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CITY OF MEDFORD.

THE
MAYOR'S ADDRESS
TO
THE CITY COUNCIL,

January 1, 1894.

THE
CITY GOVERNMENT,
THE
AUDITOR'S STATEMENT OF EXPENSES.
AND THE
ANNUAL REPORTS,

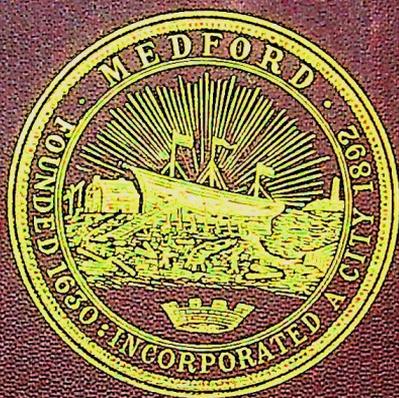
for the year ending January 31, 1894

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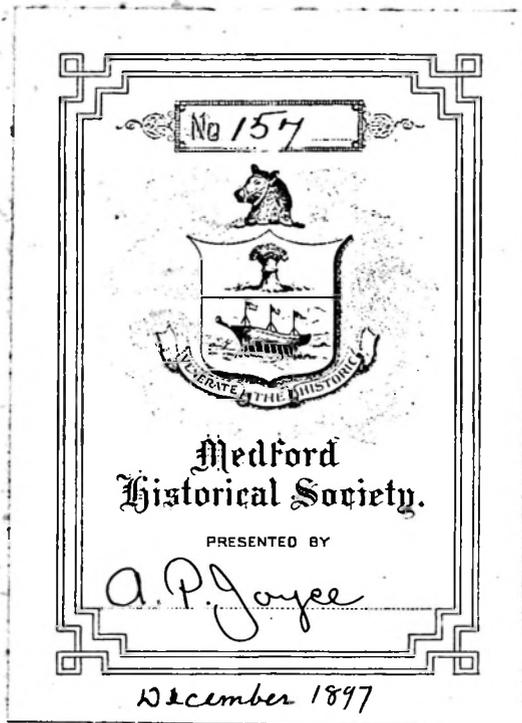
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2012.FIC.33.117

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BOSTON:
ADDISON C. GETCHELL, PRINTER,
No. 185 FRANKLIN STREET.
1894.

ADDRESS
OF
HON. SAMUEL C. LAWRENCE, MAYOR.

MEDFORD, Mass., Jan. 1, 1894.

To the Honorable the City Council:

GENTLEMEN: A year's experience under our new form of Municipal Government has been full of instruction, and we may congratulate ourselves that it has not been without profit. We have had much to learn: our charter was untried, and several of its provisions were not altogether acceptable to a portion of our people. Large powers were vested in the executive, and it was natural that a community accustomed to hold the direction of affairs, and especially the appropriation of money, within its own control, should watch with jealous eyes the exercise of delegated authority. I count it a piece of good fortune that I have been associated with a body of men who have been alive to the public interest, and who have entertained a deep sense of personal responsibility in their treatment of public affairs. I have had some occasion to differ from them in matters touching expenditures for public improvement, and, in some cases, in appointments to office; but I have had no reason to question the integrity of their purpose or their devotion to the public welfare. It is my hope that during the coming year we may be able to work together in mutual confidence and harmony, animated by a single desire to promote the best interests of the city.

METROPOLITAN PARK.

The General Court at its last session established the Metropolitan Park Commission, and authorized it to take,

in fee or otherwise, in the name and for the benefit of the Commonwealth, by purchase, gift, devise, or eminent domain, lands and rights in land for public open spaces within a district comprising twelve cities and twenty-five towns, including the city of Medford, and to preserve and care for such public reservations. The act, however, provides "that no land shall be taken by the right of eminent domain in that part of the city of Medford known as the Middlesex Fells, southerly of a line drawn from the southerly base of Pine Hill, northwesterly through the southern end of the dam of the south reservoir of the town of Winchester, and extended to the western boundary of said Fells, so called; nor southerly of a line drawn from said southerly base of Pine Hill, east to the eastern boundary of said Fells." The act further provides "that no private property taken for the purpose of this act shall be taken under the right of eminent domain without the concurrence of a majority of the board, and of the board of Park Commissioners, if any, of the city or town in which said property is situated." These provisions are of great value to the city of Medford, for under them a large tract of land admirably adapted to building purposes and absolutely necessary to the future growth of Medford, is exempted from seizure under the right of eminent domain, and the city, through its board of Park Commissioners, will retain its right to secure certain lands in the Fells in Medford which are deemed requisite for enlarging and protecting its water supply, except, however, any part of such lands obtained by the Metropolitan Park Commission by actual purchase, gift, or devise. The small fraction of the Middlesex Fells thus exempted to meet the necessities of the city will nowise stand in the way of the carrying out of the magnificent scheme intrusted to the hands of the Park Commission.

LEGISLATION.

Early in the municipal year it was found necessary to apply to the General Court for legislation in regard to certain important matters :

1. An act was obtained to authorize the city of Medford to improve and increase its water supply and to make an additional water loan. The act authorizes the acquiring of certain lands in the neighborhood of Pine Hill and west of Forest street, for the collection and storage of water, and also of lands south of Valley street and west of Fulton street, for the purpose of obtaining an additional supply of water by means of driven wells. The act authorizes the issue of bonds to the amount of \$300,000 in addition to the bonds already outstanding. These bonds are not to bear a rate of interest exceeding five per cent per annum, and are to become payable not later than July 1, 1923. Provision is made for the establishment of a sinking fund for the payment of the "City of Medford Water Fund Bonds" at maturity.

2. Authority was obtained by another act to issue bonds to the extent of \$250,000 for the erection of a city hall, high school-house, and other public buildings. These bonds are payable in periods not exceeding twenty years from the date of issue, and bear interest at a rate not exceeding four per cent per annum; a sinking fund is also provided for their payment at maturity. The "Medford Public Building Loan" is not reckoned in determining the authorized limit of the city's indebtedness under the provisions of the Public Statutes.

3. A third act provides for the establishment of a system of sewerage through a board of commissioners and for the issue of bonds, denominated the "Medford Sewerage Loan," to the amount of \$350,000, bearing interest

not exceeding five per cent per annum, payable in periods not exceeding thirty years from their issue, and secured by a sinking fund.

GRAVELLY CREEK.

The town, on Oct. 6, 1892, made an appropriation of \$11,550 for the improvement of Gravelly Creek, and this amount proving insufficient to complete the portion of the work contemplated, the City Council appropriated an additional sum of \$3518.78. A brick conduit has been built across Riverside avenue and the Mill Pond, a distance of 432 feet, to the river, near which a tide-gate is established, and that part of the pond lying west of the conduit has been more than two thirds filled. The city has a year more in which to complete the filling, under an agreement made in the settlement of the suit brought against the city by Joseph K. Manning and others for damage done to the pond. Over 2000 loads of gravel have been used in filling the slough holes along the edge of the creek between Salem and Water streets. By the work already done the nuisance which has so long existed is practically abated, but the city will be obliged to make some additional appropriations to reimburse the owners of the lands taken by the right of eminent domain granted under the statutes, and to grade the land so taken and put it and the creek in proper order.

SCHOOL-HOUSE.

A year ago I called the attention of the City Council to the need of ampler school accommodations in South Medford. On the 10th of April I recommended that an appropriation be made for the purchase of a site for a new school-house on Harvard street, and on June 5, I further recommended an appropriation for the erection of a school-

house in conformity with the plans, specifications, and estimates submitted by the School Committee. In due time, appropriations for these purposes were made by the City Council, to be paid from the proceeds of the sale of Public Building Loan bonds. The owner of the land selected for the school-house declined to sell the lot until he could determine, by the surveying and plotting of the large tract of land of which the lot formed a part, whether he could sell the lot and lay out the streets as suggested by the School Committee, without detriment to the remainder of the property. The deed was finally executed, but on the night preceding the day on which it was to be delivered the owner of the land died, and the deed became void. Negotiations were opened with the trustees under his will, and a deed of the property was obtained on the 20th of December. The construction of the building is necessarily postponed until the coming spring. Whatever delay has occurred in this matter has arisen from circumstances over which the city has had no control.

STREETS.

Some faithful work has been done upon our roads in the past, but, unfortunately, it has been greatly limited by the inadequacy of the annual appropriations. The result is that a large majority of the streets of the city are not in a satisfactory condition, nor can they be put in such a condition without a largely increased expenditure extending through a term of years. From personal observation I am led to believe that the last year's appropriation for streets has been judiciously and economically expended, and with an honest purpose to get the full value of the money. Of the \$15,000 appropriated, I find that about \$5080 have been necessarily been expended in what we may call

minor repairs, such as in the imperfect condition of many of our streets are needed every year, and will be until a more thorough system of road construction, more expensive and more permanent in its results, shall be adopted. I find, after making certain other necessary deductions, only \$8160 of the appropriation were left for improvements of a substantial and permanent nature. A much larger sum is absolutely requisite to enable us to make that annual advance which will finally bring our roads up to a satisfactory standard.

It has too often been the practice in the past to accept streets ungraded and not half built, thus entailing a very heavy burden of expenditure to put them in even a passable condition. At the present time, fifteen miles of roads accepted by the town stand in an unfinished condition, and special appropriations should be made from year to year to put them in proper order. We have a list of over four miles of unaccepted streets, and there are many such streets of which we have no record.

Where roads are built through lands as yet undeveloped and for the promotion of private interests, the city may at least demand that they be put in fair order before a request is made for their acceptance and perpetual maintenance. It is to be hoped that at no distant day new streets in the city will be laid out and graded only in accordance with the plans of a competent Board of Survey, or under the supervision of the Street Commissioners, as is provided for Boston to-day by special legislative authority.

ELECTRIC CAR SERVICE.

The recent introduction of electric car service has secured for our city speedier, cheaper, and more frequent communication with Boston by the street railway. In dealing with this matter, the city authorities have felt it to

be their duty to see that the rights and interests of the city were properly safeguarded, and that the conditions under which the service was to be rendered should be made satisfactory to our people. Any delay which occurred in adjusting the terms of agreement between the Board of Aldermen and the West End Street Railway Company is attributable to this cause and was unavoidable. In the final settlement of the conflicting claims I have reason to believe that the interests of the city have been well protected. From first to last, the Mayor and Aldermen have been in thorough sympathy with the community at large in the desire to secure the electric service, and I have no question that its establishment will greatly promote the public convenience and the prosperity of the city.

FINANCES.

The permanent debt, representing trust funds,
 is \$28,466 92
 The funded debt is \$322,000, and consists of
 Medford Water Bonds, payable

July 1, 1894	\$50,000 00
“ 1, 1900	75,000 00
“ 1, 1910	125,000 00
	<hr/>
Amounting to	250,000 00

and
 City of Medford Water Fund bonds 72,000 00
 Of which the sum of \$4000 is payable each
 year from Jan. 1, 1899, to Jan. 1, 1916.

The unfunded debt is as follows:—

Long notes	80,000 00
	<hr/>
The total debt of the city is	\$430,466 92

The sinking fund, as per report of Dec. 18, 1893, is	\$48,546 29
The net debt, Jan. 1, 1894, is	\$381,920 63
The net debt Jan. 2, 1893, was	353,709 14
The increase to Jan. 1, 1894, is	\$28,211 49

The Assessors' valuation May 1, 1893, was as follows:

Real estate, buildings	\$5,874,925 00
land	6,304,650 00
Total	\$12,179,575 00
Personal estate	2,725,000 00
Total valuation	\$14,904,575 00

The net debt, \$381,920.63, is $\frac{2\frac{5}{100}}{100}$ per cent of the total valuation, and the debt, exclusive of the funded debt of \$322,000, is $\frac{5\frac{1}{100}}{100}$ of one per cent of the total valuation.

The bonded indebtedness has been increased

\$72,000 to cover an indebtedness incurred in enlarging the water supply in previous years; namely, a note authorized Nov. 23, 1892	\$20,000 00
A mortgage to Dustin D. Wright	11,000 00
Land at Spot Pond	13,166 66
Total	\$44,166 66

and the following expenditures and appropriations of the current year: —

Basins at Spot Pond	\$1,402 71
Sundry items of construction	1,049 08
8-inch main	1,763 32

Appropriation for driven wells on Webster street	\$12,500 00
Appropriation for pumping station at Wright's Pond	10,000 00
	<hr/>
Total	\$26,715 11
Sum added to make an issue of bonds divisible by 4	1,118 23
	<hr/>
Total	\$27,833 34

which amount added to the sum of \$44,166.66 expended in previous years, makes the total of \$72,000 of water bonds issued.

Of the appropriation of \$12,500 for the driven wells, \$5391.92 have been expended, leaving an unexpended balance of \$7108.08.

The sinking fund, with its accumulations to July 1, 1894, will pay the \$50,000 of water bonds due on that date.

The amount of the long notes of the unfunded debt of last year was	\$106,350
which has been reduced by the funding of the mortgage note in water bonds	\$11,000
and by the payment of two notes to the Commonwealth of Massachusetts from money raised by taxation	15,350
	<hr/>
	26,350
	<hr/>
Leaving a total of unfunded debt of	\$80,000
consisting of the following notes: —	

		Due	
Medford Savings Bank	. May	9, 1894,	\$10,000
St. Paul's R. A. Chapter	. July	1, 1894,	10,000
Commonwealth of Mass.	. Aug.	23, 1894,	4,000
" "	. June	11, 1895,	13,000
" "	. Aug.	23, 1895,	5,000
Brewster, Cobb & Estabrook	July	1, 1896,	13,000
Boston Commandery, K. T.	Dec.	1, 1897,	5,000
Medford Savings Bank	. Nov.	22, 1897,	12,000
" " "	. Dec.	6, 1897.	8,000
			<u>\$80,000</u>

If we exclude the appropriations made the current year to meet expenditures authorized in previous years, we find that the debt of the city has been increased by the actual expenditure to date of money appropriated the current year as follows: —

Water works	. . . . .	\$9,689 53
Land at South Medford for school-house,	. . . . .	7,567 56
Land at South Medford for engine-house,	. . . . .	1,560 00
Total	. . . . .	\$18,817 09
and the debt has been reduced by taxation	. . . . .	15,350 00

showing the increase of the debt by actual expenditure during eleven months of the financial year to Jan. 1, 1894, to be \$3,467 09

The following appropriations of the current year have not been expended to date: —

Driven wells, balance	. . . . .	\$7,108 08
Pumping station	. . . . .	10,000 00
School-house	. . . . .	37,000 00
Total	. . . . .	\$54,108 08

When these amounts are expended, they will be funded in bonds.

CITY EXPENSES.

I find that in the matter of salaries, the expense of conducting affairs under the forms of a city government exceeds that of the town government of last year \$1576.28.

The appropriations for some of the departments have exceeded those of last year, as expenses naturally and necessarily increase with the growth of a community. Of the excess of expenditures, — \$4823, — in the School Department the sum of \$2745 largely consists of an increase in the total of the salaries of teachers, occasioned by the increase of compensation for long service under the standing regulations of that department, more than an ordinary amount from that cause happening to fall due the present year. The excess of \$3820 in the Highway Department is due chiefly to the increased cost of \$1000 for the removal of snow, \$300 for the removal of ashes, \$1175 for an outfit for the collection of house offal, and \$1100 due to the increased demand for such collection. In the Water Department, the excess of \$5500 has arisen from the necessity of furnishing water to the large number of new houses erected this year.

Long-needed repairs of the Almshouse and a new heating apparatus for the building have cost, to date, \$1792.37. The sum of \$1000 has been expended at the City stables, principally in filling and grading the grounds. A steam road roller has been purchased for \$3900. These machines are now widely used and are considered almost indispensable in building first-class roads. The road roller has done excellent work this year, and I have no question that it will soon pay for itself.

The city has also completed some work entered upon

by the town, such as Wier bridge, the widening of High street, and certain improvements of Gravelly Creek, at an unavoidable expense, requiring appropriations largely in excess of the original appropriations.

A heavy debt was inherited from the town, including appropriations made at the close of the year, a large excess of expenditure above appropriations, a considerable amount of unpaid bills, and also of unsettled claims.

This large indebtedness incurred by the town, chiefly for ordinary current expenses, could only be met in one of two ways: either by immediate taxation or by borrowing money on the notes of the city. It seemed that the time had come when the old and vicious practice of throwing over a portion of the current expenses of one year to become an added burden to the succeeding year, should cease. With the advent of the new city government it appeared to be a good time to square accounts, and adopt the safe principle of paying the current expenses of each year in full. Fortunately, under the increased valuation of the property of the city, we were able to meet the demands of this year without an undue increase in the tax rate, — a result all the more satisfactory because in a few years, at the expiration of the term of indulgence allowed us in the city charter, January 1, 1897, we shall be compelled to raise the revenue necessary to meet the city's expenditures, exclusive of the State and county taxes, on a tax rate not exceeding in any year twelve dollars on every one thousand dollars of the average of the assessors' valuations of the taxable property for the preceding three years, and any appropriation requiring a larger assessment will be void.

I am happy to state that due care is being taken in the several departments of the public service to see that no bills are left unpaid at the close of the financial year, and

that no expenditure shall be made in excess of the several appropriations. With the exception of certain claims for land taken in previous years for Governor's avenue, the improvement of Gravelly Creek, and the protection of the water supply at Spot Pond, I know of no outstanding claims against the city of any magnitude.

WATER SUPPLY.

The necessity of enlarging the water supply of the city has been apparent for a term of years, and the full solution of the problem is not yet reached. A competent engineer was employed by the present board of Water Commissioners soon after their election, with instructions to report a feasible plan for the increase of the supply. An extended survey, consuming several months, was made by him, and an elaborate report was submitted, giving the conclusions to which he had arrived. The additional works proposed by him would take years for their full construction, and would involve a formidable expenditure of money. What portion of the plan presented can best be adopted and carried into effect at a reasonable cost, it will be the duty of the Water Commissioners to determine and recommend. There was, however, one recommendation in the report which was favorably entertained by the water board; this was the building of a reservoir at Wright's Pond, a project which had received the approval of the town in former years, and for the carrying out of which it had purchased a large tract of land in that vicinity. Owing to the delay it was found that the season was too far advanced to admit of the completion of so large a work before the setting in of winter. On the recommendation of the Water Commissioners an appropriation has been made to meet the expense of establishing a pumping station near the junction of Forest and Elm streets, and this when finished, as it will be in a

short time, will secure for the city all the water available in that locality.

The first estimates as furnished by the contractors of the amount of water to be obtained from the driven wells on Webster street were found by actual experience to be excessive. The wells are, however, furnishing an average of 150,000 gallons per day of pure water, an almost indispensable addition to our stinted water supply. Whether more water can be obtained in this locality is a question which has not yet been fully determined.

The subject of a high service has been a matter of anxious thought, and is found to be involved in difficulties which, in the present condition of our service, it is extremely hard to overcome. The inadequacy of our present water supply and the possible inability of our water mains to stand the additional pressure of a high service, greatly complicate the problem. It is to be hoped that some satisfactory solution will be found at an early date, and that the building of a high service may be safely entered upon the coming year.

In this connection it would be well to remember that the State Board of Health is engaged in an investigation to determine the best source for the Metropolitan water supply. The Metropolitan district includes Boston and the cities and towns within a radius of ten miles. The report is to be made to the General Court in January, 1895.

It is stated that the work of investigation is being carried on with energy, and, so far as it has progressed, points to obtaining a satisfactory supply for the whole district.

As the probable results of this investigation will be a report submitting a plan by which a satisfactory water supply can be obtained at an aggregate cost far less than the cost of an independent supply to each municipality, it would seem desirable that expenditures for obtaining ad

ditional water supply should be limited as far as possible to the actual requirements of the city, keeping in mind, however, that a considerable term of years must expire before the completion of a Metropolitan system of water supply.

SEWERAGE.

By the passage of chapter 439 of the acts of the State Legislature of 1889, entitled "An act to provide for the building, maintenance, and operation of a system of sewage disposal for the Mystic and Charles river valleys," the means by which the house sewage and manufacturing waste from the city of Medford can be disposed of has been provided.

The proposed plan provides for the construction of an intercepting sewer, known as the North Metropolitan Sewer, to extend from deep water off Deer Island to and through the various cities and towns whose surface slope is towards the Mystic river. It is laid in the lowest part of the lowest part of the valleys, so as to intercept the flow of sewage from the local sewers which may be or have been constructed in the various municipalities.

The act further provides that the State shall issue and sell scrip or certificates of debt, to be known as the Metropolitan Sewerage Loan, in such amounts, not exceeding a total of \$5,000,000, as may be necessary to pay the cost and expense of constructing the sewer. The scrip or certificates are to bear interest at a rate not exceeding four per cent. The interest, sinking fund, and cost of maintenance of the sewers constructed under this act are to be paid by the various cities and towns in the district, and the apportionment is made every five years by a special commission appointed by the Supreme Judicial Court.

The first apportionment of the cost of construction and expenses incurred during the first five years of operation

was made November 12, 1892. The method determined upon by the special commission as being just and equitable, was to apportion the payments on account of the interest and sinking fund according to the total valuation of the several cities and towns, and the payments on account of the cost of maintenance and operation, according to their respective populations, exempting the valuation and population of areas which are physically so situated that they cannot be drained into the system.

The proportion of the whole cost assessed upon the city of Medford to meet the interest and sinking fund was $4\frac{2}{10}$ per cent; and the proportion of the cost of maintenance and operation was $2\frac{4}{10}$ per cent. The sewer assessment paid by this city into the State treasury this year is \$3078.40.

The Metropolitan Sewer has been constructed through the valley of the Mystic River in the city of Medford, and it is expected that the outlet will be completed by January 1, 1895, and the sewer ready for use.

The rapid growth and comparatively dense population of portions of the city make it necessary that provision should be made for collecting and disposing of the house sewage by the construction of a local system of sewers from the Metropolitan sewer to and through certain sections of the city, and to provide for their gradual extension as local conditions may require.

The government of the city of Medford has deemed it wise to appoint a sewer commission, under whose direction surveys and plans are being made, and from the information thus obtained a design of a system of sewers can be perfected. There is probably no municipal work where a greater saving in the cost of construction and efficiency of operation can be made than by a judicious expenditure in making careful study in the design of a sewer system. One

dollar judiciously expended in preliminary work often saves its value many times in the cost of construction.

The Metropolitan intercepting sewer is designed to take only the domestic sewage and manufacturing waste. The cost necessary to construct a sewer large enough to take the storm water from the district and dispose of it in deep water off Deer Island would be so great as to make it almost prohibitory: fortunately, such a sewer is unnecessary. The portion of the storm water flowing over the streets may be more or less polluted; but it forms so small a part of the whole volume of water that it can be discharged into the Mystic River without objection.

The information obtained by surveys from which a system of sewers can be designed, is the same as would be necessary for the design of a system of surface drainage, and I am informed that studies for both systems can be carried along together without a materially increased cost.

A great saving in the cost of constructing a system of surface drainage can often be effected if it is designed before a territory becomes fully laid out or built upon. The plan for taking care of surface drainage would largely include open channels, which could be so arranged as to take advantage of the landscape features which may be available, and thus make the territory more attractive. If the system is designed after the territory is occupied or built upon, it becomes necessary to provide covered channels at greatly increased expense.

The Special Sewerage Act for the city of Medford, granted by the Legislature in 1893, provides a method of assessing the estates benefited by the construction of a sewer, which is similar to that adopted by most of the cities in the Commonwealth, and is probably as nearly equitable in its provisions as could be devised.

I am happy to state that the preliminary survey of the

city is being vigorously pushed, and I have reason to believe that the construction of some portion of the system can be undertaken the coming spring. To supply the city with adequate sewerage, even in its present stage of growth will, of course, be the work of years.

PUBLIC BUILDINGS.

As has already been mentioned, the necessary authority has been obtained from the General Court for effecting a loan on long terms, enabling us to erect the public buildings needed by the city without resort to immediate taxation. I have seen no reason to change the views I expressed a year ago in regard to certain public improvements, but in the present unexpected and almost unexampled condition of financial depression I would not urge any avoidable expenditure in that direction. Still, I must call the attention of the City Council to the urgent need of a new police station, suited not only to the needs of that department of the public service, but to our common notions of public decency. The present quarters of the police are to the last degree unsatisfactory, not to say disreputable. They occupy a narrow space in the southerly end of the City Hall, which is much needed for public offices. The Chief of Police has no private office; there are no exclusive quarters for women, and tramps find their lodgings in the cellar. Such a condition of affairs ought not to be tolerated. I would renew my recommendation of last year, that an appropriation be made at an early date for a new police station. This, at least, is a matter which should no longer be deferred.

CONCLUSION.

Gentlemen of the City Council: in the performance of the duties which devolve upon me I shall greatly rely upon

your sympathy and support. We have but one object in view, — the promotion of the best interests of the city. I would suggest to you the importance of prompt action in all matters of urgent need. In such cases, delay is simply weakness. In many instances the best economy is only another name for a discreet expenditure. You will remember that careful preparation, involving considerable delay, is necessary in the carrying out of a public work of any magnitude, and that upon us devolves the duty of timely provision.

I shall be glad to co-operate with you in any effort that looks to the public welfare.

CHAPTERS 98, 167, and 180
OF THE
ACTS OF THE GENERAL COURT
OF
MASSACHUSETTS
IN THE YEAR
1893.

RELATING RESPECTIVELY TO THE WATER SUPPLY, THE ERECTION
OF PUBLIC BUILDINGS, AND THE CONSTRUCTION OF A
SYSTEM OF SEWERAGE IN THE
CITY OF MEDFORD.

ACTS OF 1893.

AN ACT TO AUTHORIZE THE CITY OF MEDFORD *Chap. 98*
TO IMPROVE AND INCREASE ITS WATER SUPPLY
AND TO MAKE AN ADDITIONAL WATER LOAN.

Be it enacted, etc., as follows :

SECTION 1. For the purpose of increasing its water supply the city of Medford, in addition to the authority heretofore granted, may from time to time take by purchase or otherwise, hold and improve all or any part of the land, with the water and water rights, lying in said city within the area bounded on the south and southwest by a line running from Forest street along the south and west foot of Pine Hill to the east line of the water-shed of the brook running from the town of Winchester's south reservoir ; on the west by the east line of the water-shed of said brook and said reservoir ; on the north by the boundary line between Stoneham and Medford ; and on the east by Forest street.

SECTION 2. For the purpose of obtaining a supply of water by means of driven or artesian wells, said city may from time to time within three years from the passage of this act take by purchase or otherwise, hold and improve the whole or any part of the land in said Medford bounded and described as follows : commencing at the northeasterly corner, at the intersection of Valley and Fulton streets ; thence southerly by Fulton street to a branch of Gravelly Creek ; thence about westerly in a straight line to the southwesterly corner of land of Chipman, assignee ; thence about westerly on land of Lawrence, of Simpson, of Goggin, of Garvey and of Campbell, to land formerly of Wait and others ;

thence about northerly by the easterly line of said Wait land prolonged to said Valley street, and thence about easterly on said Valley street to the point begun at. Or said city may, for the purposes aforesaid, hire or lease the whole or any part of the same from time to time and for such term or terms of years as it shall determine.

Description of land, &c., taken to be recorded in registry of deeds.

SECTION 3. The said city shall, within sixty days after the taking of any lands, water and water rights, as provided in the two preceding sections, file and cause to be recorded in the registry of deeds for the county and district within which such lands, water and water rights are situate, a description thereof sufficiently accurate for identification, with a statement of the purpose for which the same were taken.

Damages.

SECTION 4. All claims for damages sustained by taking land, water or water rights hereunder shall be ascertained, determined and recovered in the manner now provided by law in case of land taken for highways, except that the complaint may be filed at any time within three years after said taking: *provided, however*, that no application for assessment of damages shall be made for the taking of any water, water rights, or for any injury thereto, until the water is actually withdrawn or diverted by said city under the authority of this act.

City of Medford water fund bonds.

SECTION 5. For the purposes of extending, improving and preserving the purity of its water supply and increasing the efficiency of its water-works, and for the purposes of this act, the city of Medford may from time to time issue bonds to an amount not exceeding three hundred thousand dollars in addition to the bonds or scrip heretofore authorized and outstanding, bearing such rate of interest, not exceeding five per centum per annum.

payable semi-annually and to become due and payable at such time or times not later than the first day of July in the year nineteen hundred and twenty-three, as the city council of said city shall determine. Such bonds shall be denominated City of Medford Water Fund Bonds, and shall be signed by the mayor and treasurer of said city and countersigned by the auditor of said city. Said city may sell and dispose of the same from time to time for the purposes aforesaid, on such terms and conditions as the city council of said city shall authorize.

SECTION 6. Said city upon issuing bonds shall establish a sinking fund sufficient, with the yearly additions herein provided for and its other accumulations, to provide for the payment of the principal thereof at maturity. The provisions of sections seven and eight of chapter one hundred and sixty of the acts of the year eighteen hundred and seventy shall apply to such sinking fund, except that said city may in any year raise by taxation for the purpose of said sinking fund an amount not exceeding five thousand dollars; and in addition any premiums received from the sale of bonds issued under authority of this act shall be paid into such sinking fund forthwith upon their receipt.

SECTION 7. This act shall take effect upon its passage.

Approved March 17, 1893.

AN ACT TO AUTHORIZE THE CITY OF MEDFORD TO INCUR INDEBTEDNESS BEYOND THE LIMIT FIXED BY LAW FOR THE PURPOSE OF ERECTING PUBLIC BUILDINGS. *Chap. 167*

Be it enacted, etc., as follows:

SECTION 1. The city of Medford, for the purpose of erecting and constructing a city hall build- Medford public building loan.

ing, a high school building, and other public buildings for said city, may incur indebtedness to an amount not exceeding two hundred and fifty thousand dollars, and may from time to time by a vote passed in the manner provided by section seven of chapter twenty-nine of the Public Statutes issue and sell bonds or scrip therefor, signed by its mayor and treasurer and countersigned by its auditor, payable in periods not exceeding twenty years from the date of issue and bearing interest at a rate not exceeding four per centum per annum payable semi-annually. Said bonds or scrip shall be denominated on their face, Medford Public Building Loan.

Loan not to be reckoned in determining authorized debt limit.

SECTION 2. The debt and loan authorized by this act, and the bonds and scrip issued therefor, shall not be considered or reckoned in determining the authorized limit of indebtedness of said city under the provisions of section four of chapter twenty-nine of the Public Statutes and acts in amendment thereof; but said city shall establish a sinking fund, as provided in section nine of said chapter twenty-nine, sufficient with its accumulations for the payment of the debt, bonds and scrip hereby authorized, at their maturity.

Sinking fund.

SECTION 3. This act shall take effect upon its passage.

Approved April 4, 1893.

Chap. 180 AN ACT TO AUTHORIZE THE CITY OF MEDFORD TO CONSTRUCT A SYSTEM OF SEWERAGE AND TO PROVIDE PAYMENT THEREFOR.

Be it enacted, etc., as follows:

May construct a system of sewerage.

SECTION 1. The city of Medford is hereby authorized, through a board of commissioners to be elected as hereinafter provided, to lay out, con-

struct, maintain and operate a system or systems of main drains and common sewers for a part or the whole of its territory, and such works as may be required for a system of sewage disposal for said city, to be constructed, maintained and operated in connection with the main sewers and other works required to be constructed, maintained and operated, as provided by chapter four hundred thirty-nine of the acts of the year eighteen hundred and eighty-nine.

SECTION 2. Said board shall consist of three commissioners, who shall be citizens of said city, to be called the commissioners of sewers of the city of Medford, and shall be appointed by the mayor of said city. They shall hold their office, one for one year, one for two years and one for three years from the first day of February preceding their appointment, and until their respective successors are appointed and qualified; and thereafter in January of each year one person shall be so appointed as a member of such board, who shall hold his office for three years from the first day of the February then next ensuing. All such appointments shall be subject to confirmation or rejection by the board of aldermen.

Commissioners
of sewers,
appointment,
terms of office.

SECTION 3. Said board of commissioners, acting for and in behalf of said city, shall have full power to take by purchase or otherwise any lands, water rights, rights of way or easements in said city, public or private, of any persons or corporations, necessary for the establishment of such system of sewerage and sewage disposal, and may divert streams and water courses, and may construct such sewers under any water course, bridge, railroad, highway or other way, and may enter upon the dig up any private land, street or way, for

May take lands,
divert streams,
construct
sewers, &c.

the purpose of laying such sewers beneath the surface thereof and of maintaining and repairing the same.

A description of land, &c., taken to be recorded in registry of deeds, &c.

SECTION 4. When lands, rights of way or easements are so taken, in any other manner than by purchase or agreement, said board of commissioners shall within thirty days of said taking cause to be recorded in the registry of deeds for the county of Middlesex, southern district, a description of the same as certain as is required in a conveyance of land, with a statement of the purpose for which the same are taken, signed by a majority of said board; and the fee in the lands, rights of way or easements so taken or purchased shall vest in said city of Medford, which shall pay all damages therefor out of the appropriation for construction of sewers. If the damages are not agreed upon a jury in the superior court of said county may be had to determine the same, in the same manner as in case of lands taken for highways; but no suit shall be brought after two years from the date of the recording of the taking as herein required.

Payment of damages.

SECTION 5. In every case of a petition for the assessment of damages or for a jury, said city may at any time file an offer in writing, with the other papers in the case, to pay the petitioner a sum therein specified as damages; and if he does not accept the same within ten days after notice of such offer, and does not finally recover a greater sum than that offered, not including interest from the date of offer on the sum so recovered, the city shall recover costs from said date, and the petitioner, if he recovers damages, shall be entitled to costs only to the date of the offer.

Tender for damages may be made, &c.

SECTION 6. The city council of said city may by vote determine what proportion of the cost of

said system of sewerage said city shall pay, provided that it shall not pay less than one-third nor more than one-half of the whole cost. The remaining cost of said system shall be borne by the owners of estates situated within the territory embraced by it and benefited thereby, but no estate shall be deemed to be benefited unless or until a sewer is constructed into which it can be drained. The owners of such estates shall be assessed by said commissioners their proportional parts respectively of such portion of the total cost of said system as is not borne by the city as above provided. Such proportional parts shall be based upon the estimated average cost of all the sewers composing said system, and shall be assessed by a fixed uniform rate according to the frontage of such estate on any street or way in which a sewer is constructed, or according to the area of such estate within a fixed depth from such street or way, or according to both frontage and area; and every such owner shall, within three months after written notice of such assessment served on him or on the occupants of his estate, or sent by mail to the last address of said owner known to said commissioners, pay the sum so assessed to the city treasurer: *provided*, ^{Apportionment of cost of sys. tem.} *Proviso.* that said board shall, on the written request of any such owner made within said three months, apportion such assessment into such number of equal parts or instalments, not exceeding five, as said owner shall state in such request; and said board shall certify such apportionment to the assessors of said city, and one of said parts or instalments, with interest from the date of said apportionment at the rate of five per centum per annum, shall be added by the assessors to the annual tax on such estates for each year next ensuing until all said parts have

Proviso. been so added and paid, unless sooner paid as hereinafter provided; and *provided, further*, that nothing herein contained shall be construed to prevent the payment at any time in one payment, notwithstanding its prior apportionment, of any balance of said assessments, then remaining unpaid; but interest on such balance at the rate of five per centum per annum shall be paid to the date of such payment; and thereupon the city treasurer shall receive the same and shall certify such payment or payments to the assessors, who shall preserve a record thereof. In cases of corner lots and lots abutting on more than one sewered street, the same area shall not be assessed more than once.

Collection of assessment, sale of estate for non-payment &c.

SECTION 7. An assessment made under section six shall constitute a lien upon the estate, which shall continue for three years after it is made and notice served as above provided, or, in case of apportionment, until the expiration of two years from the time the last instalment is committed to the collector; and said assessment, together with interest at the rate of five per centum per annum, may, with incidental costs and expenses, be levied by sale of such estate or so much thereof as shall be sufficient to discharge the assessment and interest and intervening charges; if the assessment is not paid within three months after service of said notice, or, if apportioned, within three months after any part has become due, such sale and all proceedings connected therewith shall be conducted in the same manner as sales for the non-payment of taxes; and real estate so sold may be redeemed the same as if sold for the non-payment of taxes, and in the same manner. Such assessment or parts thereof may also be collected by an action of contract, in the name of the city of Medford against

the owner of said estate, brought at any time within three years after the same has become due.

SECTION 8. Any person aggrieved by such as-^{Application for}essment may, at any time within three months^{a jury to revise} after service of the notice mentioned in section seven of this act, apply to the superior court of said county for a jury to revise the same, but before making such application he shall give fourteen days' notice in writing of his intention so to do to the said commissioners, and shall therein particularly specify his objection to the assessment, to which specification he shall be confined before the jury.

SECTION 9. The city of Medford, for the pur-^{Medford sewer-}pose of paying the necessary expenses and liabilities^{age loan.} incurred under this act, may incur indebtedness and may issue from time to time as may be required therefor, bonds, notes or scrip to an amount not exceeding three hundred and fifty thousand dollars, and the debt and loan authorized by this act and the notes, bonds or scrip issued therefor shall not be considered or reckoned in determining the authorized limit of indebtedness of said city under the provisions of section four of chapter twenty-nine of the Public Statutes and of acts in amendment thereof or supplementary thereto. Such bonds, notes or scrip shall bear on their face the words, Medford Sewerage Loan, shall be payable within such periods not exceeding thirty years from the issuing of such bonds, notes or scrip respectively, and shall bear interest payable semi-annually at such rate, not exceeding five per centum per annum, as the city council of said city of Medford may determine. Said bonds, notes or scrip shall be signed by the mayor and the treasurer of said city, and shall be countersigned by its auditor. The said city may sell such securities or any part

thereof, from time to time, at public or private sale, provided that they shall not be sold for less than the par value thereof; the proceeds thereof shall be retained in the treasury, and the treasurer shall pay therefrom the expenses incurred for the purposes aforesaid, but the premiums, if any, received on the sale thereof, shall be paid over to the board of sinking fund commissions and be placed in the sinking fund of said city created for the payment of the loan herein authorized.

Payment of
sewerage loan;
sinking fund.

SECTION 10. The receipts from annual rates, assessments and payments made in lieu thereof under this act, shall, after deducting all charges and expenses for and incident to the maintenance and operation of said system, be applied first to the payment of interest upon said bonds, notes or scrip issued under authority of this act, and the balance shall be set apart to meet the requirements of the sinking fund for the payment and redemption of said bonds, notes or scrip, as provided in section nine of chapter twenty-nine of the Public Statutes. If the surplus net income from said rates, assessments and payments made in lieu thereof, shall in any year be insufficient to pay the interest on said bonds, notes or scrip, and to meet the requirements of law as to said sinking fund, as hereinbefore provided, then, in such case, said city, to meet said deficiency, shall raise forthwith by taxation, in the same manner as money is appropriated and assessed for other city purposes, such sum as will, together with said net income, be sufficient to meet said requirements of law; said sinking fund shall be used for no other purpose than the payment and redemption of said debt. Except as herein otherwise provided the provisions of chapter twenty-nine of the Public Statutes and of chapter one hundred

and twenty-nine of the acts of the year eighteen hundred and eighty-four shall, so far as applicable, apply to the issue of such bonds, notes or scrip, and to the establishment of a sinking fund for the payment thereof at maturity. If in any year said surplus net income shall be in excess of the sum necessary to meet the requirements of the sinking fund for said year, the surplus, together with any other amounts appropriated from time to time by said city for the payment of said principal sums, shall be added to said sinking fund or be applied to the reduction of the principal of said debt, either by purchase and retirement of a portion of said outstanding indebtedness or by the payment of the same at maturity. All notes, bonds or scrip of said city purchased for redemption or retirement under this act shall be cancelled.

SECTION 11. Said board of commissioners shall annually appoint a clerk, and may appoint, but not from their own number, a superintendent of sewers, and may remove said clerk and superintendent at their pleasure. The compensation of said clerk and superintendent and of said commissioners shall be fixed by the city council.

SECTION 12. All contracts made by said board of commissioners for the purposes of this act shall be the contracts of said city, and shall be signed by the mayor, but no contract shall be made by said commissioners which requires an expenditure of money until an appropriation has been made of the moneys to be expended for the purposes to be accomplished by such contract, nor in excess of such appropriation; and said board of commissioner shall at all times be accountable for the proper discharge of their duties to the mayor, as the chief executive officer of the city, and shall

Public Statutes
29; 1881, 129 to
apply.

Clerk and super-
intendent,
appointment
and compensa-
tion.

Contracts.

Commissioners
to be accounta-
ble to the
mayor, &c.

ACT RELATING TO SEWERAGE.

make such reports to him as he may require from time to time for his own information or for the information of the city council.

Rules, regulations, and penalties.

SECTION 13. Said board of commissioners may prescribe rules and regulations for the inspection of materials, construction, alteration or use of all sewers or drains entering into such main sewers, and may impose penalties, not exceeding twenty dollars, for each violation of any such rule or regulation. Such rules or regulations shall be published not less than once a week in some newspaper of said city of Medford, and shall not take effect until such publication has been made.

Public Statutes, 50, and amendments, to apply

SECTION. 14. The provisions of chapter fifty of the Public Statutes and of acts in amendment thereof, so far as applicable and not inconsistent with this act, shall apply to the city of Medford in carrying out the provisions of this act.

SECTION 15. This act shall take effect upon its passage.

Approved April 11, 1893.

GOVERNMENT
OF THE
CITY OF MEDFORD,
1894.

MAYOR.

HON. SAMUEL C. LAWRENCE,

8 Rural Avenue.

Mayor's Clerk, EDWARD WESTON NICHOLS.

BOARD OF ALDERMEN.

(ELECTED AT LARGE.)

PRESIDENT.

DANA I. McINTIRE.

*WALTER F. CUSHING	6 Magoun avenue.
*LEWIS H. LOVERING	5 Bowers street.
*DANA I. McINTIRE	22 Dudley street.
†CHARLES D. ARCHIBALD	8 South street.
†WILLIAM R. MAXWELL	30 Medford street.
†JOSIAH R. TEEL	Woodland avenue.

CITY CLERK.

ALLSTON P. JOYCE, 6½ Franklin Street.

* Term expires first Monday in January, 1895.

† Term expires first Monday in January, 1896.

COMMON COUNCIL.

President.

CHARLES H. LOOMIS.

WARD ONE.

Richard Gibson	. . . . .	5 Lawrence street.
Edmund H. Pennell	. . . . .	46 Otis street.
William W. Pinder	. . . . .	Riverside avenue.

WARD TWO.

Samuel N. Mayo	. . . . .	2 Revere place.
George T. Sampson	. . . . .	46 Park street.
Edward F. Smith	. . . . .	38 Tainter street.

WARD THREE.

Henry S. Bridge	. . . . .	19 Allston street.
Charles H. Loomis	. . . . .	23 Oakland street.
George H. Perry	. . . . .	22 Otis street.

WARD FOUR.

Herman L. Buss	. . . . .	9 Royal street.
Thomas H. J. Flynn	. . . . .	18 Union street.
Robert M. Spinney	. . . . .	13 Florence street.

WARD FIVE.

Charles H. Benner	. . . . .	247 Main street.
Edwin E. Stevens	. . . . .	33 North street.
John W. Vaughan	. . . . .	11 Brooks park.

WARD SIX.

Allston H. Evans	. . . . .	26 Boston avenue.
Charles E. Lowe	. . . . .	51 Monument street.
Edward F. Kakas	. . . . .	26 Brooks street.

Clerk.

EVERARD I. LANGELL, 46 Brooks street.

JOINT STANDING COMMITTEES OF THE CITY COUNCIL.

Accounts. — Aldermen Maxwell and Cushing, Councilmen Vaughan, Pinder, and Smith.

Almshouse and Poor. — Aldermen Archibald and Teel, Councilmen Benner, Pinder, and Flynn.

Assessment and Collection of Taxes. — Aldermen Cushing and Maxwell, Councilmen Gibson, Stevens, and Lowe.

Bonds. — Aldermen Maxwell and Archibald, Councilmen Kakas, Vaughan, and Gibson.

Claims. — Aldermen McIntire and Lovering, Councilmen Loomis, Perry, and Evans.

Finance. — Aldermen McIntire, Archibald, and Teel, Councilmen Loomis, Bridge, Sampson, and Mayo.

Fire and Police Departments. — Aldermen Teel and Maxwell, Councilmen Buss, Bridge, and Gibson.

Fuel. — Aldermen Lovering and Archibald, Councilmen Flynn, Kakas, and Pinder.

Health. — Aldermen Cushing and Lovering, Councilmen Spinney, Kakas, and Benner.

Highways. — Aldermen Lovering and Teel, Councilmen Pinder, Lowe, and Smith.

Lamps. — Aldermen Archibald and Lovering, Councilmen Smith, Gibson, and Flynn.

Legislative Matters. — Aldermen McIntire and Maxwell, Councilmen Loomis, Mayo, Perry, and Buss.

Ordinances, Rules, and Orders. — Aldermen Teel and Maxwell, Councilmen Spinney, Sampson, and Perry.

Printing. — Aldermen Cushing and Lovering, Councilmen Stevens, Pennell, and Buss.

Public Instruction. — Aldermen Maxwell and Cushing, Councilmen Lowe, Pennell, and Vaughan.

Public Property. — Aldermen Teel and Lovering, Councilmen Mayo, Evans, and Bridge.

Salaries. — Aldermen Lovering and Archibald, Councilmen Pennell, Mayo, and Kakas.

Sewerage. — Aldermen Teel and Cushing, Councilmen Sampson, Spinney, and Stevens.

Water. — Aldermen Archibald and Cushing, Councilmen Evans, Buss, and Sampson.

STANDING COMMITTEES OF THE BOARD OF ALDERMEN.

Elections and Returns. — Aldermen Cushing, Lovering, and Teel.

Enrolled Ordinances and Resolutions. — Aldermen Maxwell, Cushing, and Archibald.

Licenses, Weights, and Measures. — Aldermen Teel, Cushing, and Lovering.

Railways and Electric Wires. — Aldermen McIntire, Lovering, and Archibald.

Roads and Bridges. — Aldermen Lovering, Teel, and Cushing.

Rules and Orders. — Aldermen McIntire, Maxwell, and Archibald.

Sewers and Drains. — Aldermen Archibald, Teel, and Maxwell.

State Aid and Soldiers' Relief. — Aldermen Cushing, Teel, and Maxwell.

STANDING COMMITTEES OF THE COMMON COUNCIL.

Elections and Returns. — Councilmen Bridge, Evans, and Benner.

Rules, Orders, and Ordinances. — Councilmen Perry, Spinney, and Pennell.

Clerk of Committees.

CHARLES H. FOWLE, 13 Magoun avenue.

MEMBERS OF THE CITY COUNCIL,
SHOWING APPOINTMENTS ON COMMITTEES.

* Chairman.

- ALDERMAN ARCHIBALD.** — *Almshouse and Poor, Bonds, Finance, Fuel, *Lamps, Salaries, *Water, Enrolled Ordinances and Resolutions, Railways and Electric Wires, Rules and Orders, *Sewers and Drains.
- ALDERMAN CUSHING.** — Accounts, *Assessment and Collection of Taxes, *Health, *Printing, Public Instruction, Sewerage, Water, Licenses, Weights and Measures, *Elections and Returns, Enrolled Ordinances and Resolutions, Roads and Bridges, *State Aid and Soldiers' Relief.
- ALDERMAN LOVERING.** — Claims, *Fuel, Health, *Highways, Lamps, Printing, Public Property, *Salaries, Elections and Returns, Licenses, Weights and Measures, Railways and Electric Wires, *Roads and Bridges.
- ALDERMAN MAXWELL.** — *Accounts, Assessment and Collection of Taxes, *Bonds, Fire and Police Departments, Legislative Matters, Ordinances, Rules and Orders, *Public Instruction, *Enrolled Ordinances and Resolutions, Rules and Orders, Sewers and Drains, State Aid and Soldiers' Relief.
- ALDERMAN MCINTIRE.** — *Claims, *Finance, *Legislative Matters, *Railways and Electric Wires, *Rules and Orders.
- ALDERMAN TEEL.** — Almshouse and Poor, Finance, *Fire and Police Departments, Highways, *Ordinances, Rules and Orders, *Public Property, *Sewerage, Elections and Returns, *Licenses, Weights and Measures, Roads and Bridges, Sewers and Drains, State Aid and Soldiers' Relief.
- COUNCILMAN BENNER.** — Almshouse and Poor, Health, Elections and Returns (Common Council).
- COUNCILMAN BRIDGE.** — Finance, Fire and Police Departments, Public Property, *Elections and Returns (Common Council).
- COUNCILMAN BUSS.** — Fire and Police Departments, Legislative Matters, Printing, Water.

- COUNCILMAN EVANS. — Claims, Public Property, Water, Elections and Returns (Common Council).
- COUNCILMAN FLYNN. — Almshouse and Poor, Fuel, Lamps.
- COUNCILMAN GIBSON. — Assessment and Collection of Taxes, Bonds, Fire and Police Departments, Lamps.
- COUNCILMAN KAKAS. — Bonds, Fuel, Health, Salaries.
- COUNCILMAN LOOMIS. — Claims, Finance, Legislative Matters.
- COUNCILMAN LOWE. — Assessment and Collection of Taxes, Highways, Public Instruction.
- COUNCILMAN MAYO. — Finance, Legislative Matters, Public Property, Salaries.
- COUNCILMAN PENNELL. — Printing, Public Instruction, Salaries, Rules and Orders (Common Council).
- COUNCILMAN PERRY. — Claims, Legislative Matters, Ordinances, Rules and Orders, *Rules and Orders (Common Council).
- COUNCILMAN PINDER. — Accounts, Almshouse and Poor, Fuel, Highways.
- COUNCILMAN SAMPSON. — Finance, Ordinances, Rules and Orders, Sewerage, Water.
- COUNCILMAN SMITH. — Accounts, Highways, Lamps.
- COUNCILMAN SPINNEY. — Health, Ordinances, Rules and Orders, Sewerage, Rules and Orders (Common Council).
- COUNCILMAN STEVENS. — Assessment and Collection of Taxes, Printing, Sewerage.
- COUNCILMAN VAUGHAN. — Accounts, Bonds, Public Instruction.

CITY OFFICERS.

<i>City Clerk</i>	. . . . .	ALLSTON P. JOYCE.
<i>City Treasurer</i>	. . . . .	PARKER R. LITCHFIELD.
<i>City Collector</i>	. . . . .	EDWARD W. HAYES.
<i>City Auditor</i>	. . . . .	GEORGE D. CUMMINGS.
<i>City Solicitor</i>	. . . . .	BENJAMIN F. HAYES.
<i>City Physician</i>	. . . . .	NORMAN F. CHANDLER, M.D.

<i>City Messenger</i>	JAMES B. SIMPSON.
<i>Street Commissioner</i>	JOHN P. PRICHARD.
<i>Chief of Police</i>	EMERY D. HOLMES.
<i>Chief Engineer of Fire Department</i>	ARTHUR C. SYMMES.
<i>Superintendent of Water Works</i>	FREDERICK W. GOW.
<i>Scaler of Weights and Measures and Inspector of Milk, Vinegar, and Provisions,</i>	HENRY F. MOORE.
<i>Inspector of Buildings</i>	CALVIN H. CLARK.

BOARD OF ASSESSORS.

James A. Hervey, *Chairman*.
John H. Hooper. Henry Withington.

BOARD OF HEALTH.

Walter L. Hall, M.D., *Chairman*.
James E. Cleaves, M.D. William P. Clark.
Clerk, Alvin R. Reed.

OVERSEERS OF THE POOR.

Calvin H. Clark, *Chairman*.
William C. Craig. William A. Thompson.
Clerk, Edward W. Hayes.

School Committee.**At Large.**

Rosewell B. Lawrence, <i>Chairman</i>	Term exp. 1897.
Charles N. Jones, <i>Secretary</i>	Term exp. 1896.
Frederic H. Kidder	Term exp. 1895.

By Wards.

<i>Ward 1</i> — Mrs. Amanda M. Plummer	Term exp. 1895.
<i>Ward 2</i> — George E. Davenport	Term exp. 1897.
<i>Ward 3</i> — Sidney Gleason	Term exp. 1896.
<i>Ward 4</i> — Gustavus F. Guild	Term exp. 1897.
<i>Ward 5</i> — Rev. Benjamin A. Dean	Term exp. 1896.
<i>Ward 6</i> — Mrs. Augusta E. Crosby	Term exp. 1895.

Park Commissioners.

J. Henry Norcross, <i>Chairman</i>	. . .	Term exp. 1898.
Benjamin C. Leonard	. . .	Term exp. 1897.
John D. Street	. . .	Term exp. 1896.
Benjamin F. Morrison	. . .	Term exp. 1895.
Rosewell B. Lawrence, <i>Secretary</i>	. . .	Term exp. 1899.

Sinking Fund Commissioners.

Samuel C. Lawrence, <i>Chairman</i>	. . .	Term exp. 1896.
J. Henry Norcross	. . .	Term exp. 1895.
J. Gilman Waite	. . .	Term exp. 1895.
Benjamin C. Leonard	. . .	Term exp. 1896.
William Cushing Wait	. . .	Term exp. 1897.
Daniel W. Lawrence, <i>Treasurer</i>	. . .	Term exp. 1897.

Sewer Commissioners.

John D. Street, <i>Chairman</i>	. . .	Term exp. 1896.
John Wm. Rockwell	. . .	Term exp. 1897.
Charles H. Parker	. . .	Term exp. 1895.
T. Howard Barnes, <i>Engineer</i> .		

Water Commissioners.

Frank E. Chandler, <i>Chairman</i>	. . .	Term exp. 1895.
Eli Ayers	. . .	Term exp. 1896.
Henry Dunster	. . .	Term exp. 1897.
Edward W. Hayes, <i>Water Registrar</i> .		

Trustees of Oak Grove Cemetery.

John Hutchins, <i>Chairman</i>	. . .	Term exp. 1898.
Oran Brown	. . .	Term exp. 1895.
Charles W. Jacobs	. . .	Term exp. 1896.
Robert H. Grace	. . .	Term exp. 1897.
Asa Law	. . .	Term exp. 1899.
<i>Clerk</i> , Allston P. Joyce.		

Trustees of Public Library.

Samuel C. Lawrence, <i>Chairman</i>	. . . .	Term exp. 1896.
Rev. Henry C. DeLong	. . . .	Term exp. 1897.
James A. Hervey	. . . .	Term exp. 1895.

Registrars of Voters.

Henry B. Nottage, <i>Chairman</i>	. . . .	Term exp. 1895.
Horace D. Hadley	. . . .	Term exp. 1896.
Thomas Crockwell	. . . .	Term exp. 1894.
Allston P. Joyce, <i>City Clerk, ex-officio.</i>		

Chief of Police.

Emery D. Holmes.

Engineers of Fire Department.

Arthur C. Symmes, <i>Chief.</i>
Jude C. Clark, <i>1st Assistant.</i>
Charles E. Bacon, <i>2d Assistant.</i>

Election and Appointment of City Officers.

Elected annually by City Council as soon as convenient after its organization: City Clerk, one Water Commissioner, one Trustee of Public Library, one Trustee of Oak Grove Cemetery, two Commissioners of Sinking Fund, Measurers of Wood and Bark, Pound Keeper, Field Drivers, Fence Viewers, and Fish Committee.

Appointed by Mayor, subject to confirmation or rejection by the *Board of Aldermen*, as follows: Annually, in January, one Sewer Commissioner; annually, in January or February, Inspector of Buildings; annually, before the first Monday in February, City Treasurer, City Collector, City Auditor, City Solicitor, Board of Assessors (3 persons), Overseers of the Poor (3 persons), Board of Health (3 persons), City Physician and Street Commissioner; annually, Inspector of Milk and Vine-

gar; annually, in March or April, a Sealer of Weights and Measures; annually, in April, Inspector of Provisions.

Permanent, Chief of Police and Engineers of Fire Department.

Appointed by Mayor, subject to confirmation or rejection by the *City Council*: Annually, on or before the first Monday in May, one member of the Board of Public Park Commissioners.

MEETINGS.

Board of Aldermen. Alternate Mondays at 7.30 o'clock P.M., beginning January 8.

Common Council. Alternate Mondays at 7.45 o'clock P.M., beginning January 1.

School Committee. First and third Mondays of each month at 7.30 o'clock P.M.

Water Commissioners. Second and fourth Mondays of each month at 7.30 o'clock P.M.

Trustees of Oak Grove Cemetery. First and third Tuesdays of each month at 8 o'clock P.M.

Overseers of Poor. Second and fourth Tuesdays of each month at 7.30 o'clock P.M.

Board of Health. First Monday of each month at 8 o'clock P.M.

Various standing committees of City Council at the call of the chairman of each.

STATEMENT
OF THE
RECEIPTS AND EXPENDITURES
OF THE
CITY OF MEDFORD
FOR THE
YEAR ENDING JANUARY 31, 1894,
AS PREPARED BY
THE CITY AUDITOR.

MUNICIPAL RECEIPTS

OF THE CITY OF MEDFORD

FROM JANUARY 31, 1893, TO FEBRUARY 1, 1894.

Cash in treasury February 1, 1893 (see p.
345 of last year's Report) \$31,581 33

Received from E. W. Hayes, City Collector :

Taxes of 1891	\$7,430 15
Taxes of 1892	27,663 55
Taxes of 1893	200,131 22
Interest on taxes of 1891	628 14
Interest on taxes of 1892	933 44
Interest on taxes of 1893	280 14
Costs, 1891	93 52
Costs, 1892	604 63
Costs, 1893	137 60

From sale of lots in Oak Grove Cemetery :

Amount credited to permanent debt	925 00
Amount credited to Oak Grove Cemetery	3,210 50
Amount credited to the city	549 50
Proceeds of single graves	289 00
Care and extra work at Oak Grove	1,626 00

From Commonwealth of Massachusetts :

Corporation tax	23,417 86
Bank tax	3,428 94
Military	157 50
State aid	1,608 00
Foreign ships	135 80
Rent of armory	200 00

State paupers, support, &c.	\$476 85
State paupers, burial	8 50

From notes issued in anticipation of taxes :

Medford Savings Bank	30,000 00
Bunker Hill National Bank	10,000 00
Bunker Hill National Bank	13,000 00
Bunker Hill National Bank	17,000 00
Bunker Hill National Bank	10,000 00
Samuel C. Lawrence	10,000 00
Samuel C. Lawrence	10,000 00
Samuel C. Lawrence	10,000 00
Samuel C. Lawrence	10,000 00
Samuel C. Lawrence	10,000 00
J. W. Russell and B. F. Hayes, trustees	7,000 00

From Water Supply Department :

For water rates	37,020 38
For service pipes	1,252 99
For rents	1,590 89
Sale of old wagon	3 00

From sundry parties :

Boston & Maine R.R. Co., shovelling snow	1 00
Court fees and fines	1,041 12
J. O. Goodwin, auctioneer's license	2 00
City Clerk, fees	329 55
Howard National Bank, interest to January 1	830 22
Public School Department, account of High- way Department	9 00
Ellen L. Adams, account of text books and supplies	70
Greenough, Adams & Cushing, account City Council contingent	9 38

MUNICIPAL RECEIPTS.

49

E. Boynton, ashes	\$10 25
F. H. Peak, setting out trees	1 00
Fire Department, manure sold	35 00
W. H. Wheatley, board at hospital	37 14
William H. McGowan, ashes	2 25
H. S. Williams, block	1 00
Annie E. Smith, release of tax title	83 86
Nicholas White, crushed stone	8 75
County of Middlesex, award	1,500 00
Edward Weaving, crushed stone	11 20
Sidney F. Dean, ashes	2 50
National Construction Co., crushed stone	141 76
Dr. Charles M. Green, crushed stone	25 50
New England Tel. & Tel. Co., for work by Highway Department	9 43
Thomas Hollis, stone screenings	3 00
H. A. Miles, account Highway Department	4 00
Charles F. Coburn, account Highway Department	17 50
Almshouse, produce sold	131 92
Metropolitan Sewerage Commission, stone	28 25
Traders & Mechanics Ins. Co., dividend	25 00
E. Teel & Co., account Highway Department	1 50
John P. Prichard, chopping-block	25
Board of Health, licenses	20 00
School Department, setting out trees	6 25
Thomas Casey, setting curbstone	6 25
M. C. Vinal, crushed stone	22 50
Boston & Maine R.R., ashes	2 00
Owen Coughlin, release of tax title	18 54
Street watering, account Fire Department	268 50
Medford Savings Bank, income of Bradbury fund	454 58
E. H. Rollins & Son, proceeds of 72 bonds	73,216 80

Wm. P. Martin, guardian, board M. D. Parker	\$42 25
Frank E. Chandler, offal	275 00
County of Middlesex, dog tax	1,382 93
West End Street R.R., broken stone, sand, and gravel	199 56
C. H. Clark, cash received for aid furnished Medford Water Board, refund of amount paid for water at West Medford drinking fountain	25 00
City of Somerville, account Middlesex avenue bridge	377 64
City of Newburyport, aid	19 00
City of Boston, "	242 02
City of Gloucester, "	52 50
City of Cambridge, "	66 18
Town of Lexington, "	79 67
Town of Methuen, "	7 23
Town of Melrose, "	12 55
Town of Chatham, "	22 10
Town of Randolph, "	6 00
John H. Norton, perpetual care	50 00
Caleb Atherton, " "	50 00
Martha L. Durkee, " "	50 00
Edward C. Ellis, " "	50 00
West Medford Paper Co., for advertising	2 50
J. A. Stuart, " "	2 50
George F. Pease, " "	6 50
New England Tel. & Tel. Co., for advertising	9 00
E. Storey & Co., " "	4 50
Samuel Dinsmore, " "	3 25
C. H. Oliver, " "	2 00
Boston & Maine R.R. " "	2 00
N. W. Fenton, " "	2 00
J. H. Chute, " "	3 40
J. W. Mann, " "	3 15

Malden Electric Co.	for advertising	\$2 50
Edward Farrar,	" "	2 00
Charles H. Day,	" "	4 25
Amasa Beach,	" "	1 56
H. H. Lester,	" "	1 56
C. D. Blakeslee,	" "	1 56
D. N. Howard,	" "	3 12
E. S. Crawley,	" "	3 12
Thomas Mayfield,	" "	1 00
D. K. Emerson,	" "	1 00
Cornelius O'Neil,	" "	1 00
J. H. Chute,	" "	1 56

From sundry persons for one half cost of sidewalks :

Howard M. Sawyer	46 40
D. W. Kennedy	41 35
J. H. Whitney	28 47
M. E. Rowe	40 82
Mrs. A. W. Robes	47 21
John W. Dean	28 56
Dennis F. Sheehan	34 60
Charles A. Gray	47 21
W. F. Cushing	54 76
William McLean	20 72
C. E. Finney	22 75
J. M. Usher	101 37
Mary A. Jaques	12 19
C. A. Welch	64 62
A. R. Kervin	53 48
Henry Dunster	23 10
J. A. C. Emerson	43 94
Mrs. J. A. Phipps	12 02
Hinckley, Ayer & Byam	12 57
Byam & Hinckley	35 27

MUNICIPAL RECEIPTS.

Walter Bates	\$67 93
Edward W. Bates	174 15
O. L. & E. O. Patch	19 02
E. H. Pennell	157 06
Thomas Casey	39 38
Frank Belcher	49 87
N. E. Wilbur	48 71
Vilana A. Clark	31 33
J. E. Collins	15 44
W. T. & E. G. Morse	62 95
Reuben Tuttle	110 58
J. E. Angell	170 34
J. C. Chandler	116 83
D. W. Wight	59 70
George E. Crosby	130 11
S. McDonald	49 87
Trustees of Oak Grove Cemetery	95 47
Etta M. Batchelder	25 24
W. W. Wilkinson	31 33
Herbert Etter	74 94
J. R. Teel, edgestone	2 00
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	\$566,092 46

MUNICIPAL EXPENDITURES

FOR THE YEAR ENDING JANUARY 31, 1894.

AS COMPILED BY THE CITY AUDITOR FROM THE ORIGINAL
VOUCHERS.

ABATED TAXES.

Paid:

William P. Martin, on real estate	\$25 28
Charles B. Powers, on personal estate	1 58
Heirs of Robert L. Peters, on real estate	27 65
	<hr/>
	\$54 51

ARMORY.

Paid:

Charles B. Buss, agent, rent 1 year to January 1, 1894	\$360 00
James Bean, coal and wood	48 60
F. O. Waterman, armorer, 13 months to February 1, 1894	162 50
F. O. Waterman, extra services	28 25
Medford Water Board, water 2 years to January 1, 1895	40 00
Malden & Melrose Gas Light Co., gas	60 60
	<hr/>
	\$699 95

By appropriation . . . \$500

By receipts 200

\$700

CITY HALL.

Paid:

Malden Electric Co., light to February 1, 1894	\$439 58
Frank Hervey, supplies	16 85
J. N. Cowin & Co., coal	33 72
J. E. Ober, coal	23 02
James Bean, coal and wood	179 07
John Coulson, ice	20 20
William S. Richards, merchandise	3 39
Boston Awning Co., awnings	30 00
William H. Turner & Co., keys	25
James B. Simpson, cash paid for cleaning offices	13 45
John A. Smith, sawdust	3 50
Malden & Melrose Gas Light Co., gas	33 04
Medford Water Board, water 2 years to January 1, 1895	36 00
C. H. Hartshorn, sponges	1 10
Page & Curtin, stock and labor	50 02
Sarah Bickers, cleaning	16 25
Michael F. Dwyer, stock and labor on roof	70 05
T. O. H. Mitchell, stock and labor	7 00
F. E. Foster & Co., lumber for cold-air boxes	3 65
Daniel N. Howard, ammonia, &c.	2 75
A. S. Crowell, towels	5 75
Sarah B. Simpson, washing towels	2 16
	<hr/>
	\$990 80

By appropriation, \$1000.

DECORATION AND CARE OF SOLDIERS'
GRAVES.

Paid:

Edward F. Smith, quartermaster Post 66, G.A.R.	\$300 00
By appropriation, \$300.	

HYDRANTS.

Paid :

Medford Water Board, for use of 244 hydrants at \$15	\$3,660 00
By appropriation, \$3660.	

INTEREST.

Paid :

Medford Savings Bank, on \$10,000, 12 months to November 9, 1893	\$700 00
Commonwealth of Massachusetts, on \$10,000, 4½ months to May 15, 1893	159 38
Medford Savings Bank, on \$12,000, 12 months to November 22, 1893	480 00
Medford Savings Bank, on \$8000, 12 months to December 6, 1893	320 00
Boston Commandery K.T., on \$5000, 12 months to December 1, 1893	200 00
Commonwealth of Massachusetts, on \$11,350, 6 months to June 6, 1893	198 62
Commonwealth of Massachusetts, on \$13,000, 12 months to December 11, 1893	455 00
Commonwealth of Massachusetts, on \$13,000, 6 months to August 23, 1893	227 50
St. Paul R.A. Chapter, on \$10,000, 12 months to January 1, 1894	700 00
Medford Savings Bank, on \$30,000, 6 months 21 days to December 31, 1893	962 50
Bunker Hill National Bank, on \$13,000, 3 months to November 5, 1893	195 00
Bunker Hill National Bank, on \$10,000, 3 months to November 28, 1893	150 00

Bunker Hill National Bank, on \$10,000, 5 months to December 17, 1893	\$250 00
Bunker Hill National Bank, on \$17,000, 4 months to January 5, 1894	340 00
Samuel C. Lawrence, on \$10,000, 8 months 13 days at 4 per cent	281 09
Samuel C. Lawrence, on \$10,000, 7 months 8 days at 4 per cent	242 22
Samuel C. Lawrence, on \$10,000, 7 months 1 day at 5 per cent	293 06
Samuel C. Lawrence, on \$10,000, 6 months 23 days at 5 per cent	281 95
Samuel C. Lawrence, on \$10,000, 3 months 22 days at 5 per cent	155 55
J. W. Russell and B. F. Hayes, trustees, on \$7000, 6 months to December 21, 1893 . .	175 00
Coupons on notes Nos. 1 to 13 at 4 per cent, 1 year to January 1, 1894	520 00
Water Supply Department, on \$12,420.70, 1 year to January 31, 1894, at $2\frac{1}{2}$ per cent . .	310 51
Trustees of Public Library, on Osgood fund, 1 year to January 1, 1894	120 57
Trustees of Public Library, on Tufts fund, 1 year to January 1, 1894	30 00
Trustees of Oak Grove Cemetery, on Perpetual Care fund, 1 year to January 1, 1894 . .	771 45
Allston P. Joyce, city clerk, on Secomb fund, to January 1, 1894	348 00
Allston P. Joyce, city clerk, on Simonds fund, to January 1, 1894	78 00
Allston P. Joyce, city clerk, on Bradbury fund, to November 1, 1893	454 58
Protestant churches — Hall church fund, Mystic, \$74.64, Methodist. \$54.98, Bap-	

tist, \$62.80, Episcopal, \$53.32, Unitarian. \$27.96, Universalist, 26.30	\$300 00
	<hr/>
	\$9,699 98
By appropriation	\$7,500 00
By receipts	3,056 25
	<hr/>
	\$10,556 25

INSURANCE.

Paid :

Geo. W. Green, on J. W. Mitchell hose house	\$45 00
Geo. W. Green, on Cradock schoolhouse	50 00
Geo. W. Green, on almshouse	150 00
Geo. W. Green, on Cummings schoolhouse	93 00
Charles B. Buss, on stone-crusher, building, engine and machinery	31 26
Charles B. Buss, on steam road roller	30 00
Geo. W. Stetson, schoolhouse, Middlesex ave.	56 25
	<hr/>
	\$455 51

By appropriation. \$825.

MISCELLANEOUS.

Sundries :

Sampson, Murdock & Co., Boston Directory	\$5 00
Medford Water Board, water 3 years, West Medford to Jan. 1, 1895	75 00
Littlefield Directory Co., directories	7 00
E. A. Hathaway posting bills, &c.	2 50
J. F. Cabot & Bro., mounting map	1 75
John A. Smith, removing desk, &c.	75
Brigham & Co., dating and rubber stamps	8 50
John H. Hooper, preparing, advertising, and posting description of estates, &c.	155 00

Chas. H. Fowle, cash paid for stamp and pad	\$0 60
Bellknap & Co., rubber stamps, &c.	2 00
F. D. H. Thomas, stock and labor at rifle range	109 47
J. N. Wescott, cash paid for material and labor at rifle range	47 00
Austin & Doten, iron for rifle range	75 13
E. R. Morse, repairing safe locks	6 50
Joel N. Annis, killing dogs	5 00
Harry E. Holmes, distributing tax bills	30 00
Heywood Bros. & Co., chairs for council chambers	408 00
Henry Mitchell, engraving seal, &c.	47 00
T. O. H. Mitchell, repairing, &c.	22 24
E. Tainter, expressing	40
Smith's Express, expressing	15
Ernest W. Bowditch, surveying Harvard-street schoolhouse lot	24 50
J. O. Goodwin, surveying streets about Harvard-street schoolhouse lot	30 00
Geo. S. Delano, taxes and cash paid for tax deed in 1888	50 54
Security Safe Deposit Co., rent of safe	10 00
J. O. Goodwin, plan of Governor's avenue	5 00
Page & Curtin, sundries for city clerk's office	70
Wm. H. Turner & Co., keys	1 00
Geo. H. Rendall, ice for drinking fountain	30 00
Wm. G. Golding, posting notices of rewards	2 00
P. R. Litchfield, cash paid for sundries	8 00
E. W. Hayes, cash paid for stamps, car fares, &c.	21 48
Middlesex Registry of Deeds, recording	75
Chas. B. Stevens, Register, recording notices, deeds, &c.	14 34
Geo. W. Mills, M.D., reporting births	18 25

J. B. Mahoney, M.D., reporting births	\$10 50
J. W. Bean, M.D., " "	8 50
N. F. Chandler, M.D., " "	2 00
Albert C. Aldrich, M.D., " "	1 50
C. E. Ellis, M.D., " "	2 00
H. P. Makechnie, M.D., " "	1 00
James E. Cleaves, M.D., " "	10 50
J. Nelson St. Dennis, M.D., " "	4 75
A. Ward Follett, M.D., " "	2 50
G. W. Bryant, M.D., " "	50
P. R. Litchfield, cash paid for recording deeds	1 85
Geo. W. Nichols, making death returns	41 50
American Bank Note Co., engraving bond plate, &c.	550 00
James E. Cleaves, M.D., professional services for injured fireman	16 00
Winslow Joyce, canvassing city for births	125 00
S. E. Spencer, dating stamp, &c.	2 25
James J. Shannon & Co., typewriter. &c.	147 50
Hodges & Harrington, tracing plans of Gravelly Brook, &c.	16 00
<i>Printing :</i>	
Medford Printing Office	\$100 35
M. R. Warren	15 00
George E. Crosby & Co.	7 00
J. C. Miller, Jr.	28 25
A. B. Morss	48 00
Rockwell & Churchill (Mayor's Address)	58 00
Addison C. Getchell	43 25
<i>Stationery (including stamps and stamped envelopes) :</i>	
Francis Doane & Co	78 09
A. R. Andrews, typewriter supplies	7 95

Allston P. Joyce, cash paid for sundries	\$10 85
J. N. Gibbs	3 95
Greenough, Adams & Cushing	148 70
F. T. Spinney (stamps and stamped envelopes)	158 50

Advertising :

Medford Mercury	637 80
Journal Newspaper Co.	17 45
Boston Daily Advertiser	10 75

Clerical Assistance — City Clerk :

Allston P. Joyce, cash paid	6 00
Ella S. Hinckley, services	104 00

\$3,653 29

By appropriation	\$3,000 00
By receipts	241 01
By transfer	500 00
	<hr/>
	\$3,741 01

PAYMENT OF CITY DEBT.
Paid :

Commonwealth of Massachusetts, note due June 5, 1893	\$11,350 00
Commonwealth of Massachusetts, note due August 23, 1893	4,000 00
	<hr/>
	\$15,350 00

By appropriation, \$15,000.

PRINTING REPORTS.
Paid :

Addison C. Getchell, printing	\$603 90
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MUNICIPAL EXPENDITURES.

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Greenough, Adams & Cushing, book envelopes	\$3 50
H. M. Plimpton & Co., binding, &c. . . .	22 00
John O'Neil, delivering books	9 00
George D. Cummings, cash paid postage, &c.	10 62
Medford Mercury, advertising	1 75
A. W. Robinson, expressing	5 00
	<hr/>
	\$655 77

By appropriation, \$750.

RENT OF RIFLE RANGE.

Paid:

Samuel B. Tay, rent 1 year to January 31, 1894	\$125 00
By appropriation, \$125.	

RINGING BELLS.

Paid:

Charles C. Marvel, February 22 and July 4 .	\$6 00
J. M. Bartlett, February 22	3 00
I. H. Kelley, July 4	3 00
R. A. Rogers, July 4	3 00
Albert C. Curtis, July 4	3 00
	<hr/>
	\$18 00

By appropriation, \$50.

SALARIES AND FEES.

Paid:

Parker R. Litchfield, City Treasurer, 13 months to February 1, 1894	\$1,787 50
Parker R. Littlefield, City Clerk, January 1 to March 22	229 15

Allston P. Joyce, City Clerk, March 22, 1893, to February 1, 1894	\$863 46
Allston P. Joyce, clerk of committees, Feb- ruary 1 to March 28	71 25
Charles H. Fowle, clerk of committees, March 28 to February 1, 1894	379 75
Everard I. Langell, clerk of Common Coun- cil, 13 months to February 1, 1894	270 83
Edward W. Hayes, City Collector, 1 year to February 1, 1894	1,200 00
B. F. Hayes, City Solicitor, 1 year to Feb- ruary 1, 1894	800 00
Horace D. Hadley, Registrar of Voters	100 00
Thomas Crockwell, " "	100 00
Henry B. Nottage, " "	100 00
Allston P. Joyce, clerk of registrars	125 00
James B. Simpson, City Messenger, 13 months to February 1, 1894	975 00
N. F. Chandler, City Physician, 13 months to February 1, 1894	325 00
Samuel C. Lawrence, Mayor, 1 year	1,000 00
Edward W. Nichols, Mayor's clerk, 1 year	500 00
Daniel W. Lawrence, Treasurer of W.L.S.F., 1 year to March 1, 1894	50 00
Edward W. Hayes, secretary of Overseers of Poor, 1 year to March 1, 1894	150 00
George D. Cummings, City Auditor, January	83 33
Peter F. Lenox, Pound Keeper, 1 year to March 1, 1894	25 00
Frank Hathaway, Public Weigher, 1 year to March 1, 1894	25 00
Francis E. Perley, Fish Committee, 1 year to March 1, 1894	10 00

Thomas Pearce, Fish Committee, 1 year to March 1, 1894	\$10 00
Richard J. Dwyer, Fish Committee, 1 year to March 1, 1894	10 00
J. Nelson St. Dennis, M.D., Inspector of Pro- visions, &c., 1 year to February 1, 1894 . .	100 00
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	\$9,290 27
By appropriation, \$10,000.	

SOLDIERS' RELIEF.

Paid:

Oliver S. Foster, rent, Mrs. Hoyt, 13 months to February 1, 1894	\$78 00
Mrs. E. S. Piper, rent, Mrs. Mary A. Bryant, 9 months to November 1, 1893	54 00
Miss B. K. Dwyer, rent, Mary A. Bryant, 3 months to February 1, 1894	18 00
Mary Rierdan, board, P. J. Mealey, January 20 to May 6	42 40
Eliza Bond, board, Mrs. Robert Ellis and Son, January 1 to August 1	142 50
F. J. Loomer, board, Gilbert Sherman, Febru- ary 1 to June 3	87 81
William Wallace, board, Gilbert Sherman, June 3 to February 3, 1894	120 00
Town of Dedham, aid to James McDonald . .	12 00
F. P. Kent, groceries and provisions	94 50
F. W. Montague, groceries	11 00
J. E. Potter & Co., groceries	20 50
J. N. Cowin & Co., coal	13 75
J. E. Ober, coal	19 50
Charles W. Jacobs, shoes	3 00

Mariette T. Fernald, cash allowance to February 1 1894	\$173 00
George W. Emery, cash allowance to February 1, 1894	17 50
Henry F. Reed, cash allowance to February 1, 1894	12 50
J. H. Norton, rent, J. G. Fuller, 13 months to February 1, 1894	117 00
John O'Neil, carriage hire	50
George Nichols, burial of William H. McFarland	35 00
	<hr/>
	\$1,072 46
By appropriation . \$1,000	
By transfer . 200	
	<hr/>
	\$1,200

STATE AID.

Paid:

Sundry persons as per pay rolls	\$2,087 00
By appropriation . \$1,000 00	
By receipts . 1,765 50	
	<hr/>
	\$2,765 50

STREET LIGHTS.

Paid:

Malden Electric Company, light 13 months to February 1, 1894	\$10,976 01
T. J. Sullivan, taking up posts, &c.	4 00
Page & Curtin, burner and tips	30
Malden & Melrose Gas Light Company, gas	14 88
Michael F. Dwyer, repairing lamps, &c.	2 75
	<hr/>
	\$10,997 94
By appropriation \$11,000.	

TELEPHONES.

Paid :

New England Telephone & Telegraph Company, rental, 13 months to February 1	\$781 40
By appropriation	\$750
By transfer	100
	<hr/>
	\$850

VOTING PRECINCTS AND ELECTION EXPENSES.

Paid :

Ward Officers, as per pay rolls	\$771 00
Robert S. Robson, repairing ink rolls for ballot boxes	3 00
J. C. Miller, Jr., printing	43 70
Medford Printing Office, printing	44 50
E. A. Hathaway, posting lists, &c.	13 50
T. O. H. Mitchell, stock and labor on ballot boxes, &c.	19 00
George L. Newhall, carriage hire for registrars	8 00
George H. Duncklee, carriage hire for registrars	4 00
James Dinsmore, carriage hire for registrars	2 00
Medford Mercury, advertising	52 25
Medford City News, advertising	40 55
F. W. Montague, candles	1 50
Belknap & Co., numbers, &c.	2 25
Daniel K. Emerson, meals for ward officers	85 00
Daniel K. Emerson, meals for registrars	20 00
J. R. Young, meals for registrars	20 00
Oriental Tea Company, hot coffee	9 00
James B. Simpson, city messenger, cash paid for sandwiches, &c.	7 55

John J. Baird, boxes	\$9 60
John A. Smith & Son, conveying ballot boxes	1 00
George L. Newhall, conveying ballot boxes .	8 00
J. H. O'Neil, conveying ballot boxes	8 00
George H. Duncklee, conveying ballot boxes	2 00
George E. Crosby & Co., printing voting lists	160 00
Police officers, as per pay rolls for November 7 and December 12	48 00
I. H. Kelley, cleaning room, &c.	4 00
Henry M. Meek, nomination papers	5 00
George H. Boutwell, treasurer, rent of polling place	30 00
Edward J. Robinson, rent of polling place .	30 00
J. E. Ober, rent of polling place	34 00
John J. Crockwell, fitting up ward rooms .	100 00
J. A. Smith & Son, conveying bulletin boards	2 00
Rockwell & Churchill, printing ballots for December election	72 00
Dawson & Porter, tin signs	1 00
George L. Newhall, carriage hire	2 00
Joseph N. Gibbs, stationery	87
William S. Richards, rent of stoves, &c. . .	5 15
American Express, expressing	2 00
	<hr/>
	\$1,671 42
By appropriation	\$1,000
By transfer	700
	<hr/>
	\$1,700

ASSESSING DEPARTMENT.

COMPENSATION OF ASSESSORS AND CLERK.

Paid:

James A. Hervey, salary as assessor 1 year .	\$500 00
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MUNICIPAL EXPENDITURES.

67

John H. Hooper, salary as assessor 1 year . . .	\$500 00
Henry Withington, " " 1 " . . .	500 00
James S. Sturtevant " clerk 1 " . . .	400 00
	<hr/>
	\$1,900 00

By appropriation, \$1900.

ASSESSORS' EXPENSES.

Paid :

Medford Printing Office, printing	\$15 50
Medford Mercury, advertising	11 70
Cotton & Gould, binding indexes, &c.	13 50
Greenough, Adams & Cushing, books and stationery	51 50
John H. Hooper, abstracts of deeds and mortgages	161 60
James S. Sturtevant, cash paid for car fares	2 00
George E. Crosby & Co., printing	325 00
Hodges & Harrington, measuring estates	15 00
C. H. Day, carriage hire	107 00
Joseph N. Gibbs, stationery	7 42
C. E. Symmes, repairing chairs	2 50
T. O. H. Mitchell, stock and labor on book-case	15 60
E. Tainter, expressing	75
Henry Withington, stationery and postage stamps	8 53
Chase's Medford and Boston Express, expressing	25
	<hr/>
	\$737 85

By appropriation, \$850.

PLANS OF REAL ESTATE.

Charles E. Hooper, labor and material	\$175 00
Cotton & Gould, mounting and binding plans	175 50
	<hr/>
	\$350 50

By appropriation, \$500.

AUDITING DEPARTMENT.

SALARY OF CITY AUDITOR.

Paid :

George D. Cummings, salary 1 year	\$1,000 00
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By appropriation, \$1000.

AUDITING DEPARTMENT EXPENSES.

Paid :

Medford Printing Office, printing	\$16 00
Greenough, Adams & Cushing, books and stationery	44 68
N. L. Chamberlain & Co., numbering stamp, &c.	11 40
George D. Cummings, cash paid for postage, &c.	7 75
Francis Doane & Co., stationery	6 60
J. N. Gibbs, stationery	6 40
D. B. Fletcher, paper	40
Belknap & Co., rubber stamps	1 55
Coburn Stationery Co., inkstand	1 25
J. C. Miller, Jr., printing	5 75
Derby & Kilmer Desk Co., table	11 52
C. W. Goodwin, clerical services	4 50
	<hr/>
	\$117 80

By appropriation, \$150.

CEMETERY DEPARTMENT.

SALARY OF TRUSTEES.

Paid:

John Hutchins, 1½ year's salary	\$25 00
Oran Brown, " "	25 00
Charles W. Jacobs, " "	25 00
Asa Law, " "	25 00
Robert H. Grace, " "	25 00
	<hr/>
	\$125 00

By appropriation, \$125.

OAK GROVE CEMETERY.

Paid:

Workmen as per pay rolls	\$4,753 11
Dawson & Porter, stock and labor	2 35
F. T. Spinney, envelopes	22 00
E. S. Randall, manure	60 63
J. A. Smith, measuring manure	7 20
H. M. Campbell, manure and teaming	121 00
C. B. Johnson, sharpening saws	1 50
Medford Printing Office, printing	7 00
O. M. Fowler, manure	55 00
William S. Richards, merchandise	10 66
Asa Law, cash paid for plants, &c.	21 64
Joseph Breck & Son, lawn mower, seed, &c.	29 66
Mrs. Ellen M. Gill, plants, &c.	29 10
William H. Turner & Co., keys	75
Edward Hatch, plants	109 49
Welch's Express, expressing	1 50
George H. Bean, plants	12 00
F. E. Foster & Co., cement	2 80
Medford Water Board, two years' interest	140 24
Arthur C. Symmes, repairing tools	57 70

MUNICIPAL EXPENDITURES.

Page & Curtin, tools, &c.		\$19 85
J. W. Norton, canvas		6 00
John Tutten, posts		137 50
Frank Hervey, powder, &c.		4 78
George W. Stetson, salary as clerk 1 year		75 00
C. B. Johnson, filing saws		3 00
Chase's M. & B. Express, expressing		75
J. H. O'Neil, carriage hire		4 00
		<hr/>
		\$5,696 21
By appropriation	\$1,000 00	
By receipts	5,134 50	
	<hr/>	
	\$6,134 50	

CROSS STREET CEMETERY.

Paid:

Workmen as per pay rolls		\$21 55
J. T. Bassett, whitewashing		15 00
Mrs. Ellen M. Gill, plants, &c.		2 50
Medford Water Board, water 2 years		6 00
City of Medford, one half cost of brick sidewalk		95 47
		<hr/>
		\$140 52
By appropriation	\$100	
By transfer	47	
	<hr/>	
	\$147	

SALEM STREET CEMETERY.

Paid:

Workmen as per pay rolls		\$27 70
J. T. Bassett, whitewashing		20 00
Dawson & Porter, stock and labor		4 69
		<hr/>
		\$52 39

By appropriation	\$100
Less transfer to Cross Street Cemetery	47
	<hr/>
	\$53

FIRE DEPARTMENT.

SALARIES OF ENGINEERS AND MEN.

Paid :

Arthur C. Symmes, chief engineer, 1 year to Feb. 1	\$402 00
Jude C. Clark, assistant engineer, 1 year to Feb. 1	102 00
Charles Bacon, assistant engineer, 1 year to Feb. 1	102 00
Jude C. Clark, clerk of engineers, 1 year to Feb. 1	50 00
Enginemen and drivers, as per pay rolls, to Feb. 1	5,476 05
Chemical Co. No. 1, as per pay rolls to Feb. 1	199 82
Hook & Ladder Co., as per pay rolls to Feb. 1	622 00
Hose No. 1, " " " "	515 84
Hose No. 3, " " " "	308 00
Hose No. 4, " " " "	308 00
Daniel J. White, stoker, 11 months to Feb. 1	45 83
	<hr/>
	\$8,131 54

By appropriation	\$8,448
Less transfer to Ordinary Expenses, Fire Dept.	200
	<hr/>
	\$8,248

ORDINARY EXPENSES.

Paid :

J. E. Ober, coal, grain, &c.	\$278 56
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James Bean, coal and wood	\$477 35
James Bean, hay and grain	1,052 63
Joseph Hellen, coal	19 50
Dunbar & LaChapelle, stock and labor	75
T. H. Tomlinson, grain, &c.	5 37
New England Gamewell Co., electrical supplies, repairs, &c.	97 60
Barney Golden, veterinary services	2 00
Williamson Bryden, veterinary services	27 00
William P. Clark, castings	56
Dawson & Porter, stock and labor	20 29
A. S. Symmes, shoeing horses	91 04
Chase's M. & B. Express, expressing	19 31
Ame & Co., food	12 50
F. E. Foster & Co., lumber	32 47
Manchester Locomotive Works, supplies, &c.	59 60
Welch's Express, expressing	25
C. M. Kimball, metal polish	7 00
Malden & Melrose Gas Light Co., gas	266 40
Standard Oil Co., oil	16 14
A. S. Jackson, supplies	57 46
William Nokes, horse	250 00
William S. Richards, stock and labor	56 96
F. E. Sampson, ringing alarm bell	7 25
A. F. Crocker, window shades	1 50
F. A. Wait, services as engineer	134 00
Maverick Oil Co., oil	3 00
Charles L. Bly, electrical supplies	4 55
Arthur C. Symmes, shoeing horses and repairing	53 60
Medford Printing Office, printing	11 00
C. H. Hartshorn, repairing, &c.	79 25
D. M. Dwyer, cleaning cesspools	42 00
Bride & Ames, paint, oil, &c.	33 09

MUNICIPAL EXPENDITURES.

73

Murphy, Leavens & Co., dusters	\$2 40
E. Teel & Co., repairing, &c.	43 37
N. A. Johnson, soap, &c.	32
Merrimac Chemical Co., vitriol	6 51
Sidney F. Dean, shoeing horses	22 00
Herbert Etter, shoeing horses	103 12
G. M. Leavens & Son, iron bed	5 75
Page & Curtin, merchandise	65 48
Medford Water Board, water to Jan. 1, 1894	80 00
Harvey Wright, shoeing horses	22 13
American Express Co., expressing	90
Savage's Express, expressing	6 68
Smith's M. & B. Express Co., expressing	25
Belknap & Co., rubber stamps	95
Bradlee, Hastings & Co., lag screws, washers, &c.	1 75
Houghton & Dutton, blankets	28 00
Frank Hathaway, new pole, &c.	5 25
W. A. Hitchcock, veterinary services	2 00
J. A. Dow, veterinary services	2 00
M. C. Vinal, stock and labor	7 63
C. E. Batchelder, stock and labor	36 48
Boston & Maine R.R., freight	56
George D. Booker, labor and hardware	4 40
F. W. Montague, ammonia, &c.	3 84
Daniel N. Howard, horse medicine, &c.	3 75
A. S. Jackson, relining hose, &c.	289 04

 \$3,964 54

By appropriation	\$3,212 00
By receipts	303 50
By transfer	800 00

 \$4,315 50

FIRES IN THE WOODS.

Paid :

Firemen, as per pay rolls	\$201 29
Leander Barber, brooms	9 75
	<hr/>
	\$211 04
By appropriation	\$200
By transfer	50
	<hr/>
	\$250

SUPPLY WAGON.

Paid :

E. Teel & Co., wagon	\$225 00
By appropriation, \$225.	

EXERCISE WAGON.

Paid :

Arthur C. Symmes, wagon	\$200 00
By appropriation, \$200.	

NEW HOSE.

Paid :

Cornelius Callahan Co., hose	\$1,550 00
By appropriation	\$1,000
By transfer	550
	<hr/>
	\$1,550

HEALTH DEPARTMENT.

SALARIES OF BOARD OF HEALTH.

Paid :

Walter L. Hall, M.D., salary 1 year	\$50 00
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MUNICIPAL EXPENDITURES.

75

James E. Cleaves, M.D., salary 1 year	\$50 00
William P. Clark, " "	50 00
	<hr/>
	\$150 00

By appropriation, \$150.

GENERAL EXPENSES, BOARD OF HEALTH.

Paid :

Medford Printing Office, printing	\$28 75
Medford Mercury, advertising	42 50
Alvin R. Reed, clerk, 1 year to February 1, 1894	450 00
F. T. Spinney, envelopes and stamps	35 71
Daniel N. Howard, disinfectant	3 00
Greenough, Adams & Cushing, stationery	2 13
Henry F. Moore, burying animals	24 25
Addison C. Getchell, printing extra reports	7 00
E. Teel & Co., lettering signs	4 00
W. A. Hitchcock, veterinary services	5 00
Michael F. Dwyer, inspector, 20 months 7 days to February 1, 1894	253 12
D. M. Dwyer, cleaning vault	3 00
M. C. Vinal, stock and labor	6 07
A. G. Jewett, serving notices	3 40
Page & Curtin, shovel, &c.	90
Perry & Perry, professional services	10 00
Boston Herald Co., advertising	3 00
John O'Neil, carriage hire	14 00
Margaret Newbert, nursing	14 00
Journal Newspaper Co., advertising	3 00
Dawson & Porter, painting pest house	25 00
Medford City News, advertising	1 50
J. N. Gibbs, stationery	89

MUNICIPAL EXPENDITURES.

Michael F. Dwyer, cash paid for burying garbage, &c.		\$5 00
		<u>\$945 22</u>
By appropriation	\$2,200	
Less transfer to Collection of House Offal account	750	
	<u>\$1,450</u>	

HIGHWAY DEPARTMENT.

SALARY OF STREET COMMISSIONER.

Paid :

John P. Prichard, salary 1 year to Feb. 1, 1894	\$1,600 00
By appropriation, \$1,600.	

GENERAL REPAIRS.

Paid :

Workmen as per pay rolls	\$10,220 65
A. Treadwell, photographing	17 00
Greenough, Adams & Cushing, books, &c.	44 25
Medford Printing Office, printing	12 00
Page & Curtin, hardware	76 90
George E. Downes, salt	1 30
E. Teel & Co., lumber and repairing	9 25
Allen Bros., stamps	1 70
Frank Hervey, merchandise	97 31
C. H. Hartshorn, repairing, &c.	75 30
M. E. Lauriat, clerical services	268 50
William P. Clark, castings	7 20
P. H. Kirwan, shoeing horses	3 25
Bradlee, Hastings & Co., shovels	30 00
F. T. Spinney, stamps	10 00

John S. Nason, difference in exchange of horses	\$340 00
Walter M. Hadley, horse	225 00
Charles Cummings (of Woburn), horse	200 00
Chase, Parker & Co., wheels, tool steel, &c.	192 48
Coleman Sewer Trap Co., traps	10 00
A. S. Symmes, shoeing and repairing	114 93
Herbert Etter, shoeing horses	76 88
James Bean, coal	40 95
James Bean, hay and grain	2,124 47
Daniel N. Howard, medicines	10 60
J. N. Cowin & Co., Cumberland coal	196 65
William H. Lenox, drain pipe	35 00
Hodges & Harrington, giving lines for setting railway poles	35 00
Gilbert Hodges, surveying	5 00
Hodges & Harrington, surveying	191 00
Farrell Foundry & Machine Co., supplies	138 59
Malden Electric Co., light	33 64
Perrin, Seamans & Co., tools, &c.	25 47
Felix Stone, sharpening saws	1 30
Leavitt, Sanborn & Co., hay	214 03
Williamson Bryden, veterinary service	10 00
J. E. Ober, coal, hardware, &c.	12 50
George Tyler & Co., cutter	8 00
Frank H. Peak, stationery, &c.	7 35
Arthur C. Symmes, shoeing and repairing	418 50
S. A. Tuttle, elixir	8 00
Union Square Carriage Co., wagon top	16 00
Dawson & Porter, paint, &c.	8 80
Standard Stave & Cooperage Co., cart tank	20 00
Welch's Express, expressing	85
McClellan's Express, expressing	6 05
E. Tainter Express, expressing	60

Smith's M. & B. Express, expressing . . .	\$3 65
Chase's M. & B. Express. " . . .	2 35
American Express, " . . .	55
A. W. Robinson Express, " . . .	7 25
Boston & Maine R.R. Co., tickets . . .	7 50
Ames Plow Co., tools, axles, &c. . .	228 41
A. M. Wood Co., wagon supplies . . .	18 76
Thomas Casey, brick . . .	12 60
Michael F. Dwyer, pipe, hose, &c. . .	72 28
Michael F. Dwyer, stock and labor at crusher . . .	11 75
John Turner & Co., paving blocks . . .	220 60
Rawson & Morrison, stock and labor repairing engine . . .	18 11
J. R. Merrow, oak handles . . .	1 00
Bradley & Co., Concord wagon . . .	85 00
Bay State Belting Co., oil, packing, &c. . .	27 09
Sidney F. Dean, shoeing and repairing . . .	14 89
S. C. Nightingale & Childs, plates for crusher, &c. . .	59 25
Whitney Machine Co., repairing crusher . . .	4 60
Richard Dares & Son, shoeing horses . . .	1 00
Elms Farm Boarding Stable, boarding horse . . .	8 17
Leonard & Ellis, oil . . .	50 27
Frederick Eeles & Co., highway reports . . .	2 00
H. M. Sawyer & Son, oil clothing . . .	2 00
Crosby Steam Gage & Valve Co., fittings . . .	4 00
William H. Hitchings, veterinary services . . .	12 00
Parker, Field & Mitchell, engine repairs . . .	8 48
John P. Prichard, cash paid for sundries . . .	25
Portland Stone Ware Co., drain pipe . . .	6 01
James Bryant, wrench . . .	2 00
Charles River Iron Works, boiler . . .	170 00
J. A. & W. Bird & Co., paint . . .	6 80
J. N. Gibbs, stationery . . .	1 60

Derby & Kilmer Desk Co., desk and chair	\$81 90
Boston Belting Co., belt	12 10
Andrew Kennedy, stone for crusher	20 00
George Russell, " " "	38 80
Crosby Steam Gage & Valve Co., engine	300 00
Charles W. Badger, paint	12 50
Edson Mfg. Co., machine supplies	3 32
Boston & Maine R.R., freight	7 18
Allen Brothers, burning brand	2 50
John S. Williams, supplies	167 85
William S. Richards, oil, &c.	25 09
Thomas Casey, use of team	9 00
American Sanitary Association, supplies	1 50
Staples Brothers, grates	53 34
Braman, Dow & Co., valve pipe, &c.	10 35
A. W. Mitchell Manufacturing Co., badges	5 00
Estate of A. S. Symmes, repairing carts, &c.	13 30
J. F. Dwyer, stone	4 26
F. W. Montague, groceries	1 50
Addison C. Getchell, printing reports	14 00
Winslow Joyce, repairing fence	2 50
D. M. Hook, teams furnished	9 00
Henry F. Moore, hand cart	5 00
Vacuum Oil Co., oil	33 80
Edson Manufacturing Co., street sweeper	270 00
F. E. Foster & Co., lumber and cement	35 07
Walworth Manufacturing Co., supplies	4 71
W. S. O'Brien, pump	10 00
George William Waite Co., oil	12 38
Joseph Hellen, coal	189 40
J. E. Potter & Co., hardware, &c.	93 92
John Tutten, labor cutting stone	58 62
	<hr/>
	\$18,180 36

MUNICIPAL EXPENDITURES.

By appropriation	\$15,000 00
By receipts	2,476 30
By transfer	761 92
	<hr/>
	\$18,238 22

REMOVING SNOW.

Paid:

Workmen, as per pay rolls	\$1,154 90
Medford Printing Office, printing	3 00
Yerxa & Yerxa, salt	85
William R. Maxwell, use of teams	18 00
A. M. Wood Co., lumber	20 26
A. B. Black, snow plow	35 00
Ames Plow Co., chains	2 46
	<hr/>
	\$1,234 47
By appropriation	\$1,300
By receipts	1
	<hr/>
	\$1,301

SIDEWALKS AND EDGESTONES.

Paid:

Workmen, as per pay rolls	\$1,688 70
Medford Printing Office, printing	4 00
M. C. Vinal, labor	404 58
John Turner & Co., edgestone	2,717 85
Hodges & Harrington	304 00
John Thresher, paving brick	551 75
Thomas Casey, paving brick	612 19
J. E. Ober, cement, &c.	4 15
William S. Richards, oil	4 05
Highway Department, sand, gravel, &c.	741 20
Page & Curtin, tools, &c.	80

MUNICIPAL EXPENDITURES.

81

Orchard Peasley, fitting stone	\$4 00
Walter Bates & Son, concreting	916 05
D. W. Wight, edgestone	46 40
A. D. Puffer, stone	80 50
	<hr/>
	\$8,080 22

By appropriation	\$7,000 00
By receipts	2,303 66
	<hr/>
	\$9,303 66

GUIDE BOARDS AND STREET SIGNS.

Paid:

Workmen, as per pay rolls	\$48 00
Dawson & Porter, painting signs	40 00
E. Teel & Co., wood	2 10
	<hr/>
	\$90 10

By appropriation, \$150.

CARE OF SHADE TREES.

Paid:

Workmen, as per pay rolls	\$570 00
S. R. Reading & Co., nails	88 20
Oliver Whyte & Co., wire netting, tree guards, &c.	260 67
F. E. Foster & Co., lumber	30 32
Page & Curtin, tools, nails, &c.	7 97
Chase's M. & B. Express, expressing	1 00
	<hr/>
	\$958 16

By appropriation, \$1000.

SETTING OUT TREES.

Paid:

Workmen as per pay rolls	\$104 00
American Express Co., expressing	25

Shady Hill Nurseries, trees	\$131 00
Boston & Maine R.R., freight	55
Trustees of Oak Grove Cemetery, trees	9 00
	<hr/>
	\$244 80
By appropriation, \$300.	

MIDDLESEX AVENUE BRIDGE.

Paid:

Workmen as per pay rolls	\$132 87
Thomas Leahy, salary as draw tender 1 year to February 1, 1894	540 00
Leonard & Ellis, oil	10 18
Arthur C. Symmes, iron work	6 50
A. M. Wood Company, oak lumber	10 13
S. W. Fuller, lumber	108 40
F. E. Foster & Co., lumber	1 71
George E. Downes, salt	7 50
Medford Printing Office, printing	2 00
Yerxa & Yerxa, salt	2 00
William S. Richards, oil, &c.	18 38
Page & Curtin, nails	12 30
	<hr/>
	\$851 97
By appropriation	\$1,200 00
By receipts	377 64
	<hr/>
	\$1,577 64

BRIDGES.

Paid:

Workmen as per pay rolls	\$185 75
F. E. Foster & Co., lumber	162 83
J. E. Potter & Co., spikes	2 15

MUNICIPAL EXPENDITURES.

83

J. A. & W. Bird & Co., paints	\$15 75
Page & Curtin, nails	4 00
S. W. Fuller, plank	61 90
J. A. & W. Bird & Co., paint	36 00

 \$468 38

By appropriation, \$600.

STEAM ROAD ROLLER.

Paid :

William Churchill Ostler, road roller	\$3,900 00
Arthur C. Symmes, supplies for tender	16 45
A. M. Wood Co., wheels	28 70
Chase, Parker & Co., supplies	12 25
Boston & Maine R.R., freight	84
F. E. Foster & Co., lumber	96 11
William S. Richards, stock and labor	15 32
John Brown, plows	113 80
Perrin, Seamans & Co., waste	5 00

 \$4,188 47

By appropriation, \$4,200.

JIGGER.

Paid :

E. Teel & Co., stone jigger	\$250 00
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By appropriation, \$250.

CITY STABLES.

Paid :

Workmen as per pay rolls	\$403 00
Walker & Pratt Mfg. Co., water heater	35 00
J. H. Archibald, stock and labor	94 16
F. E. Foster & Co., lumber	120 29
C. E. Pearson, stock and labor on wires	9 00
Malden Electric Co., light	17 02

Medford Water Board, water 3 years to Jan.	
1. 1895	\$41 25
Charles W. Badger, paint and oil	70 70
Portland Stone Ware Co., pipe	2 94
William S. Richards, stock and labor	22 60
Page & Curtin, hardware	34 64
Butler Bros., stock and labor	40 85
W. A. Smith, moving building	80 00
W. E. Ober, stock and labor on wires	1 15
Levi Boles & Son, windows	6 75
J. E. Potter & Co., hardware	3 23
	<hr/>
	\$982 58

By appropriation, \$1,000.

COLLECTION OF ASHES.

Paid:

Workmen as per pay rolls	\$2,063 00
Medford Mercury, advertising	4 00
	<hr/>
	\$2,067 00

By appropriation.	\$1,800 00
By receipts,	267 25
	<hr/>
	\$2,067 25

OUTFIT FOR COLLECTION OF HOUSE OFFAL.

Paid:

A. C. Symmes, two wagons	\$415 00
A. C. Symmes, runners, shafts, &c.	150 00
John S. Nason, horses	400 00
John S. Williams, harnesses, aprons, &c.	84 00
H. Gray, buckets and forks	5 00
Estates of A. S. Symmes, stock and labor	43 50
A. W. Mitchell, Mfg. Co., badges	5 00

MUNICIPAL EXPENDITURES.

85

F. E. Foster & Co., lumber \$3 11.

\$1,105 61

By appropriation, \$1,175.

COLLECTION OF HOUSE OFFAL.

Paid :

Workmen as per pay rolls	\$1,682 75
Medford Printing Office, printing	1 50
Medford Mercury, advertising	1 50
P. H. Kirwan, shoeing	23 00
Highway Dept., boarding 2 horses 276 days	276 00
Levi Boles & Son, window and frame	9 20
Ames Plow Co., barrels	8 50
John S. Williams, blankets, &c.	16 50
F. E. Foster & Co., lumber	117 40
J. H. Archibald, carpenter work, &c.	65 75
Page & Curtin, nails	2 35
J. A. & W. Bird & Co., paint, &c.	10 57.

\$2,215 02

By appropriation	\$2,000
By receipts	275
By transfer	750

\$3,025

AMARANTH AVENUE.

Paid :

Workmen as per pay rolls	\$739 00
Prospect Park Co., stone	1 00
W. P. Treet, cloth	3 69
Charles S. Smith, stone	6 20
James D. Hocter, stone	31 25
J. F. Dwyer, stone	30 00

Hodges & Harrington, surveying	\$24 50
Portland Stone Ware Co., pipe	21 00
Highway Department, stone monuments	5 00
	<hr/>
	\$861 64
By appropriation, \$864.46.	

ARLINGTON STREET.

Paid :	
Workmen, as per pay rolls	\$455 00
John Turner & Co., circles	43 70
Hodges & Harrington, surveying	77 00
	<hr/>
	\$575 70
By appropriation, \$600.	

BOSTON AND HARVARD AVENUES DRAIN.

Paid :	
Portland Stone Ware Co., pipe, &c.	\$44 57
J. E. Ober, cement	1 30
Osgood & Hart, frame and grating	12 00
Walter Bates & Son, repairing crossings on Boston avenue	40 00
	<hr/>
	\$97 87
By appropriation,	\$731 24
Less transfer to General Re- pairs, Highway Depart- ment	633 37
	<hr/>
	\$97 87

FILLING MILL POND.

Paid :	
Workmen, as per pay rolls	\$503 75
Medford Mercury, advertising	3 00

A. Kennedy, teaming	\$25 00
Dawson & Porter, painting sign	1 50
Highway Department, ashes and filling	282 00
	<hr/>
	\$815 25

By appropriation, \$1,000.

GRAVELLY CREEK.

Paid :

Workmen, as per pay rolls	\$296 25
Walworth Manufacturing Co., pipe for wall	30 65
Nicholas White, stone for wall	16 00
Page & Curtin, hardware for screen	1 72
Chas. W. Jacobs, rubber boots (wall account)	6 00
F. E. Foster & Co., cement for wall	11 20
Arthur C. Symmes, repairing tools	18 45
Arthur C. Symmes, iron work for screen	10 69
F. E. Foster & Co., lumber for screen	43 21
J. H. Archibald, stock and labor on screen	28 35
Gilbert Hodges, surveying, &c.	288 97
Hodges & Harrington, surveying, &c.	762 05
Hodges & Harrington, plans of strainer and retaining wall	25 00
William H. Lenox & Co., building culvert under Riverside avenue	1,144 47
D. M. Dwyer, 3636 loads filling	1,272 60
Stillman G. Derley, counting loads and spreading filling	372 35
National Construction Co., building culvert	8,827 40
Chase, Parker & Co., bolts for screen	10 77
Highway Department, crushed stone	144 45
	<hr/>
	\$13,310 58

MUNICIPAL EXPENDITURES.

By appropriation	\$12,823 27
By transfers	487 50
	<hr/>
	\$13,310 77

HIGH STREET WIDENING.

Paid :

Workmen as per pay rolls	\$305 00
M. Cuniff & P. Morrissey, building wall	526 25
Highway Department, crushed stone, &c.	744 45
D. H. Andrews, iron fence	126 00
Charles Mills, services as engineer	289 25
J. F. Dwyer, use of teams	11 50
Charles F. Coburn, granite	58 75
A. Treadwell, photographing	10 00
John P. Prichard, cash paid for message	25
	<hr/>
	\$2,071 45

By appropriation	\$700 00
By receipts	1,500 00
	<hr/>
	\$2,200 00

Less transfer to General Re- pairs, Highway Dept.	128 55
	<hr/>
	\$2,071 45

LAPHAM STREET.

Paid :

Workmen as per pay rolls	\$88 25
Highway Dept., monuments and crushed stone	34 00
Hodges & Harrington, services, account of setting stone bounds	8 00
	<hr/>
	\$130 25

By appropriation, \$161.85.

WARREN STREET CULVERT AND BROOK.

Paid :

Workmen as per pay rolls	\$79 50
J. E. Barrows, rubber boots	3 00
	<hr/>
	\$82 50

By appropriation, \$115.12.

WEIR BRIDGE.

Paid :

Workmen as per pay-rolls	\$96 38
F. E. Foster & Co., lumber	7 38
Nicholas White, building arches, &c.	400 00
Nicholas White, balance on contract for abutments and retaining walls	574 50
D. H. Andrews, iron bridge as per contract	1,031 50
Walter Bates & Son, asphalt pavement	228 75
	<hr/>
	\$2,338 51

By appropriation, \$2,387.61.

RECAPITULATION — HIGHWAY DEPARTMENT.

	Appropriations and Receipts.	Amount Expended.
Salary of Street Commissioner	\$1,600 00	\$1,600 00
General repairs	18,238 22	18,180 36
Removing snow	1,301 00	1,234 47
Sidewalks and edgestones	9,303 66	8,080 22
Guide boards and street signs	150 00	90 10
Care of shade trees	1,000 00	958 16
Setting out trees	300 00	244 80
Middlesex-avenue bridge	1,577 64	851 97
Bridges	600 00	468 38
Steam road roller	4,200 00	4,188 47

MUNICIPAL EXPENDITURES.

	Appropriations and Receipts.	Amount Expended.
Jigger	\$250 00	\$250 00
City stables	1,000 00	982 58
Collection of ashes	2,067 25	2,067 00
Outfit for collection of house offal	1,175 00	1,105 61
Collection of house offal	3,025 00	2,215 02
Amaranth avenue	864 46	861 64
Arlington street	600 00	575 70
Boston and Harvard avenues drain	97 87	97 87
Filling mill pond	1,000 00	815 25
Gravelly creek	13,310 77	13,310 58
High street widening	2,071 45	2,071 45
Lapham street	161 85	130 25
Warren-street culvert and brook	115 12	82 50
Weir bridge	2,387 61	2,338 51
	<u>\$66,396 90</u>	<u>\$62,800 89</u>

POLICE DEPARTMENT.

SALARIES OF POLICEMEN.

Paid:

Emery D. Holmes, salary as Chief to February 1, 1894	\$1,200 00
Officers, as per pay rolls, to February 1, 1894	9,623 95
	<u>\$10,823 95</u>

By appropriation, \$10,850.

SPECIAL POLICE, &c.

Paid:

Officers, as per pay rolls	\$708 95
Medford Printing Office, printing	4 50
C. H. Hartshorn, repairing	2 15
C. H. Day, carriage hire	25 00

George H. Dunklee, carriage hire	\$29 00
Samuel Dinsmore, " "	5 00
George L. Newhall, " "	39 00
John O'Neil, " "	51 25
Charles D. Newcomb, " "	1 00
James Dinsmore, " "	6 75
D. M. Hook, use of team	3 00
William H. Turner & Co., keys	50
Bent & Bush, buttons	30 00
Malden & Melrose Gas Light Co., gas	8 38
Emery D. Holmes, cash paid for sundries	18 30
C. H. Day, boarding horse 10 months to Feb. 1	218 72
Addison C. Getchell, printing reports	7 00
William G. Ewell, cash paid for sundries	8 58
Medford Water Board, water 2 years to Jan- uary 1, 1895	20 00
George E. Carlton, refreshments July 3 and 4	20 00
J. F. Fuller & Co., disinfectants	4 50
Page & Curtin, sundries	63
Mrs. J. E. Marshall, chevrons	2 25
C. E. Symmes, repairing chairs	1 25
William Read & Sons, clubs, &c.	33 63
H. A. Winship, belts	5 25
Littlefield Directory Publishing Co., Malden and Everett Directory	2 00
W. S. Barker & Son, crackers	6 16
Daniel N. Howard, prescriptions, &c.	3 25
A. S. Crowell, curtain fixture	25
Joseph N. Gibbs, stationery	5 76
Cornelius Callahan Co., harness	75 00
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	\$1,347 01

By appropriation, \$1,550.

Less transfer to Patrol Wag- on account	\$125
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	\$1,425

PATROL WAGON.

Paid:

Arthur C. Symmes, police wagon	\$450 00
By appropriation	\$325
By transfer ,	125
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	\$450

PUBLIC LIBRARY DEPARTMENT.

PAINTING LIBRARY BUILDING.

Paid:

Bride & Ames, painting, &c.	\$237 45
By appropriation, \$250.	

PUBLIC LIBRARY.

Paid:

Mary E. Sargent, librarian, 1 year to Febru- ary 1	\$1,000 00
Hepsie W. Symmes, assistant librarian, 1 year to February 1	400 00
Fannie E. Batchelder, assistant librarian, 1 year to February 1	234 00
N. L. Wight, assistant librarian, March 15 to February 1	204 00
Harold S. Graves, care of building	55 00
F. P. Pierce, janitor	139 92
Harold S. Graves, extra work	11 52
C. A. Ellsworth, agent at Wellington	35 00
A. P. Perry, " " Glenwood	35 00

W. P. Hanson, agent at Hillside	\$15 00
John H. Chute " " West Medford	30 00
John A. Smith, expressing	80 00
Smith's M. & B. Express, expressing	15 40
M. E. Sargent, cash paid for sundries	7 00
Zelike Frangott, dusters	4 00
George H. Webster, repairing	1 60
Medford Printing Office, printing	32 45
Library Bureau, shelf lists, binding, &c.	36 75
J. G. Roberts & Co., binding, &c.	152 70
National Binder Co., binding, &c.	25 25
F. J. Barnard & Co., binding, &c.	44 74
Henry Burrige & Co., boxes and stand	6 25
Keeler & Co., desk	29 00
A. Treadwell, photographing	10 00
Winthrop Vaughn, printing	35 25
J. C. Miller & Co.	146 10
James Pierce, stock and labor	66 92
Medford Mercury, advertising and subscription	14 00
Bride & Ames, stock and labor	6 73
Malden & Melrose Gas Light Co., gas	109 42
Malden Electric Co., light	180 66
F. P. Pierce, extra work	3 00
J. M. Whittemore & Co., stationery	8 90
Joseph N. Gibbs, stationery	3 89
R. & J. Farquhar & Co., seeds, &c.	2 13
William S. Richards, hardware	10 65
C. E. Symmes, furniture repairing	20 15
Ethan A. Paddock, tree protectors	2 00
Addison C. Getchell, printing reports	9 00
Bradlee & Hubbard Mfg. Co., lamps, &c.	7 85
James Bean, coal and wood	164 59
Medford Water Board, water 2 years to Jan. 1, 1895	16 00

A. F. Crocker, shades	\$3 53
Dawson & Porter, paint and oil	1 80
Page & Curtin, merchandise	4 23
Clinton L. Bruce, supplies	1 13
Joel Goldthwait & Co., carpeting	56 53
J. W. Buckley, charcoal	9 10
John Coulson, ice	8 00
George W. Gardner, stock and labor	4 70
F. L. Sawtell, paper	3 89
A. S. Crowell, towels, &c.	2 74
M. C. Vinal, sand	2 00
Chase's M. & B. Express, expressing	2 95
J. H. Archibald, stock and labor	45 16
John W. Cadby, books	6 00
Francis E. Galloupe, books	5 00
William J. Campbell, "	12 60
Carl Schoenhof, "	44 80
Boston Book Co., "	54 75
Hessling & Spielmeyer, "	2 70
William E. Benjamin, "	8 00
C. E. Headle, "	7 50
George Barrie, "	20 00
Charles T. Dillingham & Co., books	11 20
H. C. Cormack, books	5 75
American Library Asso. Pub. Section, book	6 50
D. Appleton & Co., books	8 34
DeWolfe, Fiske & Co., "	20 63
Boston Athenæum, "	6 62
Middlesex Mechanics Asso., "	3 04
Frederick Eeles & Co., "	146 95
Mercantile Library Asso., "	12 10
Estes & Lauriat, books, printing catalogue, &c.	838 06
F. E. Batchelder, scrap book	3 00
Biblia Publishing Co., parts, VII. to IX.	1 50

Littlefield Directory Publishing Co., directory	\$1 00
Frank H. Peak, periodicals	159 74
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	\$4,943 36
By appropriation	\$3,500 00
By receipts	1,446 11
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	\$4,946 11

RELIEF OF POOR DEPARTMENT.

SALARIES OF OVERSEERS OF THE POOR.

Paid:

Calvin H. Clark, 1 year to Feb. 1, 1894	\$500 00
William C. Craig, 1 year to Feb. 1, 1894	50 00
William A. Thompson, 1 year to Feb. 1, 1894	50 00
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	\$600 00
By appropriation \$600.	

ALMSHOUSE.

Paid:

R. B. Newcomb, Superintendent 1 year to Feb. 1	\$600 00
P. J. Newcomb, services, Feb 1 to Nov. 1	196 55
Sarah L. Rugg, services Nov. 1 to Jan. 1	43 57
Hannah Nelson, services January	22 14
C. E. Symmes, mattresses	45 65
J. E. Cowin & Co., coal	132 52
Harvey Wright, repairing	9 25
J. E. Ober, grain	34 31
Daniel Vaughn, pants	3 00
N. L. Chamberlain & Co., rubber stamps	1 05
Noah Hathaway, filing saws	1 80
J. Frank Twiss, clothing	65 25
John Fitzgerald, labor	8 00

James Bean, grain	\$90 27
Charles W. Jacobs, boots and shoes	27 32
Eugene Collin, painting wagon	12 00
C. H. Hartshorn, repairing, &c.	18 60
J. E. Barrows, rubber boots	13 60
Sidney F. Dean, shoeing horses	25 88
Whitman & Barnes Mfg. Co., machine parts, &c.	5 60
S. Vorenberg & Co., pants	14 50
William S. Richards, hardware, &c.	27 67
Page & Curtin, hardware	22 64
Frank Gibbs, use of teams, &c.	14 00
Morris Morrisey, labor	15 00
Medford Water Board, water 1 year to Jan. 1, 1894	32 00
Michael F. Dwyer, stock and labor	20 80
W. P. Treet, dry goods	31 98
R. B. Newcomb, cash paid for sundries	23 05
F. J. Loomer, repairing boots and shoes	4 35
Ames Plow Co., wheelbarrow	3 25
George S. Delano, pillows, &c.	40 50
A. S. Crowell, dry goods	33 49
Boston Furniture Co., iron beds, &c.	21 00
George L. Newhall, carriage hire	2 50
John Coulson, ice	20 00
J. H. Archibald, stock and labor	4 84
Hodgman Rubber Co., sheeting	4 17
James Bean, coal	248 34
Arthur C. Symmes, irons for beds	1 80
Frank E. Chandler, pigs	6 00
E. Tainter, expressing	75
Joseph N. Gibbs, stationery	1 00
Chase's M. & B. Express, expressing	2 30
E. S. Crawley, medicines	19 13

MUNICIPAL EXPENDITURES.

97

John H. Chute, medicines	\$25 75
Daniel N. Howard, "	22 75
Old Corner Drug Store, "	21 45
Frank Hervey, groceries	209 71
F. W. Montague "	201 65
Yerxa & Yerxa "	231 50
C. R. Drew, provisions	103 64
John Crowley, "	95 61
Thomas Hull, "	84 84
William H. McGowan, "	98 20
E. S. Randall, "	69 37
Croudis & Larkin, "	53 16
F. M. Jewett, fish	27 07
F. E. Pierce, fish and oysters	44 91
William S. Barker & Son, bread	4 12
A. F. Crocker, dry goods	64 13
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	\$3,329 28
By appropriation	\$3,000 00
By receipts	131 92
By transfer	200 00
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	\$3,331 92

ALMSHOUSE REPAIRS.

Paid :

M. C. Vinal, stock and labor	\$18 38
A. F. Crocker, wall paper	9 60
John S. Hodgkins, hanging paper	13 95
F. E. Foster & Co., lumber	199 05
J. H. Archibald, stock and labor	249 72
J. H. Archibald, cash paid Riley's Sons	12 22
Page & Curtin, plumbing as per contract	150 00
Page & Curtin, hardware, &c.	13 17

William S. Richards, stock and labor . . .	\$7 85
William M. Hilton, painting . . .	219 61
Bride & Ames, paint and oil . . .	32 30
Isaac Coffin & Co., steam-heating apparatus .	865 00
Walter Bates & Son, concreting . . .	70 85
Michael F. Dwyer, drain pipe . . .	1 95
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	\$1,863 65

By appropriation, \$2,000.

OUTSIDE RELIEF.

Paid:

F. W. Montague, groceries . . .	\$184 00
A. P. Perry, " . . .	95 47
S. C. Goodwin, " . . .	441 00
N. A. Johnson, " . . .	213 51
Frank Hervey, " . . .	354 70
Yerxa & Yerxa, " . . .	109 33
J. E. Potter & Co. " . . .	170 50
William H. Wood, " . . .	61 15
Charles H. Brewer, " . . .	30 00
F. P. Kent, " . . .	22 00
J. E. Ober, " . . .	4 25
F. H. Lovering, groceries and provisions .	158 23
T. H. Tomlinson, " " . . .	49 50
John Crowley, provisions . . .	76 86
Edward S. Randall, " . . .	140 00
Thomas Hull, " . . .	4 00
Charles R. Drew, " . . .	36 50
Charles Booth, coal . . .	60 05
J. N. Cowin & Co., coal . . .	73 10
James Bean, coal and wood . . .	409 40
Joseph Hellen, coal . . .	11 55
John E. Barrows, boots and shoes . . .	103 85

Charles W. Jacobs, boots and shoes	\$98 05
T. C. Newcomb, " "	8 50
Daniel N. Howard, prescriptions	201 30
H. H. Letson, medicine	6 65
E. S. Crawley, prescriptions	1 05
Town of Sandwich, groceries to Marcia Gil- man	52 00
Eliza Sylvester, rent, 1 month	10 00
O. S. Foster, rent, 3½ mos. to May 1	21 00
A. E. Richardson, " 3 " "	18 00
Michael Sweeney, " 3 " "	18 00
Amidio Marchetti, " 3 " "	18 00
Estate of I. T. McIntire, " 3 " "	24 00
J. M. Usher, " 3 " "	12 00
George E. Carlton, " 3 " "	12 00
Boston & Maine R.R., " 3 " "	31 62
Estate of Dennis Dwyer " 4 " "	24 00
E. A. Sparrell, " 3½ " "	21 00
Charles B. Buss, agent, " 4 " "	20 00
J. D. McGillicuddy, " 3 " "	18 00
F. E. Foster, " 4 " "	24 00
J. H. Whitney, " 5 " "	30 00
William H. James, " 4 " "	24 00
George H. Newton, board Dec. 16 to Feb. 2, 1894	114 00
Mary A. Ripley, board	57 50
Benjamin H. Parker, board to Jan. 31, 1894	18 00
Taunton Lunatic Hospital, board 1 year to Jan. 1, 1894	254 88
Worcester Insane Asylum, board 1 year to Jan. 1, 1894	677 86
Westborough Insane Hospital, board 1 year to Jan. 1, 1894	366 32

Danvers Lunatic Hospital, board 1 year to Jan. 1, 1894	\$1,197 83
Malden Hospital, board Emma McCarthy . .	62 86
Mass. General Hospital, board Conrad Marcell	57 00
Mass. General Hospital, board Geo. Connell	21 00
Commonwealth of Massachusetts, support to Oct. 1, 1893	646 93
City of Somerville, aid rendered to Sept. 30, 1893	20 00
City of Boston, aid rendered to July 21, 1893	236 54
City of Malden, aid rendered to Nov. 1, 1893	115 85
M. J. Higgins, cash allowance to Feb. 1, 1894	72 00
Mrs. William Sherman, for support of Abbott Sherman 13 mos. to Feb. 1, 1894	78 00
Elizabeth Walters, cash allowance to Feb. 1, 1894	42 00
Annie Bowlby, cash allowance to Feb. 1, 1894	42 00
Mrs. Eugene Peak, cash allowance	18 00
Julia A. Cronan, cash allowance	5 00
City of Cambridge, burial	8 15
George Nichols, burial and funeral exp. 3 persons	60 00
Medford Printing Office, printing	1 50
N. L. Chamberlain, rubber stamps	2 10
E. W. Hayes, cash paid for sundries	10 53
John O'Neil, carriage hire	2 50
E. Teel & Co., lettering sign	2 50
A. R. Andrews, typewriting supplies	3 25
Francis Doane & Co., stationery	1 50
J. Nelson St. Dennis, M.D., professional ser- vices	5 00
E. Tainter, expressing	75
Charles W. Dailey, use of ambulance	5 00
Greenough, Adams & Cushing	19 50

MUNICIPAL EXPENDITURES.

101

James Dinsmore, carriage hire	\$1 00
Malden Police Dept., use of ambulance	4 00
Alice Wilbur, watching	5 00
Calvin H. Clark, cash paid car fares, &c.	34 40
E. W. Hayes, extra services to Mar. 1, 1894	100 00
A. S. Crowell, dry goods	9 50
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	\$7,881 87
By appropriation	\$7,000 00
By receipts	1,082 25
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	\$8,082 25
Less transfer to Almshouse account	200 00
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	\$7,882 25

PUBLIC SCHOOL DEPARTMENT.

SALARIES OF SCHOOL COMMITTEE.

Paid:

Rosewell B. Lawrence, 1 year to Jan. 1, 1894.	\$50 00
Charles N. Jones, " "	50 00
Frederic H. Kidder, " "	50 00
Mrs. Amanda M. Plummer, " "	50 00
George E. Davenport, " "	50 00
Sidney Gleason, " "	50 00
Gustavus F. Guild, " "	50 00
Benjamin A. Dean, " "	50 00
Mrs. Augusta E. Crosby, " "	50 00
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	\$450 00

By appropriation, \$450.

SALARY OF SECRETARY.

Paid:

Charles N. Jones, 1 year to Jan. 1, 1894	\$100 00
By appropriation, \$100.	

SALARIES OF TEACHERS FOR YEAR ENDING JAN. 31, 1894.

Paid:

	High School.	
Lorin L. Dame		\$2,500 00
Leonard J. Manning		1,500 00
Caroline E. Swift		800 00
Genevieve Sargent		800 00
Carrie A. Teele		760 00
Carrie M. Whitcomb ($\frac{1}{2}$ year)		350 00
Josephine E. Bruce		700 00
P. T. Campbell ($\frac{1}{2}$ year)		350 00
Walter H. Cushing ($\frac{1}{2}$ year)		350 00
Marion Nottage		9 00
	Washington School.	
Benjamin F. Morrison		1,500 00
Emma F. Gill		625 00
Winifred L. Evans		550 00
Mary E. Hanson ($\frac{1}{2}$ year)		262 50
Martha E. Hayes		575 00
Annie E. Durgin		575 00
Ellen A. Sills ($\frac{1}{2}$ year)		262 50
	Brooks School.	
Lewis F. Hobbs		1,500 00
Gertrude S. Light		575 00
Harriet E. Brooks		575 00
Gertrude E. Thompson ($\frac{1}{2}$ year)		287 50
Mabel L. Thayer ($\frac{1}{2}$ year)		262 50
	Cradock School.	
George W. Parsons		1,400 00
Mary E. Tufts ($\frac{1}{2}$ year)		287 50
Mary L. Cotton		575 00
Mary L. Howard		550 00
Jennie W. Waterman		550 00
Mary E. Crowley ($\frac{1}{2}$ year)		212 50

	Tufts School.	
Henry B. Doland	.	\$1,500 00
Ellen R. Sampson	.	575 00
Helen M. Johnson	.	550 00
Flora I. Towle	.	550 00
Rose A. Plunkett	.	525 00
Alice G. Hosmer ($\frac{8}{10}$ year)	.	354 38
Alice G. Davenport ($\frac{2}{10}$ year)	.	58 50
Gertrude E. Plummer ($\frac{1}{10}$ year)	.	56 87
	Osgood School.	
Louise W. Lasell	.	575 00
Emma A. Davis	.	550 00
	Cummings School.	
Elizabeth R. Carty	.	550 00
Katherine J. FitzGibbon	.	550 00
	Curtis School.	
Amy W. Jones	.	550 00
Laura W. Davenport	.	525 00
	Everett School.	
Ida L. Hartshorn	.	550 00
Jessie M. Dinsmore	.	550 00
Adelaide S. Herriott	.	550 00
C. May Holland	.	485 00
	Gleason School.	
Alice F. Wilbur	.	550 00
Catherina W. Billings	.	475 00
	Hall School.	
Ella L. Alden	.	550 00
Ellen M. Lane	.	550 00
	Hervey School.	
Elizabeth A. Lufkin	.	550 00
Helen G. Frye	.	365 00
	James School.	
Ella A. Leighton	.	550 00

Hetty F. Wait	\$550 00
Mariette T. Fernald ($\frac{1}{2}$ year)	262 50
Swan School.	
Anna M. Plunkett	550 00
Alice C. Reed	350 00
Jennie S. Archibald	475 00
S. Henry Hadley ($\frac{3}{16}$ year), music teacher	320 00
O. B. Brown ($\frac{2}{16}$ year), "	80 00
Elizabeth H. Dunham, "	300 00
Louise MacLeod, drawing teacher	670 00
Fannie G. Huntington, sewing teacher	470 00
	\$36,466 25

By appropriation, \$36,470.

STEWARDSHIP.

Paid:

F. P. Pierce, High school	\$591 66
C. H. Oliver, Washington and Everett schools	807 00
H. S. Bird, Swan and James schools	330 00
A. B. Evans, Cradock school	208 80
M. Martin, Cummings school	115 20
P. Greaney, Brooks, Gleason, Hall, and Hervey schools	620 64
P. Dwyer, Curtis school	115 20
W. W. Pinder, Osgood school	86 40
Harry Ball, Osgood school	28 80
R. Smith, Tufts school	86 25
I. H. Kelley, Tufts overflow school	87 00
I. H. Kelley, Tufts and Tufts overflow schools	158 75
	\$3,235 70

By appropriation, \$3,330.

FUEL.

Paid :

James Bean, coal and wood	\$4,601 31
James H. Welch, charcoal	165 00
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	\$4,766 31

By appropriation, \$5,000.

CONTINGENT.

Paid :

Alexander Robertson, sundries	\$1 75
George H. Webster, keys	12 43
Samuel Williams, repairing desks, &c.	10 70
J. E. Ober, sundries	18 91
Union Congregational Church, rent	366 64
L. W. Lasell, cash paid for shade, &c.	1 08
Murphy, Leavens & Co., brushes	32 20
M. A. Robertson, stock and labor	63 24
C. E. Pearson, electrical supplies	7 20
William S. Richards, merchandise	134 92
Page & Curtin, stock and labor	122 28
Daniel Pratt's Son, clock	15 00
E. Hunt, cash paid travelling expenses	2 75
Benjamin A. Dean, travelling expenses and sundries	11 70
Henry B. Doland, sundries	1 22
R. M. Johnson, cleaning vaults	9 00
F. O. Waterman, armorer	150 00
Charles B. Buss, agent, rent	160 00
G. M. Leavens & Son, tables, wardrobe, &c.	15 50
Dunbar & LaChapelle, stock and labor	21 30
F. A. Blakeslee, glazing	80
Malden & Melrose Gas Light Company, gas	7 92
F. T. Spinney, stamped envelopes	14 00
R. H. White & Co., merchandise	9 51

George S. Perry & Co., desks, chairs, books, &c.	\$355 58
Samuel Clark, repairing	2 50
Medford Printing Office, printing	29 50
Benjamin A. Dean, keys, &c.	3 94
Medford Water Board, water 2 years to Jan. 1, 1894	871 44
R. & J. Farquhar & Co., seed, &c.	2 13
Frank H. Peak, directory	1 00
Joseph N. Gibbs, clocks	71 00
Randall, Goodale & Co., repairing flag	6 25
D. M. Dwyer, cleaning vault	6 00
William J. Cheney, stock and labor	3 25
Augusta R. Crosby, trees	2 75
A. B. Evans, care of room and supplies 1 year to Feb. 1, 1894	100 00
J. A. Cross, slating	53 25
W. B. Emery, stock and labor on flagpole	9 00
E. & F. King & Co., chloride of lime	6 48
Malden Electric Co., light	69 42
M. C. Vinal, labor	92 77
Addison C. Getchell, printing 100 reports	15 00
H. Pigeon & Sons, flagstuffs	39 00
Robert Gilmour, repairing clock	3 00
Frederick Eeles & Co., binding books	47 75
Israel H. Kelley, stock and labor	7 50
W. H. Wood, painting and setting glass	20 75
Bessie L. Barnes, instruction in gymnastics	64 37
F. E. Foster & Co., lumber	28 43
George W. Stetson, taking school census	75 20
J. F. Perkins, tuning pianos, to December 31, 1893	40 00
H. N. Smart, truant officer, 3 months to May 1, 1893	22 50

A. B. Evans, truant officer, 1 year to February 1, 1894	\$75 00
C. H. Oliver, truant officer, May 1 to February 1, 1894	52 50
W. T. Brisbin, truant officer, November 1 to February 1, 1894	22 50
H. K. & S. D. Hadley, services as musicians, June 26, 1893	10 00
S. Henry Hadley, musicians, services, June 26, 1893	20 50
Bride & Ames, stock and labor	13 05
A. E. Franklin, services of musicians, &c. (field day)	20 15
James Martin & Son, use of tent	25 00
Thomas Groom & Co., stationery	6 00
C. M. A. Twitchell & Co., tickets	2 00
Edward C. Mead, rent of Opera House	50 00
J. H. Archibald, stock and labor	98 81
American Bank Note Co., printing diplomas, &c.	167 37
John E. Sweeney, building stage	25 00
A. A. White & Co., varnish, oil, &c.	11 21
J. W. Johnson, repairing furnace, &c.	50 00
Julia A. Cronan, cleaning floors, &c.	11 55
Alfred Sanford, labor at Tufts schoolhouse	21 33
H. A. Hartley & Co., shades	30 00
Wyckoff, Seamens, & Benedict, ribbon	1 00
Dawson & Porter, stock and labor	86 18
Frank P. Pierce, labor at High school-house, &c.	11 15
J. F. Dwyer, cleaning vaults	21 00
M. R. Dalglish, ribbon	6 00
William H. Turner & Co., stock and labor on keys, &c.	18 51

F. D. H. Thomas, labor at Cradock schoolhouse	\$4 95
F. D. H. Thomas, labor at Tufts schoolhouse	1 50
Curtis & Co. Express, expressing	85
Schlegel & Fottler, lawn dressing	10 00
N. B. Cunningham, stock and labor at Hervey schoolhouse	6 32
N. B. Cunningham, stock and labor at Gleason schoolhouse	55 47
P. Dwyer, whitewashing and other services	11 00
M. Martin, grading Cummings school-yard	2 00
G. A. Atwood & Son, putting up flagpole at Hall schoolhouse	12 00
Sidney F. Dean, repairing pokers, &c.	1 00
Riverside Wood Works, lumber and shavings	8 00
Chase's M. & B. Express, expressing	24 95
James Tutten, labor at Brooks schoolhouse	1 00
Greenough, Adams & Cushing, paper	6 00
A. S. Crowell, shades	8 77
Medford City News, advertising, printing, &c.	16 00
Medford Mercury, advertising	5 00
John A. Smith, delivering supplies, &c.	23 00
A. B. Evans, " "	2 25
R. Hollings & Co., pendants, lamp, &c.	72 75
Welch's Express, expressing	2 80
Patrick Greaney, stock and labor, whitewashing, &c.	10 00
H. S. Bird, stock and labor	12 15
Smead Warming & Ventilating Co., castings	11 55
C. H. Hartshorn, covering desk	50
C. L. Batchelder, stock and labor at Brooks schoolhouse	13 25
W. M. Hilton, stock and labor on settees	3 00
George W. Simmons & Co., chevrons	33 50

William Reed & Sons, equipments	\$144 18
G. W. Parsons, lamp	2 75
C. E. Ladd, building closet at Osgood school-house	6 80
McClellan's Express, expressing	2 20
Smith's Express, expressing	25
Ham & Hopkins, flagpole at Hervey school-house	12 00
J. B. Dupont, stock and labor at Tufts school-house	7 35
H. P. Page & Co., glass	3 00
John McClellan, stock and labor at Tufts schoolhouse	8 29
Boston Germicide Co., purifier services	39 37
I. H. Kelly, putting down seats, Tufts school-house	2 50
Arthur C. Symmes, rake for furnace	2 00
Michael F. Dwyer, labor at Tufts schoolhouse	3 00
Michael F. Dwyer, stock and labor at Curtis and Washington schoolhouses	43 70
Michael F. Dwyer, stock and labor at Osgood schoolhouse	28 36
Michael F. Dwyer, stock and labor at Hall and Hervey schoolhouses	100 00
Michael F. Dwyer, stock and labor at Brooks and Gleason schoolhouses	157 74
George L. Newhall, carriage hire	1 00
Highway Department, trees for Curtis and Hervey school yards	6 25
Dawson & Porter, setting glass, &c.	9 70
Otto Neilson & Co., stock and labor at Brooks and Hervey schoolhouses	7 25
N. S. Viles, repairing clock at Tufts school-house	1 50

George W. Means, stock and labor at Cummings schoolhouse	\$5 40
J. H. Norton, stock and labor	11 46
Edith Shankland, substitute teacher at High school	20 00
C. H. Oliver, lumber, oil, and hooks, evening school	3 40
F. P. Spear, teacher, evening school	69 00
Alice Davenport, teacher, "	46 00
Annie Neilan, " "	26 00
C. R. Gow, " "	10 00
C. H. Oliver, janitor, "	34 50
Houghton, Mifflin & Co., books	170 00
Carl Schoenhof, books	34 04
George S. Perry & Co., books and supplies	65 30
D. C. Heath & Co., books	20 00
American Book Company, books	2 36
	<hr/>
	\$5,561 83
By appropriation	\$4,900 00
By transfer	668 78
	<hr/>
	\$5,568 78

TEXT BOOKS AND SUPPLIES.

Paid:

William W. Payne, books	\$4 00
A. E. Franklin, music	1 55
D. C. Heath & Co., books	215 12
Houghton, Mifflin & Co., books	99 74
Ginn & Co., books	296 75
William Ware & Co., books	168 80
American Book Co., books	306 19
Boston School Supply Co., books, &c.	446 70
D. Lothrop Co., books	19 00

Thompson, Brown & Co., books	\$322 12
Carl Schoenhof, books	17 10
Franklin Educational Co., supplies	34 44
Greenough, Adams & Cushing, supplies	281 22
Hub Book & Stationery Co., books	9 00
Thomas Groom & Co., supplies	7 50
Appalachian Mountain Club, books	11 25
Thorp & Martin Co., supplies	4 52
J. L. Hammett, supplies	3 23
Lee & Shepard, books	237 18
Allyn & Bacon, books	16 84
Silver, Burdett & Co., books	33 75
F. B. Spaulding, manager, books	3 06
Willard Small, books	15 75
Maynard, Merrill & Co., books	39 40
George W. Simmons & Co., books	7 50
Otis Clapp & Son, Putman's manuals	19 20
Goodsell Observatory, subscription	2 50
George S. Perry & Co., supplies	757 03
A. B. Evans, delivering supplies	5 70
Welch's Express, expressing	2 95
Chase's M. & B. Express, expressing	26 20
A. W. Robinson, expressing	1 25
Ellen L. Adams, typewriting	1 00
Medford Printing Office, printing	2 00
J. A. Smith, delivering supplies	16 00
William Read & Sons, swords, belts, &c.	8 35
Smith's M. & B. Express, expressing	25
S. Henry Hadley, music for High school exhibition	30 71
George F. King & Merrill, stationery	23 75
	<hr/>
	\$3,498 60

By appropriations	\$3,500 00
By receipts	70
	<hr/>
	\$3,500 70

EVENING SCHOOLS.

Paid:

Teachers, as per pay rolls	\$343 00
C. H. Oliver, janitor	30 00
Malden Electric Co., light	26 20
	<hr/>
	\$399 20

By appropriation, \$400.

MILITARY INSTRUCTION.

Paid:

J. H. Whitney, instructor, 1 year to Feb. 1	\$150 00
By appropriation, \$150.	

TRANSPORTATION OF PUPILS.

Paid:

Dennis M. Hook, 1 year to Feb. 1, 1894	\$570 00
By appropriation, \$600.	

SUPERINTENDENT.

Paid:

E. S. Hunt, 1 year to Feb. 1, 1894	\$1,000 00
By appropriation, \$1000.	

PAINTING OSGOOD SCHOOLHOUSE.

Paid:

Dawson & Porter, stock and labor	\$250 00
By appropriation, \$250.	

JAMES SCHOOLHOUSE REPAIRS.

Paid:

F. E. Foster & Co., lumber	\$31 67
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MUNICIPAL EXPENDITURES.

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J. H. Archibald, stock and labor	\$81 22
M. C. Vinal, stock and labor	32 88
A. F. Crocker, shades	4 23
	<hr/>
	\$150 00

By appropriation, \$150.

JAMES SCHOOLHOUSE FURNACE.

Paid :

William S. Richards, furnace, labor, &c.	\$199 80
	By appropriation, \$200.

DESKS FOR SWAN AND JAMES SCHOOLHOUSES.

Paid :

George S. Perry & Co., desks, chairs, &c.	\$199 80
	By appropriation, \$200.

MANUAL TRAINING.

Paid :

James W. Vinal & Co., benches, tools, &c.	\$475 00
Gustaf Larsson, set of models	25 00
	<hr/>
	\$500 00

By appropriation, \$500.

WATER SUPPLY DEPARTMENT.

SALARIES OF WATER COMMISSIONERS.

Paid :

Frank E. Chandler, 1 year to Jan. 1, 1894	\$50 00
Henry Dunster, 1 year to Jan. 1, 1894	50 00
Eli Ayers, 8 months to Jan. 1, 1894	33 33
Thomas B. Dill, 4 months	16 67
	<hr/>
	\$150 00

By appropriation, \$150.

BOSTON AVENUE CONNECTION.

Paid:

Radford Pipe & Foundry Co., 10-inch pipe	\$65 69
Boston & Maine Railroad, freight	67 20
	<hr/>
	\$132 89

By appropriation, \$801.85.

IMPROVING AND ENLARGING WATER SUPPLY.

Paid:

Workmen, as per pay rolls	\$1,233 58
Charles A. Loud, 33,190 feet land on shore of Spot pond	1,000 00
City of Malden, $\frac{1}{3}$ part of amount paid Arthur M. McGouch for land at Spot pond	2,166 66
City of Malden, $\frac{1}{3}$ of amount paid for Spot- pond improvement	240 80
Wesley P. Dutton, services	170 00
W. H. Lenox, sand and gravel	81 25
Bryant & Kent, cement	261 80
Murphy, Leavens & Co., paste brush	2 00
John A. Gaffey, use of horse	1 00
Medford Mercury, advertising	1 25
Medford City News, advertising	1 00
Walworth Mfg. Co., fittings	41 13
Thomas Casey, brick	6 00
American Steam Gauge Co., gauge	4 00
F. E. Foster & Co., lumber	83 20
C. E. Symmes, repairing chairs, &c.	5 50
Davis & Farnum Mfg. Co., fittings	102 98
Bradlee, Hastings & Co., merchandise	1 38
Perrin, Seamans & Co., cast-iron wheels	8 82
Globe Gas Light Co., lamps, &c.	10 60
Orchard Peasley, hammering stone	6 00

F. D. H. Thomas, stock and labor	\$28 97
M. C. Vinal, labor	10 75
Ludlow Valve Mfg. Co., valve	14 49
Pect Valve Co., valve	2 00
Scrannage Bros., bushing, &c.	3 50
J. E. Potter & Co., stock and labor on engine house	71 23
George T. McLauthlin & Co., smoke pipe	12 11
Dustin D. Wright, mortgage note due Oct. 10, 1893	11,000 00
Donaldson Iron Co., 8-inch pipe	1,763 32
Chapman Valve Mfg. Co., floor stands	27 50
Weaving, Booth & Co., cement	31 25
James McCusker, stock and labor constructing wooden coping	240 88
J. F. Dwyer, sand	5 00
E. W. Hayes, cash paid freight	76
M. M. Tidd, engineering	1,153 12
Dawson & Porter, paint, oil, &c.	26 70
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	\$19,820 53
By appropriation	\$42,000
Less transfer to Driven Wells account	12,500
	<hr/>
	\$29,500

RENTS AND REPAIRS OF BUILDINGS.

Paid:

Workmen, as per pay rolls on Saville estate	\$25 14
James Pierce, stock and labor, "	86 50
F. E. Foster & Co., lumber, "	48 35
M. C. Spencer, stock and labor, "	52 50
A. F. Crocker, paper, &c., "	10 84
Thomas O'Brien, whitewashing, "	21 00

J. F. Dwyer, cleaning vaults, Saville estate	\$3 00
Dawson & Porter, paint stock, "	15 29
D. N. Biswanger, labor, "	1 50
M. C. Vinal, repairing ceiling, Robinson house	3 69
George W. Stetson, insurance, Malley house	10 50
J. W. Bickford, repairs, "	11 00
John S. Hodgkins, papering, &c., Tay house	11 73
E. T. Keith, stock and labor, "	49 50
G. A. Atwood & Son, stock and labor, Black- wood estate	36 81
John Coulson, repairing ice houses	15 00
Page & Curtin, weather strip	70
Dawson & Porter, stock and labor setting glass	3 22
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	\$406 27

By rents received, \$1,590.89.

MAINTENANCE AND INTEREST ON BONDS.

Paid:

Workmen, as per pay rolls	\$6,980 23
Interest on 6% bonds, due Jan. 1, 1893	60 00
Interest on 4% " " Jan. 1, 1893	500 00
Interest on 4% " " July 1, 1893	4,000 00
Interest on 6% " " July 1, 1893	1,470 00
Interest on 6% " " Jan. 1, 1894	1,380 00
Interest on 4% " " Jan. 1, 1894	3,500 00
State Treasurer, interest on note for \$20,000, 1 year, to Jan. 27, 1894	800 00
Dustin D. Wright, interest on note for \$11,000, 1 year, to Oct. 10, 1893	660 00
Medford W. L. S. F. Commissioners, sur- plus for 1892	7,203 85
Medford W. L. S. F. Commissioners, sur- plus accrued in sundry years previous to Feb. 1, 1893	8,182 23

National Meter Co., meters, &c.	\$330 25
Osgood & Hart, castings	103 12
Welch's Express, expressing	3 57
H. R. Worthington, meter	19 20
Thomson Meter Co., meters	93 15
Samuel D. McLean, meter boxes	13 00
F. E. Foster & Co., lumber	57 86
Walworth Mfg. Co., pipe and fixtures	75 51
Knowles Steam Pump Works, pump	93 00
Medford Printing Office, printing	27 25
Mary E. Lauriat, services copying	6 00
Gould & Cutler, oil	21 43
Perrin, Seamans & Co., tools, &c.	140 92
J. N. Cowin & Co., coal and grain	1,304 21
John Lahey, charcoal	3 50
Globe Gas Light Co., lamps, &c.	27 20
C. S. Knowles, lacings, &c.	5 90
Chapman Valve Mfg. Co., water gates	9 13
C. M. Kimball, polish	1 00
A. S. Symmes, repairing drills	2 95
James Bean, coal and grain	1,342 61
F. W. Gow, salary as superintendent 1 year to Feb. 1, 1894	1,500 00
E. W. Hayes, salary as clerk	800 00
William P. Clark, castings	15 38
E. A. Blanchard, hay	17 64
M. C. Warren & Co., tools	5 94
J. E. Barrows, boots	11 00
J. V. Bazin, use of horse	14 00
Henry K. Barnes, packing	8 65
Leonard Ellis & Co., oil	275 40
George T. McLauthlin & Co., pump shaft, and repairs to old steam fire engine	27 03
B. F. Smith & Bro., balance on driven wells	43 50

F. T. Spinney, stamped envelopes, &c.	\$22 00
New England Tel. & Tel. Co., rentals	134 32
Francis Doane & Co., stationery	23 03
Malden & Melrose Gas Light Co., coke	1 60
Edson Manufacturing Co., repairing hose	1 50
Chase, Parker & Co., duck	12 00
Sewell & Day Cordage Co., rope	9 07
Chadwick Lead Works, lead, &c.	15 53
E. Teel & Co., repairing, &c.	13 50
Page & Curtin, hardware	59 48
Heirs of J. Manning, rent of shop 1 year to Nov. 1, 1893	250 00
T. J. Sullivan, expressing	1 90
A. R. Andrews, stationery	5 40
Smith's M. & B. Express, expressing	1 75
Robinson's Express, expressing	3 40
Addison C. Getchell, printing 200 reports	36 00
Brigham & Co., rubber stamp	1 00
William S. Richards, repairing pump	7 10
Frank Hervey, flaxseed	1 07
Braman Dow & Co., fittings	1 01
C. H. Hartshorn, repairing	11 95
Medford Mercury, advertising	2 10
Crosby Steam Gage & Valve Co., repairing gage, &c.	4 10
Estate of A. S. Symmes, repairing	29 97
Arthur C. Symmes, repairing	123 94
John A. Gaffey, use of team	2 00
E. Teel, & Co., wagons and sundries	355 64
Dawson & Porter, stock and labor	9 58
Winslow Joyce, services as inspector	121 40
Scrannage, Bros., brass castings, &c.	23 93
American Express Co., expressing	1 10
J. E. Potter & Co., nails, &c.	9 35

F. W. Gow, cash paid for sundries	\$5 80
Davis & Farnum Manufacturing Co., plug	2 55
John McKenna, charcoal	2 10
Bryant & Kent, cement	26 25
Charles Cummings (of Woburn), black horse	200 00
E. Tainter, expressing	4 95
McClellan's Express, expressing	10 90
Greenough, Adams & Cushing, books	12 50
Draper Manufacturing Co., ink	25
Peet Valve Co., valves	6 00
Bradlee, Hastings & Co., iron	4 63
Frost & Adams, artists' materials	3 41
Henry F. Jenks, iron cups	3 00
John E. Sweeney, stock and labor	33 03
W. M. Simpson, veterinary services	4 00
E. W. Hayes, cash paid freight &c.	40 60
Charles B. Buss, insurance on engine house and machinery at Spot pond	15 00
Charles B. Buss, insurance stable and contents	30 00
Charles H. Day, horse hire, &c.	33 50
Belknap & Co., rubber stamps	3 25
Holyoke Hydrant Iron Works, hydrant	40 60
J. W. Mann, steam for pump May 16 to Oct. 20	134 00
J. C. Miller, Jr., printing	15 00
Joseph E. Clark, M.D., professional services	2 00
Michael F. Dwyer, funnel, elbows, &c.	4 80
J. O. Goodwin, sleigh	20 00
Francis A. Wait, rent of land 1 year to Jan. 1, 1894	50 00
George W. Stetson, insurance on ice houses	105 00
Herbert Etter, shoeing horses	65 75
Coffin Valve Co., hydrant	26 00
Charles W. Jacobs, rubber boots	3 50
W. P. Treet, comforters, &c.	3 59

Trustees of Tufts College, second-hand stove	\$8 00
Daniel N. Howard, medicine	50
Hersey Mfg. Co., meter and connections	43 00
John Holloran, charcoal	3 50
Chase's M. & B. Express, expressing	8 60
Joseph N. Gibbs, stationery	2 51
Malden Water Board, $\frac{1}{3}$ of amount paid for policing Spot pond to Nov. 1893	532 50
	<hr/>
	\$43,941 90
By water rates	\$37,333 89
By reappropriation	25,165 82
	<hr/>
	\$62,499 71

NEW CONSTRUCTION AND SERVICE PIPES.

Paid:

Workmen as per pay rolls	\$5,463 00
D. M. Dwyer, trenching	116 86
J. F. Dwyer, teaming pipe	7 83
Perrin, Seamans & Co., tools, derrick, &c.	580 21
Peet Valve Co., gates	468 00
Chadwick Lead Works, lead	329 55
T. J. Sullivan, expressing	50
Frank Hervey, powder, fuse, &c.	39 55
Walworth Mfg. Co., service pipe, &c.	385 55
The Pratt & Cady Co., hydrants	30 00
Malden & Melrose Gas Light Co., coke	7 50
Donaldson Iron Co., pipe	5,159 82
Davis & Farnum Mfg. Co., castings, &c.,	96 33
Osgood & Hart, castings, &c.	350 24
Ludlow Valve Mfg. Co., valves, &c.	417 93
H. B. Winship, tarred gasket	7 15
City of Boston, connection with Mystic Works	15 60
Boston Lead Mfg. Co., lead	234 23

Boston & Maine R.R., freight	\$8 33
James Nestor, teaming pipe	85 53
J. A. Stewart, turning plugs, &c.	1 55
Holyoke Hydrant & Iron Works, hydrants	837 20
Chapman Valve Mfg. Co., valve	27 78
William P. Clark, castings	172 84
Scrannage Bros., couplings, &c.	36 52
Chadwick Lead Works, lead	56 85
C. S. Knowles, washers	4 73
Braman Dow & Co., fittings	12 03
Medford Mercury, advertising	1 50
Henry K. Barnes, rubber packing	5 19
New England Water Pipe Co., pipe	18 75
American Express Co., expressing	1 00
E. W. Hayes, cash paid freight	80
Page & Curtin, pipe, &c.	3 50

\$14,983 95

By appropriations	\$12,499 81
By receipts	1,252 99
By transfer	1,500 00
	<hr/>
	\$15,252 80

PUMPING STATION AT WRIGHT'S POND.

Paid:

Workmen as per pay rolls	\$1,328 45
Globe Gas Light Co., oil	1 20
Portland Stone Ware Co., pipe	50 05
Bradlee, Hastings & Co., iron bars	68
J. F. Dwyer, sand	9 00
Builders' Iron Foundry, Y	10 40
Chadwick Lead Works, lead	40 07
Davis & Farnum Mfg. Co., reducer, bends, &c.	13 55
Coffin Valve Co., valves, &c.	135 50

The Ashton Valve Co., valves	\$93 00
The Deane Steam Pump Co., pump . . .	570 00
Cunningham Iron Works Co., boiler . . .	615 00
Thomas Noonan, mason work	9 95
A. W. Hastings, window and frame . . .	8 40
American Express Co., expressing . . .	1 25
Chapman Valve Mfg. Co., valves, &c. . .	29 78
Waldo Bros., fire brick	25 73
James W. Vinal & Co., hardware	3 39
Walworth Mfg. Co., pipe and fittings . .	50 88
E. W. Hayes, cash paid for freight . . .	13 12
Page & Curtin, hardware, &c.	33 13
John E. Sweeney carpenter work on engine house	169 00
J. F. Dwyer, sand	11 00
J. N. Cowin & Co., Cumberland coal . . .	72
Morse & Whyte, copper netting	6 90
Crosby Steam Gage & Valve Co., water gates, &c.	51 60
A. W. Hastings & Co., doors and transoms .	13 10
Boston Bolt Co., bolts	2 02
Perrin, Seamans & Co., wire rope	1 13
F. E. Foster & Co., lumber, lime, and cement	406 36
M. M. Tidd, engineering	313 64
Thomas Casey, brick	150 00
J. E. Potter & Co., paper	1 98

\$4,169 98

By appropriation \$10,000.

DRIVEN WELLS.

Paid :

Workmen, as per pay rolls	\$184 99
W. H. Lenox, sand	4 00
J. O. Goodwin, survey and plans	50 00

John A. Gaffey, use of team	\$11 00
Leach & Grant, stock and labor on foundation for stack	34 45
Boston Bolt Co., bolts	5 98
Walworth Manufacturing Co., fittings	14 33
Thomas Casey, brick	10 35
American Steam Gauge Co., gauge	2 00
F. E. Foster & Co., lumber	192 02
Michael F. Dwyer, drain pipe	7 50
B. F. Smith & Brother, driving and connecting wells, as per contract	1,566 25
B. O. Gage, air pump and separator	400 00
J. F. Dwyer, sand	1 20
William S. Richards, stock and labor	4 60
Daniel Lawrence & Sons, empty hogshead	1 60
Deane Steam Pump Co., pump machinery	2,665 00
John E. Sweeney, labor and teaming	73 00
B. F. Smith & Brother, two test wells	231 37
Page & Curtin, hardware, &c.	14 44
N. B. Biswanger, carpenter work	15 67
National Meter Co., meter	198 00
Jarvis Engineering Co., heater	60 00
Chapman Valve Manufacturing Co., valves	6 84
E. W. Hayes, cash paid for freight	96
M. M. Tidd, C.E., services	414 22
Dawson & Porter, paint and oil	20 26
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	\$6,190 03
By transfer, \$12,500.	

SEWER DEPARTMENT.

SURVEYING.

Paid :

Employees, as per pay rolls	\$1,302 05
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T. Howard Barnes, C.E., services November 21 to January 27, 1894	\$360 33
T. Howard Barnes, car fares to January 27, 1894	10 44
T. Howard Barnes, outfit for field parties, November 23 to January 27, 1894	105 00
Page & Curtin, nails, &c.	2 50
J. C. Miller, Jr., printing	9 75
F. E. Foster & Co., lumber	28 68
Frost & Adams, artists' materials	88 83
Aaron R. Gay, books, stationery, &c.	28 50
W. W. Barnes, making paper weights	1 00
Littlefield Directory Publishing Co., Medford Directory	1 00
Anthony S. Morse, spikes	26 08
J. H. Archibald, stock and labor	28 75
Simon White, stock and labor	7 98
G. M. Leavens & Son, chairs, &c.	22 20
Derby & Kilmer Desk Co., desk and tables	68 25
J. N. Gibbs, stationery	6 80
A. C. Symmes, hangers for tables	4 50
Chase's M. & B. Express, expressing	3 45
T. W. Barry, Beale & Co., stationery	12 95
William A. Haskell, paper basket, &c.	4 40
Anthony S. Morss, spikes	8 00
Dawson & Porter, tin signs	3 00
Smith's M. & B. Express, expressing	40
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	\$2,134 84

By appropriation, \$3,000.

PARK DEPARTMENT.

PUBLIC COMMONS.

Paid:

Highway Department, cutting grass	\$10 00
By appropriation, \$300.	

OTIS STREET PARK.

Paid :	
George F. Manning	\$4,045 99
William P. Martin and others, trustees	2,496 50
	<hr/>
	\$6,542 49
By appropriation, \$7,000.	

CITY COUNCIL CONTINGENT.

Paid :	
R. Hollings & Co., chandelier	\$70 00
Annie L. Phelps, typewriting	10 70
C. E. Pearson, electrical supplies	48 70
Allston P. Joyce, sundries for clerk of committees	3 03
George H. Webster, locks, &c.	2 15
B. M. Boyce, clock	4 50
Greenough Adams & Cushing, record books, &c.	283 37
Medford Printing Office, printing	12 00
D. Lothrop Co., books	40 85
A. B. & E. L. Shaw, umbrella racks	20 00
Thorpe & Martin, oak cabinet	58 20
Samuel Dinsmore, carriage hire	9 50
Page & Curtin, merchandise	26 70
Dawson & Porter, painting, &c.	7 82
Charles H. Fowle, stamps, &c.	3 10
Allston P. Joyce, cash paid for copying Auditor's Report	3 00
Savage's Express, expressing	4 95
George L. Newhall, carriage hire	75
Adelaide C. Brigham, typewriting	5 00
E. A. Hathaway, posting bills, railroad hearing	4 50

Medford Mercury, advertising hearing by Railroad Commissioners	\$2 65
George H. Duncklee, carriage hire	6 00
F. D. H. Thomas, stock and labor on desks, &c.	8 80
R. Parker, work for Committee on Railways	13 00
J. C. Miller, Jr., printing petition cards	3 00
William S. Richards, waiter, goblets, &c.	5 95
M. Blackmer, work for Committee on Rail- ways	4 00
P. J. Teel, work for Committee on Railways	13 00
M. R. Dalglish, crape, ribbon, &c.	9 00
Medford City News, advertising hearing by Railroad Commissioners	2 60
William H. Turner & Co., key	35
Francis Doane & Co., record books	6 00
Charles H. Day, carriage hire	6 00
Medford Mercury, subscription	50 00
	<hr/>
	\$749 17
By appropriation	\$2,500 00
By receipts	9 38
	<hr/>
	\$2,509 38

CITY HALL EQUIPMENT.

Paid:

C. E. Pearson, stock and labor, electric lamps	\$20 35
C. E. Symmes, shades, &c.	20 95
Derby & Kilmer Desk Co., desks, chairs, &c.	315 50
August Becker, brass die	12 50
A. W. Robinson, expressing	1 00
William H. Turner & Co., stock and labor on electric lights, &c.	9 54
F. D. H. Thomas, stock and labor	152 99

MUNICIPAL EXPENDITURES.

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James B. Simpson, cash paid for rubber stamp	\$1 00
W. E. Ober, electrical supplies	9 05
J. L. Blackmer & Co., signs	20 00
Joel Goldthwait & Co., oilcloth, &c.	29 24
A. R. Andrews, typewriter, &c.	105 00
George H. Webster, keys, &c.	2 80
Dawson & Porter, painting, also stock and labor on signs	44 49
Page & Curtin, stock and labor	108 21
	<hr/>
	\$852 62
By appropriation \$1,000.	

ENGINE HOUSE LOT—MEDFORD STREET.

Paid:

George W. Lakin	\$1,560 00
By appropriation, \$1,560.	

ESTATE OF FRANCIS BROOKS.

Paid:

For land damages	\$550 00
By appropriation, \$550.	

ESTATES BOUGHT AT SALE FOR TAXES.

Paid:

E. W. Hayes, City Collector, for sundry estates	\$329 25
By receipts, \$102.40.	

METROPOLITAN SEWER TAX.

Paid:

George A. Marden, State Treasurer . . . \$3,078 40
 By warrant, \$3,078.40.

MIDDLESEX COUNTY TAX.

J. O. Hayden, County Treasurer . . . \$10,370 31
 By warrant, \$10,370.31.

MISCELLANEOUS CREDITS.

Paid:

Commissioners of W. L. Sinking Fund, pre-
 mium received on bonds issued, \$72,000, at
 101.69 \$1,216 80
 State Treasurer, corporation tax . . . 12 89
 Henry A. Gannett, in settlement for
 loss of horse 25 00
 \$1,254 69
 By receipts \$32,276 29

Less transfers as follows:—

Gravelly Creek account . . . \$150 00
 New Construction and Service
 Pipes account 1,500 00
 New Furnace, City Hall, account . . . 300 00
 New Hose account 550 00
 Public Schools Contingent account . . . 668 78
 Voting Precincts and Election Ex-
 penses account 700 00
 Ordinary Expenses Fire Depart-
 ment account 600 00

Fires in the Woods account	\$50 00	
Gravelly Creek account	337 50	
Telephones account	100 00	
Soldiers' Relief account	200 00	
Miscellaneous account	500 00	
		\$5,656 28
		<u>\$26,620 01</u>

NATIONAL CONSTRUCTION COMPANY.

Paid :

National Construction Co., in settlement under contract of Dec. 29, 1892	\$546 08
By appropriation, \$546.08.	

NEW FURNACE AT CITY HALL.

Paid :

Page & Curtin, furnace and labor of setting	\$300 00
By transfer, \$300.	

STATE TAX.

Paid :

Geo. A. Marden, State Treasurer	\$12,700 00
By warrant, \$12,700.	

SCHOOLHOUSE LOT — HARVARD STREET.

Paid :

Estate of F. L. Ames	\$7,567 56
By appropriation, \$7,568.	

UNPAID BILLS (of previous year).

Paid:

Fire Department:

A. C. Symmes, Chief Engineer, salary 9 months to Feb. 1	\$225 00
Charles E. Bacon, Assistant Engineer, salary 9 months to Feb. 1	56 25
Jude C. Clark, Assistant Engineer and clerk, salary 9 months to Feb. 1	93 75
Dawson & Porter, setting glass	4 50
Engineer and stoker	8 33
Permanent firemen, $\frac{1}{2}$ month to Feb. 1	201 66
Mystic Hose Co., 1 month to Feb. 1	41 70
Hose No. 4, " "	25 02
Chemical Co. No. 1. " "	16 64
Hook and ladder, " "	50 04
Hose No. 3, " "	25 02
Pay roll	3 00
James Bean, coal and wood	50 65
James Bean, hay and grain	74 42
A. S. Symmes, shoeing horses, &c.	50 92
C. H. Hartshorn, repairing harnesses	12 40
J. E. Ober, coal and grain	17 80
A. S. Jackson, ladder	25 00
New England Gamewell Co., springs and key boxes	2 75
Harvey Wright, shoeing horses	17 08
J. A. Dow, dentistry	4 00
Malden & Melrose Gas Light Co., gas	84 42
Bride & Ames, setting glass	3 00
Standard Oil Co., oil	3 00
<i>Almshouse:</i>	
S. Vorenberg & Co., coat and vest	10 00

MUNICIPAL EXPENDITURES.

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R. B. Newcomb, superintendent for January	\$50 00
Yerxa & Yerxa, groceries	17 49
F. E. Pierce, oysters	2 40
John H. Chute, medicine, &c.	3 10
J. N. Cowin & Co., coal	26 94
J. Frank Twiss, clothing	5 00

Police :

Officers, January 16 to Feb. 1	367 51
Emery D. Holmes, Chief, Jan. 16 to Feb. 1 .	48 07

Board of Health :

A. R. Reed, clerk, 1 month to Feb. 1	37 50
J. W. Beckford, collection of house offal 6 months to Feb. 1	375 00

Highway Department :

John P. Prichard, Superintendent of Streets, 1 month to Feb. 1	116 64
A. S. Symmes, shoeing and repairing	162 38
Malden Electric Co., light	6 57
John S. Williams, supplies	41 33
William S. Richards, oil and nails	6 70
Herbert Etter, shoeing	7 75
F. E. Foster & Co., lumber	4 06
National Construction Co., cement	11 25
Whitney Machine Co., labor on crusher . .	3 00

Street Lights :

Malden Electric Co., light	919 09
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City Hall :

J. E. Ober, coal	75 33
Malden & Melrose Gas Light Co., gas . . .	15 30

Malden Electric Co., light	\$10 75
<i>Public Schools :</i>	
J. H. O'Neil, carriage hire	1 00
J. E. Morse, cleaning and repairing clock	1 25
Malden & Melrose Gas Light Co., gas	2 70
Patrick H. Dwyer, labor at Curtis schoolhouse	2 00
J. N. Gibbs, repairing clocks, &c.	17 25
Estate of John D. Small, rent	40 00
Boston Germicide Co., purifier, service, &c.	39 37
Highway Department. broken stone for Cra- dock schoolyard	9 00
J. A. Cross & Son, slating	11 20
William S. Richards, stock and labor	48 78
John E. Sweeney, " "	42 59
Michael F. Dwyer, " "	248 72
James Bean, coal	499 44
H. N. Smart, truant officer to Feb. 1, 1893	37 50
A. B. Evans, truant officer to Feb. 1, 1893	37 50
A. B. Evans, care of committee room 3 months to Feb. 1, 1893	25 00
F. O. Waterman, armorer, 1 month to Feb. 1	12 50
Page & Curtin, stock and labor	38 38
F. D. H. Thomas, stock and labor	4 57
Tenney & Grundy, repairing plastering	4 00
J. F. Perkins, tuning pianos	20 00
Malden Electric Co., stock and labor	26 80
Dawson & Porter, stock and labor	15 70
Medford Printing Office, printing	2 25
D. M. Hook, transportation of pupils	5 00
J. H. Archibald, stock and labor	9 45
William J. Cheney, repairing desks, &c.	3 44
George S. Perry & Co., desks and sundries	161 88
Carl Schoenhof, books	38 13

MUNICIPAL EXPENDITURES.

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Ginn & Co., books	\$2 08
William Ware & Co., books	3 60
W. E. Hadlock & Co., clock	18 00
Union Congregational Society, rent for Jan. 1893	50 00
D. K. Richardson, services as truant officer	37 50
Publishers Youth's Companion, supplies	1 25
Ellen L. Adams, typewriting	70
<i>Sundries :</i>	
Butler Bros. & Co., repairing	50 25
George H. Webster, keys	5 63
Joel Goldthwait & Co., carpeting	490 96
Derby & Kilmer Desk Co., desks and chairs	179 00
F. T. Spinney, stamped envelopes	57 20
Heywood Bros. & Co., chairs	49 50
Henry Mitchell, city seal	189 00
Medford Printing Office, printing	4 00
A. Ward Follett, M.D., reporting births	3 50
Waitt & Hatch, groceries	6 00
Randall, Goodale & Co., repairing flag	50
W. B. Emery, window polish, &c.	36
Broad Gauge Iron Works, gutters, &c.	1 78
J. M. Usher, rent	4 00
	<hr/>
	\$5,979 72

By appropriation, \$5,980.89.

UNFUNDED DEBT.

Paid :

Commonwealth of Massachusetts, note of Dec. 30, 1892 :	\$10,000 00
Commonwealth of Massachusetts, note of Jan. 27, 1893	20,000 00

Bunker Hill National Bank, note of Aug. 5, 1893	\$13,000 00
Bunker Hill National Bank, note of Aug. 28, 1893	10,000 00
Bunker Hill National Bank, note of July 17, 1893	10,000 00
Bunker Hill National Bank, note of Sept. 5, 1893	17,000 00
J. W. Russell and B. F. Hayes, trustees, note of June 21, 1893	7,000 00
Medford Savings Bank, note of May 11, 1893	30,000 00
Samuel C. Lawrence, note of May 2, 1893 .	10,000 00
Samuel C. Lawrence, note of June 7, 1893 .	10,000 00
Samuel C. Lawrence, note of June 14, 1893	10,000 00
Samuel C. Lawrence, note of July 3, 1893 .	10,000 00
Samuel C. Lawrence, note of Oct. 4, 1893 .	10,000 00
	<hr/>
	\$167,000 00

WASHINGTON SCHOOLHOUSE.

Paid:

Cornelius P. Sullivan, in settlement of suit .	\$3,500 00
By appropriation, \$3,500.	

CITY OF MEDFORD.

REPORT

OF THE

SCHOOL COMMITTEE

FOR THE YEAR ENDING JANUARY 31, 1894.

SCHOOL COMMITTEE.

1893.

ROSEWELL B. LAWRENCE, <i>Chairman</i> ,	15 Salem street
CHARLES N. JONES, <i>Secretary</i> ,	150 Salem street
FREDERIC H. KIDDER,	7 Florence street
SIDNEY GLEASON,	131 High street
BENJAMIN A. DEAN,	42 Harvard street
AUGUSTA R. CROSBY,	242 High street
AMANDA H. PLUMMER,	14 Lawrence street
GEORGE E. DAVENPORT,	67 Valley street
GUSTAVUS F. GUILD,	15 Florence street

E. HUNT, *Superintendent*, 14 Water street.

OFFICE HOURS: 4.30 to 5.30 P.M., Mondays and Tuesdays.

STANDING COMMITTEES.

Text Books,	Mr. Lawrence, Mr. Jones
Fuel and Accounts,	Mr. Jones, Mr. Davenport
Evening Schools,	Mr. Davenport, Mrs. Plummer, Mr. Guild
Music,	Mr. Kidder, Mr. Dean, Mrs. Crosby
Drawing and Penmanship,	Mr. Dean, Mr. Gleason
Manual Training,	Mr. Lawrence, Mr. Guild, Mrs. Plummer
Kindergarten,	Mr. Guild, Mrs. Crosby, Mr. Kidder

SUB-COMMITTEES.

High School,	Mr. Lawrence
Washington and Curtis Schools,	Mr. Jones
Brooks and Gleason Schools,	Mr. Gleason
Cradock School,	Mr. Kidder
Tufts School,	Mr. Dean
Osgood and James Schools,	Mrs. Plummer
Everett and Swan Schools,	Mr. Davenport
Cummings School	Mr. Guild
Hall and Hervey Schools	Mrs. Crosby

DISTRICT COMMITTEES.

High School,	Mr. Lawrence, Mr. Jones, Mr. Gleason
East District,	Mr. Jones, Mr. Davenport, Mrs. Plummer
West District,	Mr. Gleason, Mrs. Crosby
South District,	Mr. Kidder, Mr. Guild, Mr. Dean

REPORT
OF THE
SCHOOL COMMITTEE.

CITY OF MEDFORD, February 5, 1894.

To the Honorable Mayor and City Council:

Gentlemen, — A review of the first year of the public schools since the adoption of the city charter reveals important and far-reaching changes. The number of the committee has been increased from six to nine; each ward is now represented, and there are three members at large. The greater number, divided into sub-committees, renders closer watchfulness and care possible, while it is also probable that a still larger number would make decision and action less prompt.

The rules have been amended in several particulars. The meetings of the board are now held the first and third Mondays instead of the first only. The number of written examinations in the grammar grades has been diminished. Written tests and examinations are beneficial both to scholars and teachers, but they should not be too frequent, and cramming for examinations should be prevented. The method of selecting new teachers is now more careful, and the committee in the future are likely to require in a candidate both normal-school training and actual experience in teaching. The seven new teachers elected during the year were well qualified for their work and are proving themselves efficient. Nearly without exception all the teachers are doing intelligent and faithful work, and are

striving to improve themselves and their methods of teaching for the benefit of the children and the city.

During the past year the High School has lost two teachers by death: in July, Carrie M. Whitcomb, than whom no teacher was ever more faithful and conscientious; and in January, Carrie A. Teele, a graduate of the school, a teacher of rare intelligence and judgment, and who in her six years of service had won the confidence and esteem of scholars, committee, and citizens.

There are now 234 scholars in the High school. Thirty of these will graduate in June, and 20 others will probably not return in September. In the upper class in the grammar schools there are 175, so that the new class in the High school in September may be estimated at 130. Adding this number to the number of old scholars returning, we find the probable size of the school next September to be 314. Under this condition of things the privilege of attending the High school must be limited to those scholars who appreciate the opportunity and try to do good work. The two-session system, with all its disadvantages and inconveniences, must be adopted in some form; its probability may lessen the number of scholars. The course of study and program of recitations ought to be remodelled upon more scientific principles. The excellent advice contained in that most valuable report of the Committee on Secondary School Studies, published by the United States Bureau of Education, cannot be followed in our present building and under the two-session system. Though this unfortunate condition of things was foreseen, it did not appear wise for

the board to take steps towards a new High-school building while the proposed school building at South Medford was still problematical. A new High-school building cannot longer be delayed. Time will be needed in the preliminary steps, and much time in the erection of the building; and before it is finished we shall be sadly in need of the present building for lower grades.

Early in the year the board selected a lot on Harvard street, South Medford, for a new schoolhouse, but owing to the difficulty of securing money in the summer, and the death of the owner in September, the deed was not obtained till December. For some time there has been an overflow school in the basement of the Marion-street chapel, a room unfitted in every way for school purposes. In April a second overflow school was opened in the audience room of the same chapel, a room also unsuited. Fifty-six scholars in another room, and the large number of new houses at South Medford, indicate that the problem cannot be solved until the board receives the proposed new building ready for occupancy. During the coming year it may be necessary to divide some of the classes into two sections, one attending in the forenoon and the other in the afternoon.

The evening school has met with unprecedented success. Forty-six scholars petitioned that it be kept open another month, but on account of the lack of funds it was deemed necessary to close it January 31. As it was, some of the expenses were paid from the contingent appropriation, a measure justifiable in view of the success of the school. After the experience of this year the evening school should become a valuable feature of our school system.

The introduction of new studies into the grammar-school course has been the most important feature of the year's

work, — physical geography, civil government, algebra, and geometry. The Superintendent in his report to the board enlarges upon this subject, and emphasizes the success of the new movement. It is hoped that the scholars who go to the High school will be made by this new work more self-reliant, and therefore more successful, and that those who do not go to the High school (about 30 per cent) will be sent out into the world with a broader education. Political geography can be easily curtailed in favor of the more profitable and interesting physical geography and civil government, and mathematical ability can be developed by elementary algebra and geometry better than by countless tiresome arithmetical examples never solved outside of school.

On account of having no room in which to open a kindergarten, the appropriation remains unused. Although experience elsewhere has proved that kindergarten methods are the best for little children, yet it seems unwise for us to open such schools until we can do so under favorable circumstances. Until, therefore, suitable schoolrooms are available, the money is not likely to be used.

The schoolroom for manual training in the Washington building is ready for the teacher, and an appropriation is now awaited with which to commence work. It should be borne in mind that such a school does not pretend to turn out finished carpenters, — that is the work of the industrial school, — but to teach boys to use their hands, and thus enable them to fit themselves more quickly and easily for any trade. Moreover, experience proves that manual training is a valuable means toward mental development.

By far the most important consideration should be the physical condition of the child. Until this year little attention has been paid to this important subject, but in April last the Ling system of physical exercises was introduced.

Besides benefit to the individual child, better discipline and more efficient work may be noted. More valuable results would undoubtedly be obtained from the intelligent supervision of a special instructor in physical culture.

The year's work in military drill in the High school has been very satisfactory. The most important new feature was the introduction of the setting-up exercises into the daily program; the boys believe in it, and better form is evident as a result. Another important move was the institution of a field day at home. The setting-up exercises, company drills, athletic sports, dinner, battalion drill, and dress parade rendered the day profitable and very enjoyable, — a red-letter day to the boys. Mention may also be made of the creditable appearance of the cadets at the prize drill. Eighty of the rifles are muzzle-loaders, old-fashioned and unsafe, — the guns bought cheap by the cadets themselves when drill was first introduced several years ago. They ought to be exchanged for suitable breech-loaders of approved pattern.

Probably never before in the history of education has more intelligent effort been directed toward the solution of educational problems than at the present day. Medford should keep up with the times, and incorporate into her system all new features as soon as experience in other places proves them valuable and successful. For this reason, as well as for others too patent to need mention, we should not crowd our schoolrooms with fifty to sixty pupils. Bearing in mind, of course, the financial welfare of the city, we must ask for new buildings of modern construction to keep pace with the increase of population.

Taking all things into consideration, the citizens may

well congratulate themselves upon the efficient condition of the school department.

Respectfully submitted,

ROSEWELL B. LAWRENCE.
CHARLES N. JONES.
FREDERIC H. KIDDER.
SIDNEY GLEASON.
BENJAMIN A. DEAN.
AUGUSTA R. CROSBY.
AMANDA H. PLUMMER.
GEORGE E. DAVENPORT.
GUSTAVUS F. GUILD.

APPROPRIATIONS RECOMMENDED BY THE
SCHOOL COMMITTEE FOR 1894.

Teachers' salaries	\$38,930	
New teacher for Washington grammar school (Swan bldg.)	300	
New teachers for Tufts school .	500	
	<hr/>	\$39,730
Janitors' salaries	\$3,325	
Increase for new schoolhouse .	125	
	<hr/>	3,450
Fuel		5,000
Water		800
Text books and supplies		3,500
Contingent		4,900
Transportation		600
Evening schools		700
Military instruction		150
Military equipment, changing muzzle- breach-loading rifles		500

Manual training	\$1,000
Kindergarten instruction	500
Physical-culture instruction	700
Cooking school	500
Repairs at Osgood school (new furnace and new sanitary arrangements)	500
Superintendence	2,000
Total	<u>\$64,530</u>

STATISTICS.—PUBLIC DAY SCHOOLS.

Whole number of different pupils enrolled during the year: 1349 boys, 1368 girls; total, 2717.

SCHOOLS.	Average membership.	Average attendance.	No. of cases of tardiness.	No. of dismissals.	No. of half days of truancy.
High	213.9	208.8	41	263	
Washington	311.2	291.5	103	684	19
Brooks	195.7	184.6	169	328	10
Cradock	214.1	196.1	302	244	19
Tufts	270.4	252.8	313	279	28
Osgood	66.7	57.9	116	146	7
Cummings	77.7	72.8	79	66	
Curtis	81.1	75.7	33	35	2
Everett	184.6	173.1	72	113	18
Gleason	84.5	79.3	67	89	
Hall	81.2	75.1	150	199	
Hervey	92.	82.5	162	69	1
James	130.3	122.9	110	61	3
Swan	144.6	133.2	91	161	
Totals	2,148.	2,006.3	1,808	2,737	107
Per cent of attendance	93.4+				

NAMES OF PRESENT TEACHERS AND THEIR GRADES,
FEBRUARY 1, 1894.

Schools.	Teachers.	Grades.
High :	Lorin L. Dame, Principal.	
	Leonard J. Manning, Sub-Master.	
	Caroline E. Swift.	
	Genevieve Sargent.	
	Josephine E. Bruce.	
	P. T. Campbell.	
	Walter H. Cushing.	
	Marion Nottage.	
Washington :	Benjamin F. Morrison, Prin.	IX.
	Emma F. Gill.	IX. and VIII.
	Winifred L. Evans.	VIII.
	Ellen A. Sills.	VIII. and VII.
	Martha E. Hayes.	VII. and VI.
	Annie E. Durgin.	VI.
Brooks :	Lewis F. Hobbs, Prin.	IX.
	Gertrude S. Light.	VIII.
	Harriet E. Brooks.	VII.
	Mabel L. Thayer.	VI.
Cradock :	George W. Parsons, Prin.	IX. and VIII.
	Mary E. Crowley,	VII.
	Mary L. Cotton.	VI. and V.
	Mary L. Howard.	IV. and III.
	Jennie W. Waterman.	II. and I.
Tufts :	Henry B. Doland, Prin.	IX. and VIII.
	Ellen R. Sampson.	VII. and VI.
	Helen M. Johnson.	V. and IV.

Tufts :	Flora I. Towle.	IV. and III.
	Alice G. Hosmer.	III. and II.
	Rose A. Plunkett.	I.
Osgood :	Louise W. Lasell, Prin.	VII., VI., V. and IV.
	Emma A. Davis.	III., II., and I.
Cummings :	Elizabeth R. Carty, Prin.	V., IV., and III.
	Katharine J. FitzGibbon.	III., II., and I.
Curtis :	Amy W. Jones, Prin.	III. and II.
	Laura W. Davenport.	I.
Everett :	Ida L. Hartshorn, Prin.	V.
	Jessie M. Dinsmore.	IV.
	Adelaide S. Herriott.	III. and II.
	C. May Holland.	I.
Gleason :	Alice F. Wilbur, Prin.	V. and IV.
	Catherine W. Billings.	III., II., and I.
Hall :	Ella L. Alden, Prin.	V.
	Ellen M. Lane.	IV.
Hervey :	Elizabeth A. Lufkin, Prin.	III. and II.
	Helen G. Fyre.	I.
James :	Ella A. Leighton, Prin.	V. and IV.
	Marietta T. Fernald.	III. and II.
	Hetty F. Wait.	I.
Swan :	Anna M. Plunkett, Prin.	V. and IV.

Swan :	Alice C. Reed.	III. and II.
	Jennie S. Archibald.	I.

SPECIAL TEACHERS.

Music . . .	S. Henry Hadley, Elizabeth H. Dunham.
Drawing . . .	Louise McLeod.
Sewing . . .	Fannie G. Huntington.

REPORT OF THE SUPERINTENDENT OF
SCHOOLS.

JANUARY 30, 1894.

To the School Committee of Medford, Ladies and Gentlemen:

The following report of the Superintendent is respectfully submitted:—

I. POPULATION.

1893, estimated	13,000
Number of persons between 5 and 15 years of age, 1892	1,949
Number of persons between 5 and 15 years of age, 1893	1,972
Increase, 1893	23

II. SCHOOLS.

High school	1
Grammar schools	2
Grammar and primary	9
Primary	3
Total	15

III. SCHOOLHOUSES.

High	1
Grammar	2
Grammar and primary	9
Primary	2
Rented (rooms)	2
	<hr/>
Total	16

IV. TEACHERS.

Number of teachers in High school (male 4; female 4)	8
Grammar schools (masters 4), assistants IV. to IX., inclusive (12)	16
Grades IV. and V.	11
Grades I., II., and III.	16
	<hr/>
Total regular teachers	51

Increase of 3.

Special teachers: music 2; drawing 1; sewing 1. Total	4
Evening schools	6
Assistants in primary	1
	<hr/>
Total	62

V. PUPILS.

Number enrolled, 1893	2,717
Number enrolled, 1892	2,583
Increase, 1893	134
Average number belonging, 1893	2,148

Average number belonging, 1892	2,065.3
Increase, 1893	82.7
Average daily attendance, 1893	2,006.3
Average daily attendance, 1892	1,929.2
Increase, 1893	77.1
Per cent attendance, 1892	93.4+
Per cent attendance, 1893	93.4+
Number half-days' truancy, 1892	105
Number half-days' truancy, 1893	107
Number different truants, 1893	62
Number habitual truants, 1893	2

ATTENDANCE.

The school statistics of Medford are as satisfactory in form as any that come under my observation. School statistics in general are so over-compiled as to give little information as to the actual status of the schools. It is clearly absurd to give only the average or per cent attendance of the whole number belonging in the aggregate alone, since attendance of the primary grades ought to be lower than for higher grades.

Therefore the secretary's table giving the attendance for each school is clear and definite, and, taken with the Superintendent's tables of number of pupils in each grade by ages, makes as clear and full a showing of the actual condition of the schools as can be desired. While a high per cent of attendance is desirable, that alone does not determine the true character of a school, and yet pupils not in attendance cannot do properly the work of their grade.

The matter of truancy is not yet placed upon an efficient basis, and deserves further consideration by the board.

Truant boxes should be placed in proper position, and be visited at least twice a day by the officer of the district.

Truant officers ought to wear the badge of their office as well as the uniform of regular police, and be in reality a terror to evil-doers.

CHANGES.

Fortunately we have had but few changes during the year, and three additions to the number of teachers.

In the Brooks school, Miss Mabel L. Thayer of New Ipswich, N.H., who was highly recommended for the position, was elected to the 6th grade in place of Miss Thompson, resigned. Miss Thayer has managed her class with good judgment, and has succeeded in making her pupils interested in their work.

In the Cradock, Miss Mary E. Crowley was elected to the position vacated by resignation of Miss Tufts, and is giving great satisfaction.

In the Tufts district it was found necessary to open a new school for the primary pupils, and another room was secured in the Marion-street chapel. A 2d and 3d grade were placed in charge of Miss Alice G. Hosmer, who had had successful experience in similar work elsewhere, and is giving entire satisfaction.

In the James it was found necessary to make room for another school, and the primary room was by partition made into two, Miss Wait retaining the 1st grade and Mrs. Marietta T. Fernald, a lady most favorably known as a teacher in Medford, was put in charge of the 2d and 3d grades.

In the Washington school, Miss Ellen A. Sills takes the place of Miss Hanson, resigned, and is doing excellent work.

In the High school an important change has been made.

The number of assistants was increased by the election of Mr. Walter H. Cushing, and Mr. P. T. Campbell was elected to the vacancy caused by the decease of Miss Whitcomb.

Mr. Cushing was well known to the board, and has great enthusiasm for his work, imparting the same to his classes. Both he and Mr. Campbell graduated from Harvard with honors, and give promise of great success in their chosen field of labor. It is believed both appointments will give strength to the teaching force of the school.

COURSE OF STUDY.

The several important changes in the course of study beginning in September, 1893, have been very successfully carried forward thus far.

Physical geography and civil government in the 9th grade, geometry in the 6th, 7th, and 8th, algebra and physics in the 9th.

It is thought by some of the masters that the text-book in physical geography is not the best for the 9th grade, while the subject is found useful and interesting. A year's experience may remedy that. There is no doubt of the ability of the pupils to grapple with the study profitably.

Geometry has proved to be one of the most interesting of all the studies pursued; one teacher of the 8th grade saying that she gave a lesson in geometry as a reward for learning an important arithmetic lesson well, and that pupils did not watch the clock for moment of dismissal when the lesson was geometry. Nothing could be more conclusive of their delight with the study.

The lessons in geometry have been prepared especially for the teachers by the Superintendent, and receive their

commendation. Geometry divides the time with arithmetic 3 to 2 or 4 to 1 — and should not be allowed to crowd the program — as an addition to the former arithmetical work, which was unnecessarily excessive. It has been necessary in some instances to call the attention of teachers to the above; and masters should see to it that the time is properly divided, and that the time given to geometry and arithmetic equals only the time formerly given to arithmetic. But teachers are slow to believe that pupils can do more and better work with the arithmetic if geometry takes any of the time. Time alone will convince them of their error. Not a word of dissatisfaction has been heard from teacher, pupil, or parent on account of the new studies, geometry or algebra.

In algebra the success has been gratifying. The greatest enthusiasm is expressed by pupils for this branch. Of course there will be a small contingent who do not readily master the general notions of algebra, but that is no reason why the great majority should not receive, as early as possible, the benefits from its methods.

The text-book used in the 9th grade is the same as is used in the High school. There is no objection at all to the use of such a book, if it is used with judgment, leaving out all superfluous work of difficult examples. Even primary algebras contain chapters and examples to be omitted on first perusal of the book, or by portions of the class. But, in the minds of some, perfect work is not being done unless every pupil and every school does exactly the same work. This is not nature, and it is not a possible education. It is sheer delusion. All children cannot do the same work in algebra, or anything else for that matter, in the same time or at the same age. The object in studying algebra is to learn its language and

methods, not to solve all the intricate problems and mathematical riddles that can be invented.

For a beginning, the work has been generally satisfactory; the experience of one year will aid greatly in making selections of work to be done. Thus far the work in algebra, geometry, and physical geography has proved very satisfactory.

The work in physics has not yet been commenced. It is to be immediately taken up, now that other subjects have received due attention; and the apparatus necessary for the elementary work contemplated will soon be given to each school. There is no room to doubt of the success of attention to this part of the program.

The complete success of the new departure by the board can safely be predicted. The cordial co-operation of all teachers of the grammar grades assures it.

MANUAL TRAINING.

It is a great relief to feel that in this report the question of the importance of manual training is not to be argued.

It has not only passed beyond that stage here in Medford, but almost everywhere else; and the only question now is, how can it be done, how can it be introduced into school work so as to increase the efficiency of the schools, and with proper economy.

An excellent room for carpentry has been fitted up in the Washington schoolhouse, and work will soon begin there.

In my judgment, it should interfere as little as possible with the regular school work. Pupils from the 8th and 9th grades can well afford to give an extra hour or an hour and a half once a week to learning the use of tools and the elements of carpentry as now practised.

To learn to saw to a line, plane, and make mortise and tenon are the objects of drill, — not simply to make something. The work mentioned is difficult of accomplishment by the average carpenter, and requires no little skill and labor.

However simple the work to be done, it should be done from a working plan made by the pupil in every instance. To keep the tools in order, use the try-square: all are important points in the pupil's education.

The two hours given to a lesson should be as orderly as the day school, and should extend from 3 to 5 p.m. Records of punctuality and attendance should be the conditions of membership.

Sewing has made its way thus far on its merits: it only remains to carry it through the 9th grade, including cutting and fitting.

But, as has been said before in my reports, the manual training that surpasses all others in importance and in the value of its educational points, properly conducted, is the cooking school. That good cooking may not become a lost art, or be monopolized by professionals, the art and science of cooking must be taught in the school.

THE KINDERGARTEN.

It is greatly to be regretted that the difficulty of obtaining a suitable room prevented the opening of a kindergarten, for which appropriation was made.

No money expended for the child's education is more profitably expended than that for kindergarten training, even if he graduates finally at the university. Medford would find it a matter of economy to establish at least five, — one in Glenwood district, one in Curtis and Everett district, one in the Cradock district, one at South Medford, and one at West Medford, — at a cost of \$2500.

At any rate, the establishment of one will make way for all the others.

EVENING SCHOOL.

The evening school has been exceptionally successful, due to the devotion of the special committee and the generous aid of the board.

Fortunate at the start in securing the services of a thoroughly competent principal in Mr. Speare, and giving him assistants interested in and well qualified for their work, the cordial sympathy and co-operation of the committee, the large number in attendance, all conspired to insure success; and, beyond question, the result obtained for once at least has justified the expense.

Reference to the report of Mr. Speare will give more fully the work of the school, and useful hints for any future organization of an evening school.

Special attention is called to the very able report of the committee in charge of the school, Mr. Davenport.

GRAMMAR SCHOOLS.

It is fully believed by the Superintendent that the changes made by the board in the work of the grammar school will be cordially welcomed by teachers and pupils by the end of the school year.

The work in physics has not yet had trial, but it will undoubtedly be the most welcome, as most constantly practical, of the subjects taught. In view of the time absolutely necessary to be given by the teacher to preparation of work in nature studies to make them profitable, and the importance of geography, in which much good work is being done, it is recommended for your consideration that in the grammar schools a partial departmental system be required. A single teacher of geography on the

same floor or in the building would give relief to teachers in their work and greater efficiency in all the work done. The same would be true in arithmetic and language and history. If not required, at least permission for such division of labor could safely be granted.

Again I would recommend, as in former reports, that pupils of early mental development, good health, and wishing to do more than the regular program — and at least half of the class are able to do so — be allowed to elect the study of another language, either French or Latin, in the 8th and 9th grades, and that without regard to the question whether they propose to continue their studies in the High school or not. The studies already introduced require no additional time. Time for the electives can easily be found. The study of another language is indispensable to a good understanding of one's own language. So a part of the time given to language by the electives could most profitably be given to the study of French or Latin. If their aim is to prepare for college in the High school, they cannot begin the elements of either language too soon, if they are allowed to begin in the 8th year — undoubtedly the 6th or 7th would be still better — but the 8th and 9th would be a good place to begin the trial.

DISCIPLINE.

All must admit that to develop character is the highest aim of our schools. But how this shall be done is the largest and most important question with which we have to deal.

Next to doing nothing, if not worse, is an elaborate system of checks and punishments for trifling infringements of a code of proprieties that does violence to the pupil's common sense of right and justice.

Next to this comes an unfortunate espionage upon every

act of the pupil, showing a keen distrust of his motives, and depriving him of that freedom of action that can alone lead to the development of the highest individual character.

Above all, nothing is more reprehensible in a teacher than favoritism or partiality, not merely from its injustice to others, but on account of the utter inability of such a teacher to exert any influence in the right direction, by any precepts however good, while the unconscious tuition upon childhood and youth is bad, and only bad.

Teachers with high ideals sometimes forget that it is not the school, but the child, that is to be made perfect. So that thoughtless acts of childhood are often magnified into great sins or crimes against the school, the idol of the teacher.

There is need of deeper study of childhood, a profounder respect for its rights, a greater devotion to the particular interests of the individual.

The assumption of good intentions is always a safe one in dealing with children, and when the opposite assumption is made, there is slight opportunity for progress in right doing. The environment of the troublesome pupil should be carefully scrutinized, and often it will be found that he is only acting under forces he cannot control, and is not perversely, consciously, striving to do the wrong thing.

Absolute sincerity, impartiality, and scrupulous honesty in dealing with childhood and youth cannot fail to make profound and permanent impressions of the highest value upon the character. Without these, all rules of conduct and moral precepts from the teacher are without influence.

Instead of weeding out troublesome pupils, driving them from school, unless positively vicious, to make the school easier of management, the last effort should be made to make the child a worthy member of the school.

Punishments and unsympathetic treatment, sarcasm and ridicule, cannot develop the refractory child into a lovable character, or make a future good citizen of him. Yielding to superior force, whether physical, or the fear of loss of position or rank, is not true development of character.

HIGH SCHOOL.

The organization and work of the High school have made marked improvement. With increased numbers and teaching-force, the work has been carried forward with greater advantage than was before possible. With better accommodations for the large number of pupils now in school and aiming therefor, there is possible a still further simplification of courses, and a greater economy of teaching-force.

The necessary work of so large a school in physics and chemistry is more than one teacher can do well, with all his time given to them alone. With working laboratories of modern construction, suitable size and appointments, the work could be greatly facilitated.

The medal awarded the High school for its work sent to the Columbian Exposition is a very gratifying reward to the principal and to the board. It is a certificate of the high order of work accomplished by the school in that department, of which the citizens were already cognizant.

In the death of Miss Teele, the school has suffered a severe loss, and the committee fully realize the difficulty they will have to supply her place. Enthusiastic in her work, and especially well qualified for it, it was not a difficult task for her to awaken a corresponding enthusiasm in her pupils.

NAMES OF GRADUATES.

Four Years' Course.

Ralph Norman Begien.
Daniel Francis Crowley.

Grace Geneva Decker.
Florence Gertrude Dyer.

Arthur Emerson Franklin.
 Walter Davis Hall.
 Frederick William Hannah.
 Benjamin Foster Jacobs, Jr.
 Edgar Winsor Mansfield.
 Charles Church Marvel.
 James Edgar Perry.*
 Winthrop Warner White.
 Edith Eliza Allen.
 Louise Russell Atwood.
 Emily Gilmour Babb.
 Bessie Whidden Chipman.

Mary Augusta Earl.
 Grace Isabelle Fuller.
 Clara Wild Goodwin.
 Grace Lincoln Grover.
 Florence TenEyck Hall.
 Halcyon Nichols Hartshorn.
 Alice Josephine Kennedy.
 Grace Harvey Lane.
 Annie Flora Moreton.
 Katherine Mary Reilly.
 Margaret Tyacke.

Three Years' Course.

James Malcolm Blackmer.
 Charles Brooks Clark.
 William Warren Clark.
 Worthington Cornell.
 Morton Everett Cummings.
 John Walter Emery.
 Robert Fletcher Rogers.
 George Henry St. Dennis.
 Louella Dorr Drew.*

Ida Cornelia Hall.*
 Jane Mary Hammond.
 Eda Elizabeth Angela Leary.
 Mary Mitchell.
 Mary Neilan.
 Grace Parker Prescott.
 Annie Maude Redding.
 Daisy Rita Sanborn.
 Mary Annie Whitehead.

IN CONCLUSION.

The work of the year, since September, has been satisfactory, marking, as it does, a notable era in the school life of Medford. The new branches have infused a new spirit into the work, and no word but of commendation has come to the Superintendent from pupil and parent.

A good beginning has been made, and a correct understanding of what has been done, endorsed as it is by the foremost educators of this and other countries, will create a public opinion that will demand still further improvement in the schools, and that they be kept in the front ranks of progress.

Respectfully submitted,
 E. HUNT,
Superintendent.

* In partial course.

TABLE I.
AGES OF PUPILS BY GRADES, SEPTEMBER, 1893.

Years	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Totals.
Grade I.	134	121	40	12	3	1									311
" II.		56	101	45	14	1									217
" III.		4	52	82	45	16	13	3	4						219
" IV.			13	65	98	47	33	14	1						271
" V.				3	40	77	56	30	8	2					216
" VI.					6	32	66	57	20	9	1				191
" VII.						5	17	55	50	31	10	1			169
" VIII.							12	44	84	39	19	8			206
" IX.							1	7	35	63	57	14			177
" X.									6	19	42	36	11	2	116
" XI.										6	23	23	17	1	70
" XII. } High School										1	2	20	15	10	48
" XIII. }											1	2	4	1	8
" XIV. }												1	3		4
Totals	134	181	206	207	206	179	198	210	208	170	155	105	50	14	2,223

TABLES II. AND III.
NUMBER BY AGES AND NUMBER BY GRADES.

Grades	PRIMARY.			GRAMMAR.						HIGH.					Totals
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
September . 1889	298	176	185	212	203	193	193	138	89	57	32	30	16	7	1,829
September . 1890	284	204	215	192	207	188	184	173	148	49	37	45	25	3	1,944
September . 1891	270	207	227	238	191	179	180	175	156	107	36	42	18	4	2,030
September . 1892	341	206	247	247	191	188	206	184	150	103	66	28	26	1	2,184
September . 1893	311	217	219	271	216	191	169	206	177	116	70	48	8	4	2,223

Ages	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20 yrs.	Totals
September . 1889	117	159	177	179	189	175	179	167	162	130	93	61	27	11	3			1,829
September . 1890	105	160	182	170	185	187	166	167	160	165	134	80	58	15	3	1	1,944
September . 1891	105	174	178	192	212	201	183	157	159	149	141	88	55	27	5		2,030
September . 1892	131	180	149	163	252	215	220	225	187	157	123	83	63	23	13		2,184
September . 1893	134	181	206	207	206	179	198	210	208	170	155	105	50	14			2,223

Ages are taken from half to half year; i.e., 6 years 6 months to 7.5 are called 7.

EVENING SCHOOL.

MEDFORD, Mass., January 29, 1894.

To the Superintendent of Schools :

Dear Sir, — The Medford evening school opened October 16, 1893, with a corps of six teachers and seventy-seven pupils.

During the term 150 names were enrolled, the average attendance for each month being as follows : —

October, ninety-two ; November, seventy-three ; December, forty-eight.

The largest number present on any one evening was one hundred and seven on October 25, and the smallest number thirty-five on December 15.

The school closed its first term of ten weeks December 22, with an average attendance of seventy, and this average would have been larger but for the circulation and publication of a false report that there would be no school on the nights before and after Thanksgiving.

To those familiar with the school and its work the past term has been one of great satisfaction. The deportment has been excellent, the attendance large and regular in spite of bad storms and extreme cold, and the spirit of earnestness and desire to learn, coupled with the cordial relations existing between the teachers and pupils, has made the work one of pleasure and profit.

The work of the several classes has been regular and progressive, the elementary section having covered much of the ground in the grammar-school course.

The work of the drawing class was particularly good so far as it went, but the difficulty of an adult working to advantage in the cramped position of a seat and desk used by school children discouraged many in this class and

caused them to drop out of the class. Some better provision should, and no doubt will be, made for this work another season, as it is likely to become one of the most useful and important parts of evening-school work.

The pupils in the shorthand class are now able to write from dictation, and read with considerable rapidity.

The bookkeeping class has taken both single and double entry, as well as commercial arithmetic, and we feel that each pupil who has been regular in attendance has acquired much knowledge of a useful character.

The introduction of weekly hour talks on physics was introduced into the general school work as an experiment, and at first the whole school was required to attend them; but as it was found that many of the pupils preferred to continue their regular studies, attendance on the lectures was made optional; but even then more than one half of the pupils continued to attend the lectures regularly as long as they lasted. These talks were under the direction of Mr. Clark, who is deserving of much praise for his earnest efforts to make them interesting and successful.

In closing, allow me in behalf of the school to thank the city and members of the school department for the many kindnesses extended to us the past year.

Trusting that another year may see a larger and stronger school established giving a course much more extended than it has been possible to give the past year, I remain

Respectfully,

F. P. SPEARE,

Principal.

SUPPLEMENTARY REPORT ON THE EVENING
SCHOOL.

Dr. E. HUNT,

Superintendent of Schools :

Dear Sir, — As the report of the principal of the evening school covers only the period of the first term of the school, which closed December 22d, I submit the following supplementary report for January: —

The special committee having the evening-school work in charge fully expected that it would be necessary to close the school in December for want of means to continue it longer; but as a large majority of the pupils were anxious to keep on, the school board felt justified in providing assistance from its contingent fund, and the committee was thus enabled to continue the school through the month of January. It being necessary to curtail expenses somewhat, the corps of teachers was reduced from 6 to 4, and the second term opened January 3 with an attendance of 44, and closed January 31 with an attendance of 31, the average attendance for the month being 33. This average would have been larger but for the severity of the storm on the 29th, which prevented those living at a distance from attending.

It would take up too much time and space to discuss the various causes which made the number in the second term smaller than in the first, but to my personal knowledge in many cases it was from unavoidable causes, and several pupils expressed to me their regrets at being obliged to give up. There was, however, a sufficient number to make the monthly record equal to that of any previous school at its best, and a comparison of the names on the petition which the pupils presented to the school board asking for a still further continuance of the school through February, with

the register, shows that 37 out of the 46 signers had attended the school from the very beginning, a period of 14½ weeks, or 43 nights, and for those 43 nights the total average attendance has been 58.

I herewith submit some appended tables showing detailed record of the school, and take advantage of this opportunity to bear witness to the efficiency of the teachers and the very cordial relations which have existed between them and their pupils, and so enabled them to accomplish the good work which they have done, and to add a few words in behalf of the school itself.

The existence of an evening school is to be justified just in the proportion to the benefit which it confers upon those who attend it, and upon the community in which it exists. If it fails to benefit those who attend, the fact will speedily manifest itself in an early disintegration of the school, and the community will very soon be made aware of the result.

Judged by this criterion, our evening school may be said to have taken a very decided step forward in the direction of what an evening school should be, and it now needs only the fostering encouragement and substantial financial support of the city to make of it an important and permanently valuable feature of our educational system.

It cannot be doubted but that the evening schools in the city of Boston are rapidly becoming tremendous forces, destined to exert a powerful moral influence in moulding the character of her citizens.

Large numbers of young men and women who from various causes have been deprived of the advantages of day-school education, or who have been driven by their necessities into the industrial ranks before their day schooling was half completed, are receiving from the evening schools a training that cannot be otherwise than felt through all of

our social and political organizations, to the betterment of them both.

Some of the wisest and therefore best of our thinkers are of the opinion that the evening school is far more reaching in its result, and destined to wield a greater and more potent influence, than the day school, from the very fact that it is brought to bear upon so large a number of industrial workers at a time when without it their unemployed leisure might be misdirected into channels positively harmful to our social organism.

In a city like Medford, now happily free from much of the prevailing social disturbances going on all about us, the necessity for such precautionary educational movements does not at first manifest itself; but if one will but consider the inevitable growth of the new city's future, and the fact that every year a large per cent of our boys and girls drop out of our schools after graduating from the grammar schools, and that with the growth of the city there is likely to come an increasing influx of illiterate elements, the wisdom of establishing upon a sound permanent basis evening school instruction will be manifest, and it will need no argument to show that it is the duty of every community to maintain such instructions for its own protection.

On behalf of the evening school committee, I am,

Very respectfully yours,

GEORGE E. DAVENPORT,

Chairman.

DETAILED RECORD OF THE EVENING SCHOOL FOR THE WINTER OF 1893-'94.

TEACHERS.

<i>Principal:</i>	Frank P. Speare	.	.	Full term.
<i>Assistants:</i>	J. C. D. Clark	to	.	December 22.

Charles R. Gow to . . .	January 12.
Miss Annie Nielan . . .	Full term.
Miss Ella D. Gray to . . .	December 22.
Miss Alice Davenport . . .	Full term.

School opened October, 1893, and closed January 31, 1894, a period of $14\frac{1}{3}$ weeks or 43 nights.

ATTENDANCE.

Oct.	16	77	Nov. 15	65	Dec. 15	35
"	18	89	" 17	65	" 18	47
"	20	90	" 20	74	" 20	50
"	23	82	" 22	66	" 22	38
"	25	107	" 24	69	Jan. 3	44
"	27	99	" 27	60	" 5	36
"	30	101	" 29	40	" 8	36
Nov.	1	98	Dec. 1	49	" 10	29
					" 12	33
"	3	100	" 4	63	" 15	38
					" 17	33
"	6	88	" 6	60	" 19	26
"	8	78	" 8	55	" 22	38
					" 24	33
"	10	76	" 11	51	" 26	31
					" 29	13
"	13	71	" 13	35	" 31	31

Total number enrolled, 150; total average, 58.

REPORT
OF THE
BOARD OF ASSESSORS.

Hon. SAMUEL C. LAWRENCE,
Mayor of the City of Medford.

Sir, — The Board of Assessors respectfully submit the following report: —

Total valuation, May 1, 1893	\$14,904,575 00
State tax	\$12,700 00
State tax, sewer	3,078 40
County tax	10,370 31
City tax	216,355 58
	<hr style="width: 100%;"/>
Total	\$242,504 29
Amount of poll taxes	\$7,012 00
Resident real estate tax	151,736 09
Resident personal tax	42,034 32
Non-resident real estate tax	40,701 19 $\frac{1}{2}$
Non-resident personal tax	1,020 68
Amount gained by fractions	00 $\frac{1}{2}$
	<hr style="width: 100%;"/>
Total	\$242,504 29
Rate per one thousand dollars	\$15 80
Number of residents as- sessed on property :	
Individuals	1,810
All others (firms and corporations)	82
	<hr style="width: 100%;"/>
Total	1,892
Number of non-residents assessed on property :	

Individuals	654	
All others (firms and corporations)	41	
	<hr/>	
Total		695
Number of persons assessed :		
On property	2,587	
For poll tax only	2,460	
	<hr/>	
Total		5,047
Number of male polls assessed		3,506
Tax on each male poll		\$2 00
Number of horses assessed		744
Number of cows assessed		283
Number of neat-cattle assessed		3
Number of swine		50
Number of dwelling houses		2,643
Number of acres of land		4,654
Total amount taxes committed to the Collector for collec- tion, including added and reassessed taxes		\$243,046 80.
Abated and exempted taxes :		
Real estate	\$647 01	
Personal estate	679 40	
	<hr/>	
Total		\$1,326 41
Appropriation for Assessors' expenses		850 00
Amount expended		737 85
Appropriation for plans, real estate		500 00
Amount expended		350 00
Appropriation for map of the city		500 00
[No expenditure.]		

JAMES A. HERVEY,
JOHN H. HOOPER,
HENRY WITHINGTON,
Assessors.

REPORT
OF THE
BOARD OF HEALTH.

MEDFORD, Mass., January 31, 1894.

To his Honor the Mayor :

We have the honor to transmit to you the following report of this board for the year 1893 : —

The health of the city has been, during the past year, rather better than the average. We have not suffered from any severe epidemic or endemic diseases, except measles, of which disease 300 cases, with one death, were reported. The number of typhoid fever cases was small, but the mortality very high, nearly 50 per cent. This is due probably to negligence in reporting cases, arising perhaps from the fact that we do not, as formerly, require that "health cards" be displayed on premises where this disease exists. The thorough sanitary precautions against cholera which were taken during the early part of the year had an undoubted influence in the general prevention of disease.

There have been 61 nuisances reported to this board during the year. All have been carefully investigated and abated.

An important and interesting matter came before the board during the past year, viz., the possible contamination of a public well on Mystic street by the building of a house on this street in near proximity to the well. Although the board deplored the possible loss of this supply

of excellent water, after careful investigation of the matter and consultation with several authorities, it could find no satisfactory way to avert the trouble.

There have been 383 permits issued during the year for keeping cows, pigs, school permits, removing night-soil, &c.

In each case of diphtheria, measles, scarlet fever, and typhoid fever the clerk has notified the School Committee and librarian of the Public Library. This alone requires a large amount of clerical work.

An ordinance regulating the manner in which plumbing shall be done has been adopted, and provisions made for the proper licensing of plumbers. We earnestly recommend that these regulations be enforced at an early period, and that for this purpose an Inspector of Plumbing be appointed. The combination of this office with that of the Health Inspector would seem an economical and wise action.

The work on our local sewage system should be pushed to completion as rapidly as possible, so that we may be rid of that increasing and menacing danger, the saturation of the ground with sewage. Since the collection of ashes, swill, and garbage has been under the direct care of the city, and the contract system abolished, the work has been done in a thorough, cleanly, and efficient manner, and the results are highly satisfactory to this board. With the same arguments we have used in the past, in favor of the collection by the city of ashes and swill, we would now earnestly recommend that night-soil be collected in same manner. Investigation of this matter convinces us that such action would give us far more satisfactory results, and prove more economical to the individual citizen.

Some years must elapse before the entire city can be served with sewers, and meanwhile this more business-like

method should be adopted in the interest of health and economy to our citizens.

The expense of this board for the year was. —

Salaries	\$750 00
General expenses	492 10
	<hr/>
	\$1,242 10

We recommend the appropriation of \$1250 for the use of this board for the ensuing year.

DEATHS FOR THE YEAR 1893.

DISEASE.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Accident			2				2	3		1	1		9
Asthma	1												1
Asphyxia		1											1
Abscess		1					1						4
Apoplexy			2		2		2		2				7
Bronchitis		2		3	1		1						6
Brain, softening of				1	1						1		2
Cancer	1		1	2	2	2		1			2	1	12
Convulsions, infantile				1	1				1				3
Cystitis				1								1	2
Coma						1							1
Cholera infantum							6	5	3	1	1	1	17
Diphtheria	1		1		2			2		1			7
Dementia			1										1
Dropsey												1	1
Diabetes malitis			1										1
Diarrhœal diseases							1	4	1				6
Gastritis								2	2				2
Heart disease		1	2	3	1	2	1	2	1	1			14
Hepatitis			1										1
Inanition					1					1	1		3
Laryngitis				2									2
Marasmus	2	1	1										5
Meningitis	2				1	1	1		2		1		8
Measles					1								1
Nephritis, chronic	1	1		1	1			1		5		2	12
Nephritis, acute		1											1
Œdema of brain	1												1
Old age	1	1	1		1				1			1	6
Phthisis	4	2	1		3	2	1		1			2	16
Pneumonia	3	1	1	5	4					1		2	17
Premature birth		1	1			1		2	1				6
Peritonitis		1						1		2			4
Rheumatism	2												2
Scarlet fever	1			1					1				5
Stillborn			2	1			1		1	1	1	1	9
Syphilis				1					2				1
Suicide					1								1
Tuberculosis			1	1				1			2	2	7
Tumor				1		1							2
Typhoid fever				1						2		3	6
Totals	20	12	20	21	26	10	17	24	16	17	11	19	213

ZYMOTIC DISEASES.

	Cases.	No. of Deaths.
Diphtheria	28	7
Measles	300	1
Scarlet fever	31	5
Typhoid fever	13	6
	372	19

All of which is respectfully submitted.

WALTER L. HALL.
WILLIAM P. CLARK.
JAMES E. CLEAVES.

REPORT
OF THE
PARK COMMISSIONERS.

PARK COMMISSION,
Medford, Mass., December 28, 1893.

To the Honorable Mayor and City Council :

Pursuant to section 6 of chapter xxiii. of the ordinances of the city of Medford, the Park Commission submit the following report : —

Immediately after their appointment the members of the commission met and organized by the election of J. Henry Norcross as chairman and Rosewell B. Lawrence as secretary. During the year the park ordinance was drawn at the request of the City Council, and the commission has recommended the taking or purchase of land on Otis street, under chapter 225 of the acts of 1893. The commission have as yet no accounts to present.

Respectfully submitted for the Park Commission,

ROSEWELL B. LAWRENCE,
Secretary.

REPORT
OF THE
TRUSTEES OF THE PUBLIC LIBRARY:

Hon. SAMUEL C. LAWRENCE,
Mayor of the City of Medford.

Sir, — The Trustees of the Public Library respectfully submit the following report:—

The library is in excellent condition, making due allowance for the wear of constant use, and no books have been lost during the past year. It will be seen by the accompanying report of the Librarian that 43,534 volumes were issued from the library during the year closing January 1, or an increase of nearly 2000 volumes over the circulation of the previous year. This statement does not include the use made of works of reference, books and periodicals, in the reading rooms, which are resorted to more and more by general readers and by those in search of special information.

The library now comprises 15,284 volumes. It has received many important additions during the past year, to some of which attention is called in the Librarian's report. No effort has been spared to make the collection of books of reference as complete as the means placed at the disposal of the Trustees will permit, and they are glad to say that no part of the library is more thoroughly utilized.

The Trustees recognize the successful exertions which have been made by the Librarian and her assistants to

further the wants of the scholars of our public schools and the members of our literary clubs. In many instances, special purchases of books have been made to meet the demands of these classes of readers, and much time has been devoted to investigations in matters submitted for information. Credit is also due to the officers of the library for the pains they are taking in directing the course of reading of the young people who apply for books, and who, without the aid thus given, would contract those habits of aimless and desultory reading which result in something little better than mental dissipation. As has been suggested in former reports, intelligent parents can do much to promote the higher usefulness of the library by helping their children in the wise selection of books.

We refer to the report of the Librarian, Miss M. E. Sargent, for details touching the condition and general management of the library.

REPORT OF THE LIBRARIAN.

To the Trustees of the Public Library.

Gentlemen, — The report of the Librarian upon the growth and statistics of the Public Library, with some suggestions looking to the enlargement of its usefulness, is herewith respectfully submitted.

The accessions by purchase, by gift, and by the binding of periodicals, have been about the same as last year, although the work of the library has been done under the disadvantage of overcrowded quarters, increased circulation, and the continuance of the reclassification. Of the important additions by purchase for the reference department are Green's "Short History of the English People,"

illustrated, 3 volumes; several works on the "World's Columbian Exposition;" Racinet's "L'Ornement Polychrome;" Michel's "Rembrandt," 2 volumes, and the "Dictionary of National Biography," 4 volumes, &c. For circulation among the more important accessions are "The World's Parliament of Religions," 2 volumes; Sir Walter Scott's "Waverley Novels," edited and annotated by Andrew Lang, 10 volumes; "The Lewis and Clark Expedition," edited by Elliott Coues, 4 volumes; Freeman's "History of Sicily," 2 volumes; Fergusson's "History of Modern Indian and Eastern Architecture," 4 volumes; Georgiana Hill's "History of English Dress," 2 volumes; Newhall's "Trees and Shrubs of Northeastern America," 2 volumes, &c.

The accession by gifts has been very gratifying. From Miss Agnes W. Lincoln, who noticed our call for periodicals, we have received volumes of "Atlantic Monthly," "Westminster Review," "Revue des Deux Mondes," &c., which have helped us much towards the completion of our sets. We have now by gift and purchase fifty volumes of "Revue des Deux Mondes," and very nearly a second complete set of the "Atlantic." It is quite as essential to have one set of each periodical for reference as for circulation. Mr. Horace D. Hall and Miss E. M. Gill have also contributed volumes of agricultural reports and other public documents. The young people have much appreciated the volumes of "St. Nicholas" donated by Master Archibald, although we have been obliged to make them reference books, as they are hard to replace. From Dr. G. W. Mills has been received "History of First Regiment Massachusetts Cavalry;" from Mr. F. T. Spinney, "The Story of our Post Office;" and from the Shakespeare Club we are to receive "Poet Lore." The list of gifts and donors will be found in the statistics following this report. I am

very sorry to have to report the mutilation of one or two volumes of magazines; and in this connection would urge the necessity of adopting a new method of charging the books for circulation so that such mutilation can be more readily and surely traced than with our present system. I would suggest the one in use at the Salem Public Library. This change would involve a re-registration, giving a new number to each patron of the library, — which in many libraries is considered very necessary, — every few years.

For the further accommodation of the public, the library is now open in the morning without any addition to the force of attendants, the attendant serving in the morning not being on duty in the afternoon until four o'clock. The library hours are now from 10 to 12 A.M., 2 to 6, and 7 to 9 P.M., daily, Sundays and legal holidays excepted.

The motto of the American Library Association, of which your librarian is a member, is, "The best reading for the largest number at the least cost;" and, following out that motto, it has seemed very essential to add as much as possible to the reference department for the students, to complete sets of periodicals, and to find the best in literature for the young people. Miss Hewins in her report upon "The Reading for the Young," at the Library Convention in Chicago, said, "Children in our schools keep a record of what they have read for six months, what books they like best, why they like them best, and what characters they have found in every book with whom they would like to make friends if they were living people." Besides supplying the books for distribution among the pupils by the teachers of the High school, we have endeavored as much as time would permit, to interest ourselves in the reading of the very young people who frequent our rooms. To avoid overcrowding the reading room, two tables were put in the delivery room, upon which were placed volumes

of St. Nicholas, and the most attractive and best of the new juvenile books. I found that, by talking with the children about some of the books, a desire to read them was created. My other duties, however, being too pressing for me to devote much time to this very important work, I have delegated it to Miss Brigham, who very kindly talks with the children two or three times a week. Through the kindness of Miss Sargent of the High school, Mr. Rosewell B. Lawrence was invited to address them, and gave a very interesting talk upon lumbering in Maine. Miss Darling has spoken once to them upon foreign countries, and Mr. James Herve upon a visit to the sources of the Rio Grande.

Besides the lists of additions that have generously been published for us in the "Medford Mercury," a "finding-list" has been issued, which embraces the accessions for the past three years, classified according to Cutter's "Expansive Classification." This classification is one of two which were used in the Model Library of 5000 volumes exhibited at the World's Fair at Chicago, since become the property of the Bureau of Education at Washington.

For the 306 days the library was open, 43,534 volumes were issued to borrowers for home use, a daily average of 143. These figures exceed that of last year by nearly 2000.

The books in the department of fiction have been collected, rearranged alphabetically according to authors, renumbered, and occupy two alcoves, to which the public have free access. Prof. Hosmer once said, "No American citizen is willing to admit that he can be served by an attendant better than he can be served by himself." Although it is not deemed expedient in many public libraries to grant this privilege, I have not yet discovered any disposition in this community to abuse it. All the additions of the past three years have also been classified,

catalogued, and arranged according to subjects. The literary periodicals are placed in the galleries. The classification of the remainder of the library will in all probability be completed the coming year, when the subject of a new catalogue, or finding-list, will have to be met.

The confusion consequent upon an attempt to rearrange and classify while the books are in circulation calls for a large amount of patience on the part of the community and the attendants. We truly feel that our patrons have been very kind and considerate, and I can with pleasure vouch for the pleasure, enthusiasm, and faithfulness of the attendants.

"Sir John Lubbock, a practical politician as well as a scientist, believes that money expended for free libraries is more than returned by the reduction in poor rates and police rates, and that it is more satisfactory to spend money on schools and books than on the prison and the work-house." In short, it is the almost universal opinion of those who give thought to the subject, that a free library is "just as indispensable to the mental health of a city as are its public parks, water supply, or sewers to its physical health."

In order to give emphasis to the importance of the preservation of town history, I quote from the last report of the Free Public Library Commission of Massachusetts:

"It is of the first importance that the free public library of every town should preserve every published detail of its history and of the lives of its citizens. It should become a treasure house for the local historian. With this end in view, great care should be taken to secure and preserve,—

1. All printed histories of the town and its locality, including all historical addresses or sketches of its churches, associations, or societies of whatever nature.

2. Complete sets of the annual reports of the Selectmen,

School Committee, and all other town officers. Few towns have preserved a complete set of their municipal reports.

3. Genealogies and family histories which relate to those who have been citizens of the town, including the preservation of biographical sketches and personal memorials in scrap books.

4. Files of all the newspapers published in the town, or of those published in the vicinity, containing a chronicle of the current events of the town.

5. All publications of natives or residents of the town, or of persons in any way identified with its history.

6. Prospectuses, programmes, and all transient publications which may be illustrative in any degree of the social, political, economical, or moral development of the people of the town.

7. Manuscript material, such as unpublished sermons or addresses, the records of societies, &c.

Members of the community could very much aid in this work by contributing any of the above-named as they have opportunity.

Respectfully submitted,

MARY E. SARGENT.

The following statistics are presented showing the accessions made to the library during the past year, circulation, &c. :—

Number of books in the library, Jan. 1, 1893	14,207
Number of book purchased in 1893	924
Number of books donated in 1893	181
	<hr/>
	15,312
Number worn out	28
	<hr/>
Number of books in library, Jan 1, 1894	15,284

Number of volumes issued for the year	43,534
Number of new cards given out for the year	1,170

LIST OF PERIODICALS IN READING ROOM.

American Architect.	Life.
Arena.	Medford City News (donated)
Art Amateur.	Medford Mercury (donated).
Art Interchange.	New England Magazine.
Atlantic.	Nineteenth Century.
Blackwood.	North American Review.
Century.	Patent Office Gaz. (donated).
Contemporary Review.	Popular Science Monthly.
Cornhill.	Publishers' Weekly.
Cosmopolitan.	Quarterly Illustrator.
Critic.	Quarterly Review.
Current Literature.	Review of Reviews.
Decorator and Furnisher.	Revue des Deux Mondes.
Edinburgh Review.	Saint Nicholas.
Engineering Magazine.	Science.
Engineering Record.	Scientific American.
Fortnightly Review.	Scribner.
Forum.	Season.
Harper's Monthly.	Somerville Journal (donated)
Harper's Weekly.	Spectator.
Harper's Young People.	Tuftonian (donated).
Johns Hopkins Univ. Studies.	Westminster Review.
Library Journal.	Youth's Companion.

DONATIONS TO MEDFORD PUBLIC LIBRARY,
1893.

	Books.	Pamphlets.	Periodicals.	
			Vols.	Nos.
Anonymous			1	
Bamburgh, W. C.	1			
Batchelder, F. E.	1	2		
Blanchard, Miss S. J.				6
Boston Manual Training Conf.		1		
Boston Metropolitan Park Com.		1		
Boston State Library	15	2		
Bradlee, Rev. C. D.	1			
Bridgewater Normal Association		1		
Bronson Library, Waterbury, Conn.		2		
Brookline, Mass., Public Library		1		
Brooklyn, N.Y., Library		1		
Concord, Mass., Public Library		1		
Corey, D. P., Malden	1			
Cutter, Mrs. C. A.	40			
Dame, L. L.		1		
Denver Public Library		2		
Everett Public Library		2		
French, Jonathan	1			
Friend	29			
Fuller, Mrs. S. E.	1			
Gill, Miss E. F.	18			
Hall, Horace D.	32			
Hill, N. P.	1			
Lancaster, Mass., Public Library		1		
Lawrence, Hon. S. C.	1			
Lincoln, Miss Agnes			52	50
Lynn, Mass., Public Library		1		
Malden Public Library		1		

184 REPORT OF TRUSTEES OF PUBLIC LIBRARY.

	Books.	Pamphlets.	Periodicals.	
			Vols.	Nos.
Mass. Char. Mech. Assoc.		1		
Mass. Sec. of Commonwealth	3			
Mass. Top. Sur. Com.	1			
Medford, City of	2			
Medford Public Domain Club	1			
Medford Shakespeare Club				4
Medford City News, paper from beginning.				
Medford High School, "The Review," 3 numbers.				3
Melrose Public Library		1		
Middlesex Mechanics' Assoc.	2			
Mills, Dr. G. W.	1			
Morse Institute, Natick		1		
North Adams Public Library		1		
Philadelphia City Institute		1		
Robinson, A. A.		1		
St. Louis Mer. Lib. Assoc.		1		
St. Louis Public Library		1		
Salisbury, Stephen	1			
Sargent, A. L.	1			
Sargent, M. E.		1		2
Somerville Public Library		1		
Spinney, F. T.	1			
Symmes, H. W.	1			
Tillinghast, C. B.		1		
Tufts College		2		6
U.S. Bureau of Education	2			
U.S. Dept. of Agriculture		1		
U.S. Dept. of Interior	3			
U.S. Dept. of Labor		4		
U.S. Dept. of State		3		
U.S. Fish Com.	2			

	Books.	Pamphlets.	Periodicals.	
			Vols.	Nos.
U.S. National Museum of				
Smithsonian Institution	2	8		
Smithsonian Institution	15			
University of Pennsylvania	1			
Watertown, Mass., Public Library		1		
	181	51	58	62

We submit the financial statement for the year :

RECEIPTS.

Appropriation for the library	\$3,500 00
Money received from the dog tax of 1892	1,295 54
Income of the Tufts fund	30 00
Income of the Osgood fund	120 57
	\$4,946 11

EXPENDITURES.

Books	\$1,167 28
Librarian's salary	1,000 00
Assistant librarians' salaries	838 00
Extra assistance	14 52
Gas, \$109.42; electricity, \$180.66	290 08
Ice, \$8.00; water, \$16.00	24 00
Janitor and care of grounds	144 05
Furniture, \$111.81; repairs, \$56.22	168 03
Printing catalogue, &c., \$300.55; expressage, \$22.35	322 90
Binding books, \$326.89; shelving, \$96.32	423 21
Postal cards, \$49.55; fuel, \$173.69	223 24
Care of buildings, \$55.00; advertising, \$12.00	67 00
Sundries, \$32.01; stationery, \$12.79	44 80
Magazine covers	25 25

Delivery of books at West Medford, \$80; Glenwood, \$35; Wellington, \$35; Hill- side, \$41	\$191 00
	<hr/>
	\$4,943 36
Balance unexpended Feb. 1, 1894	2 75
	<hr/>
	\$4,946 11

The Librarian has received the following sums: —

Cash unexpended Feb. 1, 1893	\$1 74
Cash for lost books	2 17
Cash for catalogues	7 15
Cash for fines	80 10
	<hr/>
Total	\$91 16

The expenditures have been as follows: —

Cleaning, \$41.14; incidentals, \$13.26; mes- senger, \$4.25; expressage, \$5.05; postage, \$6.88; books, \$5.50; extra help, \$14.72	90 80
	<hr/>
Balance unexpended	\$0 36

The trustees recommend an appropriation of \$3500 to meet the expenses of the library the ensuing year, and an appropriation of \$150 for a new furnace.

Respectfully submitted,

SAMUEL C. LAWRENCE,
HENRY C. DELONG,
JAMES A. HERVEY,

Trustees.

MEDFORD, February 1, 1894.

REPORT
OF THE
CITY COLLECTOR.

CITY HALL, MEDFORD.

Hon. SAMUEL C. LAWRENCE,
Mayor of the City of Medford.

Sir, — I respectfully submit the following report: —

TAXES OF 1891.

Uncollected Feb. 1, 1893 . . .	\$7,573 56	
Reassessed April 8, 1893 . . .	37	
Abatements paid by Treasurer . . .	2 92	
Error in list	10	
Paid Treasurer		\$7,430 15
Abated Oct. 6, 1893		146 80
	\$7,576 95	\$7,576 95

TAXES OF 1892.

Balance uncollected Feb. 1, 1893	\$28,932 33	
Reassessed since Feb. 1, 1893 . . .	209 79	
Abatements paid by Treasurer . . .	10 36	
Paid Treasurer		\$27,663 55
Abatements made April 8 to Dec. 30, 1893 (excepting Dec. 16, 1893)		358 38
Abatements made Dec. 16, 1893 . . .		1,130 55
	\$29,152 48	\$29,152 48

TAXES OF 1893.

State tax	\$12,700 00	
Metropolitan Sewage System	3,078 40	
County tax	10,370 31	
City tax	216,355 57½	
Reassessed	45 03	
Added taxes	493 48	
Abatements to Feb. 1, 1894		\$1,326 41
Cash paid Treasurer		200,131 22
Uncollected Feb. 1, 1894		41,585 16
		<hr/>
	\$243,042 79	\$243,042 79

INTEREST ACCOUNT.

Received on taxes of 1891 since Feb. 1, 1893	\$628 14	
Received on taxes of 1892 since Feb. 1, 1893	933 47	
Received on taxes of 1893 since Nov. 1, 1893	280 14	
Paid Treasurer		\$1,841 75
	<hr/>	<hr/>
	\$1,841 75	\$1,841 75

COSTS AND FEES COLLECTED.

On taxes of 1891 since Feb. 1, 1893	\$93 52	
On taxes of 1892 since Feb. 1, 1893	604 63	
On taxes of 1893 since Nov. 1, 1893	137 60	
Paid Treasurer		\$835 75
	<hr/>	<hr/>
	\$835 75	\$835 75

MISCELLANEOUS COLLECTIONS.

Sidewalks, ½ of cost	\$2,034 25
Highways, material sold	279 81

E. D. Holmes, court fees and fines	\$616 35
John M. Fisk, master house correction, fines and fees	165 00
R. B. Newcomb, sale of almshouse produce .	131 92
Traders & Mechanics Ins. Co., dividends .	25 00
C. H. Day, for advertising steam boiler .	4 25
Board of Health, fees for licenses granted .	20 00
J. W. Mann, for advertising steam boiler .	3 15
Malden Electric Co., for advertising hearing	2 50
Boston & Maine Railroad, collecting ashes .	2 00
Owen Coughlin, release of tax title	18 54
F. E. Chandler, collecting house offal	275 00
John O'Neil, release	2 00
E. D. Holmes, collected for street watering . .	268 50
Town of Randolph, aid furnished poor	6 00
Town of Methuen, aid furnished poor	7 23
City of Newburyport, aid furnished poor	19 00
W. P. Martin, guardian M. D. Parker (poor)	42 25
C. H. Clark, aid furnished poor	10 26
School department, for setting out trees	6 25
Medford Water Board, refund for amount re- ceived for fountain at West Medford	25 00
	<hr/>
	\$3,964 26

Sidewalk assessments uncollected \$898 69

Respectfully submitted,

EDWARD W. HAYES,

City Collector.

MEDFORD, February 1, 1894.

REPORT OF THE CITY CLERK.

Hon. SAMUEL C. LAWRENCE,
Mayor of the City of Medford.

Sir, — The following statistics compiled, from the official records of this department for the year 1893, are hereby respectfully submitted: —

BIRTHS.

Whole number of births		355
Increase over previous year		17
Number of males		196
Females		159
Males having native parents		77
Females having native parents		71
Males having foreign parents		80
Females having foreign parents		55
Males having native and foreign parents		39
Females having native and foreign parents		33
January, 26	May, 32	September, 21
February, 23	June, 35	October, 30
March, 35	July, 32	November, 24
April, 24	August, 37	December, 36

MARRIAGES.

Number of intentions filed	109
Decrease from previous year	15
Both parties residents of Medford	40
But one party resident of Medford	67
Neither party resident of Medford	2
Number of marriages registered	118
Decrease over previous year	5
Both parties natives of United States	65
Both parties natives of other countries	27
Native groom and foreign bride	11
Native bride and foreign groom	15
First marriage of	205
Second marriage of	30
Third marriage of	1
Age of oldest groom	77
Age of oldest bride	55
Age of youngest groom	19
Age of youngest bride	17

The registration shows that the marriages occurred by months as follows:—

January, 10	May, 10	September, 11
February, 5	June, 15	October, 16
March, 6	July, 5	November, 11
April, 14	August, 11	December, 4

DEATHS.

Number of deaths	225
Decrease from previous year	1
Number of males	106
Number of females	119
Deaths under one year of age	46

Deaths from 1 to 5 years of age	. . .	18
" 5 to 10 " "	. . .	11
" 10 to 20 " "	. . .	8
" 20 to 30 " "	. . .	15
" 30 to 40 " "	. . .	23
" 40 to 50 " "	. . .	17
" 50 to 60 " "	. . .	16
" 60 to 70 " "	. . .	33
" 70 to 80 " "	. . .	26
" 80 to 90 " "	. . .	9
" 90 to 100 " "	. . .	3
Age of oldest male	. . . . .	84
Age of oldest female	. . . . .	94
Number born in Medford	. . . . .	76
Number born in other places in United States		100
Number of foreign birth	. . . . .	49

The returns show the deaths by months to have been as follows :—

	M.	F.		M.	F.		M.	F.
January,	6	14	May,	12	14	September,	9	6
February,	4	10	June,	6	6	October,	10	9
March,	11	10	July,	12	5	November,	2	10
April,	14	7	August,	12	14	December,	8	14

The following is a statement of the number of assessed polls and the number of registered voters in each ward of the city at the close of registration on October 28 and December 2, 1893, respectively, and the result of changes recorded between these dates :—

ASSESSED POLLS.

Ward.	October 28.	December 2.	Increase.
1	632	656	24
2	595	612	17

Ward.	October 28.	December 2.	Increase.
3	521	537	16
4	557	581	24
5	602	668	66
6	599	616	17
	<hr/> 3506	<hr/> 3670	<hr/> 164

REGISTERED VOTERS (Male).

Ward.	October 28.	December 2.	Increase.
1	458	466	8
2	487	495	8
3	438	440	2
4	427	442	15
5	427	449	22
6	472	466	6*
	<hr/> 2709	<hr/> 2758	<hr/> (Net) 49

REGISTERED VOTERS (Female).

Ward.	October 28.	December 2.	Increase.
1	4	6	2
2	4	10	6
3	4	13	9
4	3	5	2
5	0	4	4
6	1	5	4
	<hr/> 16	<hr/> 43	<hr/> 27

The number of persons receiving State Aid is 35, all of whom are residents of Medford, as is required by the statutes. The Military Aid list shows the name of but one person, who, although a resident of Malden, has a settlement in Medford, and consequently is required to draw such aid through this city.

* Decrease.

A special examination of each case has recently been made by the agent of the State Aid Commissioners, and a complete history of each is now on file in this office.

I assumed the duties of City Clerk on March 21, 1893, and the ordinance requiring all fees, &c., collected by the city officials to be paid into the city treasury went into effect on March 31, previous to which time the fees had been a part of the income of the officials receiving the same.

Since this ordinance took effect, the receipts of this department have been as follows: —

FOR DOG LICENSES.

633 males at \$2 each	\$1,266 00	
58 females at \$5 each	290 00	
2 females (spayed)	4 00	
1 breeder's license	50 00	
	\$1,610 00	
Paid to City Treasurer fees on 694		
licenses at 20 cents each	\$138 80	
Paid to County Treasurer	1,471 20	
	\$1,610 00	
For 91 marriage licenses issued at 50 cents		45 50
55 carriage, job and express		
wagon licenses		55 00
8 druggist's liquor licenses		16 00
4 auctioneer's "		8 00
2 intelligence office "		4 00
recording mortgages, issuing certified		
copies of records, &c.		62 25
		\$190 75
Amounting to		

All of which has been paid over to the City Treasurer.

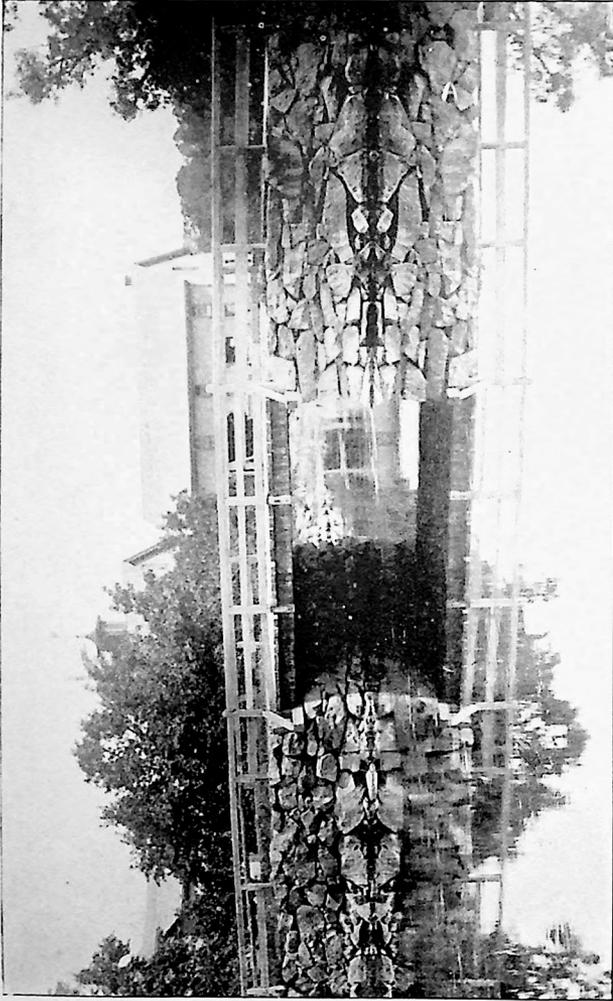
I would especially call attention to the matter of the preservation of the old records and papers of the city, many of which are valuable, both as a matter of history and as relics, and which are fast going to decay for the lack of proper care and a proper place in which to keep them. The vault room is now so insufficient that many valuable papers and books of records are of necessity kept in or upon the desks in the office where accident from fire or other causes is liable at any time to destroy what it would be impossible to replace. The books which are kept in the vault are so closely packed as to cause them to be seriously worn and injured by removing and replacing them when used, and many of the older ones sadly need repairing and rebinding from this cause.

Very respectfully,

ALLSTON P. JOYCE,

City Clerk.

MEDFORD, February 1, 1894.



WEIR BRIDGE, AS IT WAS.

REPORT
OF THE
STREET COMMISSIONER
OF THE
CITY OF MEDFORD.

REPORT
OF THE
STREET COMMISSIONER.

STREET COMMISSIONER'S OFFICE,
CITY HALL, MEDFORD,
February 1, 1894.

HON. SAMUEL C. LAWRENCE,
Mayor of the City of Medford.

Sir, — In compliance with the requirements of the city charter, I respectfully submit to you my annual report of the Highway Department for the year 1893.

In connection with this report is attached a tabulated statement of work performed on streets, sewers, drains, catch-basins, curbing, sidewalks, crossings, paving, culverts, stone-breaker, bridges, collection of house offal, ashes, &c., also a schedule of property belonging to the working plant of the department.

In English law, a road or highway is defined as a place where the public are free to ride, drive, or walk.

A good road is a road available for all sorts of travel and at every season of the year. Such roads our citizens are demanding. Good roads shorten distances and save wear and tear, and it will readily appear that our city, five miles from Boston, with good roads leading to it, is virtually nearer to Boston than those situated but two or three miles away, but located on poor roads. It is estimated that a saving of twenty-five per cent in animal power alone can be saved in time, and in wear and tear on vehicles. It is little consolation to the man engaged in transporting freight over

Middlesex and Mystic avenues to be told that we have the best railroad system in the world. That will not console him for the fact that he has to haul his load over a poor road every day. Col. Pope says that "ninety-nine per cent of every load transported by railroad, steamboat, or express has been carried in a wagon or truck over a highway."

To have good streets, they should be properly constructed, and if they are well maintained and kept in good order they will cost less than poor streets.

They should be kept clean, the dust and mud removed, and the ruts and depressions filled up as fast as they appear. Without continual repair there can be no such thing as a constantly good street.

The immense amount of underground work in the streets caused by the constant construction of passenger railways, sewers, laying of water and gas pipes, erection of telegraph, telephone, electric light, and electric railroad poles, is one of the unavoidable causes of the constant repairs going on in these streets, and the incompetent men employed by the different corporations to regrade and repave the streets require constant supervision.

Constructing and maintaining streets for heavy traffic in our city has grown into a feature of our work, and will have to be met with proper materials for the streets, and implements for their proper construction; and I would recommend the paving of Main street from Cradock bridge to the square. The average traffic over this street is fifteen hundred teams per day.

All the streets throughout the city have been carefully looked after. The system adopted of making constant repairs has given general satisfaction. Road material is deposited in heaps along the main streets convenient for the road men who take care of certain districts.

The sum of \$15,000 appropriated for general repairs is

not a very large sum to keep in repair sixty-five miles of much-travelled streets. when you consider a large proportion of this amount is expended in constructing, care, and cleaning of catch-basins, paving gutters; resetting edge-stones, repairing sidewalks, cleaning gutters, repairing and building stone walls, constructing culverts, laying drain pipe, construction and repairs of street crossings, &c.

The system of street cleaning was put in operation early in the year, except when delayed by snow. That clean streets are appreciated is soon made manifest, when the work of scraping and sweeping has been suspended for any length of time. The men employed in this work are provided with a small hand cart, shovel, rake, pick, broom, hammer, nails, &c. ; each man has a certain district to look after; he is instructed to remove all advertising boards, bills, stencil marks, &c., from trees, fences, stone walls, and buildings, when placed without the permission of the owner of the property, and to remove all obstructions from the streets, such as tin cans, hoops, wire, paper, pieces of boards with nails in them, &c., keep the gutters clean and catch-basins open, filling ruts and depressions as they appear. Complaints are made of the apparent lack of appreciation or more of carelessness of the store keepers on the main streets after the streets have been swept and the dirt removed, as it is rather discouraging to see employees of stores sweep all sorts of rubbish across the sidewalk to the street recently cleaned.

Public waste barrels have been placed in Medford square and at the railroad crossing, West Medford.

Good and clean streets increase the value of property, cheapen the cost of transportation, enliven the hospitalities of the people, attract travel and business, fill up the school-houses and churches, and advance civilization and religion. The highways are the property of no man or set of men,

but, on the contrary, are open to all persons who see fit to use them in a decent and orderly manner. The custom of scraping mud from the gutters into the middle of the street is as far from real road-building as digging sand houses on the beach at low tide is from making substantial dwellings. It is beyond question that the formation and maintenance of good roads increases the value of land, and I know that wealthy people dislike to reside in a city where sanitary rules are neglected, bad roads, poor lighting, watering, and scavenging allowed.

The area of Medford is 4654 taxable acres.

WIDE TIRES.

A four-wheeled wagon with a load on each wheel of one ton (2210 lbs.) has a pressure per inch run of 1120 lbs. This is in excess of the usual pressure of a 15-ton steam roller. Wheels of wagons being made to the same gauge for a large extent of territory, the result is that the wheels will follow one another and wear out and break through almost any light-metalled road or pavement, because the pressure and wear is not spread over a larger surface. It is absurd to suppose that the driver will drive his team outside of the rut after it is once formed. He seems to think his mission is to follow the old rut. It may therefore be laid down that wide tires with the same load are much less destructive than narrow ones, but wide tires loaded in the same proportion per inch of width as narrow ones are much more destructive.

Professor Shaler says he "would have the tires of wheels made broader to prevent the gravel from being ground to powder, as well as for usefulness in other respects."

Mr. George W. Gale, a lumber merchant in Cambridge, says, "Wider tires for wagons of heavy burden are the

means both of preventing roads from being worn so fast, and greater economy in teaming: they act as a roller on the roads." United States Consul Williams at Havre says, "Every freighting and market wagon or cart here is a road-maker. Its tire is from three to four inches in width, usually from four to six, and so rolls the road." Telford's rule was one inch for every five hundred weight on the wheel. By this, a cart weighing with its load two tons would require 4-inch tires.

In making repairs and constructing new carts and wagons, we put on 5-inch tires on the hind wheels of the four-wheeled carts, and on the fore wheels 4-inch, the front axle is shortened 8 inches, so that we roll a space of 18 inches when the cart moves.

The two-wheeled carts we put 4-inch tires on, and the same on the offal wagons; these vehicles will go over frogs, switches, and grooved railroad tracks without any hindrance whatever.

I do not claim that wide tires will *make* good roads, but they will help to keep good roads in good repair.

The question seems to be about this: Which is the better economy, wide tires and good streets, or narrow tires and bad streets? On hard roads and pavements there is no benefit in wide tires. Under these conditions a narrow tire is preferred, as there is less traction on the narrow tire. Neither in soft mud nor slush is there any advantage in wide tires, but on the ground that a narrow tire would cut through where a wide one would not, then the wide tire shows to the greater advantage, and the results I have obtained have put at rest all question regarding the use of broad tires. No man has a right to destroy good roads that are built for the public benefit, and narrow tires should be abolished.

J. M. Heiskell, C.E., says, "I know of nothing more con-

tradictory than the almost general belief that broad wheels do reduce wear ; they at the same time increase pull." Just as if there could be on level roads any pull where there is no wear, or any wear with no pull !

How else can pull arise on a level, and how is wear produced if not by the pull ?

It is an old adage that says, "That vehicle that draws that load should make that road and not that rut."

ELECTRIC WIRES.

A bill has been introduced into the Legislature by the city of Cambridge for an act providing for the placing under ground of all overhead electric wires except the trolley. The legislation thus sought is to enable cities and towns to construct and maintain conduits and manholes in their respective streets for carrying wires and cables for the transmission of electricity.

The proposition is included that the companies and individuals now maintaining overhead wires and cables be required to place their wires or cables in the conduits built by the city or town, and remove their overhead construction in all streets provided with conduits, and that the companies and individuals shall pay to the city or town providing the conduits such amounts as will insure not less than 10 per cent upon the amount invested in the conduits.

The plan for a series of conduits to be owned by the cities is far preferable to other possible plans of granting franchises to the various companies separately to put conduits of their own. Such a plan as this will avoid in its execution the disturbance of the streets two or three times, as would be the case were each company to put in its own conduits.

There is also an economic advantage in a municipal conduit that is not to be overlooked.

By a provision of our Public Statutes, cities and towns may grant locations and other franchises to corporations, but there is no provision for revocation of all of such grants.

The plan of authorizing municipalities to build underground conduits of their own, and to lease privileges therein to electric companies, would have the effect of retaining the franchise in the control of municipalities, and will prevent the frequent disturbance of streets at the will of the corporations.

In the severe storm of October 14, an electric-light wire snapped on Myrtle street and fell into the street; a horse belonging to Harris Brothers, milk dealers, of North street, stepped upon the wire, and, it being fully charged, he was instantly killed.

It is the opinion of the best thinkers that a municipality should never alienate its ownership of the roadbeds on the public streets. In England and Germany it is held that the telegraph pole is a nuisance, and their laws require that they be abated by placing the wire under the highway out of sight.

METROPOLITAN SEWER.

That portion of the Metropolitan Sewer system running through Medford has been completed. There are four sections in Medford, sections 20, 21, 22, and 43½. The work has been done in a very satisfactory manner. The streets have been left in as good conditions as could be expected, and I am under obligations to H. A. Carson, Chief Engineer, for the prompt manner in which he has always made the contractors comply with all reasonable demands made upon them by the town and city authorities.

WEST END RAILWAY.

The West End Street Railway Company was granted a location on Oct. 16, 1893, to establish, maintain, and use

the single trolley system of motive power in the operation of its cars on the several streets, ways, and squares in the city of Medford whereon the same are now run.

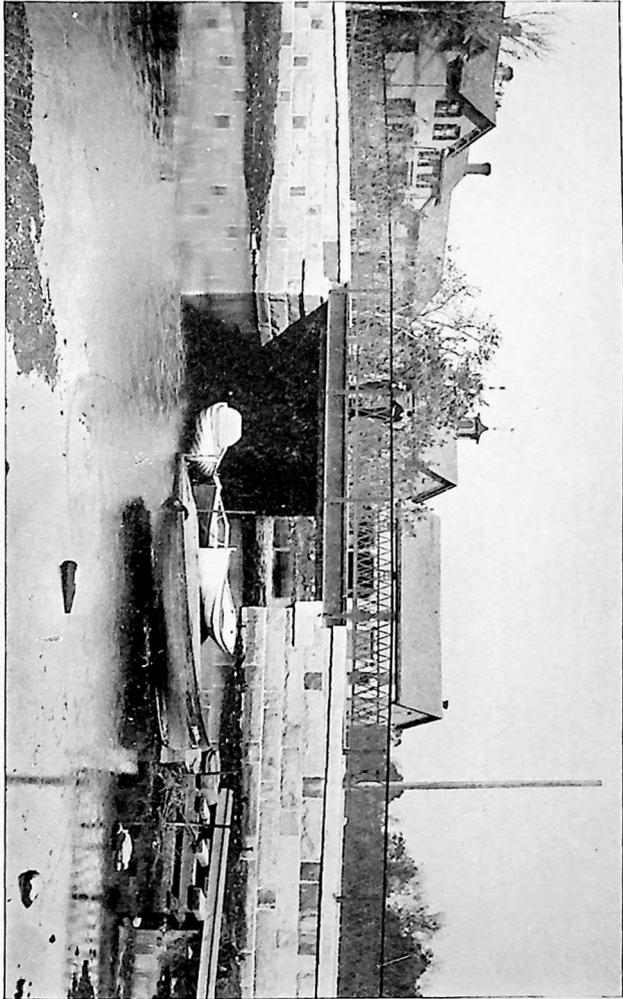
On the thirtieth day of October work was commenced to wire the road from Salem street to Somerville line on Main street; on the sixteenth day of December the electric cars commenced running. Early in the spring the road will be completed on Salem street to Malden line. The city of Medford has the right to use the tracks during the night time for the purpose of hauling road material.

WEIR BRIDGE.

A new iron bridge has been constructed across the Mystic river in the town of Arlington and the city of Medford. The abutments are built of dimension granite containing 200 cubic yards. On the top the abutments stretching across the river are placed iron girders 32 feet long, 36 inches apart. Brick arches are turned in these spaces of hard brick in two courses, set on edge, laid in Portland cement, and the spaces on top of the arches are filled up to subgrade with concrete made of cracked stone and Portland cement, and on top of this, for the wearing surface of the road, is a covering of asphalt $2\frac{1}{2}$ inches thick. A neat iron railing is placed on both sides of the bridge.

It is 50 feet wide, 30 feet long, and is capable of carrying a load of 20 tons dead weight.

Sidewalks are constructed 8 feet wide on each side, and it is said to be one of the strongest bridges of the kind in the State. There is nothing used in its construction but stone, brick, cement, and iron. It cost \$4895.83, the town of Arlington paying one half.



WEIR BRIDGE, AS IT IS NOW.

SANITARY DIVISION.

In order to obtain more efficiency in the work of removal of house offal and ashes, of house and store dirt, it was recommended by the Board of Health that it be placed in charge of the Street Commissioner.

The work of the sanitary division shows a constant increase since it came under my charge.

The increase in population and territory, and the opening up of new streets, continually adds to the miles of streets that are reached by the sanitary division.

House offal is removed twice a week in each ward. The collectors are required to enter the yards, collect the offal, and empty the same into the wagons; when loaded, drive to the city yard and deposit it on the platform, and it is removed by the contractor every day. The number of loads collected from May 1, 1893, to Feb. 1, 1894, was 1020.

A contract was made with F. E. Chandler for the house offal collected from July, 1893, to July, 1894, for the sum of three hundred dollars, he being the only bidder after advertising for proposals.

Each load of offal is equivalent to about 1500 pounds. It is estimated that the collectors collect from about 600 families every day.

A new shed for housing the offal wagons and sleds has been built, 36 feet long and 17 feet wide.

COLLECTION OF ASHES.

In order to keep up the system inaugurated in the collection of ashes, which is once a week in each ward, the appropriation will have to be increased the coming year. Five thousand six hundred and twenty-six loads have been collected from Feb. 1, 1893, to Feb. 1, 1894. It has been

utilized by constructing sidewalks, filling up the mill pond and city yard. Very few complaints have been received concerning the failure of this division to promptly remove ashes or offal, which in all cases have been carefully investigated; in most cases it has been found that the parties making the complaint were at fault.

The rules of the division require that the ashes and offal must be kept separate, put in suitable receptacles, and so placed as to be convenient of access to the collectors.

If these conditions are violated the collectors have orders to refuse to remove the ashes or offal until the city regulations are complied with.

WATERING STREETS.

This has been done in former years by the Fire Department by permission of the Highway Department. By an ordinance passed by the City Council of 1893 the watering of the public streets is to be under the direction and control of the Mayor.

I would recommend, however, if the watering of streets is to be put under the control of the Highway Department, that an appropriation of \$2000 be made. By so doing I think it will be an inducement for the abutters on the main streets to raise the amounts allotted to them, which is seven cents per linear foot, and which would make only three and a half cents for each abutter, the money to be raised and paid to the City Treasurer before the watering of any street is commenced.

DRAINAGE FOR STORM WATER.

I would recommend the extension of the drain laid in Boston avenue from Harvard avenue, 650 feet to the north. The grade is nearly level, not over six inches in

100 feet, which makes it very difficult in slushy weather to drain the water off quickly.

At the corner of Salem, Washington, and Cross streets the blind catch-basins, by overflowing and flooding the street, have caused a great deal of trouble.

A pipe leading from the catch-basin corner of Salem and Cross streets to Gravelly creek would remedy this evil.

At the corner of Court and Tainter streets there is a large blind catch-basin which causes a great deal of trouble by filling up and overflowing. A pipe should be laid from it to Gravelly creek.

I would call your attention to the need of acquiring all the watercourses used in part for street drainage, as parties owning the lands through which they flow are continually obstructing and turning the courses from their original channels.

Two different parties have notified me that they intend to build over the creek at Cherry street, and one over the brook at Prescott street, ward 6.

A great many complaints have been made that scavengers empty the contents of their wagons into the brooks in the night time, but this evil has been promptly checked by the Board of Health and the license of the guilty parties revoked.

I would recommend that an appropriation be made for the drainage of Marion street. Several plans have been suggested, but I think the most feasible one is to run a drain from the lowest point of Marion street to Winchester street, thence to the culvert crossing Winchester street at a distance of 1600 feet, to be laid with 8-inch pipe, trench to be filled with stone to sub-grade of street. Laid on this plan, the drain will cost \$1200.

GRAVELLY CREEK IMPROVEMENT.

A bulkhead of solid granite has been constructed at the end of the brick conduit running from Gravelly creek to Mystic river, and a neat iron railing has been erected around the border.

SCREEN.

A portable screen has been placed on Gravelly creek at the mouth of the stone culvert on Salem street, to stop any obstructions that may be thrown into the creek. It is so constructed that in case of a flood the different sections can be detached and give the water a free run.

BRIDGES.

Winthrop Street Bridge.

This bridge has been sheathed over and the railing painted. It is in poor condition.

Harvard Avenue Bridge.

The railing has been painted. This bridge is in good condition.

Auburn Avenue Bridge.

It has been sheathed over and the railing painted.

Boston Avenue Bridge.

It has been sheathed over and the railing painted. I would recommend that the first bay of this bridge be filled up solid.

Mystic Avenue Bridge.

The abutments to this bridge will have to be reconstructed the coming year.

College Avenue Bridge (Railroad).

It has been sheathed over and painted.

Middlesex Avenue Bridge.

This bridge requires constant care. It was not constructed of the best material, and extensive repairs will have to be made to the draw. The gearing used to run off the draw is worn out, and will have to be replaced with new gearing. The truss rods have been broken twice the past year. There ought to be another rod, or the old ones removed and rods of larger dimension substituted in their place. The draw has been sheathed over, the walks repaired, and the roadway covered with crushed stone. The draw has been opened 300 times the past year, 97 vessels going up stream, 89 going down stream; number of tow-boats, 116. Twenty-two thousand three hundred and seventy-five tons of coal, 400 tons of gravel, 245,500 feet of lumber, 200,000 shingles, 1985 hogsheads of molasses, and 300 barrels of lime have been carried through.

The Boston and Maine Railroad Company have constructed two new bridges on the Medford Branch, one at Park street and one at Cross street, also one on the Southern division at Grove street. These bridges and approaches are maintained by the corporation.

STONE CRUSHER.

The stone-crushing plant consists of one steam drill, one jaw crusher 9x15, operated by a 12-horse power engine and boiler. One man only is employed to serve as engineer, fireman, and oiler, and two men to feed and dump from the carts. The stone is delivered in four sizes into the bins through a revolving screen which deposits into their bins four sizes of stone. No. 1 contains 2½-inch, No. 2, 2-inch, No. 3, 1½-inch, No. 4, 1-inch. The stone is conveyed directly from the hoppers to the streets where used, receiving no handling from the time they enter the crusher

until spread upon the streets, except at this time in the year when we are engaged in depositing piles in different localities to be in readiness for spring repairing. This plant is entirely inadequate for the demands that will be made upon it the coming year, and I would recommend to you, if you think it advisable, to purchase a larger boiler and crusher, so that we can meet the demands that are likely to be made upon us.

About 5763 tons of stone have been crushed during the year. One hundred six and three fourths tons have been sold to the West End Railroad Company, 91½ tons to the National Construction Company, 15 tons to M. C. Vinal, 1 ton to E. Teel & Co., 79 tons to Gravelly-creek improvement, 4 tons to A. E. Weaving, 6 tons to Nicholas White, 17 tons to Dr. Green, 1 ton to New England Telegraph & Telephone Company. About 5443 tons have been spread on the streets.

SNOW.

On account of the great fall of snow in the months of February and March, the original appropriation of \$600 proved to be inadequate, as \$935.75 were spent in these two months. In the month of May another appropriation of \$700 was made to cover the deficiency in this department, and the appropriation was all spent except \$65.53.

Two new plows have been constructed, and one patent snow-plow for gutters.

Great injury has been done to brick and concrete sidewalks by driving the horses attached to the plows over them with their sharp calks, cutting the concrete and breaking the bricks. This evil will now be remedied, as the City Council has passed an ordinance requiring owners and tenants of estates to remove the snow and ice therefrom, and, if they neglect to do so for the space of six hours, they will

be liable to pay a sum of not less than two nor more than ten dollars.

STEAM ROLLER.

A new patent steel steam road roller, constructed by Aveling & Porter, has been purchased.

The sum of \$4200 was appropriated for roller and outfit; \$3900 was paid for the roller, and the remainder for iron plows, tender, and storage house.

The boiler is of the locomotive type, and is built of a high grade of mild steel, and is capable of carrying 200 pounds of steam to the square inch. The engine is a single-cylinder engine and is steam-jacketed with live steam. It has a single slide and Stephenson link motion, and the steam jacket, which is fitted with two safety valves, acts as a dome over the cylinder to prevent priming.

The engine is fitted with fast and slow speeds, and the double-speed gear can be momentarily changed, and with equal facility can the engine be thrown out of gear entirely when required for driving any fixed machinery. When the engine is out of gear the crank shaft only is running.

The picking-up arrangement is of the greatest importance; for plowing old macadam streets it will do more in a day than twenty horses can, and for pulling up stumps it can't be beat. A waterproof covering, a full outfit of tools, picking-up spikes, gauge glasses, &c., were sent with the roller free of charge.

The machine was kept constantly at work from May 24 until cold weather set in, and I am convinced that no mistake was made in purchasing the Aveling & Porter roller. It stands superior to all others in point of strength and durability, and there is nothing fancy about it. The average cost of running the roller the past season has been less than \$5 per day; one ton of coal will last four days. The usual prejudice against the expenditure of so much

money, of course, existed at first; but as time passed and the tax payers saw the work the roller was doing, and that in a few years a great improvement would be made in our streets, the sentiment changed, and to-day it would be very hard to find a citizen who does not believe that the investment in the steam roller is a judicious one.

CATCH-BASINS.

There are 137 catch-basins in the city, including 13 constructed last year, and the work of cleaning them makes an item of large expense.

During the year some trouble has arisen from unknown persons emptying slops, brine, filth, &c., directly into the catch-basins, clogging them up and rendering their condition unsanitary.

Complaints have been made to the police, and the evil has in a great measure been remedied.

The department is very much in need of an odorless iron dumping cart. This cart does not leak, is easily dumped, and would be a valuable adjunct to the work of collecting the contents of the catch-basins.

AMARANTH AVENUE.

Some criticism has been made upon the large expenditure in the construction of Amaranth avenue, running from Myrtle street to the Glenwood Works in ward 1.

It is laid out through low, soggy land which had to be thoroughly drained by digging a trench 4 feet deep, laying a 6-inch Akron pipe with loose joints, then filling the trench with stone up to sub-grade of the avenue, which was well wet and rolled and given the same shape of the finished road surface, with a crown of 5 inches.

On this bed was set the Telford paving through the centre of the avenue 9 inches in depth, then gradually di-

minishing to 5 inches to line of curb. The stone is laid with the best bed down, close together in parallel lines across the avenue, breaking joints. The stone in each section is as near one size as possible; no stone exceeding 15 inches except through the middle of the avenue, then a single line is laid parallel with the avenue, the stone were wedged up tight with spalls, tailings, &c.

After wedging, all the projections sticking up above grade line of the paving were broken off, and then on top of this foundation is laid 4 inches of crushed stone not less than $2\frac{1}{2}$ inches in diameter, and rolled.

On top of this course is spread 3 inches of crushed stone that passed through a 2-inch circular hole and spread with a shovel from a cart, wet and rolled.

On top of this course is spread enough crushed stone that passed through a $\frac{1}{2}$ -inch circular hole to fill all interstices, then wet and rolled.

On top of this course is spread 2-inch thick the screenings from the stone breaker that passed through a 1-inch circular hole, well wet and rolled.

This avenue cost about \$3 per linear foot. In this cost is included the cost of grading, the pipe, laying the stone for trench, four brick catch-basins with iron grates, setting monuments, engineering, plans, &c.

LAPHAM STREET.

Lapham street, constructed with 5 inches of macadam through gravelly soil, cost less than \$1 per linear foot, including four catch-basins, granite circles on four corners, &c., and four stone monuments.

HIGH STREET WIDENING.

High street from Weir bridge on the north side to a point 1640 feet from the bridge opposite Boston avenue,

has been widened, the wall at the Brooks farm reconstructed and set back to the county commissioners' line, a sidewalk constructed, the street reconstructed with broken stone and rolled with the steam roller, abutment walls constructed with iron railings to correspond with the bridge, and two catch-basins built with pipe running to the river.

STREETS REPAIRED WITH STEAM ROLLER.

The roadbed is spiked up with the steam roller and raked over; the large-sized stone are picked out, all depressions are filled up, the surface is dressed to approximate cross-sections, and then is wet and rolled, and all the inequalities are levelled up as they appear.

Unless the roadbed is practically without any old macadam, I spread a layer of 2-inch trap rock and roll with steam roller, then a layer of $1\frac{1}{2}$ -inch trap rock, wet and rolled, then a layer of trap screenings, well wet and rolled. We sometimes use sand on streets that are not watered; we use a one-horse sprinkler holding 350 gallons, with 4-inch tires. The forward axle is 4 inches shorter than the hind one; it passes over the surface without making any depressions in the street.

Under this system the following streets have been repaired at a cost of 25 to 40 cents per yard—

Washington from Salem to Park	1250 feet.
South from Main to Winthrop	1700 "
Forest from Medford square to Webster	1500 "
Holton from Monument to Sharon	1750 "
High from Medford square to Winthrop square	2500 "
Park from Washington to Magoun avenue	400 "
Salem from Medford square to Tufts street	1500 "
Main to Union street	200 "
Riverside from Medford square to Gibson's	1500 "

PICKED AND ROLLED.

Boston avenue from Harvard avenue to bridge	1250 feet.
Winthrop street from Winthrop square to poor-farm	1700 "

STONE FOR CRUSHING.

By the liberality of one of our citizens, we have been allowed to take all the stone we wanted from his ledge, it being stipulated that we remove the loam for his use.

All the gravel that we wanted has been contributed by the same gentleman. These two items have made a great saving to the department the past year.

CITY STABLE AND LOT.

This lot contains 155,888 square feet, and a portion of this is overflowed by the high spring tides, and needs to be graded high enough to prevent its being overflowed.

A road 30 feet wide, 500 feet long, is to be constructed to fulfil the requirements of the purchase, and a fence constructed on the street line. For carrying on this work I would recommend that the sum of \$500 be appropriated.

STREET NUMBERING.

Plans are being proposed for the numbering of buildings on all streets that have not complied with the ordinance.

FILLING MILL POND.

An appropriation of \$1000 was made for filling the mill pond, the city to have two years to complete the work. Nearly two thirds of the pond has been filled.

We have been fortunate in getting seventeen hundred loads of gravel from the Boston & Maine Railroad Company without any expense to the city except the teaming

of the same. Ten hundred forty-two loads of ashes have been dumped in the pond by the sanitary division of the Highway Department at twenty-five cents per load, 86 loads of filling by the Highway Department at the same price, and a great many loads have been dumped by various persons. I would recommend an appropriation of \$500 to complete the work, and when it is accomplished one of the greatest nuisances will be abated.

SHADE TREES SET OUT.

Curtis school	3	Sherman street	2
Hervey school	2	Boston avenue	5
Sharon street	2	Cudworth street	10
South street	1	Paris street	2
Spring street	5	Brooks street	3
George street	1	Vernon street	1
Emerson street	5	Canal street	2
College avenue	2	Harvard avenue	1
Lapham street	30	Webster street	1
Cushing street	1	Tainter street	2
Almont street	5	Park street	3
Main street	3	Otis street	1
Winthrop street	2	Myrtle street	2
Holton street	9	Lawrence street	3
Gibson street	3	Walnut street	1
Washington street	4	Woburn street	2
Fountain street	1	Frank Peak	1
Chester avenue	5	Manning street	3

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CARE OF TREES (Protectors Erected).

	Wooden.	Wire.		Wooden.	Wire.
Royal street,		13	Cudworth street,		15
Florence street,		3	Paris street,		3

	Wooden.	Wire.		Wooden.	Wire.
Salem street,		46	Tainter street,	1	2
George street,		1	Park street,	4	1
College avenue,		2	Otis street,		1
Lapham street,		30	Myrtle street,		2
Cushing street,		6	High street,		11
Almont street,		4	Everett street,		1
Main street,	11	5	Forest street,		1
Winthrop street,	17	18	Dudley street,		5
Holton street,		9	Oakland street,		5
Riverside avenue,		2	Allston street,		3
Pleasant street,		3	Magoun avenue,	6	
Sharon street,	5		Wareham street,		3
Spring street,	1	6	Manning street,		14
Gibson street,		8	Middlesex avenue,	9	
Washington street,	1	11	Tufts,	3	
Boston avenue,		10	Spring street,		3
				<hr/>	<hr/>
				58	247

58 wooden, 247 wire.

STREET SIGNS ERECTED.

Boston avenue	.	.	.	.	.	.	.	1
Adams street	.	.	.	.	.	.	.	2
Tainter street	.	.	.	.	.	.	.	2
Ashland street (double sign)	.	.	.	.	.	.	.	1
Central avenue	.	.	.	.	.	.	.	2
Webster street	.	.	.	.	.	.	.	1
Touro avenue	.	.	.	.	.	.	.	1
Lapham street	.	.	.	.	.	.	.	1
Hillside avenue (double sign)	.	.	.	.	.	.	.	1
Newbern avenue	.	.	.	.	.	.	.	2
Marion street	.	.	.	.	.	.	.	2
Arlington street	.	.	.	.	.	.	.	1
Mystic street	.	.	.	.	.	.	.	1

Quincy street	1
Hadley place	1
Lincoln street	1
Linden street	1
	<hr/>
	22

PRIVATE WAY SIGNS.

Alfred street	1
Capen street	1
Joseph street	1
	<hr/>
	3

BRICK CATCH-BASINS BUILT.

Amaranth avenue	3	Riverside avenue	2
City square	1	Washington street (at	
High street (Weir bridge)	2	School)	1
Salem street (Day's sta-		Marshall street	2
ble)	1	Cottage street	<hr/>
			13

PIPE DRAINS LAID.

High street, 70 feet of 8-inch pipe.	Salem street, 20 feet of 12-inch pipe.
Main street, 20 feet of 8-inch pipe.	Webster street, 10 feet of 12-inch pipe.
Myrtle street, 660 feet of 6-inch pipe.	Marshall street, 20 feet of 6-inch pipe.
Amaranth avenue, 282 feet of 6-inch pipe.	

WOODEN CULVERTS CONSTRUCTED.

Main street	1	Winthrop street	1
Middlesex avenue	1		
			<hr/>
			3

STONE CULVERTS BUILT.

High street	1
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STONE CORNERS (of Cobble-stones).

Amaranth avenue	2
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STONE CORNERS (of Granite).

Magoun avenue at Park street.

STREET CROSSINGS (of Granite).

	Sq. yds.
Main street at police station	33
Main street at city hall	33
Square, corner High street to Forest street	30
High street at Rural avenue	45
Winthrop square	100
Salem street, corner of Park street	40
Myrtle street at Glenwood depot	26
High street at Usher's block	41
Square at "Old Corner Drug Store"	20
High street at city hall	100
	<hr/>
	468

STREET CROSSINGS (Broken Stone).

	Sq. yds.
Harvard avenue at Bowers street	26
Winchester street at Marion street	26
	<hr/>
	52

GRANITE CROSSINGS RELAID.

	Sq. yds.
High street at High school	40
High street at Grace Church	40
	<hr/>
	80

CONCRETE CROSSINGS TOP-DRESSED.

	Sq. yds.
Boston avenue	40

STONE WALLS BUILT.

	Feet.
High street at Brooks' farm	1,640

BRICK SIDEWALKS RELAID.

	Sq. yds.
Salem street at Common	133
Myrtle street at M. Childs'	66 $\frac{2}{3}$
Salem street at Everett school	60
Governor's avenue	20
Riverside avenue	12
Spring street	33
	<hr/>
	324

EDGESTONE RESET.

	Ft. In.
Salem street at Common	150
Myrtle street at M. Childs'	100
244 and 246 High street	112
Governor's avenue	96 8
Salem street at Everett school	75
Spring street	50
Riverside avenue	30
Forest street	50
	<hr/>
	663 8

GUTTERS PAVED.

	Sq. yds.
High street, corner Forest street	12
High street, corner Winthrop street	21
High street, corner Highland avenue	10
High street at standpipe	10

	Sq. yds.
Salem street at Common	70
Boston avenue at Winthrop street	25
	<hr/>
	148

GUTTERS REPAVED.

	Sq. yds.
High street	20
Salem street	125
	<hr/>
	145

CONCRETE SIDEWALK TOP-DRESSED.

	Sq. yds.
Boston avenue and Holton street	55
High street	60
	<hr/>
	115

OLD STREETS VERY MUCH OUT OF REPAIR.

- Riverside avenue, 40 feet wide, 7200 feet long.
- Mystic avenue, 66 feet wide, 6864 feet long.
- Valley street, 50 feet wide, 4240 feet long.
- Forest street, 50 feet wide, about $2\frac{1}{8}$ miles long.
- Winchester street, 40 feet wide, 1700 feet long.
- Fulton street, 60 feet wide, $2\frac{1}{2}$ miles long.
- Elm street, 50 feet wide, 1850 feet long.
- Middlesex avenue, 70 feet wide, 9275 feet long.
- Love lane, $16\frac{1}{2}$ feet wide, 499.62 feet long.
- Union street, 40 feet wide, 327 feet long.
- Main street, 60 feet wide, about $1\frac{1}{4}$ miles long.
- Winthrop street 60 feet wide. Winthrop square to Winchester line, about 1 mile.
- Canal street, 36 feet wide, 882 feet long.
- High street, from Winthrop square to railroad crossing, West Medford, 55 feet wide, a little over $\frac{1}{2}$ mile.
- Williams street, 50 feet wide, 624.46 feet long.
- Marshall street, 40 feet wide, 1361.44 feet long.

ACCEPTED STREETS, GRADED ONLY.

Streets.	Feet in Width.	Feet in Length.
Benham,	40	550
Brookings,	40	850
Greenleaf avenue,	40	960
Emery,	40	894.5
Linden,	40	1322
Abbott,	40	384.5
Cushing,	50	962 +
Pembroke,	50	421.98
Thatcher,	40	885.18
Gibson,	40	385.43
Albion,	50	Medford to Main 377.5
Governor's avenue,	80	580
Third,	40	2100

UNACCEPTED STREETS.

Streets.	Feet in Length.
Hume avenue,	850
Berget avenue,	850
Orchard,	875
Dearborn,	875
Martin,	875
Alfred,	1000
Hillside road,	500
Leyden,	200
Morton avenue,	875
Sanger,	875
Bradshaw avenue,	1000
Garfield avenue,	1000
Pembroke, between Cushing street and railroad,	300

STREETS PRESENTED FOR ACCEPTANCE.

Streets.	Feet in Width.	Feet in Length.
Grand View avenue,		377.5

Streets.	Feet in Width.	Feet in Length.
Hillside avenue,	40	540.14
Newbern avenue,	40	1300
Higgins avenue,	40	
Quincy,	40	620
Arlington,	40	High to Linden 1177.80
Logan avenue,		2200
Farragut avenue,		2200
Sheridan avenue,		900
Grant avenue,		900
Hooker,		1000

BRICK SIDEWALKS AND EDGESTONES. . .

No.	Name.	Brick. Sq. Yards.	Edgestones. Feet.	Streets.
1	D. W. Johnson,	55.46	53	8 Boston avenue.
2	A. W. Robes,	52.32	50	4 Boston avenue.
3	C. A. Gay,	52.32	50	6 Boston avenue.
4	Thomas Casey,	36	50	14 Marion.
5	W. F. Cushing,	47.33	70	Forest.
7	Reuben Tuttle,	95	147.8	95-101 Washington.
8	John W. Dean,	29.16	30	24 Washington.
9	E. H. Pennell,	162	180.5	42, 44, 46 Otis.
10	Charles Nelson,	199.33	238.1	248-254 High.
11	Dennis F. Sheehan,	30	45	1 Arlington.
18	Stanley McDonald,	49	60	48 Otis.
19	J. E. Angell,	167.25	200.4	45-49 Magoun ave.
20	J. A. C. Emerson,	43	51.6	43 Magoun avenue.
25	Frank Belcher,	49	60	50 Otis.
27	Mrs. B. B. Gilman,	69.5	86	{ Cor. Park and Ma- goun avenue.
28	A. R. Kervin,	58	60	37 Magoun avenue.
29	J. C. Chandler,	120.33	137	13 South.
30	Mrs. Isabelle Marie,	{ 138.50	{ 203.6	{ Cor. Allston and Ir- ving.

No.	Name.	Brick. Sq. Yards.	Edgestones. Feet.	Streets.
35	George E. Crosby, }	126.25	147.10	242 High.
37	W. T. and E. G. Morse, }	123.02		244 and 246 High.
39	Cross-street Cemetery, }	94	119	Cross.
40	Herbert Etter,	85	71	62 Main.
41	Boston & Maine R.R. Co., }	13.33	15	Park.
49	Boston & Maine R.R. Co., }	10	13.6	Cross.

CONCRETE SIDEWALKS WITH EDGESTONES.

No.	Name	Sidewalks. Yards.	Edgestones. Feet. Inches.	Streets.
13	J. M. Usher,	133	154 4	High and Railroad avenue.
17	Edward W. Bates,	171	278 7	Emerson and Walnut.
21	G. Wallace Graves,	26.27	40	61 Monument.
22	Etta M. Batchelder,	26.27	40	59 Monument.
23	W. H. Wilkinson,	33.33	50	57 Monument.
24	Mrs. Vilana A. Clark,	33.33	50	55 Monument.
34	Mrs. L. P. Keith,	21.33	32	63 Monument.
42	D. R. Porter,	155	180	23 and 25 Magoon avenue.

CONCRETE SIDEWALKS WITHOUT EDGESTONES.

No.	Name.	Sidewalk, Yards.	Street.
12	Hinckley, Ayers & Byam,	38.66	College avenue.
14	Walter Bates,	209	Mystic ave. south of Western ave.
15	Byam & Hinckley,	108.51	College avenue.

*2 small circles 3 ft. radius.

No.	Name.	Sidewalk. Yards.	Street.
16	William McLean,	63.75	10 Allston.
31	C. E. Finney,	70	Allston, cor. High.
32	J. E. Collins,	47.5	2 Allston.
33	Mrs. A. Jacques,	37.5	14 Allston.
45	O. L. and Everetta O. Patch,	58.5	6 Allston.

EDGESTONES.

No.	Name.	Feet. Inches.	Street.
26	G. W. Daniels,	56 4	Cor. Newbern avenue and Medford.
36	Mrs. J. A. Phipps,	23 5	Corner Wyman and Mystic.
47	R. H. Grace,	83 6	53 Monument.
48	Dr. D. W. Wight,	139 9	Cor. Boston avenue and Holton.

98,500 bricks laid.

4,325 feet edgestone laid.

553 feet 1-inch granite flagging laid.

3,225 large paving block.

3,285 small paving block.

87 yards block paving.

PERMITS.

G. D. Hall, to dig up Pearl-street drain.

Mead, to occupy Winchester street for building.

J. E. Potter, to occupy Emerson street for building.

Vaughan, to repair drain at Brooks park.

J. H. Hooper, to repair drain at College avenue.

J. E. Potter, to lay drain at Park street.

Boston & Maine Railroad Co., to close Cross street.

James Pierce, to occupy Dudley street.

M. Cashman, to move building.

John Bresnahan, to move two buildings.

Sylvester Richards, to move barn.

- W. A. Smith, to move small building.
Pyam & Eastman, to occupy sidewalk corner Boston avenue and Winthrop street.
D. G. Melville, to move house.
Boston & Maine Railroad Co., to close Grove street.
Robertson & Greene, to occupy portion of College avenue.
Albert M. Ellis, to move building.
Donahue Brothers, to occupy High street for building.
Cole's Circus, for street parade.
F. H. Blaisdell, for post on Washington street near Park street station.
M. C. Vinal, to occupy sidewalk on Riverside avenue.
Mr. Schoons, to move henhouse.
Butler & Manning, to occupy sidewalk on Main street.
A. McAusland, to occupy sidewalk on Central avenue for building.
William P. Hanson, to move building.
Richard Gibson, to blast for catch-basin on Dexter street.
Edward Robertson, to move stable across Park street.
Jeremiah Donovan, to blast driveway on Main street, Winter Hill.
First Parish, to open Highland avenue to relay drain.
A. W. Bryne, to occupy Canal street for building purposes.
W. C. Edwards, to put a guy over street, Magoun avenue and Washington street.
New England Telegraph & Telephone Co., to put wires under ground.
J. W. Sanborn, to place guy rope across Magoun avenue at Park-street station.
Mead, Mason & Co., to occupy Boston avenue for building.
Nicholas White, to open Webster street to repair drain.
Daniel M. Dwyer, to blast on Valley street.
Albert H. Ward, to occupy Edward street for building.

James H. Archibald, to occupy sidewalk on High street for
repairs.

Arthur C. Symmes, to occupy sidewalk on Main street for
repairs.

Clarence B. Cutler, to open Riverside avenue to lay steam
pipe.

Lewis H. Lovering, to occupy sidewalk corner Park and
Salem streets for building.

Lewis H. Lovering, to occupy Park street for building.

CREDITS TO HIGHWAYS.

Gravelly creek, Lenox contract	\$68 20
School Board for 1892	9 00
Collection of offal	92 00
H. C. Williams	1 00
Nicholas White	8 75
J. R. Teel	2 00
Gravelly creek	76 25
A. E. Weaving	11 20
National Construction Co.	141 76
Dr. Charles M. Green	25 50
N. E. Tel. & Tel. Co.	9 43
Thomas Hollis	3 00
Charles F. Coburn	17 50
Metropolitan Sewerage Commission	28 25
E. Teel & Co.	1 50
H. A. Miles	4 00
Collection of offal	92 00
Sidewalks and edgestones	741 20
M. C. Vinal	22 50
Amaranth avenue	5 00
Lapham street	34 00
High-street widening	744 45
Filling mill pond	21 50

Thomas Casey	\$6 25
Public commons	10 00
Collection of offal	92 00
West End R.R. Co	199 56
J. P. Prichard	25
	<hr/>
	\$2,468 05

CREDITS TO COLLECTION OF ASHES.

Eleazer Boynton	\$10 25
Sidney F. Dean	2 50
W. H. McGowan	2 25
Filling mill pond	115 50
Boston & Maine R.R. Co.	2 00
Filling mill pond	93 25
Filling mill pond	51 75
	<hr/>
	\$277 50

CREDITS TO COLLECTION OF OFFAL.

F. E. Chandler	\$275 00
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CREDIT TO SETTING OUT SHADE TREES.

Medford School Committee	\$6 25
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WORKING PLANT OF THE HIGHWAY DEPARTMENT.

11 horses	\$1,600 00	2 wheelbarrows	\$2 00
3 sets of double harness	70 00	1 auger	50
3 chain harnesses	15 00	5 iron rakes	2 00
4 cart harnesses	80 00	2 wooden rakes	1 00
1 wagon harness	20 00	2 manhole covers	14 00
3 double carts	225 00	1 lawn-mower	8 00
4 single carts	200 00	1 force-pump	10 00
		4 manure forks	2 00

1 wagon	\$40 00	2 stone forks	\$2 00
2 road machines	150 00	1 brick hammer	50
1 stone jigger	250 00	2 spades	1 50
1 water cart	175 00	1 sod cutter	50
1 iron roller	125 00	1 derrick and fall	25 00
2 stone rollers	50 00	25 handles	6 25
4 iron plows	25 00	2 hedge trimmers	2 00
12 snow plows	200 00	1 brush scythe	1 00
1 stone drag	3 00	1 extension wrench	75
1 edgestone drag	6 00	1 portable forge	10 00
5 street horses	10 00	6 pairs tongs	5 00
6 screens	20 00	2 hammers	2 00
3 hand carts	15 00	6 shovels, long handles	4 50
1 roll-top desk	20 00	12 shovels, short handles	10 00
1 fire engine	50 00	3 snow shovels	1 50
1 steam drill	300 00	6 hoes, long handles	4 50
1 battery and wires	25 00	2 hoes, short handles	80
7 long drills	7 00	3 monkey-wrenches	1 50
8 striking drills	4 00	3 hay-forks	1 50
4 striking hammers	4 00	1 vise	3 00
7 plug drills	3 50	1 King's die and plate	7 00
2 plug hammers	2 00	12 blankets	25 00
3 tool boxes	9 00	12 halters	9 00
3 tool houses	20 00	1 stone-crusher	200 00
4 ladders	15 00	1 revolving screen	100 00
4 saws	4 00	1 elevator	250 00
2 axes	2 00	1 engine and boiler	295 00
15 lanterns	7 50	1 street sweeper	270 00
2 sickles	50	2 Edson pumps and hose	55 00
4 chains	4 00	1 steam road roller	3,900 00
4 grub hoes	2 00	1 tender	55 00
1 clamp screw	2 00	2 steel plows	113 80
6 breaking hammers	6 00		
6 sledges	4 00		

1 spoon	\$0 50	1 Concord wagon	\$85 00
12 picks	12 00	1 sleigh	20 00
6 feed bags	2 00	1 light harness	15 00
2 rammers	8 00	1 sled	89 25
4 hammers	3 00	1 sled	50 00
2 trowels	1 00	1 pung	50 00
4 tamping bars	4 00	2 jack screws	18 00
10 crowbars	10 00	12 sewer braces	18 00
3 sighting sticks	75		
1 sprinkler	50		<u>\$9,560 60</u>

BUILDINGS.

1 stable, 58x28	\$1,500 00	1 house for steam	
1 shop and shed	400 00	roller	\$178 00
1 shed, 25x100	678 00	1 house for offal	
3 small build- ings	50 00	teams	<u>200 00</u>
1 hopper building	1,500 00		<u>\$4,506 00</u>

STOCK ON HAND.

20 feet granite circles		\$20 00
100 feet edgestone		58 00
100 feet granite flagging		60 00
30 feet North River flagging		12 00
2 catch-basin covers		5 00
100 large paving blocks		20 00
200 small paving blocks		6 00
6 tons round stone		6 00
40 tons gravel		30 00
2 iron manholes		24 00
21 feet of 20 inch pipe		15 00
20 " 12 "		14 00
12 " 10 "		6 00
10 " 8 "		3 00

12 feet of 6 inch pipe	. . . . .	\$2 40
10 " 4 "	. . . . .	1 50
2000 brick	. . . . .	20 00
2000 feet plank	. . . . .	36 00
10 gallons cylinder oil	. . . . .	10 00
51 " kerosene "	. . . . .	3 57
52 " machine "	. . . . .	26 00
50 " black "	. . . . .	7 58
839 tons crushed stone	. . . . .	1,000 00
		<hr/>
		1,386 05

MATERIAL USED UPON STREETS.

	Catch-basins cleaned.	Crushed stone.	Gravel.	Sand.	Ashes.	Filling.	Stone.	Screenings.	Loam.	Brickbats.	Bricks.
Allston street			14	12	173	2					
Almont street						22					
Amaranth avenue		210			97		214			8	
Albion street	1	4	6		6						
Auburn street			8		20	38					
Arlington street		3	146	32	140	154	12	5			
Ashland street		11									
Adams street	1	2			1						
Bradshaw avenue			6		4	7					
Brooks street		23			31						
Boston avenue		22	110		28	12					
Benham street						3					
Bowers street			10								
Brooking street			1								
City yard		140	906	28	2157	988	109		80	17	17*
Canal street		2	34		259	43					
Central avenue	10				36	40					
Cotting street						11					
Court street		3			3						
College avenue	2	10	9		10	47	1				
Cherry street					60	21					
Chestnut street		2									
Cross street		3	1	1	19						
Cottage street			5								
Chester avenue	3										
Dexter street	2	2	8								
Dudley street		1				16					
Mill pond		35	2637		1042	102	42		20†		
Elm street		5			2						
Everett street		9									
Edward street			10		26	31					
Emerson street		2	17								
Emery street						14					
Fourth street					6						
Forest street	2	271	111	7	9	35	2*				
Franklin street		6									
Fulton street		16	16			8					
Fountain street		4									
George street			3		3	13	8				
Governor's ave.		137	4	7		60	26				
High street	5	1013	376	52	47	225	70	90	4		
Harvard avenue		5	6		228						
Harvard street		1	5		35						
Hillside avenue						6					

* Ballast.

† Boulders.

	Catch-basins cleaned.	Crushed stone.	Gravel.	Sand.	Ashes.	Filling.	Stone.	Screenings.	Loam.	Brickbats.	Bricks.
Henry street		2			4						
Highland avenue		2	2			4					
Holton street		4	10					5			
Hancock street		37									
Irving street		1	24	4	5	70					
Joseph street			2			41					
Lawrence street			32			3					
Lapham street		34	20						2		
Linden street					10						
Lincoln street			1		4						
Middlesex avenue		24	10		68	11	17			1	
Marshall street			1		72	9					
Mystic avenue	1	6	5		68	82					
Main street	15	274	27	53	87	41	19*	4	10†		500
Medford street			7		31	3	3‡			18	
Marion street		14	4	6	4		2‡				
Medford square		11	2								
Myrtle street		68	115	2	93	19	179	2		7‡	39
Monument street			9								
Mystic street						2					
Magoun avenue			2	5		1					
Manning street	1	2									
Newcomb street		3									
Newbern avenue		2	17		227	4					
North street					62	3					
Newton street						31					
Oakland street		21									
Otis street			54	19		61					
Park street	5	26	12	13		8					
Pearl street		2									
Pembroke street		2									
Paris street						8					
Prescott street			13		6						
Pleasant street		2									
Riverside avenue		307	104		250	16		2			2200
Royal street		4	5								
Swan street		2	8	11	16	2					
Spring street		10	6	4	315	3					
Salem street	3	288	13		4	3					350
Sharon street			4		15						
Sixth street					3						
South street		222	123	3		14					
South street court						1					
Sherman street					5						
Summer street	2	3				1		2			
Third street			2		17						
Tufts street			1		7	2					
Thatcher street						6					

* Paving stones.

† Clay.

‡ Stone.

§ Ballast.

|| Cobble.

	Catch basins cleared.	Crushed stone.	Gravel.	Sand.	Ashes.	Filling.	Stone.	Screenings.	Loum.	Brickbats.	Bricks.
Touro avenue	1										
Tainter street		4									
Union street		4	5		5						
Valley street		8	1		25	38					
Winchester street		13	15		27	4	4				
Winthrop street	2	155	66		32	35					
West street		4	17		3						
Wareham street		3									
Wynan street		26	8		17	2					
Washington street		243	48	4							
Water street		1	4			4					
Webster street		1	4			9					
Warren street		5	6		8						
Walnut street			6								
Woburn street		22						2			

Highways :

Appropriation	\$15,000 00	
Credits	2,468 05	
Transfers	761 92	
		\$18,229 97
Expended		18,179 13
Balance		\$50 84

Sidewalks and Edgestones :

Appropriation	\$7,000 00	
Credits	2,056 90	
		\$9,056 90
Expended		\$8,080 22
Balance		\$976 68

Uncollected credits, \$716.58.

<i>Street Commissioner's Salary :</i>		
Appropriation		\$1,600 00
Expended		1,600 00
 <i>Collection of Ashes :</i>		
Appropriation	\$1,800 00	
Credits	277 50	
	<hr/>	\$2,077 50
Expended		2,067 00
		<hr/>
Balance		\$10 50
 <i>Amaranth Avenue :</i>		
Appropriation	\$864 46	\$864 46
Expended		861 64
		<hr/>
Balance		\$2 82
 <i>Arlington Street :</i>		
Appropriation	\$600 00	\$600 00
Expended		575 70
		<hr/>
Balance		\$24 30
 <i>Boston Avenue Drain :</i>		
Appropriation	\$731 24	\$731 24
Expended		97 87
		<hr/>
Balance transferred to Highways		\$633 37
 <i>Bridges :</i>		
Appropriation	\$600 00	\$600 00

Expended		\$468 38	
Balance		<u>131 62</u>	
<i>Middlesex Avenue Bridge :</i>			
Appropriation	\$1,200 00	\$1,200 00	
Expended		<u>851 97</u>	
Balance		\$348 02	
<i>Weir Bridge:</i>			
Appropriation	\$2,387 61	\$2,387 61	
Expended		<u>2,338 51</u>	
Balance		\$49 10	
<i>Care of Trees :</i>			
Appropriation	\$1,000 00	\$1,000 00	
Expended		<u>958 16</u>	
Balance		\$41 84	
<i>Setting out Shade Trees :</i>			
Appropriation	\$300 00		
Credits	<u>1 00</u>	\$301 00	
Expended		<u>244 80</u>	
Balance		\$56 20	
<i>Lapham Street :</i>			
Appropriation	\$161 85	\$161 85	
Expended		<u>130 25</u>	
Balance		\$31 60	
<i>Care of Snow :</i>			
Appropriation	\$600 00		

Appropriation	\$700 00	
	<hr/>	\$1,300 00
Expended		1,234 47
		<hr/>
Balance		\$65 53

City Stables :

Appropriation	\$1,000 00	\$1,000 00
Expended		982 58
		<hr/>
Balance		\$17 42

Steam Road Roller :

Appropriation	\$4,200 00	\$4,200 00
Expended		4,188 47
		<hr/>
Balance		\$11 53

Jigger :

Appropriation	\$250 00	\$250 00
Expended		250 00
		<hr/>

Gravelly Creek Improvement, Granite Wall and Screen :

Appropriation	\$400 00	
"	100 00	
	<hr/>	\$500 00
Expended		499 52
		<hr/>
Balance		\$0 48

Warren Street Culvert and Brook :

Appropriation	\$115 12	\$115 12
Expended		82 50
		<hr/>
Balance		\$32 62

Filling Mill Pond :

Appropriation	\$1,000 00	\$1,000 00
Expended		815 25
		<hr/>
Balance		\$184 75

Outfit for Collection of Swill and Offal :

Appropriation	\$550 00	
"	625 00	
	<hr/>	\$1,175 00
Expended		1,105 61
		<hr/>
Balance		\$69 39

Collection of Offal :

Appropriation	\$2,000 00	
Transfer	750 00	
Credits	275 00	
	<hr/>	\$3,025 00
Expended		2,215 02
		<hr/>
Balance		\$809 98

Guide Boards and Street Signs :

Appropriation	\$150 00	\$150 00
Expended		90 10
		<hr/>
Balance		\$59 90

High Street Widening :

Appropriation	\$700 00	
"	1,500 00	
	<hr/>	\$2,200 00
Expended		2,071 45
		<hr/>
Balance transferred to Highways		\$128 55

ESTIMATES FOR 1894.

Salary of Street Commissioner	\$1,600 00
Apparatus for cleaning vaults and cesspools	2,600 00
Barnard Castle, gutter scraper	400 00
Bridges	600 00
Care of shade trees	1,000 00
City stables, grading and repairs	500 00
City stables, shed	500 00
Collection of ashes	1,900 00
Collection of swill and house offal	3,000 00
Culvert on Fulton street	150 00
Engineering	900 00
Filling mill pond	500 00
General repairs of highways	15,000 00
Guide boards and street signs	100 00
Middlesex-avenue bridge	1,200 00
Odorless dumping cart	225 00
Removing snow	1,000 00
Setting out shade trees	300 00
Sidewalks and edgestones	5,000 00
Watering streets in addition to money collected	2,000 00
Arlington street	1,000 00
Magoun avenue	2,500 00
Gibson street to Glenwood station	600 00
Marion-street drain	1,200 00
Boston-avenue drain	700 00
Governor's avenue	1,000 00
	<hr/>
	\$45,475 00

In concluding this my first report as Street Commissioner, it gives me great satisfaction to be able to say that during the year none of the different divisions under my

supervision have overdrawn the amounts appropriated for their use.

The equipments of the different divisions are in good condition.

I wish to extend my sincere thanks to his Honor the Mayor, the City Council, Chief of Police, and the officers under him, for the prompt manner in which defects have been reported to me; to the Chief Engineer, Treasurer, Auditor, City Clerk, Mayor's Clerk, Board of Health, Water Board, Superintendent of Water Works, and City Messenger for their co-operation.

I desire also to acknowledge my appreciation of the faithful and conscientious assistance rendered me by my foreman, clerk, and employees during the year.

Respectfully submitted,

JOHN P. PRICHARD,

Street Commissioner.

REPORT
OF THE
WATER COMMISSIONERS.

MEDFORD, Mass., February 28, 1894.

Hon. S. C. LAWRENCE,

Mayor of the City of Medford, Mass.

Sir,—The Water Commissioners respectfully submit their annual report.

In the commencement, permit us to thank you for the interest you have manifested in our department during the past year, and we trust that the city appreciates the labor and time you have so kindly devoted with us in seeking for additional water supply.

Early in the season, Mr. Thomas B. Dill, a member of our board, found it necessary to retire on account of ill-health, and Mr. Eli Ayers was elected to fill the vacancy. The board was then composed entirely of new members, who had little knowledge of the work before them, and therefore felt it to be their duty to move with caution.

In attempting to arrive at some definite plan for action, it has been our aim to make our expenditures as light as possible.

In order to carry out the plan of last year's board, who had already driven ten wells, we obtained an appropriation of \$12,500 for the extension of the system of driven wells. We engaged the services of Mr. M. M. Tidd of Boston, civil engineer, to take full charge of the work, and under his direction eleven additional 2½-inch wells were driven. Five of the entire number were driven but a short distance

on account of boulders; the other wells ranged from 30 to 50 feet in depth. Fourteen of the wells were connected with the pump, and one is used as a test well. Temporary wooden buildings were erected to protect the pump and boiler, and the water is pumped direct into the main in Forest street by means of an 8-inch pipe laid for this purpose through Webster street.

Before the wet weather of the winter, we obtained from the wells about 150,000 gallons per day, and during the past few months have averaged 210,000 gallons every twenty-four hours.

The water was excellent in quality, and added materially to our supply during the summer season; in fact, in view of the low condition of Spot pond, such a reinforcement of our supply was indispensable.

In order to give the territory a further test, we had two more wells driven, about 1400 feet in a northeasterly direction from the present system, but found that our pump drafted them down some 8 or 10 feet, showing that it drew water from that locality.

Finding that, by the erection of a pumping station at the corner of Forest and Elm streets, a greater increased supply of water could be obtained at a reduced cost, — say at the rate of $1\frac{1}{2}$ cents per thousand gallons, as against 7 cents per thousand gallons at the driven wells, — we propose in a few weeks to cease operations at the driven wells, and we think it doubtful whether we shall have occasion to resume work there during the coming season.

The total amount of money expended on the driven-well system is \$6190.03.

We are under great obligations to you for your kindness and liberality in allowing us the free use of your land for the experiment.

Mr. A. F. Noyes, a civil engineer of high standing, at

the request of the former board of Water Commissioners, investigated the sources of water supply within the limits of the city, and submitted a reported date Aug. 1, 1892, which was published in the City Documents of last year.

Early in the season we employed Mr. M. M. Tidd to examine certain sources of supply, and to submit plans and estimates for the collection and proper distribution of the water. The conclusions to which he arrived are contained in his report which is herewith submitted.

It is a question in the minds of the board whether an adequate supply of water cannot be procured at a far less expense than would necessarily be incurred in carrying out the elaborate plans proposed.

And in this connection it is well to note that in Mr. Tidd's report no estimates of land damages are given, an item which will involve a very considerable expenditure.

By referring to the reports of Mr. Noyes and Mr. Tidd, it will be seen that they both concur in recommending the building of basins Nos. 1 and 2, located at Wright's pond and north of Pine hill, respectively.

We have caused a survey and plans to be made of certain lands which are a direct watershed to these two basins, and which should at once be acquired by the city as a water-works reservation. We regard this as a matter of the first importance.

After receiving Mr. Tidd's report, and in order that we might take further steps toward supplying Medford with water, we applied for an appropriation to erect a pumping station near Wright's pond.

It was late in the season before this was granted, and consequently we did not commence pumping until January 24, 1894, though there was sufficient water running to waste to supply Medford from this quarter since December

1, 1893. There will necessarily have to be more work done in this locality another season.

Forest street, that furnishes one bank of our reservoir, being made of cobble stones, causes quite a leakage, and should be piled with plank; and it may be deemed advisable to do a little excavating and banking up on the east side in order to prevent the water flowing over so much surface.

We are limited to the amount of water we are pumping at the present time, by the capacity of the pump not being what it was represented, but the Deane Steam Pump Company have made an offer of an exchange of pumps, which we shall accept, and the exchange will result in no loss to the city. The new one will pump from 1,500,000 to 2,000,000 gallons in twenty-four hours, and yet there will necessarily be days when some of the water will go to waste.

The foundation for our present pump is not adapted to support one that will be run at a higher rate of speed, and will require a little further outlay.

The total amount expended in building station No. 3, including basin and piping connected therewith, is \$4169.98, and the work was done under the immediate supervision of Mr. Tidd. The water from this station is pumped into the main at the junction of Forest and Elm streets.

We think of erecting a standpipe on the main alongside of Wright's pond, some 8 or 10 inches in diameter and 24 or 25 feet high, so as to enable us to keep up the pressure, and, when we have more water than Medford requires, to pump the balance into Wright's pond for future use, provided there is room for it. By this means we hope to supply the city until June without resorting to the wells or to Spot pond, and we expect to make arrangements with the joint board of the cities of Malden and Medford

and the town of Melrose so that during the remaining months of the year we can draw from Spot pond the amount allotted to Medford for the ensuing year.

We estimate that the cost of pumping water at this station will not be more than $1\frac{1}{2}$ cents per thousand gallons.

We have caused a connection to be made on Boston avenue with the Charlestown water works, to be resorted to only in case of fire or accident.

We have also had all of the gates of the entire system located, and a plan and book of the same prepared.

Meters have been placed in the railroad stations, stables, public buildings, and where water is used for irrigation.

Some of the parties who paid for hand hose in 1891 and 1892, but were not allowed to use any during 1892, and but little during 1891, thought the board should give the free use of hand hose in 1893 to those who had paid for it in the former year, and it was deemed advisable to grant the request and make it general, though by this means we were deprived of about \$1500 income.

The total receipts were \$37,637.83 for 1893, against \$34,301.93 for 1892.

The pipes on Mystic, Swan, and Union streets we think should be relaid the coming season. There are other streets which have only a 2-inch pipe, and which are more thickly settled than they were a few years since, that will soon require a larger service pipe, not only on account of fire risk but for domestic purposes.

When the board began their labors a year ago, the matter of high service at once pressed itself upon their attention. They thoroughly realized the necessity of furnishing a better water service for the highlands of the city at the earliest practical moment.

It was first necessary to obtain an additional supply of water from some new source, and steps were at once taken

with that end in view. The establishment of the pumping station at Wright's pond, with the unusual reserve of water in Spot pond for use in the dry season, insures an ample supply of water for the coming year.

The report of our consulting engineer includes a plan for a high service, but we find there are certain practical difficulties to be overcome before any plan can be carried into effect.

We shall continue to give the matter our earnest attention, and we feel confident that we shall soon arrive at a satisfactory solution of the problem. We propose to enter upon the work at the earliest possible date.

We have estimated the probable requirements for 1894, and would recommend appropriations as follows:—

For the completion of Boston-avenue connection	\$350 00
In addition to the unexpended balance of . . .	668 96
For new construction	7,500 00
For improving and enlarging the water supply of the city, the unexpended balances to the credit of—	
Driven wells (proceeds of bonds issued)	6,309 97
Pumping station at Wright's pond (do.)	5,830 02
Improving and enlarging water supply (do.)	9,679 47

In order that the fiscal year of the Water Commissioners shall correspond with the financial year established in the city charter, we recommend that the cash received for water rates, interest, rents, and special service pipes, during the term of thirteen months ending January 31, 1895, including the sum of \$11,759.68 received in January, 1894, be appropriated for the use of the Water Department in defraying the cost of maintenance and interest to the close of the financial year January 31, 1895, and that

all the surplus income of said thirteen months be then paid over to the Commissioners of the Sinking Fund, in pursuance of the act of the General Court in that regard.

We refer you to the accompanying annual report of the Superintendent and Water Registrar for further particulars relative to the work of the department.

Respectfully submitted,

FRANK E. CHANDLER,
HENRY DUNSTER,
ELI AYERS,

Water Commissioners.

REPORT OF M. M. TIDD, C. E.,
ON THE
DRIVEN WELLS NEAR FULTON STREET.

Boston, April 8, 1893.

*To the Board of Water Commissioners for the City of
Medford.*

Gentlemen, — Immediately upon receiving your instructions to proceed with the construction of the additional supply of water by a system of driven wells on Fulton street in your city, I commenced upon the necessary plans and surveys for that purpose.

Upon an examination of the location of the wells already driven, and from what I could learn there, I am of the opinion that the wells have not been tested thoroughly enough to insure a sufficient supply from that source.

I have arranged a general plan of the well system and of the pumping plant, a copy of which I enclose. The number of wells is 30, but the connecting pipe is so arranged that more can be added at any time.

The pumping apparatus consists of two pumps, one a compound duplex with 10½-inch plungers and 18-inch stroke, the other a high-pressure duplex with 10-inch plungers and 12-inch stroke, either of which is capable of pumping 1,000,000 gallons of water per day.

The plan includes a 12-inch cast-iron main from the pumps through Fulton and Valley streets to the present 12-inch main in Forest street.

In view of the contingency mentioned above, I would suggest that after the wells have been driven and connected, that the smaller of the pumps be connected with the wells and force main, and the system be given a thorough test before going to the expense of the main pumping station, the compound pump, and one of the boilers.

That can easily be done by placing the pump outside the lines of the pump house, in order that if we should conclude to go on with the house it would not interfere with operations of building. The boiler can be placed in its proper position within the lines of the building, and the house can be built over it if necessary later.

Should you later on conclude to proceed with the construction of the whole plant, the pump will be used as the small pump mentioned above in the permanent plant, so it will be no loss. I believe that as a matter of insurance the money will be well invested.

As it is proposed to pump the water during the test directly into the present pipe system, the city will get the new supply considerably earlier than if we wait until the permanent works are completed.

My estimate of the complete cost of the works in running order is as follows:—

ESTIMATE OF COST OF COMPLETE WORKS.

Driven-well system		\$4,500 00
Pumping machinery complete:		
1 compound duplex pump	\$4,000 00	
1 high-pressure duplex pump	1,200 00	
2 60-inch boilers	1,800 00	
	<hr/>	7,000 00
1 wrought-iron smoke-stack		200 00
Brick building and foundation		3,000 00
Pumping main:		
2348 feet 12-inch cast-iron pipe at		
\$1.40 laid	\$3,287 20	
Special castings	340 00	
Gates and boxes	350 00	
	<hr/>	3,977 20
		<hr/>
		\$18,677 20
Add 15 per cent for contingencies		2,801 58
		<hr/>
		\$21,478 78

ESTIMATE OF COST OF TEST.

Driven-well system		\$4,500 00
Pumping machinery for test:		
1 high-pressure pump	\$1,200 00	
1 boiler set up	900 00	
1 wrought-iron stack	200 00	
	<hr/>	2,300 00
Pumping main:		
2348 feet 12-inch pipe laid at \$1.40	\$3,287 20	

Special castings	\$340 00	
Gates and boxes	350 00	
		<hr/>
		\$3,977 20
		<hr/>
		\$10,777 20
Add 15 per cent for contingencies		1,616 58
		<hr/>
		\$12,393 78

If the well system should prove inadequate and have to be abandoned after the test, the pipe line would form part of a valuable reinforcement of the present system from Spot pond. The pumping machinery could be used elsewhere, and the total loss would not much exceed the cost of the driven wells.

Respectfully yours,
M. M. TIDD.

REPORT OF M. M. TIDD, C. E.,
ON
ADDITIONAL WATER SUPPLY.

*To the Water Commissioners of the City of
Medford, Mass.*

Gentlemen, — In accordance with the instructions from your board on April 1, I went to Medford on April 4, and examined the wells that had been driven on the land of Mr. Samuel C. Lawrence, between Fulton street and Gravelly brook, with a view to a water supply for the city from that source.

Ten 2 $\frac{1}{2}$ -inch wells had at that time been driven to a depth ranging from 30 to 50 feet, and supposed to reach the bed rock in every instance. The strata through which

these wells were driven showed that the clay extended from the surface to within about four feet of the bed rock. As neither the clay nor the rock could possibly contain any considerable amount of water, it follows that the four feet of gravel between the clay and the rock is the only place where water could be stored. This fact led me to suggest the testing of this scheme in a comparatively inexpensive manner before incurring the expense of a permanent pumping plant.

Accordingly, 11 additional were driven, 2 of which were failures, leaving 9 which were connected with 5 of the original ones by means of horizontal cast-iron 6-inch and 8-inch pipes. Two of the original wells were too far away for our experiment, and two were worthless. One of the original wells near the line of works was a good one. This, however, was not connected, but was used to test the rate at which the ground water fell off in pumping.

Thus 14 wells in all were connected with a Deane high-pressure duplex pump whose cylinders were 18-inch steam, 10-inch water, and 10-inch stroke, which was set temporarily on skids. This was driven by a 60-inch steam boiler set in brick in such a position that, should the result warrant the outlay of a permanent plant, a pumping station could be built over it and it would be in a suitable position for future use.

These pumps were started at 3.25 P.M. on June 30, pumping the water directly into the main pipe system at Forest street, by an 8-inch pipe connection through Fountain and Webster streets. The supply of water was so limited that the pump was obliged to be run very slowly, at the rate of 120 gallons per minute, and at the end of 23 hours the supply was exhausted and the experiment was a failure.

During the pumping, experiments were made by shutting some of the wells in order to ascertain if there were wells

enough to take what the earth could furnish. The result of these experiments showed that seven wells would exhaust the entire supply in 23 hours, the ground water falling to such a depth as to be below the limit of suction lift, the pump being set as low as was safe from overflow in the freshet season, the centre of the cylinders being level with the surface of the ground at that point.

On June 13 I received instructions from your board to examine into the entire question of a water supply for your city and to report to you the results of such examination; and in pursuance of those instructions have made surveys and plans for the impounding of water in the district known as the Middlesex Fells, which seems to be the only place within a reasonable distance where anything like a reliable supply can be obtained. There is in that locality 821 acres of remarkably clean watershed which is entirely within the limits of Medford, and on that entire shed there are but two houses.

On this whole territory there are five distinct watersheds, as shown on the map submitted herewith. These are numbered from 1 to 5, of the combined area of 821 acres, or 1.28 square miles. To collect and store the water from these watersheds there are proposed 8 storage basins shown and numbered on the map from 1 to 8, and of a combined area of 118.2 acres and a combined storage capacity of 440,000,000 gallons; also two catchment basins, numbered on the map 9 and 10.

When these basins with their dams and connecting conduits are completed, the daily supply that can be depended upon through wet and dry seasons will be from 1,000,000 to 1,100,000 gallons from this territory.

The basins are designed to collect and store the maximum quantity of water that can be obtained from the combined area of the watersheds.

It will not be necessary to undertake the complete development of the scheme at once, but it may be done in the following order:—

1st. Build dams and gate-houses at basins Nos. 1 and 2, lay a line of 12-inch pipe from each gate-house to the junction of Elm and Forest streets, and connect them with the main from Spot pond at that point below the meter.

2d. Build a pumping station at some point of the Mystic river below Cradock bridge, where all the water from the different sources, included that of Spot pond, can be brought. Into this pumping station put in one 2,000,000-gallon compound condensing duplex pumping engine, and set the high-pressure pump that is now in use at the wells near Fulton street, to be used as a supplementary pump in case of accident to the compound pump. Set the 60-inch boiler now in use at the wells, and buy and set a 66-inch boiler, provide room in the pumping station for another 2,000,000-gallon compound pump, and for another 66-inch boiler, lay a 16-inch pipe from the 12-inch main at Medford square to the pumping station to carry the water to the pumps from Spot pond and other sources of supply.

3d. Erect a standpipe of 400,000 gallons capacity upon "Pasture hill," and also one upon Hastings park in West Medford, leaving the third standpipe at Medford hillside to be erected later when needed. The top of these standpipes to be at grade 230 above mean low tide.

4th. Lay a 16-inch pipe from the pumping station to Medford square, thence through High street to Governor's avenue; from this point lay a 14-inch pipe through Governor's and Crest avenue to the standpipe on Pasture hill; also lay a 14-inch pipe through High street to Winthrop square, and from there a 10-inch pipe through Winthrop and Wyman streets to Allston street; a 12-inch pipe in Allston street from High to Vernon street, and connect

with the standpipe at Hastings park. Lay the remainder of the pipe mentioned on schedule A as fast as it can be done to advantage.

The completion of the above will give the town an additional supply of water capable of supplying (with the present source in Spot pond) approximately 16,000 people at about the present rate of consumption. It will also give good fire pressure at all parts of the town, and, owing to the proposed additions to the pipe system, will deliver the water both for domestic use and for fires without excessive loss of head at any point in the system. The low-water line in the standpipes will be sixty feet above the highest building land at Medford hillside, which is the highest land in the city outside of Middlesex Fells.

The above-mentioned work is estimated to cost \$168,245, as shown on estimate No. 1, herewith enclosed. As the population is increasing at a rapid rate, it is probable that on the completion of the above work, in order to supply that increase it would be necessary to go on further in the development of these plans, and complete the remainder as fast as may be done with economy and advantage, and in the following order:—

5th. Construct dam at basin No. 3 with gate-house and 12-inch pipe connection with main at Forest street at an estimated cost of \$9197.

6th. Put in the dam at basin No. 4 at an estimated cost of \$5788.

7th. Dam and gate-house at basin No. 8, cost \$28,000.

8th. Lay pipe conduit from basin No. 8 to main in Forest street, cost \$5600.

9th. Dam at basin No. 6, cost \$7510.

10th. Dam at basin No. 5, cost \$5185.

11th. Catchment dam at basin No. 10, and 12-inch pipe to basin No. 8, cost \$3250.

The above work of construction should be done in the near future in order to anticipate the growth of the city, and when done would furnish a daily supply of from 800,000 to 900,000 gallons, and in connection with Spot pond will supply 26,000 or 27,000 people. It is estimated that the population of Medford will be 25,500 in 1915. The total cost of all construction to this point will be \$242,454.50, as given on estimate No. 2.

After the above is completed there will remain two more items of construction necessary to complete the development of the watersheds and secure all of the water that they are capable of furnishing.

These items are as follows:—

12th. Build catchment dam at basin No. 9, and lay 5800 feet of 12-inch conduit pipe to basin No. 4 to carry the water from this basin 9 (which has very little storage provided) to the other storage basins of the system. This conduit will also be connected with basin Nos. 1 and 2 to take the surplus water from them to the other basins, where there will be an excess of storage capacity when the dam at basin No. 7 is built.

The cost of this item will be \$12,700.

13th. Build dam at basin No. 7, cost \$9914.

14th. Erect a standpipe at Medford hillside, cost \$15,000.

This will complete all of the contemplated work upon this source of supply, and will supply with Spot pond 30,000 to 31,000 people at the present rate of consumption. It is estimated that the population of Medford will be 30,000 in 1920.

The total cost of all the proposed work, including development of water supply, pumping station and machinery, standpipes, and main piping, will be \$287,803.60, as given on estimate No. 3.

The cost is divided among the different parts of the work about as follows:—

Additional water supply (dams and basins)	\$105,164 00
Pumping station and machinery	20,000 00
3 standpipes	47,000 00
Piping	78,100 00
	<hr/>
	\$250,264 00
Add 15 per cent for contingencies	37,539 60
	<hr/>
	\$287,803 60

Schedule A.

LIST OF PROPOSED PIPING.

Location.	16 in.	14 in.	12 in.	10 in.	8 in.
From pumping station to Medford square	1,000				
High street from Medford square to Governor's avenue	500				
Governor's and Crest avenues from High street to standpipe		1,300			
High street from Governor's avenue to Winthrop street		2,000			
Winthrop street from High to Wyman street				1,000	
Wyman street from Winthrop to Allston street				2,100	
Vernon street from Allston to Brooks street				600	
Allston street from Vernon to Prescott street			1,000	500	
High street from Allston to Harvard street				1,000	
Brooks street from Woburn to Madison street					1,100
Madison street from Brooks to Warren street					600
Warren street from Madison to High street					900
Prescott street from Allston to Canal street				500	

Location.	16 in.	14 in.	12 in.	10 in.	8 in.
Canal street from Prescott to Arlington street				500	
Arlington street from Canal to Jerome street				1,100	
Jerome street from Arlington to High street				750	1,500
South street from Main to Winthrop street				2,000	
Winthrop street from South to Boston avenue				2,200	
Main street from Mystic avenue to Medford street				5,000	
Cross street from Riverside avenue to Washington street				800	
Washington street from Cross to Spring street				2,800	
Riverside avenue from Cross street to pumping station			800		
Riverside avenue from Locust to Winthrop avenue					1,900
Fourth street from Winthrop avenue to Middlesex avenue					1,300
Tainter street					1,100
Paris street from Tainter to Salem street					500
Forest street from Medford square to Elm street					6,500
	1,500	3,300	1,800	20,850	15,300

ESTIMATE NO. 1.

COST OF PROPOSED IMMEDIATE CONSTRUCTION.

Basin No. 1 :

Dam and gate-house	\$15,050 00	
Removing soil, &c.	9,000 00	
700 feet 12-inch pipe @ \$1.50	1,050 00	
		\$25,100 00

Basin No. 2 :

Dam and gate-house	\$6,620 00
------------------------------	------------

Removing soil, &c.	\$3,000 00	
400 feet 12-inch pipe @ 1.50	600 00	
	<hr/>	\$10,220 00
Pumping station and chimney		10,000 00

Pumping Machinery :

One 2,000,000-gall. compound pump (14x18) and one 66-inch boiler	\$9,000 00
Setting fire-pump and boiler	1,000 00
2 stand pipes	32,000 00
1000 feet 16-inch pipe (supply conduit)	2,250 00

Piping as per Schedule A :

1,500 feet 16-inch cast-iron pipe laid @ \$2.10	\$3,150 00
3,300 " 14 " " " 1.70	5,610 00
1,800 " 12 " " " 1.35	2,430 00
20,850 " 10 " " " 1.10	22,935 00
15,300 " 8 " " " .85	13,005 00
Gates	2,100 00
Special castings	1,500 00
1,500 cubic yards rock excavation @ \$4	6,000 00
	<hr/>
	\$146,300 00
Add 15% for engineering and contingencies	21,945 00
	<hr/>
	\$168,245 00

ESTIMATE NO. 2.

COST OF PROPOSED CONSTRUCTION TO ITEM 11, INCLUSIVE.

Cost of items 1 to 4, as per estimate No. 1	\$146,300 00
" " 5, dam, &c., at basin No. 3	9,197 00
" " 6, " " " No. 4	5,788 00
" " 7, " " " No. 8	28,000 00

Cost of item 8, pipe conduit from basin 8 to .	
Forest street	\$5,600 00
" " 9, dam at basin No. 6	7,510 00
" " 10, dam at basin No. 5	5,185 00
" " 11, catchment dam and pipe at basin No. 10	3,250 00
	<hr/>
	\$210,830 00
Add 15 per cent for engineering and contin- gencies	31,624 50
	<hr/>
	\$242,454 50.

ESTIMATE NO. 3.

COST OF TOTAL PROPOSED CONSTRUCTION.

Cost of items 1 to 4, as per estimate No. 1 .	\$146,300 00
" " 5 to 11, as per estimate No. 2 .	64,530 00
" " 12, dam and conduit at basin No. 9 .	12,700 00
" " 13, dam at basin No. 7	9,914 00
" " 14, standpipe at Medford hillside .	15,000 00
" " 15, 1300 feet 12-inch pipe to con- nect the standpipe	1,820 00
	<hr/>
	\$250,264 00
Add 15 per cent for contingencies	37,539 60
	<hr/>
	\$287,803 60

In the cases of basins Nos. 1, 2, and 10, my estimates of cost and quantities were based upon the surveys of Mr. A. F. Noyes as given in his report of August 1, 1892, with the exception of No. 1, in which the dam has been located nearly on the line of the present one, near the ice houses, thus gaining about three acres more storage capacity than by the plan of Mr. Noyes.

The estimate of the cost of basins Nos. 1 and 2 includes

the removal of the soil within the flow lines, but that is not included in the others. The soil in basins 3, 4, 5, 6, 7, 8, and 9 is very light, and if these basins could be allowed to stand filled for five years the water by that time would probably be good without the removal of the soil.

The trees must be removed and the stumps taken out, but as many of the trees are of considerable size, the wood would probably pay for its removal.

The watersheds are remarkably clean and steep, being in most cases ledge. It is probable that 75 per cent of the rainfall can be collected from them. The abruptness of the watersheds gives the advantage of short dams and deep reservoirs.

It is probable that if commenced upon at once the portion mentioned in estimate No. 1 can be completed for use in the spring of 1894.

The estimates of cost above given are based upon the cost of labor and materials of the present time, and are subject to the fluctuations of the market.

The work can without doubt be contracted for with good parties for the above prices at the present time.

Respectfully yours,

M. M. TIDD.

SUPERINTENDENT'S REPORT.

To the Medford Water Board.

Gentlemen,—I herewith submit the annual report of this department for the year ending February 1, 1894.

SOURCES OF SUPPLY.

Owing to a decrease in the consumption, and a fair distribution of rainfall, during the past year, Spot pond was

drawn to but 8 feet 11 inches below high-water mark, or 3 feet 3 inches less than last year. The above point was reached November 30, and the pond is now gradually rising, with a prospect, under present conditions, of reaching high-water mark once more during the coming season, which height it has not reached since 1891.

The driven wells upon which experiments were being made at the date of the last report were started as a source of supply on June 30, and we have continued pumping from them up to the present time, the water being forced direct into the mains, any surplus overflowing into Spot pond. The amount of water obtained from this source has been small as compared with the cost of pumping, but, considering the low stage of the water in Spot pond, has proven a valuable addition to our supply. The average amount of water per day obtained from this source was 155,382 gallons.

Work was commenced on the Wright's pond source of supply December 1. A small sheet pile dam has been built, the adjacent land to be flowed has been cleaned off, pump and boiler rooms built, boiler and pump set and connected, and the pump was started January 24, 1894, and has continued pumping since. All the work done at this station, with the exception of the brickwork around the boiler, carpenter work on the house, and the placing in position of the smoke-stack, has been done by this department.

On starting this station, the pump at Spot pond was stopped, and no water has been taken from this source up to date, and it will probably not be necessary to return to the pond until the summer season.

Wright's pond station will need painting, and the grounds cleaning and grading, as soon as the season admits.

Basin No. 2 at Spot pond has been capped with wood to

protect the walls from the weather. This will require painting in the spring. Considerable work must be done on the station and grounds at this place in order to put them in a presentable condition. The station needs finishing on the inside, the grounds should be graded, and the undergrowth in the vicinity should be cleaned out.

DISTRIBUTION PIPE.

Fourteen thousand six hundred and eighty-nine feet of distribution pipe have been laid during the year, making 46 miles and 3793 feet now in service.

Webster street has been relaid with 8-inch iron pipe, in order to connect the driven wells with the 12-inch main on Forest street.

The 8-inch main on Boston avenue has been connected at College avenue with the 24-inch feed main of the Mystic Water Works, to be used only as an emergency supply in case of some unusual accident to our supply.

Owing to the taking up of the old low-service main in Malden on Pleasant street, the connection between Medford and Malden has been cut off. It is the intention of the Malden Water Board to connect these mains again, but as the new main laid by them is high service, and carries from thirty to forty pounds more pressure than the mains of our city, it will be useless as a source of supply to Medford, as many of our mains will not stand this increase, unless a reducing valve to equalize the pressure be placed between the two systems. I would therefore recommend that when the connection is made, Medford purchase such a valve and so place it.

The total number of leaks on mains repaired during the year was 91; and cost to repair \$433.21.

I would earnestly recommend the early relaying of Swan

street, Union street, and Mystic avenue, as in my opinion this district has outgrown the present piping in more ways than one.

HYDRANTS.

Twenty-five new hydrants have been located during the year, making 271 in use at the present time. Eight hydrants have been replaced, at a cost of \$285.

GATES.

Forty-eight new gates have been set during the year, making 431 to date. Four gates have been replaced.

WATERING POSTS.

Three watering posts have been relocated, making 10 in present use. A temporary watering post was located at the Boston-avenue bridge, over the Mystic river, and water was supplied by a steam pump drawing its supply from the river. This post was discontinued and taken out in the fall.

SERVICE PIPES.

One hundred and seventy-five services were laid during the year, using 3639 feet of pipe on the works, and 2499 feet of extra pipe, paid for by the parties ordering the same. There have been 26 leaks on services repaired during the year.

METERS.

Thirty-one meters have been placed during the year and one meter reset.

FOUNTAINS.

One new drinking fountain has been placed during the year at the junction of Spring and Salem streets. The foun-

tain at the corner of Park and Washington streets, having been broken beyond repair, has been replaced by a new one.

The following are connected with the works at the present time: 2695 services, 22 blow-offs, 10 watering posts, 10 drinking fountains, and 271 hydrants.

The list of property on hand February 1, 1894, is as follows:—

Stable stock and utensils	\$1,725 00
Main-pipe tools	1,012 47
Service-pipe tools	548 20
Main-pipe stock	2,330 88
Service-pipe stock	643 20
Office fixtures and maps	320 00
At pumping stations	305 00
	<hr/>
	\$6,884 75

A detailed account of the above schedule is on file at the office.

The usual tables showing the height of water in the pond, the monthly rainfall, number of feet of pipe connected with the works, &c., are presented with this report.

Respectfully submitted,

FREDK. W. GOW,

Superintendent.

HEIGHT OF WATER IN SPOT POND AT TRI-MONTHLY PERIODS, FOR THE YEAR 1893.

Feb.	10.	139½	inches	below	high-water	mark.
	20.	124¾	"	"	"	"
	28.	124	"	"	"	"
March	10.	120¼	"	"	"	"

March	20.	90 $\frac{1}{2}$	inches below high-water mark.					
	30.	85 $\frac{1}{2}$	"	"	"	"	"	"
April	10.	77 $\frac{1}{2}$	"	"	"	"	"	"
	20.	73 $\frac{1}{4}$	"	"	"	"	"	"
	30.	68	"	"	"	"	"	"
May	10.	50	"	"	"	"	"	"
	20.	42 $\frac{1}{4}$	"	"	"	"	"	"
	30.	42 $\frac{1}{2}$	"	"	"	"	"	"
June	10.	45 $\frac{1}{2}$	"	"	"	"	"	"
	20.	49 $\frac{1}{2}$	"	"	"	"	"	"
	30.	52 $\frac{1}{4}$	"	"	"	"	"	"
July	10.	57 $\frac{1}{2}$	"	"	"	"	"	"
	20.	64 $\frac{1}{4}$	"	"	"	"	"	"
	30.	68 $\frac{3}{4}$	"	"	"	"	"	"
Aug.	10.	70 $\frac{3}{4}$	"	"	"	"	"	"
	20.	76	"	"	"	"	"	"
	30.	78 $\frac{1}{4}$	"	"	"	"	"	"
Sept.	10.	83 $\frac{1}{2}$	"	"	"	"	"	"
	20.	89	"	"	"	"	"	"
	30.	94 $\frac{1}{2}$	"	"	"	"	"	"
Oct.	10.	100	"	"	"	"	"	"
	20.	103 $\frac{1}{2}$	"	"	"	"	"	"
	30.	102 $\frac{1}{2}$	"	"	"	"	"	"
Nov.	10.	103 $\frac{7}{8}$	"	"	"	"	"	"
	20.	106 $\frac{1}{4}$	"	"	"	"	"	"
	30.	106 $\frac{1}{2}$	"	"	"	"	"	"
Dec.	10.	101 $\frac{1}{4}$	"	"	"	"	"	"
	20.	98 $\frac{1}{2}$	"	"	"	"	"	"
	30.	92 $\frac{7}{8}$	"	"	"	"	"	"
1894.								
Jan.	10.	92 $\frac{3}{4}$	"	"	"	"	"	"
	20.	90 $\frac{3}{4}$	"	"	"	"	"	"
	30.	85 $\frac{1}{2}$	"	"	"	"	"	"

PRECIPITATION FOR 1893.

January, 2.00 inches.	July, 1.55 inches.
February, 5.63 "	August, 5.32 "
March, 1.72 "	September, 2.01 "
April, 3.51 "	October, 4.11 "
May, 6.42 "	November, 2.15 "
June, 2.15 "	December, 4.89 "

Total for year, 41.46 inches.

 WATER REGISTRAR'S REPORT.

To the Water Commissioners :

Gentlemen, — The organization of the Medford Board of Water Commissioners, from the time the works were established in 1869 to the present time, has been as follows: —

Daniel A. Gleason, elected Sept. 20, 1869, served until Jan. 1, 1893.

Benjamin F. Hayes, elected Sept. 20, 1869, term expired March, 1874.

Daniel W. Wilcox, elected Sept. 20, 1869, resigned April 4, 1870.

James O. Curtis, elected April 25, 1870, term expired March, 1873.

William B. Thomas, elected March, 1873, died Jan. 19, 1892.

Francis E. Foster, elected March, 1874, resigned Jan. 20, 1893.

Thomas B. Dill, elected March, 1892, re-elected Jan. 19, 1893, for three years, resigned April 24, 1893.

Frank E. Chandler, elected Jan. 19, 1893, for two years.

Henry Dunster, elected March 13, 1893, for one year.

Eli Ayers, elected May 1, 1893, for Mr. Dill's unexpired term.

CLERKS.

Parker R. Litchfield, elected May 2, 1870, resigned April, 1873.

Darius A. Green, elected March 20, 1874, resigned Sept. 30, 1876.

Charles B. Buss, elected Sept. 30, 1876, resigned Oct. 1, 1890.

Edward W. Hayes, elected Oct. 1, 1890.

SUPERINTENDENTS.

Robert M. Gow, elected Oct. 7, 1871, died June 6, 1892.

Frederick W. Gow, elected June 10, 1892.

AGGREGATE EXPENSE ACCOUNT.

	<i>Dr.</i>	<i>Cr.</i>
Cash on hand Feb. 1, 1893		\$27,295 01
Appropriation for new construction and service pipe		13,500 00
Appropriation for Water Commissioners' salary		150 00
Appropriation for improving and enlarging water supply		41,172 47
Appropriation for pumping station, Wright's pond		10,000 00
Receipts, water rates, interest, &c., 1893		25,848 67
Receipts, service pipe, 1893		1,225 02
Receipts, water rates for Jan. 1894		11,171 71
Receipts, service pipe, 1894		27 97

Receipts, rents, 1893 . . .	\$1,030 89
Receipts, rents, 1894 . . .	560 00
Receipts, interest on deposits . . .	310 51
Receipts, sale of wagon . . .	3 00
	<hr/>
	\$132,295 25

Maintenance and interest on bonds	\$43,941 90
Improving and enlarging water supply	19,820 53
Driven wells	6,190 03
Boston-avenue connection	132 89
New construction and service pipe	14,983 95
Rents and repairs	406 27
Pumping station at Wright's pond	4,169 98
Water Commissioners' salaries	150 00
Cash on hand January 31, 1894	42,499 70
	<hr/>
	\$132,295 25

The following balances remain:—

Maintenance and interest on bonds	\$18,557 81
Improving and enlarging water supply	9,679 47
Driven wells	6,309 97
Boston-avenue connection	668 96
New construction and service pipe	268 85
Rents and repairs	1,184 62
Pumping station, Wright's pond	5,830 02
	<hr/>
	\$42,499 70

The proceeds from the operations of the water works for the year, available for the sinking fund, are as follows:—

Balance to the credit of—

Maintenance and interest on bonds	\$18,577 81
New construction and service pipe	268 85
Rents and repairs	1,184 62
	<hr/>
	\$20,011 28

From which deduct Jan. 1894, receipts for —	
Water rates and interest . . .	\$11,171 71
New construction and service pipe . . .	27 97
Rents and repairs	560 00
	<hr/>
	\$11,759 68
Surplus earnings for the year ending Jan. 31, 1894	
	\$8,251 60
Total maintenance and interest on bonds . . . \$43,941 90	
From which deduct interest on	
bonds paid	\$10,910 00
Interest on Wright note	660 00
Interest on town note	800 00
Amount paid sink- ing fund	15,386 08
	<hr/>
	\$27,756 08
Net maintenance for 1893 \$16,185 82	
Net maintenance for 1892 \$16,097 90	

RECEIPTS.

	1892.	1893.
Water rates and interest	\$32,193 80	\$34,999 21
Service pipes	1,103 47	1,294 22
Rents	657 42	1,030 89
Sale of old wagon		3 00
Interest on deposits	347 26	310 51
	<hr/>	<hr/>
	\$34,301 95	\$37,637 83

COST OF WORKS.

Amount expended on plant previous to Feb. 1, 1893	\$406,251 57
--	--------------

Expended from Feb. 1, 1893, to Feb. 1, 1894,	
for construction and service pipes . . .	\$14,983 95
Driven wells, Fulton street	6,190 03
Boston-avenue connection	132 89
Pumping station at Wright's pond	4,169 98
Relaying Webster-street main	1,763 32
Improving and enlarging water supply . .	3,890 55
	<hr/>
	\$437,382 29

Amount expended for land, for water storage,	
and for protecting and improving the water	
works previous to Feb. 1, 1893	\$53,092 15
Expended during the year ending Feb. 1, 1894	14,166 66
	<hr/>
	\$67,258 81

The total receipts from earnings since the es-	
tablishment of the works to Feb. 1, 1893,	
have been	\$451,605 49
Receipts for the year ending Feb. 1, 1894 . .	37,637 83
	<hr/>
	\$489,243 32

There are at the present time connected with the works :

2732 services, furnishing water for—

2433 dwelling houses containing 1431 bath tubs
and 1965 water-closets, and occupied by
3052 families.

115 stores and shops.

9 churches.

7 railroad stations.

14 schoolhouses.

12 public buildings, &c.

65 stables, pastures, &c.

10 drinking fountains.

30 factories, brick yards, and out-door faucets.
37 services have been abandoned.

2732

44 service meters are in use.
271 fire hydrants are in use.

THE NEW CONSTRUCTION AND SERVICE PIPE FOR THE
YEAR

Consists of the following :—

247 ft. 6-in. cast-iron pipe in Joseph street	}	\$322 78
147 ft. 6-in. cast-iron pipe in Dexter street		
1 6-in. fire hydrant, Joseph street	.	59 47
550 ft. 6-in. cast-iron pipe, Burget avenue	.	313 80
1 4-in. fire hydrant, Burget avenue	.	38 03
350 ft. 8-in. cast-iron pipe, George street	.	342 85
1 5-in. fire hydrant, George street	.	41 56
1050 ft. cast-iron pipe, Grant avenue	.	610 07
2.5-in. fire hydrants, Grant avenue	.	93 90
685 ft. 6-in. cast-iron pipe, Orchard street	.	484 76
1 5-in. fire hydrant, Orchard street	.	42 60
371 ft. 6-in. cast-iron pipe, Circuit street	.	298 04
1 5-in. fire hydrant, Circuit street	.	43 60
503 ft. 6-in. cast-iron pipe, Edwards street	.	317 02
2 5-in. fire hydrants, Edwards street	.	82 33
185 ft. 6-in. cast-iron pipe, Bennett street	.	121 57
112 ft. 6-in. cast-iron pipe, West street	.	88 76
260 ft. 6-in. cast-iron pipe, Royal street	.	194 96
437 ft. 6-in. cast-iron pipe, Mystic park	.	247 22
1 5-in. fire hydrant, Mystic park	.	37 38
625 ft. 6-in. cast-iron pipe, Garfield avenue	.	332 34
1 5-in. fire hydrant, Garfield avenue	.	42 53
370 ft. 6-in. cast-iron pipe, Dearborn street	.	245 43

1486 ft. 8-in. cast-iron pipe, Webster street } 275 ft. 8-in. cast-iron pipe, Fountain street }	\$1,763 32
1 5-in. fire hydrant, Webster street . . .	43 50
403 ft. 8-in. cast-iron pipe, Bellevue street . . .	389 15
1 5-in fire hydrant, Bellevue street . . .	46 58
225 ft. 8-in. cast-iron pipe, Sheridan avenue . . .	195 55
388 ft. 8-in. cast-iron pipe, Pembroke street . . .	397 54
1 5-in. fire hydrant, Pembroke street . . .	41 10
950 ft. 8-in. cast-iron pipe, Governor's avenue . . .	892 38
3 5-in. fire hydrants, Governor's avenue . . .	128 50
370 ft. 6-in. cast-iron pipe, Summit road } 548 ft. 8-in. cast-iron pipe, Summit road }	968 26
2 5-in. fire hydrants, Summit road . . .	81 70
241 ft. 6-in. cast-iron pipe, Crest road . . .	200 07
652 ft. 8-in. cast-iron pipe, Terrace road . . .	839 81
310 ft. 6-in. cast-iron pipe, Dale road . . .	231 60
2 5-in. fire hydrants, Terrace road . . .	87 53
275 ft. 6-in. cast-iron pipe, Hastings lane . . .	262 78
1 4-in. fire hydrant, Hastings lane . . .	39 38
235 ft. 6-in. cast-iron pipe, Ship avenue . . .	140 75
1 5-in. fire hydrant, Ship avenue . . .	39 75
385 ft. 8-in. cast-iron pipe, Chester avenue . . .	427 74
1 5-in. fire hydrant, Chester avenue . . .	40 63
135 ft. 6-in. cast-iron pipe. Arlington street . . .	89 88
534 ft. 6-in. cast-iron pipe, Hume avenue . . .	328 59
1 5-in. fire hydrant, Hume avenue . . .	43 60
100 ft. 6-in. cast-iron pipe, Gleason street . . .	70 59
114 ft. 8-in. cast-iron pipe, Albion street . . .	173 25
96 ft. 8-in. cast-iron pipe, Clayton avenue . . .	129 37
184 ft. 6-in. cast-iron pipe, Bellevue terrace . . .	174 84
70 ft. 8-in. cast-iron pipe connecting with Mystic Water Works	168 61
1 6-in. water gate, Fulton street	20 23
175 house service pipes	1,847 91

1104 ft. 8-in. cast-iron pipe on hand . . .	\$614 80
24 ft. 6-in. cast-iron pipe on hand . . .	9 00
3 8-in. Ludlow gates on hand . . .	57 00
2 8-in. Peet gates on hand . . .	40 00
1 6-in. Peet gate on hand . . .	12 00
Special castings (T's, bends, &c.) on hand .	675 00
Service-pipe fixtures, brass, on hand . . .	423 00
4 6-in. hydrants on hand . . .	156 00
850 lbs. pig lead on hand . . .	44 00
439 lbs. gate boxes on hand . . .	10 98
	<hr/>
	\$16,747 27

Deduct cost of new main in Webster and a part of Fountain street charged to Improving and Enlarging Water Supply . . .	1,763 32
	<hr/>
	\$14,983 95

For detail of expenditures, see Auditor's Report.

Respectfully submitted,

E. W. HAYES,

Water Registrar.

DISTRIBUTION OF CEMENT-LINED PIPE.

STREETS.	12-in.	STREETS.	8-in.	STREETS.	6-in.	STREETS.	4-in.	STREETS.	3-in.	STREETS.	2-in.
	Feet.		Feet.		Feet.		Feet.		Feet.		Feet.
Forest and to Pond	11,888	Central av. . . .	970	Adams to Boston av. } . . .	1,329	Arlington	2,786	Almont	694	Allen court	319
		Boston av. . . .	8,426	Albion	1,045	Adams	1,130	Bower	1,138	Allston court	154
		Harvard	518	Alfred	376	Adams, W. M. . . .	422	Brooks	728	Arlington court	118
		High	4,029	Auburn	132	Albion	420	Cotting	932	Ashland pl. . . .	210
		Main	1,107	Boston av. . . .	568	Alfred	16	Irving	777	Auburn	625
		Purchase	889	Bradshaw	965	Allston	2,273	Jerome	1,761	Bates court	64
		Second	1,722	College av. . . .	720	Abn-house lane	460	Pearl	739	Bates court, No. 3	166
		Salem	7,469	Cotting	439	Ashland	1,223	Pleasant	533	Bigelow lane	209
		Spring	4,100	Fulton	1,140	Auburn	1,412	Union	683	Brick-yard	1,321
		Stearns av. } . . .	1,211	Garfield av. . . .	336	Boston av. . . .	421			Brooks park	834
		College av. } . . .	1,024	George	760	Boston av. (off)	176			Canal	599
		Lawrence to B. & M. } . . .	885	Gleason	312	Bradbury av. . . .	276			Cherry	350
		R. R. } . . .		Glidden	345	Brick-yard	293			Chestnut	436
		Middlesex av. } . . .	300	Greenleaf av. . . .	963	Brookings	145			Cottage	570
		Riverside av. } . . .	730	Hall park	1,174	Brooks	2,573			Cross	892
		Wayne	703	Hall park	2,000	Branch	210			Curtis	585
				Higgins av. . . .	296	Cudworth	112			Daisy	303
				High	3,278	Cushing	718			Everett	866
				Of Hillside av. . . .	176	Canal	654			Edwards	209
				Lapham	491	Central av. . . .	200			Fifield court	173
				Locust	806	Cherry	322			Fifth	389
				Magoun av. . . .	1,872	College av. . . .	231			Floyd's court	183
				Main	7,359	Court	1,320			Foster court	589
				Medford	1,716	Dexter	1,269			Fountain	706
				Middlesex av. . . .	585	Dudley	1,731			Fountain ct. . . .	341
				Morton av. . . .	240	Edwards	758			Fulton (off)	150
				Newburn av. . . .	1,196	Emerson	634			Garden	436
				Riverside av. . . .	5,150	Emery	400			Grove	1,100
				Sharon	2,192	Fifth	1,327			Hadley court	305
				Ship av. . . .	534	Florence	728			Hancock	262
				Thatcher	885	Fountain	570			High (off)	395
				Washington	437	Fourth	2,331			Highland av	825
			Winthrop	1,177	Franklin	2,820			Madison	67	
			Winchester	1,701	Fulton	2,478			Maverick	38	
									Medford (off)	146	

Mystic av. (off) . . .	174
Newton . . .	303
Oak Grove . . .	336
Cemetery } . . .	1,536
Paris . . .	218
Park st. ct. . .	133
Posey . . .	1,168
Purchase . . .	316
Revere place . . .	176
Riverside } . . .	362
av. (off) } . . .	426
Sable's court . . .	218
Salem court . . .	252
Sharon . . .	72
South st. ct. . .	100
Tufts . . .	
Woburn . . .	

George . . .	678
Gibson . . .	576
Glenwood av. . .	421
Hall park . . .	890
Hancock . . .	561
Harvard av. . .	580
Harvard . . .	1,352
Henry . . .	671
High . . .	1,643
Hammond pl. . .	189
Hastings lane . .	216
Highland av. . .	1,640
Hillside av. . .	579
Hillside road . .	236
Holton . . .	306
Irving . . .	372
Jerome . . .	904
Joseph . . .	480
Laurel . . .	438
Leyden . . .	332
Lawrence . . .	906
Lincoln . . .	620
Linden and } . . .	410
Winthrop } . . .	
Linden . . .	1,148
Locust . . .	1,622
Marion . . .	1,298
Marshall . . .	550
Madison . . .	285
Manning . . .	746
Main (off) . . .	860
Maple av. . .	703
Middlesex av. . .	551
Myrtle . . .	1,220
Mystic . . .	1,796
Mystic (off) . . .	220
Mystic av. . .	3,061
Oak Bluff . . .	1,288
Oak Grove Cem'y .	272
Oakland . . .	1,035
Otis . . .	1,937
Park . . .	3,384
Pembroke . . .	154
Pinkert . . .	464
Pleasant . . .	547
Prescott . . .	1,129

REPORT OF WATER COMMISSIONERS.

DISTRIBUTION OF CEMENT-LINED PIPE — CONTINUED.

STREETS.	12-in. Feet.	STREETS.	8-in. Feet.	STREETS.	6-in. Feet.	STREETS.	4-in. Feet.	STREETS.	3-in. Feet.	STREETS.	2-in. Feet.
						Purchase	784				
						Quincy	740				
						Rural av.	612				
						Riverside av.	2,595				
						Rockwell av.	680				
						Royal	455				
						Sanger	352				
						Second	218				
						Seventh	223				
						Sharon	24				
						Sherman	727				
						Sixth	897				
						South	4,133				
						Sprague ct.	683				
						Spring	93				
						Spring (off)	176				
						Stevens	312				
						Summer	2,331				
						Tainter	1,190				
						Temple	353				
						Thatcher	352				
						Third	606				
						Pontine	353				
						Touro av.	716				
						Union	281				
						Vine	605				
						Valley	365				
						Vernon	509				
						Old Water Works	368				
						Walnut	551				
						Washington	2,614				
						Washington av.	851				
						Water	1,700				
						Warren	1,765				
						West	1,833				
						Williams	603				
						Woburn	5,531				
Total	11,838	Total	34,618	Total	44,995	Total	110,435	Total	7,985		
										Total	21,369
										Total pipe laid to January,	
										1891, 231,340 ft.=43 miles	
										4300 ft.	

DISTRIBUTION OF IRON PIPE.

STREETS.	12-in.	STREETS.	10-in.	STREETS.	8 in.	STREETS.	6-in.	STREETS.	4-in.
	Feet.		Feet.		Feet.		Feet.		Feet.
Forest	56	Main	293	Albion	114	Arlington	135	Park	573
				Bellevue	403	Bellevue Terrace	184		
				Boston av.	12	Bennett	185		
				Chester av.	385	Burget av.	550		
				Clayton av.	96	Capen	1,716		
				College av.	70	Circuit	371		
				Forest	510	Crest road	241		
				Fountain	275	Dale road	310		
				George	350	Dearborn	370		
				Governor's av.	950	Dexter	147		
				Lawrence	12	Edward	563		
				Pembroke	388	Garfield av.	625		
				Sheridan av.	225	Glendon	100		
				Summit road	548	Grant av.	1,050		
				Terrace road	652	Hall av.	25		
				Webster	1,486	Hastings lane	275		
						Hume av.	536		
						Joseph	247		
						Mystic park	247		
						Orchard	685		
						Royal	260		
						Ship av.	235		
						Summit road	370		
						West	112		
						Winthrop	204		
Total	56	Total	293	Total	6,476	Total	9,873	Total	573

Total iron pipe laid to January 1, 1894, 17,271 ft., or 3 miles 1,431 ft.

Total distribution pipe laid to January 1, 1894, 248,511 ft., or 47 miles 351 ft.

GATES AND HYDRANTS.

12-inch.	10-inch.	8-inch.	6-inch.	4-inch.	3-inch.	2-inch.	1-inch.	No of Hydrants.
8	3	87	91	192	16	62	3	271

SUMMARY OF SERVICE-PIPE CONNECTED WITH WORKS.

2-inch.	1½-inch.	1-inch.	¾-inch.	½-inch.	TOTAL.
37 feet.	64 9-12 feet.	2,447 feet.	75,071 feet.	513 feet.	78,133 feet.

REPORT
OF THE
COMMISSIONERS OF THE MEDFORD WATER-
LOAN SINKING FUND.

Hon. SAMUEL C. LAWRENCE,
Mayor of the City of Medford.

Sir, — The Commissioners of the Water Loan Sinking Fund submit the following statement of their account for the last year: —

RECEIPTS.

Balance deposited in the Howard National Bank, as per report of 1893	\$1,439 97
P. R. Litchfield, City Treasurer	7,203 85
Connecticut & Passumpsic Rivers Railroad Company's bonds due April 1, 1893	6,000 00
Connecticut & Passumpsic Rivers Railroad Company, for six months' interest on \$6000 of its bonds, at 7 per cent, to April 1, 1893	210 00
City of Cambridge, for one year's interest on \$5000 of its bonds, at 6 per cent, to October 1, 1893	300 00
Fitchburg Railroad Company, for six months' interest on \$7000 of its bonds, at 7 per cent, to April 1, 1893	245 00
Fitchburg Railroad Company, for six months' interest on \$18,000 of its bonds, at 7 per cent, to October 1, 1893	630 00
Old Colony Railroad Company, for six months' interest on \$3000 of its bonds, at 7 per cent, to March 1, 1893	105 00
Old Colony Railroad Company, for six months'	

interest on \$5000 of its bonds, at 7 per cent, to September 1, 1893	\$175 00
City of Holyoke, for one year's interest on its note for \$5000, at 4 per cent, to October 23, 1893	200 00
City of Boston, for its bond due January 1, 1894	1,000 00
City of Boston, for one year's interest on \$1000 of its bonds, at 6 per cent, to January 1, 1894	60 00
City of Medford, for one year's interest on \$2000 of its bonds at 6 per cent, to January 1, 1894	120 00
Boston & Maine Railroad bonds, due January 1, 1894	9,000 00
Boston & Maine Railroad, for one year's inter- est on \$9000 of its bonds, at 7 per cent, to Jan. 1, 1894	630 00
City of Woburn, for six months' interest on \$2000 of its bonds, at 6 per cent, to Oct. 1, 1893	60 00
City of Lynn, for six months' interest on \$1000 of its bonds, at 6 per cent, to Jan 1, 1894 .	30 00
P. R. Litchfield, Treasurer, premium on \$72,000 City of Medford Water Fund bonds	1,216 80
P. R. Litchfield, Treasurer, surplus accrued in sundry years previous to Feb. 1, 1893 .	8,182 23
Howard National Bank, for interest on deposit	38 60
Total received	<u>\$36,846 45</u>

DISBURSEMENTS.

R. L. Day & Co., for \$7000 Fitchburg Rail- road Company 7 per cent bonds, due April 1, 1894, at 102½	\$7,175 00
---	------------

20 days' accrued interest on above bonds	\$27 22
Francis Henshaw & Co., for \$2000 Fitchburg Railroad Company 7 per cent bonds, due April 1, 1894, at 102	2,040 00
1 month 8 days' accrued interest on above bonds	14 78
Blake Bros. & Co., for \$2000 City of Woburn 6 per cent bonds, due April 1, 1894, at 101 $\frac{1}{2}$	2,030 00
1 month 11 days' accrued interest on above bonds	13 67
R. L. Day & Co., for \$2000 Fitchburg Rail- road Company 7 per cent bonds, due April 1, 1894, at 102	2,040 00
1 month 14 days' accrued interest on above bonds	17 11
R. L. Day & Co., for \$2000 Old Colony Railroad Company 7 per cent bonds, due March 1, 1894, at 102	2,040 00
2 months 14 days' accrued interest on above bonds	28 78
Brewster, Cobb & Estabrook, for \$1000 city of Lynn 6 per cent bond, due July 1, 1894, at 101 $\frac{1}{4}$	1,012 50
4 months 20 days' accrued interest on above bond	23 33
E. H. Rollins & Sons, for \$8000 City of Boston 6 per cent bonds, due July 1, 1894, at 101 $\frac{1}{2}$	8,120 00
3 days' accrued interest on above bonds	4 00
Balance deposited in the Howard National Bank	12,260 06
Total disbursed	\$36,846 45

The sinking fund consists of the following property:—

City of Medford 6 per cent bonds, due July 1, 1894	\$2,000 00
City of Holyoke 4 per cent note, due April 23, 1894	5,000 00
City of Cambridge 6 per cent bonds, due April 1, 1894	5,000 00
City of Boston 6 per cent bonds, due July 1, 1894	8,000 00
City of Woburn 6 per cent bonds, due April 1, 1894	2,000 00
City of Lynn 6 per cent bonds, due July 1, 1894	1,000 00
Fitchburg Railroad Co. 7 per cent bonds, due April 1, 1894	18,000 00
Old Colony Railroad Co. 7 per cent bonds, due March 1, 1894	5,000 00
Cash deposited in the Howard National Bank at 2½ per cent interest	12,260 06
Total	\$58,260 06

This amount, \$58,260.06, constitutes the only sinking fund now in existence, and is held for the payment of \$250,000 of Medford Water Bonds.

Issued	Payable	
July 1, 1874,	July 1, 1894,	\$50,000 00
July 1, 1890,	July 1, 1900,	75,000 00
July 1, 1890,	July 1, 1910,	125,000 00

and of \$72,000 of the City of Medford Water Fund Bonds, issued Jan. 1, 1894, of which

the sum of \$4000 is payable each year from Jan. 1, 1899, to Jan. 1, 1916.

The amount in the sinking fund is sufficient to pay the \$50,000 of Medford Water Bonds due July 1, 1894.

In compliance with the provisions of section 9 of chapter 29 of the Public Statutes, and section 8 of chapter 6 of the city ordinances, the commissioners find that the amounts to be raised the coming year for the sinking fund are as follows: —

Eight per cent of \$75,000 of Medford Water Bonds, issued July 1, 1890, and payable July 1, 1900	\$6,000 00
Three and one half per cent of \$125,000 of Medford Water Bonds, issued July 1, 1890, and payable July 1, 1910	4,375 00
Eight per cent of \$20,000 of City of Medford Water Fund Bonds, issued Jan. 1, 1894, and payable within ten years of the date of their issue	1,600 00
Three and one half per cent of \$40,000 of City of Medford Water Fund Bonds, issued Jan. 1, 1894, and payable within twenty years of the date of their issue	1,400 00
Two per cent of \$12,000 of City of Medford Water Fund Bonds, issued Jan. 1, 1894, and payable within thirty years of the date of their issue	240 00
	<hr/>
	\$13,615 00

Deducting the surplus earnings of the water	
works for the year ending Dec. 31, 1893	\$8,251 60
	<hr/>
leaves a balance of	\$5,353 40

and the commissioners have certified to the City Auditor that this amount of \$5353,40 is required to be raised by taxation for the sinking fund, and is to be put into the yearly appropriations for the ensuing year.

Respectfully submitted,

SAMUEL C. LAWRENCE,
 B. C. LEONARD,
 J. HENRY NORCROSS,
 J. GILMAN WAITE,
 DANIEL W. LAWRENCE,
 WILLIAM CUSHING WAIT,

Sinking Fund Commissioners.

January 31, 1894.

REPORT
OF THE
TRUSTEES OF OAK GROVE CEMETERY.

Hon. SAMUEL C. LAWRENCE,
Mayor of the City of Medford.

Sir, — The trustees of Oak Grove Cemetery present the following as their report for the past year ending Jan. 31, 1894: —

OAK GROVE CEMETERY.	
Appropriation	\$1,000 00
Amount received from sale of lots	3,198 50
Amount received from sale of single graves	301 00
Amount received from Perpetual Care fund (interest)	600 00
Amount received from sale of trees	9 00
Amount received, care of lots, extra work, and wood sold	1,026 00
	\$6,134 50
Amount expended	5,696 21
Balance unexpended	\$438 29
SALEM STREET CEMETERY.	
Appropriation	\$100 00
Amount expended	52 39
Amount of appropriation transferred to Cross Street Cemetery	47 00
	\$99 39
Balance unexpended	\$0 61

CROSS STREET CEMETERY.

Appropriation	\$100 00
From Salem Street appropriation (transferred)	47 00
	<hr/>
	147 00
Amount expended	140 52
	<hr/>
Balance unexpended	\$6 48

The interments for the year ending Dec. 31, 1893, were, Salem Street Cemetery, 1; Cross Street Cemetery, 4; Oak Grove Cemetery, 118.

Single graves sold	38
Lots sold	23
From lots sold there has been paid into the treasury "at 10 cts. per square foot,"	\$541 00
Paid into the city treasury "for perpetual care"	1,075 00
There is deposited in the Medford Savings Bank, "interest from Perpetual Care fund"	3,135 29

There are now prepared for sale 4 small and 57 large lots, also 325 single graves.

There are 60 four-grave lots and 35 five-grave lots in course of construction, which will be ready for sale the coming season.

JOHN HUTCHINS,
ROBERT H. GRACE,
CHARLES W. JACOBS,
ORAN BROWN,
ASA LAW,

Trustees.

MEDFORD, Feb. 1, 1894.

REPORT
OF THE
CITY PHYSICIAN.

Hon. SAMUEL C. LAWRENCE,
Mayor of the City of Medford.

The following is a summary of my work as City Physician
for the year ending Jan. 31, 1894:—

Number of patients treated	83
Number of visits made	487

During the last year the poor of the city have been unusually free from contagious diseases, only three cases of measles having been attended. Four cases needing special care and treatment have been sent to the hospital as a matter of justice to them and economy to the city. Twenty-five children have been vaccinated. Four women have been attended in childbirth.

Number of police calls	5
Civil service examinations	4

Respectfully submitted,

N. F. CHANDLER,
City Physician.

REPORT
OF THE
CITY MESSENGER.

MEDFORD, Mass., Feb. 1, 1894.

Hon. SAMUEL C. LAWRENCE,
Mayor of the City of Medford :

Sir, — I have the honor to submit herewith a report for the thirteen months ending Feb. 1, 1894.

The principal work performed by the City Messenger has been the care of the city hall, including the police station. I have attended the meetings of both branches of the City Council, of the various committees, of the Overseers of the Poor, of the Assessors, of the Trustees of Oak Grove Cemetery, and of the Water Commissioners. I have also acted as Messenger for the City Treasurer, the City Clerk, the City Collector, and the City Auditor, and I have also performed various other duties pertaining to this office.

The number of meetings attended by the City Messenger the past thirteen months is as follows :—

Board of Aldermen	53
Common Council	43
Committees	217
Total	313

Besides having been in attendance at the meetings of the various boards already mentioned.

The following property of the city is at present in the charge of the City Messenger :—

Sundry documents of the town of Medford.
 Town of Medford Reports from 1870 to 1890, inclusive.
 Four flags (two large and two small).
 Three dozen towels.

The expenditures from Jan. 1, 1893, to Feb. 1, 1894,
 (thirteen months), are as follows:—

Electric lights	\$412 90
Gas	62 88
Fuel	235 59
Ice for the city hall and the drinking fountain in the square	60 00
Incidentals	184 06
Total	<u>\$955 43</u>

I wish to tender thanks to the Superintendent of Streets for the prompt removal of snow from the sidewalks about the city hall. I desire also to express my obligations to the officials of the city for the many favors and kindnesses extended to me.

Respectfully submitted,

JAMES B. SIMPSON,

City Messenger.

REPORT
OF THE
CHIEF OF POLICE.

MEDFORD, Mass., Feb. 1, 1894.

Hon. SAMUEL C. LAWRENCE,
Mayor of the City of Medford:

Sir, — I have the honor of submitting to you my annual report of the doings of the Police Department for the year ending Jan. 31, 1894.

Whole number of arrests	307
Arrested on warrants	68
Arrested without warrants	239
Held for trial	237
Males	290
Females	17
Adults	288
Minors	19
Residents	123
Non-residents	184

Arrested for the following offences:

Assault and battery	22
Assault on an officer	4
Bastardy	1
Breaking and entering	6
Cruelty to animals	2
Default	1
Disturbing the peace	28

Drunkenness	178
Dipsomaniac	1
Evading car fare	6
Embezzlement	1
Exposure of the person	1
False pretence	1
Gaming	2
Insanity	3
Illegal fishing	4
Larceny	11
Larceny, felonious	1
Non-support	2
Obstructing a railroad train	2
Polygamy	1
Selling mortgaged property	2
Stubborn child	2
Suspicious person	1
Threats	1
Trespass	4
Vagrancy	8
Violation of the liquor law	3
Violation of the Lord's Day	8

 307

Disposed of as follows :

Appealed and gave bonds	2
Committed to jail in default of bail	5
to the House of Correction	18
to the House of Correction for non- payment of fine	54
to the Danvers Insane Hospital	3
to the Dipsomaniac Hospital at Fox- boro	1
to the State Prison	1

Committed to the State Farm	3
to the Lancaster School	1
to the women's prison at Sherburne	1
Defaulted	13
Discharged by the court	12
Discharged by the chief	1
Nol-pross'd	8
Now pending in courts	8
Paid fines in court	91
Placed on file	11
Released under the drunk law	64
Sent out of the State	1
Turned over to other officers	9

Nationality of persons arrested :

United States	140
Ireland	94
Canada	17
British Provinces	26
England	10
Scotland	5
Italy	4
Germany	4
Sweden	3
Poland	2
Russia	1
Wales	1

Three hundred and eight lodgers were put up at the station during the past year, of the following nationalities :

United States	138
Ireland	83
England	38
Canada	14

British Provinces	8
Scotland	13
Russia	1
Germany	6
Italy	1
Poland	2
Portugal	1
Sweden	1
Austria	2

MISCELLANEOUS WORK DONE.

Amount of property reported stolen, \$1216.00; amount of property recovered, \$1512.65.

Accidents reported	47
Buildings found open and secured	61
Buildings reported vacant by owners on vacation	7
Cases investigated	585
Cattle impounded	12
Defective streets reported	121
Defective sidewalks reported	76
Defective water pipes reported	68
Defective poles and posts reported	51
Disturbances suppressed	74
Dogs killed	27
Fire alarms reported	32
Fires put out without alarm	43
Gas turned off in buildings	218
Horses killed	3
Lanterns hung in dangerous places	124
Lost children returned home	26
Medical examiner cases	5
Notices posted and delivered	441
Sick and injured persons assisted	33

Stray teams cared for	29
Street obstructions removed	38
Street lights reported out	961
Search warrants served	8
Seizures made	3
Water running to waste	1
Wires reported dangerous	130

FINANCIAL.

Amount of fines imposed in court	\$1,545 00
Amount of fines paid in court	918 00
Amount of fines and fees received and turned over to the Collector and Treasurer	837 12
Amount of money taken from prisoners and returned to them	556 95

The expenditures of the department for the past year are as follows: —

Appropriation	\$12,725 00
Salaries of officers	\$10,823 95
Salaries of special officers	703 55
Miscellaneous bills	643 46
Patrol wagon	450 00
Total	<u>12,620 96</u>
Leaving a balance of	\$104 04

For further financial statement, see report of City Auditor.

DEPARTMENT.

The department of the department has been good. The officers have shown a disposition to comply with all orders and regulations and to cheerfully perform their duties.

During the year two vacancies have occurred, one caused by death and one by resignation.

████████████████████

Sergt. ISAAC F. R. HOSEA
died April 16, 1893.

He was appointed a member of the police in May, 1887, and promoted a sergeant in April, 1890. He was an intelligent officer, popular with the public generally, and respected by his brother officers. In him the department lost one of its most useful members.

████████████████████

Patrolman George G. Wilson resigned May 27, 1893, having served about fourteen months.

On May 18, 1893, patrolman William G. Ewell was promoted a sergeant. July 27, James H. Brewster and P. Frank Ward were appointed as patrolmen for a probationary period of six months, and on Jan. 27, 1894, they were appointed on the regular force.

RECOMMENDATIONS.

The growth of our city is steadily increasing. New streets and houses are building in the outskirts of the city, making more territory for the officers to patrol and more property to care for. Some of the routes are too large and cannot be properly covered. Especially is this the case in the eastern and southern sections of the city.

With the electric cars, license and sewers, together with hawkers and peddlers, junk dealers, and the enforcement of the ordinances, the duties of the day officers will increase. I would therefore recommend an increase of the force.

Last year an appropriation was made for the purchase

of a patrol wagon, which has been built, and a harness has been procured. What we now need is a horse, and I recommend that one be purchased.

I think the time has come when Medford should add to the efficiency of the police by putting in the police signal system. What the city would save in the cost of the telephones would pay the interest on the money invested in such a system, the cost of which I think will never be as low as at the present time. The many advantages of the system are apparent to all who have any knowledge of police work.

I would again call your attention to our quarters, which are unfit for the use of the public, the officers, or prisoners.

I can say, as I have in the past, that the city is comparatively free from crime. But few cases of breaking and entering have been reported during the year, and the police have in some cases established the fact that the robbery was committed by some member of the household, or that there was no robbery.

CONCLUSION.

In submitting my report I wish to return thanks to his Honor the Mayor for his kind advice, also to the committee on police, to his Honor Judge Pettingill and to William N. Tyler, clerk of the court, for their aid and assistance; also to the members of the Police Department for the prompt discharge of their duties.

I have the honor to be

Your obedient servant,

EMERY D. HOLMES,

Chief of Police.

REPORT
OF THE
SUPERINTENDENT OF STREET LIGHTS.

MEDFORD, Mass., Feb. 1, 1894.

Hon. SAMUEL C. LAWRENCE,
Mayor of the City of Medford.

Sir, — I submit to you my annual report as Superintendent of Street Lights :

Amount of appropriation	\$11,000 00
Amount expended	10,997 94

Number of Street Lights :

Arc	50
Incandescent	381
Oil	134
Total	565

There is also a cluster of incandescent lights on the fountain in the square.

I would recommend that the oil lamps be changed for incandescent electric lights. The establishment of four circuits of incandescents would displace the oil lamps and give us twenty-six new lights to place in new streets, at an additional expense of about \$1200 over last year's appropriation. The city would be very much better lighted, besides having the benefit of lights on cloudy nights in periods when the moon is expected to shine.

Yours respectfully,

EMERY D. HOLMES,
Superintendent of Street Lights.

REPORT
OF THE
OVERSEERS OF THE POOR.

MEDFORD, Mass., Feb. 1, 1894.

HON. SAMUEL C. LAWRENCE,
Mayor of the City of Medford.

Sir,—The board of Overseers of the Poor herewith present their annual report for the year ending Feb. 1, 1894.

The expenses of this department will gradually grow larger from year to year as the population increases. The past year shows a somewhat larger expenditure than the previous year. No one supposed at the beginning of the year that we were on the eve of such a financial disturbance as we are now passing through.

Many persons who have ordinarily been regularly employed at remunerative wages now find themselves unable to obtain employment even at the lowest wages, and under the present condition of things our city is to be congratulated that we have closed the year without exceeding the appropriation made for this department.

The almshouse and outbuildings have been painted and put in thorough repair, which improvement was much needed; the old furnace has been taken out and a "Richmond steam heater" put in, which proves to be all that we had hoped for, keeping all parts of the building warm enough for all purposes; the old water-closets which had

been condemned by the Board of Health and ordered taken out have been replaced by others of approved patterns.

Of the \$2000 appropriated for these purposes, \$136.35 remains unexpended. The board have done their best to spend this money in the most careful and economical manner, and we believe it has been wisely expended.

Mr. R. B. Newcomb and wife continue to manage affairs at the almshouse in a very satisfactory manner. The number of inmates has doubled during the year, there now being eighteen. Those who have been admitted within the past few months are nearly all old and feeble, and will be likely to remain permanently. The insane, sixteen in number, have all been visited within a few weeks and their condition carefully inquired into and noted.

The expenses for outside relief for the next two months will probably be very heavy if the depression in business continues as it now appears probable. Some fifty new families have applied for aid during the year. Every case has received the most careful and thorough investigation, and a large amount of time has been spent in this kind of work.

The board recommend the following appropriations for the ensuing year :—

For outside relief	\$7,500 00
(Also the amounts received from the State and other cities and towns.)	
For almshouse general expenses	3,500 00
For one horse, one cow, one pung, and one mowing machine	310 00

The horse at the farm is only fit for farm use, and another and lighter one is needed, and we believe it would be economy to purchase one. One of the cows is unprofitable to keep, and should be sold and another purchased to

take her place. The mowing machine is worn out and another is needed. The pung we consider a necessity and it should be purchased.

ALMSHOUSE.

Number of inmates in almshouse Jan. 1, 1893, 9.

Number of inmates in almshouse Jan. 1, 1894, 18.

Name.	Age.	When admitted.
James Cramphorn	67	Jan. 7, 1879
Peter Wait	80	Feb. 8, 1884
Ephraim Page	66	Nov. 27, 1885
Samuel Aborn	37	Mar. 25, 1885
Kate Goodman	42	July 24, 1891
John Richmond	46	Dec. 23, 1892
Mary Ann Richmond	36	Dec. 23, 1892
Mary Ann Brazzell	67	July 24, 1893
George Connell	61	Aug. 6, 1893
Robert Dowling	40	Sept. 13, 1893
Alice Dowling	66	Sept. 13, 1893
Anthony Plant	80	Oct. 9, 1893
Thomas Miskell	73	Dec. 3, 1893
Thomas Qualey	53	Dec. 4, 1893
Arthur Reagan	70	Dec. 13, 1893
John Morse	74	April 11, 1893
Daniel Richardson	84	Jan. 12, 1893
Mary McKernon	88	Aug. 5, 1893

Admitted during the year, 23 :

Name.	Age.	When admitted.
Daniel Richardson	83	Jan. 12, 1893
John Morse	73	April 11, 1893
Anthony Plant	79	Oct. 3, 1893
Thomas Miskell	73	Dec. 13, 1893

Name.	Age.	When admitted.
Thomas Qualey	53	Dec. 4, 1893
John Trobe	74	June 18, 1893
George Connell	60	Aug. 9, 1893
Harry May	11 wks.	Jan. 11, 1893
Robert Dowling	39	Sept. 11, 1893
John Christy	60	Oct. 3, 1893
Arthur Reagan	70	Dec. 13, 1893
Louis Cross	2	Sept. 9, 1893
Lydia Cross	5	Sept. 9, 1893
Angette Cross	34	Sept. 9, 1893
Mary Ann Brazzell	67	July 24, 1893
Mary Wells	41	July 18, 1893
Alice Dowling	65	Sept. 13, 1893
Mary McKernon	87	Aug. 5, 1893
Florence Carter	49	Aug. 8, 1893
Nellie Shea	18	Mar. 31, 1893
Hattie Fulcher	21	Mar. 11, 1893
Lena Foy	1 wk.	Mar. 11, 1893
Maud Reagan	5	Aug. 14, 1893

Discharged during the year, 10:

Name.	Age.	When discharged.
Henry May	11 wks.	Mar. 2, 1893
Lena Foy	1 wk.	April 12, 1893
Hattie Fulcher	21	April 12, 1893
Nellie Shea	18	April 10, 1893
Mary Wells	41	Aug. 7, 1893
Louis Cross	2	Sept. 11, 1893
Lydia Cross	5	Sept. 11, 1893
Angette Cross	32	Sept. 11, 1893
John Christy	60	Oct. 10, 1893
Maud Reagan	5	Aug. 15, 1893

Died during the year, 4 :

Name.	Age.	Died.
Florence Carter	49	Aug. 11, 1893
John Trobe	74	June 28, 1893
Thomas Brazzell	75	Mar. 12, 1893
Michael Driscoll	83	Jan. 9, 1893

OUTSIDE RELIEF.

The appropriation for the relief of the poor outside of the almshouse, and for the full support of the insane in the several State institutions, charged, under the laws of settlement, to the city, to Feb. 1, 1894, has been expended as follows : —

Persons given partial support in and having a settlement in Medford		\$2,492 22
Insane poor		3,163 82
Outdoor poor in other towns and cities		296 54
Outdoor poor chargeable to other places		990 65
State paupers		765 55
Incidentals		173 09
		<hr/>
		\$7,881 87
Expended	\$7,881 87	
Transferred to almshouse	200 00	
Balance	38	
	<hr/>	
Appropriation		\$7,000 00
Received from the Commonwealth, other cities and towns		1,082 25
		<hr/>
	\$8,082 25	\$8,082 25

ALMSHOUSE.

Paid :

R. B. Newcomb, superintendent, 12 months to Feb. 1, 1894	\$600 00
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R. B. Newcomb, cash paid for sundries	\$23 05
Priscilla J. Newcomb, services	196 55
James H. Archibald, stock and labor	4 84
E. S. Crawley, drugs	19 13
C. E. Symmes, mattresses	40 90
J. N. Cowin & Co., coal, hay, and grain	132 52
Frank Hervey, groceries	209 71
C. R. Drew, provisions	103 64
F. E. Pierce, fish	44 91
Sarah L. Rugg, services	43 57
Daniel N. Howard, drugs	22 75
E. S. Randall, provisions	69 37
J. H. Chute, drugs	25 75
John Crowley, provisions	95 61
F. J. Loomer, repairing, &c.	4 35
F. M. Jewett, fish	27 07
Arthur C. Symmes, repairing, &c.	6 55
J. N. Gibbs, merchandise	1 00
Morris Morrisey, labor	15 00
Water Board, water	32 00
Chase's Medford & Boston Express	2 30
F. E. Chandler, 2 pigs	6 00
Whitman & Barnes Manufacturing Co., mer- chandise	5 60
Sidney F. Dean, stock and labor	25 88
J. E. Barrows, shoes	13 60
C. H. Hartshorn, merchandise	18 60
Croudis & Larkin, provisions	53 16
George L. Newhall, carriage hire	2 50
Hannah Nelson, labor	22 14
W. H. McGowan, provisions	98 20
W. P. Treet, dry goods	31 98
Old Corner Drug Store, drugs	21 45
John Coulson, ice	20 00

Hodgman Rubber Co., merchandise		\$4 17
William S. Richards, stock and labor		27 67
Thomas Hull, merchandise		84 84
Page & Curtin, merchandise		22 64
Frank Gibbs, services man, horse, and bull		14 00
D. Vaughan, pants		3 00
N. L. Chamberlain, rubber stamps		1 05
Noah Hathaway, filing saws		1 80
C. W. Jacobs, shoes		27 32
James Bean, coal		338 61
George S. Delano, stock and labor		40 50
Boston Furniture Co., beds		21 00
Ames Plow Co., 1 barrow		3 25
John Fitzgerald, labor		8 00
J. F. Twiss, merchandise		65 25
Eugene Coffin, painting wagon		12 00
S. Vorenberg, pants		14 50
A. S. Crowell, merchandise		26 04
E. Tainter, expressing		75
A. F. Crocker, dry goods		71 58
F. W. Montague, groceries		201 65
Yerxa & Yerxa, groceries		231 50
Harry Wright, smithing		9 25
J. E. Ober, grain		34 31
Michael F. Dwyer, merchandise		20 80
W. S. Barker & Son, bread		4 12
		<hr/>
		\$3,329 28
Balance unexpended		2 64
Appropriation	\$3,000 00	
Sale of produce	131 92	
Transferred from Outside Re- lief	200 00	
	<hr/>	<hr/>
	\$3,331 92	\$3,331 92

ALMSHOUSE REPAIRS.

M. C. Vinal, stock and labor		\$18 38
James H. Archibald, stock and labor		261 94
W. M. Hilton, stock and labor		219 61
Bride & Ames, stock and labor		32 30
Page & Curtin, stock and labor		163 17
F. E. Foster & Co., lumber		199 05
John S. Hodgkins, labor		13 95
F. A. Crocker, wall paper		9 60
William S. Richards, labor		7 85
Isaac Coffin & Co., on account contract		648 75
Isaac Coffin & Co., balance heating apparatus		216 25
Walter Bates, labor		70 85
Michael F. Dwyer, stock		1 95
		<hr/>
		\$1,863 65
Balance unexpended		136 35
Appropriation	\$2,000 00	
	<hr/>	
	\$2,000 00	\$2,000 00

Respectfully submitted,

CALVIN H. CLARK,
 WILLIAM A. THOMPSON,
 WILLIAM C. CRAIG,

Overseers of the Poor.

REPORT
OF THE
CHIEF ENGINEER OF FIRE DEPARTMENT.

Hon. SAMUEL C. LAWRENCE,
Mayor of the City of Medford.

Dear Sir, — I herewith submit the annual report of the Fire Department for the year ending Jan. 31, 1894. In this report will be found a statement of the manual force and apparatus; a record of all fires and alarms, showing as near as possible the loss and insurance, a list of the officers and members, and such other information as may be of interest.

FORCE OF THE DEPARTMENT.

The department consists of a chief engineer and superintendent of fire alarm, 2 assistant engineers, 1 permanent engineman, 1 stoker, 6 permanent drivers, 22 hosemen, 12 laddermen, and a chemical company of 4 men; making a force total of 49 men. Permanent men are located as follows: 1 at West Medford, 1 at Spring street, 1 at Park street; and at the central station we have 1 engineman, who is also janitor of the station and assistant superintendent of the fire alarm, and 3 drivers.

APPARATUS.

The apparatus consists of 1 steam fire engine, 1 hook-and-ladder truck carrying 260 feet of ladders, hooks, &c., 1 two-horse hose wagon carrying 1500 feet of hose and

2 chemical extinguishers, 1 one-horse hose wagon carrying 1000 feet of hose and 1 extinguisher, 1 one-horse hose reel carrying 1000 feet of hose and 2 extinguishers, and 1 two-horse 50-gallon double-tank chemical engine with 25 feet of ladders.

We have also at central station 1 supply wagon and 1 fire-alarm wagon; at West Medford 1 one-horse hose reel with 550 feet of hose and 1 extinguisher; at hose 4 house we have 1 exercise wagon, and at Wellington 1 hand reel with 500 feet of hose.

The department also owns 3 hose pumps and 1 old hand-hose reel. The apparatus, with the exception of the ladder truck, is in good condition. I would again recommend the purchase of a new ladder truck and some new equipments.

A new supply wagon and one new exercise wagon have been bought the past year, and I would recommend the purchase of two more exercise wagons so that we may have a wagon at each house.

HORSES.

We have in one department 12 horses, located as follows: 2 at West Medford, 1 at Park street, 1 at Spring street, and 8 at central house. The horses are all in good condition, with the exception of one which is at present a little indisposed, but we believe will soon be all right.

FIRE ALARM.

The alarm is all in good condition, and consists of 3 large bells and strikers, 1 18-inch gong, 4 5-inch gongs, 28 signal stations, and about 17 miles of wire. Next year it will be necessary to add a number of new boxes.

BUILDINGS.

I would again call your attention to the hose house at

Park street. It is in very bad shape, and should immediately be altered or replaced. The house at West Medford is also in bad condition. The centre house needs a few repairs, and I would recommend that the Spring street house be repainted.

HOSE.

There have been added 2800 feet of hose the past year to our supply, and we now have about 8000 feet of good hose.

SALARIES.

I would recommend that the pay of the members be the same as last year.

WATERING STREETS.

I would again recommend that the watering of streets be done by some other department.

SHEDS.

We have no place at any of the houses in which to keep either our supply or exercise wagons. I would recommend the building of 3 sheds, 1 at centre house, 1 at Park street, and 1 at Spring street.

HEATER FOR ENGINE.

On account of the loss of time required to make steam from cold water in the engine, I would recommend the purchase of a heater so that steam can be kept in the engine at all times.

CESSPOOLS.

The cesspools at the central house and at Park street are old and insufficient, and must be replaced by new ones.

NAMES OF THE MEMBERS OF THE FIRE DEPARTMENT.

Engineers.

Arthur C. Symmes, Chief and Superintendent
of Fire Alarms.

Jude C. Clark, First Assistant and Clerk.

Charles E. Bacon, Second Assistant.

Hose No. 1.

George A. Hooker, Foreman.

Adam G. Clark, Assistant Foreman.

John J. Crockwell, Clerk.

Thomas Qualey, Driver.

John A. Gaffey.

John Payne.

William F. Mahoney.

Timothy Conners.

John F. Chick.

E. J. Babcock.

Hose No. 3.

F. O. Waterman, Foreman.

C. H. Oliver, Assistant Foreman.

William Hiller, Clerk.

B. F. Sampson, Driver.

Geo. H. St. Dennis. Wm. S. Richards. Joshua Brewster.

Hose No. 4.

L. F. Fitzhenry, Foreman.

B. W. Colburn, Assistant Foreman.

J. W. Mitchell, Clerk.

William Ordway, Driver.

George E. Graves. John Antrobus. W. C. Clifford.

Chemical No. 1.

W. E. Ober, Foreman.

William Cowan, Assistant Foreman.

F. H. Walker, Driver.

James Griffin.

Victor Richer.

Hook and Ladder Company No. 1.

Frank Hathaway, Foreman.

Charles Hartshorn, Assistant Foreman.

James H. Chase, Treasurer.

Samuel G. Jepson, Clerk.

F. P. Dutton, Driver.

William E. Barrows.

H. D. Frazier.

J. B. A. Buffum.

J. H. Hanson.

Charles O. Delano.

G. L. Newhall.

Herbert Etter.

H. M. Smith.

Engine No. 1.

G. H. Gillard, Engineman.

Arthur Morse, Driver.

Daniel White, Stoker.

DATE.	Fires and alarms.	Time.	Alarms.	Loss.	Insur- ance.
1883.					
Feb. 2	Mr. Tucker's, Pleasant-street court	10.15 p.m.	Still		
Mar. 18	Boston	6 p.m.	10 blows		
20	George Delano, factory	5.32 p.m.	Box 26	\$1,467 00	\$12,000 00
Apr. 1	Grass on Mystic street	1.45 p.m.	Still		
2	Woods on hill, off Valley street	4 p.m.	Still		
3	Woods on hill, off Valley street	11 a.m.	Still		
3	Lawrence woods	1.30 p.m.	Still		
3	Woods on hill, off Valley street	3.30 p.m.	Still		
2	Woods on Fulton street	5 p.m.	Still		
2	Woods on Forest street	6 p.m.	Still		
5	Woods on hill, off Valley street	2.30 p.m.	Still		
10	Woods on Fulton street	4 p.m.	Still		
11	Woods on Fulton street	5 p.m.	Still		
11	Woods, on Pine Hill	5.30 p.m.	Still		
12	Woods on hill, Osgood lot	5.30 p.m.	Still		
12	Grass on Spring street	6.30 p.m.	Still		
13	J. Remison, boiler house	2.03 p.m.	Box 25	50 00	1,500 00
23	Woods on Fulton street	12.30 p.m.	Still		
23	Woods on Fulton street	2.45 p.m.	Still		
23	Woods on Pine Hill	3.45 p.m.	Still		
23	Woods near Winchester reservoir	4.45 p.m.	Still		
24	Grass on Mystic street	3.30 p.m.	Still		
30	Lawrence woods	3 p.m.	Still		
May 7	Woods on Pine Hill	11 a.m.	Still		
8	Grass on Mystic street	12.30 p.m.	Still		
11	T. Crowley's barn, Main street	10.15 a.m.	Box 23	Small	
12	House on Paris street	8 p.m.	Still	Slight	
23	H. D. Hall's house, Ashland street.	12.30 p.m.	Still	5.00	3,000 00
June 3	W. S. Barker & Sons, bakery	7.30 a.m.	Box 23	Slight	
10	J. Remison, boiler house	4.05 p.m.	Box 25	280 00	1,500 00
10	Charles Markelette, barn off Park st.	4.45 p.m.	Box 28	100 00	None
24	P. McGowan's tannery	7.17 p.m.	R 42 & 41	27,700 00	3,650 00
25	P. McGowan's tannery	6 p.m.	Still		
26	P. McGowan's tannery	3.50 p.m.	Still		
26	S. Hilton's house, Temple street	10.25 p.m.	Box 51	75 00	2,500 00
27	Mr. Nottage, chimney fire	1.30 p.m.	Still		
28	P. McGowan's tannery	6.15 p.m.	Still		
July 9	Woods on Love lane	1 p.m.	Still		
9	Woods on Fulton street	2.30 p.m.	Still		
9	Woods on Love lane	4.30 p.m.	Still		
9	Woods at Walter Wright's	5 p.m.	Still		
14	Bay State Brick Company, shed	1.45 a.m.	Box 35	300 00	
15	Woods off Fulton street	2.30 p.m.	Still		
16	Woods on Love lane	4.30 p.m.	Still		
18	John Babson's house, Joseph street	7.30 p.m.	Bell	1,270 00	3,700 00
23	Rev. Smith's house, West Medford	4.45 p.m.	Box 62	Slight	
24	Barber shop, West Medford	8.45 p.m.	Box 51	Small	
25	Ed. Hodgman's, Washington street	1.48 a.m.	Box 27	1,363 00	7,500 00
30	E. Pierce, Jerome street	11.45 p.m.	Box 45	600 00	2,100 00
31	E. Pierce	2.30 a.m.	Box 45		
Aug. 2	Park-street station	3.25 p.m.	Box 27	Small	
5	Thomas McCool, South Medford	11.30 p.m.	Box 73	1,180 00	3,100 00
5	Unfinished house at Wellington	1.45 a.m.	R 34 & 36	2,600 00	3,000 00
30	Grass at Sam Tay's, Forest street	7.10 p.m.	Still		
31	Barrel of oil at South Winthrop street	3.35 p.m.	Still		
Sept. 4	Henhouse, corner Washington and Park streets	8 p.m.	Box 27	Small	
5	Usher Building, West Medford	3.27 p.m.	Box 51	Small	
20	Outhouse, Water street	6.40 p.m.	Box 24	Small	
Oct. 10	College Hill railroad station	10.55 a.m.	Box 62	None	
10	Grass at Bay State Brickyards	1.30 p.m.	Still		
10	S. McIntire, barn, Washington street	7.12 p.m.	Box 27	220 00	1,300 00
12	Mr. Hollowell's house, Mystic street	8.42 a.m.	Box 53	Slight	
12	Line at new Catholic Church	5.37 a.m.	Box 23	Small	
27	Grass on Salem street	8.30 p.m.	Still		
28	Goodwin's lot, Daisy street	10.15 a.m.	Still		
31	Mr. Gowan's shed, off Summer street	8.14 p.m.	Box 61	1,200 00	None
Nov. 1	Hay at Wellington	10.15 a.m.	Still		
6	Woods on hill, Osgood lot	4.45 p.m.	Still		

DATE.	Fires and Alarms.	Time.	Alarms.	Loss.	Insur- ance.
Nov. 10	Woods on Hall's lane	1.15 p.m.	Still		
11	Brooks House, corner Woburn and High streets	6.58 a.m.	Box 53		
11	H. M. Sawyer's house, Mystic street	1.03 p.m.	Box 53	\$50 00	\$5,500 00
14	Woods near Winchester	5 p.m.	Still		
14	W. H. Lym's house, Wellington	1.41 a.m.	Box 36	1,100 00	6,000 00
16	Woods on hill, off Valley street	4.45 p.m.	Still		
17	Woods on hill, off Valley street	2.15 p.m.	Still		
17	Woods on hill, off Valley street	5.10 p.m.	Still		
18	Woods on Elm street	1.30 p.m.	Still		
19	Woods at Spot pond	9.39 a.m.	Still		
24	Woods on hill, Osgood lot	4.40 p.m.	Still		
25	Hay at Wellington	11.20 a.m.	Still		
26	Dan. McLean's house	8.40 a.m.	Box 46	43 00	2,000 00
26	Woods on hill, Osgood lot	5 a.m.	Still		
1894.					
Jan. 5	Mr. Connor's house, chimney fire		Box 35	None	
8	Hay at Wellington	10 a.m.	Still		

There have been the past year 86 alarms,—34 box and bell alarms, and 52 telephone and still alarms.

The department during the past year has run about 600 miles, used about 40,000 feet of hose and 2100 feet of ladders, and, aside from grass fires and fires in the woods, worked about 400 hours.

Following is the estimate of appropriations necessary for the ensuing year:—

Ordinary expenses	\$4,500 00
Salaries	8,448 00
Fires in woods	250 00
Exercise wagons	425 00
Ladder trucks and equipments	1,500 00
Cesspools	80 00
Painting hose 4 house and repairing at centre house	300 00
Heating apparatus for engine	200 00
Sheds for storage	600 00

Respectfully submitted,

ARTHUR C. SYMMES,
Chief Engineer.

REPORT
OF THE
CITY TREASURER.

MEDFORD, Mass., Feb. 1, 1894.

HON. SAMUEL C. LAWRENCE,
Mayor of the City of Medford.

Sir,—I herewith submit my first annual report as City Treasurer, covering the year ending Jan. 31, 1894.

Cash balance in the city treasury Feb. 1, 1893	\$31,581 33
Amount received into the treasury during the year ending Jan. 31, 1894, from all sources,	576,989 16
	<hr/>
	\$608,570 49
The disbursements during the year amount to	593,427 39
	<hr/>
Leaving a balance in the treasury Jan. 31, 1894	\$15,143 10

Respectfully submitted,

PARKER R. LITCHFIELD,
City Treasurer.

REPORT
OF THE
COMMISSIONERS OF SEWERS.

MEDFORD, Mass., Feb. 1, 1894.

To his Honor the Mayor and the City Council.

Gentlemen, — We beg to report that, as soon as organized, our first duty was the selection of a competent engineer to prepare plans for the general system of sewerage. After careful deliberation we secured the services of Mr. T. Howard Barnes of Waltham. The work under his supervision has been thoroughly done, and already the designs for that part of the city from the square easterly of the river to the Malden line are near enough to completion to submit them to our consulting engineer, Mr. Rudolph Hering of New York city. After a thorough examination of the plans, and a personal visit to the city, Mr. Hering has fully approved of our general system.

In a very short time we shall submit to you our estimate of the cost for sewerage this district, so that, providing it meets with your approbation, work can be commenced in the early spring. By special agreement made with Mr. Barnes, all notes, field books, and profiles made during the survey are the property of the city; they have been duly indexed, and will be valuable data for all engineering work the city may undertake in the future.

The commissioners are justified in the belief that, by the

selection of Mr. Barnes as engineer in charge of the work, no mistake was made.

To his Honor the Mayor we are much indebted for valuable advice and assistance, also for the use of three rooms in the Simpson house, rent free.

We append herewith the report in detail of our engineer.

Respectfully submitted,

JOHN D. STREET,

C. H. PARKER,

J. W. ROCKWELL,

Commissioners of Sewers.

REPORT OF ENGINEER.

To the Commissioners of Sewers.

Gentlemen,—Pursuant to an engagement with your board, and according to your instructions, I have entered upon the work of making the necessary surveys and designing a system of sewers for your city.

Field work was begun upon the same Nov. 23, 1893, and a sufficient force of men employed, so that by Feb. 1, 1894, nearly all the streets, courts, and places had been levelled over, and surveys made sufficient to form a skeleton upon which to build a tolerably correct map of the city, by using available land plans.

The levels have been taken on fifty-foot stations with sidewalk heights and other governing points taken, whereby this set of levels should suffice for highway purposes. On Feb. 1 there had been 46.366 miles of levels thus taken, also 5.970 miles of levels in which the centre elevations only were taken, for the reason mainly that at the time the snow so obscured the sidewalks and lawn fronts

as to make it impossible to readily take those elevations. Preliminary to the work of levelling, a series of careful bench heights was established corresponding with the Boston city base (approximately mean low tide water), and being the same as the Metropolitan Sewer Commissioners have adopted, with an addition of one hundred feet, whereby they might avoid minus heights.

The surveys have been made mainly along the highways and on approximate three-foot offsets to the ostensible street lines. Everything within the street limits, including water gates, trees, poles, curbing, catch-basins, &c., and the fronts of abutting buildings, have been located. Up to this date there have been 22.180 miles of surveys so made.

The azimuths of the base lines have been determined with reference to a meridian passing through the tower on the Odd Fellows Building, and the co-ordinates of survey points determined from an origin so far outside the city limits as to give plus quantities. Each angle point has been marked by a large galvanized-iron spike with a punch mark in the head; and to make the location more permanent, ties to natural objects have been taken whereby it could be reproduced should the spike be displaced.

Topographical surveys have been made over considerable areas so situated as not to have the contour of the same substantially shown by the levels in the surrounding streets.

The surveys and topography are being plotted on the scale of two hundred feet to an inch, upon two sheets of mounted paper, each nine feet by five feet. These cover the area of the entire city, and as surveys are made for any department and properly connected with those for the sewers, a map of the city will be developed from actual survey.

The levels have been plotted upon mounted profile paper,

plate B, and will serve a final purpose of highway profiles for determinations of street grades, &c., while at present serving for study of sewer grades and estimates of quantities.

All notes are being entered in note books owned by the city and properly marked as belonging to the office of the City Engineer, into whose custody they should be given should that office be created.

All calculations of traverses, quantities, &c., are made in regular calculation books as permanent records. As will thus appear, the entire work is being done with an aim to make it of use not only to the sewer department but to any and all departments of the city as well, — agreeably to your instructions.

There remains to be done a few days' more work in the field in completing the profiles, and taking additional topography to determine drainage areas, and the most feasible routes over private lands for such sewers as cannot be carried in the streets.

The actual study of the system of sewers has been begun, and the completed design may be finished, together with estimates of cost, in a few weeks.

GENERAL FEATURES.

Medford is embraced in the north division of the Metropolitan Sewer district. The sewage from this division is to be discharged into the harbor at Deer Island light. Construction hereon is nearly complete, and it is hoped that the entire system will be in working order in but little more than a year from this [date]. This event will be a most significant one to the inhabitants of the Mystic valley.

We are all proud of the organization which has furnished such complete and satisfactory means of quickly disposing of our domestic and manufacturing wastes.

The main line through Winthrop, East Boston, Chelsea, Everett, and thence to Somerville and Cambridge, throws out a branch in Everett extending through Malden, Medford, Winchester, and Woburn to the Stoneham line substantially along the Mystic and Abbajona rivers. Into this branch nearly all the northern side of Medford, and a portion of the southern side, finds outlet. There are two principal branches to this branch. The one enters in Everett from Melrose and Malden, and the other in West Medford from Belmont, &c., and is located along the Alewife brook.

The sewage collected by this latter branch requires to be lifted at a pumping station designed to be erected near and south of the Mystic pumping station of the Boston water works. One connection herewith is required from Medford territory, viz., at Jerome street to serve the low-lying territory along the Mystic river and lower lake westward from Boston avenue. After being lifted the sewage will continue to join the main branch at Prescott and Canal streets, receiving on the way thereto all the sewage from the remaining territory lying southwesterly from the Boston & Maine Southern Division Railroad in the West Medford and Medford Hillside districts.

The greater portion of the city lying south of the river will discharge its sewage into the Metropolitan sewer, yet to be built in Mystic avenue from the main line up to the city line between Somerville and Medford.

ASSUMPTIONS FORMING BASIS OF CONCLUSIONS.

Population :

Since the office of sewers is to remove the waste created by man, it becomes of importance that first the prospective number of persons for whom provision is to be made shall be determined in order to fix the sizes required.

There is wide latitude for difference in judgment in this determination. In fact, no exact knowledge is possible upon an extended area, and it is therefore customary, and wisely so, to figure upon the safe side. As applied to small areas, so slight is the contribution of sewage per person that the size necessary for the sewers therein is fixed by considerations other than the amount of sewage to be carried, at so large a size that the capacity is ample for the flow. The considerations alluded to are (1) the securing of such a size of sewer that the liability to obstruction by articles both accidentally and legitimately entering the sewers may be reduced to a minimum. (2) The limiting of the permissible flow in all the smaller sizes to the depth of one half of the diameter of the same, in order to secure adequate ventilation and inspection. Hereby it is assured that, even if the population is materially increased beyond that expected, one half the sewer is unfilled, and the other half runs at that depth only a few hours in the twenty-four, *i.e.*, during the period of greatest consumption of water.

We are thus led under consideration (1) to use nothing less than an eight-inch pipe, even though the territory to be drained is a single acre, unless the grade possible to secure is more than two (2) per cent. At the same time, an eight-inch pipe laid on a grade of $\frac{1}{2}$ of one per cent, and running at no time more than one half full, will amply carry away the sewage from a population of fifty persons per acre on an area of fifty acres, assuming that each person contributes sixty (60) gallons toward the sewage.

Upon districts of more than thirty to fifty acres in area, the consideration of possible population will govern in determining sizes. A census of the most densely populated spots in Medford shows that the greatest actual population per acre is thirty-nine and $\frac{2}{10}$ (39.2) persons per

acre, and that rate is for an area of two $\frac{81}{100}$ (2.81) acres. Assuming vacant houses and lots to be occupied as densely as exist on the occupied portion of this district, the estimated population thereon would be fifty-one $\frac{2}{10}$ (51.2) persons per acre. The area next in density, comprising four $\frac{19}{100}$ (4.19) acres, contains respectively a population of thirty-seven $\frac{5}{10}$ (37.5) and forty-two $\frac{8}{10}$ (42.8) persons per acre, actual and estimated. Following is a list of subdivisions of an area of nineteen $\frac{07}{100}$ (19.07) acres, showing the actual and the estimated population of each and of the whole. This area is believed to be the densest for its size of any in the city :

Area in Acres.	Actual Population.		Estimated Population.	
	No.	Per Acre.	No.	Per Acre.
2.12	61	28.0	68	32.0
1.75	49	28.0	60	34.3
6.40	131	20.5	157	24.7
8.80	203	23.0	242	27.5
Total, 19.07	444	23.2	527	27.6

I have assumed a population of fifty (50) persons per acre for small districts, diminishing to thirty-three (33) per acre on areas of five hundred acres. On some areas where this rate is manifestly excessive, a smaller population has been assumed. A leaning toward the safe side is had throughout. We want to build large enough for all time under circumstances where the cost of the larger size over that of one somewhat smaller is slight. It seems possible to plan for a long time in the future in the case of Medford, because the sewerage districts are small, and it reduces to a choice between a pipe of fifteen inches in diameter and one of eighteen inches, or perhaps one of twelve and one of fifteen inches, whether we estimate for a population which might be expected a generation hence or for one

possible in the far future. Were the districts larger, the saving of interest on excess of cost of the more ample construction of the mains would lead to the adoption of sizes which might need to be enlarged in the future. It has been assumed that the amount of sewage estimated by "maximum population" basis would equal the amount accruing upon a like area occupied by manufacturing establishments. In any event, it would be unwise to abnormally increase the sizes of the sewers *in general* in order to provide for manufacturing waste, the amount of which must remain indeterminate until the actual conditions arise. It may be said that all marsh lands have been included in the sewerage areas at the rate of other portions of the city.

Quantity of Water per Person :

It has been thought unsafe to provide for an amount of sewage per inhabitant no greater than the amount of water now consumed, since, with a more abundant supply and a greater pressure, the present consumption will probably be greatly increased. Nor has it seemed necessary to make provision for an excessive amount, since it is probable that, even with a high pressure and an abundant supply, the consumption may, and probably will, be maintained at a low rate by the use of meters. Accordingly, sixty gallons, or eight cubic feet, has been adopted as the amount to be provided per inhabitant per day. The capacity of the sewers has been figured to take the above amount at the rate of double the discharge, *i.e.*, assuming one half of the sewage to be furnished in six hours.

DEPTH OF FLOW — SIZES — GRADIENTS.

It has been indicated hereinbefore that the requirements of ventilation and inspection demand that the sewers shall

never run full, or even nearly full. The capacity of the sewers has therefore been figured sufficient to carry the sewage at maximum flow when they are running about six tenths full for twenty- and eighteen-inch pipes, and not over half full for all of less diameter. It will be sought to secure a velocity of three feet per second when running half full. The study has progressed so far as to be able to determine that grades sufficient to produce the foregoing velocities cannot be secured in all instances. To secure the best grades possible, however, the trunks will be frequent, and make as direct connections with the Metropolitan sewer as possible. Hereby the necessity of long laterals with flat grades will be obviated to the greatest extent.

The before-mentioned velocity is that which insures that the sewers shall be self-cleansing. Those laid upon gradients producing less than three feet per second require artificial flushing, increasing in frequency as the inclination grows less.

The experience of other municipalities with six-inch sewers has been such as to discourage their further use, excepting in special instances. The trouble arises, not from lack of actual capacity, but because of their liability to become obstructed by the entrance of articles of an oblong shape which lodge crosswise in a six-inch pipe, but seldom are long enough to obtain lodgment in one of eight inches in diameter. I shall make use of six-inch pipe between the last two manholes on any lateral where a grade of two per cent is obtainable. A six-inch size will not be continued below the second manhole, for the reason that too great a risk is run of the entrance of sticks and other rubbish through the holes in the manhole covers.

To secure the greatest effect of the flow in cleansing the sewer, it is desirable to make the sewers as small as possible so as to increase the depth and consequent scouring effect.

Hence it is undesirable to increase any size beyond that found necessary by actual requirement.

It may seem unnecessary to put in this last word of caution. There is, however, a popular feeling that anything less than a ten- or twelve-inch pipe cannot be large enough for a public sewer. We have been so accustomed to seeing pipes of the latter size used as a minimum upon systems combining in one the sewerage and surface drainage, that we cannot easily shake off the notion that an eight-inch, and especially a six-inch pipe, is fit only for a house drain.

MANHOLES — VENTILATION.

Manholes will be provided for at intervals of about three hundred feet. At changes in direction in the sewer between manhole locations, lamp-holes will be used.

The covers of the manholes will be provided with from eight to twelve holes of about one and one quarter inches in diameter for purposes of ventilation. These holes will be coned, having the larger opening down, so as to clear themselves from clots of street dirt. Pans or pails for the retention of sticks and street washings will be hung beneath the covers.

For the complete ventilation of the sewers, reliance will be had upon the stacks of soil-pipe in houses connected with the sewers. This method of ventilating the public sewers, though but recently practised in this country, has met with great favor. It is to be hoped that property holders will co-operate in securing a uniform practice herein by doing away with the running trap heretofore so common upon the house connections. Thousands of dollars have been expended abroad in vain attempts to ventilate public sewers by means of fans or chimneys, creating a sufficient draught through the sewers to withdraw all the

gases continuously and adequately. Modern practice in plumbing, by which each soil stack is extended full size through and above the roof of the dwelling, has put at our disposal the before-mentioned method of ventilating our sewers. Hereby the open manhole covers become no exhalers of foul sewer gases, but are the inlets of fresh air. In this connection it is not amiss to call attention to the oft-repeated fact that in a system of sewers of good design and well constructed, the sewage is kept in motion until it reaches its destination. Consequently the work of keeping the air pure is reduced to a minimum. The sewage has no time to putrefy, and the sewers should actually be cleaner than the interior surfaces of the soil stacks, the exhalations from which are not feared when carried above the roof.

FLUSHING.

Provision will be made for the ready admission of brook or river water for flushing purposes wherever possible and necessary. On many laterals dependence must be had upon artificial means of flushing, especially until such time that house connections shall become frequent. At the upper ends of laterals such flushing will be needed for a long time. In view of the scarcity of water, as well as the fact that no exact knowledge can be had beforehand of the necessities of artificial flushing, dependence will be placed upon hand flushing in most instances. Flush tanks may prove advisable in many instances, but since they consume a considerable quantity of water, and are not as effective in flushing as the results obtained by the sudden release of a manhole filled with water, their use will be limited. Reliance on rain-water leaders for purposes of flushing is too uncertain, although favorable opportunities may be found to make connections therewith.

DEPTH OF SEWERS.

It will be sought to put the sewers at such a depth that fixtures in all cellars may be discharged into them. The depths of cellars which are unusually low are being noted as the levels are taken. It is also desirable that the sewers shall be at a considerable depth below the street surface, in order that the connections with house systems shall not interfere with surface drains or water pipes in the streets. These considerations make a minimum depth of from 8 to 9 feet to the water line of the sewer desirable on residence streets, and from 10 to 12 feet in streets along business blocks.

GROUND WATER — SUB-DRAINS.

The problem of exclusion of ground water from your sewers will be one of the most serious problems to be met with in the execution of the work. It may be said that it is desirable to allow ground water to enter the sewer to the benefit of draining the ground and of helping to flush the sewers. For the latter purpose we plan to depend on methods not so uncertain. As to the draining of the soil, that is indeed desirable, but it is liable to become a very expensive luxury on a large portion of your sewers. Could free outlets be obtained for the discharge of a system of sub-drains, the latter would be recommended to be used to relieve the head of ground water upon the sewer. The larger portion of the sewers must inevitably be so low that sub-drains would be tidelocked. On the portions of the system so situated as to obtain free discharge for sub-drains at high tide, their use will be urged if considered necessary for securing the best construction, especially if they shall furthermore prove a benefit in keeping the soil drained. The expense alluded to in allowing ground water to enter the sewer arises from the cost of pumping and other

maintenance of the Metropolitan system. It is probable that the next apportionment for this maintenance, and perhaps for a portion of the fixed charges, will be on the basis of the amount of sewage delivered by each system, instead of upon the basis of valuation, by which it is determined for the present five-year period.

Extreme care in the making up of the joints of the pipes must be relied upon on the portions of the system discharging below high tide. Use of temporary sub-drains will probably be required in many places; but this means for obtaining tight construction will be used only when other methods fail. When construction is finished, such temporary sub-drains constitute a serious trouble in any future connection with the overlying sewer. All the water is readily concentrated at the point of opening from the entire length of the drain, thus causing additional cost for pumping. In many cases where a sub-drain for construction purposes is not necessary, it may be to the advantage of the work to have the sewer built from the head of the line down.

By this method of laying, all water must be taken care of ahead of the laying, and if joints are made under water, the water will be still. It will be impossible to dispose of water by allowing it to run through the pipes, which would be the case in the regular manner of laying. Such running water conveys matter in suspension which is likely to settle in the completed sewer, to be removed at considerable expense. Furthermore, if the sewer is laid down hill, it is apparent at a glance what character of joint is being obtained, the presence of a flow from above indicating imperfect work. The moral effect of this upon both pipe-layer and inspector is a most important agent in inspiring exertions to secure tight work.

The admission of ground water also creates an uncertain

factor in the determination of sizes. Provision for such amount of ground water as will unavoidably be admitted is thought to be amply provided for, inasmuch as the sewage will fill the sewers only in part.

It would seem, therefore, to be readily apparent that the greatest necessity exists for as complete an exclusion of ground water as practicable.

CONNECTIONS WITH THE METROPOLITAN SEWER.

All sewage entering the Mystic branch of the North Metropolitan division, excepting only the small amounts from Cambridge and Somerville entering via the Alewife brook branch, will be contributed by sewers from which surface water is excluded. This assures a more regular and steady flow of sewage than will obtain in those parts of the system in which sewers combining sewerage and drainage contribute the flow.

In the whole North Metropolitan district the average minimum flow is estimated to reach an amount which will fill the sewers to about three tenths of their vertical diameter at the time that the average maximum flow will be about eight tenths thereof in depth.

Since the systems contributing to the Mystic branch will be distributed along the line for several miles in extent, I have considered that the flow therein will be a fairly regular quantity, having only slight variation between the minimum and the maximum amounts. Granting that this conclusion is correct, it is manifest that connecting sewers should be placed at such an elevation above the invert of the Metropolitan sewer that the maximum flows in each shall unite at or near the same elevation.

Upon the portion of the local system already studied, the desirability of obtaining all the head possible (in order that the grades may be improved and the sewers laid at the

standard depth) has constituted a serious temptation to unite the flow lines of connections at a low point in the Metropolitan sewer. Were the periods of maximum flow in the latter caused by storm water, and thus necessarily infrequent and of short duration, it would be plainly permissible to unite flow lines at the elevation of the minimum flow estimated for sewers receiving that character of sewage, viz., at three tenths of the vertical diameter above the invert of the Metropolitan sewer. But with the probability of high minimum flow in the Mystic branch, I have planned to adopt the point of three fourths of the vertical diameter above the invert of the Metropolitan sewer as the position below which the flow line of connecting sewers should not be placed.

We are safe, under this rule, against back water in the local system, the evils of which are the causing of deposits and interference with inspection, besides bringing strain upon the structure which might seriously affect the joints.

In conclusion, I wish to express my thanks to your board for the very pleasant relations created, and for your uniform courtesy; also to all the city officials and citizens who have contributed information in behalf of the work in hand. I also acknowledge gratefully my appreciation of the diligence and faithfulness of my assistants.

Respectfully submitted,

T. HOWARD BARNES.

MEDFORD, Feb. 1, 1894.

REPORT
OF THE
CITY AUDITOR.

MEDFORD, March 7, 1894.

To the Honorable the City Council:

In compliance with the requirements of section 7, chapter xi. of the city ordinances, I submit the following report, together with statements (to be found elsewhere among the city documents) of the receipts and expenditures in detail:—

The cash in the treasury Feb. 1,	
1893, was	\$31,581 33
The actual receipts for the year	
ending Jan. 31, 1894, were	534,511 13
	\$566,092 46

During the year, 71 drafts were drawn by the Mayor on the treasury, calling for an expenditure of \$550,971 42

Deductions made by erasure of names from pay rolls, &c., after the draft had been signed 22 06

Actual expenditure	550,949 36
Cash in treasury Feb. 1, 1894	\$15,143 10

Under section 7, chapter xiii. of the city ordinances, the sum of \$1382.93 received in January, 1894, from the County Treasurer, must be placed to the credit of the Public Library.

After deducting this amount	\$1,382 9
<hr/>	
the net cash balance available for general purposes is	\$13,760 17

There are no bills remaining unpaid in the hands of the Auditor.

On March 6, 1894, there was on deposit at the Howard National Bank of Boston, to the credit of this city	\$20,219 35
Deduct amount of outstanding checks	3,684 01
<hr/>	
and the true balance in the bank is	\$16,535 34
The cash in the treasury on the same date was	6,353 55
<hr/>	
Total	\$22,888 89
From Feb. 1 to Mar. 6, the receipts were	\$15,383 40
The expenditure for interest, pay rolls, &c., was	7,637 61
<hr/>	
	7,745 79
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Cash in treasury Feb. 1, 1894	\$15,143 10

The certificate of the president of the Howard National Bank is on file with the other vouchers.

According to the terms on which the appropriations were made, bonds are to be issued to cover the following expenditures : —

Medford Sewerage Loan, surveying account	\$2,134 84
Medford Park Loan, Otis street park . . .	6,542 49
Medford Public Building Loan, land on Medford street for engine-house	1,560 00
Medford Public Building Loan, schoolhouse lot, Harvard street	7,567 56
Medford Public Building Loan, sundry expenses on account of schoolhouse on Harvard street (this amount was charged to Miscellaneous Account, as none of the \$37,000 appropriated for that purpose was available)	54 50
Total	<u>\$17,859 39</u>

On Jan. 1, 1894, 72 City of Medford Water Fund bonds were sold to the highest bidder at 101.69, amounting to \$73,216 80

The premium was immediately paid to the Sinking Fund Commissioners, and amounted to 1,216 80

Face value of bonds \$72,000 00

These bonds were issued for the following purposes :—

To retire note due Jan. 27, 1894	\$20,000 00
To cover amount expended to Feb. 1, 1894, for improving and enlarging water supply (including mortgage note of Dustin D. Wright for \$11,000)	19,820 53
Amount expended on Driven Wells account	6,190 03
Amount expended on pumping station at Wright's pond	4,169 98

Also to cover the following unexpended balances :—

Improving and enlarging water supply	\$9,679 47
Pumping station at Wright's pond	5,830 02
Driven wells	6,309 97
	<hr/>
	\$72,000 00

FUNDED DEBT.

Medford Water Bonds.

Date.	Due.	Rate.	Amount.
July 1, 1874.	July 1, 1894.	6 per cent.	\$50,000 00
" 1890.	" 1900.	4 "	75,000 00
" 1890.	" 1910.	4 "	125,000 00

City of Medford Water Fund Bonds.

Jan. 1, 1894.	Jan. 1, 1899.	4 per cent.	4,000 00
" 1894.	" 1900.	4 "	4,000 00
" 1894.	" 1901.	4 "	4,000 00
" 1894.	" 1902.	4 "	4,000 00
" 1894.	" 1903.	4 "	4,000 00
" 1894.	" 1904.	4 "	4,000 00
" 1894.	" 1905.	4 "	4,000 00
" 1894.	" 1906.	4 "	4,000 00
" 1894.	" 1907.	4 "	4,000 00
" 1894.	" 1908.	4 "	4,000 00
" 1894.	" 1909.	4 "	4,000 00
" 1894.	" 1910.	4 "	4,000 00
" 1894.	" 1911.	4 "	4,000 00
" 1894.	" 1912.	4 "	4,000 00
" 1894.	" 1913.	4 "	4,000 00
" 1894.	" 1914.	4 "	4,000 00
" 1894.	" 1915.	4 "	4,000 00
" 1894.	" 1916.	4 "	4,000 00
			<hr/>
Total			\$322,000 00

UNFUNDED DEBT.

Date.	To whom issued.	Due.	Rate.	Amount.
May 9, 1874	Medford Savings Bank	May 9, 1894	7 per cent	\$10,000 00
July 1, 1874	St. Paul Royal Arch Chapter	July 1, 1894	7 "	10,000 00
Aug. 23, 1880	Commonwealth of Massachusetts	Aug. 23, 1894	3½ "	4,000 00
July 11, 1880	Commonwealth of Massachusetts	June 11, 1895	3½ "	13,000 00
Aug. 23, 1890	Commonwealth of Massachusetts	Aug. 23, 1895	3½ "	5,000 00
Jan. 1, 1891	Brewster, Cobb & Estabrook	July 1, 1896	4 "	13,000 00
Nov. 22, 1892	Medford Savings Bank	Nov. 22, 1897	4 "	12,000 00
Dec. 1, 1890	Boston Commandery Knights Templars	Dec. 1, 1897	4 "	5,000 00
Dec. 6, 1892	Medford Savings Bank	Dec. 6, 1897	4 "	8,000 00
	Total			\$80,000 00

PERMANENT DEBT.

	Duc.	Rate.	Amount.
Secomb Fund	Perpetual	6 per cent	\$5,800 00
Hall Church Fund	"	6 "	5,000 00
Simonds Fund	"	6 "	1,300 00
Osgood Fund	"	6 "	2,009 42
Tufts Fund	"	6 "	500 00
Perpetual Care Fund	"	6 "	13,982 50
Total			\$28,591 92

TRUST FUND.

There is also a fund known as the Bradbury fund, amounting to \$11,252. This is invested in the Medford Savings Bank.

BALANCES.

	DR.	CR.
* Improving and enlarging water supply		\$9,679 47
* Pumping station at Wright's pond		5,830 02
* Driven wells		6,309 97
† Maintenance and interest on bonds		19,423 31
† New construction and service pipes		27 97
† Rents and repairs of buildings		560 00
Excess and deficiency		14,897 53
‡ Property and debt balance	\$430,591 92	

* Bonds have been issued to cover these amounts.

† The surplus earnings for the year ending Dec. 31, 1893, and the January earnings in 1894.

‡ No property has been credited to this account as yet.

City Collector (uncollected taxes)	\$41,585 17
City Treasurer (cash balance)	15,143 10
Funded debt	\$322,000 00
Unfunded debt	80,000 00
Permanent debt	28,591 92
Public property	
	<hr/>
	\$487,320 19 \$487,320 19

No detailed valuation of the public property has been furnished the Auditor, and therefore no entries have been made on his books to that account.

The summary as taken from the assessors' books is as follows:—

Schoolhouses	\$200,000 00
Public Library	12,000 00
Other public buildings	45,000 00
Public grounds and parks	15,000 00
Other real estate	56,000 00
Water works	300,000 00
	<hr/>
Total	\$628,000 00

The valuation of the cemeteries is	\$25,000 00
The fire apparatus is valued at	15,000 00

The real estate belonging to the city is as follows:—

PUBLIC PROPERTY.

REAL ESTATE.

City Hall :

Land corner High and Main streets.

City stables :

Land 155,888 feet.

Almshouse :

Land (13½ acres) off Winthrop street.

Land Union street (pound lot).

Land corner High street and Governor's avenue.

High schoolhouse :

Land High street.

Brooks schoolhouse :

Land corner High and Allston streets, 85,076 feet.

Cradock schoolhouse :

Land Summer street, 26,406 feet.

Curtis schoolhouse :

Land Paris street, 26,595 feet.

Cummings schoolhouse :

Land Cotting street, 18,525 feet.

Everett schoolhouse :

Land Salem street, 10,829 feet.

Gleason schoolhouse :

Land Warren street, 20,372 feet.

Hall schoolhouse :

Land Harvard avenue.

Hervey schoolhouse :

Land Sharon street.

James schoolhouse :

Land Spring street.

Osgood schoolhouse :

Land Middlesex avenue, 28,800 feet.

Swan schoolhouse :

Land corner Park and Washington streets.

Tufts schoolhouse :

Land Main street, junction of Medford street.

Washington schoolhouse :

Land Washington street, 56,391 feet.

Land corner Boston avenue and Winthrop street, 29,768 feet.

Land on Harvard street, about 42,042 feet.

Oak Grove cemetery, $33\frac{7}{1000}$ acres.

Cross Street cemetery.

Salem Street cemetery.

Public Common, Salem street.

Public Common, Brooks park.

Public Common, Hastings park.

Otis Street park, 56,088 feet.

Triangular lot, junction of Grove and High streets.

Public Library :

Land High street, 16,450 feet.

Engine House :

Land Main street, 13,000 feet.

Hose No. 2 House :

Land Canal street, 9,000 feet.

Hose No. 3 House :

Land Salem street.

Hose No. 4 House :

Land Spring street.

Land on Medford street, about 7,800 feet.

Also the following property taken or purchased since 1889 by the Water Department:—

Heirs Frederick Tudor, about 100 acres of land adjoining Spot pond	\$11 700 00
George W. W. and Helen Saville, for land and buildings, about 29 60/100 acres, between	

Forest and Elm street (mortgage note of D. D. Wright for \$11,000 included)	\$18,000 00
Thaddeus and Caroline J. Malley, for land and buildings, about 11 acres, on westerly side of Forest street	1,450 00
Francis Woods, for land and buildings, about 9 57/100 acres, on Forest street	4,200 00
Minerva H. Howe, for land and buildings, about 1 55/100 acres, on easterly side of Forest street	2,300 00
Charles S. and Hannah Smith, for land and buildings, 97/100 acres, on Fulton street	900 00
Sarah A. Blackwood, guardian, for land and buildings, about 3/4 acre, on northerly side of Forest street	750 00
George S. Hatch, for land on Forest street	50 00
Samuel C. Lawrence, for land, about 39 75/100 acres, lot No. 2 on plan by James O. Goodwin, also about 18 92/100 acres, lot No. 5, on above-named plan	7,800 00
Samuel C. Lawrence, for land in Stoneham, about 1 1/100 acres, book 69, plan No. 25, Middlesex South District Deeds	200 00
Joseph S. Sewell, for land in Stoneham east of Andover Turnpike, book 69, plan No. 26, Middlesex South District Deeds	915 00
Philip G. Wright, Edith F. W. Wait, and William C. Wait, guardian of Lizzie A. Wright, about 2 43/100 acres of land on easterly side of Forest street	375 00
Roxana Wilson, for land taken about Spot pond	1,500 00
Charles J. Teele, for land taken about Spot pond	6,000 00

William Foster, for land taken about Spot pond, about 7 55/100 acres	\$1,750 00
E. I. and Ida E. Wadsworth, for land at Spot pond, about 21 77/100 acres	3,809 75
Charles A. Loud, for 33,190 feet land on shore of Spot pond	1,000 00
City of Malden, for one third part of amount paid Arthur M. McGouch for land at Spot pond	2,166 66
Total cost	<u>\$64,866 41</u>

The total appropriations (including \$5656.28 transferred from Miscellaneous Credits account), were	\$315,639 12
Total reappropriations	76,918 16
The State, county, and sewer taxes amounted to	26,148 71
	<u>\$418,705 99</u>

Respectfully submitted,

GEORGE D. CUMMINGS,

City Auditor.

**TABLE OF AGGREGATES FOR THE CITY OF MEDFORD, OF POLLS, PROPERTY,
TAXES, &c., AS ASSESSED MAY 1, 1893.**

Total number of polls.	Tax on each poll.	Total value of personal estate.	Total value of real estate.	Total valuation, May 1, 1893.	Total tax for State, county, and town purposes.	Rate of total tax per \$1000.	Total number of horses.	Total number of cows.	Total number of sheep.	No. of neat-cattle other than swine assessed.	Number of swine assessed.	Total number of dwelling-houses.	Total number of acres of land assessed in the city.	Total number of persons assessed.	Number of persons assessed on property only.	Number of persons assessed a poll tax only.
3,506	\$2 00	\$2,725,000	\$12,170,575	\$14,004,575	\$242,504 29	\$15.80	744	283	None	8	50	2,618	4,654	5,047	2,587	2,480

RECAPITULATION.

State tax	\$12,700 00
State tax (sewer)	3,078 40
County tax	10,370 31
City tax	216,355 58
	\$242,504 29
Poll tax (3506)	\$7,012 00
Real estate tax, resident	151,736 09
Personal estate tax, resident	42,034 32
Real estate tax, non-resident	40,701 20
Personal estate tax, non-resident	1,020 68
	\$242,504 29

TABULAR STATEMENT,
Showing Appropriations, Transfers, Receipts, Amount Expended, &c.

	Appropriations and reappropriations.	Transfer to.	Transfer from.	Receipts.	Total.	Expended.	Unexpended balance.	Excess.
Armory	\$500 00			\$200 00	\$700 00	\$699 95	\$0 05	
City Hall	1,000 00				1,000 00	9,990 80	9 20	
Decoration and care of soldiers' graves	300 00				300 00	300 00		
Hydrants	3,660 00				3,660 00	3,660 00		
Interest	7,500 00			3,056 25	10,556 25	9,699 98	856 27	
Insurance	800 00			25 00	825 00	455 51	369 49	
Miscellaneous account	3,000 00	\$500 00		244 26	3,744 26	3,633 29	90 97	
Payment of city debt	15,000 00				15,000 00	15,350 00		\$350 00
Printing Reports	750 00				750 00	655 77	94 23	
Rent of rifle range	125 00				125 00	125 00		
Ringling bells	50 00				50 00	18 00	32 00	
Salaries and fees	10,000 00				10,000 00	9,290 27	709 73	
Soldiers' relief	1,000 00	200 00			1,200 00	1,072 46	127 54	
State aid	1,000 00			1,765 50	2,765 50	2,087 00	678 50	
Street lights	11,000 00				11,000 00	10,997 94	2 06	
Telephones	750 00	100 00			850 00	781 40	68 60	
Voting precincts and election expenses	1,000 00	700 00			1,700 00	1,671 42	28 58	
<i>Assessing Department:</i>								
Compensation of assessors	1,900 00				1,900 00	1,900 00		
Assessors' expenses	850 00				850 00	737 85	112 15	
Plans of real estate	500 00				500 00	350 50	149 50	
Map of Medford	500 00				500 00		500 00	

<i>Auditing Department :</i>							
Salary of Auditor	1,000 00				1,000 00	1,000 00	
Auditing Department expenses	150 00				150 00	117 80	32 20
<i>Cemetery Department :</i>							
Salary of Trustees	125 00				125 00	125 00	
Oak Grove cemetery	1,000 00			5,134 50	6,134 50	5,696 21	438 29
Cross Street cemetery	100 00	47 00			147 00	140 52	6 48
Salem Street cemetery	100 00		47 00		53 00	52 39	61
<i>Fire Department :</i>							
Salaries of engineers and men	8,448 00		200 00		8,248 00	8,131 54	116 46
Ordinary expenses Fire Department	3,212 00	800 00		303 50	4,315 50	3,964 54	350 96
Fires in the woods	200 00	50 00			250 00	211 04	38 96
Supply wagon	225 00				225 00	225 00	
Exercise wagon	200 00				200 00	200 00	
New hose	1,000 00	550 00			1,550 00	1,550 00	
<i>Health Department :</i>							
Salaries of board	150 00				150 00	150 00	
General expenses	2,200 00		750 00		1,450 00	945 22	504 78
<i>Highway Department :</i>							
Salary of Street Commissioner	1,600 00				1,600 00	1,600 00	
General repairs	15,000 00	761 92		2,476 30	18,238 22	18,180 36	57 86
Snow	1,300 00			1 00	1,301 00	1,234 47	66 53
Sidewalks and edgestones	7,000 00			2,303 66	9,303 66	8,080 22	1,223 44
Guide boards and street signs	150 00				150 00	90 10	59 90
Care of shade trees	1,000 00				1,000 00	958 16	41 84
Setting out shade trees	300 00			725 00	307 25	244 80	62 45
Middlesex avenue bridge	1,200 00			377 64	1,577 64	851 97	725 67
Bridges	600 00				600 00	468 38	131 62
Steam road roller	4,200 00				4,200 00	4,188 47	11 53
Jigger	250 00				250 00	250 00	
City stables	1,000 00				1,000 00	982 58	17 42

TABULAR STATEMENT — CONTINUED.

	Appropriations and reappropriations.	Transfer to.	Transfer from.	Receipts.	Total.	Expended.	Unexpended balance.	Excess.
Ashes	\$1,800 00			\$287 25	\$2,067 25	\$2,067 00	\$0 25	
Outfit for collection of house offal	1,175 00				1,175 00	1,105 61	69 39	
Collection of house offal	2,000 00	\$750 00		275 00	3,025 00	2,215 02	809 98	
Boston and Harvard avenues drain	731 24		\$633 37		97 87	97 87		
Amaranth avenue	864 46				864 46	861 64	2 82	
Arlington street	600 00			12 00	612 00	587 70	24 30	
Lapham street	161 85				161 85	130 25	31 60	
Warren street culvert and brook	115 12				115 12	82 50	32 62	
Governor's avenue	1,750 00				1,750 00		1,750 00	
Weir bridge	2,387 61				2,387 61	2,338 51	49 10	
Gravelly creek	12,823 27	487 50			13,310 77	13,310 58	19	
Filling mill pond	1,000 00				1,000 00	815 25	184 75	
High street widening	700 00		128 55	1,500 00	2,071 45	2,071 45		
<i>Police Department :</i>								
Salaries of police	10,850 00				10,850 00	10,823 95	26 05	
Special police, &c.	1,550 00		125 00		1,425 00	1,347 01	77 99	
Patrol wagon	325 00	125 00			450 00	450 00		
<i>Public Library Department :</i>								
Painting library building	250 00				250 00	237 45	12 55	
Public Library	3,500 00			1,446 11	4,946 11	4,943 36	2 75	
<i>Relief of Poor Department :</i>								
Salaries of Overseers of Poor	600 00				600 00	600 00		
Almshouse	3,000 00	200 00		131 92	3,331 92	3,329 28	2 64	

Outside relief	7,000 00		200 00	1,082 25	7,882 25	7,881 87	38
Almshouse repairs	2,000 00				2,000 00	1,863 65	136 35
<i>Public School Department:</i>							
Salaries of committee	450 00				450 00	450 00	
Salary of secretary	100 00				100 00	100 00	
Salaries of teachers	36,470 00				36,470 00	36,466 25	3 75
Stewardship	3,330 00				3,330 00	3,235 70	94 30
Fuel	5,000 00				5,000 00	4,766 31	233 69
Contingent	4,900 00	668 78			5,568 78	5,561 83	6 95
Text books and supplies	3,500 00			70	3,500 70	3,498 60	2 10
Evening schools	400 00				400 00	399 20	80
Military instruction	150 00				150 00	150 00	
Transportation of pupils	600 00				600 00	570 00	30 00
Superintendent	1,000 00				1,000 00	1,000 00	
Painting Osgood schoolhouse	250 00				250 00	250 00	
James schoolhouse repairs	150 00				150 00	150 00	
James schoolhouse furnace	200 00				200 00	199 80	20
Desks for Swan and James schoolhouses	200 00				200 00	199 80	20
Manual training	500 00				500 00	500 00	
Kindergarten	500 00				500 00		500 00
<i>Water Supply Department:</i>							
Salaries of Water Commissioners	150 00				150 00	150 00	
Boston avenue connection	801 85				801 85	132 89	668 96
Improving and enlarging water supply	42,000 00		12,500 00		29,500 00	19,820 53	9,679 47
Rents and repairs of buildings				1,590 89	1,590 89	406 27	1,184 62
Maintenance and interest on bonds	25,165 82			37,333 89	62,499 71	43,941 90	18,557 81
New construction and service pipes	12,499 81	1,500 00		1,252 90	15,252 80	14,983 95	268 85
Pumping station at Wright's pond	10,000 00		12,500 00		10,000 00	4,169 98	5,830 02
Driven wells					12,500 00	6,190 03	6,309 97

TABULAR STATEMENT — CONTINUED.

	Appropriations and reappropriations.	Transfer to.	Transfer from.	Receipts.	Total.	Expended.	Unexpended balance.	Excess.
<i>Sewer Department:</i>								
Surveying	\$3,000 00				\$3,000 00	\$2,134 84	\$865 16	
<i>Park Department:</i>								
Public commons	300 00				300 00	10 00	290 00	
Otis street park	7,000 00				7,000 00	6,542 49	457 51	
<i>Sundry Accounts:</i>								
City Council contingent	2,500 00			\$9 38	2,509 38	749 17	1,760 21	
City Hall equipment	1,000 00				1,000 00	852 62	147 38	
Engine house lot, Medford street	1,560 00				1,560 00	1,560 00		
Estate of Francis Brooks	550 00				550 00	550 00		
Estates bought at sale for taxes				102 40	102 40	329 25		\$226 85
Miscellaneous credits			\$5,656 28	32,276 29	26,620 01	1,254 69	25,365 32	
National Construction Company	546 08				546 08	546 08		
New furnace at City Hall		\$300 00			300 00	300 00		
Schoolhouse lot, Harvard street	7,568 00				7,568 00	7,567 56	44	
Schoolhouse, Harvard street	37,000 00				37,000 00		37,000 00	
Unpaid bills of previous year	5,980 89			1 00	5,981 89	5,980 72	1 17	
Washington schoolhouse	3,500 00				3,500 00	3,500 00		
	\$386,901 00	\$20,240 20	\$20,240 20	\$93,176 93	\$480,077 93	\$360,466 32	\$120,188 46	\$576 85
Abated taxes						54 51		
Unfunded debt (anticipation of taxes)				137,000 00		137,000 00		

Unfunded debt (note due April 30, 1893)			10,000 00
Unfunded debt (note due January 27, 1894)			20,000 00
City Collector		235,224 92	
Funded debt (par value of City of Medford Water Loan Sinking Fund Bonds)		72,000 00	
Permanent debt		1,125 00	
Metropolitan Sewer tax	By warrant		3,078 40
Middlesex County tax	" "		10,370 31
State tax	" "		12,700 00
Cash in Treasury February 1, 1893, after deducting \$1295.54 (which was received last year but not placed to the credit of the Public Library until this year)		30,285 79	
Balance cash in treasury February 1, 1894			15,143 10
		<u>\$568,812 64</u>	<u>\$568,812 64</u>

CHAPTERS 162, 163, and 269
OF THE
ACTS OF THE GENERAL COURT
OF
MASSACHUSETTS
IN THE YEAR
1894.

CHAPTER 162.

COMMONWEALTH OF MASSACHUSETTS.

IN THE YEAR ONE THOUSAND EIGHT HUNDRED AND
NINETY-FOUR.

AN ACT

To authorize the city of Medford to control the brooks and streams therein, to guard them against pollution, to provide for better drainage, and to protect the public health.

Be it enacted, etc., as follows:

SECTION 1. The city of Medford is hereby authorized, through the commissioners of sewers of said city, to enter upon and clear of obstructions, and to improve, widen, deepen, straighten or change the course or channel of any brook or stream or of any part or parts of any brook or stream within its limits, and may conduct the waters of any brook or stream in any portion or portions thereof through pipes or conduits, and for the purposes aforesaid said commissioners of sewers, acting for and in behalf of said city of Medford, may from time to time acquire by purchase, or take and hold in fee simple, land or lands within said city, not exceeding four rods in width, including any brook or stream or part or parts of any brook or stream wholly or partly within the boundaries of any land so purchased or taken, and may change the part or parts of the channel of such brook or stream outside of said boundaries so that the same shall be within said boundaries, and for the pur-

poses of this act and of making such changes may enter into and upon any land, street or way, and may do the work thereon necessary therefor, and may make such improvements on the land so taken or purchased as said commissioners shall deem necessary for the protection of the public health, and for protecting such brook or stream against pollution, and may construct walks or ways thereon as they may deem the public convenience may require.

SECTION 2. When lands are taken otherwise than by purchase, said commissioners of sewers shall, within thirty days of said taking, cause to be recorded in the registry of deeds of the county of Middlesex, southern district, a description of the same as certain as is required in the conveyance of land, with a statement of the purposes for which the same are taken, signed by a majority of said commissioners of sewers. All claims for damages sustained by the taking of lands otherwise than by purchase under this act, or by the entering upon land or upon any brook or stream and the doing thereon of the acts herein authorized, shall be ascertained, determined and recovered in the manner now provided by law in the case of land taken for highways, provided that in estimating the damages sustained by any person by the taking of his land, or by any of the acts done by virtue of this act, there shall be allowed by way of set-off the benefit, if any, to the property of such person by reason thereof and the improvements thereon made.

SECTION 3. No land shall be taken until authorized by the city council of said city, nor shall any of the work and acts herein authorized be undertaken or contracts therefor be made, or land be purchased as herein authorized, until an appropriation has been made of the moneys to be expended therefor, and said commissioners of sewers shall at all times be accountable for the proper discharge of their

duties hereunder, to the mayor as the chief executive officer of the city, and shall make such reports to him as he shall require from time to time relating to their doings and recommendations under this act, for his own information or for the information of the city council, and all contracts made by said commissioners under this act in order to be valid must be approved by the mayor and shall then become the contracts of said city.

SECTION 4. The costs and expenses incurred from time to time by said city under this act, except for construction of walks or ways, may be paid by appropriations out of the proceeds of the sale of any bonds issued by said city under the authority of chapter one hundred and eighty of the acts of the year eighteen hundred and ninety-three.

SECTION 5. This act shall take effect upon its passage.

[*Approved March 23, 1894.*]

CHAPTER 163.

AN ACT

To authorize the city of Medford to purchase land and improve the efficiency of its water supply.

Be it enacted, etc., as follows:

SECTION 1. To enable the city of Medford to increase its water supply by means of wells and reservoirs, and to improve the efficiency thereof by the construction of stand-pipes or other works suitable to provide for a high water supply service, said city may, from time to time, within three years from the passage of this act, acquire in fee simple by purchase, hold and improve land, and land and water rights, within the limits of said city, and may pro-

vide the means of paying therefor, and of any structures, works and improvements thereon for the aforesaid purposes, out of the proceeds of any bonds which may be issued from time to time by said city under the authority of chapter ninety-eight of the acts of the year eighteen hundred and ninety-three.

SECTION 2. This act shall take effect upon its passage.

[*Approved March 23, 1894.*]

CHAPTER 269.

AN ACT

To provide for the prevention and abatement of nuisances and for the preservation of the public health in the city of Medford.

Be it enacted, etc., as follows :

SECTION 1. The city council of the city of Medford may by ordinance, subject to the approval of the mayor, establish a grade or elevation for the bottom of the cellar or basement cellar of every building thereafter constructed within any section or part of said city for which a common sewer is laid out; and by such ordinance may provide that the bottom of every cellar or basement cellar of every building thereafter constructed within such section or part of said city shall be so constructed that the grade or elevation of the bottom thereof shall be at least at a certain grade or elevation above the crown of the common sewer laid out for such section or part of said city.

SECTION 2. If any person constructs, uses or occupies any cellar in violation of any ordinance of said city, adopted under the authority of section one of this act, the board of

aldermen of said city may, subject to the approval of the mayor, order the owner or occupant of such cellar to so alter and construct it as to conform to the requirements of said ordinance; and if such owner or occupant fails to comply with the order within ten days after service thereof, as provided by the following section, said board of aldermen may so alter such cellar; and all necessary expenses incurred thereby shall be a lien upon the land wherein such cellar is constructed and the buildings upon such land, and may be collected, and the city collector may purchase such land or land and buildings in behalf of said city in the same manner as is provided by law for the collection of taxes upon real estate and in case of land sold for taxes.

SECTION 3. All orders under the preceding section shall be made in writing and served upon said owners or occupants or their authorized agents, as provided by section twenty-two of chapter eighty of the Public Statutes for the service of orders of the board of health: *provided, however,* if the premises are unoccupied and the residence of the owner or agent is unknown or without the commonwealth, the order may be served by posting an attested copy of the same on the premises and by publishing the same in one or more newspapers in such manner and for such length of time as said board of aldermen shall direct; and the supreme judicial court or any justice thereof, in term time or vacation, may, by injunction or other suitable process in equity, restrain any person or corporation from constructing, using or occupying any cellar in violation of the provisions of such ordinance, and may enforce the provisions thereof, and may order and enforce the abatement or alteration of any cellar constructed, used or occupied in violation thereof, so as to comply with said provisions.

SECTION 4. The board of aldermen of said city may from time to time, subject to the approval of the mayor,

order the owners of land in any section of said city, the surface of which is below the grade of thirteen feet above mean low water, or any of such owners, to raise the grade of their said lands or any portion thereof by filling up the same with good material to a grade not less than thirteen feet above mean low water, and to raise the grades of all or any private streets, courts and ways upon their said lands by filling up the same with good material to a grade not less than sixteen feet above mean low water, with reference to a complete drainage thereof, so as to abate and prevent nuisances and to preserve the public health of the city. And hereafter no private street, way or court shall be constructed upon any lands at a grade of less than sixteen feet above mean low water, except upon license first obtained therefor from the board of aldermen of said city, which license shall be revocable at any time.

SECTION 5. All orders under the preceding section shall be made and served as prescribed in section three of this act, and if the owner of any such land fails to comply with any such order within six months after such service thereof, the board of aldermen of said city may raise the grade of his said lands, and the private streets, ways and courts thereon, filling up the same with good materials to the grade authorized by the preceding section and specified in the order; and all necessary expenses incurred thereby shall be a lien upon the lands so filled, and a lien equally upon the lands abutting upon either side of any private street, court or way so filled, and a lien upon all buildings upon such lands, and may be collected, and the collector may purchase such land, or land and buildings, in behalf of the city, in the manner provided in section two of this act for collecting the expenses therein named.

SECTION 6. If the owner of any estate so assessed for such expenses desires to have the amount of said assess-

ment apportioned, he shall give notice thereof in writing to the board of aldermen of said city at any time before a demand is made upon him for payment thereof, or at any time not exceeding thirty days after such demand, and said board of aldermen shall thereupon apportion the said amount into three equal parts, which apportionment shall be certified to the assessors of said city, and the said assessors shall each year for three years then next ensuing, in addition to the annual tax on said estate, include in their warrant to the collector one of said equal parts with the interest thereon from the date of said apportionment, which part shall be collected and the lien therefor enforced in the same manner, with like charges for cost and interest, and with the same right in the collector to purchase such land in behalf of the city, as is provided by law in the case of the collection of taxes upon real estate.

SECTION 7. Any person entitled to any estate in any land the grade of which shall be raised under section five of this act, who is dissatisfied with the assessment of the expenses of raising the grade of his land, and any owner of the land who is dissatisfied with the assessment of expenses under section two of this act, may, within six months after receiving notice of such assessment, make complaint to the county commissioners of the county of Middlesex. Said commissioners shall thereupon order a jury, who may revise such assessments, in the manner prescribed in chapter forty-nine of the Public Statutes, in cases where persons are aggrieved by the assessment of damages by selectmen. If the assessment is reduced the legal charges arising on such complaint shall be paid by the city, otherwise by the complainant.

SECTION 8. Instead of making such complaint, any person dissatisfied with the assessment of the expenses of raising the grade of his said land may give notice thereof

to the mayor and aldermen of said city within sixty days after he receives notice of such assessment, and the city shall thereupon take his said land, and shall within sixty days thereafter file in the office of the registry of deeds for the southern district of the county of Middlesex a description of the land so taken, as certain as is required in a common conveyance of land, together with a statement that the same is taken pursuant to the provisions of this act, which description and statement shall be signed by the mayor of the city, and the title to lands so taken shall vest absolutely in the city.

SECTION 9. If any person whose land is taken under the preceding section agrees with the city as to the damages sustained by him by reason of such taking, making due allowance for the improvement in raising the grade of such land, the same shall be forthwith paid to him by the city. If any such person shall not so agree he may at any time, within six months from the filing of such description and statement, apply to the county commissioners of the county of Middlesex, as provided in section seven of this act, for a jury to determine such damages, making due allowance for the improvement by raising the grade of such land, and the proceedings shall be as provided in said section. The damages awarded by the jury shall be paid by the city, and if the damages are increased above the sum before offered by the city, all legal charges arising on such application shall be paid by the city, otherwise by the applicant.

SECTION 10. The city shall raise the grade of all public streets bordering upon any land the grade of which is ordered to be raised under this act, filling up such streets with good materials to a grade not less than sixteen feet above mean low water.

SECTION 11. This act shall not be construed as in any

way exempting said city from any obligation it would otherwise be under to make compensation to the owners of lands abutting upon or near to any land or street filled hereunder, or for an injury done or caused to the lands of such owners under any order or proceeding hereunder.

SECTION 12. This act shall take effect upon its passage.

[Approved April 17, 1894.]

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