209
73	120	3,669	9,176	12,965	.0303
74	.....	850	8,173	9,023	.9023
75	120	423	7,511	8,054	.1007
76	.....	2,878	22,532	25,410	.0964
77	.....	2,831	12,539	15,370	.3369
78	100	2,347	15,000	17,447	.0365
79	.....	1,000	39,486	40,486	.0626
80	1,000	2,820	18,988	22,808	.0456
81	.....	4,633	14,500	19,133	.0244
82	10,000	182,800	957,381	1,150,181	.0274

TABLE X.—*Water Works—Profit and Loss—Private Plants.*

Plant number.	Report for year ending—	GROSS INCOME.							Total cost of production, including depreciation and taxes.	NET PROFIT.			Net loss.
		FROM PUBLIC SERVICE.		FROM COMMERCIAL SERVICE.		FROM ALL OTHER SOURCES.		Total		Amount	Per cent of gross income.	Per cent of total investment	
		Amount	Per cent of total gross income.	Amount	Per cent of total gross income.	Amount	Per cent of total gross income.						
23	Dec. 31, 1897	$700	46.67	$800	53.33	.....	....	$1,500	$1,424	$76	5.07	0.63	.....
44	April 30, 1898	3,500	49.09	3,630	50.91	.....	....	7,130	4,937	2,193	30.76	2.55	.....
53	Jan. 1, 1898	6,906	45.84	7,960	52.83	$200	1.33	15,066	8,734	6,332	42.03	7.00	.....
55	Dec. 31, 1897	3,750	47.17	4,200	52.83	.....	....	7,950	6,713	1,237	15.56	1.90	.....
56	Dec. 31, 1897	2,010	22.20	7,044	77.80	.....	....	9,054	4,940	4,114	45.44	10.32	.....
57	May 1, 1898	3,000	47.93	3,249	51.91	10	.16	6,259	5,608	651	10.40	1.34	.....
60	May 1, 1898	7,145	32.85	13,349	61.36	1,260	5.79	21,754	8,209	13,545	62.26	10.43	.....
61	Dec. 31, 1897	12,000	39.63	17,447	57.63	830	2.74	30,277	13,717	16,560	54.69	9.07	.....
62	Dec. 31, 1897	7,920	38.57	12,430	60.54	182	.89	20,532	15,550	4,982	24.26	2.55	.....
63	Nov. 4, 1897	9,553	53.88	7,676	43.30	500	2.82	17,729	18,800	.....	.....	.....	$1,071
66	June 30, 1898	3,740	38.93	5,868	61.07	.....	....	9,608	6,976	2,632	27.39	5.14	.....
70	July 31, 1897	9,150	26.80	24,900	72.92	96	.28	34,146	14,417	19,729	57.78	4.59	.....
72	Jan. 1, 1898	2,590	21.05	9,715	78.95	.....	....	12,305	12,964	.....	.....	.....	659

TABLE XI.—*Water Works—Prices (Private Plants) and Cost of Production (Municipal Plants) of Water Service.*

Plant number	Ownership.	Report for the year ending—	Average price per 1,000 gallons to private users.			Average price (when bought) or cost (when produced) per 1,000 gallons to municipality
			For meter service.	For contract service.	For both meter and contract service.	
1	Municipal	May 1, 1898	.....	$0.0870	$0.0870	$0.2256
2	"	May 2, 1898	$0.3000	.....	.3000	.6352
3	"	April 30, 1898	.2491	.0906	.1178	5.0980
4	"	April 30, 1898	.....	.1178	.1178	.3187
5	"	April 30, 1898	.2861	.1625	.2043	3.3000
6	"	June 1, 1898	.....	.0699	.0699	.1924
7	"	[a]	.....	.1080	.1080	[b]
8	"	April 1, 1898	.0971	.0943	.0956	.1603
9	"	April 1, 1898	.....	.1162	.1162	.1793
10	"	May 1, 1898	.2000	.3924	.3734	[b]
11	"	March 30, 1898	.....	.0718	.0718	.5428
12	"	May 1, 1898	.1501	.0989	.1012	.1635
13	"	Jan. 1, 1898	.2043	.1250	.1877	.3420
14	"	Dec. 31, 1897	.....	.0500	.0500	.2974
15	"	July 24, 1898	.2626	.1207	.1389	[b]
16	"	Dec. 31, 1897	.1700	.0590	.0846	.2960
17	"	May 1, 1898	.....	.0680	.0650	.1434
18	"	April 30, 1898	.....	.0666	.0666	.0109
19	"	May 1, 1898	.....	.0713	.0713	.1398
20	"	April 19, 1898	.....	.0542	.0542	9.7377
21	"	Dec. 31, 1897	.1240	.1014	.1056	.1832
22	"	April 19, 1898	.....	.0686	.0686	.4880
23	Private	Dec. 31, 1897	.....	.0533	.0533	.1014
24	Municipal	April 30, 1898	.1500	.1235	.1238	.3608
25	"	Jan. 31, 1898	.....	.0403	.0403	.1123
26	"	March 30, 1898	.3501	.1395	.1507	1.3307
27	"	May 1, 1898	.0800	.0876	.0857	.0285
28	"	Dec. 31, 1897	.2500	.1024	.1123	.1242
29	"	April 30, 1898	.1360	.....	.1360	.2381
30	"	April 30, 1898	.1362	.0556	.1244	.5523
31	"	May 15, 1898	.....	.1212	.1212	.1678
32	"	July 1, 1898	.1269	.0753	.0782	.0822
33	"	April 20, 1898	.....	.0395	.0395	.0853
34	"	April 30, 1898	.3000	.0434	.0455	.2037
35	"	April 1, 1898	.1799	.0548	.0665	.0768
36	"	June 30, 1898	.....	.0541	.0541	.6713
37	"	May 1, 1898	.....	.0545	.0545	.0148
38	"	April 4, 1898	.....	.0146	.0146	3.8827
39	"	Dec. 31, 1897	.0800	.0436	.0464	.1080
40	"	April 18, 1898	.....	.1022	.1022	.3985
41	"	May 1, 1898	.1500	.0750	.1429	.0257
42	"	May 1, 1898	.....	.1079	.1079	[b]
43	"	April 30, 1898	.....	.0302	.0302	.8093
44	Private	April 30, 1898	.....	.0544	.0544	3.5000
45	Municipal	April 30, 1898	.2000	.0622	.0667	.0800
46	"	April 30, 1898	.1512	.1666	.1602	[b]
47	"	April 30, 1898	.0938	.0550	.0715	[b]
48	"	June 30, 1897	.0800	.1000	.0973	.0304
49	"	April 30, 1898	.....	.0228	.0228	2.2575
50	"	April 1, 1888	.1200	.0985	.1044	.0392
51	"	May 1, 1898	.....	.0400	.0400	[b]
52	"	May 1, 1898	.1966	.0482	.0497	[b]
53	Private	Jan. 1, 1898	.1765	.0787	.0995	.2302
54	Municipal	May 1, 1898	.1802	.0231	.0426	.0671
55	Private	Dec. 31, 1897	.....	.0294	.0294	.5000
56	"	Dec. 31, 1897	.....	.0447	.0447	.6311
57	"	May 1, 1898	.0700	.0331	.0367	.0375
58	Municipal	April 15, 1898	.....	.1034	.1034	.2653
59	"	May 5, 1898	.....	.0271	.0271	.0546
60	Private	May 1, 1898	.....	.0914	.0914	.0953
61	"	Dec. 31, 1897	.2322	.0550	.0766	.3243
62	"	Dec. 31, 1897	.1000	.0603	.0605	.1157
63	"	Nov. 4, 1897	.2500	.0293	.0315	.3184
64	Municipal	March 31, 1898	.0813	.....	.0813	.0333
65	"	April 30, 1898	.0850	.0387	.0414	.0240

Table XI.—Concluded.

Plant number.	Ownership.	Report for the year ending—	Average Price per 1,000 Gallons to Private Users.			Average price (when bought) or cost (when produced) per 1,000 gallons to municipality.
			For meter service.	For contract service.	For both meter and contract service.	
66	Private	June 30, 1898	.....	$0.0183	$0.0183	$0.3740
67	Municipal	April 30, 1898	.....	.0060	.0060	.1253
68	"	April 6, 1898	.....	.0350	.0350	.0072
69	"	Dec. 31, 1897	$0.0880	.0699	.0741	*b*
70	Private	July 31, 1896	.4444	.0466	.0654	.2859
71	Municipal	Jan. 1, 1898	.1000	.0346	.0561	*b*
72	Private	Jan. 1, 1898	.2143	.0178	.0180	.3238
73	Municipal	April 30, 1898	.1300	.0490	.1190	.0065
74	"	March 31, 1898	.0998	.0145	.0181	*b*
75	"	April 30, 1898	.0800	.0199	.0218	*b*
76	"	Dec. 31, 1897	.1669	.0378	.0407	*b*
77	"	May 1, 1898	.....	.0166	.0166	.1120
78	"	April 1, 1898	.1000	.0394	.0436	*b*
79	"	Feb. 28, 1898	.0598	.0718	.0649	*b*
80	"	Dec. 31, 1897	.0903	.0494	.0526	*b*
81	"	April 30, 1898	.0773	.0327	.0440	*b*
82	"	Dec. 31, 1897	.0900	.0478	.0558	*b*

a Not reported.

b Nothing; income from private users exceeds total cost of production.

LABOR LEGISLATION:

The following laws affecting the interests of labor were enacted at the session of the Forty-first General Assembly:

ARBITRATION AND CONCILIATION.

§ 1a. Creation of State board, appointment, qualifications.
b Term of office.
c Succeeding boards, appointment, terms of office, vacanies.
d Organization of boards, rules.
e Secretary must be a stenographer, salary.
§ 2a. Controversies which may be considered, inquiry, written decision.
b Decisions to be made public and recorded, publication, filing.
§ 3a. Application for hearing, how made, statement of grievance.
b Public notice of time and place of hearing, when may be omitted, board may order otherwise.
c Board may summon witnesses and experts and examine under oath.
d Board may issue subpœnas, failure to obey, judge of court to issue attachment and may punish for contempt.
§ 4. Written decision, open to public inspection, may be published in annual report.
§ 5. Decision binding for six months, either party may withdraw by giving sixty days notice.
§ 5a. A failure to abide by decision, any person aggrieved may file petition in court, how disregarded.
b Court to rule on parties to answer in ten days.
c Court or judge in vacation to have and determine questions, penalties.
§ 5b. Powers of board, when two or more employers or the employés of two or more employers apply for arbitration.
§ 6. Board may act as mediator in certain cases of threatened strikes or lockouts.
§ 6a. Duties of mayors of cities and presidents of town or village boards in case of strikes or lockouts.
b Duties of head officer of labor organizations in case of strikes or lockouts.
§ 7. Compensation of members of board.
§ 8. Notices, how served.
§ 9. Passage of the law.

AN ACT *to create a State board of arbitration for the investigation or settlement of differences between employers and their employés, and to define the powers and duties of said board.*

SECTION 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly:* *a.* As soon as this act shall take effect the Governor, by and with the advice and consent of the Senate, shall appoint three persons, not more than two of whom shall belong to the same political party, who shall be styled a "State board of arbitration," to serve as a State board of arbitration and conciliation: one and only one of whom shall be an employer of labor, and one and only one of whom shall be an employé, and shall be selected from some labor organization.

b. They shall hold office until March 1, 1897, or until their successors are appointed, but said board shall have no power to act as such until they and each of them are confirmed by the Senate.

c. On the first day of March, 1897, the Governor, with the advice and consent of the Senate, shall appoint three persons as members of said board in the manner above provided, one to serve for one year, one for two years and one for three years, or until their respective successors are appointed, and on the first day of March in each year thereafter the Governor shall in the same manner appoint one member of said board to succeed the member whose term expires, and to serve for the term of three years or until his successor is appointed. If a vacancy occurs at any time, the Governor shall in the same manner appoint some one to serve out the unexpired term. Each member of said board shall, before entering upon the duties of his office, be sworn to a faithful discharge thereof.

d. The board shall at once organize by the choice of one of their number as chairman, and they shall, as soon as possible after such organization, establish suitable rules of procedure.

e. The board shall have power to select and remove a secretary, who shall be a stenographer, and who shall receive a salary to be fixed by the board, not to exceed $1,200 per annum, and his necessary traveling expenses, on bills of items to be approved by the board, to be paid out of the State treasury.

§ 2. *a.* When any controversy or difference not involving questions which may be the subject of an action at law or bill in equity, exists between an employer, whether an individual, co-partnership, or corporation, employing not less than twenty-five persons, and his employés in this State, the board shall, upon application as herein provided, and as soon as practicable thereafter, visit the locality of the dispute and make a careful inquiry into the cause thereof, hear all persons interested therein who may come before them, advise the respective parties what, if anything, ought to be done or submitted to by both to adjust said dispute, and make a written decision thereof.

b. This decision shall at once be made public, shall be recorded upon proper books of record to be kept by the secretary of said board, and a short statement thereof published in the annual report hereinafter provided for, and the board shall cause a copy thereof to be filed with the clerk of the city, town or village where said business is carried on.

APPROVED and in force August 2, 1895.

§ 3. *a.* Said application shall be signed by said employer or by a majority of his employés in the department of the business in which the controversy or difference exists, or by both parties, and shall contain a concise statement of the grievance complained of, and a promise to continue on in business or at work without any lockout or strike until the decision of said board, if it shall be made within three weeks of the date of filing said application.

b. As soon as may be after the receipt of said application the secretary of said board shall cause public notice to be given of the time and place of the hearing thereon; but public notice need not be given when both parties to the controversy join in the application and present therewith a written request that no public notice be given. When such request is made, notice shall be given to the parties interested in such manner as the board may order, and the board may, at any stage of the proceedings, cause public notice to be given, notwithstanding such request.

c. The board in all cases shall have power to summon as witnesses any operative or expert in the department of business affected, and any person who keeps the records of wages earned in those departments, or any other person, and to examine them under oath, and to require the production of books containing the records of wages paid, and such other books and papers as may be deemed necessary to a full and fair investigation of the matter in controversy.

d. The board shall have power to issue subpoenas, and oaths may be administered by the chairman of the board. If any person, having been served with a subpoena or other process issued by such board, shall willfully fail or refuse to obey the same, or to answer such questions as may be propounded touching the subject matter of the inquiry or investigation, it shall be the duty of the circuit court or the county court of the county in which the hearing is being conducted, or of the judge thereof, if in vacation, upon application by such board, duly attested by the chairman and secretary thereof, to issue an attachment for such witness and compel him to appear before such board and give his testimony, or to produce such books and papers as may be lawfully required by said board; and the said court or the judge thereof shall have power to punish for contempt as in other cases of refusal to obey the process and order of such court.

APPROVED April 12, 1899.

§ 4. Upon the receipt of such application, and after such notice, the board shall proceed as before provided, and render a written decision, which shall be open to public inspection, shall be recorded upon the records of the board and published at the discretion of the same in an annual report to be made to the Governor before the first day of March of each year.

§ 5. Said decision shall be binding upon the parties who join in said application for six months, or until either party has given the other notice in writing of his or their intention not to be bound by the same at the expiration of sixty days therefrom. Said notice may be given to said employés by posting in three conspicuous places in the shop or factory where they work.

APPROVED and in force August 2, 1895.

§ 5a. *a.* In the event of a failure to abide by the decision of said board in any case in which both employer and employés shall have joined in the application, any person or persons aggrieved thereby

may file with the clerk of the circuit court or the county court of the county in which the offending party resides, or in the case of an employer in the county in which the place of employment is located, a duly authenticated copy of such decision, accompanied by a verified petition reciting the fact that such decision has not been complied with and stating by whom and in what respects it has been disregarded.

b. Thereupon the circuit court or the county court (as the case may be) or the judge thereof, if in vacation, shall grant a rule against the party or parties so charged to show cause within ten days why such decision has not been complied with, which shall be served by the sheriff as other process.

c. Upon return made to the rule, the court, or the judge thereof if in vacation, shall hear and determine the questions presented, and to secure a compliance with such decision, may punish the offending party or parties for contempt, but such punishment shall in no case extend to imprisonment.

§ 5b. Whenever two or more employers engaged in the same general line of business, employing in the aggregate not less than twenty-five persons, and having a common difference with their employés, shall, coöperating together, make application for arbitration; or whenever such application shall be made by the employés of two or more employers engaged in the same general line of business, such employés being not less than twenty-five in number, and having a common difference with their employers; or whenever the application shall be made jointly by the employers and employés in such a case, the board shall have the same powers and proceed in the same manner as if the application had been made by one employer, or by the employés of one employer, or by both.

APPROVED April 12, 1899, in force July 1, 1899.

§ 6. Whenever it shall come to the knowledge of the State board that a strike or lockout is seriously threatened in the State involving an employer and his employés, if he is employing not less than twenty-five persons, it shall be the duty of the State board to put itself into communication as soon as may be with such employer or employés, and endeavor by mediation to effect an amicable settlement between them, or to endeavor to persuade them to submit the matters in dispute to the State board.

APPROVED and in force August 2, 1895.

§ 6a. *a.* It shall be the duty of the mayor of every city, and president of every incorporated town or village, whenever a strike or lockout, involving more than twenty-five employés, shall be threatened or has actually occurred within or near such city, incorporated town or village to immediately communicate the fact to the State board of arbitration, stating the name or names of the employer or employers and of one or more employés, with their postoffice addresses, the nature of the controversy or difference existing, the number of employés involved and such other information as may be required by the said board.

b. It shall be the duty of the president or chief executive officer of every labor organization, in case of a strike or lockout, actual or threatened, involving the members of the organization of which he is an officer to immediately communicate the fact of such strike or lockout to the said board, with such information as he may possess, touching the differences or controversy, and the number of employés involved.

APPROVED April 12, 1899, in force July 1, 1899.

§ 7. The members of the said board shall each receive a salary of $1,500 a year, and necessary traveling expenses, to be paid out of the treasury of the State upon bills of particulars approved by the Governor.

§ 8. Any notice or process issued by the State board of arbitration shall be served by any sheriff, coroner or constable to whom the same may be directed, or in whose hands the same may be placed for service.

§ 9. WHEREAS, An emergency exists, therefore it is enacted that this act shall take effect and be in force from and after its passage.

APPROVED and in force August 2, 1895.

EMPLOYES, DECEPTION AND UNLAWFUL INFLUENCE IN PROCURING.

§ 1. Prohibits deception, false advertising, false pretenses and unlawful influence in employing workmen.

§ 2. Penalty for violating provisions of section 1.

§ 3. Penalty for guarding with deadly weapons any workmen or property without a written permit from the Governor, penalty, proviso.

§ 4. Workmen, recovery of damages, attorney's fees.

AN ACT *prohibiting the use of deception, misrepresentation, false advertising and false pretenses and unlawful force in the procuring of employés to work in any department of labor in this State and fixing penalties, criminal and civil, for violation thereof.*

SECTION 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly:* That it shall be unlawful for any person, persons, company, corporation, society, association or organization of any kind doing business in this State, by himself, themselves, his, its or their agents or attorneys, to induce, influence, persuade or engage workmen to change from one place to another in this State, or to bring workmen of any class or calling into this State to work in any of the departments of labor in this State, through or by means of false or deceptive representations, false advertising or false pretenses concerning the kind and character of the work to be done, or amount and character of the compensation to be paid for such work, or the sanitary or other conditions of the employment, or as to the existence or non-existence of a strike or other trouble pending between employer and employés, at the time of or prior to such engagement. Failure to state in any advertisement, proposal or con-

tract for the employment of workmen that there is a strike, lockout or other labor troubles at the place of the proposed employment, when in fact such strike, lockout or other labor troubles then actually exist at such place, shall be deemed as false advertisement and misrepresentation for the purposes of this act.

§ 2. Any person or persons, company, corporation, society, association or organization of any kind doing business in this State, as well as his, their or its agents, attorneys, servants or associates, found guilty of violating section 1 of this act, or any part thereof, shall be fined not exceeding $2,000 or confined in the county jail not exceeding one year, or both, where the defendant or defendants is or are a natural person or persons.

§ 3. Any person or persons who shall, in this or another State, hire, aid, abet or assist in hiring, through agencies or otherwise, persons to guard with arms or deadly weapons of any kind other persons or property in this State, or any person or persons who shall come into this State armed with deadly weapons of any kind for any such purpose, without a permit in writing from the Governor of this State, shall be guilty of a felony, and on conviction thereof shall be imprisoned in the penitentiary not less than one year nor more than five years: *Provided*, that nothing contained in this act shall be construed to interfere with the right of any person, persons, or company, corporation, society, association or organization in guarding or protecting their private property or private interests as is now provided by law; but this act shall be construed only to apply in cases where workmen are brought into this State, or induced to go from one place to another in this State, by any false pretenses, false advertising or deceptive representations, or brought into this State under arms, or removed from one place to another in this State under arms.

§ 4. Any workman of this State, or any workman of another state who has or shall be influenced, induced or persuaded to engage with any persons mentioned in section 1 of this act, through or by means of any of the things therein prohibited, each of such workmen shall have a right of action for recovery of all damages that each such workman has sustained in consequence of the false or deceptive representations, false advertising and false pretenses used to induce him to change his place of employment, against any person or persons, corporations, companies or associations directly or indirectly causing such damages; and, in addition to all actual damages such workmen may have sustained, shall be entitled to recover such reasonable attorney's fees as the court shall fix, to be taxed as costs in any judgment recovered.

APPROVED April 24, 1899.

FREE EMPLOYMENT AGENCIES IN CERTAIN CITIES.

§ 1. Creation in certain cities—number in each city—purpose—name.

§ 2. Superintendents and assistants—how appointed—salaries.

§ 3. Location of offices—rooms—duties of superintendent—records, separate registers—form of—not open to public.

§ 4. Superintendent to report to bureau of labor statistics each week—circulation of such reports.

§ 5. Superintendent to correspond with employers and advertise for employment—each office allowed $400 for advertising.

§ 6. Superintendent to make annual report to bureau of labor statistics.

§ 7. No fee charged applicants—penalty for receiving fee.

§ 8. No employés to be furnished in case of strike or lockout.

§ 9. Defines terms "applicant for employment" and "applicant for help."

§ 10. Private agencies to procure license—amount of license—bond—similarity of name to that of State agency prohibited—penalty for violation.

§ 11. Grounds for removal of superintendent.

§ 12. Secretary of State to furnish printing for agencies.

AN ACT *to create free employment offices in cities of certain designated populations, and to provide for the maintenance, management and control of the same, and to prevent private imitations of the name of the same and regulating private employment agencies.*

SECTION 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly*: That free employment offices are hereby created as follows: One in each city of not less than fifty thousand population, and three in each city containing a population of one million or over, for the purpose of receiving applications of persons seeking employment. and applications of persons seeking to employ labor. Such offices shall be designated and known as Illinois Free Employment Offices.

§ 2. Within sixty days after this act shall have been in force, the State board of commissioners of labor shall recommend, and the Governor, with the advice and consent of the Senate, shall appoint a superintendent and assistant superintendent and a clerk for each of the offices created by section 1 of this act, and who shall devote their entire time to the duties of their respective offices. The assistant superintendent or the clerk shall in each case be a woman. The tenure of such appointment shall be two years, unless sooner removed for cause. The salary of each superintendent shall be $1,200 per annum, the salary of such assistant superintendent shall be $900 per annum. The salary of such clerks shall be $800 per annum, which sums, together with proper amounts for defraying the necessary costs of equipping and maintaining the respective offices, shall be paid out of any funds in the State treasury not otherwise appropriated.

§ 3. The superintendent of each such free employment office shall, within sixty days after appointment, open an office in such locality as shall have been agreed upon between such superintendent and the secretary of the bureau of labor statistics as being most appropriate for the purpose intended; such office to be provided with a sufficient number of rooms or apartments to enable him to provide, and he shall so provide, a separate room or apartment for the use of

women registering for situations or help. Upon the outside of each such office, in position and manner to secure the fullest public attention, shall be placed a sign which shall read in the English language, Illinois Free Employment Office, and the same shall appear either upon the outside windows or upon signs in such other languages as the location of each such office shall render advisable. The superintendent of each such free employment office shall receive and record in books kept for that purpose names of all persons applying for employment or help, designating opposite the name and address of each applicant the character of employment or help desired. Separate registers for applicants for employment shall be kept, showing the age, sex, nativity, trade or occupation of each applicant, the cause and duration of non-employment, whether married or single, the number of dependent children, together with such other facts as may be required by the bureau of labor statistics to be used by said bureau: *Provided*, that no such special registers shall be open to public inspection at any time, and that such statistical and sociological data as the bureau of labor may require shall be held in confidence by said bureau, and so published as not to reveal the identity of any one: *And, provided*, further, that any applicant who shall decline to furnish answers to the questions contained in special registers shall not thereby forfeit any rights to any employment the office might secure.

§ 4. Each such superintendent shall report on Thursday of each week to the State bureau of labor statistics the number of applications for positions and for help received during the preceding week, also those unfilled applications remaining on the books at the beginning of the week. Such lists shall not contain the names or addresses of any applicant, but shall show the number of situations desired and the number of persons wanted at each specified trade or occupation. It shall also show the number and character of the positions secured during the preceding week. Upon receipt of these lists, and not later than Saturday of each week, the secretary of the said bureau of labor statistics shall cause to be printed a sheet showing separately and in combination the lists received from all such free employment offices; and he shall cause a sufficient number of such sheets to be printed to enable him to mail, and he shall so mail, on Saturday of each week, two of said sheets to each superintendent of a free employment office, one to be filed by said superintendent, and one to be conspicuously posted in each such office. A copy of such sheet shall also be mailed on each Saturday by the secretary of the State bureau of labor statistics to each State inspector of factories and each State inspector of mines. And it is hereby made the duty of said factory inspectors and coal mine inspectors to do all they reasonably can to assist in securing situations for such applicants for work, and describe the character of work and cause of the scarcity of workmen, and to secure for the free employment offices the coöperation of the employers of labor in factories and mines. It shall be the duty of such factory inspectors and coal mine inspectors to immediately notify the superintendent of free employment offices of any and all vacancies or opportunities for employment that shall come to their notice.

§ 5. It shall be the duty of each such superintendent of a free employment office to immediately put himself in communication with the principal manufacturers, merchants and other employers of labor, and to use all diligence in securing the coöperation of the said employers of labor, with the purposes and objects of said employment offices. To this end it shall be competent for such superintendents to advertise in the columns of daily newspapers for such situations as he has applicants to fill, and he may advertise in a general way for the coöperation of large contractors and employers in such trade journals or special publications as reach such employers, whether such trade or special journals are published within the State of Illinois or not: *Provided*, that not more than four hundred dollars, or as much thereof as shall be necessary, shall be expended by the superintendent of any one such office for advertising any one year.

§ 6. It shall be the duty of each such superintendent to make report to the State bureau of labor statistics annually, not later than December first of each year, concerning the work of his office for the year ending October first of same year, together with a statement of the expenses of the same, including the charges of an interpreter when necessary, and such reports shall be published by the said bureau of labor statistics annually with its coal report. Each such superintendent shall also perform such other duties in the collection of statistics of labor, as the secretary of the bureau of labor statistics may require.

§ 7. No fee or compensation shall be charged or received, directly or indirectly, from persons applying for employment or help through said free employment offices; and any superintendent, assistant superintendent or clerk, who shall accept, directly or indirectly, any fee or compensation from any applicant, or from his or her representative, shall be deemed guilty of a misdemeanor, and, upon conviction, shall be fined not less than twenty-five nor more than fifty dollars and imprisoned in the county jail not more than thirty days.

§ 8. In no case shall the superintendent of any free employment office created by this act, furnish or cause to be furnished, workmen or other employé to any applicant for help whose employés are at that time on strike, or locked out; nor shall any list of names and addresses of applicants for employment be shown to any employer whose employés are on strike or locked out; nor shall such list be exposed where it can be copied or used by an employer whose employés are on strike or locked out.

§ 9. The term "applicant for employment" as used in this act shall be construed to mean any person seeking work of any lawful character, and "applicant for help" shall mean any person or persons seeking help in any legitimate enterprise; and nothing in this act shall be construed to limit the meaning of the term work to manual occupation, but it shall include professional service, and any and all other legitimate services.

§ 10. No person, firm or corporations in the cities designated in section 1, of this act, shall open, operate or maintain a private employment agency for hire, or where a fee is charged for either appli-

cants for employment or for help, without first having obtained a license from the Secretary of State, which license shall be two hundred dollars per annum, and who shall be required to give a bond to the people of the State of Illinois in the penal sum of one thousand dollars, for the faithful performance of the duties of private employment agent; and no such private agent shall print, publish, or paint on any sign, window or newspaper publication, a name similar to that of the Illinois Free Employment Offices. And any person, firm or corporation violating the provisions of this act, or any part thereof, shall be deemed guilty of a misdemeanor and upon conviction shall be fined not less than fifty nor more than one hundred dollars.

§ 11. Whenever, in the opinion of the board of commissioners of labor the superintendent of any free employment office is not duly diligent or energetic in the performance of his duties, they may summon such superintendent to appear before them and show cause why he should not be recommended to the Governor for removal, and unless such cause is clearly shown the said board may so recommend. In the consideration of such case an unexplained low percentage of positions secured to applicants for situations and help registered, lack of intelligent interest and application to the work, or a general inaptitude or inefficiency, shall be considered by said board a sufficient ground upon which to recommend a removal. And if, in the opinion of the Governor, such lack of efficiency cannot be remedied by reproval and discipline, he shall remove as recommended by said board: *Provided*, that the Governor may at any time remove any superintendent, assistant superintendent or clerk for cause.

§ 12. All such printing, blanks, blank books, stationery, and postage as may be necessary for the proper conduct of the business of the offices herein created shall be furnished by the Secretary of State upon requisition for the same made by the secretary of the bureau of labor statistics.

APPROVED April 11, 1899, in force July 1, 1899.

MINES AND MINING.

COAL MINES.

REVISION OF LAW RELATING TO COAL MINES.

§ 1. (a) Maps or plans of mines, (b) surface surveys, (c) undergrouud survey, (d) for every seam, (e) separate map for surface, (f) dip, (g) copies for inspectors and recorders, (h) annual surveys, (i) abandoned mines, (j) special survey, (k) penaltv for failure.

§ 2. Main shaft, (a) sinking, subject to inspection, (b) passage way around the bottom, (c) gates at top, (d) general equipment.

§ 3. Escapement shaft, (a) two places of egress, (b) unlawful to employ more than ten men until escapement shaft is completed, (c) passageways to escapement, (d) distance from main shaft, (e) buildings on surface between shafts, (f) equipment, (g) obstructions in, (h) inspection of, (i) communication with adjacent mine, unlawful to close.

§ 4. Engine and boiler house, location, fireproof, equipment.

§ 5. Powder to be stored in fire-proof building.

§ 6. State Mining Board, appointment, duty, term, supplies, meetings, rules for examination.

§ 7. (a) Examination, Inspectors, (b) names certified to Governor, (c) appointment, (d) examination of mine managers, (e) hoisting engineers, (f) mine examiners.

§ 8. (a) Certificates issued by board, contents, (b) register of, (c) effect of, (d) foreign, (e) unlawful to employ any but certificated miners, (f) hoisting engineers, (g) mine examiners, exceptions, mine managers to act as mine examiners, mine manager's certificate exchanged for mine examiner's certificate, (h) cancellation of certificates.

§ 9. Fees for examination and certificates.

§ 10. Compensation of board, secretary's salary, how drawn.

§ 11. (a) Division of the State into inspection districts, (b) changes may be made in boundaries of districts, new districts.

§ 12. Inspectors, (a) bonds, (b) instruments to be furnished by State, (c) duties, (d) authority to enter mines, (e) procedure in case of objections, (f) notices to be posted, (g) *ex-officio* sealer of weights, (h) State to furnish testing weights, (i) annual reports, (j) publication of reports, supplies furnished by Secretary of State, employers of labor to assist in procuring statistics for publication, penalty for failure.

§ 13. Compensation of inspectors, how drawn.

§ 14. Removal of inspectors, petition for, hearing.

§ 15. Counties to appoint county inspectors as assistants, duties, must hold State certificate, compensation.

§ 16. Mine managers' duties.

§ 17. Hoisting engineers' duties.

§ 18. Mine examiners' duties.

§ 19. Ventilation, (a) amount of air to be kept in circulation, (b) measurements, (i) inspector may order men out of mine when air is insufficient.

§ 20. Powder or explosives, (a) prohibits storing in mines, amount allowed each man, care of while in mines, (b) manner of handling, (c) none but copper tools to be used in charging, (d) use of squibs, (e) exploding blasts, (f) missed shots, (g) sprinkling dusty mines.

§ 21. Places of refuge to be cut in side walls, size, distance apart, storing material is prohibited.

§ 22. Children and females prohibited from working.

§ 23. Hoisting signals.

§ 24. Weighing and weighmen, (a) operator to furnish scales, (b) duties and oaths of weighmen, (c) check weighmen permitted, paid by miners, duties.

§ 25. Boundaries, ten-foot limit, approaching old works.

§ 26. Notice to inspectors of accidents, sinking shafts, abandoning mines, etc.

§ 27. Accidents, (a) duties of inspectors, operator to keep record of on blanks furnished by inspectors, (b) coroner's inquest, (c) inspector to investigate cause of accident.

§ 28. Men on cages, (a) top and bottom man, (b) lights on landings, (c) speed of cages, tools and timber prohibited on except for repairs, (d) right of way for men to come out.

§ 29. Safety lamps, (a) operator to furnish in case of fire damp, (b) care of.

§ 30. Operator to have on hand blankets, stretchers and bandages for use in case of accidents.

§ 31. Caution to miners, unlawful to injure shaft, safety lamp, etc.

§ 32. Operators to post rules not inconsistent with this act.

§ 33. Penalty for violation of any of the provisions of this act.

§ 34. Defines terms, (a) mine, coal mine, (b) excavations or workings, (c) shaft, (d) slope or drift, (e) operator, (f) inspector, (g) mine manager, (h) mine examiner.

AN ACT *to revise the laws in relation to coal mines and subjects relating thereto, and providing for the health and safety of persons employed therein.*

SECTION 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly:*

MAPS OR PLANS OF MINES.

MAPS NECESSARY. (*a*) That the operator of every coal mine in this State shall make, or cause to be made, an accurate map or plan of such mine, drawn to a scale not smaller than two hundred feet to the inch, and as much larger as practicable, on which shall appear the name, the state, county and township in which the mine is located, the designation of the mine, the name of the company or owner, the certificate of the mining engineer or surveyor as to the accuracy and date of the survey, the north point and the scale to which the drawing is made.

SURFACE SURVEY. (*b*) Every such map or plan shall correctly show the surface boundary line of the coal rights pertaining to each mine, and all section or quarter section lines or corners within the same; the lines of town lots and streets, the tracks and side-tracks of all railroads, and the location of all wagon roads, rivers, streams, ponds, buildings, landmarks and principal objects on the surface.

UNDERGROUND SURVEY. (*c*) For the underground workings said maps shall show all shafts, slopes, tunnels or other openings to the surface or to the workings of a contiguous mine; all excavations, entries, rooms and cross-cuts; the location of the fan or furnace and the direction of the air currents; the location of pumps, hauling engines, engine planes, abandoned works, fire walls and standing water; and the boundary line of any surface outcrop of the seam.

MAP FOR EVERY SEAM. (*d*) A separate and similar map, drawn to the same scale in all cases, shall be made of each and every seam, which, after the passage of this act, shall be worked in any mine, and the maps of all such seams shall show all shafts, inclined planes, or other passageways connecting the same.

SEPARATE MAP FOR THE SURFACE. (*e*) A separate map shall also be made of the surface whenever the surface buildings, lines or objects are so numerous as to obscure the details of the mine workings if drawn upon the same sheet with them, and in such case the surface map shall be drawn on transparent cloth or paper, so that it can be laid upon the map of the underground workings, and thus truly indicate the local relations of lines and objects on the surface to the excavations of the mine.

THE DIP. (*f*) Each map shall also show by profile drawing and measurements, in feet and decimals thereof, the rise and dip of the seam from the bottom of the shaft in either direction to the face of the workings.

COPIES FOR INSPECTORS AND RECORDERS. (*g*) The originals or true copies of all such maps shall be kept in the office at the mine, and true copies thereof shall also be furnished to the State Inspector of Mines for the district in which said mine is located, and shall be filed in the office of the recorder of the county in which the mine is located, within thirty days after the completion of the same. The maps so delivered to the inspector shall be the property of the State and shall remain in the custody of said inspector during his term of office, and be delivered by him to his successor in office; they shall be kept at the office of the inspector and be open to the examination of all persons interested in the same, but such examination shall only be made in the presence of the inspector, and he shall not permit any copies of the same to be made without the written consent of the operator or the owner of the property.

ANNUAL SURVEYS. (*h*) An extension of the last preceding survey of every mine in active operation shall be made once in every twelve months prior to July 1 of every year, and the result of said survey, with the date thereof, shall be promptly and accurately entered upon the original maps and all copies of the same, so as to show all changes in plan or new work in the mine, and all extensions of the old workings to the most advanced face or boundary of said workings, which have been made since the last preceding survey. The said changes and extensions shall be entered upon the copies of the maps in the hands of the said inspector and recorder, within thirty days after the last survey is made.

ABANDONED MINES. (*i*) When any coal mine is worked out or is about to be abandoned or indefinitely closed, the operator of the same shall make or cause to be made a final survey of all parts of such mine, and the results of the same shall be duly extended on all maps of the mine and copies thereof, so as to show all excavations and the most advanced workings of the mine, and their exact relation to the boundary or section lines on the surface.

SPECIAL SURVEY. (*j*) The State Inspector of Mines may order a survey to be made of the workings of any mine, and the results to be extended on the maps of the same and the copies thereof, whenever, in his judgment, the safety of the workmen, the support of the surface, the conservation of the property or the safety of an adjoining mine requires it.

PENALTY FOR FAILURE. (*k*) Whenever the operator of any mine shall neglect or refuse, or, for any cause not satisfactory to the mine inspector, fail, for the period of three months, to furnish to the said inspector and recorder, the map or plan of such mine or a copy thereof, or of the extensions thereto, as provided for in this act, the inspector is hereby authorized to make or cause to be made, an accurate map or plan of such mine at the expense of the owner thereof, and the cost of the same may be recovered by law from the said operator in the same manner as other debts by suit in the name of the inspector and for his use, and a copy of the same shall be filed by him with said recorder.

THE MAIN SHAFT.

§ 2. SINKING SUBJECT TO INSPECTION. (*a*) Any shaft in process of sinking, and any opening projected for the purpose of mining coal, shall be subject to the inspection of the State Inspector of Mines for the district in which said shaft or opening is located.

PASSAGEWAY AROUND THE BOTTOM. (*b*) At the bottom of every shaft and at every caging place therein, a safe and commodious passageway must be cut around said landing place to serve as a traveling way by which men or animals may pass from one side of the shaft to the other without passing under or on the cage.

GATES AT THE TOP. (*c*) The upper and lower landings at the top of each shaft, and the opening of each intermediate seam from or to the shaft, shall be kept clear and free from loose materials, and shall be securely fenced with automatic or other gates, so as to prevent either men or materials from falling into the shaft.

GENERAL EQUIPMENT. (*d*) Every hoisting shaft must be equipped with substantial cages fitted to guide-rails running from the top to the bottom. Said cages must be safely constructed; they must be furnished with suitable boiler-iron covers to protect persons riding thereon from falling objects; they must be equipped with safety catches. Every cage on which persons are carried must be fitted up with iron bars or rings in proper place and sufficient number to furnish a secure hand hold for every person permitted to ride thereon. At the top landing, cage supports, where necessary, must be carefully set and adjusted so as to act automatically and securely hold the cage when at rest.

THE ESCAPEMENT SHAFT.

§ 3. TWO PLACES OF EGRESS. (*a*) For every coal mine in this State whether worked by shaft, slope or drift, there shall be provided and maintained, in addition to the hoisting shaft. or other place of delivery, a separate escapement shaft or opening to the surface, or an underground communicating passageway between every such mine and some other contiguous mine, such as shall constitute two distinct and available means of egress to all persons employed in such coal mine.

The time allowed for completing such escapement shaft or making such connections with an adjacent mine, as is required by the terms of this act, shall be three months for shafts 200 feet or less in depth, and six months for shafts less than 500 feet and more than 200 feet, and nine months for all other mines, slopes or drifts or connections with adjacent mines. The time to date in all cases from the hoisting of coal from the main shaft.

UNLAWFUL TO EMPLOY MORE THAN TEN MEN. (*b*) It shall be unlawful to employ at any one time more men than in the judgment of the inspector is absolutely necessary, for speedily completing the connections with the escapement shaft or adjacent mine; and said number must not exceed ten men at any one time for any purpose in said mine until such escapement or connection is completed.

PASSAGEWAYS TO ESCAPEMENT. (*c*) Such escapement shaft or opening, or communication with a contiguous mine as aforesaid, shall be constructed in connection with every seam of coal worked in such mine, and all passageways communicating with the escapement shaft or place of exit, from the main hauling ways to said place of exit, shall be maintained free of obstruction at least five feet high and five feet wide. Such passageways must be so graded and drained that it will be impossible for water to accumulate in any depression or dip of the same, in quantities sufficient to obstruct the free and safe passage of men. At all points, where the passageway to the escapement shaft or other place of exit, is intersected by other roadways or entries, conspicuous sign boards shall be placed, indicating the direction it is necessary to take in order to reach such place of exit.

DISTANCE FROM MAIN SHAFT. (*d*) Every escapement shaft shall be separated from the main shaft by such extent of natural strata as may be agreed upon by the inspector of the district and the owner of the property, but the distance between the main shaft and the escapement shaft, shall not be less than 300 feet without the consent of the inspector, nor more than 300 feet without the consent of the owner.

BUILDINGS ON THE SURFACE. (*e*) It shall be unlawful to erect any inflammable structure or building in the space intervening between the main shaft and the escapement shaft on the surface, or any powder magazine, in such location or manner as to jeopardize the free and safe exit of the men from the mine, by said escapement shaft, in case of fire in the main shaft buildings.

STAIRWAYS OR CAGES. (*f*) The escapement shaft at every mine shall be equipped with safe and ready means for the prompt removal of men from the mine in time of danger, and such means shall be a substantial stairway set at an angle not greater than forty-five degrees, which shall be provided with hand-rails and with platforms or landings at each turn of the stairway.

In any escapement shaft which may, at the time of the passage of this act, be equipped with a cage for hoisting men, such cage must be suspended between guides and be so constructed that falling objects can not strike persons being hoisted upon it. Such cage must also be operated by a steam hoisting engine, which shall be kept

available for use at all time, and the equipment of said hoisting apparatus shall include a depth indicator, a brake on the drum, a steel or iron cable and safety catches on the cage.

OBSTRUCTIONS IN SHAFT. (*g*) No accumulation of ice, nor obstructions of any kind shall be permitted in any escapement shaft, nor shall any steam, or heated or vitiated air be discharged into said shaft; and all surface or other water which flows therein shall be conducted by rings or otherwise to receptacles for the same, so as to keep the stairway free from falling water.

WEEKLY INSPECTIONS. (*h*) All escapement shafts and the passageways leading thereto, or to the works of a contiguous mine, must be carefully examined at least once a week by the mine manager, or a man specially delegated by him for that purpose, and the date and findings of such inspection must be duly entered in the record book in the offices at the mine. If obstructions are found, their location and nature must be stated together with the date at which they are removed.

COMMUNICATION WITH ADJACENT MINE. (*i*) When operators of adjacent mines have, by agreement, established underground communication between said mines, as an escapement outlet for the men employed in both, the roadway to the boundary on either side shall be regularly patrolled and kept clear of every obstruction to travel by the respective operators, and the intervening door shall remain unlocked and ready at all times for immediate use.

When such communication has once been established between contiguous mines, it shall be unlawful for the operator of either mine to close the same without the consent both of the contiguous operator and of the State Inspector for the district: *Provided*, that, when either operator desires to abandon mining operations, the expense and duty of maintaining such communication shall devolve upon the party continuing operations and using the same.

THE ENGINE AND BOILER HOUSE.

§ 4. LOCATION. (*a*) Any building erected after the passage of this act, for the purpose of housing the hoisting engine or boilers at any shaft, shall be substantially fire-proof, and no boiler house shall be nearer that sixty feet to the main shaft or opening or to any building or inflammable structure connecting therewith.

BRAKE ON DRUM. (*b*) Every hoisting engine shall be provided with a good and sufficient brake on the drum, so adjusted that it may be operated by the engineer without leaving his post at the levers.

FLANGES. (*c*) Flanges shall be attached to the sides of the drum of any engine used for hoisting men, with a clearance of not less than four inches when the whole rope is wound on the drum.

CABLE FASTENINGS. (*d*) The ends of the hoisting cables shall be well secured on the drum, and at least two and a half laps of the same shall remain on the drum when the cage is at rest at the lowest caging place in the shaft.

INDICATOR. (*e*) An index dial or indicator, to show at all times the true position of the cages in the shaft, shall be attached to every hoisting engine for the constant information and guidance of the engineer.

SIGNALS. (*f*) The code of signals as provided for in this act, shall be displayed in conspicuous letters at some point in front of the engineer when standing at his post.

GAUGES. (*g*) Every boiler shall be provided with a steam gauge, except where two or more boilers are equipped and connected with a steam drum, properly connected with the boilers to indicate the steam pressure, and another steam gauge shall be attached to the steam pipe in the engine house, the two to be placed in such position that both the engineer and fireman can readily see what pressure is being carried. Such steam gauges shall be kept in good order and adjusted and be tested as often at least as every six months.

SAFETY VALVES. (*h*) Every boiler or battery of boilers shall be provided with a safety valve of sufficient area for the escape of steam, and with weights and springs properly adjusted.

INSPECTION OF BOILERS. (*i*) All boilers used in generating steam in or about coal mines shall be kept in good order, and the operator of every coal mine where steam boilers are in use shall have said boilers thoroughly examined and inspected by a competent boiler-maker or other qualified person, not an employé, of said operator, as often as once in every six months, and oftener if the inspector shall deem it necessary, and the result of every such inspection shall be reported on suitable blanks to said inspector

THE POWDER HOUSE.

§ 5. All blasting powder and explosive material must be stored in a fire-proof building on the surface, located at a safe distance from all other buildings.

THE STATE MINING BOARD.

§ 6. MANNER AND PURPOSE OF APPOINTMENT. (*a*) For the purpose of securing efficiency in the mine inspection service, and a high standard of qualification in those who have the management and operation of coal mines, the State Commissioners of Labor shall appoint a board of examiners, to be known as the State Mining Board, whose duty it shall be to make formal inquiry into and pass upon the practical and technical qualifications and personal fitness of men seeking appointments as State Inspectors of Mines, and of those seeking certificates of competency as mine managers, as hoisting engineers and as mine examiners. This board shall be composed of five members, two of whom shall be practical coal miners; one an expert mining engineer, and who shall, when practicable, be also a hoisting engineer, and two shall be coal operators.

DATE AND TERM OF APPOINTMENT. (*b*) Their appointment shall date from July 1, 1899, and they shall serve for a term of two years,

or until their successors are appointed and qualified; they shall organize by the election of one of their number as president, and some suitable person, not a member, as secretary, after which they shall all be sworn to a faithful performance of their duties.

SUPPLIES FURNISHED BY SECRETARY OF STATE. (*c*) The Secretary of State shall assign to the use of the board suitably furnished rooms in the State House for such meetings as are held at the capitol, and shall also furnish whatever blanks, blank-books, printing and stationery the board may require in the discharge of its duties.

FREQUENCY OF MEETINGS. (*d*) The board shall meet at the capitol in regular session on the second Tuesday in September of the year 1899, and biennially thereafter, for the examination of candidates for appointment as State Inspectors of Mines. For the examination of persons seeking certificates of competency as mine managers, hoisting engineers and mine examiners, the board shall hold meetings at such times and places within the State as shall, in the judgment of the members, afford the best facilities to the greatest number of probable candidates. Special meetings may also be called by the Commissioners of Labor, whenever, for any reason, it may become necessary to appoint one or more inspectors. Public notice shall be given through the press or otherwise, announcing the time and place at which examinations are to be held.

RULES OF PROCEDURE. (*e*) The examinations herein provided for shall be conducted under such rules, conditions and regulations as the members of the board shall deem most efficient for carrying into effect the spirit and intent of this act. Such rules, when formulated, shall be made a part of the permanent record of the board, and such of them as relate to candidates shall be published for their information, and governance prior to each examination; they shall also be of uniform application to all candidates.

EXAMINATIONS.

§ 7. FOR INSPECTORS. (*a*) Persons coming before the State Mining Board as candidates for appointment as State Inspectors of Mines must produce evidence satisfactory to the board that they are citizens of this State, at least thirty years of age, that they have had a practical mining experience of ten years, and that they are men of good repute and temperate habits; they must also submit to and satisfactorily pass an examination as to their practical and technical knowledge of mining, engineering and mining machinery and appliances, of the proper development and operation of coal mines, of ventilation in mines, of the nature and properties of mine gases, of the geology of the coal measures in this State and of the laws of this State relating to coal mines.

NAMES CERTIFIED TO THE GOVERNOR. (*b*) At the close of each examination for inspectors the board shall certify to the Governor the names of all candidates who have received a rating above the minimum fixed by the rules of the board as properly qualified for the duties of inspectors.

INSPECTORS APPOINTED. (*c*) From those so named the Governor shall select and appoint seven State inspectors of mines, that is to say, one inspector for each of the seven inspection districts provided for in this act, or more, if, in the future, additional inspection districts shall be created, and their commissions shall be for a term of two years from October first: *Provided*, that any one who has satisfactorily passed two of the State examinations for inspectors, and who has served acceptably as State Inspector for two full terms, upon making written application to the board setting forth the facts, shall also be certified to the Governor as a person properly qualified for appointment. But no man shall be eligible for appointment as a State inspector of mines who has any pecuniary interest in any coal mine, either as owner or employé.

FOR MINE MANAGERS. (*d*) Persons coming before the board for certificates of competency as mine managers must produce evidence satisfactory to the board that they are citizens of this State, at least twenty-four years of age, that they have had at least four years practical mining experience, and that they are men of good repute and temperate habits; they must also submit to and satisfactorily pass such an examination as to their experience in mines and in the management of men, their knowledge of mine machinery and appliances, the use of surveying and other instruments, the properties of mine gases, the principles of ventilation and the specific duties and responsibilities of mine managers, as the board shall see fit to impose.

FOR HOISTING ENGINEERS. (*e*) Persons seeking certificates of competency as hoisting engineers must produce evidence satisfactory to the board that they are citizens of the United States, at least twenty-one years of age, that they have had at least two years experience as fireman or engineer of a hoisting plant, and are of good repute and temperate habits. They must be prepared to submit to and satisfactorily pass an examination as to their experience in handling hoisting machinery, and as to their practical and technical knowledge of the construction, cleaning and care of steam boilers, the care and adjustment of hoisting engines, the management and efficiency of pumps, ropes and winding apparatus, and their knowledge of the laws of this State in relation to signals and the hoisting and lowering of men at mines.

FOR MINE EXAMINERS. (*f*) Persons seeking certificates of competency as mine examiners must produce evidence satisfactory to the board that they are citizens of this State, at least twenty-one years of age, and of good repute and temperate habits. They must be prepared to submit to and satisfactorily pass an examination as to their experience in mines generating dangerous gases, their practical and technical knowledge of the nature and properties of fire-damp, the laws of ventilation, the structure and uses of the safety lamp, and the laws of this State relating to safeguards against fires from any source in mines.

CERTIFICATES.

§ 8. ISSUED BY THE BOARD. (*a*) The certificates provided for in this act shall be issued under the signatures and seal of the State Mining Board, to all those who receive a rating above the minimum fixed by the rules of the board; such certificates shall contain the full name, age and place of birth of the recipient, and the length and nature of his previous service in and about coal mines.

REGISTER TO BE PRESERVED. (*b*) The board shall make and preserve a record of the names and addresses of all persons to whom certificates are issued, and at the close of each examination shall make report of the same to the Commissioners of Labor, who shall cause a permanent register of all certificated persons to be made and kept for public inspection in the office of the State Bureau of Labor Statistics in the State capitol.

EFFECT OF CERTIFICATES. (*c*) The certificates provided for in this act shall entitle the holders thereof to accept and discharge the duties for which they are thereby declared qualified, at any mine in this State, where their services may be desired.

FOREIGN CERTIFICATES. (*d*) The board may exercise its discretion in issuing certificates of any class, but not without examination, to persons presenting, with proper credentials, certificates issued by competent authority in other states.

UNLAWFUL TO EMPLOY OTHER THAN CERTIFCATED MINE MANAGERS. (*e*) It shall be unlawful for the operator of any coal mine to employ, or suffer to serve, as mine manager at his mine, any person who does not hold a certificate of competency issued by a duly authorized Board of examiners of this State: *Provided*, that whenever an exigency arises by which it is impossible for any operator to secure the immediate services of a certificated mine manager, he may place any trustworthy and experienced man, subject to the approval of the State Inspector of the district, in charge of his mine, to act as temporary mine manager for a period not exceeding thirty days.

UNLAWFUL TO EMPLOY OTHER THAN CERTIFICATED HOISTING ENGINEER. (*f*) It shall be unlawful for the operator of any mine to employ, or suffer to serve, as hoisting engineer for said mine, any person who does not hold a certificate of competency issued by a duly authorized Board of Examiners of this State, or permit any other to operate his hoisting engine except for the purpose of learning to operate it, and then only in the presence of the certificated engineer in charge, and when men are not being hoisted or lowered: *Provided*, that whenever any exigency arises by which it is impossible for any operator to secure the immediate services of a certificated hoisting engineer, he may place any trustworthy and experienced man, subject to the approval of the State Inspector of the district in charge of his engines, to act as temporary engineer, for a period not to exceed thirty days.

UNLAWFUL TO EMPLOY OTHER THAN CERTIFICATED MINE EXAMINERS. (*g*) It shall be unlawful for the operator of any mine to employ, or suffer to serve, as mine examiner, any person who does not

hold a certificate of competency issued by the State Mining Board: *Provided*, that any one holding a mine manager's certificate may serve as mine examiner. Any one holding a certificate as fire boss, on presentation of the same to the State Mining Board, may have it exchanged for a mine examiner's certificate.

CANCELLATION OF CERTIFICATES. (*h*) The certificate of any mine manager, hoisting engineer or mine examiner, may be cancelled and revoked by the State Mining Board whenever it shall be established to the satisfaction of said board that the holder thereof has become unworthy of official endorsement, by reason of violations of the law, intemperate habits, manifest incapacity, abuse of authority, or for other causes satisfactory to said board: *Provided*, that any person against whom charges or complaints are made shall have an opportunity to be heard in his own behalf. And he shall have thirty days notice in writing of such charges.

FEES FOR EXAMINATIONS.

§ 9. An applicant for any certificate herein provided for, before being examined, shall register his name with the secretary of the board, and file with him the credentials required by this act, to-wit: An affidavit as to all matters of fact establishing his right to receive the examination, and a certificate of good character and temperate habits signed by at least ten of the citizens who know him best in the place in which he lives.

Each candidate, before receiving the examination, shall pay to the secretary of the board the sum of one dollar as an examination fee, and those who pass the examination for which they are entered, before receiving their certificates, shall also pay to the secretary the further sum of two dollars each as a certificate fee. All such fees shall be duly accounted for by the board, and covered into the State treasury at the close of each fiscal year.

PAY OF THE BOARD.

§ 10. The members of the State Mining Board shall receive as compensation for their services the sum of five dollars each per day, for a term not exceeding one hundred days in any one year, and whatever sums are necessary to reimburse them for such traveling expenses as may be incurred in the discharge of their duties.

The salary of the secretary shall be determined by the board, but shall in no case exceed the sum of one thousand dollars per annum, and he shall be reimbursed for any amounts expended for actual and necessary traveling expenses in the discharge of his duties. All such salaries and expenses of the board and of its secretary shall be paid upon vouchers duly sworn to by each and approved by the president of the board and by the Governor, and the Auditor of Public Accounts is hereby authorized to draw his warrants on the State Treasurer for the amounts thus shown to be due, payable out of any money in the treasury not otherwise appropriated.

INSPECTION DISTRICTS.

§ 11. BOUNDARIES DEFINED. (*a*) The State shall be divided into seven inspection districts, as follows:

The first district shall be composed of the counties of Boone, McHenry, Lake, DeKalb, Kane, DuPage, Cook, LaSalle, Kendall, Grundy, Will, Livingston, and Kankakee.

The second district shall be composed of the counties of Jo Daviess, Stephenson, Winnebago, Carroll, Ogle, Whiteside, Lee, Rock Island, Henry, Bureau, Mercer, Stark, Putnam, Marshall, Peoria, and Woodford.

The third district shall be composed of the counties of Henderson, Warren, Knox, Hancock, McDonough, Schuyler, Fulton, Adams, and Brown.

The fourth district shall be composed of the counties of Tazewell, McLean, Ford, Iroquois, Vermilion, Champaign, Piatt, DeWitt, Macon, Logan, Menard, Mason, and Cass.

The fifth district shall be composed of the counties of Pike, Scott, Morgan, Sangamon, Christian, Shelby, Moultrie, Douglas, Coles, Cumberland, Clark, Edgar, Montgomery, Macoupin, Greene, Jersey, and Calhoun.

The sixth district shall be composed of the counties of Monroe, St. Clair, Madison, Bond, Clinton, Fayette, Marion, Effingham, Clay, Jasper, Richland, Crawford, and Lawrence.

The seventh district shall be composed of the counties of Washington, Jefferson, Wayne, Edwards, Wabash, White, Hamilton, Franklin, Perry, Randolph, Jackson, Williamson, Saline, Gallatin, Hardin, Pope, Johnson, Massac, Union, Alexander, and Pulaski.

HOW CHANGES MAY BE MADE. (*b*) Provided that the Commissioners of Labor, may, from time to time, make such changes in the boundaries of said districts as may, in their judgment, be required in order to distribute more evenly the labors and expenses of the several inspectors of mines, but this provision shall not be construed as authorizing the board to increase the number of districts.

CHANGES IN THE BOUNDARIES OF INSPECTION DISTRICTS OF THE STATE.

At a meeting of the Board of Commissioners of Labor held in June, 1899, under the provision of Section 11 of the mining law, the boundaries of the Second, Third, Fourth and Fifth Inspection Districts were changed and made as follows, to take effect July 1, 1899:

The Second District shall be composed of the counties of Jo Daviess, Stephenson, Winnebago, Carroll, Ogle, Whiteside, Lee, Rock Island, Henry, Bureau, Mercer, Stark, Putnam, Marshall, Henderson, Warren, and Knox.

The Third District shall be composed of the counties of Hancock, McDonough, Schuyler, Fulton, Peoria, Tazewell, Adams, Cass, Mason, and Menard.

The Fourth District shall be composed of the counties of Woodford, McLean, Ford, Iroquois, Vermilion, Champaign, Piatt, DeWitt, Macon, Logan, Christian, Shelby, Moultrie, Douglas, Edgar, Clark, Coles, and Cumberland.

The Fifth District shall be composed of the counties of Brown, Pike, Scott, Morgan, Sangamon, Montgomery, Macoupin, Greene, Jersey, and Calhoun.

The First, Sixth and Seventh Districts remain unchanged.

DUTIES OF INSPECTORS.

§ 12. BOND. (*a*) Those who receive appointment as State Inspectors of Mines must, before entering upon their duties as such, take an oath of office, as provided for by the constitution, and enter into a bond to the State in the sum of five thousand (5,000) dollars, with sureties to be approved by the Governor, conditioned upon the faithful performance of their duties in every particular as required by this act; said bond, with the pproval of the Governor endorsed thereon, together with the oath of office, shall be deposited with the Secretary of State.

INSTRUMENTS. (*b*) For the more efficient discharge of the duties herein imposed upon them, each inspector shall be furnished at the expense of the State with an anemometer, a safety lamp, and whatever other instruments may be required in order to carry into effect the provisions of this act.

EXAMINATION OF MINES. (*c*) State Inspectors of Mines shall devote their whole time and attention to the duties of their office, and make personal examination of every mine within their respective districts, and shall see that every necessary precaution is taken to insure the health and safety of the workmen employed in such mines, and that the provisions and requirements of all the mining laws of this State are faithfully observed and obeyed, and the penalties for the violation of the same are promptly enforced.

AUTHORITY TO ENTER. (*d*) It shall be lawful for State Inspectors to enter, examine and inspect any and all coal mines and the machinery belonging thereto, at all reasonable times, by day or by night, but so as not to obstruct or hinder the necessary workings of such coal mine, and the operator of every such coal mine is hereby required to furnish all necessary facilities for making such examination and inspection.

PROCEDURE IN CASE OF OBJECTION. (*e*) If any operator shall refuse to permit such inspection or to furnish the necessary facilities for making such examination and inspection, the inspector shall file his affidavit, setting forth such refusal, with the judge of the circuit court in said county in which said mine is situated, either in term time or vacation, or, in the absence of said judge, with the master in chancery in said county in which said mine is situated, and obtain his order on such owner, agent or operator so refusing as aforesaid, commanding him to permit and furnish such necessary facilities for the inspection of such coal mine, or to be adjudged to stand in contempt of court and punished accordingly.

NOTICES TO BE POSTED. (*f*) The State Inspector of Mines shall post up in some conspicuous place at the top of each mine visited and inspected by him, a plain statement of the condition of said mine, showing what in his judgment is necessary for the better protection of the lives and health of persons employed in said mine; such statement shall give the date of inspection and be signed by the inspector. He shall also post a notice at the landing used by the men, stating what number of men will be permitted to ride on the cage at one

time, and at what rate of speed men may be hoisted and lowered on the cages. He must observe especially that a proper code of signals between the engineer and top man and bottom man is established and conspicuously posted for the information of all employés.

SEALER OF WEIGHTS. (*g*) State Inspectors of Mines are hereby made *ex-officio* sealers of weights and measures in their respective districts, and as such are empowered to test all scales used to weigh coal at coal mines. Upon the written request of any mine owner or operator, or of ten coal miners employed at any one mine, it shall be his duty to try and prove any scale or scales at such mine against which complaint is directed, and if he shall find that they or any of them do not weigh correctly he shall call the attention of the mine owner or operator to the fact, and direct that said scale or scales be at once overhauled and readjusted so as to indicate only true and exact weights, and he shall forbid the further operation of such mine until such scales are adjusted. In the event that such tests shall conflict with any test made by any county sealer of weights, or under and by virtue of any municipal ordinance or regulation, then the test by such mine inspector shall prevail.

TEST WEIGHTS. (*h*) For the purpose of carrying out the provisions of this act each inspector shall be furnished by the State with a complete set of standard weights suitable for testing the accuracy of track scales, and of all smaller scales at mines; said test weights to be paid for on bills of particulars, certified by the Secretary of State and approved by the Governor. Such test weights shall remain in the custody of the inspector for use at any point within his district, and for any amounts expended by him for the storage, transportation or handling of the same, he shall be fully reimbursed upon making entry of the proper items in his quarterly expense voucher.

INSPECTORS' ANNUAL REPORTS. (*i*) Each State Inspector of Mines shall, at the close of the official year, to-wit: after June 30, of every year, prepare and forward to the Secretary of the Bureau of Labor Statistics a formal report of his acts during the year in the discharge of his duties, with any recommendations as to legislation he may deem necessary on the subject of mining, and shall collect and tabulate upon blanks furnished by said Secretary all desired statistics of mines and miners within his district to accompany said annual report.

REPORTS TO BE PUBLISHED. (*j*) On the receipt of said inspectors' reports the Secretary of the Bureau of Labor Statistics shall proceed to compile and summarize the same as a report of said bureau, to be known as the Annual Coal Report, which shall be duly transmitted to the Governor for the information of the General Assembly and the public. The printing and binding of said reports shall be provided for by the Commissioners of State Contracts in like manner and in like number as they provide for the publication of other official reports to the Governor.

The Secretary of State shall furnish to said inspectors, upon the requisition of the Secretary of the State Bureau of Labor Statistics, whatever instruments, blanks, blank books, stationery, printing and

supplies may be required by said inspectors in the discharge of their official duties; said instruments to be paid for on bills of particulars certified by the Secretary of State and approved by the Governor.

It shall be the duty of every coal operator and every employer of labor in this State to afford to the State Commissioners of Labor, or their representatives, every facility for procuring statistics of the wages and conditions of their employés for the purpose of compiling and publishing statistics of labor and of social and industrial conditions within the State as required by law. Any person who shall hinder or obstruct the investigation of the agents of the commissioners, or shall neglect or refuse, for a period of ten days, to furnish the information called for by the schedules of the commissioners as provided above, shall be adjudged guilty of a misdemeanor and be subjected to a fine of one hundred dollars.

PAY OF INSPECTORS.

§ 13. Each State Inspector of Mines shall receive as compensation for his services, the sum of eighteen hundred dollars per annum, and for his traveling expenses the sum actually expended for that purpose, in the discharge of his official duties, both to be paid quarterly by the State Treasurer, on warrants of the Auditor of Public Accounts, from the funds in the treasury not otherwise appropriated; said expense vouchers to show the expenditures in detail, with sub-vouchers for the same so far as it is practicable to obtain them. Said voucher shall be sworn to by the inspector and be approved by the Secretary of the Bureau of Labor Statistics and the Governor.

REMOVAL OF INSPECTORS.

§ 14. Upon a petition signed by not less than three coal operators, or ten coal miners, setting forth that any State Inspector of Mines neglects his duties, or that he is incompetent, or that he is guilty of malfeasance in office, or guilty of any act tending to the injury of miners or operators of mines, it will be lawful for the Commissioners of Labor of this State to issue a citation to the said inspector to appear, at not less than fifteen days' notice on a day fixed, before them, when the said commissioners shall proceed to inquire into and investigate the allegations of the petitioners; and if the said commissioners find that the said inspector is neglectful of his duty, or that he is incompetent to perform the duties of said office, or that he is guilty of malfeasance in office, or guilty of any act tending to the injury of miners or operators of mines, the said commissioners shall declare the office of inspector of said district vacant, and a properly qualified person shall be duly appointed, in the manner provided for in this act, to fill said vacancy.

COUNTY INSPECTORS.

§ 15. The County Board of Supervisors or of Commissioners in counties not under township organization, of any county in which coal is produced, upon the written request of the State Inspector of Mines for the district in which said county is located, shall appoint

a County Inspector of Mines as assistant to such State Inspector; but no person shall be eligible for appointment as County Inspector who does not hold a State certificate of competency as mine manager, and the compensation of such County Inspector shall be fixed by the county board at not less than three dollars per day, to be paid out of the county treasury.

The State Inspector may authorize any County Inspector in his district to assume and discharge all the duties and exercise all the powers of a State Inspector in the county for which he is appointed, in the absence of the State Inspector; but such authority must be conferred in writing and the County Inspector must produce the same as evidence of his powers upon the demand of any person affected by his acts; and the bond of said State Inspector shall be holden for the faithful performance of the duties of such assistant inspector.

DUTIES OF MINE MANAGERS AND MINERS.

§ 16. (*a*) The mine managers shall instruct employés as to their respective duties, and shall visit and examine the various working places in the mine as often as practicable. He shall always provide a sufficient supply of props, caps and timber delivered on the miners' cars at the usual place where demanded, as nearly as possible, in suitable lengths and dimensions for the securing of the roof by the miners, and it shall be the duty of the miner to properly prop and secure his place with materials provided therefor.

VENTILATION. (*b*) It shall be the duty of the mine manager to see that cross-cuts are made at proper distances apart to secure the best ventilation at the face of all working places, and that all stoppings along air-ways are properly and promptly built. He shall keep careful watch over all ventilating apparatus and the air-currents in the mine, and in case of accident to fan or machinery by which the currents are obstructed or stopped, he shall at once order the withdrawal of the men and prohibit their return until thorough ventilation has been re-established.

AIR-CURRENTS AND OUTLET PASSAGE-WAYS. (*c*) He shall measure or cause to be measured the air-current with an anemometer at least once a week at the inlet and outlet, and shall keep a record of such measurements for the information of the inspector. Once a week he shall make a special examination of the roadways leading to the escapement shaft or other opening for the safe exit of men to the surface, and shall make a record of any obstructions to travel he may encounter therein, together with the date of their removal.

HANDLING EXPLOSIVES. (*d*) He shall give special attention to and instructions concerning the proper storage and handling of explosives in the mine, and concerning the time and manner of placing and discharging the blasting shots, and it shall be unlawful for any miner to fire shots except according to the rules of the mine. In dusty mines he must see that all hauling roads are frequently and

thoroughly sprinkled. He must also see that all dangerous places, above and below, are properly marked, and that danger signals are displayed wherever they are required.

CARE OF ROPES, CAGES, ETC. (*e*) The mine manager or superintendent must have special attention given to the condition of the hoisting ropes; they must be carefully and frequently scrutinized. Before the men are lowered in the morning the soundness of the ropes must be tested by hoisting the cages. He must also have the cages, safety catches, pumps, sumps and stables examined frequently; he must have the mine examined every morning by the mine examiner before the men are allowed to go to work. and know that the top man and bottom man are on duty, and that sufficient lights are maintained at the top and bottom landings when the men are being hoisted and lowered.

EARLY AND LATE DUTY. (*f*) The mine manager or his agent shall be at his post at the mine when the men are lowered into the mine in the morning for work; he shall by some device keep a record of the number of men lowered either for a day or night shift, and he or his agent shall remain at night until all the men employed during the day shall have been hoisted out.

MAY HAVE ASSISTANTS. (*g*) In mines in which the works are so extensive that all the duties devolving on the mine manager can not be discharged by one man, competent persons may be designated and appointed as assistants to the mine manager who shall exercise his functions, under his instructions.

DUTIES OF HOISTING ENGINEERS.

§ 17. CONSTANT ATTENDANCE. (*a*) The hoisting engineer at any mine shall be in constant attendance at his engine or boilers at all times when there are workmen underground.

OUTSIDERS EXCLUDED. (*b*) The engineer shall not permit any one to enter or loiter in the engine room, except those authorized by their position, or duties to do so, and he shall hold no conversation with any officer of the company or other person while the engine is in motion or while his attention is occupied with the signals. A notice to this effect shall be posted on the door of the engine house.

CARE OF ENGINE AND BOILERS. (*c*) The engineer or some other properly authorized employé must keep a careful watch over the engine, boilers, pumps, ropes and winding apparatus. He must see that his boilers are properly supplied with water, cleaned and inspected at frequent intervals, and that the steam pressure does not exceed the limit established by the boiler inspector; he shall frequently try the safety valves and shall not increase the weights on the same; he shall observe that the steam and water gauges are always in good order, and if any of the pumps, valves or gauges become deranged or fail to act he shall promptly report the fact to the proper authority.

SIGNALS. (*d*) The engineer must thoroughly understand the established code of signals, and these must be delivered in the engine

room in a clear and unmistakable manner, and when he has the signal that men are on the cage he must work his engine only at the rate of speed hereafter specified in this act.

HANDLING OF ENGINE. (*e*) The engineer shall permit no one to handle or meddle with any machinery under his charge, nor suffer any one who is not a certificated engineer to operate his engine, except for the purpose of learning to operate it, and then only in the presence of the engineer in charge, and when men are not on the cage.

DUTIES OF MINE EXAMINERS.

§ 18. TO ENTER AND EXAMINE ALL PLACES. (*a*) A mine examiner shall be required at all mines. His duty shall be to visit the mine before the men are permitted to enter it, and, first, he shall see that the air-current is traveling in its proper course and in proper quantity. He shall then inspect all places where men are expected to pass or to work, and observe whether there are any recent falls or obstructions in rooms or roadways, or accumulations of gas or other unsafe conditions. He shall especially examine the edges and accessible parts of recent falls and old gobs and air-courses. As evidence of his examination of all working places, he shall inscribe on the walls of each, with chalk, the month and the day of the month of his visit.

TO POST DANGER NOTICES. (*b*) When working places are discovered in which accumulations of gas, or recent falls, or any dangerous conditions exist, he shall place a conspicuous mark thereat as notice to all men to keep out, and at once report his finding to the mine manager.

No one shall be allowed to remain in any part of the mine through which gas is being carried into the ventilating current, nor to enter the mine to work therein, except under the direction of the mine manager, until all conditions shall have been made safe.

TO MAKE DAILY RECORD. (*c*) The mine examiner shall make a daily record of the conditions of the mine, as he has found it, in a book kept for that purpose, which shall be preserved in the office for the information of the company, the inspector and all other persons interested, and this record shall be made each morning before the miners are permitted to descend into the mine.

VENTILATION.

§ 19. Throughout every coal mine there shall be maintained currents of fresh air sufficient for the health and safety of all men and animals employed therein, and such ventilation shall be produced by a fan or some other artificial means.

AMOUNT OF AIR REQUIRED. (*a*) The quantity of air required to be kept in circulation and passing a given point shall be not less than 100 cubic feet per minute for each person and not less than 600 cubic feet per minute for each animal in the mine, measured at the foot of

the downcast, and this quantity may be increased at the discretion of the inspector whenever, in his judgment, unusual conditions make a stronger current necessary. Said currents shall be forced into every working place throughout the mine, so that all parts of the same shall be reasonably free from standing powder smoke and deleterious air of every kind.

MEASUREMENTS. (*b*) The measurement of the current of air shall be taken with an anemometer at the foot of the downcast, at the foot of the upcast, and at the working face of each division or split of the air-current. And a record of such measurements shall be made and preserved in the office, as elsewhere provided for in this act.

AIR CURRENTS TO BE SPLIT. (*c*) The main current of air shall be so split, or subdivided, as to give a separate current of reasonably pure air to every 100 men at work, and the inspector shall have authority to order separate currents for smaller groups of men, if, in his judgment, special conditions make it necessary.

VENTILATION OF STABLE. (*d*) The air current for ventilating the stable shall not pass into the intake air-current for ventilating the working parts of the mine.

SELF-CLOSING DOORS. (*e*) All permanent doors in mines, used in guiding and directing the ventilating currents, shall be so hung and adjusted as to close automatically.

TRAPPERS. (*f*) At all principal door-ways, through which cars are hauled, an attendant shall be employed for the purpose of opening and closing said doors when trips of cars are passing to and from the workings. Places of shelter shall be provided at such door-ways to protect the attendants, from being injured by the cars while attending to their duties.

CROSS-CUTS. (*g*) Cross-cuts shall be made not more than sixty feet apart, and no room shall be opened in advance of the air-current.

STOPPINGS. (*h*) When it becomes necessary to close cross-cuts connecting the inlet and outlet air-courses in mines generating dangerous gases, the stoppings shall be built in a substantial manner with brick or other suitable building material laid in mortar or cement, if practicable, but in no case shall they be built of lumber except for temporary purposes.

AUTHORITY OF INSPECTOR. (*i*) Whenever the inspector shall find men working without sufficient air, he shall at once give the mine manager or operator notice and a reasonable time in which to restore the current, and upon his or their refusal or neglect to act promptly, the inspector may order the endangered men out of the mine.

POWDER AND BLASTING.

§ 20. No blasting powder or other explosives shall be stored in any coal mine, and no workman shall have at any time more than one twenty-five pound keg of black powder in the mine, nor more than three pounds of high explosives.

PLACE AND MANNER OF STORING. (*a*) Every person who has powder or other explosives in a mine, shall keep it or them in a wooden or metallic box or boxes securely locked, and said boxes shall be kept at least ten feet from the track, and no two powder boxes shall be kept within fifty feet of each other, nor shall black powder and high explosives be kept in the same box.

MANNER OF HANDLING. (*b*) Whenever a workman is about to open a box or keg containing powder or other explosives, and while handling the same he shall place and keep his lamp at least five feet distant from said explosive and in such position that the air current can not convey sparks to it, and no person shall approach nearer than five feet to any open box containing powder or other explosive with a lighted lamp, lighted pipe or other thing containing fire.

COPPER TOOLS. (*c*) In the process of charging and tamping a hole no person shall use any iron or steel pointed needle. The needle used in preparing the blast shall be made of copper and the tamping bar shall be tipped with at least five inches of copper. No coal dust nor any material that is inflammable or that may create a spark shall be used for tamping, and some soft material must always be placed next to the cartridge or explosive.

USE OF SQUIBS. (*d*) A miner who is about to explode a blast with a manufactured squib shall not shorten the match, saturate it with mineral oil nor ignite it except at the extreme end; he shall see that all persons are out of danger from the probable effects of such shot, and shall take measures to prevent any one approaching by shouting "fire!" immediately before lighting the fuse.

NOT MORE THAN ONE SHOT AT A TIME. (*e*) Not more than one shot shall be ignited at the same time in any one working place, unless the firing is done by electricity or by fuses of such length that neither of the shots will explode in less than three minutes from the time they are lighted. When successive shots are to be fired in any working place in which the roof is broken or faulty, the smoke must be allowed to clear away and the roof must be examined and made secure between shots.

MISSED SHOTS. (*f*) No person shall return to a missed shot until five minutes have elapsed, unless the firing is done by electricity, and then only when the wires are disconnected from the battery.

DUSTY MINES. (*g*) In case the galleries, roadways or entries of any mine are so dry that the air becomes charged with dust, the operator of such mine must have such roadways regularly and thoroughly sprayed, sprinkled or cleaned, and it shall be the duty of the inspector to see that all possible precautions are taken against the occurrence of explosions which may be occasioned or aggravated by the presence of dust.

PLACES OF REFUGE.

§ 21. ENGINE PLANES. (*a*) On all single track hauling roads wherever hauling is done by machinery, and on all gravity or inclined planes in mines, upon which the persons employed in the mine

must travel on foot to and from their work, places of refuge must be cut in the side wall not less than three feet in depth and four feet wide, and not more than twenty yards apart, unless there is a clear space of at least three feet between the side of the car and the side of the road, which space shall be deemed sufficient for the safe passage of men.

On every such road which is more than 100 feet in length a code of signals shall be established between the hauling engineer and all points on the road.

A conspicuous light must be carried on the front car of every trip or train of pit cars moved by machinery, except when such trip is on an inclined plane.

MULE ROADS. (*b*) On all hauling roads or gangways on which the hauling is done by draft animals, or gangways whereon men have to pass to and from their work, places of refuge must be cut in the side wall at least two and a half feet deep and not more than twenty yards apart; but such places shall not be required in entries from which rooms are driven at regular intervals not exceeding twenty yards, and whenever there is a clear space of two and one-half feet between the car and the rib, such space shall be deemed sufficient for the safe passage of men.

All places of refuge must be kept clear of obstructions, and no material shall be stored or allowed to accumulate therein.

BOYS AND WOMEN.

§ 22. No boy under the age of fourteen years, and no woman, or girl of any age shall be permitted to do any manual labor in or about any mine, and before any boy can be permitted to work in any mine he must produce to the mine manager or operator thereof an affidavit from his parent or guardian or next of kin, sworn and subscribed to before a justice of the peace or notary public, that he, the said boy, is fourteen years or age.

SIGNALS.

§ 23. At every mine operated by shaft and by steam power, means must be provided for communicating distinct and separate signals to and from the bottom man, the top man and the engineer. The following signals are prescribed for the use at mines where signals are required:

From the Bottom to the Top. One bell shall signify to hoist coal or the emply cage, and also to stop either when in motion.

Two bells shall signify to lower cage.

Three bells shall signify that men are coming up; when return signal is received from the engineer, men will get on the cage and the cager shall ring one bell to start.

Four bells shall signify to hoist slowly, implying danger.

Five bells shall signify accident in the mine and a call for a stretcher.

Six bells shall call for a reversal of the fan.

From the Top to the Bottom. One bell shall signify: All ready, get on cage.

Two bells shall signify: Send away empty cage.

Provided, that the operator of any mine may, with the consent of the inspector, add to this code of signals in his discretion, for the purpose of increasing its efficiency or of promoting the safety of the men in said mine, but whatever code may be established and in use at any mine, must be conspicuously posted at the top and at the bottom and in the engine room for the information and instruction of all persons concerned.

WEIGHING AND WEIGHMEN.

§ 24. SCALES. (*a*) The operator of every coal mine where miners are paid by the weight of their output, shall provide at such mine suitable and accurate scales of standard manufacture for the weighing of such coal, and a correct record shall be kept of all coal so weighed, and said record shall be open at all reasonable hours to the inspection of miners and others interested in the product of said mine.

WEIGHMAN. (*b*) The person authorized to weigh the coal and keep the record as aforesaid shall, before entering upon his duties, make and subscribe to an oath before some person duly authorized to administer oaths, that he will accurately weigh and carefully keep a true record of all coal weighed, and such affidavit shall be kept conspicuously posted at the place of weighing.

CHECK-WEIGHMAN. (*c*) It shall be permitted to the miners at work in any coal mine to employ a check-weighman at their option and at their own expense, whose duty it shall be to balance the scales and see that the coal is properly weighed, and that a correct account of the same is kept, and for this purpose he shall have access at all times to the beam box of said scales, and be afforded every facility for verifying the weights while the weighing is being done. The check-weighman so employed by the miners, before entering upon his duties, shall make and subscribe to an oath before some person duly authorized to administer oaths, that he will faithfully discharge his duties as check-weighman, and such oath shall be kept conspicuously posted at the place of weighing.

BOUNDARIES.

§ 25. TEN-FOOT LIMIT. (*a*) In no case shall the workings of any mine be driven nearer than ten feet to the boundary line of the coal rights pertaining to said mine, except for the purpose of establishing an underground communication between contiguous mines, as provided for elsewhere in this act.

APPROACHING OLD WORKS. (*b*) Whenever the workings of any part of a mine are approaching old workings, believed to contain dangerous accumulations of water or of gas, the operator of said mine must conduct the advances with narrow work, and maintain bore holes at least twenty feet in advance of the face of the work, and such side holes as may be deemed prudent or necessary.

NOTICE TO INSPECTORS.

§ 26. Immediate notice must be conveyed to the inspector of the proper district by the operator interested:

First. Whenever an accident occurs whereby any person receives serious or fatal injury.

Second. Whenever it is intended to sink a shaft, either for hoisting or escapement purposes, or to open a new mine by any process.

Third. Whenever it is intended to abandon any mine or to reopen any abandoned mine.

Fourth. Upon the appearance of any large body of fire damp in any mine, whether accompanied by explosion or not, and upon the occurrence of any serious fire within the mine or on the surface.

Fifth. When the workings of any mine are approaching dangerously near any abandoned mine, believed to contain accumulations of water or of gas.

Sixth. Upon the accidental closing or intended abandonment of any passageway to an escapement outlet.

ACCIDENTS.

§ 27. DUTY OF INSPECTOR. (*a*) Whenever loss of life or serious peasonal injury shall occur by reason of any explosion, or of any accident whatsoever, in or connected with any coal mine, it shall be the duty of the person having charge of said mine to report that fact, without delay, to the inspector of the district in which the mine is located, and the said inspector shall, if he deem necessary from the facts reported, and in all cases of loss of life, immediately go to the scene of said accident and render every possible assistance to those in need.

It shall moreover be the duty of every operator of a coal mine to make and preserve for the information of the inspector, and upon uniform blanks furnished by said inspector, a record of all injuries sustained by any of his employés in the pursuance of their regular occupations.

CORONER'S INQUEST. (*b*) If any person is killed by any explosion, or other accident, the operator must also notify the coroner of the county, or in his absence or inability to act, any justice of the peace of said county, for the purpose of holding an inquest concerning the cause of such death. At such inquest the inspector shall offer such testimony as he may be possessed of, and may question or cross question any witness appearing in the case.

INVESTIGATION BY INSPECTOR. (*c*) The inspector may also make any original or supplemental investigation which he may deem necessary, as to the nature and cause of any accident within his jurisdiction, and shall make a record of the circumstances attending the same, and of the result of his investigations, for preservation in the files of his office. To enable him to make such investigation he shall have power to compel the attendance of witnesses, and to administer oaths or affirmations to them, and the cost of such investigations shall be paid by the county in which such accident has occurred, in the same manner as the costs of coroner's inquests are paid.

MEN ON CAGES.

§ 28. TOP MAN AND BOTTOM MAN. (*a*) At every shaft operated by steam power, the operator must station at the top and at the bottom of such shaft, a competent man charged with the duty of attending to signals, preserving order, and enforcing the rules governing the carriage of men on cages. Said top man and bottom man shall be at their respective posts of duty at least a half hour before the hoisting of coal begins in the morning, and remain for half an hour after hoisting ceases for the day.

LIGHTS ON LANDINGS. (*b*) Whenever the hoisting or lowering of men occurs before daylight or after dark, or when the landing at which men take or leave the cage is at all obscured by steam or otherwise, there must always be maintained at such landing a light sufficient to show the landing and surrounding objects distinctly. Likewise, as long as there are men underground in any mine, the operator shall maintain a good and sufficient light at the bottom of the shaft thereof, so that persons coming to the bottom may clearly discern the cage and objects in the vicinity.

SPEED OF CAGES AND OTHER REGULATIONS. (*c*) Cages on which men are riding shall not be lifted nor lowered at a rate of speed greater than six hundred feet per minute, except with the written consent of the inspector. No person shall carry any tools, timber or other materials with him on a cage in motion, except for use in repairing the shaft, and no one shall ride on a cage containing either a loaded or empty car. No cage having an unstable or self-dumping platform shall be used for the carriage of men or materials, unless the same is provided with some convenient device by which said platform can be securely locked, and unless it is so locked whenever men or materials are being conveyed thereon. No coal shall be hoisted in any shaft while men are being lowered therein.

RIGHTS OF MEN TO COME OUT. (*d*) Whenever men who have finished their day's work, or have been prevented from further work, shall come to the bottom to be hoisted out, an empty cage shall be given them for that purpose, unless there is an available exit by slope or by stairway in an escapement shaft, and providing there is no coal at the bottom ready to be hoisted.

SAFETY LAMPS.

§ 29. OPERATOR MUST FURNISH. (*a*) At any mine where the inspector shall find that fire-damp is being generated so as to require the use of a safety lamp in any part thereof, the operator of such mine, upon receiving notice from the inspector that one or more such lamps are necessary to the safety of the men in such mine, shall at once procure and keep for use such number of safety lamps as may be necessary.

MINE MANAGER MUST CARE FOR. (*b*) All safety lamps used for examining mines or for working therein shall be the property of the operator, and shall remain in the custody of the mine manager, or other competent person, who shall clean, fill, trim, examine and deliver the same, locked and in a safe condition, to the men, upon their request, when entering the mine, and shall receive the same from the men at the end of their shift. But miners shall be responsible for the condition and proper use of safety lamps when in their possession.

STRETCHERS AND BLANKETS.

§ 30. At every mine where fifty men are employed underground it shall be the duty of the operator thereof to keep always on hand, and at some readily accessible place, a properly constructed stretcher, a woolen and waterproof blanket, and a roll of bandages in good condition and ready for immediate use for binding, covering and carrying any one who may be injured at the mine. When two hundred or more men are employed in any mine, two stretchers and two woolen and two waterproof blankets, with a corresponding supply of bandages, shall be provided and kept on hand. At mines where fire-damp is generated there shall also be provided and kept in store, a suitable supply of linseed or olive oil, for use in case men are burned in an explosion.

CAUTION TO MINERS.

§ 31. It shall be unlawful for any miner, workman or other person knowingly or carelessly to injure any shaft, safety lamp, instrument, air course or brattice, or to obstruct or throw open any air-way, or carry any open lamp or lighted pipe or fire in any form into any place worked by the light of safety lamps, or within five feet of any open powder, or to handle or disturb any part of the hoisting machinery, or open any door regulating an air current and not close the same, or to enter any part of the mine against caution, or to use other than copper needles and copper-tipped tamping bars, or to disobey any order given in pursuance of this act, or to do any wilful act whereby the lives or health of persons working in mines or the security of the mine or the machinery thereof is endangered.

§ 32. It shall be the duty of every operator to post, on the engine house and at the pit top of his mine, in such manner that the employés in the mine can read them, rules not inconsistent with this act, plainly printed in the English language, which shall govern all

persons working in the mine. And the posting of such notice, as provided, shall charge all employés of such mine with legal notice of the contents thereof.

PENALTIES.

§ 33. Any wilful neglect, refusal or failure to do the things required to be done by any section, clause or provision of this act, on the part of the person or persons herein required to do them, or any violation of any of the requirements or provisions hereof, or any attempt to obstruct or interfere with any inspector in the discharge of the duties herein imposed upon him, or any refusal to comply with the instructions of an inspector given by authority of this act, shall be deemed a misdemeanor punishable by a fine not exceeding five hundred dollars, or by imprisonment in the county jail for a period not exceeding six months or both, at the discretion of the court: *Provided*, that in addition to the above penalties, in case of the failure of any operator to comply with the provisions of this act in relation to the sinking of escapement shafts and the ventilation of mines, the State's attorney for the county in which such failure occurs, or any other attorney, in case of his neglect to act promptly, shall proceed against such operator by injunction without bond, to restrain him from continuing to operate such mine until all legal requirements shall have been fully complied with.

Any inspector who shall discover that any section of this act, or part thereof, is being neglected or violated, shall order immediate compliance therewith, and in case of continued failure to comply, shall, through the State's attorney, or any other attorney, in case of his failure to act promptly, take the necessary legal steps to enforce compliance therewith through the penalties herein prescribed.

If it becomes necessary, through the refusal or failure of the State's attorney to act, for any other attorney to appear for the State in any suit involving the enforcement of any provision of this act reasonable fees for the services of such attorney shall be allowed by the board of supervisors, or county commissioners, in and for the county for which such proceedings are instituted.

For any injury to person or property, occasioned by any wilful violations of this act, or wilful failure to comply with any of its provisions, a right of action shall accrue to the party injured for any direct damages sustained thereby; and, in case of loss of life by reason of such wilful violation or wilful failure as aforesaid, a right of action shall accrue to the widow of the person so killed, his lineal heirs or adopted children, or to any other person or persons who were, before such loss of life, dependent for support on the person or persons so killed, for a like recovery of damages for the injuries sustained by reason of such loss of life or lives, not to exceed the sum of five thousand dollars.

DEFINITIONS.

§ 34. MINE. (*a*) In this act the words "mine" and "coal mine," used in their general sense, are intended to signify any and all parts of the property of a mining plant, on the surface and underground, which contribute, directly or indirectly, under one management, to the mining or handling of coal.

EXCAVATIONS OR WORKINGS. (*b*) The words "excavations" and "workings" signify any or all parts of a mine excavated or being excavated, including shafts, tunnels, entries, rooms and working places, whether abandoned or in use.

SHAFT. (*c*) The term "shaft" means any vertical opening through the strata which is or may be used for purposes of ventilation or escapement, or for the hoisting or lowering of men and material in connection with the mining of coal.

SLOPE OR DRIFT. (*d*) The term "slope" or "drift" means any inclined or horizontal way, opening or tunnel to a seam of coal to be used for the same purposes as a shaft.

OPERATOR. (*e*) The term "operator" as applied to the party in control of a mine in this act, signifies the person, firm or body corporate who is the immediate proprietor as owner or lessee of the plant, and, as such, responsible for the condition and management thereof.

INSPECTOR. (*f*) The term "inspector" in this act signifies the State Inspector of Mines, within and for the district to which he is appointed.

MINE MANAGER. (*g*) The "mine manager" is the person who is charged with the general direction of the underground work, or both the underground and outside work of any coal mine, and who is commonly known and designated as "mine boss," or "foreman," or "pit boss."

MINE EXAMINER. (*h*) The "mine examiner" is the person charged with the examination of the condition of the mine before the miners are permitted to enter it, and who is commonly known, and has been designated in former enactments as the "fire-boss."

APPROVED April 18, 1899, in force July 1, 1899.