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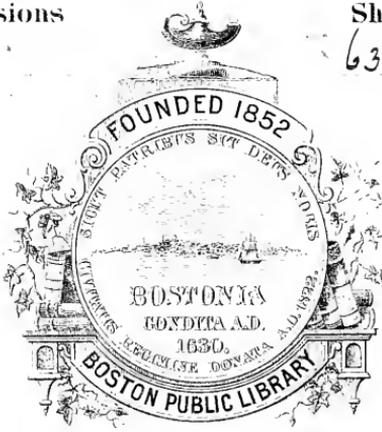
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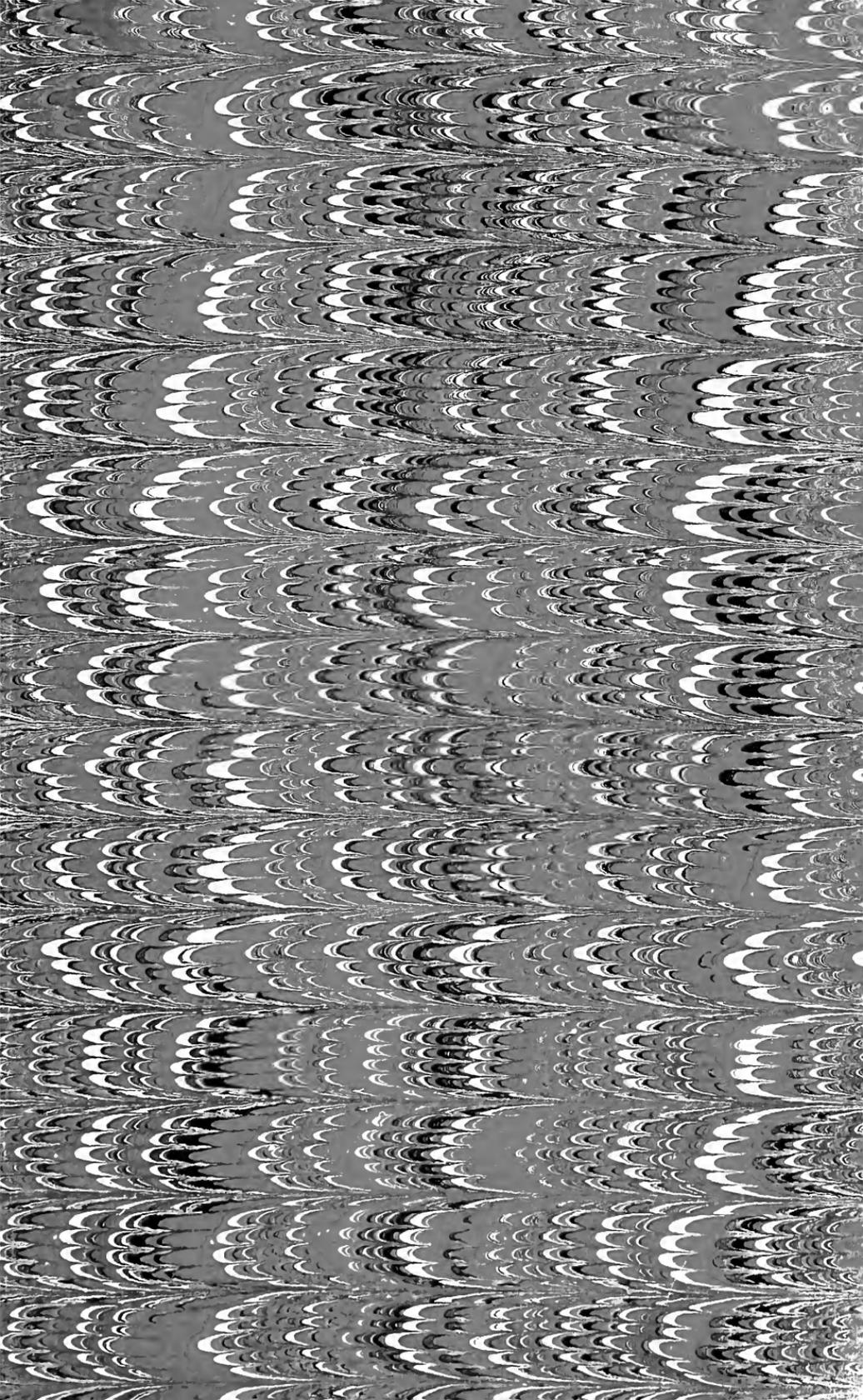
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ANNUAL REPORT

OF THE

STREET DEPARTMENT

OF THE

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CITY OF BOSTON.

1892.



BOSTON :

ROCKWELL AND CHURCHILL, CITY PRINTERS.

1893.

Boston, Mass. Steel Dept.

July 7, 1893

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HON. NATHAN MATTHEWS, JR.,

Mayor of the City of Boston:

SIR: In compliance with the Revised Ordinances, the second annual report of the operations and expenses of the Street Department for the year 1892 is herewith respectfully submitted.

ORGANIZATION.

The work of the department during the past year has been carried on under the same organization that was effected when the consolidated department was created in 1891, the several divisions of the department being as follows :

The Central Office.

Bridge Division.

Boston and Cambridge Bridges Division.

Paving Division.

Sewer Division.

Sanitary Division.

Street-Cleaning Division.

Each of the above divisions, with the exception of the Central Office and the Boston and Cambridge Bridges Division, is in charge of a deputy superintendent.

The Boston and Cambridge Bridges Division is managed by two commissioners, the Superintendent of Streets being the commissioner for the city of Boston, the other commissioner being appointed by the Mayor of the city of Cambridge.

The work of street-watering, the duty of which devolves on the Street Department, is carried on under the supervision of the Paving Division, with a foreman of street-watering in charge.

CENTRAL OFFICE DIVISION.

The work of the Central Office Division has consisted of general supervision over the work of the several divisions of the department, correspondence, purchasing supplies, attending to complaints, drawing and executing contracts, keeping of all records, financial, civil service, and legal, preparing estimates for public improvements, and other miscellaneous work.

EXPENSES OF THE CENTRAL OFFICE.

For the current expenses of the Central Office the City Council appropriated the sum of twenty thousand dollars (\$20,000), from which the sum of one thousand two hundred and six dollars and forty cents (\$1,206.40) was transferred to the Bridge Division, leaving a balance of eighteen thousand seven hundred ninety-three dollars and sixty cents (\$18,793.60), which was expended as follows :

Salaries	\$15,419 33
Stationery, printing, postage, etc.	948 60
Travelling expenses, carriages, etc.	750 44
Board, shoeing, clothing, etc., of horses	742 96
Telephone and telegraph	362 49
Copying and compiling	161 39
Miscellaneous expenses, office	102 44
Typewriter and supplies	81 50
Atlases	70 00
Messengers	63 35
Newspapers, periodicals, etc.	60 00
Rubber stamps, pads, etc.	31 10
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	\$18,793 60
Transferred to Bridge Division	1,206 40
	<hr style="width: 20%; margin-left: auto; margin-right: 0;"/>
	<u>\$20,000 00</u>

The following condensed statement shows the various appropriations and amounts expended for the maintenance of the department for the year ending January 31, 1893; also, in separate tables, the special appropriations and amounts expended for specific objects designated by the City Council:

FINANCIAL STATEMENT OF THE STREET DEPARTMENT APPROPRIATION,
From February 1, 1892, to January 31, 1893, inclusive.

APPROPRIATION.		Balance on hand Feb. 1, 1892.	Appropriation during 1892.	Revenue.	Total Credits.	Expenditures for 12 months ending Jan. 31, 1893.	Balances Jan. 31, 1893.
STREET DEPARTMENT:							
Bridge Division			1 \$128,954 37		\$128,954 37	\$128,954 87	
Cambridge Bridges Division			2 11,079 76		11,079 76	11,079 76	
Central Office			3 18,793 60		18,793 60	18,793 60	
Paving Division			4 951,983 20	\$4,791 35	956,774 64	915,460 99	5 \$41,293 65
Sanitary Division			6 469,370 74		469,370 74	469,370 74	
Sewer Division		\$2,296 00	8 588,106 40	205 79	588,312 19	569,608 19	
Street-Cleaning Division			9 288,329 42		288,329 42	288,329 42	
Street-Watering			9 94,507 80		94,507 80	94,507 80	
Totals		\$2,296 00	\$2,521,066 38	\$4,997 14	\$2,523,359 52	\$2,487,065 87	\$41,293 65
1 Appropriation for 1892-3							
Transferred from Paving Division	\$125,000 00						\$564,306 40
" " Cambridge Bridges Division	2,047 22						2,296 00
" " Central Office	1,509 75			4,791 35			205 79
" " Sanitary Division	1,206 40						\$566,808 19
Transferred to Sanitary Division	\$126,754 37						6,200 00
	800 00						\$569,608 19
2 Appropriation for 1892-3							
Transferred from Harvard Bridge	\$9,000 00						\$300,000 00
	3,580 51						4,000 00
Transferred to Bridge Division	1,509 75						\$315,320 42
3 Appropriation for 1892-3							
Transferred to City Treasury,	\$11,079 76						27,500 00
6 Appropriation for 1892-3	\$12,580 51						\$288,329 42
Transferred from Paving Division	1,206 40						\$100,000 00
" " Sewer	\$18,793 60						2,440 50
" " Bridge	\$850,000 00						333 10
7 Appropriation for 1892-3	30 00						214 70
Transferred from " Boat Landing "	188,465 34						\$103,000 80
construction of highways "	7,500 00						
Transferred from Street-Cleaning Div'n,	4,500 00						8,500 00
" " Street-Watering	\$1,050,495 34						\$94,507 80
<i>Carried forward</i>							
			\$1,050,495 34				
<i>Brought forward</i>							
			\$1,050,495 34				
			Transferred from Special appropriations for Blocks from Washington street, and repairing for corporations	4,791 35			
			Transferred to Sewer Div'n, \$72,323 67				
			" " Sanitary " 12,370 74				
			" " Street-Cleaning Division 11,820 42				
			" " Bridge Div'n 2,047 22				
			\$956,724 64				
			\$41,293 65				
			Balance transferred to City Treasury,				
			6 Appropriation for 1892-3				
			Transferred from Paving Division	12,370 74			
			" " Sewer "	6,200 00			
			" " Bridge "	\$469,370 74			
			7 Appropriation for 1892-3				
			Transferred from " Laying out and construction of highways "	121,534 66			
			Transferred from Paving Division	72,323 67			
			" " Street-Cleaning Div'n,	20,000 00			
			" " New-street Sewer,	161 38			
			" " Crawford-st. Sewer,	286 69			
			\$584,306 40				
			Transferred to Sewer Div'n, \$20,000 00				
			" " Paving " 7,500 00				
			8 Appropriation for 1892-3				
			Transferred from Paving Division	11,820 42			
			" " Street-Watering	4,000 00			
			9 Appropriation for 1892-3				
			Transferred from " Public Buildings "	2,440 50			
			" " Fire Department,	333 10			
			" " Board of Police "	214 70			
			Transferred to Paving Div'n, \$4,500 00				
			Transferred to Street-Cleaning Division	4,000 00			

Paving Division Specials.

OBJECT OF APPROPRIATION.	Appropriations and Balances.	Expended from Feb. 1, 1892, to Jan. 31, 1893.	Balance on hand Jan. 31, 1893.
Allandale st.	\$3,770 59	\$3,770 59	
Austin st.	4,000 00	4,000 00	
Baldwin st., Ward 4	4,807 26	4,807 26	
Beacon st.	10,000 00	5,151 15	\$4,848 85
Beacon st., Dartmouth st. to West Chester park, asphalt	40,000 00	40,000 00	
Beacon st., West Chester park to Arlington st.	1,174 62	1,174 62	
Boat-landing, Commercial wharf	970 00	970 00	
Bolton st., Second st. to D st.	1,767 00	1,767 00	
Boston st., Andrew sq. to Mt. Vernon st.	5,000 00	5,000 00	
Boylston st., Church st. to Arlington st., paving	7,511 33	7,511 33	
Brent st.	5,000 00	3,473 72	1,526 28
Bristol st.	2,530 71	809 72	1,720 99
Bunker Hill st., between Pearl and Sackville sts.,	5,500 00	5,500 00	
Buttonwood st., Mt. Vernon st. to Locust st.	1,486 70	1,486 70	
Centre st., Ward 23	1,261 14	1,261 14	
Chardon st.	13,020 99	12,671 54	349 45
Charles st.	11,040 71	11,040 71	
Cherry st.	1,966 96	1,901 86	65 10
Chester sq., Washington st. to Tremont st.	14,000 08	14,000 08	
Chestnut ave., Ward 9, paving	650 00	650 00	
Childs st.	2,500 00	2,500 00	
City Wood-yard, Commercial st., paving	121 25	121 25	
Commonwealth ave., construction	241,233 01	123,170 81	118,062 20
Commonwealth ave., W. Chester park to Arlington st.	1,396 10	1,396 10	
Conant st., macadamizing	7,500 00	5,151 06	2,348 94
Cooper st., between N. Margin and Salem sts.	1,500 00		1,500 00
Cornwall st., laying out and constructing	1,000 00	1,000 00	
Davis st., asphalt	2,860 71	2,860 71	
Dearborn st., between Eustis and Dudley sts.	2,066 91	2,066 91	
Decatur st., Ward 16, asphalt	3,133 82	3,133 82	
Dorchester ave., paving, Wards 15 and 24	120,000 00	117,296 63	2,700 37
Dorchester st., between Eighth st. and Dorchester ave., paving	386 09		386 09
<i>Carried forward</i>	\$510,155 98	\$385,647 71	\$133,508 27

Paving Division Specials.— *Continued.*

OBJECT OF APPROPRIATION.	Appropriations and Balances.	Expended from Feb. 1, 1892, to Jan. 31, 1893.	Balance on hand Jan. 31, 1893.
<i>Brought forward</i>	\$519,155 98	\$385,647 71	\$133,508 27
Dorchester st., Nluth st. to Broadway, paving . .	12,000 00	9,064 65	2,935 35
Dudley st., between Blue Hill ave. and Shirley st.	7,600 64	7,600 64	
Dudley st., Washington st. to Vine st., etc. . . .	721 61	721 61	
Dudley st., Dennis st. to Brook ave.	2,557 34	2,557 34	
East Fifth st., between L and N sts.	3,244 91	3,244 91	
Edgestones, Ward 21	1,000 00	1,000 00	
Eighth st., L st. to O st., edgestones, etc.	5,000 00	3,750 31	1,249 69
Eliot st., Tremont st. to Park sq.	9,000 00	9,000 00	
Ellery st.	1,780 39	1,780 39	
Falcon st., macadamizing	2,286 60	2,286 60	
First st., Ward 14	3,010 07	2,564 81	445 26
Florence st., asphalt	3,281 20	3,281 20	
Freeport st.	10,849 55		10,849 55
Fulda st., macadamizing	505 53	505 53	
Geneva ave., grading	6,750 21	6,750 21	
Harbor View st.	562 96		562 96
Harrison ave., Kneeland st. to Bennet st., asphalt- ing	3,900 00		3,900 00
Harvard st., construction	5,000 00		5,000 00
Harvard st., Washington st. to Albany st., sewer and paving	9,922 22	239 80	9,682 42
Haviland st., macadamizing	541 98	541 98	
Hawes st.	1,100 00	1,100 00	
Heath st., widening, etc.	14,398 67	14,398 67	
Henshaw st., construction	1,000 00	1,000 00	
Horace and Homer sts.	1,169 26	1,169 26	
Houghton st., macadamizing	2,000 00	449 60	1,550 40
Howell st., construction	1,500 00		1,500 00
Hudson st., asphaltting	886 32	886 32	
Humboldt-ave. extension, grade damages	1,815 00	1,650 00	165 00
Hunneman st., grading and constructing	13,917 20	13,053 75	863 45
India st., paving	979 01	979 01	
Jackson st., construction	1,500 00		1,500 00
K st., between Broadway and First st., macadam- izing	2,000 00	2,000 00	
L st., grading, etc.	19,341 03	16,994 53	2,346 50
<i>Carried forward</i>	\$669,377 68	\$494,218 83	\$175,158 85

Paving Division Specials. — *Continued.*

OBJECT OF APPROPRIATION.	Appropriations and Balances.	Expended from Feb. 1, 1892, to Jan. 31, 1893.	Balance on hand Jan. 31, 1893.
<i>Brought forward</i>	\$669,377 68	\$494,218 83	\$175,158 85
La Grange st.	5,000 00	1,730 70	3,269 30
Landing, East Boston	500 00	. . . . .	500 00
Landing, Federal-street bridge	500 00	500 00	
Lehigh st., paving	2,831 78	. . . . .	2,831 78
Lexington ave.	2,500 00	797 10	1,702 90
Longwood ave., Parker st. to Huntington ave., paving	407 88	407 88	
Lynde st.	396 21	396 21	
Magazine st., between East Chester park and Norfolk ave.	1,574 20	1,574 20	
Medford st., Lexington st. to Chelsea st.	1,031 87	1,031 87	
Medford st., between Main and Quincy sts.	2,162 77	2,162 77	
Mercer st., Dorchester st. to Eighth st., resurfacing	945 02	945 02	
Minot st.	1,559 63	1,559 63	
Motte st., asphalt	1,500 00	1,500 00	
Murdock st.	993 94	993 94	
Ninth st., Old Harbor st. to N st., macadamizing,	6,536 71	3,078 87	3,457 84
North Margin st., construction	7,214 75	1,546 21	5,668 54
Parker st., Huntington ave. to Westland ave.	580 00	580 00	
Randolph st.	6,000 00	4,851 71	1,148 29
Regulating Poplar st.	3,000 00	3,000 00	
River st.	4,000 00	. . . . .	4,000 00
Rutherford ave., paving	5,696 73	5,696 73	
Sawyer ave.	4,000 00	2,286 56	1,713 44
School st.	4,500 00	4,500 00	
Seattle, Hopedale, Windom, and Sorrento sts., macadamizing	9,000 00	9,000 00	
Second st., B st. to D st., paving	5,000 00	5,000 00	
Second st., Dorchester st. to I st., paving	16,000 00	12,630 70	3,369 30
Seventh st., D st. to E st.	6,000 00	6,000 00	
Shirley st.	150 00	150 00	
Short st., West Roxbury	3,403 40	3,403 40	
Silver st., A st. to D st., macadamizing	400 34	400 34	
Smith st., construction	7,364 40	3,004 50	4,269 81
South Margin st., between Pitts and Prospect sts.,	6,000 00	. . . . .	6,000 00
<i>Carried forward</i>	\$786,138 31	\$573,046 26	\$213,092 05

Paving Division Specials. — *Concluded.*

OBJECT OF APPROPRIATION.	Appropriations and Balances.	Expended from Feb. 1, 1892, to Jan. 31, 1893.	Balance on hand Jan. 31, 1893.
<i>Brought forward</i>	\$786,136 31	\$573,046 26	\$213,090 05
Stanhope st.	1,683 50	1,683 50	
Stanton st.	6,000 00	4,000 00	2,000 00
Stillman st., paving	837 05	837 05	
Story st.	698 30	698 30	
Terrace st., paving	477 20	477 20	
Thacher st., Charlestown st. to Endicott st., asphalt	1,578 69	1,578 69	
Tremont st., bet. Roxbury crossing and Huntington ave.	2,304 46	2,304 46	
Tuttle st.	2,918 41	2,918 41	
Vinton st., macadamizing	1,000 00	1,000 00	
Walnut ave.	10,000 00	10,000 00	
Warren st. and Blue Hill ave.	5,000 00	5,000 00	
Warren st., granite blocks	2,918 25	2,918 25	
Warrenton st., from Washington st., etc.	250 56	250 56	
Washington st., Boylston st. to Adams square	48,000 00	48,000 00	
Washington st., between Florence and Davis sts.,	1,000 00	1,000 00	
Way st., paving	5,605 33	5,605 33	
Wenham st., construction	6,000 00	6,000 00	
West Chester park	14,196 47	14,196 47	
West Newton st., between Washington st. and Shawmut ave., asphalt blocks	4,300 00	4,138 74	161 26
Worcester square, Washington st. to Harrison ave.	1,600 00	1,600 00	
Worthington st., edgestones, etc.	4,000 00	4,000 00	
Allston Bridge, paving ¹	252 90	252 90	
Totals	\$906,757 43	\$691,506 12	\$215,251 31

¹ Money furnished by the City Engineer's Department.

Sewer Division Specials.

OBJECT OF APPROPRIATION.	Appropriations and Balances.	Expended from Feb. 1, 1892, to Jan. 31, 1893.	Balance on hand Jan. 31, 1893.
Catch-basins, etc., Huntington ave.	\$18 61	\$18 61	
Catch-basins, Stanhope st.	227 05	227 05	
Charlestown sewers, repairing	2,031 29	2,031 29	
Dike, Winthrop Junction	2,333 33	2,333 33	
Improved sewer, Brookline ave. connection . . .	4,533 95	4,533 95	
Rebuilding Dorchester-brook sewer	30,000 00	30,000 00	
Sewer, Arlington st.	137 63	137 63	
Sewers, Beacon st. and Commonwealth ave. . . .	3,379 17	3,379 17	
Sewer, between Roslindale and West Roxbury . .	26,336 30	19,429 57	\$6,906 73
Sewers, Brighton	12,326 70	9,840 23	2,486 47
Sewer, Crawford st., Humboldt ave. to Walnut ave.	2,682 51	2,682 51	
Sewer, Dorchester ave., Crescent ave. to Grafton st.	1,437 04	1,437 04	
Sewers, East Boston	6,625 14	6,625 14	
Sewer, Lawrence ave., Quincy and Magnolia sts.,	1,856 88	1,856 88	
Sewer, New st.	273 33	273 33	
Sewer, Orient Heights	64 96	64 96	
Sewer outlet, Byron st., East Boston	3 64	3 64	
Sewer outlets, D st.	16,023 83	10,297 48	5,726 35
Sewer outlets, East Boston	12,000 00	10,237 05	1,762 95
Sewer, Peter Parley Road	24 27	24 27	
Sewer, Rockwell and Armandine sts.	6,199 07	6,199 07	
Sewers, Roxbury	7,859 43	7,859 43	
Sewers, Savin Hill District	683 56	683 56	
Sewers, South Boston	4,768 89	1,293 75	3,475 14
Sewers, Ward 23, Washington st., etc.	3,000 00	2,283 59	716 41
Sewers, Westville, Freeman, and Charles sts. . .	9,996 64	8,755 12	1,241 52
Stables and sheds, Brighton	14,500 00	8,542 08	5,957 92
Tug-boat	25,000 00	12,567 50	12,432 50
Stony-brook Improvement	85 14	85 14	
Totals	\$194,408 36	\$153,702 37	\$40,705 99

Bridge Division Specials.

OBJECT OF APPROPRIATION.	Appropriations and Balances.	Expended from Feb. 1, 1892, to Jan. 31, 1893.	Balance on hand Jan. 31, 1893.
Berkeley-st. bridge	\$6,503 82	\$5,837 25	\$666 57
Boylston-st. bridge	1,200 00	. . . . .	1,200 00
Chelsea bridge, steam apparatus	4,231 55	4,231 55	
Congress-st. bridge, guard	534 31	. . . . .	534 31
Malden bridge, repairs	4,000 00	4,000 00	
Savin Hill-ave. bridge, widening	5,000 00	. . . . .	5,000 00
Totals	\$21,469 68	\$14,068 80	\$7,400 88

Aldermanic District Specials.

OBJECT OF APPROPRIATION.	Appropriations and Balances.	Expended from Feb. 1, 1892, to Jan. 31, 1893.	Balance on hand Jan. 31, 1893.
Street Improvements, Aldermanic District No. 1,	\$35,465 83	\$35,465 83	
Street Improvements, Aldermanic District No. 2,	11,800 00	11,800 00	
Street Improvements, Aldermanic District No. 3,	21,984 26	21,984 26	
Street Improvements, Aldermanic District No. 4,	605 34	605 34	
Street Improvements, Aldermanic District No. 5,	2,224 17	1,758 87	\$465 30
Street Improvements, Aldermanic District No. 6,	20,700 00	14,528 59	6,171 41
Street Improvements, Aldermanic District No. 7,	20,000 00	18,718 50	1,281 50
Street Improvements, Aldermanic District No. 8,	2,551 08	2,551 08	
Street Improvements, Aldermanic District No. 9,	21,000 00	21,000 00	
Street Improvements, Aldermanic District No. 10,	41,000 00	41,000 00	
Street Improvements, Aldermanic District No. 11,	22,046 97	22,046 97	
Street Improvements, Aldermanic District No. 12,	33,232 04	33,232 04	
Street Improvements, Ward 12	24,250 00	17,966 27	6,283 73
Street Improvements, Ward 13	24,250 00	24,250 00	
Street Improvements, Ward 23	-1,800 00	1,800 00	
Totals	\$282,909 69	\$268,707 75	\$14,201 94

**Recapitulation of Expenditures for the Twelve Months
ending January 31, 1893.**

OBJECT OF APPROPRIATION.	Current Expenses for the twelve months ending Jan. 31, 1893.	Special Appropriations.	Totals.
Street Department:			
Central Office	\$18,793 60	. . . . .	\$18,793 60
Bridge Division	128,954 37	\$14,068 80	143,023 17
Cambridge Bridges Division	11,079 76	. . . . .	11,079 76
Paving Division	915,460 99	691,506 12	1,606,967 11
Sewer Division	560,608 19	153,792 37	714,310 56
Sanitary Division	469,370 74	. . . . .	469,370 74
Street-Cleaning Division	288,320 42	. . . . .	288,320 42
Street-Watering	94,507 80	. . . . .	94,507 80
Street Improvements, Aldermanic Districts . . . . .	. . . . .	268,707 75	268,707 75
Totals	\$2,487,095 87	\$1,127,985 04	\$3,615,080 91

INCOME.

Statement showing the amount of bills deposited with the City Collector for the year ending January 31, 1893, by the several divisions of the Street Department:

Paving Division	\$266,826 22
Sewer Division	120,134 20
Sanitary Division	36,426 16
Bridge Division	516 61
Street-Cleaning Division	8,256 37
	<u>\$432,159 56</u>

Statement showing the amount paid into the city treasury during the same period on account of the several divisions of the Street Department:

Paving Division	\$67,792 37
Sewer Division	60,043 09
Sanitary Division	35,856 70
Bridge Division	1,481 04
Street-Cleaning Division	1,585 02
	<u>\$166,758 22</u>

List of Contracts from February 1, 1892, to February 1, 1893, made by the Street Department.

Paving Blocks.

CONTRACT.	Awarded to	Proposals Received.	Price per M.
Large paving blocks, 300,000, city .	Rockport Granite Co.,	March 10, 1892.	\$73 90
Small paving blocks, Texas st. . .	S. & R. J. Lombard .	Aug. 2, “	56 00

North-River Flagging.

CONTRACT.	Awarded to	Proposals Received.	Price per Sq. Ft.	
			on wharf.	on street.
North-River flagging, city .	J. J. Cuddihy . . .	March 19, 1892,	\$0 40	\$0 45

Edgestones.

CONTRACT.	Awarded to	Proposals Received.	Price per Lin. Ft.
Furnishing 10,000 lin. feet edge-stones	James E. Lambert . .	Aug. 3, 1892.	\$0 79
Furnishing 10,000 lin. feet edge-stones	No bids received.	Aug. 22, “	
Furnishing edgestone	Thomas Lahey	Aug. 29, “	0 79

Spruce Lumber.

CONTRACT.	Awarded to	Proposals Received.	Price per M.	Price for Planing.
Spruce lumber, Dist. 1	A. M. Stetson & Co. .	March 5, 1892.	\$15 73	\$1 00
“ “ Dist. 2, 3, and 5,	J. W. Leatherbee . .	“ “	2 16 75 3 16 45 5 16 75	
“ “ Dist. 6 and 7 . . .	J. Lodge Eddy	“ “	16 40	1 50
“ “ Dist. 8, 9, and 10,	A. M. Stetson & Co. .	“ “	15 73	1 00
Furnishing spruce lumber, Harvard bridge	The Geo. W. Gale Lumber Co.	Sept. 30, “	16 00	

Bank Gravel and Sand.

CONTRACT.	Awarded to	Proposals Received.	Gravel.		Sand.	
			Loads.			
			Single.	Double.	Single.	Double.
Bank gravel and sand, Dist. 4 . . .	Wm. Scollans.	Mar. 19, 1892.	\$0.70	\$1.75	\$0.80	\$1.95
“ “ Dist. 5 . . .	James Doonan,	“ “	.54	1.08	.54	1.08
“ “ Dist. 6 . . .	J. J. Nawn . . .	“ “	.80	1.65	.90	1.80
“ “ Dists. 7, 8, and 9 . . .	Owen Nawn . . .	“ “	7 8 & 9 \$0.80	7 8 & 9 \$1.70 \$1.60	7 8 & 9 \$0.85 \$0.80	7 8 & 9 \$1.80 \$1.75

Beach Gravel.

CONTRACT.	Awarded to	Proposal Received.	Price per Ton.
Beach gravel, city	James F. McIntosh . .	March 10, 1892.	\$0.75

Coal.

CONTRACT.	Awarded to	Proposals Received.	Price.
Coal. (1,500 tons) Pumping Station (Dorchester) . . .	H. G. Jordan & Co. . .	April 30, 1892.	\$3.40 per ton.
2,000 tons coal	{ Thomas & Co., 1,000 tons J. A. Bradford, 1,000 tons }	Sept. 19, “	\$3.64 per ton of 2,240 lbs.

Furnishing Stone to City Crushers.

CONTRACT.	Awarded to	Proposals Received.	Price.
Furnishing stone to crusher, Codman st.	James F. Davern . .	July 22, 1892.	\$0.70 per ton of 2,000 lbs.
Furnishing stone to city crusher, Washington st., West Roxbury	James Doonan . .	Aug. 2, “	\$0.97 per d. l. of 40 cu. ft.
Furnishing stone to Rosseter-st. crusher	James A. King . .	“ 13, “	\$0.78 per ton of 2,000 lbs.
Furnishing stone to Dimock-st. crusher	H. P. Nawn . . .	July 30, “	\$0.80 per ton.

Excavating and Removing Material from Roadway.

CONTRACT.	Awarded to	Proposals Received.	Price.
Excavating and removing, Dorchester ave. (Washburn to Belfort st., South Boston),	J. J. Sullivan . .	Apr. 22, 1892	{ Earth, \$0.80 per cu. yd. Paving, \$0.35 per sq. yd.
Excavating and removing, Dorchester ave. (Adams to Park st., South Boston) . .	M. Donnellan . .	May 2, 1892	{ Earth, \$0.62 per cu. yd. Paving, \$0.18½ per sq. yd.
Excavating and removing, Dorchester ave. (Wells ave. to Ashmont st.)	James McGovern .	July 22, 1892	\$0.62½ cu. yd.
Excavating and removing, Moreland st. (Dennis st. to Blue Hill ave.)	J. J. Nawn	July 20, 1892	\$0.40 cu. yd.
Excavating and removing, Texas st.	E. A. Janse	July 30, 1892	(A) \$0.65 cu. yd.; (B) \$0.20 sq. yd.
Excavating and removing, Seventh st. (D st. to E st.) .	J. J. Sullivan . .	Sept. 26, 1892	(A) \$0.60 cu. yd. earth; (B) \$0.20 sq. yd. paving.
Excavating and removing, Bennington st. (Porter to Marion st.)	P. J. Attridge . .	Sept. 26, 1892	(A) \$0.44 cu. yd. earth; (B) \$0.19 sq. yd. paving.
Excavating and removing, Nelson st., at Evans st. . .	Thomas Minton .	Sept. 26, 1892	(A) \$0.55 cu. yd. earth; (C) \$2.25 cu. yd. rock.
Excavating and removing, East Sixth st.	M. Donnellan . .	Oct. 13, 1892	(A) \$0.64½ cu. yd.; (B) \$0.19½ sq. yd.
Excavating and removing, Oak st.	E. A. Janse	Oct. 13, 1892	(A) \$0.78; (B) \$0.20.
Excavating and removing, Cherry st.	John A. Casey . .	Oct. 20, 1892	(A) \$0.89; (B) 0.35.
Howard avenue, excavating .	Martin F. Kelly .	Mar. 24, 1892	Earth, \$0.75 cu. yd.; rock, \$2.00.

Paving and Regulating.

CONTRACT.	Awarded to	Proposals Received.	Price.
Paving and regulating, Boylston st., Church st. to Arlington st.	J. Doherty & Co.	June 21, 1892.	(B) \$1.49 sq. yd.; (E) \$0.23 lin. ft.; (F) \$0.69 sq. yd.; (G) \$1.25 sq. yd.
Paving and regulating, Washington st., Boylston st. to Adams sq.	Jones & Meehan	June 30, 1892.	(A) \$2.73; (E) \$0.35; (F) \$0.65; (G) \$2.70.
Paving and regulating, Elliot st., Washington to Pleasant st.	C. B. Payson & Co.	July 25, 1892.	(A) \$2.97; (B) \$2.37; (E) \$0.23; (F) \$0.69 sq. yd.; (G) \$2.97 sq. yd.
Paving and regulating, Chardon st., Bowdoin to Merrimac	Jones & Meehan	July 25, 1892.	(A) 2.50 sq. yd.; (E) 0.40 sq. yd.; (F) \$0.65 sq. yd.; (G) \$2.30 sq. yd.
Paving and regulating, Prentiss st., Tremont through Hallock st.	H. Gore & Co.	August 8, 1892.	(B) \$1.08 sq. yd.; (E) \$0.38 lin. ft.; (F) \$0.65 sq. yd.; (G) \$1.20 sq. yd.
Paving and regulating, Kemble st., Gerard to Magazine	Collins & Ham	August 8, 1892.	(B) \$0.90 sq. yd.; (E) \$0.48 lin. ft.; (F) \$0.80 sq. yd.; (G) \$1.50 sq. yd.
Paving and regulating, Second st., B st. to D st.	H. Gore & Co.	August 8, 1892.	(B) \$0.90 sq. yd.; (E) \$0.30 lin. ft.; (F) \$0.60 sq. yd.; (G) 1.10 sq. yd.
Paving and regulating, Eastis st., Washington to Dearborn	A. A. Libby & Co.	August 8, 1892.	(B) \$1.05 sq. yd.; (E) \$0.20 lin. ft.; (F) \$0.65 sq. yd.; (G) \$1.50 sq. yd.
Paving and regulating, Border st., White to Condor	H. Gore & Co.	August 29, 1892.	(B) \$0.96; (E) \$0.35; (F) \$0.65; (G) \$0.96; (H) \$3.70; (I) \$3.30; (J) \$2.30 per ton; (K) \$1.50 per ton; (L) \$2.55 lin. ft.
Paving with asphalt and regulating, Athens st., B to C st.	H. Gore & Co.	August 8, 1892.	(C) \$3.55 sq. yd.; (E) \$0.18 lin. ft.; (F) \$0.28 sq. yd.; (G) \$0.55 sq. yd.
Paving with asphalt and regulating, Decatur st., Washington to Harrison ave.	H. Gore & Co.	July 18, 1892.	\$2.25 per sq. yd.

EXPLANATION OF LETTERS.

- A — Price per square yard of paving with granite blocks on concrete foundation.
 B — Price per square yard of paving with granite blocks on a gravel foundation.
 C — Price per square yard of paving with asphalt on a concrete foundation.
 D — Price per square yard of paving with asphalt on existing pavement.
 E — Price per linear foot for setting edgestones.
 F — Price per square yard for laying brick sidewalks.
 G — Price per square yard for laying crosswalks.
 H — Stone masonry in cement mortar.
 I — Cap stone.
 J — Stone masonry in cement mortar.
 K — Stone ballast.
 L — Cap stone.

Laying Edgestones and Gutters.

CONTRACT.	Awarded to	Proposals Received.	Price.			
			A	B	C	F
Laying edgestones, gutters, sidewalks (Bailey street, Ward 24)	C. J. Coates & Co..	August 6, 1892.	\$0 19 lin. ft.	\$0 49 sq. yd.	\$0 31 sq. yd.	
Laying edgestones, gutters, sidewalks (Harvard street, Ward 24)	Not awarded . . .	August 6, 1892.				
Laying edgestones, gutters, sidewalks, Child street .	J. Doherty & Co..	August 22, 1892.	0 15 lin. ft.	0 30 sq. yd.	0 31 sq. yd.	
Laying edgestones, gutters, sidewalks in Dorchester, Ward 24	J. Doherty & Co..	August 29, 1892.	0 18 lin. ft.	0 60 sq. yd.	0 51 sq. yd.	\$0 18 sq. yd.

EXPLANATION OF LETTERS.

- A — Price per lineal foot for laying edgestones.
- B — Price per square yard for laying stone gutters.
- C — Price per square yard for laying brick sidewalks.
- D — Price per cubic yard for laying coal-tar concrete sidewalks.
- F — Price per square yard for laying gravel sidewalks.

Filling.

CONTRACT.	Awarded to	Proposals Received.	Price.
Windom st., filling (Brighton)	D. H. McKay	April 20, 1892.	\$1 20 per double load of 40 cubic feet.
Commonwealth ave., filling (Back Bay)	Boston Contracting Co.	April 23, 1892.	} 0 49½ per cubic yard, by cars. } 0 64½ per cubic yard, by teams.
Commonwealth ave., filling. Modification of contract	Boston Contracting Co.	Oct. 15, 1892.	0 37 per cubic yard, measured in bank.
Commonwealth ave., furnishing gravel to city	Seamans, Worthley, & Gibbs, Trustees	Oct. 15, 1892.	0 12½ per cubic yard, measured in bank.
Shannon st., filling	W. T. Davis	Oct. 29, 1892.	0 60 per cubic yard.

Retaining-Walls.

CONTRACT.	Awarded to	Proposals Received.	Price.
L st., retaining-walls	Thomas A. Rowe	July 16, 1892	\$9,431 00
Iron fence on retaining-wall, Border st.	G. T. McLauthlin	Nov. 10, 1892	350 00

Furnishing and Laying Concrete Base.

CONTRACT.	Awarded to	Proposals Received.	Price.
Furnishing and laying concrete base, Florence st.	Metropolitan Construction Co.	July 5, 1892	\$5 00 per cubic yard.
Furnishing and laying concrete base, Motte st. (Washington st. to Harrison ave.)	H. P. Nawn	Aug. 10, 1892	5 00 per cubic yard.
Furnishing and laying concrete base, India st.	H. P. Nawn	Aug. 19, 1892	5 25 per cubic yard.
Furnishing and laying concrete base, Cabot st.	Metropolitan Construction Co.	Aug. 22, 1892	5 00 per cubic yard.
Furnishing and laying concrete base, Beacon st. (Fairfield st. to Gloucester st.)	Metropolitan Construction Co.	Aug. 1, 1892	5 00 per cubic yard.
Furnishing and laying concrete base, Cabot st. (Ruggles st. to Mt. Vernon st.)	Metropolitan Construction Co.	Aug. 22, 1892	5 00 per cubic yard.
Furnishing and laying concrete base, West Chester park	Metropolitan Construction Co.	March 27, 1892	5 00 per cubic yard.
Furnishing and laying concrete base, Charles st. (Beacon st. to Mt. Vernon st.)	Metropolitan Construction Co.	June 22, 1892	0 60 per square yard (Amount furnished by City.) \$5 00 per cubic yard.
Furnishing and laying concrete base, Chester square	Metropolitan Construction Co.	June 30, 1892	5 00 per cubic yard.
Furnishing and laying concrete base, Beacon st. (D st. to F st.)	Metropolitan Construction Co.	July 15, 1892	5 00 per cubic yard.
Furnishing and laying concrete base, Davis st.	Metropolitan Construction Co.	July 5, 1892	5 00 per cubic yard.
Furnishing and laying concrete base, Decatur st.	Metropolitan Construction Co.	July 5, 1892	5 00 per cubic yard.
Cherry st., concrete base	Metropolitan Construction Co.	Oct. 24, 1892	5 00 per cubic yard.

Constructing Sewers.

CONTRACT.	Awarded to	Proposals Received.	Price.
Sewer and connections, Lawn st., Ward 22	John B. Murphy	Aug. 18, 1892	\$0.75 per lin. ft.; \$10 per manhole.
Sewer in Cambria st., Ward 11	A. Fairbanks	Sept. 9, 1892	\$300 (70 lin. ft. of pipe sewer.)
Sewer in Worthington st., Ward 22	A. Fairbanks	Aug. 29, 1892	(D) \$0.95 12-in. pipe; (K) \$40 per manhole.
Sewer in Lawn st., Ward 22	John C. Coleman	Aug. 29, 1892	\$0.75 lin. ft.
Sewer in Henshaw st., Brighton, Ward 25	W. T. Davis	Aug. 29, 1892	\$1.25 per lin. ft.; \$40 per manhole.
Sewer in Englewood ave., Ward 25	Metropolitan Construction Co.	Sept. 26, 1892	(D) \$1.15 per lin. ft. 12-in. pipe; (K) \$45 per manhole; (V) \$0.15 4-in. drain-pipe.
Sewer and connections, Centre st. (Wyman to Forbes),	Metropolitan Construction Co.	Oct. 4, 1892	(D) \$1.40; (K) \$45; (L) \$5; flushing pipe, \$10.
Sewer and connections, Kelley court, Ward 25	W. T. Davis . . . . .	. . . . .	(D) \$1.25, 236 ft. 10-in. pipe; (K) \$40 per manhole.
Sewer and connections, Wicklow st., Ward 25	W. T. Davis . . . . .	. . . . .	(D) \$1.25, 1,375 ft. 12-in. pipe; (K) \$40 per manhole.
Sewer and connections, Albano st.	P. F. Donovan . . . . .	. . . . .	(D) \$1.10, 283 ft. 12-in. pipe; (K) \$35 per manhole.
Sewer and connections, Ashfield st.	P. F. Donovan . . . . .	. . . . .	(D) \$1.15, 397 ft. 10-in. pipe; (K) \$35 per manhole.
Sewer and connections, Corwin and Westville sts.	John W. Bowers . . . . .	. . . . .	(D) \$1.15, 390 ft. 12-in. pipe; (K) \$50 per manhole; (V) \$0.16 under drain.
Sewer and connections, Maxwell st.	Dennis O'Connell	Oct. 8, 1892	(D) \$1.15, 230 ft. 10-in. pipe; (K) \$40 per manhole.
Sewer and connections, Lawrence ave.	John W. Bowers	Oct. 8, 1892	(D) \$1.10; (K) \$50; (L) \$4.90; (V) \$0.16.
Sewer and connections, St. Stephens st.	Not awarded.	. . . . .	. . . . .
Sewer and connections, Lawn st. (extension)	J. C. Coleman	Oct. 13, 1892	\$0.95 per lin. ft.
Sewer and connections, Smith st.	A. Fairbanks	Oct. 13, 1892	(D) \$0.95; (K) \$45; (L) \$5; (V) \$0.16.
Sewer and connections, Hillside, Sunset, and Eldora	D. O'Connell	Oct. 13, 1892	(D) \$1.25; (K) \$40.00.
sts.	John W. Bowers	Oct. 20, 1892	(D) \$1.10; (K) \$50.00; (L) \$4.90; (V) \$0.16.
Sewer and connections, Lawrence ave.	John W. Bowers	Oct. 20, 1892	(D) \$1.10; (K) \$50.00; (L) \$4.90; (V) \$0.16.

Sewer in Peter Parley st.	Thomas F. Welch	Nov. 8, 1892	(P) \$0.62 lin. ft.; (K) \$42; (L) \$3.47 cubic yd.
Sewer and connections in A st., W. Roxbury	James Dolan	Dec. 1, 1892	(D) \$0.80 lin. ft.; (K) \$46 each.
Sewer and connections in Washington st., W. Roxbury	Dennis O'Connell	Dec. 7, 1892	(D) \$1.12 lin. ft.; (K) \$40 each.
Sewer and connections in Wrentham st., W. Roxbury	Dennis O'Connell	Dec. 10, 1892	(D) \$1.15 lin. ft.; (K) \$40 each.
Sewer, C st., South Boston	J. W. Bowers	May 2, 1892	(D) \$1.95 lin. ft.; (K) \$45 each; (L) \$6 cubic yd.; (S) \$0.80 cubic yd.; (T) \$0.50 cubic yd.; (U) \$12 M ft. B.M.; (V) \$0.15 lin. ft.; (Z) \$0.10 ft.
Sewer in Armandine, Rockwell sts., and private land	Readvertised	Aug. 8, 1892	
Sewer in Bennington st.	Dennis O'Connell	Aug. 8, 1892	(A) \$2.12 lin. ft.; (D) \$0.97 lin. ft.; (M) \$4.95 cubic yd.; (N) \$5 cubic yd.; (O) \$3.75 cubic yd.; (K) \$28; (Y) \$0.15 lin. ft.; (W) \$1.05; (X) \$0.08.
Sewer in Elm road, etc.	Readvertised	Aug. 8, 1892	
Sewer in Park st.	Dennis O'Connell	Aug. 8, 1892	(A) \$1.85 lin. ft.; (D) \$1.45 lin. ft.; (L) \$3.50 cubic yd.; (M) \$4.95; (N) \$5 cubic yd.; (O) \$3.50 cubic yd.; (Y) \$0.15 lin. ft.; (Y) \$0.08.
Sewer in Savin Hill ave.	Dennis O'Connell	Aug. 8, 1892	(A) \$1.95 lin. ft.; (D) \$1.23 lin. ft.; (E) \$0.85 lin. ft. (M) \$3.50 cubic yd.; (N) \$5 cubic yd.; (O) \$3.50 cubic yd.; (Y) \$0.15 lin. ft.; (Y) \$0.10.
Sewer in Armandine, Rockwell sts., and private land	Collins & Ham	Aug. 12, 1892	(A) \$2.50 lin. ft.; (B) \$2.25 lin. ft.; (D) \$0.90 lin. ft.; (E) \$0.85 lin. ft.; (F) \$4.50 cubic yd.; (M) \$5.50 cubic yd.; (N) \$6 cubic yd.; (O) \$4.25 cubic yd.; (V) \$0.15 lin. ft.; (Y) \$0.10.
Sewer in Elm road, private land, and Ashmont st.	Dennis O'Connell	Aug. 12, 1892	(A) \$2.15 lin. ft.; (D) \$1.15 lin. ft.; (E) \$1 lin. ft.; (M) \$5.35 cubic yd.; (N) \$5 cubic yd.; (O) \$3.50 cubic yd.; (Y) \$0.15; (Y) \$0.10.

EXPLANATION OF LETTERS.

- A — Price per lineal foot earth excavation.
 B — Price per lineal foot earth excavation.
 C — Price per lineal foot earth excavation.
 D — Price per lineal foot Akron pipe laid.
 E — Price per lineal foot Akron pipe laid.
 F — Price per lineal foot Akron pipe laid.
 G — Price per lineal foot earth excavation, wooden box sewer.
 H — Price per lineal foot earth excavation, wooden box-sewer.
 I — Price per lineal foot for building wooden box-sewer.
 J — Price per lineal foot for building wooden box-sewer.
 K — Price per manhole for building.
 L — Price per cubic yard for rubble excavation.
 M — Price per cubic yard for brick masonry, Am. cement mortar.
 N — Price per cubic yard for brick masonry, Port. cement mortar.
 O — Price per cubic yard for concrete.
 P — Price per cubic yard for rubble-stone masonry.
 Q — Price per cubic yard for dimension stone masonry.
 R — Price per thousand feet lumber, B.M.
 S — Price per cubic yard earth excavation below grade.
 T — Price per cubic yard gravel refilling below grade.
 U — Price per thousand feet lumber, B.M., sheeting and shoring.
 V — Price per lineal foot underdrain.
 W — Price, each, for spruce piles driven.
 X — Price per cubic yard gravel refill, by special order.
 Y — Price, each, for laying pipe connections.
 Z — Price per lineal foot for pipe laid as chimneys.

Paving with Trinidad Asphalt.

CONTRACT.	Awarded to	Proposals Received.	Price.
Paving with Trinidad asphalt, Grotton st.	Barber Asphalt Paving Co.	June 7, 1892.	\$2 25 per square yard.
Paving with Trinidad asphalt, W. Chester park (Columbus ave. to Tremont st.)	Barber Asphalt Paving Co.	June 7, 1892.	2 25 per square yard.
Paving with Trinidad asphalt, Chester sq. (Tremont to Washington st.)	Barber Asphalt Paving Co.	June 7, 1892.	2 25 per square yard.
Paving with Trinidad asphalt, Thacher st.	Barber Asphalt Paving Co.	June 13, 1892.	2 25 per square yard.
Paving with Trinidad asphalt, Stillman st.	Barber Asphalt Paving Co.	June 15, 1892.	2 25 per square yard.
Paving with Trinidad asphalt, Davis st.	Barber Asphalt Paving Co.	July 25, 1892.	2 25 per square yard.
Repaving with Trinidad asphalt, E and Third sts.	Barber Asphalt Paving Co.	July 16, 1892.	2 25 per square yard.
Paving with Trinidad asphalt, Beacon st. (D to F st.)	Barber Asphalt Paving Co.	July 30, 1892.	2 25 per square yard.
Paving with Trinidad asphalt, Brighton st. (Allen to Leverett st.)	Barber Asphalt Paving Co.	Aug. 22, 1892.	2 25 per square yard.
Paving with Trinidad asphalt, Cabot st.	Barber Asphalt Paving Co.	Aug. 30, 1892.	2 25 per square yard.
Paving with asphalt, Cherry st. (Washington st. to Shawmut ave)	Barber Asphalt Paving Co.	Oct. 20, 1892.	2 25 per square yard.
Paving with asphalt, Poplar st.	Barber Asphalt Paving Co.	Nov. 1, 1892.	2 50 per square yard.

Paving with Hastings Blocks.

CONTRACT.	Awarded to	Proposals Received.	Price.
Paving with Hastings blocks, Beacon st. (west line G st. to F st., 150 ft.)	Metropolitan Construction Co.	Aug. 15, 1892.	\$2 89 per square yard.
Paving with Hastings blocks, W. Newton st. (Washington st. to Shawmut ave.)	Metropolitan Construction Co.	Aug. 24, 1892.	2 89 per square yard.
Paving with Hastings blocks, Florence st.	Metropolitan Construction Co.	June 7, 1892.	3 10 per square yard.

Paving with Sicilian Rock Asphalt.

CONTRACT.	Awarded to	Proposals Received.	Price.
Paving with Sicilian rock asphalt, Motte st.	National Construction Co.	Aug. 29, 1892.	\$2.25 per square yard.
Paving with Sicilian rock asphalt, and regulating Broadway (A st., 340 ft. N.W. {	National Construction Co.	Aug. 24, { 1892. Sept. 21, }	(A) \$3.55; (B) \$3.55; (C) \$0.18; (D) \$0.28; (E) \$0.69.
Paving with Sicilian asphalt, Decatur st.	H. Gore & Co.	July 18, 1892.	\$2.25 per square yard.
Paving with Sicilian asphalt, Athens st., B to C st. (See paving and regulating)	H. Gore & Co.	Aug. 8, 1892.	\$3.55 per square yard.

Paving with Granite Blocks.

CONTRACT.	Awarded to.	Proposals Received.	Price.
Paving with granite blocks, Charles st.	J. Doherty & Co.	June 25, 1892.	\$0.91 per square yard (tar joints).
Paving Pleisaut st. (Washington st. to Shawmut ave.)	John Turner & Co.	July 25, 1892.	\$0.57½ per square yard.

Pile-Driving.

CONTRACT.	Awarded to	Proposals Received.	Price.
Pile-driving, Dorchester Brook (Dor.)	Horace Sias	March 21, 1892	\$2.68 per pile.
Pile-driving, Commonwealth ave.	Horace Sias	June 4, 1892	5.50 per pile.
Pile-driving, Commonwealth ave.	Horace Sias	June 30, 1892	5.50 per pile.
Furnishing and driving piles, Cottage st., E. Boston	F. G. Whitcomb	Aug. 10, 1892	By water machine, \$2.20 pile. By land machine, \$2.50.
Pile-driving, Villa-st. sewer	William H. Sias	Dec. 23, 1892	\$2.08 per pile.
Pile-driving, Cowper-st. sewer, E. Boston	Nay & Ellis	Nov. 14, 1892	3.50 per pile.
Pile-driving, Eagle square	Not awarded	April 11, 1892.	

Quarrying and Crushing Stone.

CONTRACT.	Awarded to	Proposals Received.	Price.
Right to quarry and crush stone, Emerson ledge (Geneva ave. to Cedar ave.)	W. J. Emerson	Aug. 10, 1892	\$0.25 per ton, and \$0.40 per month rent.
Quarrying and crushing stone, Heath st.	W. J. Bleier	Aug. 1, 1892	1,000 cubic yards, at \$1.50 per cubic yard.
Quarrying, crushing, and delivering stone (Savin-hill ave.)	John McMorrow	Aug. 1, 1892	{ \$1.00 per ton of 2,000 lbs., delivered on Tuttle st. 1.75 per ton, delivered in South Boston. 1.50 per ton, delivered in Dorchester.

Bridge Repairs.

CONTRACT.	Awarded to	Proposals Received.	Price.
Repairing draw in Maiden Bridge	Josiah Shaw	Feb. 19, 1892 . . .	\$3,650.00.
Re-paving West Boston Bridge	Gore & Cowin	June 20, 1892 . . .	(A) \$74.00 per M. granite blocks; \$0.70 per sq. yd. paving. \$429.50.
Painting West Boston Bridge	L. P. Ackers	June 20, 1892 . . .	(A) \$74.00 per M.; \$0.70 per sq. yd. \$735.00.
Re-paving West Boston Bridge (City Eng. Dept.)	Gore & Cowin	June 20, 1892 . . .	\$835.00 lump sum.
Replanking roadway of Harvard Bridge	William L. Miller	Oct. 4, 1892 . . .	
Chelsea Bridge, piles for fender guards	F. G. Whitcomb	Feb. 12, 1892 . . .	

Public Landings.

CONTRACT.	Awarded to	Proposals Received.	Price.
Federal-street Bridge, public landing	M. F. Sullivan	Oct. 26, 1892 . . .	\$500.00.
Building float and public landing at Commercial wharf	M. F. Sullivan	Jan. 1, 1892 . . .	\$970.00.

Sea-Walls.

CONTRACT.	Awarded to	Proposals Received.	Price.
Building a sea-wall, Roxbury Canal	Thomas A. Rowe	Oct. 20, 1892	\$12,450.00.
Paving, repaving, repainting, and building sea-wall to grade, Border street	H. Gore & Co.	Aug. 29, 1892	{ (B) \$0.96 sq. yd.; (E) \$0.35 lin. ft.; (F) \$0.65 sq. yd.; (G) \$0.96 sq. yd.; (H) \$3.70 cu. yd.; (I) \$3.30 cu. yd.; (J) \$2.30 ton; (K) \$1.56 ton; (L) \$2.56 lin. ft.

EXPLANATION OF LETTERS.

- B — Paving with granite blocks on gravel.
- E — Laying edgestone.
- F — Laying brick sidewalks.
- G — Laying cross-walks.
- H — Laying stone masonry in cement mortar.
- I — Laying stone masonry without mortar.
- J — New wall stone furnished and delivered.
- K — Stone ballast.
- L — Cap stone furnished and set.

Collecting and Removing Offal.

CONTRACT.	Awarded to	Proposals Received.	Price.
Collecting and removing offal in Brighton	Allen Clarke	April 23, 1892	\$2,800.00 per year.
Purchase of offal in West Roxbury (upper part)	John Krug	Aug. 1, 1892	\$9.00 per month, paid to city.
Collecting and removing offal in East Boston	Thomas Mulligan	Dec. 20, 1892	\$8,000.00 per year.

Street-Watering.

CONTRACT.	Awarded to	Proposals Received.	Price.
Street-watering, Back Bay District	M. E. Nawn	March 5, 1892	Salt water, \$1,150.00; fresh, \$850.00 per mile.
Street-watering, South End District	Boston Watering Co.	March 16, 1892	Fresh water, \$567.00; salt, \$767.00 per mile.

Refuse Cans.

CONTRACT.	Awarded to	Proposal Received.	Price.
Refuse cans, city dumps	O'Connor Bros.	Feb. 27, 1892	\$5.50 per ton, paid to city.

Propeller Tow-boat.

CONTRACT.	Awarded to	Proposals Received.	Price.
Propeller tow-boat	Atlantic Works	Sept. 22, 1892	\$22,994.00, delivered in five months.
Manganese bronze propeller (tow-boat)	Atlantic Works	Dec. 3, 1892	\$442.00.

Miscellaneous Agreements.

CONTRACT.	Awarded to	Proposals Received.	Price.
Blasting and delivering stone, Commonwealth ave. (Brighton)	A. McMurtry	Dec. 6, 1892	\$1.48 cubic yard.
Teaming stone from Heath st. to streets in Back Bay, Resetting edgestones, etc., Worcester sq.	William Finneran	Aug. 26, 1892	\$0.72 per cubic yard.
Receiving Metropolitan sewage into city sewer	J. Doherty & Co.	July 30, 1892	(A) \$0.15 linear foot; (B) \$0.21 square yard; (C) \$0.21 square yard.
Cable houses on bridges (W.E. St. Ry)	Metropolitan Sewerage Commissioners	April 15, 1892	1892, '93, '94, \$23,000 per year; 1895, \$24,000.
Lease of James J. Costello's land and wharf	James J. Costello	Aug. 4, 1892	3 bridges; \$100 per year each, paid to city.
Excavating material on Commonwealth ave.	M. Kiernan	Aug. 29, 1892	\$500 per month.
Broken stone	Mass. Broken Stone Co.	Aug. 6, 1892	\$0.45 per cubic yard.
Site for sewer, yard, and stable (Brighton)	Francis Burke, trustee	Feb. 23, 1892	{ On streets in South Boston, \$2.15 ton. { On wharves, \$1.90 ton. \$7,426.98 and taxes.

EMPLOYMENT OF LABOR.

Owing to the large number of laborers hired in 1891, but few requests were made on the Civil Service Commission during the past year. There are now about 2,500 names of men on the books of the department eligible for employment.

The department records show that 80 applications have been made on the Civil Service Commission for 261 men for various kinds of work. Of the names submitted, 297 men were given employment.

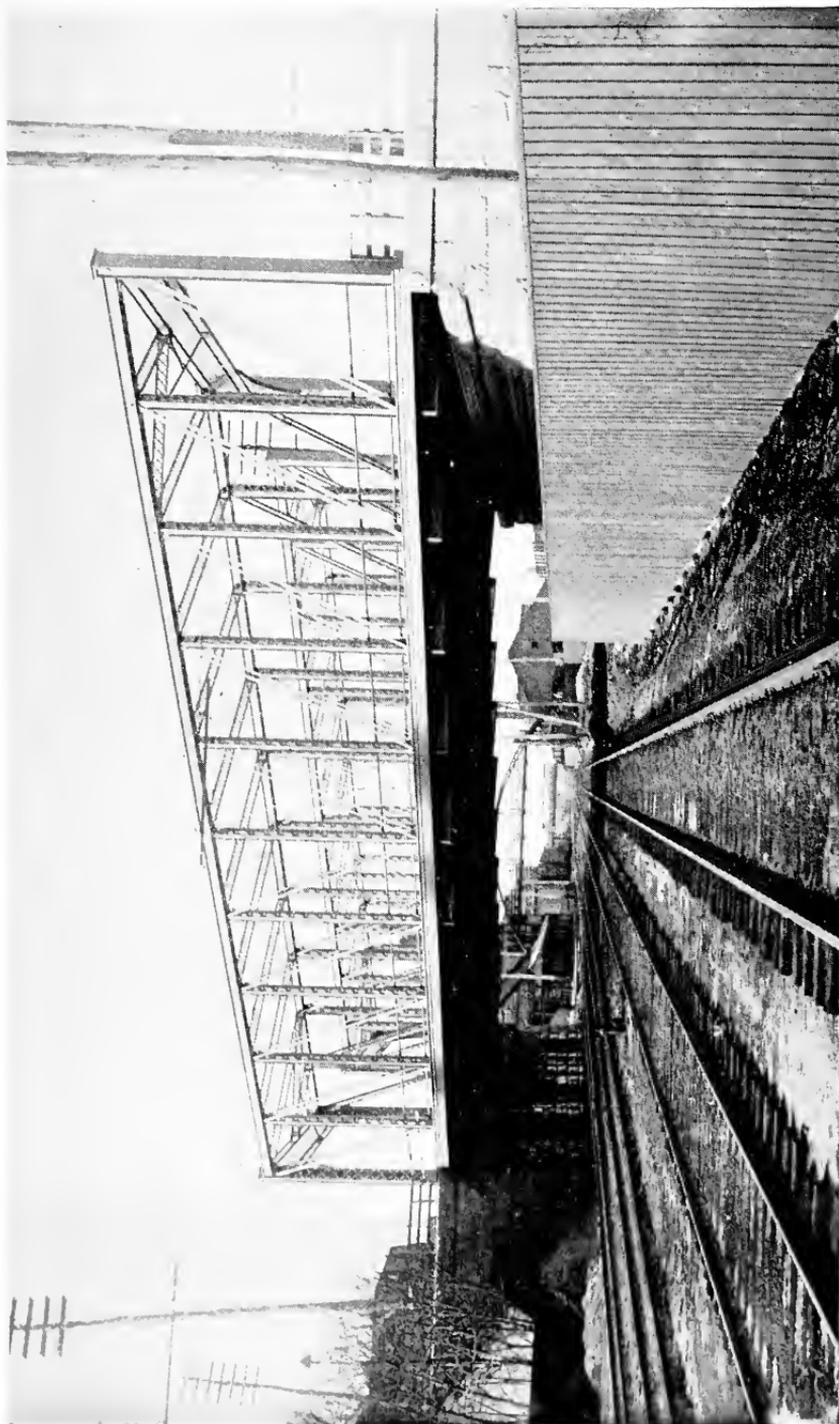
The following table shows the grade and number of employees in the Street Department:

**Grade and Number of Employees in the Street
Department.**

TITLE.	Divisions.						Total.
	Central Office.	Paving.	Sewer.	Sani- tary.	Street Clean- ing.	Bridge.	
Superintendent	1						1
Deputy superintendents		1	1	1	1	1	5
Executive engineer	1						1
Purchasing agent and assistant	2						2
Clerks	1	7	5	5	1	1	20
Foremen		10	9	4	11	3	37
Sub-foremen		27	11	6	13	3	60
Inspectors		3	26	2			31
Civil engineers			3				3
Draughtsmen	1		8				9
Transitmen			3				3
Levelmen			5				5
Rodmen			17				17
Aid				3			3
Blacksmiths and assistants		18	1	5	2		6
Bracers			20				20
Bridge-cleaners						4	4
Boys			26			2	28
Captain				1			1
Carpenters and assistants		21	8		2	25	56
Coal-passers			6				6
Draw-tenders						20	20
Assistant draw-tenders						34	34
Deck-hand			1				1
Dumpers				15	7		22
Engineers and assistants		14	17			15	46
Feeders				4			4
Firemen			6				6
Gatemen			3				3
Harness-makers		2		3			5
<i>Carried forward</i>	6	103	176	49	37	108	479

Grade and Number of Employees, etc. — *Concluded.*

TITLE.	Divisions.						Total.
	Central Office.	Paving.	Sewer.	Sanitary.	Street Cleaning.	Bridge.	
<i>Brought forward</i>	6	103	176	49	37	108	479
Helpers				195	61		256
Horse-shoers				4			4
Hostlers			2			1	3
Janitor			1				1
Laborers		498	479		170	2	1,149
Ledgemen			4				4
Machinist			1				1
Masons (stone and brick)			37				37
Masons' tenders			5				5
Measurers		2					2
Messengers	1	4	3	3	2	4	17
Oilers			5				5
Patch pavers and assistants		38					38
Painters		1		2		9	12
Pilot			1				1
Pipe-layers			2				2
Powdermen		4					4
Riggers			3				3
Rope-splicer			1				1
Stablemen		11	2	7	4		24
Steam-drillers		8					8
Steward			1				1
Stone-cutters		14	3				17
Store-keepers			2				2
Teamsters		57	16	158	65	2	298
Veterinary surgeon							
Watchmen		10	12	5	1	4	32
Weighers		3					3
Wharfingers		4	1				5
Wheelwrights		1		2			3
Yardmen		8	2	11	1	1	23
Totals	7	766	759	436	341	131	2,440



ALLSTON BRIDGE, OVER B. & A. R.R.
(To abolish grade crossing at Cambridge Street.)

COMPLAINTS.

The number of complaints received from January 1, 1892, to February 1, 1893, is 254, distributed as follows :

- 75 related to the Paving Division.
- 23 related to the Sewer Division.
- 53 related to the Sanitary Division.
- 20 related to the Street-Cleaning Division.
- 83 related to Street-watering.

The complaints concerning street-watering were made in the part of the season when the weather was too cold for the work of street-sprinkling. There is annually, in March and December, a period of more or less suffering on account of dust, as it is impossible to keep water turned on in the post hydrants in freezing weather, or to water streets when the temperature is low.

Other complaints were made before the work of street-watering was fairly organized, but it is satisfactory to note that after the organization was effected the complaints ceased almost entirely, and during the latter part of the summer scarcely any were received.

It is also gratifying to note that but twenty complaints were received as to the matter of cleanliness of the streets, showing that the extra efforts which have been put forth in this direction have been fully appreciated by the public.

BRIDGE DIVISION.

The establishment of two districts in the Bridge Division, one known as the Northern District, including all bridges north and west of the Charles river, and the other known as the Southern District, with headquarters at Foundry street, including all bridges south of the Charles river, has continued to work satisfactorily.

The headquarters of the Northern District has been removed from Charles-river bridge and transferred to Warren bridge, and a suitable building for office, stable, and carpenter shop has been erected, the work being done by the regular division force.

FEDERAL-STREET DRAW.

The draw of Federal-street bridge is now operated by an electric motor, which was substituted for the steam power employed two years ago. There are two draws on this

bridge, each of which is 32 feet 9 inches wide, and carrying a roadway of 21 feet in width, and a sidewalk of 10 feet 3 inches in width.

Each draw is moved by a 20-horse-power electric motor connected by shafting to a horizontal drum under the draw; from this drum motion is transmitted to the draw by wire ropes. The draws are operated and controlled by one man from a small house situated between the draws, and near the channel on the Boston side.

Gearing is provided for operating the draws by hand or horse power in case of accident to the electric plant, but up to the present date no accident has occurred to demand its use. The substitution of electricity for steam power in the operation of drawbridges is of very recent date, and the result of this innovation has been carefully watched throughout the year.

The person controlling the movements of the draws can regulate the speed with which they can be opened or closed more easily by means of an electric motor than by any other power in use on bridges.

No repairs have been made or needed on the motors since they were adopted on the bridges, and the introduction of electricity to operate drawbridges is regarded as a success.

Among other changes that have taken place during the year may be mentioned the erection of a new drawbridge house at Federal-street bridge, in a location convenient to the street; the old house, which was situated on the main pier, has been removed to Malden bridge, for use there as a drawtender's house. The removal of the house from Federal street is of great advantage to the drawtenders, as they now have an unobstructed view of the channel from any part of the draw.

New asphalt sidewalks have been laid on Broadway, Washington-avenue, and Dover-street bridges, to replace the old sidewalks, which were in a dangerous condition.

Essex-street bridge underwent extensive rebuilding, as an examination showed that the bridge was in a dangerous condition. No adequate appropriation being available for the work, the money (\$1,804.82) was taken from the maintenance appropriation of the division.

The only bridge which has inconvenienced the public to any extent has been the Charles-river bridge, which during the present year has been closed to public travel twelve times, from one to three days at a time. This structure has been reported as unsafe for some years.

An order was introduced into the Board of Aldermen on October 3, 1892, requesting His Honor the Mayor to petition

the General Court, at its next session, for the passage of an act authorizing the city of Boston to borrow outside of the debt limit the sum of five hundred thousand dollars, said sum to constitute a special appropriation for a new bridge to Charlestown. It is to be hoped that an appropriation will be made in the near future to rebuild this bridge, as the frequent closings to public travel occasion great inconvenience.

Care has been taken to provide a duplicate set of trucks, gearings, and machinery for all the drawbridges, and several times during the year when breakdowns have occurred, the delay has been trifling, owing to the rapidity with which new apparatus could be procured.

CLOSING OF DRAWBRIDGES.

The following ordinance has been passed by the city government :

SECTION 1. Chapter 1 of the Ordinances of 1891 is hereby amended in Section 3, by inserting the following words after the word "closed" in the last line but one of said section, namely :

"But he shall not allow any vessel to pass through the draws of Congress-street bridge, Mount Washington-avenue bridge, Federal-street bridge, Broadway bridge, or Dover-street bridge, on any day, except Sundays or holidays, from 6.15 o'clock A.M. to 8 o'clock A.M., or from 12 o'clock M. to 1 o'clock P.M., or from 6 o'clock P.M. to 7 o'clock P.M."

Application was made to the Corporation Counsel to ascertain whether or not this department would come into conflict with the Constitution or statutes of the United States by carrying out the provisions of this ordinance.

A reply having been received that, while the city ordinance referred to was in harmony with the Constitution and statute law, it would be necessary to submit the same to the Harbor and Land Commission for approval before carrying the order into effect, a hearing before the said Commissioners was held, occupying two days, in the month of July, 1892. The following letter was received by this department as to the decision of the said Commissioners, and consequently no further steps have been taken towards closing the draws.

HARBOR AND LAND COMMISSIONERS' OFFICE,
COMMONWEALTH BUILDING, 65 BOWDOIN STREET,
BOSTON, August 25, 1892.

HON. NATHAN MATTHEWS, JR.,
Mayor of the City of Boston :

DEAR SIR: The Board of Harbor and Land Commissioners have had submitted to them for their approval Section 3 of Chapter 36 of the Revised Ordinances of 1892 of the City of Boston, and Chapter 2 of

the Ordinances of 1892 (second series) of the City of Boston, under the provisions of Section 28 of Chapter 53 of the Public Statutes.

The above-named sections submitted to us provide for the closing of the draws of Congress-street bridge, Mt. Washington-avenue bridge, Federal-street bridge, Broadway bridge, and Dover-street bridge, on all days except Sundays and holidays, from 6.15 o'clock A.M. to 8 A.M., and from 12 o'clock M. to 1 o'clock P.M., and from 6 o'clock P.M. to 7 o'clock P.M., and the draw of the Chelsea bridge, south, from 11.55 o'clock A.M. to 12.10 o'clock P.M., and from 12.50 o'clock P.M. to 1 o'clock P.M.

We have given this matter very careful consideration, and have also given a public hearing upon the subject, which was largely attended, and at which the city of Boston was represented by its corporation counsel. The evidence at the hearing made it clear to us that the proposed closing of the draws could not be enforced without serious injury to the commerce of Boston, and we do not feel justified in giving our approval to the above-named sections of the Revised Ordinances.

We therefore hereby respectfully notify the city of our non-concurrence in its action.

For the Board of Harbor and Land Commissioners,

(Signed)

HENRY W. SWIFT,

Chairman.

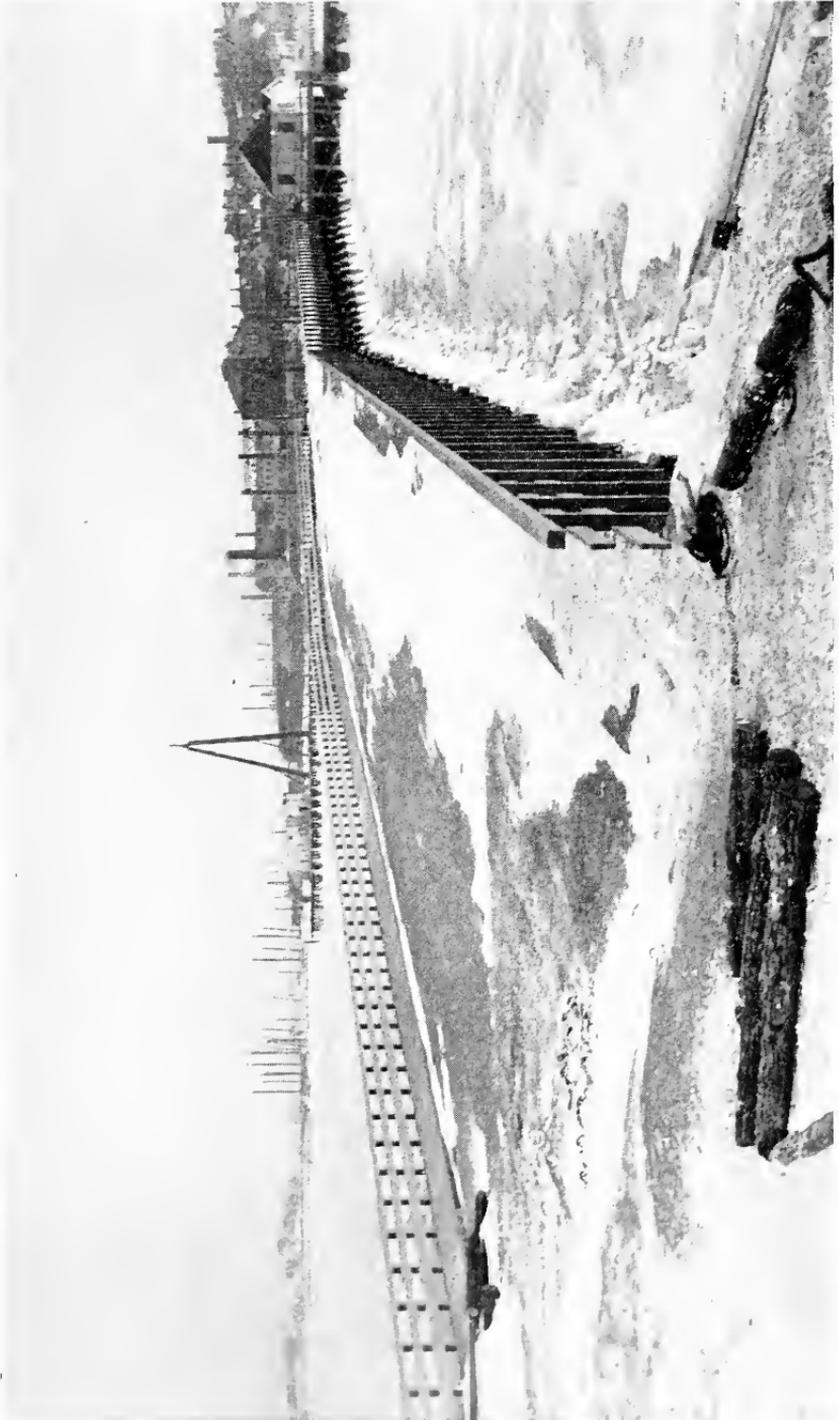
The following report, giving the reasons for this action of the Harbor and Land Commissioners, is taken from their annual report for 1892 :

"The Board gave a hearing upon the matter, at which the city and also the various shipping and commercial interests affected by the proposed closing of the draws were represented. It appeared that the largest vessels using the Fort Point channel, which are naturally the most important commercially, cannot pass through the draws of the bridges except at high tide, and that the proposed closing of the draws when high tide occurred within the hours of closing night, in some cases, cause a delay of twenty-four hours, or even longer.

"After a very thorough investigation of the facts of the case, the Board declined to concur in the action of the city, and the proposed ordinance failed to become a law.

"The ordinance also covered a proposed closing of the draw of the Chelsea bridge over the south channel of Mystic river, and the same decision was arrived at in that case.

"In view of the exceeding difficulty of making any reasonable regulations to compel the absolute closing of the draws within certain hours, the Board deem the matter to be well provided for by the existing provisions of the Public Statutes, which leave the question of the closing and opening of the draws to the reasonable discretion of the drawtender, the statute providing that the drawtender shall furnish all facilities for the passing of vessels, and 'shall allow no detention, having due regard for the public travel.'"



L-STREET BRIDGE AND DRAW (NEW), SOUTH BOSTON.

The report of the Deputy Superintendent (Appendix A) gives a detailed statement of expenditures, and contains much useful information concerning the repairs made on the various bridges and other matters.

BOSTON AND CAMBRIDGE BRIDGES DIVISION.

By the provisions of the Acts of Legislature of 1870 and 1882, the care of the bridges uniting the city of Boston with the city of Cambridge is placed in the hands of two commissioners, one of whom is appointed by the city of Cambridge, the other by the city of Boston.

The Boston commissioner, according to the Revised Ordinances, is the Superintendent of Streets, and the present commissioner for Cambridge is Mr. William J. Marvin. The bridges thus provided for are four in number, namely :

Canal or Craigie's bridge.

Harvard bridge.

Prison Point bridge.

West Boston bridge.

One of these bridges, Harvard bridge, was finished in the latter part of 1891, and was turned over by the Construction Commission on August 1, 1892. The following report will show, briefly, the general condition of the various bridges, the repairs made, the work needed to be done, together with a detailed statement of expenditures :

CANAL OR CRAIGIE'S BRIDGE.

The paving of the roadway on both sides of the draw, as recommended in last year's report, has been repaired, and the draw has been painted. The engine-house roof has been tinned and painted, and the chain for moving the draw repaired, and the machinery in the engine-house where necessary has been made good. The fender on the up-stream side is in bad condition, and will have to be replaced with a new one. The sides of the waterway need new planking. New tracks have been laid in anticipation of running electric cars over this bridge ; but before they are allowed to run over the draw it should be carefully examined and repaired. It has been in use for eighteen years, and is very old for a wooden draw ; the upper chords of the trusses, the angle blocks, and the samson posts should receive special attention.

HARVARD BRIDGE.

This bridge was opened to the public September 1, 1891, and has been in constant use since that date. The plank upper flooring was laid in 1889, and consequently was in poor condition when the bridge was opened; it was kept in repair until October, 1892, when a new upper floor was laid at an expense of \$3,533.51.

The electric cars of the West End Street Railway Company commenced running on the bridge August 15, 1892.

The centre of the pier of the draw has been stayed to the track circle by rods.

The bridge is in good condition, except that it should be thoroughly painted.

PRISON POINT BRIDGE.

The draw has been planked, the machinery to raise the draw repaired, and the draw arms and fences painted.

WEST BOSTON BRIDGE.

The repaving of the roadway of West Boston Bridge from the draw to the Boston abutment alluded to as necessary in the last report has been done, and the bulkhead next to the Charles-river embankment has been rebuilt and a new brick sidewalk laid.

The up-stream end of the draw-pier has been strengthened by driving new piles, the surface of the pier has been newly planked, and four thousand three hundred and twenty-nine feet in length of fence, and the draw, have been painted with two coats of white-lead and linseed-oil paint.

The plank sides of the waterway and the surface of the draw-pier are in bad condition, and will have to be repaired next year. This bridge is in fairly good condition, and will not require any more than the ordinary repairs for 1893, with the exceptions noted above.

IN GENERAL.

The usual statement is appended of the number of draw-openings and the number of vessels which passed through.

The amount of revenue received for dockage, sale of old material, etc., during the year has been \$940.88, one-half of which has been paid over to the city of Cambridge.

The following is a statement of the payments made by the city of Boston on account of West Boston, Canal, and Prison Point bridges from February 1, 1892, to January 31, 1893, also for Harvard bridge from September 1, 1892, to January 31, 1893:

Amount of appropriation for financial years 1892-3	\$9,000 00
Amount transferred from Harvard-bridge ap- propriation, September 17, 1892	3,580 51
Total appropriation	\$12,580 51
Amount expended to January 31, 1893	11,079 76
¹ Unexpended balance	\$1,500 75

Classification of Expenditures.

1892.	General Account.	Canal Bridge.	Harvard Bridge.	Prison Point Bridge.	West Boston Bridge.	Total.
Salaries	\$275 00					\$275 00 ✓
Printing and stationery	37 93					37 93 ✓
Travelling expenses	40 15					40 15 ✓
Messengers	10 30					10 30 ✓
Claims	22 50					22 50 ✓
Drawtenders and assistants		\$1,140 00	\$425 55	\$149 23 200 00 }	\$1,045 88	2,960 66 ✓
Ordinary repairs		311 41	9 50	161 89	520 71	1,063 51 ✓
Replanking and labor			1,731 29			1,731 29 ✓
Paving		34 66		18 62	637 79	691 07 ✓
Lumber		274 89	14 17	132 05	391 78	812 89 ✓
Ironwork		80 97	134 26	32 11	28 18	275 52 ✓
Electric lights		360 00	380 55		540 00	1,280 55 ✓
Electric current			50 00			50 00 ✓
Electric cable repairs			35 44			35 44 ✓
Fuel		135 99	13 00		89 10	238 09 ✓
Sundries		28 52	13 53	2 75	52 20	97 00 ✓
Repairs to gas-lamp,			93 12			93 12 ✓
Cleaning bridge		177 43			195 24	372 67 ✓
Paint and painting,		54 45	15 47		225 83	295 75 ✓
Inspecting		125 00	82 50	60 00	235 00	502 50 ✓
Watering roadway,		12 00			12 00	24 00 ✓
Water-rates		16 00		5 50	11 00	32 50 ✓
Insurance		6 00		2 50	3 75	12 25 ✓
Tools and hardware,		25 46	69 24	12 53	77 84	185 07 ✓
Totals	\$385 88	\$2,782 78	\$3,067 62	\$777 18	\$4,066 30	\$11,079 76

¹ The above balance was transferred to the Street Department, Bridge Division.

Number of Times the Draws in Canal, Harvard, Prison Point, and West Boston Bridges have been opened, and the number of Vessels which have passed through during the year ending January 31, 1893.

DATE.	Canal or Craigie's.		Harvard.		Prison Point.		West Boston.	
	Number of Draw Openings.	Number of Vessels passed through.	Number of Draw Openings.	Number of Vessels passed through.	Number of Draw Openings.	Number of Vessels passed through.	Number of Draw Openings.	Number of Vessels passed through.
February 1, 1892, to January 31, 1893.								
February, 1892 . . .	99	104	26	30	24	42	33	44 ✓
March	154	163	30	35	16	19	39	51 ✓
April	348	370	120	160	19	24	145	235 ✓
May	372	411	131	196	38	53	178	313 ✓
June	490	505	135	206	44	64	235	635 ✓
July	523	556	215	323	23	26	251	421 ✓
August	347	360	266	357	79	89	223	418 ✓
September	373	375	196	288	124	130	194	319 ✓
October	346	352	106	161	79	94	179	259 ✓
November	259	263	117	175	31	36	155	226 ✓
December	244	255	117	179	39	59	122	210 ✓
January, 1893	95	123	8	8	16	24	20	36 ✓
Totals	3,406	3,582	1,350	1,939	493	601	1,652	2,957

Statement showing Traffic over Bridges.

DATE. 1892.	Bridge.	Foot Passengers.	Teams.	Cars.	Car Passengers.
September 17, 6 A.M. to 7 P.M.	Canal	6,927	4,552	493	11,221
	Harvard	1,487	1,576	146	5,355
	Prison Point	1,735	2,104		
	West Boston	3,584	2,953	1,059	23,592
	Totals	13,733	11,185	1,698	45,168



TRACK CONSTRUCTION, WASHINGTON STREET.

(Showing new design of grooved rail, with ties imbedded
in concrete.)

PAVING DIVISION.

The following table shows the length of accepted streets and the character of pavements, February 1, 1893 :

Length in Miles.

	Asphalt.	Block.	Brick.	Cobble.	Telford and Macadam.	Gravel.	Not graded.	Total.
1891 Report.	4.66	69.29	0.36	5.94	204.56	139.48	10.30	434.59
Feb. 1, 1893.								
City proper	*5.10	†40.61	0.36	3.87	29.99	0.77	. . . .	80.70
Charlestown	0.03	8.06	. . . .	0.29	14.11	0.09	. . . .	22.58
East Boston . . . . .	. . . .	3.80	. . . .	0.27	2.33	20.40	0.18	26.98
South Boston	0.50	11.19	. . . .	0.15	23.12	2.10	5.57	42.63
Roxbury	0.37	7.77	. . . .	0.01	52.82	15.07	0.89	76.93
W. Roxbury . . . . .	. . . .	0.09	. . . .	. . . .	26.16	46.74	1.40	74.39
Dorchester . . . . .	. . . .	3.26	. . . .	. . . .	43.41	34.21	1.50	82.38
Brighton . . . . .	. . . .	. . . .	. . . .	. . . .	16.80	17.83	2.12	36.75
Total	6.00	74.78	0.36	4.59	208.74	137.21	11.66	443.34

NOTE. — The above districts refer to areas enclosed by the original boundary lines.

* Of this amount 0.69 miles = asphalt blocks.

† Of this amount 2.07 miles = granite-block paving on concrete with pitched joints.

Total public streets, 443.34 miles.

There have been laid out and accepted by the Street Commissioners during the year 7.715 linear miles; 221.4 square feet have been discontinued without changing the mileage; corrections to previous measurements show an increase of 1.035 miles, making a total net increase of 8.75 miles.

The rate of this increase from year to year is shown in the following table :

1859	111.50	miles.	1882	359.85	miles.
1871	201.32	"	1883	367.99	"
1872	207.4	"	1884	374.10	"
1873	209.24	"	1885	379.60	"
1874	313.90	"	1886	383.55	"
1875	318.58	"	1887	390.30	"
1876	327.50	"	1888	392.72	"
1877	333.2	"	1889	397.84	"
1878	340.39	"	1890	404.6	"
1879	345.19	"	1891	409.6	"
1880	350.54	"	1892	434.59	"
1881	355.5	"	1893	443.34	"

The following table shows the areas of pavements in square yards, arranged by districts :

	Asphalt	Block.	Brick.	Cobble.	Telford and Macadam.	Gravel.	Not Graded.	Totals.
Feb. 1, 1892.	73,906	1,521,562	3,638	80,389	3,755,106	2,311,628	201,941	7,948,170
Feb. 1, 1893.								
City proper,	*86,931	872,292	3,638	45,609	587,780	13,811	.....	1,610,061
Charlestown .	421	186,108	...	2,936	211,853	1,105	.....	402,423
E. Boston		88,633	...	5,311	46,132	387,693	3,555	531,324
S. Boston	6,901	237,172	...	3,057	402,646	43,503	114,983	808,262
Roxbury	6,559	158,994	...	408	940,405	248,627	11,920	1,366,913
W. Roxbury		2,067	...	.....	454,181	732,259	20,896	1,209,403
Dorchester,		70,659	...	.....	773,166	564,750	32,970	1,441,545
Brighton . . . . .		.....	...	.....	404,667	273,217	35,893	713,777
Total	100,812	1,615,925	3,638	57,321	3,820,830	2,264,965	220,217	8,083,708

*Of this amount, 8,501 sq. yds. = asphalt blocks.

Total public streets, 443.34 miles.

NOTE.—The city is subdivided on original boundary lines.

For the sake of comparing the character of the pavements in the city of Boston with that of other large cities, considerable care has been taken to collect and arrange the following table, which is supposed to give the results up to the present date, information having been received direct from the cities named :

Distribution of Kinds of Pavements. Public and Improved Streets.

	Washington. Per cent.	St. Louis. Per cent.	Chicago. Per cent.	Buffalo. Per cent.	New York. Per cent.	Philadelphia. Per cent.	Boston. Per cent.
Sheet asphalt . .	43.90	1.17	1.40	33.12	8.52	5.00	1.20
Coal-tar	15.74	.....	.....	.....	.....	.....	.....
Asphalt block . .	7.56	.....	0.40	.....	0.05	2.00	0.16
Block stone . . .	15.82	29.85	2.79	34.60	75.27	20.00	16.87
Wood . . . . .	.....	1.86	63.13	.....	.....	.....	.....
Cobble	8.98	.....	.....	.....	0.20	42.00	1.03
Vitrified brick . .	.....	.....	0.07	0.40	0.01	5.00	00.08
Rubble . . . . .	.....	.....	.....	.....	.....	14.00	.....
* Telford . . . . .	.....	7.48	.....	0.26	.....	.....	9.92
* Macadam	8.00	59.64	32.19	31.62	15.95	12.00	37.16
* Gravel . . . . .	.....	.....	.....	.....	.....	.....	33.58
Burnt clay . . . .	.....	.....	0.02	.....	.....	.....	.....
	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Mileage	165.00	450.00	878.70	379.5	441.54	819.8	443.34

* Not usually separated in the reports of the various cities.

An inspection of the foregoing tables shows that in Boston only 17 per cent. of the total mileage is paved with granite blocks, 1.36 per cent. paved with asphalt, 0.08 per cent. paved with brick, 1.03 per cent. paved with cobble, the remainder, or nearly 81 per cent., being either macadamized or gravelled.

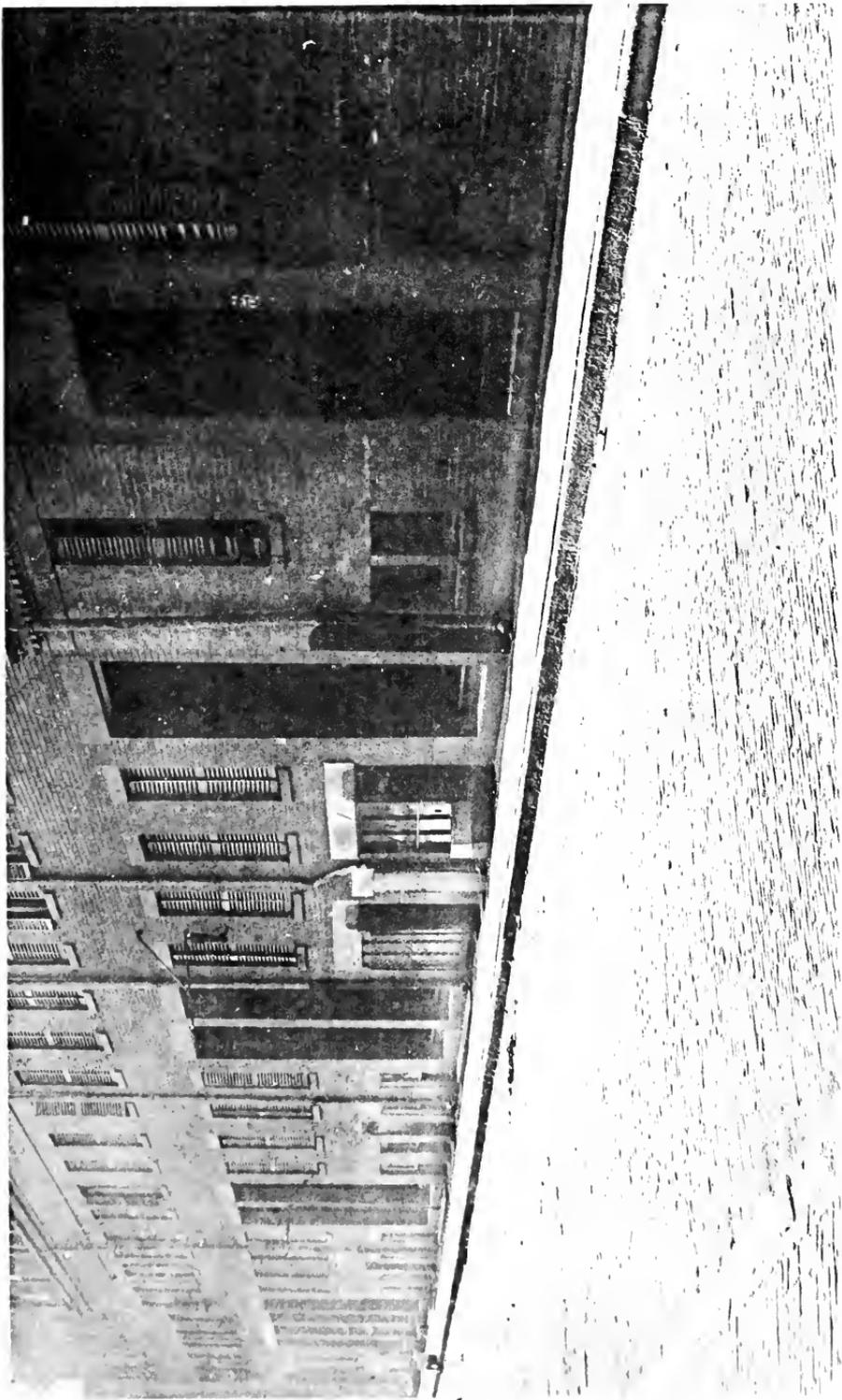
It is noticeable that our percentage of macadam and gravel streets is much larger than that of most other cities, and specially prominent is the fact that Buffalo has nearly thirty times as much sheet asphalt as Boston. It is not to be wondered at, in view of the show made by the table, that the expense of maintaining our streets calls for a much larger outlay of money every year than in cities provided with more permanent forms of paving.

Considering the cost and the temporary results obtained by repairing our macadam roads with a veneer of crushed stone, it would seem to be in the direct line of economy to adopt a more permanent form of roadway surface, suited to our peculiar conditions of business traffic.

PAVING LAID IN 1892.

A considerable area has been paved with granite blocks laid with pitch joints on a cement concrete base. The experience with the paving laid in this manner in 1891 is very favorable, and in comparing streets laid in this manner with those laid in the usual manner on a gravel base, the conclusion is irresistible that the new method is worth all its costs, and that all block paving in old and solidly built-up business streets should be laid in this manner. The value of the concrete base is unquestionable, while the great practical value of the pitch joint over the gravel joint is that it gives immediate use of the pavement in a clean condition, and saves the weeks and months of mud and dust required to fill the joints by the tedious and unscientific process of grinding up gravel under the wheels of teams, and sifting the powder into the joints by jarring the blocks with the same vehicles. Experiments in a small way have been made by using cement in place of pitch, without decisive results as yet. Such a compound would have several advantages over pitch, as it would be possible to solidly fill the joints between the stones, and the nuisance arising from heating pitch on the public streets would also be done away with. The difficulty of taking up and replacing pavements laid on a concrete base has not proved so serious in practice as was anticipated, and with suitable and proper precautions should not be a serious objection. From its cost this method is not likely to be adopted in streets not yet built upon, and before any pavement is laid it is only fair play to the pavement that all digging up of the street that can be foreseen should be done, and the trenches thoroughly consolidated. Sufficient attention has not been given to this subject, and notwithstanding the fact that all persons and corporations having interests in the street are notified weeks and months in advance, no sooner does the work begin on a street than numerous applications are at once made for new excavations. Manholes and all covers showing on the surface should be easily adjustable to grade, and should be made of non-perishable material, certainly not of wood, and their form and dimensions and location should be controlled by the Superintendent of Streets. There is great room for improvement in the design and use of these structures.

A large area of sheet asphalt has been laid, and experience continues to show that in the localities for which it is adapted, it is a most admirable pavement. Asphalt blocks have been laid to a small extent this year; they make an ex-



BRICK PAVING, OSWEGO STREET.



cellent surface, but results shown are not favorable for their continued use, due principally to our cold climate.

No brick pavement has been laid. It is probable that brick pavements are better adapted to districts destitute of suitable stone than to Massachusetts, where granite is an important article of commerce.

Two of the three streets paved with brick on a gravel base in 1891 seem to withstand the comparatively light travel to which they are subjected fairly well, but the third street shows a marked tendency to chip at the joints.

In supervising the work of paving, care has been taken to show a smoother and more carefully graded surface than has heretofore obtained. In building a new street with a fall of one or two feet in a hundred, without a street-railroad track and with a preëstablished grade, the work of so laying out the surface as to secure smooth curves, with good surface-drainage, is an easy matter. With an old street, with only an approximation to an established grade, with adjoining buildings at different grades, and with all sorts of sidewalk openings into cellars and areas; with a street warped in every conceivable manner, and to crown all a street railroad running through the centre that must have a good cross section and suitable lines and grades, — the task becomes an engineering puzzle. It is precisely this state of affairs that obtains in the old part of Boston; the grades of the streets within the small limits that apply to surfacing the paving are varied, and as incapable of being reduced to a system as is the ground plan of the same part of the city. The methods pursued previous to the year 1891 have been: first, the street railroad was laid in accordance with the best skill of the railroad engineer, who naturally had the best interests of the road in view. The edgestones and catch-basins were then placed where necessity compelled; the various manholes and other covers were set *about* right, and finally the paver proceeded to set his paving within the limits remaining for his work.

In reversing the process above outlined, and in laying out the work to be done on paper in the first place, as had been done during the years 1891 and 1892, and in insisting that every successive workman should bring his work up to the line and grade given, the task of the engineer has been the usual one of the reformer. Many parts of the work have to be done over and over, from the reason that the workmen have not sufficient skill or inclination to work to line and grade, and that it has not been required of them in the past.

Particularly in laying sheet asphalt on a concrete base has a higher standard of workmanship been called for than ever

before, and this year the sub-grade has been made to templet in all cases in which templets could be used, and in this way almost perfect results have been obtained. On the perfectly level streets of the Back Bay, the central half of the roadway has been made in the shape of a section of a cylinder, with the centre line parallel to the curbstone grade, and the quarters have been made with sets of templets cut to circular curves of different radii, all tangent to the central half, and arranged to fit the gutters, which vary in depth about six inches from catch-basin to summit.

In all contract work, the city furnished all materials except paving-gravel, which was furnished by the contractor, and the price included in the bid. In most cases material furnished by the city was delivered to the contractor on wharves or at city yards. In some cases, paving-blocks were delivered on or in the vicinity of the work under existing contracts; old material removed was delivered by the contractor at some convenient point where the city had use for it; if of no use to the city, it was given to the contractor.

Under the charge of the City Engineer, fifty-six contracts were executed, covering 5.97 miles of street, and costing, inclusive of material and labor furnished by the city, \$435,160.20.

Forty-five thousand one hundred and seventy square yards block paving on gravel base with gravel joints were laid; average cost, \$3.10 per square yard.

Seventeen thousand and eighty-nine square yards block paving on concrete base with pitched joints were laid; average cost, \$4.75 per square yard.

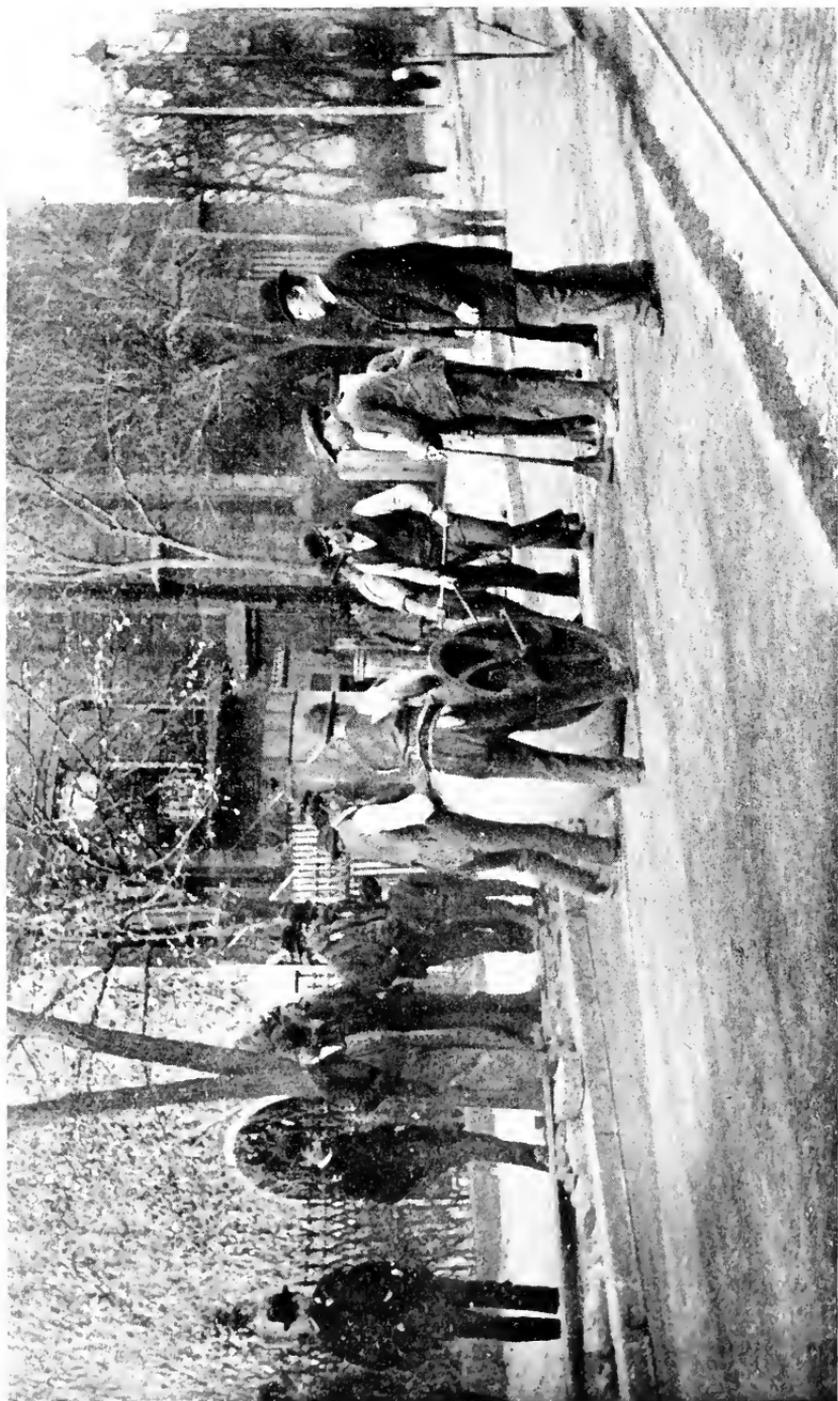
Three thousand three hundred and twenty-nine square yards Sicilian rock asphalt, on Portland concrete base, at a cost of \$3.60 per square yard.

Twenty thousand eight hundred and twenty-nine square yards of Trinidad asphalt paving were laid on concrete base and on old cobble; average cost, with concrete base, \$3.60 (when old base was used, \$2.25).

Thirty-six thousand four hundred and forty-three linear feet of edgestone set; average cost of small amount of new work, including supervision, culling, etc., \$1.30.

Twenty-four thousand three hundred and ten square yards of sidewalk relaid; average cost, new work, \$1.40 per square yard.

Three thousand two hundred and twelve square yards flagging cross-walk; average cost, new work, \$5 per square yard.



ROLLING AND TAMPING SICILIAN ROCK ASPHALT PAVEMENT, BROADWAY, SOUTH BOSTON.

Block asphalt paving on a sand base, 4,232 square yards were laid; average cost, \$3.60 per square yard.

The following table shows the work done on paving, edgestones, sidewalks, etc., for the years 1889 and 1890, compared with the years 1891 and 1892; also the work for the year 1892 separately, and paid for out of both regular and special appropriations:

	1889 and 1890.	1891 and 1892.	1892.
Granite blocks laid and relaid . . .	170,557 sq. yds.	340,356 sq. yds.	142,766 sq. yds.
Edgestones set and reset	149,356 lin. ft.	374,598 lin. ft.	181,146 lin. ft.
Brick walks laid and relaid	58,086 sq. yds.	203,087 sq. yds.	100,512 sq. yds.
Flagging set and reset	31,994 sq. yds.	66,699 sq. yds.	28,625 sq. yds.
Asphalt	10,384 sq. yds.	80,243 sq. yds.	38,557 sq. yds.
Hill gravel	\$106,997 08	\$213,644 20	\$120,492 83
Hill sand	13,589 23	27,570 49	16,166 70
Filling	44,836 61	73,150 15	61,585 30
Stone	58,141 51	203,838 89	94,973 98
Beach gravel	14,671 78	32,086 56	15,491 75
Executions of Court, / Grade damages, etc., }	42,448 32	49,071 16	23,437 51
Watering streets	105,553 92	198,771 42	94,507 80
General repairs	434,665 58	560,954 86	311,109 16

Money Expended.

	1889 and 1890.	1891 and 1892.	1892.
Total amount expended	\$2,113,182 58	\$3,866,943 52	\$1,875,419 24

Edgestones and Sidewalks — New Edgestone. (Lin. ft. set.)

YEAR.	City Proper.	Roxbury.	South Boston.	East Boston.	Dorchester.	West Roxbury.	Brighton.	Charlestown.	Total.
1881 . . .	6,294	8,328	6,304	443	13,112	1,314	263	794	36,852
1882 . . .	3,398	10,930	4,190	2,119	8,235	5,454	5,543	1,595	41,464
1883 . . .	2,763	7,306	4,660	98	2,467	4,381	1,895	. . . .	23,570
1884 . . .	4,691	9,733	6,189	2,450	18,310	4,610	106	696	46,785
1885 . . .	5,291	4,644	2,538	1,333	4,976	1,952	303	546	21,583
1886 . . .	5,790	8,978	2,463	349	11,051	2,451	737	174	31,993
1887 . . .	3,222	10,192	4,269	436	5,229	2,726	2,055	223	28,352
1888 . . .	4,359	5,191	4,531	971	5,051	580	867	. . . .	21,550
1889 . . .	2,946	13,224	2,139	1,419	6,794	10,404	1,845	573	39,344
1890 . . .	2,781	11,475	4,946	981	9,882	3,288	3,042	988	37,383
1891 . . .	8,236	22,693	11,724	4,131	18,138	4,617	2,032	2,227	73,798
1892 . . .	9,222	25,506	9,631	11,238	36,559	9,970	9,001	2,804	114,231
Total .	58,993	138,200	63,584	25,968	140,104	51,747	27,689	10,620	516,905

Brick Sidewalks. (Sq. yds. set.)

YEAR.	City Proper.	Roxbury.	South Boston.	East Boston.	Dorchester.	West Roxbury.	Brighton.	Charlestown.	Total.
1881 . . .	5,207	11,491	3,961	893	337	1,096	381	159	23,525
1882 . . .	5,905	7,510	4,984	1,658	179	1,834	117	887	23,074
1883 . . .	4,392	7,675	4,794	1,095	2,795	3,354	. . . .	177	24,282
1884 . . .	4,870	7,279	4,437	1,616	4,902	954	. . . .	739	24,797
1885 . . .	4,756	3,896	1,473	722	892	479	46	342	12,606
1886 . . .	5,273	5,285	2,112	1,002	2,843	. . . .	58	527	17,100
1887 . . .	5,970	7,693	3,768	1,500	1,348	643	. . . .	56	20,978
1888 . . .	2,540	6,910	3,164	1,110	614	346	. . . .	75	14,759
1889 . . .	4,835	10,489	1,942	1,362	638	124	138	. . . .	19,528
1890 . . .	4,913	7,651	1,915	1,947	1,155	274	900	791	19,546
1891 . . .	3,881	9,098	3,628	2,176	1,478	967	377	120	21,725
1892 . . .	10,423	20,231	4,484	12,847	10,462	2,905	1,068	3,451	65,871
Total .	62,965	105,208	40,662	27,928	27,643	12,976	3,085	7,324	287,791

The cost to the city of Boston of laying the edgestones and brick sidewalks, shown in the foregoing table, from 1881 to 1891, was \$581,230.21.

Of this amount the sum of \$277,698.88 was assessed on the abutters.

Of this sum of \$277,698.88 the sum of \$10,810.48 was abated by order of the Board of Aldermen, \$218,942.62 has been collected, and \$47,945.78 is still uncollected.

The laying of edgestones and sidewalks from 1882 to 1891 was done under the laws of 1882.

Chapter 50 of the Acts and Resolves of that year provided that ". . . the Mayor and Aldermen or Selectmen or Road Commissioners may establish and grade sidewalks in such streets as, in their judgment, the public convenience may require, and may assess the abutter on such sidewalks one-half of the expense of the same. All assessments so made shall be a lien upon the abutting lands, and be collected in the same manner as taxes on real estate."

" . . . The Mayor and Aldermen or the Selectmen, or Road Commissioners, may grade and construct sidewalks and complete partially constructed sidewalks in any street as the public convenience may require, with or without edgestone, and may cover the same with brick, flat stones, concrete, gravel, or other appropriate material, and may assess not exceeding one-half of the expense proportionally upon the abutters on such sidewalks. . . ."

This law, while it had the effect of obliging the abutter on the sidewalk to pay only one-half the cost of the work, and was therefore favorable to him in that respect, provided no special appropriation from which could be defrayed the proportion of the expense which the city of Boston was obliged to assume.

The cost of this work came out of the so-called regular maintenance appropriation of the Street Department, or else out of such special loans for street improvements as were made from time to time by the city government.

On account of the limited amount of money which could be spared for the purpose of constructing edgestones and sidewalks from the maintenance appropriation of the Street Department, the practical effect of the old law was that hundreds of unsatisfied petitions for the construction of sidewalks were on file in the office of the Superintendent of Streets, and these petitions remained on file sometimes for several years before they were granted.

To provide a remedy for this state of affairs and enable all applications to be promptly attended to, the present admin-

istration interested itself in the Massachusetts Legislature to obtain the passage of the following Act.

[CHAP. 401 OF THE ACTS OF 1892.]

AN ACT RELATING TO SIDEWALKS IN THE CITY OF BOSTON.

Be it enacted, etc., as follows :

SECTION 1. The mayor and aldermen of the city of Boston may pass an order that the superintendent of streets of said city may make a sidewalk along any highway or part thereof in said city, specifying in the order the locations, heights, widths, and materials for the sidewalks, and said superintendent shall carry out such order.

SECT. 2. Any expenses incurred for any work so ordered and performed shall be paid out of the moneys appropriated under the provisions of section one of chapter three hundred and twenty-three of the acts of the year eighteen hundred and ninety-one, and shall be repaid to said city as the assessable cost of the work by the owners of the several parcels of land bordering on the part of the highway along which the sidewalk is made; *provided, however*, that if any such parcel is devoted to public use, said city may assume and pay the whole or part of the amount assessed thereto, if said city shall deem proper so to do.

SECT. 3. Said superintendent shall so apportion the said assessable cost to the parcels of land aforesaid that the amount apportioned to each parcel shall bear to the total assessable cost the proportion which the number of lineal feet of each parcel on said highway bears to the number of such lineal feet of all such parcels, and a lien shall attach to the parcel and to any buildings which may be thereon for such amount, as a part of the tax on such parcel. Said superintendent shall give notice of the amount of every such assessment to the owner of the estate assessed therefor, forthwith after the amount has been determined.

SECT. 4. The provisions of sections sixteen, seventeen, and eighteen of chapter three hundred and twenty-three of the acts of the year eighteen hundred and ninety-one and acts in amendment thereof shall, so far as applicable, apply to all assessments made under this act.

SECT. 5. Sidewalks in said city shall hereafter be made and paid for only in accordance with the provisions of this act, the provisions of chapter three hundred and twenty-three of the acts of the year eighteen hundred and ninety-one, and acts in amendment thereof.

SECT. 6. This act shall take effect upon its passage.

Approved June 16, 1892.

Section 2 of the foregoing act provides that the expense shall be defrayed out of money appropriated under the provision of Section 1 of Chapter 323 of the Acts of 1891, as amended by Chapter 418 of the Acts of 1892, commonly known as the "Laying out and Constructing of Highways" act.

Under this act an annual appropriation of not more than one million dollars (\$1,000,000) can be made by the city of Boston for the purpose of laying out and constructing of highways, the constructing of sidewalks, and the constructing of sewers.

This appropriation is not considered in the determination of the authorized limit of indebtedness of the city, and can therefore be made annually by ordinary vote. The practical effect of this law is to provide a large sum of money available for the purposes of sidewalk construction, so that all petitions for this work in the future can be promptly satisfied.

The change in the law by which the abutters, instead of defraying one-half of the cost of the work, are now obliged to defray the whole cost has naturally created some dissatisfaction. This dissatisfaction arises largely from the fact that the citizens of Boston up to the present year have obtained street, sidewalk, and sewer improvements largely at the expense of the general tax-levy.

In no other city in this country is such a method pursued. In many cities the whole expense of the paving of a street, the expense of building the sidewalk, and the expense of the sewer is charged directly on the abutting property. In other cities a proportion varying from one-half to three-quarters of the entire expense is charged to the abutters. This method permits these cities to do enormous amounts of paving, sewer, and sidewalk work, the expense of which is not defrayed from money raised by general tax, but is assessed directly on the abutters. In some cases, where all the work is done by contract, the contractor is paid by certificates issued as a bill against the abutting property, and he is obliged to collect his money directly from the owners.

It is in this way that the financial exhibits of most of the large cities in this country show such a large amount of work done on such a small amount of money raised by taxation, and has led to the frequent criticism, made by persons who know nothing about the subject, that Boston gets less in public works in proportion to the amount raised by general tax than any other city in the United States.

Comparisons purporting to show the amount of work done in the various cities in this country, and citing the amount raised by taxation in the several cities, from which deductions are drawn as to the economical conduct of affairs, are absolutely of no value, as they do not take into account the different methods of doing the work or the financial methods adopted for paying for them.

The previous law concerning the payment by the city of a large proportion of the expense of sewers and sidewalks has had the effect of retarding public improvements of this character, and it is only under the laws of 1892 that improvements of this character can be carried out as fast as they are demanded.

The work done by the department under the sidewalk law during the past year has caused dissatisfaction in some instances. In addition to the general dissatisfaction with a law obliging abutters to pay the whole cost instead of a portion of it, complaints have been made that the assessments charged by the city are excessive; complaint is also made that interest on the cost of the work is added to the assessment from the time of the passage of the "order to build" the sidewalk, instead of from the time of the completion of the work.

In regard to the prices charged by the city for the laying of edgestones and sidewalks, it may be said that the cost of such work depends on the kind and quality of the material used, and the thoroughness demanded in putting it in place. Edgestones can be bought at prices ranging from forty-five cents per lineal foot up to two dollars and a half per lineal foot. For the sum of forty-five cents per foot a poor quality of granite, roughly split out in short lengths and of shallow depth, can be obtained. Edgestone of this description is frequently laid in some of the small country towns. It is unsightly, and, owing to its shallow depth, it is soon thrown out of line by the frost.

For the sum of two dollars and one-half per lineal foot the best quality of granite edgestone, quarried in long lengths, of extra depth, and finely dressed with six-cut work on all exposed surfaces, can be obtained.

The department has adopted specifications for edgestone which call for a kind of edgestone superior to the first quality described above and inferior to the last. This stone is cut at the City Institutions at Deer Island, at a cost delivered on the wharf of \$0.75 per lineal foot; the same kind of stone is bought by contract for \$0.79 per foot. To this cost must be added the charges made for wharfage, teaming to site of work, laying, and incidental expenses.

The cost at which edgestone is furnished and laid is believed to be reasonable, and it is probable that dissatisfaction concerning charges is due more to the increased amount paid under a law assessing the whole cost on abutters than to the feeling that the department does work at an excessive cost.

The same remarks apply to sidewalks, as brick can be purchased from \$8 to \$13 per thousand, and, depending on the quality used, a great difference would be made in the cost of the work. The so-called concrete sidewalks also differ in price. By using a worthless coal-tar in the mixture instead of pitch and asphalt, a cheap sidewalk can be made, which, however, will crack and need repairing inside of two

years. The department has aimed to do the best possible work consistent with charging abutters a fair price.

Concerning the dissatisfaction in regard to the payment of interest on the cost of the work from the time of the passage of the order to build, it would seem that the act does an injustice in this instance. Interest should be computed from the date that the owner is notified of the completion of the work and of the amount of the assessment.

STREET OPENINGS.

Ten thousand six hundred and ninety-six permits were granted during the past year to open streets. The excavations made under these permits aggregate 101.9 miles in length, and show the extent of this work.

The Street Department has been accustomed to grant to the various gas and other companies whose work would in certain cases admit of no delay a so-called "emergency permit," which allowed excavations to be made without special permission being obtained, the only requirement being that a daily return of openings made under this form of permit should be forwarded to the office of the Superintendent.

Two thousand two hundred and thirty-seven openings of an average length of six feet each were made under "emergency permits," for breaks in water and gas pipes which were alleged to require immediate attention. These openings were made under 79 permits.

Numerous cases of misuse of these "emergency permits" have occurred, during such times as it was difficult to obtain the usual permit. After the cold weather had set in, and the fact had been publicly advertised that no permits would be issued except in case of obvious necessity, openings became frequent under the emergency claim, until the Superintendent was compelled to revoke even this form of permit, which was issued originally in the interest of public safety. This action, placing the companies involved at great risk of sudden loss, brought about immediate changes in the course pursued by them, and led to the guarantee on their part that no such violations should occur in the future.

It may here properly be mentioned that real-estate owners are extremely careless in providing sewer and water connections for their several buildings, both old and new, in streets that are advertised to be improved and regulated, and frequently call for a permit to open for gas, water, or sewer connections soon after the department has put down a permanent pavement. It is believed that this trouble will remedy itself in time, as the public is gradually finding out

the difficulty of obtaining permits where the department has recently done work.

STREET HAWKERS AND PEDLERS.

Section 35 of Chapter 43 of the Revised Ordinances of 1892 provides "that no person shall, except in accordance with the permit of the Superintendent of Streets, in any streets or from any building, sell any goods or article, to any person on the street, or in any street place or permit to remain for more than ten minutes any goods or article of which he is the owner or in charge, or while on foot carry and display in any street any show-card, placard, or sign."

On March 29, 1892, the police force began to strictly enforce this ordinance by ordering all pedlers off the city streets, with the immediate result of causing to appear at the office of the Superintendent of Streets throngs of street-pedlers, including newsboys, bootblacks, and juvenile pedlers of all kinds, to make application for the necessary permit. It having been decided by the City Solicitor that newsboys, bootblacks, and juvenile pedlers were clearly exempted from this ordinance, and were subject to special license from the Board of Aldermen, this class was provided for in the usual way and dropped out of consideration of the Street Department altogether.

As it was impossible for the department to issue permits at once to this throng of applicants, a temporary suspension of the sweeping order of the police was conveniently arranged by the acting Mayor, in order to give time for the classification and arrangement of the various permits.

After consultation with the Corporation Counsel and City Solicitor, it was decided to issue the following permits:

Class No. 1. — Hawkers' and pedlers' permit to sell from vehicles.

Class No. 2. — Hawkers' and pedlers' permit to sell from receptacles.

Class No. 3. — Permit to sell from a building.

Class No. 4. — Permit to sell from an area.

Class No. 5. — Permit to occupy a portion of sidewalk.

CLASS NO. 1.—TO SELL FROM VEHICLES.

Permits in Class No. 1 do not apply between the hours of 6.30 A.M. and 8 P.M. to the following streets: Haymarket square, Sudbury street Court street from Sudbury street to Scollay square, Scollay square, Tremont street from Scollay square to Eliot street, Eliot street from Tremont street to Washington street, Washington street from Eliot street to Franklin street, Franklin street from Washington street to Devonshire street, Devonshire street from Franklin street to Milk street,

Milk street from Devonshire street to Pearl street, Post-Office square, Water street from Congress street to Devonshire street, Devonshire street from Water street to Washington street, State street from Merchants row to Devonshire street, Washington street from Adams square to Haymarket square, or any of the streets or squares included within the territory bounded as above described.

This permit is granted upon the condition that the said person to whom it is granted shall not sell goods or articles within twenty-five feet of a shop or store where like goods are sold, and shall comply with all the laws of the Commonwealth, the ordinances of the city of Boston, the regulations of the Board of Aldermen, and the regulations of the Street Department; and any infraction thereof shall be deemed a sufficient cause for the revocation of this permit.

This permit may be revoked by the Superintendent of Streets for cause at any time, and will not be renewed for six months after revocation.

Street Department Regulations.

The Superintendent of Streets will issue permits to sell goods and merchandise in the streets of Boston, other than the streets mentioned in this permit, to all persons who (unless they are exempt from the payment of a license fee under sections 7, 8, and 9 of chapter 68 of the Public Statutes) present satisfactory evidence that they have paid the City Treasurer of Boston the license fee prescribed by section 6 of chapter 68 of the Public Statutes.

Each permit is to be numbered, and the holder thereof is required to post the number of his State license upon the vehicle from which he sells, as required in section 13 of chapter 68 of the Public Statutes, which reads as follows: "Every person licensed to peddle as hereinbefore provided shall post his name, residence, and the number of his license in a conspicuous manner upon his parcels or vehicle; and when his license is demanded of him by a mayor, alderman, selectman, town or city treasurer or clerk, constable, police officer, or justice of the peace, he shall forthwith exhibit it, and, if he neglects so to do, shall be subject to the same penalty as if he had no license." And also to post in the same manner the number of his city permit; and he shall at all times have his permit with him, and shall produce the same when demanded by any authorized person for inspection.

This permit is granted on the condition that the person to whom it is issued shall gather up and dispose of all refuse matter or litter created by the selling of his wares; failure to observe which regulation will be sufficient cause for the revocation of this permit.

CLASS NO. 2.— TO SELL FROM RECEPTACLES.

Permits to sell from receptacles do not apply between the hours of 6.30 A.M. and 8 P.M. on the following streets:

West street, Temple place, Winter street, Bromfield street, Bosworth street, School street, Court street from Tremont street to Washington street, State street from Washington street to Merchants Row, Tremont street from Court street to Boylston street, and Washington street from Court street to Boylston street.

This permit is granted upon the condition that the said person to whom it is granted shall not sell goods or articles within twenty-five feet of a shop or store where like goods are sold, and shall comply with all the laws of the Commonwealth, the ordinances of the city of Boston, the regulations of the Board of Aldermen, and the regulations of the Street Department; and any infraction thereof will be deemed a sufficient cause for revocation of this permit. This permit may be revoked by the Superintendent of Streets for cause at any time, and will not be renewed for six months after revocation.

Street Department Regulations.

The Superintendent of Streets will issue permits to sell goods and merchandise in the streets of Boston, other than the streets mentioned in this permit, to all persons who (unless they are exempt from the payment of a license fee under sections 7, 8, and 9 of chapter 68 of the Public Statutes) present satisfactory evidence that they have paid the City Treasurer of Boston the license fee prescribed by section 6 of chapter 68 of the Public Statutes.

Each permit is to be numbered, and the holder thereof is required to post the number of his State license upon the receptacle from which he sells, as required by section 13 of chapter 68 of the Public Statutes, which reads as follows: "Every person licensed to peddle as hereinbefore provided shall post his name, residence, and the number of his license in a conspicuous manner upon his parcels or vehicles; and when his license is demanded of him by a mayor, alderman, selectman, town or city treasurer or clerk, constable, police officer, or justice of the peace, he shall forthwith exhibit it, and, if he neglects or refuses so to do, shall be subject to the same penalty as if he had no license." And also to post in the same manner the number of his city permit; and he shall at all times have his permit with him, and produce the same when demanded by any authorized person for inspection.

This permit is granted on the condition that the person holding it shall gather up and dispose of all refuse matter or litter created by the selling of his wares; failure to observe which regulation will be sufficient cause for the revocation of this permit.

This permit is issued on the express condition that all goods are to be carried on the person, or on receptacles attached to the person, and that said receptacles shall in no case be deposited on the street while selling goods.

CLASS NO. 3.—TO SELL FROM A BUILDING.

This permit allows to sell from the first story or basement of prescribed premises to persons on the street.

It is granted upon condition that the said person to whom this permit is granted is the lessee of the premises, and in conducting said business shall comply with all the laws of the Commonwealth, the regulations of the Board of Aldermen, and the regulations of the Street Department; and any infraction thereof will be deemed a sufficient cause for the revocation of this permit. This permit may be revoked by the Superintendent of Streets for cause at any time, and it will not be renewed for six months after revocation.

Street Department Regulations.

This permit will be granted only to persons who are tenants of the first story or basement of the buildings from which they sell, and who are taxpayers of the city of Boston, and upon the express condition that the person to whom it is issued shall keep the street within fifty feet of his premises free from all refuse paper and litter created by the sale or handling of his wares.

This permit must be shown to police officers, or any authorized person on application.

Failure to observe these regulations will be a sufficient cause for the revocation of this permit.

CLASS NO. 4.—TO SELL FROM AN AREA.

This permit allows the holder to sell from the area between the highway and the building to persons on the street.

It is granted upon the condition that the said person to whom this permit is granted is the lessee of the premises, and in conducting said business shall comply with all the laws of the Commonwealth, the regulations of the Board of Aldermen, and the regulations of the Street Department; and any infraction thereof will be deemed a sufficient cause for the revocation of this permit. This permit may be revoked by the Superintendent of Streets for cause at any time, and it will not be renewed for six months after revocation.

Street Department Regulations.

This permit will be granted only to persons who present to the Superintendent the written request of the owner of the area from which they sell that this permit be granted, and upon the express condition that the person to whom it is issued shall keep the street within fifty feet of his premises free from all refuse paper and litter created by the sale or handling of his wares.

This permit will be revoked at any time on the written request of the owner of the area.

This permit must be shown to police officers or any authorized person on application.

Failure to observe these regulations will be a sufficient cause for the revocation of this permit.

CLASS NO. 5. — TO OCCUPY PORTION OF SIDEWALK.

Permission is given under this permit to occupy a portion of the sidewalk in front of the prescribed number *for more than ten minutes at a time*, providing that the space mentioned be used for the proper receipt and delivery of goods, and not for storage purposes. It is also agreed that the said firm shall maintain an open passage between the building and the street, and will be responsible for any damage which may occur by reason of the occupancy of the sidewalk under this permit. It is also agreed that the said firm shall keep the street and sidewalk as above described in clean condition, and free from litter of any kind.

This permit may be revoked at any time, at the discretion of the Superintendent of Streets.

The prohibiting of peddlers in the down-town retail districts of the city caused considerable excitement among peddlers, who through their various organizations endeavored to have the restrictions removed. The department, however, stood firm in the matter and refused to reconsider the regulation which had been adopted.

The result of issuing these permits has been to free the retail district of what has been considered the greatest of nuisances to pedestrians and the public generally, who formerly were besieged at every step to stop and trade on the street, thus blocking off travel in either direction and leading to much confusion and annoyance.

In general it has served to open up the sidewalks to the use of the travelling public, for whom they were originally made, while at the same time the restrictions are such as to give the abutting merchants a proper use of their immediate sidewalk as far as necessary for the proper conduct of their business. Favorable comment on the improved condition

of the streets and sidewalks on account of the present arrangement has been received from leading merchants and tradesmen.

SPECIAL PERMITS.

Special permits are granted to temporarily obstruct the sidewalk and the prescribed feet of roadway in front of premises for the purpose of clearing snow and ice from the roofs of buildings. This permit is issued and accepted upon condition that the person accepting it shall in all respects conform to the statutes and ordinances of the city of Boston and the specifications of this permit; that any violation of the above shall work an immediate revocation of this permit; shall place sufficient barriers around the space so occupied, and, if at night, proper lights sufficient to protect travellers from injury.

That the person to whom this permit is granted shall indemnify and save the city harmless from any damages it may sustain or be required to pay by reason of doing the work covered by this permit.

PERMIT TO FEED AND BAIT HORSES.

Permit to feed or bait horses on the streets of Boston is given except upon the following-named streets: West street, Temple place, Winter street, Bromfield street, Bosworth street, School street, Court street from Tremont street to Washington street, State street from Washington street to Merchants Row, Tremont street from Court street to Boylston street, Washington street from Court street to Boylston street, Beacon street from Tremont street to Park street, Park street from Tremont street to Beacon street, Boylston street from Tremont street to Charles street, Summer street from Washington street to Lincoln street, Bedford street, Franklin street from Washington street to Hawley street, Milk street from Washington street to Federal street, Water street, Devonshire street from State street to Dock square, provided said feeding and baiting does not continue longer than twenty minutes.

This permit is granted upon the condition that the said person to whom this permit is granted has a wagon license from the Board of Police, or satisfies the Superintendent of Streets that it is impossible for him to bait on private land, and shall comply with all the laws of the Commonwealth, the regulations of the Board of Aldermen, the Board of Police, and the regulations of the Street Department; and any infraction thereof will be deemed a sufficient cause for the revocation of this permit. This permit may be revoked by the Superintendent of Streets for cause at any time, and it will not be renewed for six months after revocation.

Street Department Regulations.

This permit will be granted upon the express condition that the person to whom it is granted shall provide some proper person to stand by and care for the said animal while being fed, or shall properly secure the said animal, and shall in all cases lock the wheels of the vehicle to prevent its getting beyond said person's control.

Also upon the condition that the person to whom it is issued shall keep the street free from all refuse or litter created by the said feeding and baiting.

This permit may be revoked at any time, on the written request of the owner of the buildings or estate in front of which said feeding is done.

This permit must be shown to police officers, or any authorized person, on application.

Failure to observe these regulations will be a sufficient cause for the revocation of this permit.



GRANITE-BLOCK PAVING, WASHINGTON STREET.

The number of permits to feed horses upon the streets issued to date is 1,430.

The report of the Deputy Superintendent of the Paving Division shows the actual number of permits that have been issued in each of the various classes.

The following statement of the City Engineer contains the main features of the special work assigned to him by this department for engineering supervision :

CITY OF BOSTON, ENGINEERING DEPARTMENT,
50 CITY HALL, February 1, 1893.

MR. H. H. CARTER,

Superintendent of Streets:

SIR: I herewith submit the following report of the work done under my direction for your department :

A statement of the street-paving work done by contract has been arranged in tabular form, and two sheets accompanying this report show the details of the work and the prices paid for doing the same.

As was explained at greater length in the report of last year, the averages given have only a general value, as each piece of work done varies from the others in essential particulars.

The specifications for granite blocks vary from those of last year in the length of the block called for, the length this year being from 9 to 14 inches, to average $11\frac{1}{2}$ inches, instead of — as last year — 8 to 12 inches, to average 10 inches.

As a result of the change, about 23 blocks per square yard have been used, instead of about 25 as laid last year; but very few small blocks were used.

Under 56 agreements 5.97 miles of streets have been paved at a cost of \$193,595.85 paid to the contractors, and at a total cost to the city, including the material and labor furnished by the Street Department, of \$435,160.20.

The following are the principal items of work done: Block-stone paving on a concrete base laid with pitch joints, 17,089.6 square yards, at an average cost of about \$4.75 per square yard. Block-stone paving on a gravel base laid with pitch joints, 2,282 square yards, at an average cost of about \$3.70 per square yard. Block-stone paving on a gravel base with gravel joints, 45,170 square yards, at an average cost of about \$3.10 per square yard. Trinidad sheet asphalt on a concrete base and on an old cobble-stone paving base, 20,829 square yards, at an average cost of about \$3.60 per square yard. Sicilian sheet asphalt on a concrete base, 3,329 square yards, at an average cost of about \$3.60 per

square yard. Asphalt block pavement on a sand base, 4,232 square yards, at an average cost of about \$3.25 per square yard.

Edgestone set, 36,443 lineal feet.

Brick sidewalks relaid, 24,310 square yards.

Flagging cross-walks laid, 3,212 square yards.

The following is a description of the paving done. The details of cost and quantities are shown in a tabular statement.

ATHENS STREET.

Athens street, from B street to C street, South Boston, was paved by H. Gore & Co., with Sicilian rock asphalt, on a Portland cement concrete base. The old macadam surface was utilized on neighboring streets, and the old cobble-stones from the gutters were hauled to the Broadway crusher; edgestones, flagging, and paving-bricks were delivered on the street by the city. Two new catch-basins were built.

BEACON STREET.

Beacon street, from Dartmouth street to Gloucester street, was paved with sheet asphalt on a concrete base, by the Barber Asphalt Paving Co., excepting about 150 feet in length at Gloucester street, which was paved with Hastings asphalt blocks laid on a gravel base by the Metropolitan Construction Company. The surface removed was macadam. The road-bed was prepared by the regular force of the Street Department, which also disposed of the surplus material. The concrete base was laid by the Metropolitan Construction Company. During the work the 40-inch main water-pipe across the old inlet sluices of the full basin of the Boston Water Power Company was uncovered. It was formerly carried in a heavy wooden box for about 150 feet in length, supported by the old stone piers at intervals of about 25 feet. It had been buried for many years, and the wooden trusses were in bad condition, the old wooden box was removed, and piles were driven and capped between the old piers to support the pipe; the excavation was refilled with the old road material. Edgestones were reset by F. H. Cowin & Co., and the brick sidewalks were relaid by F. H. Cowin & Co. and James Grant.

BORDER STREET.

Border street, from White street to Condor street, East Boston, was paved by H. Gore & Co., with granite blocks on a gravel base. The old surface was of macadam, which

was delivered with the surplus material on other streets within a distance of one mile. Blocks, edgestone, flagging, and paving-bricks were delivered on the street by the city.

The retaining-wall on and near Condor street was partially rebuilt, and built to grade, as a part of the same contract. A substantial iron fence was built on the line of the wall by George T. McLauthlin & Co. Three new catch-basins were built.

Border street, from North Ferry to Sumner street, East Boston, was paved by A. A. Libby & Co., with the old granite blocks on a gravel base. The street-railway tracks were relaid, and the foot-walks rearranged to correspond to the relocation of the ferry entrances. The surplus earth was disposed of by the contractor. New blocks, edgestones, flagging, and bricks were furnished by the city on the ground. Two catch-basins were filled up, and one new one was built.

BOYLSTON STREET.

Boylston street, from Church street to Arlington street, was paved with granite blocks on a gravel base, with pitch joints, by J. Doherty & Co. The old surface was of macadam, which was removed and delivered within one mile where required. The new stone blocks, edgestone, and flagging furnished by the city were hauled by the contractors from the Albany-street yard, and paving-bricks were delivered by the city on the work. One new catch-basin was built.

BROADWAY.

Broadway from A street towards Dorchester avenue, South Boston, was paved with Sicilian rock asphalt on an American cement concrete base, by the National Construction Co. The former surface was paved with granite blocks, which were hauled to Seventh street between D and E streets, and to Sixth street between M and O streets, and the surplus material was taken to Vale street. Edgestones and bricks were delivered on the work by the city.

BRIGHTON STREET.

Brighton street, from Allen street to Leverett street, was paved by the Barber Asphalt Paving Co. with Trinidad sheet asphalt laid on the old cobble-stone pavement. The old pavement was partly relaid, and the remains of a former asphalt covering removed in part. A partial base or binder course of coal-tar concrete was laid over the old pavement. The sub-grading was done and the sidewalks put in order by P. W. Hernan.

CABOT STREET.

Cabot street, from Ruggles street to Vernon street, was paved by the Barber Asphalt Paving Co., with Trinidad asphalt on an American cement concrete base. The old street surface was of macadam. The sub-grading was done by the Street Department. The concrete was laid by the Metropolitan Construction Co., and the sidewalks and edgestones were relaid by T. Payson. One new catch-basin was built.

CHARDON STREET.

Chardon street, from Bowdoin square to Merrimac street, was paved with granite blocks, with pitch joints, on a concrete base, by Jones & Meehan. The old surface was paved with cobble-stones. The surplus earth was disposed of by the contractors. Paving-blocks, edgestones, and flagging were furnished by the city at the West yard on Commercial street, and the paving-bricks were delivered on the work. This street was paved with a special stone block, which was about one inch less in depth than the standard block. One new catch-basin was built.

CHARLES STREET.

Charles street, from Beacon street to Pinckney street, was paved by J. Doherty & Co., with granite blocks, laid with pitch joints on a concrete base. The old paving was of granite blocks, which were culled and the best used in the new work. The surplus blocks were removed by the Street Department. The sub-grading, from Beacon to Mt. Vernon street, was done by the Street Department. The remainder of the sub-grading was done by J. Doherty & Co., who disposed of the useless and surplus material. The concrete base was laid by the Metropolitan Construction Co. Edgestones and sidewalks were laid by J. Grant, paving-blocks, flagging, and paving-bricks were furnished by the city.

CHERRY STREET.

Cherry street, from Shawmut avenue to Washington street, was paved by the Barber Asphalt Paving Co., with Trinidad sheet asphalt laid on an American cement concrete base. The former surface was of macadam. The sub-grading was done by J. Casey. The concrete base was laid by the Metropolitan Construction Co., and the sidewalks were put in order by the Street Department.

DAVIS STREET.

Davis street, from Washington street to Harrison avenue, was paved with Trinidad sheet asphalt, on an American cement concrete base, by the Barber Asphalt Paving Co. The former surface was of macadam. The sub-grading was done by the Street Department. The concrete base was laid by the Metropolitan Construction Co., and the sidewalks were put in order by D. Sullivan.

DECATUR STREET.

Decatur street, from Washington street to Harrison avenue, was paved by H. Gore & Co. with Sicilian rock asphalt, on an American cement concrete base. The former surface was of macadam. The sub-grading was done by the Street Department. The concrete base was laid by the Metropolitan Construction Co., and the sidewalks put in order by P. W. Hernan.

DORCHESTER AVENUE.

Estimates were made early in the year for putting this avenue in order from South Boston line to Adams street, Dorchester, and a large amount of work has been done upon it. From Washburn street to Pond street both sides of the street between the curb and the railway track have been paved. From Pond street to Belfort street the westerly side of the street has been paved, the easterly side being already paved. From Belfort street to Adams street the avenue was already paved on both sides. From Adams street to Park street the avenue has been paved on both sides of the street-railway track. From Park street to Ashmont street the avenue has been graded, a new double street-railway track laid, and the roadway on the easterly side of the track paved. On the westerly side of the track, the old macadam surface was in fair condition from Park street to Centre street, and it was repaired and put in order; from Centre street to Ashmont street a new "Telford-Macadam" road has been built on the westerly side of the street. All the paving has been made of granite blocks on a gravel base, and there is now a continuous paved roadway from the city to Ashmont street. From Ashmont street to Richmond street a new single street-railway track, being the easterly section of a future double track, has been laid. The street was graded, a heavy rock cut was made near Richmond street, and a heavy fill made, with slopes covering the old retaining-walls, in the valley between Codman and Rich-

mond streets. This section of the avenue was finished with a "Telford-Macadam" surface, the stone from the rock cut being utilized for this purpose. The improvement has been carried to a point about three hundred feet beyond Richmond street; beyond that point, in the short distance to Adams street, another heavy rock cut will be required before the improvements are completed. The block paving was done by H. Gore & Co. and C. J. Coates, and portions of the street were graded by M. Donnellan, J. J. Sullivan, and J. McGovern. The rock work, Telford road-making, and a large part of the grading, was done by the Street Department. Eleven new catch-basins were built.

ELIOT STREET.

Eliot street, from Washington street to Pleasant street, was paved with granite blocks on a concrete base, by C. B. Payson & Co. The old pavement was of granite blocks, which were relaid on Stanhope, Pleasant, and other streets. The surplus earth was delivered on Huntington avenue, beyond Gainsborough street. New granite blocks, edgestones, and flagging were furnished by the city at the Albany-street yard, and the bricks were delivered on the work. The street-railway track was relaid and paved with the old granite blocks on a gravel base, and the space between the double tracks was paved with new granite blocks on a gravel base. Two new catch-basins were built.

EUSTIS STREET.

Eustis street, from Washington street to Dearborn street, was paved with granite blocks on a gravel base, by A. A. Libby & Co. The old surface was of macadam with cobble gutters. The old cobble-stones were delivered at the Dimock-street crusher, and the surplus material was used on streets within one-half mile. Granite blocks, edgestones, and flagging were furnished by the city at the Albany-street yard, and the paving-bricks were delivered on the ground. Two new catch-basins were built.

FLORENCE STREET.

Florence street, from Washington street to Harrison avenue, was paved by the Metropolitan Construction Co., with Hastings asphalt blocks on a 4-inch American cement concrete base. The former surface was of macadam. The sub-grading was done by the Street Department, and the sidewalks were put in order by D. Sullivan.

INDIA STREET.

India street, in front of the Custom-house, was paved by J. Doherty & Co., with granite blocks laid with pitch joints, on a concrete base. The old paving, of large granite blocks about one foot square, was removed by J. J. Sullivan, and the sub-grading was done by the Street Department, and the concrete base was laid by H. P. Nawn. The edgestone, flagging, and sidewalks were relaid by J. Doherty & Co. The granite blocks, edgestone, flagging, and bricks were furnished on the ground by the city.

KEMBLE STREET.

Kemble street, from Gerard street to Magazine street, was paved by Collins & Ham, with granite blocks on a gravel base. This was an ungraded street; it was graded by the contractors, and the surplus material was delivered to the city on East Chester Park extension, to abate a nuisance caused by standing water. Stone blocks, edgestones, and flagging were delivered to the contractors by the city at the Albany-street yard, and paving-bricks were delivered on the ground. Two new catch-basins were built.

From Gerard street to Hampden street the street was partially paved by the same contractors, under an extension of their contract. Work was stopped by cold weather, and the time for finishing it has been extended to allow of its completion in the spring. Four additional catch-basins were built.

MOTTE STREET.

Motte street, from Washington street to Harrison avenue, was paved by H. Gore & Co., with Sicilian rock sheet asphalt laid on an American cement base. The former street surface was of macadam. The sub-grading was done by the Street Department, the concrete base was laid by H. P. Nawn, and the sidewalks put in order by F. H. Cowin & Co.

PRENTISS STREET.

Prentiss street, from Tremont street through Hallock street, was paved by H. Gore & Co., with granite blocks on a gravel base. The old surface was of macadam. The surplus material was delivered where required within one-half mile, and the old cobble gutter-stones were delivered to the Tremont-street crusher. Paving-blocks, edgestones, and flagging were furnished by the city at the Albany-street yard; the bricks were delivered to the contractor on the street.

RUTHERFORD AVENUE.

Rutherford avenue, from Essex street to Allen street, was paved with granite blocks on gravel by J. Turner & Co. The roadbed was prepared and all materials were furnished by the Street Department. Eight new catch-basins were built.

SCHOOL STREET.

School street, from Washington street to Tremont street, was paved by C. B. Payson & Co. with granite blocks, with pitch joints, on a concrete base. The old surface was paved with granite blocks, which were all removed, with the surplus material, by H. P. Nawn. The concrete base was laid by the Metropolitan Construction Company. Granite blocks were specially prepared for this work; the granite blocks, edgestones, flagging, and bricks were delivered on the ground.

WASHINGTON STREET.

Washington street, from Cornhill to Essex and Boylston streets, was paved by Jones & Meehan (excepting a small portion by C. B. Payson & Co.) with granite blocks, with pitch joints, on a concrete base. The old surface was granite block paving, which was hauled to Dorchester avenue, beyond Field's Corner. The surplus earth was disposed of by the contractors; part of it was hauled to the South Boston flats, and a part to the vicinity of Huntington avenue. The stone blocks were furnished by the city at the Boston Wharf Company's wharf on Fort Point channel; edgestone and flagging were furnished by the city at the Albany-street yard; the bricks were delivered on the work.

The street railroad was entirely rebuilt by the West End Company, with an improved rail. The paving between the rails is of the same quality, including the concrete foundation, as the rest of the street, and the tracks were laid to a grade conforming with the new street surface. Ten new catch-basins were built, giving much better surface drainage than before.

WEST CHESTER PARK.

West Chester Park from Columbus avenue to Tremont street, on the northerly side of the central parkway, was paved with Hastings asphalt blocks, on a gravel base, by the Metropolitan Construction Company. The former surface was of macadam; the sub-grading was done and the sidewalks put in order by the Street Department.



GRAHTE-BLOCK PAVING -- PITCHING JOINTS -- WASHINGTON STREET.

WEST CHESTER PARK AND CHESTER SQUARE.

West Chester Park and Chester square, from Columbus avenue to Washington street, on the southerly side of the central parkway, was paved by the Barber Asphalt Paving Company with sheet asphalt, on an American cement concrete base. The sub-grading was done by the Street Department, the concrete base was laid by the Metropolitan Construction Company, and the edgestones and sidewalks were put in order by the Street Department.

WEST NEWTON STREET.

West Newton street, from Shawmut avenue to Washington street, was paved by the Metropolitan Construction Company with Hastings asphalt blocks, laid on a sand base. The former surface was of macadam. The sub-grading was done by the Street Department, and the sidewalks were put in order by P. W. Hernan.

WEST SECOND STREET.

West Second street, from B street to E street, South Boston, was paved by H. Gore & Co. with granite blocks, on a gravel base. The old surface was of cobble-stone paving. The cobble-stones were sold to the city of Cambridge, and the surplus material was used to fill streets on the South Boston flats. Granite blocks were furnished by the city at the L-street extension, the edgestones and flagging at the Albany-street yard, and the paving-bricks were delivered on the street. Three new catch-basins were built.

COMMONWEALTH AVENUE.

The plans, specifications, and form of contract for filling the additional width of Commonwealth avenue, between Pleasant street and the forks of the road at the corner of Beacon street, not including a section at the Cottage Farm bridge, were prepared early in the year, and a contract dated May 4, 1892, was made with the Boston Contracting Company for furnishing and delivering about 136,000 cubic yards of clean filling, at the rate of 49½ cents per cubic yard. The material has been taken from a hill in Brookline near Harvard avenue, a short distance from the corner of Commonwealth avenue and Brighton avenue. A standard gauge track was laid, and February 1, 1893, about 76,000 cubic yards of material, measured in the fill, had been delivered on the avenue. Between Cottage Farm bridge and Pleas-

ant street, on the marsh, the mud proved to be deep and soft, and a very large displacement took place, probably amounting to 14,000 cubic yards or more.

The contract required the material to be measured in the fill, and owing to the large quantity of filling required to make good the displacement of the mud, for which no payment could be made under the contract, work was discontinued by the contractors. The City Council, however, authorized the payment of the sum of \$7,000 on account of the displacement, the contract was modified so that the city pays the contractors, for moving the material only, the sum of 37 cents per cubic yard measured in the fill, the owners of the gravel bank being paid by the city $12\frac{1}{2}$ cents per cubic yard for the filling measured in the bank, and the contractors resumed work. Under the original contract with the Boston Contracting Company, 46,640 cubic yards were measured and paid for; under the modified contract 29,542 cubic yards had been delivered to February 1, 1893.

PLANS.

The Street Department has turned over to the care of this department a set of sectional plans covering a large part of the city, and known as "Sidewalk Plans." They are intended to show all structures, whether covered or exposed, and whether belonging to private corporations or to the city, existing in every street. The set is imperfect, and is so many years behind in its corrections as to be of little use. The engineering force, not otherwise occupied, has been employed in an attempt to bring this set of plans up to date.

As the information must be sought for largely on the street itself, progress is necessarily very slow, and the present available force will never be able to bring all the plans up to date at the same time. It is hoped, however, that a system may be arranged by which all changes shall be a matter of record when they are made, and the task of keeping up the plans thus be one of compilation only, after they are once brought up to date. The work can then be carried on in the winter, and the larger part of the force required for summer work kept employed, and skilled men be available when the active season for out-of-door work opens. This set of plans will be of great value when completed, and carefully corrected once a year.

TABLES.

The tables showing the lengths of accepted streets and the areas of various kinds of pavement have been corrected to

February 1, 1893. (See pages 37 and 38.) The streets laid out as highways during the year by the Street Commissioners have been added, those discontinued deducted, and the changes in the character of surfaces of the streets have been compiled.

L-STREET BRIDGE. — ABUTMENT.

The contract for building the abutment of L-street bridge, which was let to Perkins & White under date of October 28, 1891, was completed in November, 1892, at a cost of \$6,231.71.

L-STREET BRIDGE. — RETAINING-WALLS.

A contract for building two retaining-walls between the abutment and the bulkhead built in 1891, and filling the space enclosed, was awarded to Thomas A. Rowe, of Boston. Work was commenced July 19, 1892, and completed in November, at a cost of \$9,824.73.

MALDEN BRIDGE. — DRAW.

This draw has been entirely rebuilt during the year, under a contract with Josiah Shaw, of Somerville. The draw is of the same form and general dimensions as the old one, and rests on a new turn-table. The foundations were also rebuilt, all the work above the piles being new, and twelve new piles were driven.

ROXBURY CANAL. — SEA-WALL.

Plans and specifications were made in April, 1891, for building a sea-wall on Roxbury Canal at the Albany-street paving-wharf, similar to that built at the wharf of the Water Department in 1888. The work was advertised October, 1892.

October 22 a contract was made with Thomas A. Rowe, of Boston, for building the wall, and it was completed January 9, 1893, at a cost of \$12,657.

Respectfully submitted,

(Signed)

WILLIAM JACKSON,
City Engineer.

STREET-WATERING.

In the last annual report, the subject of street-watering was treated at considerable length. Among other matters considered was a proposed ordinance which would allow of the city's taking advantage of Chapter 179 of the Acts and Resolves of 1891, Section 1 of which reads: "Any city, the population of which exceeds 30,000, may annually appropriate money to water all or any of the public streets within its limits, or it may determine that such streets shall be watered in whole or in part at the expense of the abutters thereon."

As the amount of money required to water all the streets of Boston would involve the expenditure of about \$250,000, and as it was impossible to devote such a large sum to this purpose from the limited appropriations made by the City Council under the \$9 tax limit, it was thought desirable to frame an ordinance which would allow of the streets being watered entirely at the expense of the abutters.

Section 25 of the proposed ordinance (which was printed in full in the last report) provided that "The cost of watering shall be paid as follows: The cost of administration shall be borne by the city; all other expenses for watering, actually incurred in a given district, shall be assessed as a special tax in favor of the city by the Superintendent of Streets, on the adjoining property fronting on the streets so watered in said district, in the proportion that the approximate frontage of each lot bears to the total number of linear feet of all property so watered in the district under consideration," etc. The ordinance further provided that special tax-bills which were to be a lien on property were to be issued, and the proceeds placed to the credit of the Street Department to pay for the cost of watering.

This system is the one in vogue in St. Louis, Rochester, and many cities and towns throughout the country. The proposed method for paying for this work involved such a radical change, however, that, before taking any action, it was deemed advisable by the Committee on Ordinances having the matter in charge to give public hearings, and accordingly two were held, one on February 10, the other on February 17, 1892, both of which were well attended, and proved highly interesting. The testimony taken at these hearings, which was voluminous, and in itself

constitutes a treatise on street-watering (City Document 44, 1892), was carefully considered by the Committee on Ordinances, and in the Board of Aldermen on March 28, 1892, the following report was submitted :

IN BOARD OF ALDERMEN, March 28, 1892.

The Committee on Ordinances, to whom were referred so much of the Mayor's inaugural address as relates to street-watering, and several orders relating to the same, having considered the matter, have the honor to report as follows :

Realizing the importance of the subject submitted to your committee, public hearings were had, which were well attended. His Honor the Mayor, the Superintendent of Streets, and many taxpayers were present. Several citizens represented by counsel objected strongly, not only to the present method of watering streets by the city and voluntary private subscription, but also to the plan of assessing the cost upon the abutters according to the frontage of their estates, as proposed in an ordinance submitted by the Superintendent of Streets.

The assessment authorized by Chapter 179 of the Acts of 1891 was strenuously objected to, especially by the owners of estates in the suburbs, where the average frontages are great and the value comparatively small. The owners of unimproved property felt that any assessment would be a hardship upon them. The system hitherto in vogue among contractors of levying assessments on the abutters under the subscription plan has been unsatisfactory, and is open to abuses. The public demand that the streets shall be properly watered, and your committee deem this a duty devolved upon the city as much as that of street repairs, street-cleaning, etc. It is as necessary and desirable that the streets shall be properly sprinkled as swept, and it would seem to be the duty of the city to do both at the expense of the citizens generally. Only \$100,000 has been appropriated this year for street-watering, and to obtain a larger sum than this, additional money must be transferred from some other appropriation; and under Chapter 206 of the Acts of 1891 no money can be borrowed for what is obviously a current expense, unless the necessity of the case will justify the Mayor in so certifying within the meaning of the Act. If some assessment plan is thought desirable for the purpose of increasing the funds available for current expenses, your committee is of the opinion that it might be applied to a greater extent to matters of street construction, as the laying of sewers, sidewalks, and pavements, where the benefit accrued is more peculiarly to the individual abutter, and is of a permanent nature.

Some of the drain upon the street-watering appropriation might be lessened if the paved streets in the business portion of the city were swept more frequently than they are. The value of street-sprinkling is not so much to have a wet surface, but to keep the dust and refuse upon the highways from blowing about, becoming a nuisance, and impairing the health of the citizens.

Your committee, therefore, report that it is inexpedient to pass any ordinance at this time to levy an assessment in accordance with the authority given to the city by the Legislature in the year 1891. The Superintendent of Streets should be urged to attempt the task of watering the streets this year as thoroughly as possible. Legislation which will relieve the tax levy from a portion of the burden now borne by it in the construction of streets, and furnishing them with sewers, sidewalks, edgestones, and pavements, may be desirable, and out of the money saved a sufficient sum should be appropriated to permit the

Superintendent of Streets to do the necessary street-sprinkling in a proper and satisfactory manner. The testimony taken at the hearings is submitted herewith as an appendix to this report.

For the Committee,

JOHN H. LEE,
Chairman.

[Appendix omitted.]

The matter was brought before the meeting of the Board of Aldermen on April 4, when the proposed ordinance assessing the cost on abutters was defeated, and the report of the committee was accepted.

At the beginning of the year an appropriation of \$100,000 had been made by the City Council for the purpose of street-watering. As this amount was insufficient to water all the streets of the city, a system was devised whereby this sum could be justly apportioned in different districts of the city, and the greatest possible benefit be derived from this limited appropriation.

The principle first adopted was to exclude from consideration all paved streets. Provided a paved street is kept clean there is no special reason why it should be watered; the water does not tend to preserve the pavement, and the extra comfort to abutters on the street by having the pavement watered should be paid for by them, as the benefit, if any, is enjoyed directly by them.

No trouble has ever been experienced by street-watering contractors in Boston in raising money enough by voluntary subscription on paved streets in the business section to do the work. In New York, owing to the large sums contractors are able to collect from abutters, the privilege of watering such streets is sold by the city to contractors, and a revenue of several thousand dollars is derived therefrom. Paved streets in general are so closely built up and the number of occupants of buildings is so large that a voluntary assessment is not felt as a hardship by the people benefited.

For the above reasons, having excluded all the paved streets from consideration, the macadamized streets alone remained to be provided for. As far as these were concerned, the principle was adopted of watering all the *main thoroughfares*, and such other streets as could be undertaken with the limited appropriation.

The above method involved the radical change of watering the Back Bay and South End Districts at the expense of the city of Boston.

The agitation concerning street-watering in the press in 1891 and 1892, which resulted in the public hearings at City

Hall. was brought about by the residents of the Back Bay, who objected to the way in which the watering was done, not so much on account of unsatisfactory work as on account of the exorbitant amount collected by the contractor, and as these streets were macadamized and largely travelled, it became necessary for the city to do this work and assume the cost.

The watering of the Back Bay and South End Districts was publicly advertised to be let by contract, and the work was awarded to the lowest bidders.

The work done during the past year has been fairly satisfactory, and but few complaints have been received. The greater portion of complaints came from people living on side streets which the department refused to water, owing to the limited appropriation, and the residents thereof considered themselves as unfairly treated.

Criticisms made on the way in which the street-watering is done generally are made by people not thoroughly conversant with the difficulties attending the subject. The following remarks of Dr. H. J. Barnes before the Massachusetts Medical Society are quoted as showing the difficulty of laying out a given amount of work for a water-cart under all circumstances:

"I would like to say a few words about the condition of the streets the last two days. There has been a good deal of flying dust, perhaps as much as at any time last year or any other year. I took occasion to go to the Signal Service Office this morning, to ascertain something in regard to humidity of the atmosphere and what influence it has had, and from the information gained I have taken the following notes to present this evening:

"Yesterday the Weather Bureau reported the humidity at 36, and to-day at noon it was 35. The yearly average is at about 75 at Boston. You will therefore observe that to-day it was at least 40 points below the average and 65 points from saturation. It has been an extremely dry air with high winds and bright sun, most favorable conditions for rapid evaporation. My street has been covered five times to-day. In the afternoon, half an hour after sprinkling, the dust was flying, and at the expiration of an hour there was little evidence that it had been sprinkled at all. It would require five times as much water to keep the dust laid such a day as this as was the average requirement for forty-three days last year, or, in other words, it would take five carts to do the work ordinarily performed by one. The thirteen miles of Back Bay streets are easily covered by eight two-horse water-carts when the humidity is from 70 to 80. To have accomplished satisfactory results to-day would have required forty carts of the same capacity."

STYLE OF WATER-CARTS.

Another practical difficulty in doing satisfactory watering is the character of the carts owned in the city. Out of about 150 water-carts owned in the city of Boston by private par-

ties, only 65 or 70 are of modern make, the rest being the old-fashioned type of copper sprinkler.

It might be asked, Why does not the city of Boston specify that only carts of a certain pattern should be used? It would be an easy matter to do this, and contractors would undoubtedly be willing to buy modern carts if they could be assured of work for several years; but as the administration of the city affairs is apt to change at the end of each year, and as there is no certainty of employment for more than one year at a time, contractors naturally are not disposed to expend several hundred dollars for new water-carts which, after being employed for eight months, might lie idle for several years.

An administration of city affairs should either last for more than one year, or authority should be obtained by city departments to make agreements with contractors that would hold for at least four years.

Should the city of Boston own the necessary plant, it would involve an original outlay of about \$96,000 to provide the necessary number of first-class sprinkling-wagons. In addition to this large expenditure, the city would be obliged to provide storage room in the winter for this plant, and would also be at a large annual expense for repairs and renewals.

In view of the above facts, and taking into consideration the probability that there will never be an ordinance passed allowing the cost of street-watering to be assessed entirely on the abutters, and also that there will never be money enough appropriated by the government to do this work in a systematic manner entirely at the city's expense, it is believed that the best results will be obtained by continuing the present method of letting out by contract the watering of districts such as the Back Bay and the South End, and by watering the rest of the macadamized streets with teams hired by the day; the Superintendent of Streets to have the power to make a contract for at least three years with owners of water-carts, who could then be required to provide themselves with expensive modern street-sprinklers.

PERMITS.

Notice was issued to all parties engaged in street-watering to supply themselves with the necessary permit from the Superintendent of Streets as provided for in the Revised Ordinances, and the permits issued contained the following regulations:

Carts must be provided with sprinklers satisfactory to the Superintendent of Streets, and each must have the name of the owner and number painted in large, legible letters on its sides.

Carts with choked or broken sprinklers, or leaking tanks or valves, shall not be used.

The sprinkling must be done with judgment and care, and street crossings must be kept dry as nearly as possible.

The amount of water used may be prescribed by the Superintendent of Streets. The person holding this permit will be held responsible for the condition of the street surface and pavement for a distance of fifteen feet from water-posts where water is taken.

If any driver of a water-cart is disobedient or disorderly, or fails properly to attend to his work, he must be immediately discharged on the requisition of the Superintendent of Streets.

This permit may be revoked by the Superintendent of Streets for cause, at any time.

CONTRACTS.

The specifications for work done by contract are rigidly drawn, and provide among other things, in addition to the points contained in the permit regulations, for the full control of the work by the Superintendent of Streets, who should decide all questions arising relative to the execution of the contract, and determine absolutely the amount of work to be paid for under the contract.

Lists of streets within a prescribed district designed to be watered are given in the contract, with power to discontinue any street or to add thereto any street or streets within five hundred feet of the district boundaries.

The amount of water to be used is regulated by the Superintendent, and the choice between using salt or fresh water is made by him.

The sprinkling-wagons are subject to regulation, and may be ordered off the street when considered unfit for use. The season extends from March to December. The Superintendent of Streets determines whether or not the contractor has kept the streets in the damp condition provided by the contract, and is also to determine whether or not rain has obviated the necessity for sprinkling.

Complaints from any citizen or taxpayer of unsatisfactory work call for an examination by the Superintendent, and, if well founded, authority is given to supply additional service at the contractor's expense, and deductions from the contractor's dues are made and determined by the Superintendent of Streets.

Proper provision is made for cancelling the contract and reletting the work, in case the same is neglected or abandoned.

Payment is made monthly on estimates approximately proportional to the amount of work done, less deductions, the price stated in proposals being a fixed sum per mile for

the season, for watering with salt water, and another fixed sum per mile for watering with fresh water.

A bond with two sureties, residents of the State of Massachusetts and satisfactory to the Superintendent of Streets, is required with each contract.

The following table gives a summary of the work done by teams hired by the day and teams owned by the city, classified by districts, with the number of miles covered in each district.

1892.

Summary of Day Work paid for by the City.

DISTRICTS.	Number of teams hired by the day.	Number of teams owned by the city.	Number of miles covered.
1. South Boston	8	.....	20.06
2. East Boston	6	.....	12.78
3. Charlestown	7	.....	15.00
4. Brighton	11	.....	27.00
5. West Roxbury	15	2	52.00
6. Dorchester	13	1	40.44
7. Roxbury	18	.....	51.61
8. South Yard	1	.....	2.30
9. Back Bay	2	.....	3.35
10. North Yard	1	.....	1.58
11. Beacon Hill	2	.....	4.00
Totals	84	3	230.12

The summary shows that eighty-four carts hired by the day and three carts owned by the city have watered 230.12 miles of streets during this year, as compared with 151.86 miles of streets watered with sixty-one carts last year. The expense of this work was borne entirely by the city. The cost of day work and city work, exclusive of supervision, was \$291 per mile, or \$67,048.50. These carts averaged about 2.645+ miles per day. The West Roxbury carts averaged 3.06 miles per day; Dorchester carts averaged 2.86 miles per day; and on the Back Bay the carts averaged 1.68 miles per day.

1892.

Summary of Contract Work paid for by the City.

DISTRICTS.	Contractor.	Carts.	Miles.	Cost.
Back Bay	M. E. Nawn	10	13.028	\$11,663 41
South End	Boston Watering Co.	4½	7.959	5,439 18
Dorchester.....	Ashmont Improvement Co.* .	½	2.11	322 50
Totals.....	.....	15	23.097	\$17,425 09

* One-half the expense of a watering-cart is paid by the Ashmont Co.

The summary shows that fifteen carts were used by the contractors to water 23.097 miles, of which 7.45 miles were watered with salt water, and 13.442 miles were watered with fresh water, paid for entirely by the city, and 2.11 miles in Dorchester, one-half the cost being paid by the city and one-half by the abutters.

The contract price in Back Bay was \$1,150 per mile for salt water and \$850 per mile for fresh water.

The contract price in South End was \$767 per mile for salt water and \$567 per mile for fresh water.

1892.

Work done by Contractors at the Expense of the Abutters.

DISTRICTS.	Contractor.	Carts.	Miles.
City Proper.....	Daniel Clark	3	2.75
City Proper.....	Potter Brothers.....	4½	8.00
City Proper.....	Proctor Bros. & Billings... .	4	7.10
City Proper.....	George H. Keyes	½	1.50
Roxbury and South Boston..	A. A. Hall	2	2.75
East Boston	Philip Sowden	½	0.50
Charlestown	E. Devine	½	0.50
Roxbury	J. V. Bancroft.....	1	1.00
Totals .....	.....	16	24.10

The expense of this was borne entirely by the abutters. This table shows that with sixteen carts these contractors watered 24.10 miles of paved streets in the City Proper, South Boston, East Boston, Charlestown, and Roxbury. This watering was done on the streets paved with stone, except a small piece of asphalt on Columbus avenue.

1892.

Summary of Work done which was paid for by the City.

No.	DISTRICTS.	Miles, day work.	Miles, contract work.	Total.
1	South Boston...	20.06	.....	20.06
2	East Boston ...	12.78	.....	12.78
3	Charlestown....	15.00	.....	15.00
4	Brighton	27.00	.....	27.00
5	West Roxbury..	52.00	.....	52.00
6	Dorchester	40.44	2.11	42.55
7	Roxbury	51.61	.....	51.61
8	South Yard	2.30	7.96	10.26
9	Back Bay.....	3.35	13.03	16.38
10	North Yard	5.58	.....	5.58
		230.12	23.10	253.22
		or about	or about	
		3,037,600 sq. yds.	486,000 sq. yds.	

Cost of city and day work, exclusive of supervision \$291 00 per mile.
 Cost of contract work, exclusive of supervision 754 00 " "
 Total cost of contract and day and city work \$92,527 77

(All of the above exclusive of water, water-posts, etc.)
 Water furnished by Boston Water-Works at no expense.

1892.

**Distribution of Carts, showing the Entire Amount of
Work done.**

No.	DISTRICTS.	City carts	Hired carts.	Contractors' carts.	Total.	Miles.
1	South Boston...	.....	8	1	9	21.44
2	East Boston ....	.....	6	$\frac{1}{2}$	$6\frac{1}{2}$	13.28
3	Charlestown....	.....	7	$\frac{1}{2}$	$7\frac{1}{2}$	15.50
4	Brighton .....	.....	11	.....	11	27.00
5	West Roxbury..	2	15	.....	17	52.00
6	Dorchester	1	13	$\frac{1}{2}$	$14\frac{1}{2}$	42.55
7	Roxbury .....	.....	18	2	20	53.98
8	City Proper ....	.....	6	$26\frac{1}{2}$	$32\frac{1}{2}$	51.57
		3	84	31	118	277.32

Money expended, 1892.

No.	Districts.	City work.	Contract work.	Day work.	Labor.	Water-posts.	Repair.	Horse-hire.	Total.
1	South Boston .....	.....	.....	\$6,255 00	\$530 40	.....	.....	.....	\$6,785 40
2	East Boston .....	.....	.....	4,833 00	520 20	.....	.....	.....	5,353 20
3	Charlestown ....	.....	.....	5,304 00	555 90	.....	.....	.....	5,859 90
4	Brighton .....	.....	.....	9,150 00	609 45	.....	.....	.....	10,174 84
5	West Roxbury	\$1,173 00	.....	12,030 00	1,321 70	.....	.....	.....	14,759 20
6	Dorchester	394 50	\$322 50	9,408 00	1,235 35	161 95	.....	.....	11,522 30
7	Roxbury .....	.....	.....	13,566 00	644 70	99 10	.....	.....	14,309 80
8	City Proper .....	.....	17,102 59	4,935 00	2,636 48	54 24	684 22	\$330 63	25,743 16
	Total	\$1,507 50	\$17,425 09	\$65,481 00	\$8,054 18	\$952 18	\$697 22	\$330 63	\$91,507 80

The following table shows the amount expended in street-watering by the city for the last sixteen years :

1877 . . .	\$17,593 62	1885 . . .	\$43,854 68
1878 . . .	23,595 02	1886 . . .	44,940 35
1879 . . .	26,747 18	1887 . . .	51,365 73
1880 . . .	33,306 95	1888 . . .	40,586 58
1881 . . .	36,178 24	1889 . . .	47,837 46
1882 . . .	45,797 00	1890 . . .	57,967 34
1883 . . .	53,502 29	1891 . . .	104,263 62
1884 . . .	34,518 47	1892 . . .	94,507 80

WATER-POSTS.

An effort has been made throughout the year to improve the service by a better distribution of water-posts, and old locations have been changed and new ones established whenever it was evident that more territory could be covered by a given cart by so doing.

The whole number in existence February 1, 1892 . . .	271
The number abandoned during 1892	1
The number changed in location during 1892	6
The number established during 1892	69
The whole number now in use	339

The following table shows their location by districts :

District.	1891.	1892.	Increase.
South Boston	23	25	2
East Boston	16	23	7
Charlestown	19	19	0
Brighton*	25	39	15
West Roxbury	50	59	9
Dorchester	61	72	11
Roxbury	53	60	7
City Proper	24	42	18
Total	271	339	69

* One abandoned in August.

The Water Board have promptly made these changes at the request of the Superintendent of Streets, and an expense of \$952.18 therefor has been paid by the Street Department.

INCOME.

The Street Department during the year watered streets in front of 103 public schools, 14 police-stations, and 28 engine-houses, and received from the several departments having control of the same the following sums :

Schools	\$2,440 50
Police-stations	214 20
Engine-houses	353 10
	<hr/>
Total	\$3,007 80

In addition to the work done for the other city departments and paid for by them, the department, at the request of the abutters, watered Louisburg square, which is a private way, and received the sum of \$100 therefor. Correspondence was entered into with the abutters on various other private ways, and also with the abutters on side streets which were not watered owing to the smallness of the appropriation, with a view of the department undertaking the work on the payment of the actual cost of watering.

No agreement (outside of the one on Louisburg square) was made, as it was found that the residents would not pay the small individual amount necessary.

A close inspection of the results accomplished this year with those of last year shows that the cost of the work done by the city has decreased, and that the distance covered per day with each team employed by the city has shown an increase.

This is the natural result of better organization and supervision, and an increase in economy and efficiency may be confidently looked for during the year of 1893. The work let by contract (the watering of the Back Bay and the South End), although publicly advertised and awarded to the lowest bidder, in comparison with the work done by the city, shows that a very large price was obtained by the several contractors.

This is accounted for by the fact that contractors in their bids were obliged to make allowance for plant, and also by the fact that the call for salt water in the specification added largely to the cost of watering. It is also invariably the experience that the first time that bids are called for on any work,

the prices obtained are generally high, but each year thereafter a decrease takes place until there is only a reasonable amount of profit in the work. This statement is borne out by the fact that the bid recently opened for street-watering in the South End for the year 1893 shows a falling off in the prices of about 19 per cent., and in the Back Bay of about 26 per cent.

SANITARY DIVISION.

The work of the Sanitary Division, which includes the removal of house offal and the removal of house and store dirt and ashes, shows a constant increase from year to year.

The following table shows the number of loads of offal collected and removed in the last ten (10) years :

AMOUNT OF HOUSE OFFAL REMOVED.						
Year.						No. of Loads.
1883	.	.	.	.	.	27,408
1884	.	.	.	.	.	28,520
1885	.	.	.	.	.	31,206
1886	.	.	.	.	.	33,170
1887	.	.	.	.	.	36,724
1888	.	.	.	.	.	37,409
1889	.	.	.	.	.	40,183
1890	.	.	.	.	.	40,525
1891 ¹	.	.	.	.	.	46,742
1892	.	.	.	.	.	46,343

¹ From January 1, 1891, to February 1, 1892, or 13 months.

Each load of offal is equivalent to fifty-seven (57) cubic feet, and weighs one and one-half ($1\frac{1}{2}$) tons.

The above table does not include the amount collected by contract in East Boston and Brighton, which amounts to about 5,100 loads per year.

The collection of this material is attended to by practically the same force as last year, 93 offal carts and 175 men being employed, and on contract work 8 offal carts and 16 men, making a total of 101 offal carts and 191 men.

But few complaints have been received concerning the failure of the division to promptly remove offal; investigation of complaints usually shows that either the offal has not been properly separated from ashes or other house refuse, as is insisted on in this city, or else that the receptacles

were deposited in some inaccessible place. If householders would see that the employees have easy access to the receptacles, and that the men are not unnecessarily delayed in this work, the service would be greatly facilitated.

The disposal of this large amount of offal is one of the most serious problems with which the city is confronted.

The disposal has been made during the year in the manner described in last year's report, viz.: The offal from the markets, and offal that is decayed, is put on board a scow and towed to sea; the offal of Charlestown is taken to the yard at Malden bridge and then disposed of to farmers; the offal of East Boston is collected by contractors, and is removed to Revere; the offal of the City Proper, South Boston, and Dorchester is conveyed to the yard at the South End, and disposed of to farmers, who remove it daily; the offal of Roxbury and West Roxbury is conveyed to the yard on Highland street, and disposed of to farmers; and the offal of Brighton is collected by contract and disposed of outside of the district.

For two years this subject has been agitated in the public press, but no change has been inaugurated in the method of disposal, although the sale of offal to farmers, who feed it to pigs which are afterwards brought to market in this city, has been severely condemned.

The effect of the agitation that has been going on for the past two years is plainly visible in the receipts of the department for the sale of offal, which have fallen off in a marked degree.

Collection and Disposal of Offal.

YEAR.	Total amount collected.	Amount sold.	Amount dumped on scow and towed to sea or wasted.	Per cent. wasted to total collection.	Amount of receipts from sales.
1891	142,616 loads.	40,492 loads.	2,124 loads.	5 per cent.	\$30,672 65
1892	46,343 "	30,773 "	15,570 "	33 " "	21,282 82

¹ Twelve months. Above table does not include contracts in East Boston and Brighton.

This falling off in receipts is accounted for by the fact that the Boards of Health of many suburban towns have prohibited the carrying on of piggeries within the town limits. Many farmers have therefore been obliged to discontinue the raising of pigs, and the market for the city's offal is becoming more and more restricted.

It is probable that the practice of selling offal for food

purposes will be entirely prohibited within two years, and that a radical change in the method of getting rid of this material must be inaugurated by the city.

As stated in last year's report, there are several ways in which the disposal of offal in the future may be satisfactorily accomplished.

The towing of offal to sea during the past year and dumping it has not given rise to any complaints from neighboring towns. This is entirely due to the care exercised in the selection of the dumping-grounds and the method used in dumping, a description and chart of which were published in last year's report.

This method can be continued in the future, but the amount of offal that can be economically disposed of in this way is limited, as the cost of hauling it from remote sections in West Roxbury or Dorchester to the dumping-scow is so great that some other method of disposal in these districts is necessary.

Two other methods of disposal remain; viz., cremation and chemical treatment. Propositions concerning both these methods have been submitted to the City Council by parties interested in these processes.

The first proposition, made by I. M. Simonin, of Philadelphia, is as follows:

SIMONIN PROPOSITION.

PHILADELPHIA, PA., October 12, 1892.

To the Mayor, the Board of Aldermen, and Common Council of the City of Boston, Mass.:

GENTLEMEN: We beg to submit the following proposal for the utilization of your kitchen garbage:

We agree to transfer to the city of Boston, for its perpetual and exclusive use, all right, title, and interest in the system known as the "Simonin process," a scientific means for the sanitary and economic disposal of vegetable and kitchen garbage. This process includes the letters-patent and all papers pertaining to the said patented process and apparatus, any future improvements, and all necessary buildings (the city providing the ground), to make a completely equipped plant for the treatment of this refuse.

For the sum of \$160,000 we will construct a plant and guarantee it will treat 140 tons of kitchen garbage daily.

For the sum of \$175,000 we will construct a plant and guarantee it will treat 160 tons of kitchen garbage daily.

For the sum of \$185,000 we will construct a plant and guarantee it will treat 180 tons of kitchen garbage daily.

On assignment of patent and signing of contract and bond, the city to pay \$40,000, and future payments to be mutually agreed upon. This plant then to be managed by us, under a lease given by the city, for a period of 20 years, with the privilege of renewal for a similar period, and to be operated by us or our assigns for the purpose for which it was constructed; and we agree to pay to the city, in quarterly payments, an

annual rental of \$3,200 if a plant is built of 140 tons daily capacity; or \$3,500 if a plant is built of 160 tons daily capacity; or \$3,700 if a plant is built of 180 tons daily capacity.

We also agree under this proposal to dispose of daily, of crude vegetable and animal kitchen garbage, free of cost to the city or contractor, an amount equal to the guaranteed capacity of the plant.

When, however, the city, owing to the natural growth in population or other causes, delivers an excess of the capacity of the plant, the city then to pay to the lessees the sum of 45 cents per ton on all excess of the said daily capacity. The additional apparatus necessary to scientifically and sanitarily treat this excess to be paid for by the lessees, and at the expiration of the contract the plant to revert to the city, and all apparatus to be in good workmanlike condition, the city paying a just valuation for the additional apparatus.

We further propose that the plant can be used, in case of an epidemic, as a city disinfecting station.

If given the contract, we will file a \$25,000 bond for the faithful performance of the same.

Respectfully submitted,

SIMONIN & SIMONIN.

The above-described method, which contemplates treating the offal by chemicals, is the one now in successful operation at Providence, and has lately been adopted by the city of Cincinnati. It has the merit of so treating the offal that whatever valuable constituents are present are utilized.

The offal, on arrival at the works, is placed in specially constructed crates, which in turn are stacked on to an iron truck which is then run on a track into a large iron "extractor." This extractor (of which there are six in operation at Providence) is cylindrical in shape, eighteen feet long and six feet in diameter. The end of the extractor is removable and fastens on with screw-bolts, after the trucks (three of which are put in each extractor) have been wheeled in. It is then hermetically sealed. No attempt is made to sort over the offal or deprive it of water before treatment.

It can be immediately loaded on the crates and put in the extractor. This is one of the most valuable features of this process, for beyond the actual handling of the offal there is no further nuisance. After being placed in the "extractor" the offal is completely immersed in a chemical reagent which is pumped into the extractor.

This reagent does not mix with the water, but acts as a solvent for the grease which is present. Hot steam is then passed through coils of pipe in the extractors, which has the effect of volatilizing the chemical reagent, which passes off in vapor into storage vats. A large part of the water in the offal is displaced, owing to its specific gravity, and the balance passes off with the vapor of the reagent and is then condensed.

After being treated in this manner several times (without, however, removing it from the extractor, which is kept hermetically sealed) the offal becomes entirely dried, and is also freed from all grease, which has passed off with the reagent. The offal when removed from the crates is perfectly dry, has no odor, and is entirely harmless. It is ground up in a mill and sold as a dryer for fertilizer. It contains about 4.4 per cent. of ammonia and 9 per cent. of free phosphate of lime, and is in itself a fertilizer for some plants.

The grease which is extracted is sold for the manufacture of soap, candles, etc., and there is always a market for it.

As far as being a sanitary process for the disposal of offal, this process is almost perfect; for, from the time the offal is put into the retort until it comes out dry and odorless, it has been hermetically sealed up, and there is but little odor either in the building or in the gases given off from the chimney. The plant in Providence is less than ten minutes' walk from the union depot.

ENGLE PROCESS.

This is entirely a process of cremation. The offal is entirely burned up, and no attempt is made to cull out any portion of it for special sale. The only commercial product is the ashes, which must be rehandled and teamed off to some dumping-ground.

The principal distinctive feature of the Engle furnace is the fact that two fires are used: one to burn the garbage, and the other to burn and destroy the escaping smoke and gases before being sent out into the open air. The furnace for a thirty-ton per day plant consists of a rectangular brick structure 42 feet long, $9\frac{1}{2}$ feet wide, $12\frac{1}{2}$ feet high, outside measurements, with a stack at one end, 30 feet of which is of brick and 60 of iron.

At each end of the furnace, on a line with the garbage grates, are fire-boxes; the flues at the stack end leading into the chimney are closed by heavy fire-clay slabs. The interior walls are lined by heavy fire-clay blocks accurately fitted together, backed on the outside by a heavy brick wall, braced and bonded together with stays, rods, and angle irons.

The crematory is covered by a house of galvanized corrugated iron, the entrance to which is so arranged that teams can drive in upon the platform directly from the street, and dump their loads upon a chute made of steel plates, which slope toward a number of holes in the top of the furnace,

one hole being large enough to admit the bodies of dead animals.

These holes are covered with fire-clay plates which can be taken out readily. When removed, no odor escapes, as the draught is downward. The garbage thus dumped upon the grates comes in immediate contact with the strong flames, and is consumed; the escaping smoke and gases pass across to the second fire. The flames from the second fire are by the action of a strong draught brought back underneath the garbage grates, heating the mass intensely from below.

Stoke holes conveniently arranged admit of an occasional stirring of the garbage upon the grates. It is claimed that all the odors, gases, and products of combustion passing through one or both fires must be completely destroyed before being discharged into the air. To operate such a plant it is claimed that only from one to one and one-half tons of coal per day are required, and the services of two men when burning 10 or 15 tons of garbage per day.

This process is in operation in Lowell, Mass., in Chicago, Ill., Tampa and Jacksonville, Fla., Savannah, Ga., and several other places. The following official communication to His Honor the Mayor is the only statement submitted to this city for consideration up to date, by the company representing the Engle System.

THE ENGLE SANITARY AND CREMATION COMPANY.

JAMES C. SAVERY, *President.*

JAMES CALLAHAN, *Treasurer.*

Des Moines, Iowa.

W. F. MORSE,
General Agent,
30 State street, New York.

Represented in New York by
GEO. H. WARNER,
30 State street, New York.

NEW YORK, October 29, 1892.

To the Honorable the Mayor, the Board of Aldermen, and the Common Council of the City of Boston:

GENTLEMEN: Understanding that the city of Boston proposes to investigate the various methods and systems for the disposal of the garbage and waste of the city, the Engle Sanitary and Cremation Company respectfully represent:

That the company has constructed and put into successful operation thirty different cremating furnaces of the Engle pattern in twenty-two cities and towns of this country.

That the company is now constructing cremating furnaces to destroy the garbage and waste of the World's Columbian Exposition, at Chicago, Ill., and are building large cremators at several other points.

That from examination of the situation in Boston it is the belief of this company that the garbage of the city can be destroyed by cremation, with entire sanitary protection, at a moderate expense.

That this work can be done at four different localities within the city limits, which will compel the garbage and waste to be brought but com-

paratively short distances, and ensure the speedy destruction of all offensive and worthless matters at places near to the field of production and collection.

That it is the opinion of the Engle Company that the cost of handling and transportation of garbage and waste will be materially reduced, and the present expense lessened, by the adoption of the method of cremation at these several localities.

That the employment of the Engle System of Garbage Disposal at other cities where it has been in continuous operation for a series of years warrants the belief and opinion that the same methods will be found equally valuable if brought into use in the city of Boston.

The Engle Company will, if desired, submit plans and drawings accompanied by detailed statements and definite proposals showing the cost of proposed Engle cremating furnaces, and the expense of operation and maintenance of same, and respectfully petition for a hearing before the proper authorities having charge of this matter.

Very respectfully,

THE ENGLE SANITARY AND CREMATION COMPANY,

(Signed)

W. F. MORSE,

General Agent.

MERZ PROCESS.

This process, which is strictly a chemical reduction process, as actually operated in some cities in this country, requires, for a one-hundred ton per day plant, twelve driers and five extractors. The driers are made of concentric cylinders, one within the other, hung horizontally below the receiving-floor.

The inner cylinder receives the garbage through a hopper, opening to the delivery-floor, and carries a reel made of riveted steel and revolving through the longitudinal axis of the drier.

The outer cylinder is nothing more than a jacket, into which superheated steam is admitted at a temperature of about 300° Fahrenheit. The time required for drying one cylinder full of garbage is usually from five to six hours.

Before the garbage passes through the hopper into the drier, it is sorted over so that the old cans, junk, bottles, pieces of rags, etc., are sorted out and disposed of independently of the process. As the drying process goes on the watery vapors pass off through 12-inch pipes to a set of condensers, and thence into the sewer.

On the bottom of each drier is a steam-tight door, through which the contents are withdrawn upon a belt conveyer, which transmits it directly to the extractors. The extractors are circular, upright tanks with a false bottom, in which for six hours the product from the driers is subjected to a benzine bath, by means of which the oily constituents are wholly removed. The benzine is then driven off and recondensed, the oil withdrawn to the storage tanks, and the dry residue conveyed to a storehouse, where, after sifting, the fine, dry product is put up in bags and sent to market.

By this process all moisture is driven off at a high temperature, and the decomposable acids are so changed that the product delivered is no longer subject to decomposition, even upon long standing.

Little or no gas is given off, owing to insufficient temperature for the decomposition of the vegetable fibre to take place, the organic vegetable matter deprived of its watery composition having no tendency to decomposition by exposure to the air.

Dead animals are separately treated in special driers similar in every respect to those used for ordinary garbage, except that they have a special connecting-pipe for filling. The larger animals being first cut up, and the skins being saved, are thrown into the upright boiler, sealed from the air, and boiled for some hours by superheated steam, till the parts are reduced in size so as to slip easily through the valve chute into the driers. From this point on the animal matter is treated in exactly the same manner as ordinary garbage.

The cost of destroying this garbage in an inoffensive manner is stated to be nine cents per 100 pounds, or \$1.80 per ton, to the extent of 100 tons per day.

The products of the factory are two: grease and fertilizing material, both of which are marketable and in demand.

The success of this process depends largely upon the proper disposal of these products.

BROWN DEVELOPING PROCESS.

The Brown Developing Company have erected a patent furnace (at their own expense) on Albany street, and the department is now conducting experiments in the burning of garbage, with a view of ascertaining the exact cost of disposal. The process is entirely one of cremation, no attempt being made to extract any of the valuable constituents of the garbage.

GENERAL DISCUSSION.

The disposal of offal is largely a question of expense and whether or not a nuisance is created in the disposal, and comes down to the disputed question as to whether offal should be treated for the valuable constituents which are alleged to be present by parties interested in the chemical treatment of offal, or whether the offal should be regarded as a waste product of civilization which should be burned up and destroyed.

If the offal can be treated chemically and valuable products be produced from such treatment, it would seem the

proper system to pursue, if the method is conducted without producing a nuisance.

Compared with any system of cremation, it is believed that the operation of treating offal chemically can be conducted with the least nuisance.

In regard to the proposition made to the city of Boston for chemical treatment and cremation, an investigation would seem to show the following results :

First. If the proposition to treat the offal chemically by the Simonin process was accepted, the city of Boston would be obliged to invest the sum of \$175,000 for the purchase of a plant which would be run by the owners of the process, who would pay an annual rental for the privilege of treating the offal and disposing of the manufactured product. The interest on the invested capital of the city (at a percentage which would allow of the establishment of a sinking-fund to renew the plant) plus the miscellaneous expenses, and less the amount received as rental (\$3,500), would represent the annual outlay on the part of the city, and would amount to about \$10,000.

The above argument assumes that the owners of the process are put under bonds so that the capital the city invests in the plant is secure, and the running of the plant for the specified term of years is guaranteed.

Second. If the proposition to treat the offal by cremation was accepted, the city of Boston would be obliged to invest the sum of about \$80,000 in plant, and would then be at the expense of running the plant and destroying the offal. The cost of this method of disposal is a very uncertain question. It has been stated in various places as ranging from thirty cents to one dollar a ton.

It is safe to assume that offal in the city of Boston would cost, at least, seventy-five cents per ton to destroy, and even if mixed with all the available house and store dirt which could be collected in the vicinity, and which would serve as fuel, the cost would not be less than seventy cents per ton.

The destruction of one hundred and sixty tons of offal would require a yearly expenditure, including interest on plant and sinking-fund, of about \$50,000.

The future disposal of the offal will probably be effected in the following manner, and steps should at once be taken to inaugurate the method :

First. All offal collected in the vicinity of the wharf where the present dumping-boat is located should be taken there, and then towed to sea. If new dumping-wharves are established, either in East Boston, Charlestown, South

Boston, or the North End, all the offal of these districts should also be disposed of at sea.

Second. A central place (such as the site of the old small-pox hospital at the South Bay) should be selected and a plant erected for the disposal of offal by chemical treatment.

It would be advisable to dispose of the offal of Roxbury, the South End, and parts of Dorchester, City Proper, and South Boston at this place. The amount of offal to be treated at this station would amount, at the present time, to about 100 tons per day, and would ultimately increase to about 160 tons per day.

Third. As the erection of a chemical-treatment plant could not be undertaken unless a considerable amount of offal can be treated, it would be necessary to establish several small cremation plants: one to be located in Brighton, another in West Roxbury, and another in Dorchester.

By adopting the above-described system the greatest economy would be effected, as the offal would be disposed of in the vicinity where it is collected, and the expense of hauling the material long distances would be done away with.

In order to show the capacities of the various offal wagons, the following measurements of various city carts were taken at random, and the average computed therefrom:

No. OF WAGON.	Measurement of Wagons.		Weight of Offal.
	¹ Cd. ft.	Cu. ft.	
1	$3 \frac{9}{16} =$	57	3,040
4	$3 \frac{9}{16} =$	57	3,090
5 cesspool wagon	$3 \frac{4}{16} =$	52	2,925
6	$3 \frac{9}{16} =$	57	3,120
7	$3 \frac{9}{16} =$	57	2,990
9	$3 \frac{9}{16} =$	57	2,980
10	$3 \frac{9}{16} =$	57	3,220
13	$3 \frac{10}{16} =$	58	3,340
15	$3 \frac{9}{16} =$	57	2,910
17	$3 \frac{9}{16} =$	57	3,360
19	$3 \frac{10}{16} =$	58	3,280
20	$3 \frac{9}{16} =$	57	3,510
21	$3 \frac{9}{16} =$	57	3,205
22	$3 \frac{9}{16} =$	57	3,510
26	$3 \frac{10}{16} =$	58	3,100
27	$3 \frac{10}{16} =$	58	3,460
30	$3 \frac{9}{16} =$	57	3,300
33	$3 \frac{9}{16} =$	57	2,910
38	$3 \frac{9}{16} =$	57	3,140
53 Roxbury	$3 \frac{5}{16} =$	53	2,860
54 "	$3 \frac{5}{16} =$	53	3,190
61 "	$3 \frac{5}{16} =$	53	2,770
64 "	$3 \frac{4}{16} =$	52	2,710
79 "	$3 \frac{9}{16} =$	57	2,835
Total	$84 \frac{6}{16} =$	1,350	74,755
Average	$3 \frac{33}{64} =$	56.25	3,115

¹ A cord contains 128 feet and weighs 7,991 lbs., and is sold at Charlestown yard for \$4 per cord and at Highland yard for \$5 per cord, and at Albany street for \$4 per cord.

Force Employed.

CITY FORCE.		Hired Teams.	Contract Teams. E. Boston.	Contract Teams. Brighton.
Sub-foreman	1			
Offal clerks	2			
Teamsters	67	9	6	2
Helpers	85	9	6	2
Dumpers	2			
Total	157	18	12	4

Grand total, 191 men.

REMOVAL OF ASHES.

The removal of ashes and house and store dirt has been attended to during the year by an average force of 202 men, 179 city carts, and 5 carts by an East Boston contractor. This work shows a constant increase from year to year, as will be seen in the following table, and is an indication of the actual growth of the city :

**AMOUNT OF ASHES AND HOUSE AND STORE DIRT
REMOVED.**

Year.	Number of Loads.
1882	159,197
1883	169,610
1884	182,642
1885	193,734
1886	209,129
1887	220,186
1888	233,514
1889	227,325
1890	245,730
1891 ¹	313,464
1892	303,878

Each load of ashes is equivalent to 43 cubic feet.

This enormous amount of waste material is used largely for the purpose of filling low and swampy lands.

¹ Thirteen months, from January 1, 1891, to February 1, 1892.

The following table shows the disposition of this material for 1892, together with the amount of house offal and the portion of street sweepings that were disposed of by the Sanitary Division :

	Amount collected.	Deposited on Low Land.	Towed to Sea.
	Loads.	Loads.	Loads.
House and store dirt	303,878	220,615	83,263
House offal	46,343	7,963	7,607
Street sweepings	33,370	.....	33,370
Total	383,591	299,678	124,240

The filling in of low land within the city limits is progressing at such a rapid rate, that the procuring of dumps convenient to the locality where the material is collected is a matter of extreme difficulty. A large amount of material has to be hauled a long distance, which adds largely to the cost of disposal.

The filling in of the so-called State Dump in South Boston has done away with one of the most accessible dumps. It would seem to be a wise proceeding on the part of the city of Boston to acquire a large area of flats in the so-called South Bay. The filling of these flats, which are covered with five or six feet of water at high tide, would take several years.

The city would not only acquire territory which for years would be available for a central dumping-station, but the rise in valuation of this land when filled to grade twelve would be enormous, and would prove a most profitable investment. The gradual filling in of this territory would do away with the nuisance existing when these flats are uncovered. The South Bay in its present condition is a menace to the health of the community, and the city should acquire the territory and fill it in.

Comparative Statement of Number of Loads of Ashes collected during 16 Weeks of the Summer and 16 Weeks of the Winter.

Summer.	Loads.	Winter.	Loads.	Difference for Winter.
May 4, 1889, to Aug. 23, 1889	60,809	Nov. 30, 1889, to Mar. 1, 1890	82,866	22,257
" 2, 1890, " " 21, 1890	65,239	" 1, 1890, " " 13, 1891	93,600	28,421
" 2, 1891, " " 21, 1891	76,625	Oct. 31, 1891, " Feb. 19, 1892	100,223	23,598
Apr. 30, 1892, " " 19, 1892	82,034			

TOW-BOAT.

The recommendation made in last year's report to the effect that a new tow-boat should be provided capable of doing the work of the sewer and sanitary division was favorably acted on by the government, and a first-class boat is now in course of construction.

The work of garbage disposal at sea will be conducted by May 1 in dumping-boats towed by the department tug, thus affecting a large saving in expense.

The boat is being built by the Atlantic Works of East Boston, who were the lowest bidders. The contract price is \$23,994, and the boat will be ready in April.

No action has been taken on the recommendation that a new dumping-wharf be procured at the North End. At the time this recommendation was made, there were several wharves available which have since been bought by steamship companies.

The procuring of a suitable wharf will now be a matter of some difficulty, even if an appropriation is made.

In July last an injunction was asked of the Superior Court by the Boston and Portsmouth Steamship Company, against the use of the Fort Hill wharf as a dumping-wharf, on the ground that it was a nuisance to the company and the passengers using its steamships running to the Isles of Shoals and Portsmouth from Snow's Arch wharf. After consideration of the testimony the court refused to grant the injunction, as it was shown that it was imperative for the city to maintain this wharf as a dumping-station. Grave doubts exist as to the court's having the same opinion when it comes to a final hearing of the case.

The advisability of the department having another wharf is manifest, as it would be a very serious matter if, for any reason, the present wharf could not be used, even for a short time.

The refuse material which has been towed to sea and dumped during the year has been conveyed in the Barney dumping-scows in use by the city. The contract for towing has been evenly divided between the Boston and the Commercial Wharf Tow-Boat Companies at the same favorable prices as were made last year.

The recommendation made in last year's report, that the city purchase a second dumping-boat in place of leasing one, has not received consideration from the government.

The plant of the department has been kept in a high state of efficiency throughout the year. It is doubtful if a superior lot of horses or carts employed in the collection of

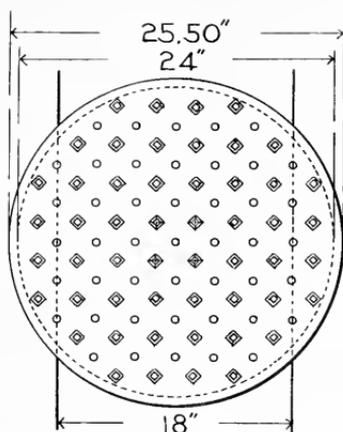
offal can be found in any city in this country. Many of these horses weigh 1,550 pounds, and their appearance is the subject of favorable comment from visiting officials.

SEWER DIVISION.

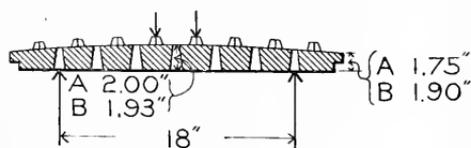
The past year has been the most active in respect to sewer construction in the history of the division; 71,381.85 feet of sewers have been built by the city, and 22,503.34 feet designed and superintended for parties who desired to build their own sewers, under the form of release which is provided for this purpose. As the entire cost of small sewers now falls on the abutters under the law of 1892, it is probable that the building of sewers by private parties will increase, as a feeling exists that work done by contract can be done cheaper than by the regular force of the division. In anticipation of greater activity in this method of sewer-building, the following form of release has been prepared, under which parties are allowed to construct their own sewers:

KNOW ALL MEN BY THESE PRESENTS,
THAT , the undersigned, owners of real estate on a street called

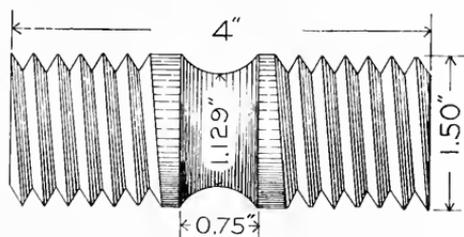
street, Ward , in the City of Boston, County of Suffolk, and Commonwealth of Massachusetts. In consideration of the granting to by the City of Boston of the right to construct or extend a sewer in said street, and connect the same with the public sewer in street without charge, hereby agree to furnish all the material necessary for the proper construction of said sewer, except the manhole frames and covers, which shall be furnished by the City of Boston, and to build said sewer at own expense, under the supervision of an inspector appointed by the City of Boston (whom hereby agree to pay weekly for said supervision at the rate of three dollars and fifty cents per day), and according to a plan prepared by the Superintendent of Streets. And further agree that said sewer, when completed to the acceptance of said Superintendent of Streets, shall become the property of said city without any claim for compensation on part, and do hereby release unto said city all right, title, and interest in and to said sewer, reserving to the right of drainage into said sewer for such a part of each of lots abutting on said sewer as shall lie within one hundred and twenty-five feet of the line of the aforesaid street, free of expense of any sewer assessment, except such as may be levied on any of aforesaid lots, on account of a sewer being constructed by the said city in any other street or strip of land on which aforesaid lots may now or hereafter abut. also further agree that the work on said sewer shall be diligently prosecuted from its commencement, and completed within days from the date of beginning.



PLAN OF COVER
USED IN TRANSVERSE TESTS.



SECTION OF COVER
USED IN TRANSVERSE TESTS.



FORM OF SPECIMENS
USED IN TENSION TESTS.

twenty-four thousand dollars, the first payment to be made on the first day of July next in the sum of eleven thousand five hundred dollars, and thereafter on the first day of October, January, April, and July, in each of said years, in proportional parts of said yearly payments.

COMMONWEALTH OF MASSACHUSETTS.

(Signed)

By HOSEA KINGMAN,

(Signed)

TILLY HAYNES,

(Signed)

HARVEY N. COLLISON,

Metropolitan Sewerage Commissioners.

CITY OF BOSTON.

(Signed)

By H. H. CARTER,

Superintendent of Streets.

Approved April 27, 1892.

N. MATHEWS, JR.,

Mayor.

TESTS OF SEWER COVERS.

Owing to the fact that adverse criticism was made concerning the price paid by the department for iron sewer castings, a comparative test was made of the covers purchased and used, which cost $2\frac{1}{4}$ cents per lb., and covers offered to the department by dealers at 2 cents per pound.

February 24, 1892, two sewer covers and frames, one costing $2\frac{1}{4}$ cents and the other 2 cents per lb., were sent by the purchasing agent, Mr. J. W. McDonald, to the Watertown Arsenal, to be subjected to transverse tests and tests by tension under the United States testing-machine of 800,000 pounds capacity, from which the following results were obtained :

TRANSVERSE TESTS.

(See diagram)

The covers were supported on bars 18 in. apart, and loaded on the top at the centre.

The load on top carried on the four central projecting points of the castings.

No. 8,263. Cover marked A (purchased by department at the price of $2\frac{1}{4}$ cents per lb.; weight, 210 $\frac{1}{2}$ lbs.; ultimate strength, 65,800 lbs.

Fractured along diameter of cover, through line of seven cored holes.

Appearance of fracture, medium fine granular.

No. 8,264. Cover marked B (offered by dealer at 2 cents per lb.; weight, 206 $\frac{1}{2}$ lbs.; ultimate strength, 41,700 lbs.

Fractured, 3-in. eccentric, across cover through line of seven cored holes.

Appearance of fracture, medium fine granular.

TENSION TESTS OF SPECIMENS TAKEN FROM FRACTURED COVERS
AFTER TRANSVERSE TESTS WERE MADE.

FORM OF SPECIMENS.

(See diagram.)

Test number.	Marks.	Diameter.	Sec. area.	Tensile strength.	
				Total lbs.	Lbs. per sq. in.
8,265	A	1.129 in.	1.00	24,570	24,570
8,266	B	1.129 in.	1.00	19,160	19,160

Fractures, fine granular.

Correct.

(Signed) J. E. HOWARD.

(Signed) J. W. REILLY,
Major Ordnance Dept. U.S.A., Commanding.

In view of the fact that a sewer manhole cover made of inferior iron gave way under the weight of a heavy team, and the city was in consequence subjected to heavy damages, the policy of the department in buying only first-class castings should be continued.

SEWERS.

CITY PROPER AND BACK BAY DISTRICTS.

The sewers in Fayette, Beverly, Billerica, and Commercial streets were mentioned in last year's report as being in a tumble-down condition. Nothing has been done upon them. They should be rebuilt this year.

There are three localities in this city the condition of which is exceedingly bad from a sanitary point of view: the first of these is the Canal-street district, the second is Faneuil Hall Market, and the third is the Harrison-avenue district.

The condition of the first of these, Canal street, was fully described last year. It is not necessary to go into a full explanation this year; suffice it to say that the sewers are filled from one to three feet deep with sewage sludge, which has been accumulating now about ten years.

It is doubtful whether there could be anywhere found sewers in worse condition than some in this district. Much of the district drained by these sewers is occupied by crowded tenement-houses.

In view of the great danger that cholera may find a lodgment in this city the coming year in spite of quarantine measures, it would be inexcusable to postpone the rebuilding of these sewers any longer. Work should be begun upon them at the earliest possible moment, for it would be perhaps even more dangerous to stir up this mass of pollution during hot weather than to let it remain.

The softer portions of the accumulation might be pumped into the West-side intercepting sewer, and flushed away,

down to Moon Island, but the heavier portions will have to be shovelled up and carted off, and this cleaning work should be done before hot weather.

The condition of the second locality, Faneuil Hall Market, was also fully described in last year's report.

It ought not to be necessary to be obliged to argue very strongly in favor of having perfect sanitary arrangements for this market, where such a large proportion of the food supply of the city is handled. Not only is its condition now far from perfect, but in fact it is about as bad as it can be.

Plans are now ready for sewerage this market properly, the estimated cost being \$10,000.

If this work is done before the sewer is built across the city, as recommended last year, for the relief of the Canal-street district, it will be necessary to run a pipe from the market down South Market street to the intercepting sewer in Atlantic avenue, at an additional cost of \$3,500; if the sewer across the city is built at once, this will not be necessary.

The third locality is the Harrison-avenue district, which lies mostly in Roxbury, and will be treated under that head.

Attention must be called again to the Falmouth and Caledonia street sewer, which is badly settled and broken. It is liable to fall in and cut off the drainage of quite a large territory. About 360 feet of it should be rebuilt.

Trouble was experienced last year on the Back Bay from the flooding of cellars during an unusually heavy rain, which occurred at about the time of high tide.

Whenever an extraordinarily heavy rain occurs, there will be danger of flooding cellars in low districts, because the surface water from the streets must fill the sewer system to a level somewhat higher than that of the tide before it can force its way out.

The tide often rises above the established grade of cellars, and, although it does not remain long at its extreme height, if a heavy rain happens to occur at the same time, the cellars will be in danger, unless the *volume* or storage capacity of the sewer system is large enough to *store* the storm-water until the tide has subsided.

A calculation has been made of the *storage capacity*, or the length of time required to fill each of the four Back Bay sewer-systems mentioned below with different amounts of rainfall.

	Rate of rainfall, 1 in. per hour.	Rate of rainfall, 2.70 in. per hour.
Berkeley street . . .	14 minutes.	5 minutes.
Dartmouth street . . .	14 minutes.	5 minutes.
Fairfield street . . .	15 minutes.	5 minutes.
Hereford street . . .	12 minutes.	4 minutes.

2.70 inches per hour is the rate at which the rain fell in the storm referred to, August 12 and 13, 1892. It will be seen that the storage capacity of these systems is very little.

A method of giving relief to these old systems is to build larger storm-water outlets to Charles river.

The sewers which have been built on the Back Bay the past two years have all been built large enough to afford more storage capacity.

The Hull-street sewer, an old wood, stone, and brick affair, should be rebuilt.

The sewer in South Margin street is in bad condition, and needs to be rebuilt.

There has been more trouble from flooding of cellars on Essex street near Edinboro street.

The large sewer built in Essex street in 1889 should be extended from Kingston to Chauncy street, and the regulators, tide-gates, etc., necessary to complete this Essex and Federal street system should be built as explained last year. There have also been cellars flooded on Harvard street.

This sewer should be rebuilt and the regulator and enlarged storm-overflow, which forms a part of the last-mentioned system, should be built.

The houses on the water side of Beacon street have never been connected with the sewer system, but have drained directly into Charles river. Surveys have been made, and two alternative plans have been prepared, one for a sewer in the back street and another for a sewer in Beacon street. One or the other of these schemes will, undoubtedly, be carried out the coming year.

Work done during 1892.

Nine thousand nine hundred and seventy-four linear feet of sewers were built last year in the city proper and Back Bay by the city, and 151 feet by private parties.

This includes 2,492 feet of large brick storage sewer on Commonwealth avenue, and 409 feet on Beacon street.

The Brookline-avenue sewer, built in 1884, and useless until this year, has been carried under Muddy river and connected with the Metropolitan sewer.

Other sewers built last year in this district require no especial mention.

SOUTH BOSTON DISTRICT.

The sewer in Dorchester avenue, between First street and Broadway, should be rebuilt as soon as the frost is out of the ground, as it is on the point of falling in.

In regard to the sewers in the south-west part of the peninsula, having outlets at B and Seventh streets and D street, about the same remarks must be made as were last year; the unsatisfactory service which the sewers give is due not to defects in the sewers where the trouble occurs, but is due to the defective condition of the outlets.

If the outlet recommended last year (and for which plans are in readiness) should be built, these troubles would disappear.

A plan has been prepared for an overflow sewer for the South Boston intercepting sewer, on the location of the old Kemp-street sewer.

Flooding of cellars has occurred on Mercer and Vale streets, caused by the insufficient size of the sewer in Mercer street.

It should be rebuilt, and will require about 400 feet of 3 ft. 9 in. circular brick sewer.

Work done during 1892.

Seven hundred and fifty-five linear feet of sewers were built by the city by contract in South Boston, and 462 feet by private parties.

The first item includes 529 feet of 4 ft. \times 5 ft. wooden sewer, which completes the overflow relief sewer for the D and First street district.

EAST BOSTON DISTRICT.

Several outlets should be extended to deep water. Eagle-square outlet should be extended 250 feet, Jeffreys-street outlet about 160 feet, Decatur-street outlet, near Border street, about 200 feet, and the outlet at Dock No. 13 about 450 feet.

An important work, which should be attended to this year, is the extension of the Orleans-street sewer to a junction with the Porter-street outlet.

The old sewer in Orleans street, between Sumner and Maverick streets, has been rebuilt already on the proper grade to connect with the Porter-street outlet.

This grade being lower, by about a foot and a half, than that of the Sumner-street sewer through which it finds its outlet temporarily, it is dammed up that much at the present time.

When the sewer is built through the extension of Orleans street, this damming up will cease, and the new outlet will convey the storm-water from about 32 acres, mostly high land in the vicinity of Webster, Sumner, and Cottage streets,

directly to the Porter-street outlet, thus relieving the Bremen-street sewer, which is now overcharged, between Decatur and Porter streets.

It will require about 650 feet of 4-ft. circular brick sewer, and the same amount of 4-ft. square wooden sewer.

Wesley-street sewer is broken down and should be rebuilt this year, as a portion of Paris and Meridian streets drains through it.

Havre street, between Marion and Porter streets, is in bad condition, and the same is true of London street between the same limits.

At Orient Heights there are a large number of houses which need sewerage on Leyden street, west of Breed street. It will take 1,800 feet of sewer in Leyden street itself, equally divided between brick and pipe sewer, and as the street slopes away from Breed street, it will take 640 feet more of brick sewer for an outlet for it. Ashley avenue also needs sewerage, between Breed and Bennington streets; this will take 750 feet of brick sewer.

The Metropolitan Drainage Commission are about to begin the branch sewers which are to encircle the island, and it is probable that the greater portion of them will be built this year. This department will have to make the necessary connections between the common sewers and the intercepting sewer, which will involve a large outlay.

There are twenty-one outlets in East Boston at present. As soon as the siphon under Belle Isle Inlet is built, the State sewer will be completed from the Pumping-station in East Boston to Point Shirley, and it is hoped that arrangements may be made with the commissioners to use it with a temporary outlet at Point Shirley to take the sewage of Orient Heights and the adjoining part of East Boston this year, and do away with the nuisance at Orient Heights.

Work done during 1892.

Six thousand nine hundred and forty-five linear feet of sewers and 547 feet of surface drains were built by the city last year. This includes 872 feet of large brick sewer and 658 feet of pipe sewer built at Orient Heights.

The Cottage-street sewer has been carried out to the Porter-street outlet by building 1,181 feet of brick and wood sewer on piles.

Moore street and Lamson street outlets are being carried out to deep water, in order to abate nuisances caused by the sewage lodging upon the flats at these places.

CHARLESTOWN DISTRICT.

The district in the vicinity of Arlington avenue and Alford street will require a considerable amount of sewer building. A system of separate house sewers should be built here to connect with the Metropolitan sewer. That portion of the district lying south-east of Dorrance street should be drained into the Metropolitan main sewer, which runs through the new park, about 40 feet south-east of and parallel with Alford street.

The remainder should be connected with the Arlington branch of the Metropolitan sewer, near the Somerville line. The first-mentioned portion of the district will require about 2,700 feet of pipe sewers, and the second portion about 3,200 feet to sewer all the existing streets.

A portion of these sewers should be built the coming year, as a temporary overboard outlet can be given them until the Metropolitan system goes into operation. If these sewers are all made 15-inch pipes, the system will afford a storage of 30 to 50 minutes for the house sewage and a small portion of roof water, which is probably sufficient for this district.

The existing sewers will serve to carry the surface water from the streets, but in the streets at present unsewered, surface drains will have to be built. The streets will require in the aggregate about 2,100 feet of pipe drains at a shallow depth, but these will not need to be built until the streets are improved.

A very large area lying between Rutherford avenue and the Somerville line, which formerly consisted of mill ponds and tidal flats, has been filled in by the railroad companies during the last few years. These spaces used to be available for storm outlets for all the sewers coming down the westerly side of Bunker Hill. As the filling has gone on, the sewers in the vicinity of Rutherford avenue have given trouble. A large storm sewer will have to be built through this filled district to carry the surface water of the district itself, and the storm overflow of the sewers on the west side of Bunker Hill; and the city of Somerville should cooperate in building it.

Work done during 1892.

Two thousand nine hundred and thirty-six linear feet of sewers were built by the city, all by day-labor. The work consisted mostly of rebuilding of old, broken-down sewers, and requires no further mention.

ROXBURY DISTRICT.

Hallock and Ward streets, mentioned last year, should be attended to and rebuilt. The Harrison-avenue sewer between Chester park and Eustis street is settled so much as to be in about the same condition as the sewers in Canal-street district as described under City Proper. It cannot be cleaned properly, and the sewage lies stagnant in it. A considerable district is affected by it, extending on Harrison avenue between the limits named, and on the streets running westerly from the avenue toward Washington street.

This sewer and such of the lateral sewers as are settled with it should be rebuilt at once; and the worst of the work should be done before hot weather, as there are many tenement-houses on these streets. As there are beds of mud under Harrison avenue seventy feet or more deep, it would be enormously expensive to put in a pile foundation. A wooden sewer lined with concrete would be better adapted to the conditions, and very much cheaper. Such a structure would have elasticity enough to bend without breaking in case further settlement of the street takes place, and if it becomes settled very badly, the arch can be raised and the invert concreted up and the grade restored in this manner.

The sewer in Fellows street is settled and broken so badly as to be inoperative. It should now either be built upon a pile foundation, or some form of wooden sewer built as recommended for Harrison avenue.

The district bounded by Hammond, Tremont, and Lenox streets and Shawmut avenue, and the adjacent streets, have been carefully studied and a plan devised for converting the existing sewers, which are upon the combined system, into a complete separate system.

The present sewers receive the storm water from the streets as well as the house drainage, and the cellars, being but little above the level of the sewers, are flooded by this surface water. This difficulty will be obviated when the separate system is completed, because the surface water will be excluded from those sewers which are devoted to house drainage.

Plans are now ready for building the new sewers which this scheme calls for.

Another district in which the conditions are exactly similar is bounded by Culvert, Tremont, and Davenport streets, and the Providence R.R.; this has been studied in the same way and plans prepared for accomplishing the same end.

The unsewered district bounded by Chester park, Gerard street, Norfolk avenue, and the New York & New England R.R., and that portion of the area of South Bay lying be-

tween Chester park, the Harbor Commissioners' line, Roxbury Canal, and the New York & New England R.R., soon to be filled in, have been studied together and several plans worked out for sewerage them; as soon as a definite decision is made as to which plan is best, the work of sewer-building can proceed.

Along the old channel of Stony brook, between Huntington avenue and the Roxbury crossing, are situated a number of dwelling-houses, car-shops, stables, etc., which are too low to drain into the sewer system, and have been draining into Stony brook. These have been traced out by agents of the Board of Health and City Engineer's Department.

Pipe sewers will have to be built, located behind the side walls of the brook channel wherever practicable, and beneath the channel of the brook itself, wherever the first plan cannot be followed. Levels have been taken to all cellars in the vicinity of the brook, and plans prepared showing the relative height of the cellars and the brook channel, and the room between the buildings and the walls of the brook.

These plans show that there will be required 3,050 linear feet of 12-inch pipe sewer laid behind the walls of the channel.

These sewers will find their outlets into the intercepting system at Huntington avenue, Providence R.R., Tremont street, and Hampshire street, and into the Vernon and Lamont street common sewer at the corner of these two streets. One of these new sewers will furnish an outlet for a short length of pipe sewer on Vernon street, between Lamont and Simmons streets, which now drains into the brook.

A 12-inch pipe-sewer should be built on the north side of Vernon street, between Lamont and Cabot streets, to take the drainage which enters the Vernon-street sewer below the point of interception at Cabot street, and thus finds its way into the brook.

This pipe should empty into the existing pipe-sewer on the south side of Vernon street. When these sewers are completed they will furnish outlets for all building-lots along the course of Stony brook, between Huntington avenue and Linden Park street, except on the easterly side of the brook on Rogers avenue, between Huntington avenue and the Providence R.R.

On Sherman and Warren streets, near Bower street, there have been complaints of cellar-floodings. The matter has been investigated and found to be due to the insufficient size of the sewer which runs through Ottawa, Dale, and Laurel streets and Walnut avenue. If an attempt is made to relieve

this locality by rebuilding this sewer, it will be necessary to rebuild for a long distance, from Sherman down to Wakullah street, about 2,230 feet, at very great expense.

A scheme has been investigated for effecting relief by tapping the Warren-street sewer at Savin street, and conveying the drainage of a large district down Savin street to the sewer in Blue Hill avenue.

This would require a deep-cut sewer entirely through ledge for about 2,100 feet, at a cost of at least \$10 per linear foot. As the number of cellars flooded is small and the cost of affording relief so great, it would be better for the people to put back-water traps on their drains and protect themselves for the present.

Work done during 1892.

Nine thousand three hundred and seventy-seven linear feet of sewers have been built by the city, and 3,868 feet by private parties. The most important work was the extension of the Dorchester-brook sewer from Clapp street to Norfolk avenue, and up this avenue to Clapp street again. Four hundred and eighty-five linear feet of brick sewer, 9 feet by 13 feet inside, and a large and peculiar bell-mouth on a pile foundation, were built between the first-named limits, and 518 feet of 8-foot 6-inch by 8-foot brick sewer were built in Norfolk avenue. At the point now reached, the corner of Norfolk avenue and Clapp streets, the department will begin at once the building of a sewer in Norfolk avenue to extend as far as Magazine street, which will afford outlets for sewers in Shirley and Langdon streets, and adjacent land where there has long been a demand for sewers.

Another important job was the extension of the trunk sewer up Huntington avenue from Vancouver street to Longwood avenue, and up the latter avenue to Bumstead lane.

By this means the nuisance which has existed so long on Longwood avenue caused by the overcharging of the sewer with storm water will be abated.

Other sewers require no especial mention.

BRIGHTON DISTRICT.

The most important work which will be called for in Brighton is the new system of sewers for that portion of the town lying west of Parsons street. A new outlet must be established, as no further extensions westward of the existing system are possible. Plans are in readiness for main sewers in Parsons street, from the Metropolitan sewer to Faneuil street; in Faneuil street, from Parsons street to Oak square;

in Fairbanks street; and in Washington street from Oak square to Foster street. A beginning should be made on this system the coming year.

Plans have been prepared for connecting the Abattoir and Tripe-works drains with the Metropolitan sewer, and these connections can be made as soon as the Metropolitan Sewerage Commissioners decide as to whether each drain may be taken in separately, or whether they must be collected into a few inlets.

If the latter is decided upon, three is the smallest number of inlets that is practicable, and it will require 1,750 linear feet of pipe sewer to collect these numerous drains into three inlets.

Plans are now ready for building the culverts on Commonwealth avenue, the absence of which was commented on last year. Near Chestnut Hill avenue about 200 feet of 3 feet \times 3 feet stone culvert is required. From Allston street easterly, 550 feet of 3 feet \times 3 feet 4 inches stone culvert will be required on the north side of the avenue, then 220 feet of 3 feet \times 4 feet 4 inches to convey the water across to the southern side of the avenue; the first length mentioned will also serve to drain the gutters of the north side. Between Allston and Warren streets there is a culvert whose condition is fairly good as far as it is known, but whose exact location is uncertain. It is not quite large enough; its capacity can, however, be supplemented by laying a 24-inch pipe under the proposed location of the gutter on the north side of the avenue.

Near Reedsdale street, to restore the brook from Harvard Crystal spring to its old channel will require 200 feet of 4 feet \times 4 feet stone culvert. Between Essex and Malvern streets 4,450 feet of pipe drains will be needed to take the surface water of the new avenue, and about the same amount of pipe sewers for house drainage. It will be injudicious to build either of these classes of sewers until all settlement has ceased where new fills have been made. From Harvard avenue nearly down to Perkins pond the brook runs within the lines of the avenue on the south-easterly side; in widening the avenue out to its lines it will be necessary to build about 2,200 feet of 6 feet \times 6 feet stone culvert, lowering the grade of the brook at present about 4 feet; this culvert will be so designed as to admit of further deepening if greater capacity should be wanted in future.

At Everett street, near Braintree street, it is impracticable to restore the channel of the brook on its old lines, its location having been covered with houses; the only practicable solution of the question, at this point, is to build a storm

sewer in Everett street, between Braintree street and a point 450 feet south, thence along a property line to the old channel. As the brook culvert under the Boston & Albany R.R. is not as large as it will need to be in future, it is useless to build the storm sewer in Everett street as large as it will require to be when the district is fully developed, but it may be of such width that when deepened to a uniform grade-line it will have the requisite capacity, and will also have sufficient capacity, at the present time, to answer present requirements. A stone culvert seven feet wide and four feet deep between Braintree street and the point where the culvert has been built through the embankment of the new Everett street, and six feet wide and four feet deep from that point up to the property line before mentioned, would answer those requirements. At Shepard street, near the head waters, this brook has been taken into the sewer, which is altogether too small to carry it. It should be taken out and restored to its old channel, which is still traceable between Shepard and Winship streets. If this is not found to be advisable, then a storm sewer should be built down Shepard and Washington streets. One scheme or the other should be carried out this year, as the brook floods the houses on Shepard street at every storm, creating unhealthy conditions. The brook is again taken into the sewer on Cambridge street, near Washington, and if the plan of building storm sewers be resorted to, the one just described should be continued down Washington, Cambridge, Murdock, and Sparhawk streets to the old channel, which is well defined below this point for a long distance. On North Beacon, near Arthur street, the brook is again taken into the sewer system, but could easily be restored at this point.

In Bayard, Weitz, and Kenneth streets, house sewers were built in 1892, connecting with the Rena-street system of separate sewers, which is connected directly with the Metropolitan sewer; no catch-basins can be connected with these sewers. These streets are private now, but surface drains should be built in them the coming year, either by the city, or by private parties if the streets remain unaccepted. Eleven hundred and sixty-five feet of pipe surface drains will be needed, and 285 feet of 30-inch brick sewer in North Harvard street, to connect them with the brook near Coolidge road. Weitz and Kenneth streets both pitch toward Franklin street, but no more surface water should be put into the sewer in that street, as it is overcharged now.

There is a call for sewerage in North Harvard street from Spurr street to the Charles river. As this street lies between

the Metropolitan sewer and the river, two sets of sewers, entirely separate, must be put in; house sewers pitching toward the Metropolitan, and storm sewers toward the river. There will be required 2,800 feet of house sewers and 2,230 feet of storm sewers, all pipe sewers, from 12-inch to 24-inch in size.

Work done during 1892.

Seven thousand six hundred and seventy-five linear feet of sewers were built by the city by contract or day labor, 2,442 feet by private parties, and 2,170 feet of storm sewers by the city. Three of the sewer systems of Brighton have been connected with the Metropolitan sewer, — at Western avenue near Market street, at Western avenue near Everett street, and at Salt creek near Beacon park, — and the pollution of the river at these points has ceased. The fourth connection, on North Beacon street at the iron bridge of the Boston & Albany R.R., is in process of construction. Each of these connections involved the building of complicated regulators and sump manhole chambers and the setting of automatic regulating machinery therein. The last two mentioned required in the aggregate about 1,200 feet of large brick sewer to reach the Metropolitan sewer. There is but one sewer outlet remaining in Brighton to connect with the State sewer, — a small one near Faneuil station. Some small, cheap regulating device may be put in here, and an inexpensive connection made with the State sewer.

Other sewers require no special mention.

WEST ROXBURY DISTRICT.

The outlet for south street, between Keyes and Morton streets, and also for Anson and St. Mark streets, will have to cross the Providence Division of the Old Colony R.R. in order to reach the main sewer in Washington street; it will cost \$5,000, and should be built before anything is done toward raising the tracks of the railroad, as is proposed.

In the vicinity of Spring street and West Roxbury stations, on the Providence Division of the Old Colony R.R. (Dedham Branch), a populous district is growing up and already needs a system of sewerage. The brook which drains this valley is considerably polluted now.

It is going to be a very difficult matter to provide proper sewerage for this and other districts which lie beyond the ridge which separates the Stony-brook water-shed from the Charles-river water-shed, and which cannot, therefore, be

drained into the Roslindale main sewer. These districts drain toward Charles river, but sewers cannot be run into the river, because a number of towns — Brookline, Newton, Needham, Wellesley, and Waltham — draw their water supply from the river below this point. The sewage of these districts will be finally disposed of by an intercepting sewer, which will run either through Dedham and Hyde Park, down the valley of Mother brook and the Neponset river, or down the valley of the Charles river through Newton to Waltham, the present terminus of the Charles-river Valley Metropolitan Sewer. Either of these routes will require an act of the Legislature to obtain the coöperation of the towns through which it must run, and probably many years will elapse before it can be built. Investigations should be begun at once to determine which route is preferable. The question now is, What is to be done with the sewage until such a sewer can be built? Only two courses are open from which to choose, — either to filter or otherwise purify the sewage and then run it into the river, or to pump it back over the ridge into the Roslindale main sewer.

A rough estimate has been made upon the latter scheme, including sewers in the principal streets, a pumping-station, and a mile or more of iron force main; the cost has been figured at \$40,000. The sewage would be discharged into the head of the Roslindale main sewer at Centre street, corner of Mt. Vernon street.

A petition has been received by this department to fix the grade of the brook which drains the Spring-street valley.

Surveys have been made and levels taken and a reasonable grade determined, and the sizes of all culverts calculated where streets cross the brook. It might be advantageous to build some of these culverts in order to remedy cases of flooding, but it would not be judicious to do any great amount of deepening or straightening of the brook channel, whereby its water would be delivered more quickly into Charles river, until some system of sewers has been built and the present sources of pollution removed from the brook.

Work will be continued steadily on the Roslindale main sewer, and about the same rate of progress maintained as heretofore.

Demands are arising for sewers in the low districts near the main channel of Stony brook; these demands cannot be satisfied, as the existing sewer system is too high.

The only way such territory will ever be drained is by a sewer near or within the channel of Stony brook, and at a



MORTON-STREET CULVERT — STONY BROOK.

lower elevation than the present Stony-brook valley sewer, substantially in the manner outlined in last year's report.

Work done during 1892.

Nine thousand eight hundred and ninety-one linear feet of sewers were built by the city, 4,192 feet by private parties, and 1,049 feet of surface drains and 350 feet of stone culverts by the city.

Two thousand seven hundred and seventy-seven linear feet were built on the Roslindale main sewer, and 1,700 feet on a brick main in Centre and May streets.

No other work requires special mention.

STONY BROOK.

Stony brook gives but little trouble, but requires considerable attention.

At the inlet chamber near Pynchon street, by means of various sets of stop-planks, the flow can be turned either into the new channel to the Back Bay park, or entirely down the old channel. The Boston Belting Company, whose factory is situated on the old channel, and who claim the right to the water, want all the water during the small flow of summer; the old channel has to be left open and the openings to the new channel closed by stop-planks in order to accommodate them.

At the same time, whenever a sudden rain occurs, the old channel must be closed by stop-planks and the flow turned into the new channel in order to prevent Roxbury from being flooded. As these floods are as liable to occur at night as in the daytime, constant attendance is necessary.

On the night of August 12 and 13 a violent storm occurred (in half an hour 1.35 inches of rain fell), the brook rose in a very short time and ran 4 feet 9 inches deep; it fell again to about half that height with equal rapidity. Such a sudden rise brings down great quantities of rubbish of all kinds, — branches and roots of trees, pieces of fences, railroad ties, planks, etc., — which must be caught and prevented from going down the new channel.

During the severe cold weather, great quantities of ice are formed in the brook. When a rain or thaw occurs and the brook rises several feet, these sheets of ice, 8 to 11 inches thick, are loosened and come down stream, blocking up the culverts and damming up the brook unless promptly broken up. Under these conditions the ice has piled up 8½ feet deep at the inlet chamber.

Last year's report called attention to the necessity of

carrying up the low-grade channel (according to the plan of the Commissioners of 1886) from the inlet chamber to Boylston station, before the proposed raising of the track of the Providence Division of the Old Colony Railroad is begun.

The Grade Crossing Commission have considered this difficulty, but have taken no definite action; if nothing is done, an unnecessarily expensive job will be entailed upon the city.

DORCHESTER DISTRICT.

The question of draining the Corbett, Maxwell, and Capen street district, discussed in last year's report, has been investigated and estimates made on seven different routes.

The choice lies between a cheap scheme which will serve some of the district well and more of it poorly or not at all, and some expensive scheme of tunnelling to Dorchester bay or the Neponset river, which will give good service to this and all the adjacent districts lying within that part of the Canterbury branch of the Stony-brook valley.

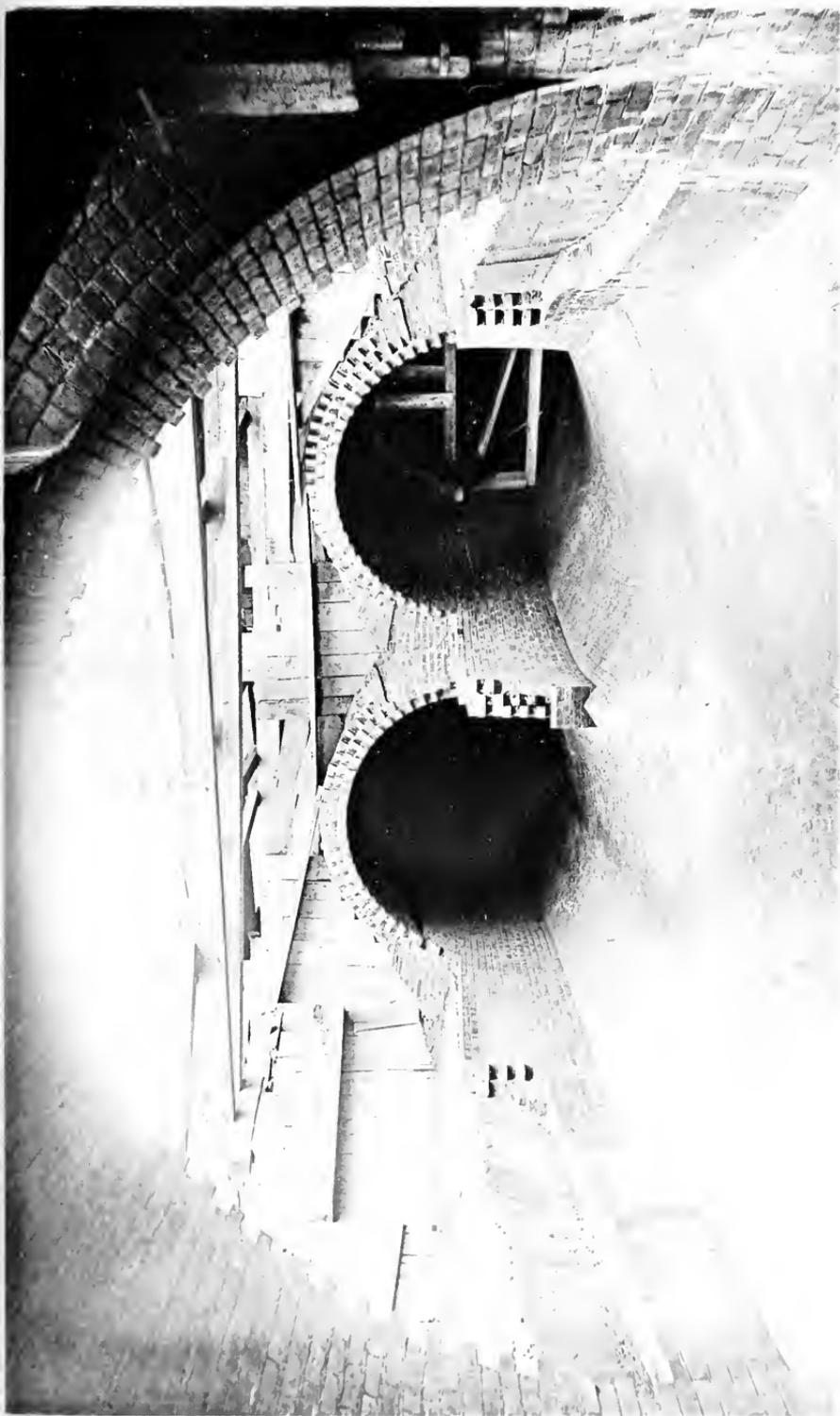
The first route is to start a sewer at Talbot avenue near Bernard street, pass between the Catholic cemetery and the Franklin Field, through Lyons street and across Ballou avenue to Norfolk street, corner of Capen street, whence the system can be carried in every direction.

This system would serve the Corbett, Maxwell, and Capen street district well, but would be of little or no use in Lyons street, being scarcely under ground, and would be of no use in the district bounded roughly by Noyes and Ballou avenues, Lyons street, Blue Hill avenue, and Morton street.

The second scheme is to begin at Central avenue on the Neponset river, thence through the "Lava Beds," so called, private land, Morton street, and private land, Capen street, to Ballou avenue.

This would have about 4,300 feet of tunnel, and would require the completion of the intercepting sewer as far as Central avenue, at a cost of \$150,000 (for which the money is practically available, however). The principal objection to this route is that it lies through an uninhabited country where there is no necessity at present for a sewer.

The third route investigated begins in the Neponset about 2,000 feet above Central avenue, thence to the Mattapan brook about 1,200 feet south of Forest-avenue station, thence northerly across Morton and Norfolk streets, through Shreve street and Madison avenue to Ballou avenue. This route is a little cheaper than the preceding, but requires an extension of the intercepting sewer above Central avenue, the cost of



BELL-MOUTH, DORCHESTER BROOK SEWER.

which, if added, would make it more expensive. Its route is totally uninhabited.

The fourth route is that by way of Park street, West Park street, Bernard street, the Parkway and Lyons street, to Ballou avenue. This would cost roughly about \$280,000, and is perhaps the best of the tunnel routes. It lies through a country where sewers are wanted, but where few have been built; and by means of it the Talbot-avenue sewer can be tapped and made more effective, and the engorgement of the Centre-street tunnel can be relieved.

The fifth route investigated is practically that of the present Centre-street tunnel. It is more costly than the Park-street route, and has the additional disadvantage of following streets most of which are already sewered.

The sixth route may be called the Rosemont-street route; beginning on Mill street at the intercepting sewer, through Mill, Adams, and Rosemont streets; thence through private land to Brent street; thence through Talbot-avenue extension, and the same route as the preceding. A variation of this route by going through Southern avenue was tried. These routes look well on paper, but are more expensive than the preceding, more tunnelling being required.

The seventh is by way of the valley of the Davenport brook.

If the existing streets have to be followed, the length of this route, and especially of the tunnel, becomes so great as to carry its cost above all the others, as the streets run diagonally to the desired direction; but if a tunnel could be carried straight from a point on Van Winkle street to a point on Lyons street under private property, without incurring land damages, it would be a little cheaper than the Park-street route.

Whatever tunnel scheme is adopted should provide that the sewer, when it reaches Lyons street, should have such a depth as to be capable of being extended westerly as far as the junction of Walk Hill and Canterbury streets, as that is the extreme easterly limit to which sewers can be extended from the sewer system near Forest Hills station.

Any plan including a tunnel will take at least a year to build, and much more unless many sections are started at the same time, whereas the district mentioned needs sewerage this coming season. This can be effected by the following scheme: let the sewer be built as outlined in the first scheme; that is, through Capen and Lyons streets to the Parkway; but instead of being built at a high level, so as to drain into Talbot avenue by gravity, let it be built deep enough to drain Lyons street and Chapman and Lauriat

avenues properly. Then let a temporary pumping-station be established, by which the sewage may be raised and conveyed through a cheap temporary conduit of pipe or wood through the Parkway to Talbot avenue. When the low-grade sewer from the tunnel reaches the location of the pumping-station, the latter would be discontinued, and the sewers already built throughout the district would form a consistent part of the tunnel system.

The healthfulness of this district for residential purposes could be greatly improved by improving the natural water-courses, — the Canterbury branch of Stony brook and the Mattapan brook.

If these were deepened and graded, they would drain off the surface water which now makes marshes and quagmires in the vicinity.

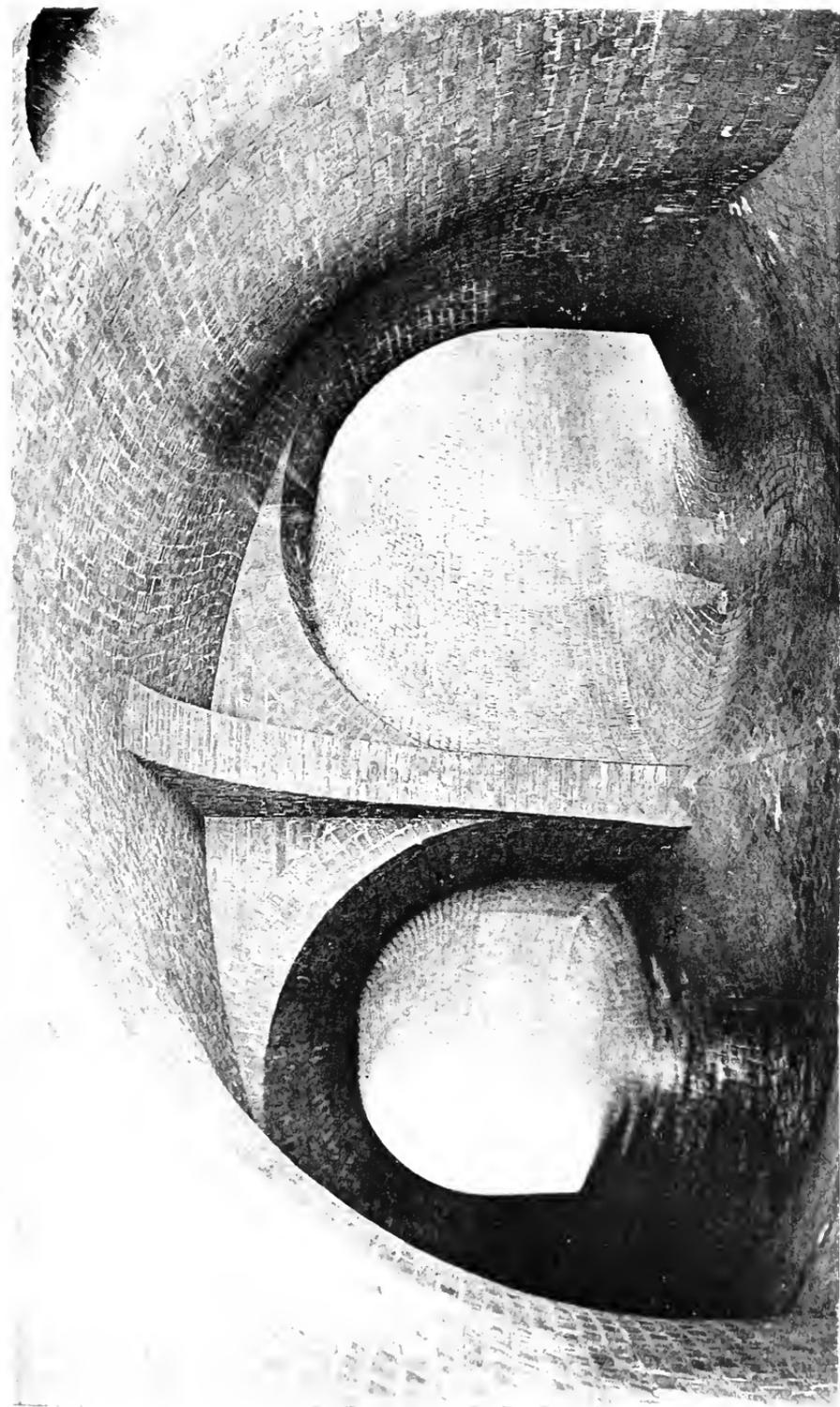
These improvements could be carried out at small expense compared to the benefit and enhanced valuation, if the land-owners would grant the city the necessary rights, and not seek to recover speculative damages on account of the city's operations.

On Park street, near Dorchester avenue, and on Gibson and Adams streets, there is constantly trouble from flooding. Overflow connections have been made from the sewers into the brooks; these have been provided with tide-gates to prevent high water in the brook channels from flowing back into the sewers. The explanation is that the combined capacity of the brook and sewer is not sufficient to carry off the flood water of the valley, which finds its outlet in this locality into Tenean creek. The sewers are capable of bringing down at least 95 cubic feet per second, and the two brook channels 250 cubic feet more, making at least 345 cubic feet altogether, while the combined capacity of brook and sewer to discharge against a high tide is not over 200 cubic feet per second. Floods must always occur here until a greatly enlarged outlet is provided.

There has been a movement to build a covered channel for that part of the creek below Adams street, and make a park of the adjacent land. Plans have been prepared by the City Engineer's department for this covered channel, and this department has also prepared similar plans, but our plans cover the brook channel up as far as Park street near Dorchester avenue. The estimated cost is \$125,000. If this improvement of Tenean creek is carried out, it will afford adequate relief to the sewer system.

The northern half of the Savin Hill peninsula needs a sewer system, as it is now being built upon quite rapidly.

A new inlet will have to be made into the Dorchester In-



BELL-MOUTH, DORCHESTER BROOK SEWER.

terceptor in Sidney street. A separate system of house and storm sewers, like that just built in the southern part, should be put in; \$25,000 will cover the cost of as much of it as is necessary at present. The Dorchester Lower Mills sewer will probably reach the vicinity of Morton street at the end of the coming working season; the local sewers to drain all that portion of the village around Morton and Sanford streets may then be built. The remainder of the village will have to be drained by a system of separate house sewers connected directly with the Interceptor, which will probably be completed about the same time.

Work done during 1892.

Sixteen thousand one hundred and five linear feet of sewers were built by the city, and 11,450 feet by private parties; 3,971 feet of surface drains and 266 feet of stone culverts were built by the city. None of these sewers call for special mention, except perhaps the completion of the system of storm sewers in Geneva avenue and Westville street, which, being at the head waters of Tenean creek, shows that this watercourse will have to be improved throughout its whole length eventually.

MAIN DRAINAGE WORKS.

The general working of this branch of the Sewer Division is as satisfactory as ever. There is urgent need of repairs to some of the machinery of the plant to bring it to its proper efficiency, which will be spoken of later in detail.

That portion of the Metropolitan Sewer System constructed to drain Brookline, Brighton, and Newton, which was in the original design of this system, was connected in April, and the sewage of Brookline and Newton has since been handled under an arrangement made with the Metropolitan Commissioners.

Before the coming summer, all the Brighton sewers will have been connected with this system, and no sewage will then enter the Charles river from the southerly bank, between the Back Bay district and Newton.

The main and intercepting sewers throughout the city have been carefully inspected and cared for continually. Considerable flushing was necessary, during the warm weather, to keep them sweet and clean. All the tide-gates and regulators were inspected at every storm, and all iron-work on them kept properly painted. The headquarters of the force that attend to this work are on East Chester park.

The buildings there generally are entirely inadequate for the purpose for which they are used. They are, in fact, nothing more than shanties that were left on the ground at the time the main sewer was built. Proper buildings should be placed on the lot without further delay, to facilitate the work and give some comfort to the men who attend to this work through the year regardless of the weather.

At the pumping-station there has been considerable done in the way of repairs during the past year, but it constitutes but a small part of what there is yet to be done. The pumps have been run now continuously for nine years, and, as was stated in last year's report, the action of the sewage during that time has so worn away the valve and gate seats that all need renewing.

It is very necessary that this work should be done as soon as possible, as there is, with the present condition of the valve-seats, a large percentage of slip to the pumps, which means an increase in the consumption of coal without an increase in amount of sewage pumped. The repairs are of such an extent that it cannot be done out of the regular maintenance fund, but will require a special sum for the purpose. It was the failure to get such an appropriation that prevented more progress in the work this last year.

Pump No. 2 was thoroughly overhauled and put in first-class condition throughout. The valve-seats on both suction and delivery were renewed with composition; the plungers were turned down and the old rings replaced by stuffing-boxes.

A large quantity of sand was removed from the pump-well. This deposit was caused by the pump being able, on account of the slip, to do but a small part of its proper work.

Pump No. 1 is in about the same condition that No. 2 was before repairs were made. The main shaft and wheel of No. 3 were raised and the boxes rebabbitted. The plungers were repacked with metallic packing. There remains to be done as follows: Facing with composition the valve-seats on the delivery of Pump No. 3; the delivery valve-seats on Pump No. 4 also need to be faced with composition, and the main shaft raised and the boxes rebabbitted. Nothing has been done in the way of repairs on the gates at the filth-hoist and pump-wells, but it is not safe to delay the repairs longer. The old feed-water heaters have been replaced by "Green Fuel Economizers," which have worked well from the start and promise to be a great improvement. An auxiliary flue from each pair of boilers, to connect with

opposite chimney flue, was put in, so that the flue-heaters could be inspected without shutting down the boilers.

That portion of the ventilating-pipe that is in the coal-house which connects the pump-wells with the chimney should be replaced. It has been useless for some time.

Repairs were made on the wharf at the pumping-station. The tops of the fender-piles having rotted badly, the piles were cut below the top of the wharf, and oak pile butts, to extend above the wharf, were spliced on and painted, to protect them. The wharf should be extended about seventy feet, for the double purpose of serving as a support to the tow-boat when on the blocks, and affording a safe berth for the boat when other vessels are lying at the wharf.

Some dredging has been done in front of the sludge tank, to enable the loading of the scow at all stages of the tide.

The whole of the dock channel should be redredged to its former depth, otherwise the tow-boat will not be able to make or leave her berth at low water.

November 25, 1892, the sewage was shut out of the tunnel while the connections were being made at Squantum with the new permanent brick outfall sewer, which replaced the old temporary wooden flume.

While the sewage was shut off, the gates at the west shaft were overhauled and repaired. The cage at the top of the shaft was repaired also. Since the completion of the permanent outfall sewer two tests of the tunnel, to ascertain the reduction of area, if any, from deposits, have been made, and show a loss of about 18 per cent. in area. It is probable that this reduction is caused by deposit due to the reduced velocity of the sewage flow through the tunnel for the last two years, which could not be remedied, as the weak condition of the flume prevented a proper flushing of the tunnel. If the above is the cause, the continued flushings that the tunnel will receive from the spring rains will move the deposit, and later tests will show an increase in area. If this result does not follow, it will indicate that there is some obstruction other than sludge. In that case, the only solution is that some of the pump-guides in the east shaft have become detached and fallen into the tunnel. This danger was spoken of in last year's report, and the recommendation made then, that the pumping machinery which was designed for pumping out the tunnel, and purchased in 1884, be put in position at the east shaft without delay.

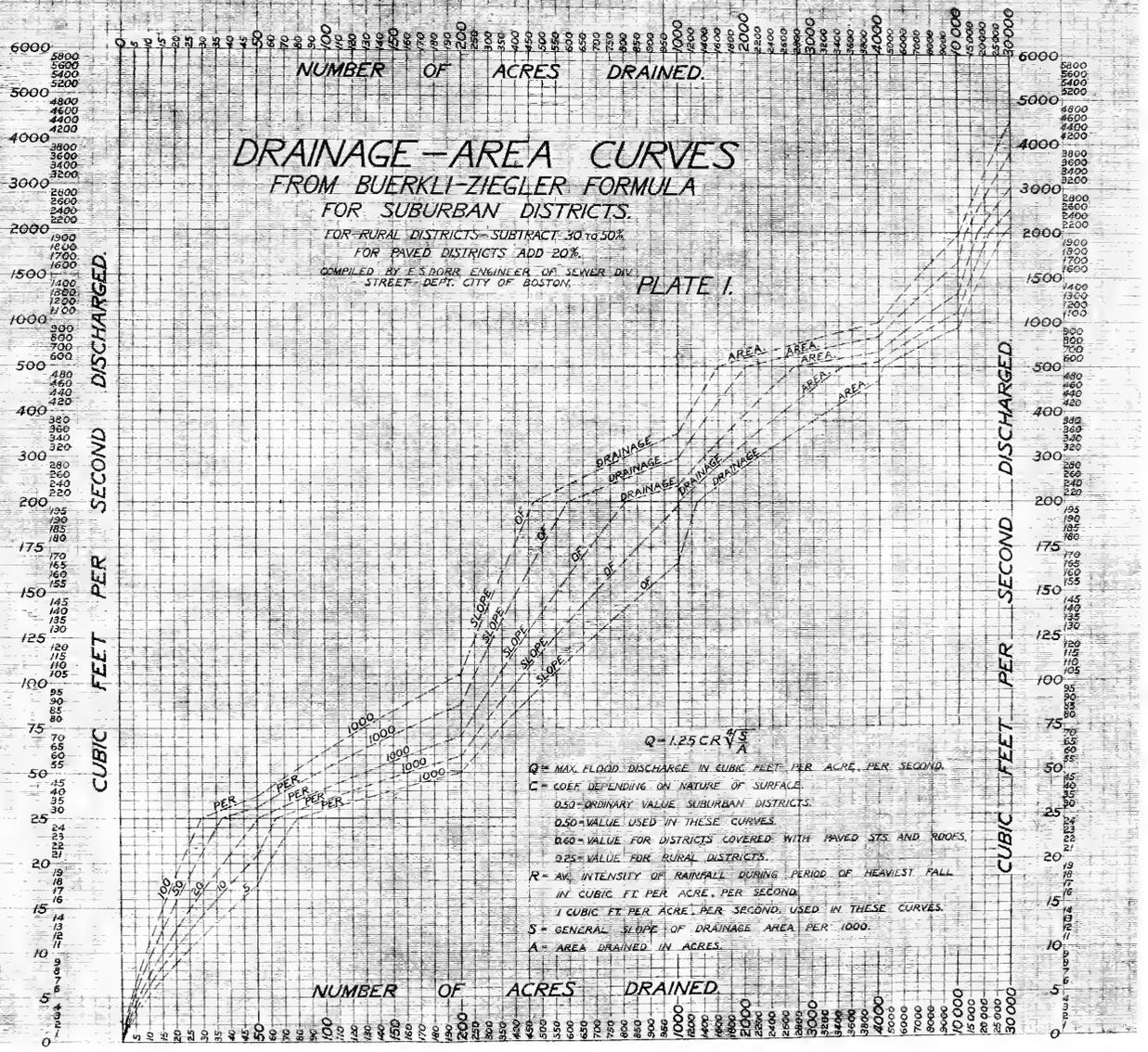
The condition of the plant at Moon Island is good, with the exception of the gates on the outfall and discharge sewers and a few other points of less importance. The action of the sewage here on the submerged ironwork

is as marked as at the Pumping-station; and it is found necessary to renew all the gates and frames. The work cannot proceed rapidly, for outside of the machine work it is tide work. The discharge gates are in worse condition than those on the outfall sewer. Six of the former have been renewed and are in perfect working order. The bearing parts of the gates and frames are faced with composition, and the frames are bolted to the masonry with composition bolts. The framework of three more is finished, and by next fall the renewal of the twelve discharge gates will probably be completed. Some repairs were made on the gutters and concrete bottom of Division No. 1 of the reservoir. Considerable pointing is still necessary on the reservoir walls. The old portion of the outfall sewer is in good condition, with the exception that some of the arch, which has always been above the flow line, needs pointing. The gas in the sewer, where the masonry is never submerged, seems to take the life out of the mortar. This disintegration extends to a depth of an inch or more, in some parts of the arch. Of that portion of the sewer that is in bad condition, 208 linear feet have been pointed, and about 280 feet more remain to be done. This sewer needs better ventilation, which may account partly for the above trouble. More open covers would be an improvement; also an extra manhole should be built about half-way between the connection chamber and the new work; and a boat chamber near the gate-house. The turbine at the gate-house will have to be renewed again. The working parts should be of composition, as the iron is too short-lived, sewage being used for power. The building of the sea-wall from the outlet to the point of the island, which was in the original design of the works, should not be delayed longer. The eddy formed in the cove causes a slight deposit on the flats. This has been accumulating for nine years, and in summer when the flats are exposed, or it has been stirred up by an easterly storm, the smell from it is quite strong. The conditions here are not in keeping with the other portions of the works.

DIAGRAMS.

Diagrams for determining the sizes of sewers are inserted in this year's report; they are substantially the same as the diagram published last year, but for the sake of greater clearness the sewer curves have been separated from the drainage area curves and plotted on a separate sheet.

These latter curves, shown on plate 1, are intended to give the maximum rate of flood discharge, which it is reasonable to provide for, from a given area of a certain degree of



DRAINAGE—AREA CURVES

FROM BUERKLI-ZIEGLER FORMULA

FOR SUBURBAN DISTRICTS.

FOR RURAL DISTRICTS—SUBTRACT 30 TO 50%
 FOR PAVED DISTRICTS ADD 20%.

COMPILED BY E. S. BORR, ENGINEER, OF SEWER DIV.
 STREET—DEPT. CITY OF BOSTON.

PLATE I.

$$Q = 1.25 C R^4 S A$$

- Q = MAX FLOOD DISCHARGE IN CUBIC FEET PER ACRE, PER SECOND.
- C = COEF. DEPENDING ON NATURE OF SURFACE.
- 0.50 = ORDINARY VALUE SUBURBAN DISTRICTS.
- 0.50 = VALUE USED IN THESE CURVES.
- 0.60 = VALUE FOR DISTRICTS COVERED WITH PAVED STS. AND ROADS.
- 0.25 = VALUE FOR RURAL DISTRICTS.
- R = AV. INTENSITY OF RAINFALL DURING PERIOD OF HEAVIEST FALL IN CUBIC FT. PER ACRE, PER SECOND.
- 1 CUBIC FT. PER ACRE, PER SECOND, USED IN THESE CURVES.
- S = GENERAL SLOPE OF DRAINAGE AREA PER 1000.
- A = AREA DRAINED IN ACRES.

steepness, according to the Buerkli-Zeigler formula, using for the factor R the value 1; *i.e.*, one cubic foot per second per acre, or its equivalent, one inch of rain per hour.

Plate 2 contains the sewer curves, showing the discharging capacity of sewers of a given size at a given inclination.

This diagram is much more complete and covers a greater range than that of last year, showing sewers ranging in size from 6 inches to 20 feet in diameter for all degrees of inclination likely to occur in practice.

Each curve represents two sets of values, — one for a sewer of a certain size running full, and another for a sewer of a larger size running at, approximately, three-fourths of its depth.

Both diagrams have the same vertical scale of cubic feet per second, and in the horizontal scales the same figures are used, representing in plate 1 the acreage of the drainage area, and in plate 2 the inclination of the sewer, or the horizontal length in feet for a fall of one foot.

It has been considered that the Buerkli-Zeigler formula, with a value of R equal to 1, would give as large quantities for maximum flood-discharge as it would be wise to provide for, without attempting to make provision for those unusual rainfalls which occur only at long intervals of time.

There is always room for a difference of opinion as to what constitutes an unusual rainfall; *e.g.*, if the rate selected were such that it was exceeded but once in twenty-five years, it should be regarded as sufficiently high; but if it were exceeded every few years, with consequent overflow of sewers designed upon it as a basis, then it should be considered insufficient.

Some assumption had to be made. It was set at one inch per hour; now the question is whether that is large enough.

In our practice we have been compelled to add a liberal allowance in the case of steep districts, or small districts, or those near the level of tide-water, where cellars are flooded if the sewers run under much of a *head*, and in all well-paved districts.

In studying the records of rainfalls, we are met at the outset by this great difficulty, that these records do not give us what we want to know.

They record the total depth of rain and the total time occupied by it in falling, including the periods of very gentle rain which accompany almost all falls. But it is the *rate* of rainfall *during the period of heaviest constant fall* which determines the maximum flood-discharge in sewers and water-courses.

By dividing the total fall by the total time, the result must

necessarily be much less than the rate during the heavy fall, so that these records are almost useless for our purpose.

An automatically registering rain-gauge, which will record the various rates at which rain falls, as well as the total amount, is the only one which will give the kind of data to determine the proper rate of rainfall to provide for.

There is but one such in the vicinity of Boston, that at Chestnut Hill Reservoir, where Mr. Desmond FitzGerald, Superintendent of Western Division of the Water Works, has made such observations for about fourteen years.

Before discussing these records it is well to consider whether observations taken at this place are fairly applicable to Boston territory in general.

To decide this point, the records of an ordinary gauge at Chestnut Hill, at the sewer yard on Albany street, and at the United States Signal Service station on the post-office, for the last four years have been tabulated and compared.

The records of individual rains at Chestnut Hill and at the sewer yard agree very closely in some cases, and in others are discordant; the monthly totals agree fairly well, and the totals for the year bear a very uniform relation to each other, the total for the sewer yard being about 92 per cent. of that for Chestnut Hill.

The records of the Signal Service station are the most discordant, and are invariably smaller, as might be expected from the elevated situation of this gauge; they should be thrown out in making this comparison.

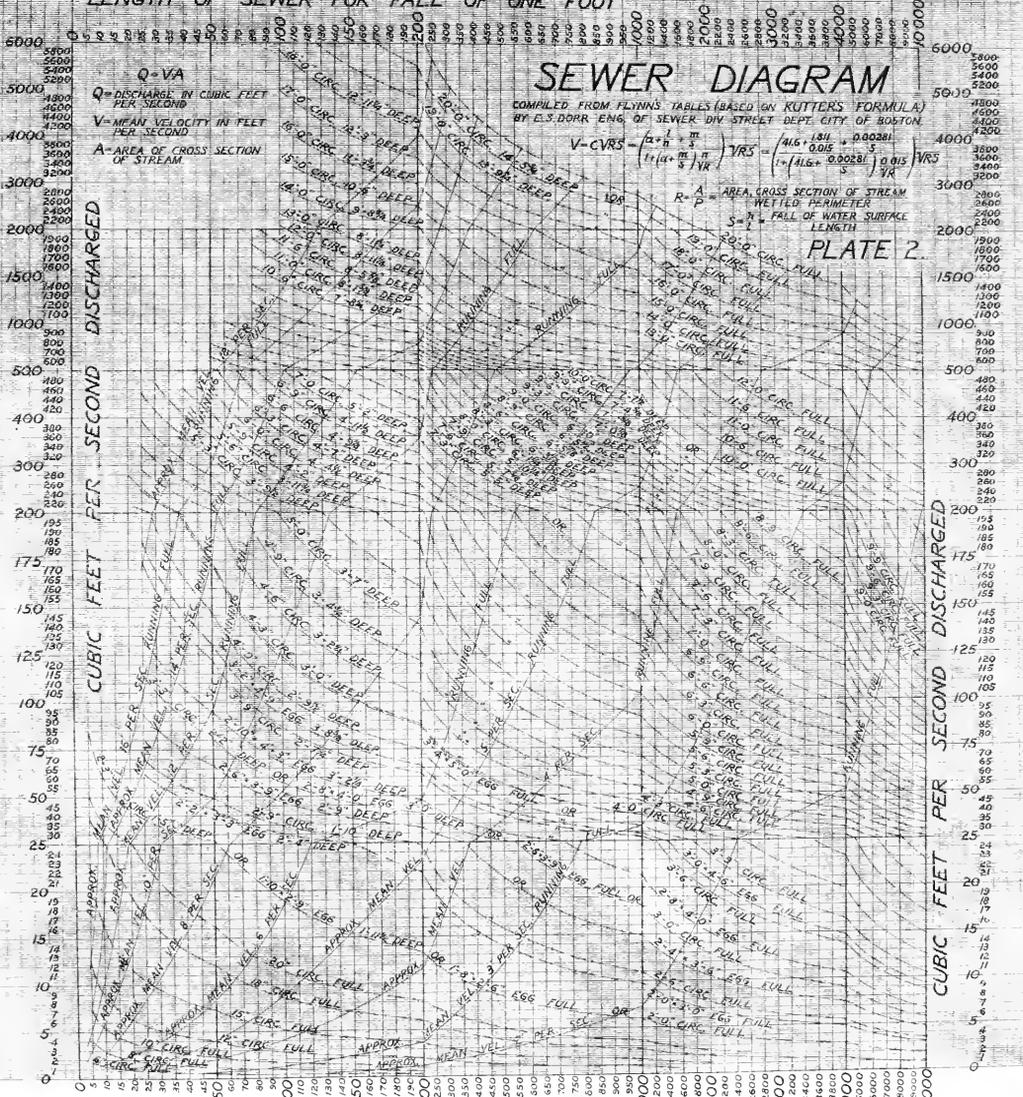
The yearly totals are tabulated below, with the percentage of each of the others to that at Chestnut Hill in brackets.

Year.	Signal Service.	Sewer Department.	Chestnut Hill.
1889	39.81 in. [0.726]	50.31 in. [0.918]	54.79
1890	39.20 in. [0.785]	46.58 in. [0.933]	49.91
1891	39.70 in. [0.799]	46.06 in. [0.928]	49.63
1892	36.92 in. [0.871]	38.33 in. [0.906]	42.27

In the great majority of cases where the records disagree, the rain was accompanied by high winds, and the disagreement may be attributed to the local conditions in the vicinity of the gauges; when there was little wind, the agreement was very close in almost all cases, except in summer thunder-showers of small extent; this being so, and the yearly totals agreeing, it is fair to conclude that the records at Chestnut Hill furnish a fair criterion for estimating the rainfall for Boston territory generally.

The records of this automatic gauge are plotted on plate 3.

LENGTH OF SEWER FOR FALL OF ONE FOOT



LENGTH OF SEWER FOR FALL OF ONE FOOT

SEWER DIAGRAM

COMPILED FROM FLYNN'S TABLES (BASED ON KUTTER'S FORMULA)
BY E.S. DODR. ENG. OF SEWER DIV. STREET DEPT. CITY OF BOSTON.

$$V = CVRS = \frac{1.48}{1.48 + \frac{0.00281}{S}} \sqrt{RS}$$

$$VRS = \frac{416 * 1.48 * 0.00281}{S} \sqrt{RS}$$

R = A / P
A = AREA CROSS SECTION OF STREAM
P = WETTED PERIMETER
S = FALL OF WATER SURFACE LENGTH

PLATE 2

CUBIC FEET PER SECOND DISCHARGED

CUBIC FEET PER SECOND DISCHARGED

LENGTH OF SEWER FOR FALL OF ONE FOOT

In the upper diagram, each point plotted indicates a *constant* rainfall of the depth in inches shown on the vertical scale, and of a duration equal to the corresponding time indicated on the horizontal scale of hours.

The curve, whose equation is $I_D = \frac{2.50 T}{T + 0.50}$, encloses all rainfalls which it seems reasonable to provide for. The interpretation of the formula is as follows: to obtain the maximum aggregate depth in inches which it is reasonable to make provision for, for a storm of given duration, multiply the time in hours by 2.50 and divide by the time plus 0.50.

¹In the lower diagram, each plotted observation in the upper diagram is divided by the time in hours, so that each point in the diagram indicates the hourly *rate* in inches at which the rain fell during the corresponding time; and the formula for the curve of rates, $I_R = \frac{2.50}{T + 0.50}$, means that to obtain the maximum hourly rate in inches for a storm of given duration, for which it is reasonable to provide, 2.50 must be divided by the time in hours plus 0.50.

The lower diagram is simply the upper one divided by T .

Inspection of these diagrams shows that there have been many rainfalls observed during the fourteen years covered by the record whose rate largely exceeds one inch per hour; particularly in those storms in which the constant fall occupied less than one hour, the rates are frequently more than double that rate; and for small fractions of an hour, very high rates have been observed.

When rain falls upon the surface of the ground, it must first wet it, and, if porous, saturate it, before it begins to flow off into the sewers, an operation sometimes called establishing the "drainage-vehicle." If the rain continues at a constant rate, it will reach the sewers at the same rate as that at which it is falling, and as soon as it has filled the volume of the sewers and established the flow, it will reach the outlet or point of concentration of the system of sewers at the same rate at which it is falling.

If the size and slope of a drainage area are such that the time required for the rain falling upon the most remote portions to reach the outlet, in addition to the time required to form the "drainage-vehicle," is an hour or less, it is clear that the flow from the impervious portions of the area will be at the rate of $1\frac{1}{2}$ to 3 or more cubic feet per second per acre. If the area under consideration consists of from

¹ See Kuichling on Rainfall, etc., Am. Soc. C. E., Jan., 1889.

$\frac{1}{3}$ to $\frac{1}{2}$ impervious surface, as is not infrequent in suburban territory, the discharge may reach a cubic foot per second per acre of the entire surface; which is much in excess of what the Buerkli-Zeigler formula will give with a value of the factor R equal to 1.

In well built-up and paved districts, where the percentage of impervious surface is very large, the flood discharge will reach correspondingly large figures.

It is evident that a larger value than 1 should be used for the factor R. The diagram seems to indicate that it should be $1\frac{2}{3}$, but the question is so complicated that it is not clear just what the value should be without more data.

Automatic registering rain-gauges, similar to that at Chestnut Hill, will have to be established at different points around the city, to show the maximum constant rate of rainfall attained in each storm, and other self-registering devices placed in the sewers to show the corresponding maximum flood discharge; then with a few observations on the effect of storms on territory of different character, and on drainage areas of different sizes, some small and some large, like that of Stony brook, for instance, we shall be in possession of the data which are necessary to decide this point.

LAWS AND ORDINANCES CONCERNING THE BUILDING AND ASSESSING OF SEWERS.

The following compilation of the various laws and ordinances under which sewers have been built in the city of Boston has been made for convenient reference:

Act of Legislature passed February 20, 1797, for regulating Drains and Common Sewers.

SECTION 2. Be it further enacted, That all drains and common sewers for the draining of cellars, which shall hereafter be made or repaired in any streets or highways, shall be substantially done with brick and stone, or with such other materials as the selectmen of the town shall permit, and in such manner as the said selectmen shall direct. And when any one or more of the inhabitants of any town shall, by the consent and under the direction aforesaid, at his or their own charge, make and lay any common sewer or main drain, for the benefit of themselves and others who may think fit to join therein, every person who shall afterwards enter his or her particular drain into the same, or by any more remote means shall receive any benefit thereby, for the draining of their cellars or lands, shall be held to pay the owner or owners of such common sewer or main drain a proportional part of the charge of making or repairing the same, to be ascertained and determined by the selectmen of the town or a major part of them, and certified under their hands; saving always to the party aggrieved at any such determination a right of appeal to the court of the general sessions of the peace.

SECT. 3. Be it further enacted, That when any common sewer or main drain shall be stopped or gone to decay so that it shall be necessary to open the same in order to repair it or remove such stoppage, all

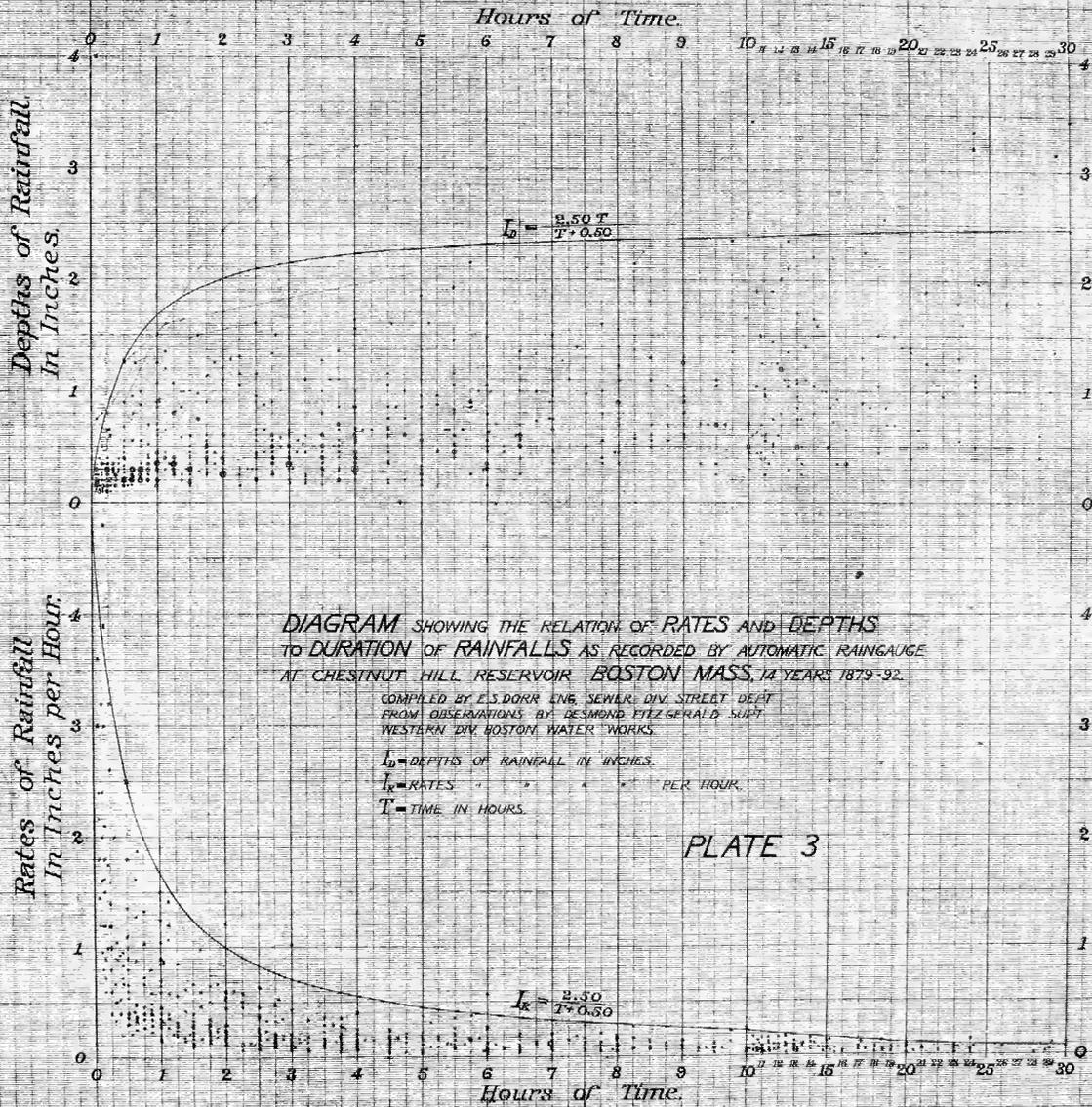


DIAGRAM SHOWING THE RELATION OF RATES AND DEPTHS
TO DURATION OF RAINFALLS AS RECORDED BY AUTOMATIC RAINGAUGE
AT CHESTNUT HILL RESERVOIR BOSTON MASS. 14 YEARS 1879-92.

COMPILED BY E.S. DORR ENG. SEWER DIV. STREET DEPT.
FROM OBSERVATIONS BY BESMOND FITZGERALD SUPT.
WESTERN DIV. BOSTON WATER WORKS.

I_D = DEPTHS OF RAINFALL IN INCHES.
 I_R = RATES " " " " PER HOUR.
 T = TIME IN HOURS.

PLATE 3

the persons who shall be benefited by such repairs or removal of obstructions shall be held to pay their proportionable parts of the expense thereof, as well as those who do not, as those who do cause such repairs to be made, or obstruction removed, to be ascertained and determined by the selectmen as aforesaid; saving an appeal as aforesaid.

This law provided for the building of individual drains and sewers by the inhabitants, the only restriction being that the materials entering into the work, and the proportionate part of the cost that persons should pay for the privilege of connecting with the sewer, should be determined by the selectmen.

City Ordinance relative to Drains and Common Sewers, passed July 7, 1823.

SECTION 1. Be it ordained by the Mayor, Aldermen, and Common Council of the City of Boston, in City Council assembled, That all common sewers which shall hereafter be considered necessary by the mayor and aldermen, in any street or highway in which there is at present no common sewer, shall be made and laid, and forever afterward shall be kept in repair, at the expense of the city and under the direction of the mayor and aldermen, or of some person or persons by them appointed.

SECT. 2. Be it further ordained, That every person who shall enter his or her particular drain into such common sewer, or shall otherwise be benefited thereby, shall be held to pay the city such sum of money as the mayor and aldermen shall deem just and reasonable, having reference always to the valuation of each estate connected with said drains, in the assessors' books; and in the case of any subsequent repair of such common sewer the mayor and aldermen shall assess the amount of such repair on those whose particular drains connect therewith, or are otherwise benefited thereby, in such amount as they deem just and reasonable.

SECT. 7. Be it further ordained, That whenever any common sewer shall go to decay, and the mayor and aldermen shall deem it necessary to rebuild or repair the same, they shall have power to cause the same to be done under their direction, and to assess the amount of such rebuilding or repairs upon the owner, agent, or tenant, as in the foregoing ordinance provided for the case of streets in which there is no common sewer.

This ordinance provided that sewers should be built by the city instead of by the individual, and that the expense of the work should be defrayed by the persons who connected with the sewer in such sums as determined by the Mayor and Aldermen.

City Ordinance relative to Sewers and Drains, passed February 13, 1834.

This ordinance is almost identical with the ordinance of 1823, with the exception that the superintendence of all sewers was put into the hands of the City Marshal. As the Ordinance of 1823 was very ambiguous concerning sewer assessments, the Ordinance of 1834 contained the following clauses relative to this matter:

SECTION 4. Be it further ordained, That it shall be the duty of the auditor of accounts to keep an accurate account of the expense of constructing each common sewer, and on receiving the report of the city marshal relating thereto, to assess the expense upon the persons and estates deriving benefit therefrom, in conformity with the provisions of this ordinance and the laws of the Commonwealth; and after having completed such assessment, he shall report the same to the mayor and aldermen, and if sanctioned by them he shall enter the same in books to be kept for that purpose, and proceed forthwith to collect such assessments.

It would also seem that under the Ordinance of 1823 some difficulty had arisen concerning the levying of assessments, as section 5 of the Ordinance of 1834 provides for the collection of back assessments, as follows :

SECTION 5. Be it further ordained, That for the purpose of making and collecting assessments for common sewers heretofore constructed by the city, the expenses of which have not already been assessed and collected, it shall be the duty of the city marshal and the auditor of accounts to proceed in relation to all such sewers in the same manner as they are by this ordinance directed to proceed in relation to those which may hereafter be constructed.

*An Ordinance to establish the Office of Superintendent of Sewers.
June 6, 1837.*

SECTION 1. There shall be appointed annually in the month of May or June, by concurrent vote of the city council, a superintendent of common sewers. . . .

SECT. 3. The said Superintendent, whenever any common sewer is ordered to be built or repaired, shall ascertain its depth, breadth, mode of construction, and general direction, and make a plan thereof, and insert the same, with all those particulars, in a book to be kept for that purpose, and forthwith ascertain and insert on said plan all entries made into such sewer, and obtain from the assessors' book the valuation of all estates which shall be benefited thereby.

SECT. 4. The said Superintendent shall keep an account of the expense of constructing each common sewer, and assess the expense upon the persons and estates deriving benefit therefrom; and after having completed said assessment he shall report the same to the mayor and aldermen, and if sanctioned by them, he shall enter the same in books to be kept for that purpose, and shall forthwith make out bills for the said assessments against all persons whose drains have entered the common sewer, or who have been otherwise benefited thereby, and deliver the same to the city treasurer for collection; and the said treasurer shall forthwith present the same for payment; and all bills or dues under this ordinance which shall remain unpaid at the expiration of sixty days shall be handed to the city solicitor, and forthwith be put in suit.

SECT. 5. The said Superintendent shall proceed forthwith to make all assessments for common sewers heretofore constructed by the city, the expenses of which have not already been assessed and collected, in the same manner as he is by this ordinance directed to proceed in relation to those which may hereafter be constructed.

The above ordinance comprises, in a condensed form, all the provisions of former statutes and ordinances.

*An Act in relation to Main Drains or Common Sewers. Passed 1841.
Accepted by the City Council April 7, 1841.*

The only new feature introduced by this act is the clause relative to the sewer assessment, and the clause under which the city of Boston assumed one-quarter of the expense of construction, which is as follows :

And all assessments so made shall constitute a lien on the real estate assessed for one year after they are laid, and may, together with all incidental costs and expenses, be levied by sale thereof if the assessment is not paid within three months after a written demand of payment made, either upon the person assessed or upon any person occupying the estate, such sale to be conducted in like manner as sales for the non-payment of taxes.

SECT. 4. Any person who may deem himself aggrieved by any such assessment may, at any time within three months from receiving notice thereof, appeal to the county commissioners, or if the case arise in the city of Boston . . . to the court of common pleas; . . . *provided, however,* that in all cases of appeal as aforesaid, the appellant, before entering it, shall give one month's notice in writing to . . . mayor and aldermen of his intention to appeal, and shall therein particularly specify the points of his objection to the assessment made by them, to which specification he shall be confined upon the hearing of the appeal.

SECT. 5. . . . and in the city of Boston not less than one-quarter part of such expense [of constructing, maintaining, and repairing main drains or common sewers] shall be paid by said city, and shall not be charged upon those using the said main drains or common sewers.

Ordinance passed June 14, 1841.

This ordinance is drawn in conformity with the act passed April 7, 1841, and contains no new features.

Ordinance passed December 31, 1862.

No owner or owners of any real estate, to whom permission has been or shall be given to construct private drains for such estate, shall by the construction of such private drains be exempted from an assessment lawfully imposed for constructing common sewers in the same vicinity.

STATUTES AND ORDINANCES IN FORCE 1869.

Statutes.

SECTION 4. Every person who enters his particular drain into such main drain or common sewer, or who, by more remote means, receives benefit thereby, for the draining his cellar or land, shall pay to the city or town a proportional part of the charge of making and repairing the same, to be ascertained, assessed, and certified by the mayor and aldermen or selectmen, and notice thereof shall be given to the party to be charged, or his tenant or lessee.

SECT. 5. Assessments so made shall constitute a lien on the real estates assessed for one year after they are laid, and may, together with incidental costs and expenses, be levied by sale thereof, if the assessment is not paid within three months after a written demand for payment, made either upon the person assessed, or upon any person

occupying the estate; such sale to be conducted in like manner as sales for the non-payment of taxes.

SECT. 6. A person aggrieved by such assessment may, at any time within three months from receiving notice thereof, apply for a jury. Such application shall be made in like manner, and the proceedings thereon shall be the same, as in case of lands taken for laying out of highways; *provided*, that before making his application the party shall give one month's notice in writing to the selectmen or mayor and aldermen of his intention so to apply, and shall therein particularly specify his objections to the assessment made by them; to which specification he shall be confined upon the hearing by the jury.

SECT. 7. . . . and in the city of Boston not less than one-quarter part of such expense [of constructing, maintaining, and repairing main drains and common sewers] shall be paid by the city, and shall not be charged upon those using the main drains and common sewers.

Ordinances.

SECTION 5. He [superintendent of sewers] shall keep an accurate account of the expense of constructing and repairing each common sewer, and shall report the same to the board of aldermen, together with a list of the persons and estates deriving benefit therefrom, and an estimate of the value of the lands upon which said expense ought to be assessed, exclusive of any buildings or improvements thereon.

SECT. 6. The board of aldermen, in making assessments for defraying the expense of constructing or repairing common sewers, pursuant to the provisions of this ordinance, shall deduct therefrom such part, not less than one-quarter, as they may deem expedient, to be charged to and paid by the city; and they shall assess the remainder thereof upon the persons and estates deriving benefit from such common sewer, either by the entry of their particular drains, or by any more remote means, apportioning the assessment according to the value of the lands thus benefited, exclusive of any buildings or improvements thereon; and they shall also fix the time when the proportion of the assessments charged upon persons benefited shall be paid.

SECT. 7. The superintendent shall enter in books kept for that purpose all such assessments made by the board of aldermen, and shall forthwith make out bills for the same and deliver them to the city treasurer for collection; and the city treasurer shall forthwith demand payment in writing of the said bills, in the manner prescribed by law; and if any bills or dues under this ordinance remain unpaid at the expiration of three months after demand for payment or collection, the city treasurer shall cause the same to be collected by the proper legal process.

SECT. 9. It shall be lawful for all persons, having the care of any buildings, to carry the rain water from the roofs of said buildings, at their own expense, into any common sewers, free of any charge from the city; *provided, however*, that the same be done by tight water spouts and tubes under ground, and under the direction of the board of aldermen.

SECT. 14. No owner or owners of any real estate to whom permission has been or shall be given to construct private drains for such estate shall, by the construction of such private drains, be exempted from an assessment lawfully imposed for constructing common sewers in the same vicinity.

An Ordinance to amend an Ordinance in relation to Common Sewers and Drains. Passed July, 1875.

Be it ordained by the Aldermen and Common Council of the City of Boston, in City Council assembled, as follows:

SECTION 1. The ordinance in relation to common sewers and drains

is hereby amended by striking out, in the twelfth line of the sixth section, the word "value," and inserting in place thereof the word "area;" also by striking out, in the thirteenth and fourteenth lines of said section, the words "exclusive of any buildings or improvements thereon."

An Act to establish the Office of Collector of Taxes. Passed May 3, 1875.

SECTION 2. Said collector shall have the powers now possessed by the treasurer of said city as collector of taxes, and shall also collect and receive all assessments. . . .

Acts and Resolves passed by the General Court of Massachusetts, 1878.

(Chapter 232.)

Be it enacted, etc., as follows:

SECTION 1. Section 4 of chapter 48 of the Statutes of 1869 of the General Statutes is hereby amended by inserting before the words "to be ascertained" the words "and of the charge, not already assessed, of making and repairing other main drains or common sewers through which the same discharges."

SECT. 3. The city council of any city . . . may adopt a system of sewerage to apply to any part or the whole of the territory of such city . . . and may provide that the assessment authorized by section four shall be made upon the owners of the estates embraced in such system, by a fixed uniform rate, based upon the estimated average cost of all the sewers therein, according to the number of feet of area their said estates contain within a fixed depth from such street or way, or both, according to such frontage and area, which rate when adopted shall not be changed.

Approved May 8, 1878.

Acts and Resolves passed by the General Court of Massachusetts, 1879.

(Chapter 55.)

Be it enacted, etc.:

SECTION 1. Section 3 of chapter 232 of the Acts of the year 1878 is hereby amended by adding at the end thereof the following words: "provided, however, that in respect to any estate fronting upon such street or way which by reason of its grade or level, or for any other cause, cannot be drained into such sewer, the selectmen shall not ascertain, assess, and certify the assessment thereon, or give notice of such assessment to the owner of such estate, until the incapacity of such estate to be drained into such sewer has been removed."

Approved February 21, 1879.

Section 1 above mentioned makes a radical change in the method of assessing the cost of sewers, inasmuch as it prescribed that not only the cost of the particular sewer should be assessed on the abutter, but also a proportionate part of the cost of all other sewers through which the same discharged.

Public Statutes. Enacted November 19, 1881, to take effect February 1, 1882.

(Chapter 50.)

SECTION 4. Every person who enters his particular drain into such main drain or common sewer, or who, by more remote means, received

benefit thereby for draining his cellar or land, shall pay to the city or town a proportional part of the charge of making and repairing the same, and of the charge, not already assessed, of making and repairing other main drains and common sewers through which the same discharges, to be ascertained, assessed, and certified by the mayor and aldermen or selectmen; and notice thereof shall be given to the party to be charged, or to his tenant or lessee.

SECT. 5. Assessments so made shall for one year after they are laid constitute a lien on the real estates assessed, and may, together with incidental costs and expenses, be levied by sale of such real estate, if the assessment is not paid within three months after a written demand for payment, made either upon the person assessed or upon any person occupying the estate; such sale to be conducted in like manner as sales for the payment of taxes.

SECT. 6. A person aggrieved by such assessment may, at any time within three months after receiving notice thereof, apply for a jury. Such application shall be made in like manner and the proceedings thereof shall be the same as in case of lands taken for laying out highways; *provided*, that before making his application the party shall give one month's notice in writing to the selectmen or road commissioners, or mayor and aldermen, of his intention so to apply, and shall therein particularly specify his objections to the assessment; to which specification he shall be confined upon the hearing by the jury.

SECT. 7. The city council of a city or the legal voters of a town may adopt a system of sewerage for a part or the whole of its territory, and may provide that assessments under section 4 shall be made upon owners of estates within such territory by a fixed uniform rate, based upon the estimated average cost of all sewers therein, according to the frontage of such estates on any street or way where a sewer is constructed, or according to the area of such estates within a fixed depth from such street or way, or according to both such frontage or area; but no assessment in respect to any such estate which, by reason of its grade or level, or for any other cause, cannot be drained into such sewer, shall be made, certified, or notified until such incapacity is removed.

SECT. 11. Nothing herein contained shall prevent a city or town from providing, by ordinance or otherwise, that a part of the expense of constructing, maintaining, and repairing main drains or common sewers shall be paid by such city or town. And in the city of Boston not less than one-quarter of such expense shall be paid by the city, and shall not be charged upon those using the main drains or common sewers.

SECT. 25. In a city or town which has accepted the provisions of this section or of chapter 249 of the Statutes of 1878, if the owner of real estate within sixty days after notice of a sewer or sidewalk assessment thereon notifies in writing the board making such assessment to apportion the same, said board shall apportion it into three equal parts, and certify such apportionment to the assessors; and the assessors shall add one of said parts, with interest from the date of apportionment, to the annual tax of said real estate for each of the three years next ensuing. All liens for the collection of such assessments shall continue until the expiration of two years from the time when the last instalment is committed to the collector; and all sewer and sidewalk assessments remaining unpaid after the time of payment stated in the order making the same shall draw interest from such time until paid.

Section 25 passed 1878. Accepted by the city January, 1885.

Chapter 145 of the Acts of 1883.

Section five of chapter fifty of the Public Statutes, relating to sewer assessments constituting a lien upon real estate, is hereby amended by adding thereto the following clause, viz.: "And real estate so sold may

be redeemed the same as if sold for the non-payment of taxes, and in the same manner." April 24, 1883.

Chapter 237 of the Acts of 1884.

SECTION 1. All assessments on account of betterments and other public improvements which are a lien upon real estate shall bear interest from the thirtieth day after assessment until paid.

SECT. 2. In case of any suit or other proceeding calling in question the validity or amount of such assessment, the assessment shall continue to be a lien for one year after final judgment in such suit or proceedings, and may, with all costs and interest, be collected by virtue of such lien in the same manner as provided for the original assessment.

Approved May 15, 1884.

Chapter 210 of the Acts of 1886.

Section five of chapter fifty of the Public Statutes is hereby amended so that assessments for main drains or common sewers hereafter made shall constitute a lien on the real estates assessed for two years instead of one year. Passed May 14, 1886.

Chapter 456 of the Acts of 1889.

AN ACT TO PROVIDE FOR THE MAKING AND COLLECTING OF SEWER ASSESSMENTS IN THE CITY OF BOSTON.

SECTION 1. The owner of each estate in the city of Boston bordering on a street or on a strip of land through which a main drain or common sewer shall hereafter be constructed in said city, may enter a particular drain into such main drain or common sewer from that part of said estate which is situated within one hundred feet from said street or strip of land; and shall upon and after such entry pay to the said city an assessment on such estate equal to the number of square feet of land thereof, within one hundred feet of such street or strip of land multiplied by the number representing one two-hundredth part of the average cost per running foot of all the main drains and common sewers of the city of Boston built during the five fiscal years preceding the date of the order to build such main drain or common sewer.

No estate shall be assessed more than once for the construction of a drain or sewer except as hereinafter provided, but such estate may be assessed in the manner aforesaid for the cost of renewal or repair of a drain or sewer.

SECT. 2. The amount of every such assessment shall, immediately upon the completion of the main drain or common sewer, be made and determined by the superintendent of sewers of said city, and interest shall be added to the amount assessed at the rate of five per cent. per annum, from the date of completion of the main drain or common sewer, as certified in writing by said superintendent in a book to be kept for that purpose in his office; and notice of the date of such completion and of the amount of such assessment shall be given by said superintendent to the person assessed forthwith after the amount of the assessment has been determined.

SECT. 3. The owner of an estate not bordering on a street or strip of land through which a main drain or common sewer is constructed, or of an estate bordering on such street or strip of land extending more than one hundred feet in depth therefrom, may, after the amount of the assessment on such estate to be paid therefor has, on the petition of such owner, been fixed by the board of aldermen of said city, enter from such first-named estate, or from any part of such last-named estate, situated more than one hundred feet from the street or strip of land, a particular drain into the main drain or common sewer, and shall upon

and after such entry pay to the said city the amount of the assessment fixed as aforesaid; but such amount shall not exceed the amount he would have had to pay under section one of this act if his estate had bordered on such street or strip of land and had been only one hundred feet in depth therefrom.

SECT. 4. Upon the request of an owner of an estate on which an assessment has been made under this act, made to the board of assessors of said city within ten days after any entry aforesaid, said board of assessors shall apportion the same into three equal parts, and shall add one of said parts with interest as aforesaid to the annual tax of said estate for each of the three years next ensuing.

SECT. 5. Every assessment made under this act shall constitute a lien upon the estate assessed until it is paid, and may with all incidental costs and expenses be levied and collected, in the same manner as taxes on real estate are levied and collected; and a person aggrieved by any such assessment may, at any time within ten days after any entry aforesaid, apply for and have an abatement of his assessment in the same manner and under like rules of law as a person may apply for and have an abatement of taxes.

SECT. 6. This act shall take effect upon its passage.

Approved June 7, 1889.

IN BOARD OF ALDERMEN, October 7, 1889.

Ordered, That the amount of sewer assessment which any owner of an estate not bordering on a street or strip of land through which a main drain or common sewer is constructed, or of an estate bordering on such street or strip of land extending more than one hundred feet in depth therefrom, shall pay, upon entry into said main drain or common sewer, is hereby fixed and determined at the same amount per square foot which the estates bordering on said street or strip of land are obliged to pay, under the provisions of chapter 456 of the Acts and Resolves of the Legislature of 1889. And the Superintendent of Sewers is hereby instructed to levy assessments for such amounts on all parties applying for permission to enter said main drains or common sewers from estates coming under the provisions of section 3 of said chapter.

Chapter 346 of the Acts of 1890.

AN ACT TO AMEND AN ACT RELATING TO SEWER ASSESSMENTS IN THE CITY OF BOSTON.

Be it enacted, etc., as follows:

SECTION 1. Section one of chapter four hundred and fifty-six of the Acts of the year eighteen hundred and eighty-nine is hereby amended by striking out, in the ninth line, the words "the number of square feet," and inserting in place thereof the words "one cent for each square foot," and also by striking out all after the word "land" in the tenth line, and before the words "No estate" in the fifteenth line, and inserting in place thereof the words: "*provided, however,* that if the total amount of the assessments for said sewer exceeds the total sum of the cost of the sewer, plus a proportionate part of the cost of the outlet thereof, each of said assessments shall be proportionately reduced, so that the total amount thereof shall be equal to said sum," so that said section shall read as follows:

Section 1. The owner of each estate in the city of Boston bordering on a street or strip of land through which a main drain or common sewer shall hereafter be constructed in said city may enter a particular drain into such main drain or common sewer from that part of said estate which is situated within one hundred feet from said street or strip of land; and shall upon and after such entry pay to said city an assessment on such estate equal to one cent for each square foot of land there-

of within one hundred feet of such street or strip of land; *provided, however,* that if the total amount of the assessments for said sewer exceeds the total sum of the cost of the sewer, plus a proportionate part of the cost of the outlet thereof, each of said assessments shall be proportionately reduced, so that the total amount thereof shall be equal to said sum. No estate shall be assessed more than once for the construction of a drain or sewer, except as hereinafter provided, but such estate may be assessed in the manner aforesaid for the cost of renewal or repair of a drain or sewer.

SECT. 2. Section five of said chapter is hereby amended by striking out, in the second line, the word "assessed," and inserting in the place thereof the words, "on which the assessment is made;" also by striking out, in the fourth and fifth lines, the words "levied and," and also by striking out all after the word "collected" in the fifth line, and inserting in the place thereof the words: "The city collector of said city shall have power to collect, and the assessors of taxes of said city shall have power to abate, such assessments; and all laws relating to the collection and abatement of taxes in said city shall, so far as applicable, apply to the collection and abatement of such assessments; and when an assessment is made upon a person or corporation by law exempt from the assessment of taxes, the said assessors shall notify said collector not to enforce the collection of such assessment; but when an estate, the collection of the assessment upon which has not been enforced under such notice, comes into the possession of another person as owner, the amount of such assessment shall be paid by such new owner in like manner, subject to the same provisions of law as if an original assessment," so that said section as amended shall read as follows:

Sect. 5. Every assessment made under this act shall constitute a lien upon the estate on which the assessment was made until it is paid, and may, with all incidental costs and expenses, be collected in the same manner as taxes on real estate are collected.

The city collector of said city shall have power to collect, and the assessors of taxes of said city shall have power to abate, such assessments; and all laws relating to the collection and abatement of taxes in said city shall, so far as applicable, apply to the collection and abatement of such assessments; and when an assessment is made upon a person or corporation by law exempt from the assessment of taxes, the said assessors shall notify said collector not to enforce the collection of such assessment; but when an estate, the collection of the assessment upon which has not been enforced under such notice, comes into the possession of another person as owner, the amount of such assessment shall be paid by such new owner in like manner, subject to the same provisions of law as if an original assessment.

SECT. 3. The board of aldermen of said city shall adjust all sewer assessments made under this act so that the said assessments shall be as if made under the said act as hereby amended, and said city shall thereupon refund any excess in the amount of said assessments paid to said city.

SECT. 4. The repeal or alteration by this act of any provisions of law shall not affect any act done, liability incurred, or right accrued and established, or any suit or proceedings to enforce such right or liability, under the authority of the laws hereby repealed or altered, except as hereinbefore provided.

SECT. 5. This act shall take effect upon its passage.

Approved May 28, 1890.

An ordinance to amend Chapter 18 of the Revised Ordinances of 1890, relating to the Street Department, as approved by the Mayor, March 9, 1891.

SECTION 5. Said superintendent [of streets] shall keep a book in which he shall record the date of every order for constructing a sewer, the name of the contractor or builder constructing it, the date of commencing and the date of completing the work, and the cost of the sewer; also a book in which he shall certify the names of the owners of estates assessed for the constructing of the sewer, the number of feet of land of each estate bordering on the street or strip of land in which the sewer was laid, the depth of each estate, the amount of each assessment, the date of completion of the sewer, and the dates when the notices of assessment were given.

He shall make and deliver to the city collector all bills for assessments as they become due.

SECT. 10. . . . but before issuing a permit for entering a particular drain into a public sewer, from land upon which a sewer assessment has not been paid, he [superintendent of streets] shall be paid for the city an assessment of one cent per square foot, for all land in the estate from which the entry is made, within one hundred feet of the street or strip of land in which the sewer or particular drain is laid, except as otherwise provided in section 1 of chapter 346 of the Acts of 1890.

Chapter 402 of the Acts of 1892.

AN ACT RELATING TO SEWERS IN THE CITY OF BOSTON.

Be it enacted, etc., as follows:

SECTION 1. The mayor and aldermen of the city of Boston may order that the superintendent of streets of said city make a sewer or sewers in any highway or strip of land and any other places in said city, specifying in the order the locations, sizes, and materials for the sewer or sewers, and the said superintendent shall carry out said order.

SECT. 2. Any expenses incurred for any work so ordered and performed shall be paid out of the moneys appropriated under the provisions of section one of chapter three hundred and twenty-three of the acts of the year eighteen hundred and ninety-one, and shall, to an amount not exceeding four dollars for each lineal foot of sewer, be repaid to said city as the assessable cost of the work, by the owners of the several parcels of land bordering on the highway or strip of land in which the sewer is made.

SECT. 3. Said superintendent shall so apportion the assessable cost to the parcels of land aforesaid that the amount apportioned to each parcel shall bear to the total assessable cost the proportion which the number of lineal feet of each parcel on said highway or strip of land bears to the number of such lineal feet of all such parcels, and a lien shall attach to the parcel and to any buildings which may be thereon for such amount, as a part of the tax of said parcel. Said superintendent shall give notice of the amount of every such assessment and the interest thereon to the owner of the parcel liable therefor, forthwith after such amount has been determined.

SECT. 4. When an assessment is made for a parcel of land for which the owner is by law exempt from being taxed, as determined and certified to by the assessors of said city on application to them therefor, the collector of taxes of said city shall suspend the collection of such assessment; but after the day on which the parcel ceases to be owned by a person or corporation so exempt, the amount of such assessment, less any payment made for an entry under the following section, shall be collected as if that day were the date of the passage of the aforesaid order for making the sewer.

SECT. 5. The owner of any parcel of land on which an assessment has been made for said cost, and the collection of which has not been suspended, under the provisions of the preceding section, may enter from any part thereof, within one hundred and twenty-five feet of said highway or strip of land, a particular drain into such sewer, and the owner of any parcel of land, the collection of the assessment upon which has been so suspended, or of any other parcel of land, may, after the amount to be paid for an entry has been fixed by the mayor and aldermen of said city, enter a particular drain from such parcel into said sewer, and there shall be due and payable to said city, upon any such entry, the amount of the assessment apportioned or fixed as hereinbefore provided.

SECT. 6. The provisions of sections sixteen, seventeen, and eighteen of chapter three hundred and twenty-three of the acts of the year eighteen hundred and ninety-one, and acts in amendment thereof, so far as applicable, apply to all assessments made under this act.

SECT. 7. Chapter four hundred and fifty-six of the acts of the year eighteen hundred and eighty-nine, and chapter three hundred and forty-six of the acts of the year eighteen hundred and ninety, are hereby repealed, and sewers in said city shall hereafter be made and paid for only in accordance with the provisions of this act or the provisions of chapter three hundred and twenty-three of the acts of the year eighteen hundred and ninety-one and acts in amendment thereof.

SECT. 8. This act shall take effect upon its passage.

Approved June 16, 1892.

Chapter 418 of the Acts of the Year 1892.

Section 16 of chapter 323 of the acts of the year 1891 amended.

If the amount of the aforesaid assessable cost for which any parcel of land is liable, determined as provided in section fifteen, is not paid before the expiration of one year from the date of said determination, or if such amount as found by the court, on an appeal or other suit or proceeding, is not paid before the last day of May next succeeding the finding of the court, in each case with interest from the date of the passage of the aforesaid order of said street commissioners, at the rate of four and one-half per cent. per annum, the board of assessors of said city shall include a sum equal to nine per cent. of such amount in the next succeeding annual tax bills issued for the tax on the said parcel, and in the tax bills issued the first year shall also include interest on the whole of said amount at the rate of four and one-half per cent. per annum from the date of the aforesaid order to the last day of October of the year of the date of such tax bill, and in the tax bills for each succeeding year shall include one year's interest on the whole of said amount at the aforesaid rate, and shall so include such sums and interest until ten such sums with interest have been paid; said board shall issue tax bills for such sums for any parcels for which no tax bill would otherwise be issued. Every such sum in a tax bill shall be abated, collected, and paid into the city treasury, as if a part of and in the same manner as the city taxes.

Section 17 of chapter 323 of the acts of the year 1891 amended.

The owner of any parcel of land aforesaid may at any time pay to said city the balance of the amount of the said assessable cost for which his parcel is liable, remaining due after deducting therefrom the several sums, exclusive of interest, included in tax bills as provided in section sixteen, with interest on the whole amount assessed at the rate of four and one-half per centum per annum from the last day of October preceding, to the date of payment, and his parcel shall then be relieved from further lien and liability for said cost, or he may at any time pay a part of said balance, and the board of street commissioners may then, at

their discretion, with the approval of the mayor, relieve a proportional part of said parcel from further liability and lien for said cost.

Approved June 16, 1892.

(N.B. — The Board of Aldermen have taken no action in regard to fixing the amount to be paid for entry into sewer by the owner of a parcel of land, the collection of the assessment upon which has been suspended.)

SEWER ASSESSMENTS. (DISCUSSION.)

The question of assessing the cost of a sewer upon the people benefited by its construction is a perplexing one. The foregoing *résumé* of laws and statutes relative to sewers shows how the method of assessment has been repeatedly changed.

The earliest law (1797) provided that the inhabitants of the town build their own sewers and pay for them, and no reference in this law is therefore made to assessments.

The law of 1823, which first provided that the city should build the sewers, was very indefinite concerning the method of assessment; and as future laws referred to the manner in which the expense of all sewers built and not previously assessed was to be collected, it is fair to suppose that trouble was experienced in interpreting the law of 1823 in regard to assessments.

The law of 1834 introduced a clause referring to the valuation of the estate benefited by the sewer, which was to have some bearing on the amount of the assessment levied. As the law did not specify exactly in what manner the valuation of the estate bears on the amount of the sewer assessment, it must have been impossible to determine the amount of sewer assessments.

The law of 1841 provided that the city should assume one-quarter of the cost of construction of the main sewers.

This clause was probably introduced on account of the increased cost of main sewers. The assessing of the whole expense of large main sewers on the abutters probably proved burdensome, and this method was adopted to even up the difference in cost of main and branch sewers.

The amendment of the ordinance of 1875 in regard to sewer assessments provides that the benefit from sewers should be proportionate to the *area* instead of to the *value* of abutting property.

The report of the Superintendent of Sewers of that year mentions that "the change has diminished the amount of arbitrary judgment demanded in fixing values and reduced the labor of equally apportioning the cost of sewers."

The next radical change is found in the law of 1878, in which

it is provided that a person who enters his drain into a common sewer shall not only pay a proportional part of the cost of the common sewer, but also a proportional part of the cost of all other common and main sewers through which the particular sewer discharges.

While this law had the advantage that after the cost of all sewers in a given drainage district had been determined, it would be possible to assess the cost on the abutters in such a manner that all assessments were in proportion to the benefit gained, and while it solved the vexed question of whether a drain was a main drain and the city should therefore pay one-quarter of the expense, or whether it was a common drain and the abutter should therefore pay the whole cost, it had the great disadvantage that it became impossible to levy sewer assessments until every sewer in the drainage area had been completed, as the cost of mains through which a branch sewer discharged was in some cases an unknown quantity.

The following extract from the report of the Superintendent of Sewers for the year 1887 is given as bearing on this subject, and as bearing on the general question of sewer assessment laws in force at that time :

The question of how to equitably assess a proportion of the cost of sewers upon those deriving benefit therefrom is a vexing one.

The ordinary interpretation of the statutes and the city ordinances bearing upon the question allows such a large margin for the exercise of judgment, that there is always a chance for objections being raised and dissatisfaction expressed at every schedule of assessment.

The present method (1887) of laying assessments is based upon the custom of the department for the last fifteen years, and though having, perhaps, some points in its favor, is certainly open to objections.

A party draining into a sewer receives the same benefit per square foot of land drained, or any other unit, whether entering a 10-inch, 12-inch, or 15-inch pipe sewer, or a 4-foot sewer, whether the sewer is laid in easy digging or in a rock cut; and as, according to the present method (1887) of making up assessments, the cost of the particular sewer in front of the premises to be drained (except in the case of main sewers) is the basis on which the assessment is calculated, one sewer may call for an assessment of \$0.005 per square foot, and another, where rock cutting or other obstacle is encountered, may call for as high as \$0.04 or \$0.05 per square foot for exactly the same benefit; *i e.*, the right of entering the sewer for the purpose of drainage. There being this difference in the charges, parties desiring sewers generally assume the smallest cost when petitioning for sewers, and are dissatisfied if the bills, when rendered, amount to more.

I am satisfied that a uniform rate per square foot of land benefited, or a uniform cost per linear foot of sewer, can be established, based upon the average cost of sewers already built, which will yield an equal amount of revenue to the city, and be more equitable and satisfactory to those assessed.

This fixed charge being known in advance, parties wanting sewers may determine to a certainty what they will have to pay, and therefore be able to decide intelligently on the advisability of petitioning the Board of Aldermen. It is difficult to see why an individual, in order

to drain his house lot, should be called upon to pay a high rate because rock or other obstacle was encountered during the construction of a sewer in his immediate vicinity, or because the conditions were such as to render an 18-inch pipe necessary, when in other places a 10-inch pipe might answer.

As the question of assessments is an important one, and involves a deal of study to find out, through the successive changes in statutes and ordinances, why the present system was adopted, I would recommend that a special committee, or the Committee on Sewers of the Board of Aldermen, together with the Corporation Counsel and the Superintendent of Sewers, take the matter under consideration, with a view to seeing if the present system could not be improved upon.

In accordance with the recommendation of the Superintendent of Sewers, the passage of Chapter 450 of the Acts of 1889 was obtained, providing for an assessment on land within 100 feet of the street in which the sewer was situated, amounting to the sum obtained by multiplying the number of square feet of land within 100 feet of the street by the number representing one two-hundredth part of the average cost per running foot of all the main and common sewers of the city of Boston built during the five fiscal years preceding.

Assuming that land extended back 100 feet from the street, and that the average cost of all sewers was \$4.00 per linear foot, this method gave an assessment of two cents per square foot.

This act, which returned a fair percentage of the cost of sewers to the city treasury, was amended by Chapter 346 of the Acts of 1890, by making the sewer assessment one cent per square foot of land instead of two cents, and further provided that if the cost of the sewer was less than the amount returned to the city by an assessment of one cent per square foot, then the assessment should be reduced proportionately.

All sewer assessments made under the Act of 1889 were adjusted according to the Act of 1890, and the money collected was refunded.

In order to show the effect of the laws of 1881 and 1889 (as amended in Chapter 346 of the Acts of 1890) on the finances of the city, the following table is inserted. As shown by the table, the practical effect of these laws is to return to the city treasury only 30% of the amount expended for sewer construction.

Sewer Assessments.

Year (January to January).	Total Expenditures of Sewer Division.*	Amount expended for Construction of Sewers.	Amount Assessments levied.	Year (May to May).	Amount received by City Collector for Collection.	Amount Assessments abated.	Amount Assessments collected, as per City Collector's Book.	Amount Assessments uncollected.
1882	\$243,195 22	\$155,027 62	\$60,963 29	1882-83	\$63,350 39	\$3,854 48	\$59,443 81	\$52 10
1883	262,507 07	194,804 59	19,310 19	1883-84	32,482 20	3,521 25	28,960 95	.....
1884	336,542 06	240,027 27	14,334 81	1884-85	19,946 37	1,689 47	18,106 90	150 00
1885	404,812 24	251,697 75	143,877 54	1885-86	179,994 22	20,754 08	159,240 14	.....
1886	600,920 65	442,157 78	62,377 27	1886-87	74,586 37	16,480 93	58,105 44	.....
1887	479,152 40	262,527 23	116,110 49	1887-88	103,598 36	16,477 19	87,121 17	.....
1888	1,016,618 50	129,268 49	151,017 48	1888-89	129,318 66	11,651 21	113,899 80	3,767 65
1889	.....	.....	n 17,221 45	.....	.....	.....	.....	.....
1889	56,690 99	96,029 22	x 61,808 49	1889-90	83,666 40	6,300 14	67,618 66	9,747 60
1890	.....	.....	n 22,489 20	.....	.....	.....	.....	.....
1890	525,998 30	205,553 47	x 34,037 50	1890-91	17,153 94	779 90	15,707 54	666 50
1891	a 752,051 27	b 314,710 00	n 59,404 06	o 1891-92	19,555 55	295 05	14,779 32	4,481 18
Totals...	\$5,128,488 70	\$2,251,803 42	e \$762,551 77	.....	e \$723,652 46	\$81,803 70	\$622,983 73	\$18,865 03

n Assessments under law of 1890.

a Construction \$314,710 00

Maintenance 402,648 57

Works for Paving Division 34,682 70

Total \$752,051 27

b General appropriation (about) \$47,057 00

Loans 207,653 00

Total \$314,710 00

c Bills under the assessment law of 1890 not deposited with the City Collector until entry into the sewer or upon demand. They remain upon the books of the Superintendent of Streets at five per cent. interest.

x Assessments under law of 1881.

* Amount expended for construction of Stony-Brook Improvement:

1887 \$40,971 70

1888 567,450 61

1889 107,019 42

1890 48,078 89

1891 22,997 30

Total \$786,518 01

o From May, 1891, to February, 1892.

c From January, 1891, to February, 1892.

* Amount expended for maintenance Improved Sewerage:

1888 \$72,024 41

1889 53,024 53

1890 77,755 10

1891 93,430 34

Total \$296,254 38

Previous to 1888 the Improved Sewerage was in charge of the City Engineer.

An analysis of this table shows that of the sum of \$5,128,488.70, the sum of \$2,251,803.42 was expended for actual sewer construction; of the balance, or \$2,876,685.28, the sum of \$786,518.01 was expended for Stony-brook construction, and the sum of \$2,090,167.27 was expended for the maintenance of the Sewer Division, including the maintenance of the Main Drainage Works.

Of the amount expended for sewer construction, the sum of \$762,551.77 has been levied against abutting estates in the form of assessments; this amount being about thirty per cent. of the actual cost of the sewers constructed.

The amount of assessments levied, in comparison with the amount expended for sewer construction, has varied largely from year to year, both on account of former looseness in making up sewer assessments, and also owing to changes which have been made in the laws. An inspection of this table shows that in 1884 the sum of \$240,027.27 was expended for sewer construction, and only the sum of \$14,334.81 was levied in assessments. On the other hand, in 1888 the sum of \$129,268.49 was expended for sewer construction, and the sum of \$151,017.48 was levied in assessments. This is accounted for by the fact that the department that year made up a large number of back assessments which had been allowed to accumulate.

OPERATION OF THE LAW OF 1889 AS AMENDED IN 1890.

In order to determine the exact amount which the city received in assessments for sewers constructed under the law of 1890, a table has been prepared showing the cost and amount assessed of every sewer (with one exception, which is not yet assessed) built under this law. The table shows that the cost of building 145 sewers amounted to \$520,635.01, of which amount the city assessed the sum of \$126,685.26 on the abutters, or about twenty-four per cent.

**Assessments of Sewers built under the Acts of 1889-90,
to February 1, 1893.**

STREET AND LOCATION.	Cost.	Assessments.	Collected.
Walnut ave. and Cobden st., Rox...	\$18,594 60	\$709 75	\$364 75
Blue Hill ave., Roxbury, South- wood to Damascus	640 21	600 35	400 35
Essex st., Charlestown.....	782 33	322 99	224 89
Mt. Vernon st., Dor., Dorchester ave. to Buttonwood	264 85	192 00	152 00
Mozart st., Roxbury, Lamartine to Chestnut ave.....	352 52	129 30	115 75
Maverick st., E. Boston, Maverick sq. to London st.....	978 72	560 21	295 16
Childs st., West Roxbury	246 46	52 25	52 25
Mt. Vernon st., Dorchester, Boston to end of sewer	1,099 72	932 00	652 00
Sackville st., Charlestown	1,597 50	542 31	501 18
Lawrence ave., Dorchester.....	241 47	123 50	123 50
Irvington st., Back Bay.....	623 78	623 78	514 82
Centre st., West Roxbury, Pond to Lakeville pl.....	4,910 96	850 00	312 00
Bowdoin st., Dorchester	1,299 97	1,288 00	1,013 00
Morris st., East Boston, Brooks to Putnam	674 13	484 50	246 10
Third st., South Boston, I to K	430 69	298 70	248 90
Union st., Brighton	2,610 13	1,897 86	1,304 27
Centre st., Roxbury, Highland to Marcella	379 84	163 63	103 47
Franklin st., Brighton, East from Raymond	359 10	249 00	64 00
Chelsea st., Chsn., Vine to Perry..	1,380 64	258 92	258 92
Ashford st., Brighton, Chester to Malvern	870 88	486 33	324 22
Day st., Rox., Minden to Mansur..	1,249 60	257 37	257 37
Myrtle st., City Proper, Ash pl. to end of sewer.....	298 76	101 83	66 94
Edson st., Dorchester	1,710 86	1,419 33	904 58
Allston st., Charlestown Medford to Bunker Hill.....	880 10	352 30	328 30
West Park and Whitfield sts., Dor., Washington st., West Roxbury, Forest Hills to Cornwall.....	2,241 70	1,557 68	1,362 68
Meridian st., East Boston, Decatur to Saratoga	6,595 61	991 40	898 16
Ashmont st., Dorchester	1,240 32	1,176 99	821 12
Mozart st., Roxbury, Centre st., 100 feet south	259 65	55 00	55 00
Ocean st., Dor., Ashmont to Roslin, Alban st., Dorchester, Ashmont to end of sewer.....	712 69	619 70	439 70
Kent st., Roxbury	343 26	355 00	355 00
Dunreath st., Roxbury, Warren, 200 feet east.....	2,558 97	370 83	204 98
Bunker Hill st., Charlestown, Fer- rin to Green	1,320 72	118 33	100 15
Bunker Hill st., Charlestown, Fer- rin to Green	3,315 71	520 94	223 92
Everett st., Brighton	1,451 32	492 87	330 87
Magazine st., Roxbury.....	4,993 48	1,634 43	1,634 43
<i>Carried forward</i>	\$68,542 35	\$21,333 55	\$15,560 03

Assessments of Sewers.— *Continued.*

STREET AND LOCATION.	Cost.	Assessments.	Collected.
<i>Brought forward</i>	\$68,542 35	\$21,333 55	\$15,560 03
Hudson st., City Proper, Curve to Kneeland	24,098 07	1,209 74	1,167 11
Bay State Road, Roxbury	1,502 01	1,052 16	848 68
Magnolia st., Dorchester, Wayland to Robert ave.	948 19	175 33	175 33
Reading st., Roxbury.	676 65	450 14	450 14
Bailey st., Dorchester, Dorchester ave. to Washington.....	5,059 78	2,848 93	2,141 16
Neponset avenue, Adams to Mill ..	817 20	708 93	593 40
Decatur, E. B., Meridian to Border, Exeter, Providence to Huntington avenue	7,928 69	542 21	521 46
.....	705 82	34 20	34 20
Sterling, Roxbury, Shawmut ave- nue to Washington	1,279 81	497 06	282 06
Putnam, E. B., Bremen to Chelsea,	322 41	160 00	160 00
Cohasset, West Roxbury, Corinth to Stony brook	1,349 25	1,152 46	949 10
Condor, E. B., Brooks to Putnam ..	625 52	625 52	228 17
Condor, E. B., Meridian to Border,	324 07	324 07	141 13
Market, Brighton	1,440 03	343 86	109 70
Border, E. B., Utah to White	1,563 09	1,153 73	789 23
Cedar place, Dorchester	1,181 84	202 56	202 56
Paulding, Roxbury, Bainbridge to Dale	602 21	88 48	88 48
Kilby, City Proper	1,070 51	188 01	188 01
Walden, Rox., Arklow to Centre ..	673 53	571 14	439 50
Bellevue and Kane, Dorchester...	3,520 50	814 70	708 25
Paul Gore, West Roxbury	2,861 47	1,457 51	1,457 51
Walnut avenue, Roxbury, 'Harris- hof to Holworthy.	1,035 56	270 00	170 00
Symmes, West Roxbury	1,426 86	1,147 50	720 00
Waverly, Brighton	3,067 64	2,358 86	1,754 39
Cambridge, Brighton	1,292 78	684 40	644 40
Faneuil, Brighton	82 34	82 34	39 38
Lincoln, Brighton	238 18	238 18	169 44
Carruth, Dor., Minot to Codman...	875 61	563 52	69 11
Brent, Dorchester.	924 35	821 54	130 00
Dunstable, Charlestown	232 27	139 30	70 30
Russell, Charlestown	554 20	188 83	151 83
N. So. Boston, Second to Third ..	349 36	330 00	120 00
O. So. Boston, First to Second ...	461 21	185 00	185 00
Welles avenue, Dorchester, Wash- ington to Harley	753 38	591 51	417 51
Horace, E. B., Moore to Byron....	898 36	898 36	745 90
Parker Hill avenue, Roxbury, Tre- mont to Hillside	1,088 66	650 84	152 34
Liberty and Preble, South Boston..	1,924 93	248 54	233 84
Border, E. B., White to Condor ...	1,080 22	1,004 22	205 17
Crawford and Holland, Roxbury ...	7,865 41	879 49	108 00
Humboldt avenue, Roxbury, Wal- nut avenue to Munroe	2,546 26	746 43	591 94
Blue Hill ave., Dewey to Dalmatia,	501 27	303 11	123 27
St. Botolph, Garrison to Harecourt ..	1,538 07	679 94	679 94
Dustin, Brighton	6,153 33	2,360 48	795 90
Stoughton, City Proper	1,896 06	1,121 31	.....
<i>Carried forward</i>	\$163,874 31	\$52,427 99	\$35,512 81

Assessments of Sewers. — *Continued.*

STREET AND LOCATION.	Cost.	Assesements.	Collected.
<i>Brought forward</i>	\$163,874 31	\$52,427 99	\$35,512 81
Walk Hill, West Roxbury.....	1,428 29	811 98	760 40
Texas, Roxbury.....	1,020 94	28 92	9 77
Common, Charlestown.....	1,247 22	290 72	57 85
Summer, Charlestown.....	212 33	20 80	20 80
Bainbridge, Roxbury.....	1,321 78	192 49	81 39
Howard ave., Dorchester.....	1,124 82	121 88	94 76
Hill, Charlestown.....	886 05	85 33	47 23
McLean, City Proper.....	1,623 22	647 17	325 38
Raleigh and Beacon, Roxbury.....	9,201 52	591 64	591 64
Reading, Roxbury, Maiden lane to Farnham.....	347 90	286 34	184 42
Pope's Hill and Neponset ave., Dor., Cleveland pl., City Proper.....	2,502 78	1,640 90	557 98
Maverick, E. B., Short to Jeffries..	320 88	73 09	73 09
Gustin, South Boston.....	616 55	578 37	224 00
Cambridge, Brighton, from Saun- ders st., westerly.....	574 78	381 82	365 86
Florence, West Roxbury.....	1,521 96	1,014 33	579 06
Burnett, West Roxbury.....	1,178 95	864 54	364 42
Porter, East Boston, Bremen to Bennington.....	569 16	a 647 26	66 84
Homer, E. B., Byron to Moore....	13,859 05	1,051 79	940 56
Call, West Roxbury.....	1,845 65	1,000 00	725 00
Bremen, E. B., Porter to Brooks..	1,033 37	487 86	373 49
Arlington, Brighton.....	12,004 42	1,255 98	433 32
Tyler, Harvard to Oak.....	4,203 50	1,490 91	732 42
Oak, Harrison ave. to Hudson... }	12,055 79	{ 657 68	{ 568 43
Byron, E. B., Cowper to Coleridge, } and		{ 158 29	{ 158 29
Coleridge, E. B., Byron to Rice } and	1,499 77	{ 308 00	{ 308 00
Calumet and Schem, Roxbury... }		{ 900 00	{ 481 25
Wenham, West Roxbury.....	17,196 42	2,466 61	1,208 11
Peter Parley, West Roxbury.....	2,268 66	802 98	509 95
Gladstone, East Boston.....	414 67	61 49	37 85
Leyden, East Boston.....		{ 2,583 77	{ 899 13
Walley, East Boston.....	36,865 81	{ 1,774 12	{ 1,194 85
Bennington, East Boston..... }		{ 1,124 93	{ 985 60
Adams, Beaumont, and Burgoyne, Dorchester.....		{ 3,042 18	{ 1,643 51
Hillside, Roxbury, Parker Hill to Sunset.....	5,899 32	1,410 83	954 30
Adams and Codman, Dorchester, Bay st., private land, Springdale } st., etc.....	678 41	458 41	348 91
Savin Hill ave. and Grampian way } Roslindale Main Sewer, Washing- } ton to Beech.....	21,326 01	4,078 54	1,576 24
Private land and Ashmont street, } and	24,042 92	{ 2,480 36	{ 694 30
Washington and part of Arman- } dine.....		{ 5,214 70	{ 3,100 91
Falcon, E. B., Brooks to Putnam.. }	61,776 09	{ 8,024 20	{ 2,483 17
Rockland, Brighton.....		{ 1,814 04	{ 1,524 94
Dewey, Dacia to Blue Hill avenue. }	14,869 72	{ 738 94	{ 589 94
Dalmatia and Cherry.....	1,748 82	936 24	336 87
	633 12	240 41	76 66
	438 63	308 36	308 36
	713 15	120 80	115 24
<i>Carried forward</i>	\$424,946 74	\$105,697 99	\$60,227 36

Assessments of Sewers. — *Concluded.*

STREET AND LOCATION.	Cost.	Assessments.	Collected.
<i>Brought forward</i>	\$424,946 74	\$105,697 99	\$60,227 36
Commonwealth avenue, Charlesgate W. to Brookline avenue	12,816 11	1,066 80	1,066 80
Orleans, East Boston, Maverick to Sumner.....	15,467 71	561 00	401 00
and			
Sumner, East Boston, Orleans to Cottage .....				1,105 97	1,083 97
Vine, Charlestown	5,862 83	190 90	190 90
Kilton and Harvard, Dorchester ..	13,223 24	3,374 95	625 46
Humboldt avenue, Roxbury, Home- stead to Seaver	1,910 33	1,012 16	607 16
Private street, East Boston, Leyden to Walley	429 33	77 48	
Crawford, Roxbury, south-east, from Holland.....	5,218 94	1,802 43	927 79
Magnolia and Lawrence avenue ...	8,254 12	1,724 92	1,268 28
Jeffries, from No. 11 to Everett, East Boston	266 68	135 00	35 00
Baldwin, Charlestown	674 22	7 35	7 35
Creighton, Roxbury	1,194 28	1,146 28	764 41
New, E. B., Maverick to Cross ...	329 35	321 35	63 17
C, South Boston, Fifth to Sixth ..	794 16	136 75	85 22
Tremont, Charlestown	273 53	83 52	83 52
Westville, private land and Charles street	<i>b</i> 13,525 44	2,610 96	1,203 03
Randolph, City Proper.	<i>b</i> 4,506 75	1,111 14	357 46
Parker Hill avenue, Roxbury, Hill- side, south.....	1,049 09	899 56	391 38
Dorchester avenue, Crescent ave- nue, north	1,477 96	914 63	673 08
North Harvard and Rena.	5,270 78	2,307 97	681 56
Townsend	3,043 42	396 15	77 30
Totals.....	\$520,535 01	\$126,685 26	\$73,821 20

The revision by order of the Board of Aldermen, August 19, 1890, made in this table.
No abatements made.

(a) Including proportionate cost of main sewer.

(b) Storm sewer included.

Assessed 24 4/10ths per cent. of cost.

Collected 14 per cent. of cost. Collected 53 per cent. of assessments.

The foregoing table shows that even less money is returned to the city treasury under the law of 1890 than under the laws of 1881 and 1890, as the percentage assessed falls off from over thirty per cent. to twenty-four per cent. In order that a greater proportion of the expense might be assessed on the abutters the law of 1892 was passed. (See Chapter 402 of the Acts of 1892.)

It is too early to draw definite conclusions from the new law of 1892. Calculations made to date show that the city will recover in assessments about seventy per cent. of the cost of

sewers instead of the thirty per cent. recovered under the 1881 law, and the twenty-four per cent. under the 1890 law.

SEWER ASSESSMENTS LEVIED DURING THE YEAR 1892.

Sewer assessments have been made by this division for the year ending January 31, 1893, to the amount of \$105,490.37 as follows:

In accordance with the Public Statutes enacted November 19, 1881	\$1,394 18
In accordance with Chap. 456 of the Acts of 1889, as amended by Chap. 346 of the Acts of 1890	27,970 55
In accordance with Chap. 402 of the Acts 1892	76,125 64
	\$105,490 37

Bills for sewer assessments have been deposited with the City Collector for collection to the amount of \$113,860.27. This sum is made up of all assessments levied during the year under the acts of 1881 and acts of 1892, and the bills for those estates assessed under the acts of 1889-1890, from 1889 to date, that have made connection with the city's sewers during the year; the assessments for those estates not having made connection with the sewers remaining on the books of this division at 5 per cent. interest. These amount to \$49,143.56, and will be deposited for collection as the estates assessed connect with the sewers. This amount represents 39 per cent. of the total assessments made under the acts of 1889-1890, showing a marked increase in the amount deposited for collection during the current year, as there remained on the books February 1, 1892, a sum representing 58 per cent. of the assessments made to that date.

Entrance fees to the amount of \$5,090.85 have been collected from estates upon which no sewer assessment was ever levied, in accordance with Chap. 36, Sect. 10, of the Revised Ordinances. This exceeds any sum previously collected by this department, even when the rate for entrance was double what it is at present.

Two thousand six hundred and twenty-eight permits have been issued to drain-layers to connect house drains with the city's sewers, or to repair old connections, and the work done under these permits has been inspected and a record of same made on the plans in this division.

STREET-CLEANING DIVISION.

The work of the Street-Cleaning Division has continued to give satisfaction through the year. No special changes have been inaugurated, for the reason that the organization perfected in 1891 proved to be efficient.

The details of this organization were fully set forth in last year's report, together with the data concerning the areas of the different sweeping districts, and other valuable information. During the year 1891, District No. 2 (which includes the territory in the vicinity of the markets) was swept at night. It was found that, owing to the complete absence of teams at this time, much more effective work could be accomplished, and night-sweeping has been inaugurated in Districts Nos. 3, 4, and 5 as well, which practically include all territory north of Dover street.

The following table shows the average force employed during the year:

District.	Average No. men employed.
Office	4
1, West End	39
2, North End	35
3, South End	35
4, South End	36
5, Back Bay	35
6, South Boston and Dorchester	36
7, Roxbury	35
8, Brighton	10
9, Charlestown and East Boston	29
Yard and stable	13
Push-cart Patrol	40
Total	347

The above-mentioned force use in carrying out the work of the division the following plant:

Eighteen double sweeping-machines, 14 single sweeping-machines (1 transferred to Paving Division), 13 water-carts, 83 street-carts, 87 horses (owned by the division), 21 asphalt-scrapers.

The Push-cart Patrol use:

Forty-seven push-carts, 37 extra barrels, 4 street-carts (steel), 4 horses (all hired).

In addition to the above-mentioned carts, the division hires about 25 extra teams.

For the Paper Patrol one team is employed all the time.

Experiments have been made at various times through the year with several patent sweeping-machines, constructed so as to sweep the dirt and elevate it into a cart. No satisfactory machine has yet been invented, all being clumsy and complicated in arrangement, and the work is carried on now as formerly, using the ordinary machine-sweeper.

PUSH-CART PATROL.

The working of the Push-cart Patrol has been quite satisfactory, and the results have been so gratifying that the number has been increased during the year. Forty men are now employed in this service, and the area covered comprises the following-named streets:

Arch street, Avon place, Beach street (Washington street to South street), Beacon street (Arlington street to Charles street), Bedford street, Blackstone street (Hanover street to Cross street), Boylston street (Washington street to Park square), Bowdoin square, Brattle street, Brattle square, Bromfield street, Bulfinch street (Howard street to Bowdoin square), Causeway street (Merrimac street to Beverly street), Central street, Chardon street, Chauncy street, Columbus avenue (Park square to West Chester park), Congress street (Milk street to State street), Congress square, Cornhill, Court street, Devonshire street, Doane street, Eliot street, Elm street, Essex street (Washington street to South street), Exchange place, Federal street (Summer street to Milk street), Franklin street (Washington street to Federal street), Friend street, Hanover street (Scollay square to Blackstone street), Harrison avenue (Bedford street to Kneeland street), Hawkins street, Hawley street, Haymarket square, Harvard street, Kilby street, Kingston street, Kneeland street, La Grange street, Lincoln street, Mason street, Merrimac street, Milk street (Washington street to Broad street), Otis street, Park square, Portland street, Post-office square, School street, South street, State street (Washington street to Broad street), Sudbury street, Summer street, Temple place, Travers street (Merrimac street to Beverly street), Tremont street (Eliot street to Court street), Tremont row, Union street (Hanover street to Haymarket square), Washington street (Kneeland street to Haymarket square), Water street, West street, Winter street, Winthrop square, and the following asphalt streets:

Beacon street from Dartmouth to Gloucester, W. Newton

street from Washington to Columbus avenue, Chester square, south side, from Washington to Columbus avenue, Chester square, north side, from Tremont to Columbus avenue, Broadway from Dorchester avenue to Dorchester street.

That this service is an important adjunct to the general work in the depot and trading districts cannot be denied. Even if these streets are swept perfectly clean in the early part of the day or during the night, the hourly accumulations are so great that the gutters and crossings soon become littered and an eyesore to pedestrians.

The contents of the barrels collected by the Push-cart Patrol are removed at regular intervals by an odorless iron dumping-cart. This cart does not leak, is easily dumped, and has proved of good service in the work of collecting the contents of the barrels.

The refuse collected by the patrol is taken to the dump-scow and towed to sea. The refuse has considerable value as manure, but the extra cost of teaming it to the railroad stations, where it could be sold to farmers, and the difficulty of making arrangement for cars, prevent the division from disposing of it in this manner.

Three thousand four hundred and fifty-six loads of street-sweepings were collected by the "Push-cart Patrol," and 439 loads by the "Paper Patrol," making a total for the patrol system of 3,895 loads.

The following table shows the number of loads of street-sweepings removed each year during the last eleven years :

Year.	No. of Cart-loads.
1882	52,381
1883	58,272
1884	62,222
1885	61,455
1886	59,875
1887	68,990
1888	68,010
1889	70,476
1890	70,449
1891, 12 months	187,113
1891, 13 months	291,425
1892	106,829

¹ Jan. 1, 1890, to Jan. 1, 1891.

² Jan. 1, 1890, to Feb. 1, 1892 (date made necessary by the change in the financial year). Of this amount 4,290 loads were collected by the Push-cart Patrol.

DIFFICULTIES ENCOUNTERED BY THE DIVISION IN KEEPING
THE STREETS CLEAN.

In the report made last year, reference was made to the difficulties encountered by the division in keeping streets clean, and a quotation from the report of the Committee on Street-Cleaning appointed to investigate the subject in New York was published.

The quotation covers the subject so concisely, and is a matter of such general interest, that it has been reinserted in this report.

If the existing laws and ordinances regulating the conduct of householders and citizens with respect to cleanliness were faithfully observed and duly enforced, the task of the Street-Cleaning Department would be greatly lightened.

The law against throwing litter and rubbish of any kind into the gutters and streets is daily and hourly violated in the best sections of the city, and that by people who have not the excuse of ignorance of the law.

We have seen prominent business houses on Fifth avenue engaged in unpacking large cases upon the sidewalk, the operation involving the throwing into the streets of paper, straw, and litter of all descriptions.

We have seen well-dressed men, on their way down town, deliberately toss into the public highway the eight-page newspaper which they had just finished reading. We have seen the same class of people disembarass themselves of handfuls of paper and scraps by the same easy process.

We have seen men engaged in repairing the sidewalks, where the material taken up was decayed wood, throw the débris into the public streets, and leave it there in piles.

We have seen in front of a well-known and reputable establishment on Union square the remains of a large awning partially destroyed by fire cast deliberately into the gutter.

It is a matter of daily habit with many storekeepers upon the lines of the great lateral avenues to commence the day by sweeping out all the refuse litter of their stores into the streets.

It is useless to multiply these instances; every one will recognize the fact of their daily and hourly occurrence. It is a hopeless task to keep the streets of this city clean so long as the people themselves are determined to keep them dirty.

So thoroughly convinced are we of the absolute necessity of the enforcement of these laws and ordinances, if it is really desired to keep the city clean, that, as a most essential part of the remedy we have been called upon to suggest, we urge upon the Mayor, as the chief executive officer of New York, to exercise all the authority he can command to bring all the departments charged with the execution of these laws and ordinances into cordial harmony and coöperation for their vigorous enforcement.

ORDINANCES AND THEIR ENFORCEMENT.

The present ordinances of the City of Boston are sufficient to prohibit the throwing of refuse into the streets, and it is the duty of the police to enforce these ordinances.

The department has, during the year, endeavored by correspondence to impress on the Board of Police the necessity of such enforcement.

The condition of some of the business streets during the year in regard to cleanliness has been extremely unsatisfactory.

This unsatisfactory condition has not been the fault of the Street-Cleaning Division, the streets in question being those that are nightly swept, and in addition are covered during the day by the Push-Cart Patrol, but is directly due to the numerous violations of Section 39 of Chapter 43 of the Revised Ordinances concerning the throwing of rubbish into the streets. It being the duty of the police force to prevent these violations, the following letter was sent to the Board of Police on June 2, 1892 :

To the Board of Police:

I desire to call your attention to the general appearance of the business part of this city, caused by violations of Section 39 of Chapter 43 of the Revised Ordinances of 1892. It would seem to me that the police are as much bound to see that the violations of these ordinances do not occur, as they are to see that the laws and ordinances in general are enforced.

In my opinion, the Board of Police are primarily responsible for the keeping of the streets free from such refuse matter as is mentioned in Section 39 of Chapter 43 of the Revised Ordinances.

Each scrap of paper, handbill, piece of wood, or, in general, rubbish of any sort that is visible in the street, is an evidence of the violation of the city ordinances, for which a proper penalty has been provided; and the presence of this material in the street shows that acts have been committed which it is the duty of the police to prevent. It seems to me that, your Board being primarily responsible for seeing that the streets are kept free from refuse and débris, it would be a most simple matter to have each police captain responsible for his own district, and each patrolman responsible for the condition of the streets on his route.

It ought to be the duty of each captain to inspect his district daily in reference to the condition of the streets, and on finding on the route of an officer numerous violations of the ordinance above referred to, a reprimand should follow, and, if necessary, a suspension or discharge. It would be the duty of this officer to make complaints in general, concerning the violations which have occurred in the different districts, and, if repeated complaints were made in regard to one district, it should, in my opinion, be the duty of your board to call the captain to account.

If there were a proper coöperation between the Board of Police and this department, the condition of the streets could be greatly improved, as a large part of their present unsightly condition is due to violations of ordinances, which it is the duty of the police to prevent. If these violations never occurred, there is no doubt in my mind that my force is perfectly organized to do the part of the work that belongs to it, and to keep the streets clean.

Yours truly,

(Signed)

H. H. CARTER,
Superintendent of Streets.

It is to be regretted that as far as could be ascertained this letter had no effect in making the police force more active in attending to their duty. Great activity has been shown by the Board of Police in enforcing minor ordinances relative to feeding horses in the streets, peddling, occupying streets for the proper receipt and delivery of goods, and for building purposes, etc., etc.

It is extremely gratifying to be able to record this activity of the police force, but it is somewhat surprising that the most important of the ordinances which have been the subject of special communication to the Board of Police can be universally violated, while unimportant ordinances are strictly enforced.

The Department has brought to the attention of the Board of Police specific instances of violation of ordinances, and in some instances has offered to furnish testimony in case of prosecution.

In such cases the Board of Police has coöperated with the Department, and several convictions have been procured in the police court for such violations.

EMPTYING FILTH INTO CATCH-BASINS.

During the year some trouble has arisen from store-keepers emptying slops and filth directly into the catch-basins, clogging them up and rendering them unsanitary. As this is in violation of the ordinances, several arrests were made and fines imposed, among which might be mentioned the following:

William Cassidy, of the New England Telephone Company. Prosecuted and fined \$10 for dumping filth from its manholes into the catch-basins.

Frank Tedman, an employee of Niles Brothers, corner Cross and Fulton streets, for dumping beef pickle into catch-basin on Cross street. Fined \$10.

Charles Kogel, an employee of Louis Bassill, for dumping grindstone refuse into catch-basin, 37 Pitts street. Fined \$5 and costs.

FUTURE NEEDS OF THE DIVISION.

The picking over of ash barrels by rag-pickers should be prohibited by ordinance, and it is to be hoped that this year will see a change in this matter.

Owing to the amount of the appropriation, no separate cleaning-gangs could be provided in Dorchester and West Roxbury, the necessity for which is greater year by year as the districts develop.

Owing to the paving of Dorchester avenue during the year, it will be necessary to establish a small force in Dorchester to sweep the paved streets and attend to the scraping of the gutters and macadamized streets in that locality, and a small force will be established in West Roxbury during the coming year.

CONCLUSION.

Five appendices are submitted herewith, in which will be found the reports of the different deputy superintendents, showing the expenditure of each division in detail. They are as follows :

- Appendix A, Bridge Division.
- Appendix B, Paving Division.
- Appendix C, Sanitary Division.
- Appendix D, Sewer Division.
- Appendix E, Street-Cleaning Division.

The Superintendent is under obligations to His Honor, Mayor Nathan Matthews, Jr., and to the City Council, for the liberal spirit shown in making appropriations for necessary street improvements, and for the interest taken in securing legislation of great value to the department.

To all officials and employees the Superintendent desires to extend his thanks for the ability and fidelity displayed in carrying on the work of the department during the past year.

Respectfully submitted,

HENRY H. CARTER,
Superintendent of Streets.

STREET DEPARTMENT.

ORGANIZATION, 1892.

Central Office Room 47, City Hall.

HENRY H. CARTER,
Superintendent of Streets.

JOHN W. McDONALD, *Purchasing Agent.*
HENRY B. WOOD, *Secretary and Executive Engineer.*

PAVING DIVISION.

Room 41, City Hall.

CHARLES R. CUTTER, *Deputy Superintendent.*
BENJAMIN B. TREMERE, *Chief Clerk.*

SEWER DIVISION.

Room 44, City Hall.

HENRY W. SANBORN, *Deputy Superintendent (ex officio, Engineer
Improved Sewerage).*
FRANK H. RICE, *Chief Clerk.*
Engineer's Office, 12 Beacon Street.
E. S. DORR, *Engineer in Charge.*

SANITARY DIVISION.

12 Beacon Street.

GEO. W. FORRISTALL, *Deputy Superintendent.*
M. J. MURRAY, *Chief Clerk.*

STREET-CLEANING DIVISION.

14 Beacon Street.

PHILIP A. JACKSON, *Deputy Superintendent.*
THOMAS McLAUGHLIN, *Chief Clerk.*

BRIDGE DIVISION.

14 Beacon Street.

JOHN A. McLAUGHLIN, *Deputy Superintendent.*
FREDERICK H. SPRING, *Chief Clerk.*

CAMBRIDGE AND BOSTON BRIDGES.

HENRY H. CARTER, *Commissioner for Boston (ex officio).*
WILLIAM J. MARVIN, *Commissioner for Cambridge.*

APPENDIX A.

REPORT OF THE DEPUTY SUPERINTENDENT OF THE
BRIDGE DIVISION.14 BEACON STREET,
BOSTON, February 1, 1893.H. H. CARTER, ESQ., *Superintendent of Streets*:

DEAR SIR: In compliance with order conveyed in your letter of January 14, 1893, I respectfully submit herewith the following report of the acts and expenditures of the Bridge Division from February 1, 1892, to January 31, 1893. For this period there was allotted, for the care, maintenance, etc., of the bridges, the sum of \$125,000, which, by reason of necessary work on Charles-river and Essex-street bridges, was found to be insufficient to the amount of \$3,954.37. Thus the total sum expended by this division in the performance of regular work was \$128,954.37.

The total number of bridges in Boston, under supervision of this division, not including culverts, is (108) one hundred and eight; of this number seventy-three are supported wholly or in part by the city of Boston, and include twenty-two tidewater bridges, provided with draws. The increase of four bridges consists of two in Back Bay Park, L-street bridge at South Boston, and Allston bridge, over tracks of Boston and Albany Railroad at Cambridge street.

Of the important tidewater bridges, all are equipped with steam power except Meridian and Dover streets, which continue horse-power; Federal street, which is operated by electricity; Malden and Mt. Washington avenue, which are moved by hand power. All other draws are operated by hand-power. The general condition of these bridges is good, with two exceptions, notably Charles river and Chelsea street.

The report contains a tabulated statement of the expenditures, and a description of work performed on each bridge, and the maintenance expenses of the two districts comprising the Bridge Division.

Embodied in the report also are tables showing bridges supported in part or wholly by the City of Boston, etc.; widths of draw-openings; widths of bridges, roadways, and sidewalks; kind of pavement used; number of draw openings made for navigation; census of traffic taken in June of present year, as a comparison with that taken in April, 1891.

The inland bridges have been carefully looked after, and special effort has been made to keep them clean and safe. They have been thoroughly swept each week, and scupper holes have been kept free and clear.

The delivery of material in the different districts by those having contracts has been prompt and efficient, causing no delay for the proper performance of the work.

PUBLIC LANDING-PLACES.

The following public landing places have been built by the city, and are maintained and controlled by the Street Department:

Charles River Bridge. — Size, 40 × 60. Built in 1890. Moored from city's property.

Essex Street Bridge. — Size, 9 × 23. Built in 1890. Moored from city's property.

East Boston, Public Landing. — Dock and flats leased December 10, 1892, from East Boston Dry Dock Company, at \$200 per year. Size, 18 × 30. Being built.

Commercial Wharf. — Docks and flats leased November 30, 1891, from Commercial Wharf Corporation, at \$1,000 per year. Float built by M. F. Sullivan; contract dated January 1, 1892. Size, 30 × 50.

Federal-street Bridge, Public Landing. — Moored from city's property. Float built by M. F. Sullivan, October 26, 1892. Size, 20 × 35.

SPECIAL WORK.

The report contains a description of work performed and expenditures on several bridges, money for which was provided by special appropriation.

The total amount of money so expended and charged was \$24,190.03. Of this sum \$13,486.09 was paid to various persons, for work which could not be performed by our own men. The balance, \$10,703.94, was directly beneficial to our own mechanics, except a small portion used for the purchase of material for the work.

Very respectfully yours,

JOHN A. McLAUGHLIN,
Deputy Superintendent.

FINANCIAL STATEMENT.

REGULAR APPROPRIATION.

Appropriation, 1892-93	\$125,000 00
Transferred from Central Office, December 22, 1892,	1,206 40
Transferred from Cambridge bridges, December 22,	
1892	1,500 75
Transferred from Paving Division, January 28,	
1893	2,047 22
Total	<u>\$129,754 37</u>

Amount of expenditures charged to Bridge Division, February 1, 1892. to January 31, 1893	\$128,954 37
Transferred to Sanitary Division, January 13, 1893,	800 00
Total	<u>\$129,754 37</u>

EXPENDITURES.

Administration.

Office expenses :	
Advertising	\$19 75
Printing	236 36
Stationery and postage	85 83
Office books	47 00
Telephone	120 00
Binding reports	27 15
Sundries	17 00
	<u>553 09</u>
Salaries of Deputy Superintendent, Clerk, and Messenger	5,800 00
Salary of Executive Engineer, $1\frac{1}{3}$ months	317 78
Salary of Clerk of Committee on Streets and Sewers, 11 weeks	316 36
Salaries of General Foreman and two District Foremen	4,555 50
Board of Deputy Superintendent's horse	366 00
Travelling expenses of Deputy Superintendent and General Foreman	60 00
Amount expended, administration	<u>\$11,968 73</u>

TOTAL REGULAR EXPENDITURES.

Expenditures, administration	\$11,968 73
“ on tide-water bridges	93,212 66
“ “ inland “	10,012 92
“ North yard and stable	6,938 75
“ South “ “ “	6,821 31
Total amount expended for the year, February 1, 1892, to January 31, 1893	<u>\$128,954 37</u>

INCOME.

The amount of bills for work done by this division, deposited with the City Collector during the year, was	\$141 61
Amount due on leases	375 00
Total	<u>\$516 61</u>

TIDE-WATER BRIDGES.

Broadway bridge (over Fort Point channel).

Sheathed roadway and draw, repaired sidewalks, put in new stringers and floor, new hatch on draw, new oak headers, red-leaded underneath one coat, repaired wheel guards, put in new lockers in draw-tender's quarters, painted engine-room, machinery, and chambers two coats, and varnished same, repaired engines and boat, and made repairs on water and waste pipes.

Carpenters	\$676 13
Painters	1,116 41
Lumber	549 71
Nails and spikes	12 09
Ironwork	1,366 96
Hardware	9 19
Paint stock	222 46
Plumbing	58 55
Testing boiler, etc.	26 72
Repairing boat	12 00

\$4,050 22

Regular expenses :

Draw-tenders	\$5,697 50
Substitutes	181 75
Coal	201 20
Gas	43 20
Water	25 00
Ice	6 00
Sand	2 63
Small supplies	52 08

6,209 36

Cambridge-street bridge (from Brighton to Cambridge).

Sheathed bridge and repaired deck where defective, put in new flaps, repaired hoisting machinery, and painted fence.

Carpenters	\$118 25
Painters	15 00
Lumber	96 89
Nails and spikes	2 05
Ironwork	51 05
Paint stock	5 00
Car fares	2 90

\$291 14

Regular expenses :

Draw-tender	\$365 56
Coal	4 85
Small supplies	15 58

385 99

677 13

Carried forward,

\$10,936 71

Brought forward,
Charles-river bridge (from Boston to Charlestown).

\$10,936 71

Painted draw-tender's house inside one coat, sheathed draw twice, put in trucks nine times and repaired trucks eight times, new bunter, repaired sidewalk, pier, and fence, repaired water-way by splicing piles and bracing, put in two new thirty-foot rails and repaired tracks and stringers, repaired engines and placed water-pipe under sidewalk.

Carpenters	\$1,080 57	
Painters	145 00	
Lumber	261 70	
Nails and spikes	20 50	
Ironwork	1,406 28	
Paint stock	36 75	
Plumbing	54 50	
Sand and brick	20 50	
Testing boiler	13 60	
Steel rails	17 95	
	<hr/>	\$3,057 35

Regular expenses :

Draw-tenders	\$5,021 25	
Substitute	15 00	
Coal	469 20	
Gas	46 02	
Water	25 00	
Cordage	310 97	
Ice	6 00	
New row-boat	70 00	
Small supplies	80 84	
	<hr/>	6,044 28

9,101 63

Chelsea bridge [North] (over North channel, Mystic river).

Sheathed draw and approaches twice, repaired deck where defective, put in new truck and bunter, repaired tracks and engine-house, and varnished draw-tender's house inside.

Carpenters	\$467 12	
Painters	28 75	
Lumber	145 72	
Nails and spikes	8 00	
Ironwork	53 39	
Paint stock	11 36	
Plumbing	2 90	
Displacement of tide-water	7 12	
	<hr/>	\$724 36

Carried forward,

\$724 36

\$20,038 34

<i>Brought forward,</i>		\$724 37	\$20,038 34
Regular expenses:			
Draw-tenders	\$3,358 94		
Substitutes	329 00		
Coal	159 65		
Feed	41 69		
Gas	28 36		
Water	32 50		
Furniture	15 50		
Ice	6 00		
New row-boat	70 00		
Horse-shoeing	16 26		
Small supplies	62 06		
	<hr/>	4,119 96	
		<hr/>	4,844 32

Chelsea bridge [South] (over South channel, Mystic river).

Sheathed draw twice, rebuilt waterway and fender-guard on northeasterly side, repaired remaining portion, also piles, repaired engine-room, placed shop on pier taken from Warren bridge and painted same two coats, and made repairs on turntable and machinery.

Carpenters	\$1,165 13		
Painters	71 25		
Lumber	554 84		
Nails and spikes	28 70		
Ironwork	329 66		
Hardware	3 10		
Paint stock	16 71		
Repairing fender-guard . .	239 00		
Moving shop	75 00		
	<hr/>	\$2,483 39	

Regular expenses:			
Draw-tenders	\$3,926 52		
Substitutes	72 50		
Coal	270 05		
Feed	20 05		
Gas	27 71		
Water	60 00		
Furniture	5 25		
Ice	6 00		
Rubber packing	44 60		
New row-boat	70 00		
Horse-shoeing	7 00		
Small supplies	86 23		
	<hr/>	4,595 91	
		<hr/>	7,079 30

Carried forward,

\$31,961 96

Brought forward,

\$31,961 96

Chelsea-street bridge (from East Boston to Chelsea).

Sheathed bridge, repaired deck where defective, and gear under draw.

Carpenters	\$69 00	
Lumber	189 91	
Nails and spikes	1 90	
Ironwork	4 83	
Car fares	17 16	
	<hr/>	\$282 80

Regular expenses :

Draw-tender	\$299 00	
Small supplies	2 60	
	<hr/>	301 60

584 40

Commercial Point or Tenean bridge (Dorchester).

Regular expenses :

Draw-tender		50 00
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Congress-street bridge (over Fort Point channel).

Sheathed draw three times, new oak headers, repaired straps on pier, also fence, repaired iron fence on draw, repaired boat, reset and repaired buoys three times, general repairs made on machinery, steam and service pipes, put in new water-closet, and painted draw-tender's house and fence one coat.

Carpenters	\$466 30	
Painters	35 00	
Lumber	671 13	
Nails and spikes	14 70	
Ironwork	562 51	
Hardware	27 75	
Paint stock	15 74	
Plumbing	204 05	
Resetting buoys	455 50	
Repairing iron fence on draw	278 00	
Repairing damage to vessel	16 50	
Repairing row-boat	9 00	
Testing boilers, etc. . . .	34 85	
	<hr/>	\$2,791 03

Regular expenses :

Draw-tenders	\$5,661 15	
Substitutes	65 70	

Carried forward,

\$5,728 85

\$2,791 03

\$32,596 36

<i>Brought forward,</i>	\$5,728 85	\$2,791 03	\$32,596 36
Coal	347 00		
Water	106 75		
Ice	6 00		
Small supplies	98 38		
	<hr/>	6,284 98	
		<hr/>	9,076 01

Dover-street bridge (over Fort Point channel).

Sheathed draws three times, repaired waterway, put in new oak headers, repaired trucks and placed the same under draws four times, general repairs made on water service and waste pipes.

Carpenters	\$212 64		
Painters	45 75		
Lumber	55 19		
Nails and spikes	5 23		
Ironwork	1,200 36		
Hardware	24 66		
Paint stock	36 24		
Plumbing	54 02		
New windows	11 65		
	<hr/>	\$1,645 74	

Regular expenses :

Draw-tenders	\$1,486 56		
Substitutes	105 00		
Coal	20 60		
Feed	248 65		
Gas	43 06		
Water	15 00		
Tan	36 00		
Ice	6 00		
Horse-shoeing	29 50		
Bay horse	350 00		
Horse-hire	12 00		
Repairing harness	18 90		
Small supplies	59 60		
	<hr/>	5,430 87	
		<hr/>	7,076 61

Essex-street bridge (from Brighton to Cambridge).

Put in stringers and deck where defective, sheathed roadway and draw, put in new flaps, sheathed top of westerly pier, built foundation for draw-tender's house, which was moved here from Malden bridge.

Carpenters	\$690 87		
Lumber	768 51		
Nails and spikes	56 55		
Ironwork	17 65		
	<hr/>		
<i>Carried forward,</i>	\$1,533 58		\$48,718 98

<i>Brought forward,</i>	\$1,533 58	\$48,748 98
Hardware	6 25	
Car fares	62 00	
Moving draw-tender's house,	200 00	
	<u> </u>	\$1,801 83

Regular expenses:		
Draw-tender	\$658 32	
Substitute	12 66	
Coal	8 18	
Small supplies	9 90	
	<u> </u>	689 06
		<u> </u>
		2,490 89

Federal-street bridge (over Fort Point channel).

Sheathed draws twice, built division fence on north-easterly pier and floor to motor-house, repaired waterway, put in new wire cable for working draw, red-leaded underneath draws, trucks, and rails two coats.

Carpenters	\$661 35
Painters	67 50
Lumber	329 46
Nails and spikes	13 03
Ironwork	563 20
Hardware	7 99
Paint stock	16 25
Wire rope for draw	45 25
	<u> </u>
	\$1,704 03

Built new house for draw-tenders, and painted same inside and out two coats.

Carpenters	\$148 12
Painters	200 00
Carpenters' bills,	573 75
Lumber and	
woodwork	1,305 50
Nails	54 96
Hardware	124 99
Paint stock	73 09
Plumbing	289 27
Sheathing-paper,	25 08
Slater's bill	253 66
Double iron chim-	
ney-pipe	68 00
New gas-service	
pipe	54 05
Sheet lead	3 44
Plastering	124 62
	<u> </u>
	3,298 53
	<u> </u>
	\$5,002 56

<i>Carried forward,</i>	\$5,002 56	\$51,239 87
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<i>Brought forward,</i>		\$5,002 56	\$51,239 87
Regular expenses:			
Draw-tenders	\$5,754 61		
Substitutes	705 00		
Coal	45 85		
Gas	3 60		
Water	5 00		
Furniture and bedding	123 55		
Ice	6 00		
Small supplies	99 77		
	<hr/>	6,743 38	
		<hr/>	11,745 94

Granite bridge (from Dorchester to Milton).

Sheathed roadway, put in new flaps, repaired fence, and painted top and underside of draw one coat.

Carpenters	\$59 50		
Painters	35 00		
Lumber	74 57		
Nails and spikes	1 95		
Ironwork	3 55		
Hardware	1 50		
Paint stock	18 12		
Car fares	8 10		
	<hr/>	\$202 29	

Regular expenses:

Draw-tender	\$239 20		
Small supplies	3 57		
	<hr/>	242 77	

445 06

Malden bridge (from Charlestown to Everett).

Built new pier for draw-tender's house, which was moved here from Federal-street bridge, and painted same inside and out, adjusted draw and repaired fence. put in new water-closet and water-service pipes, and repaired boat.

Carpenters	\$343 50		
Painters	152 50		
Lumber	97 13		
Nails and spikes	4 25		
Ironwork	7 45		
Hardware	2 18		
Paint stock	28 79		
Plumbing	42 77		
Car fares	13 35		
Moving draw-tender's house	200 00		
Repairing boat	27 00		
	<hr/>	\$918 92	

Regular expenses:

Draw-tenders	\$2,591 94		
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<i>Carried forward,</i>	\$2,591 94	\$918 92	\$63,430 87
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<i>Brought forward,</i>	\$2,591 94	\$918 92	\$63,430 87
Substitutes	262 50		
Coal	26 05		
Gas	11 86		
Water	20 00		
Ice	6 00		
Furniture and bedding .	58 25		
Small supplies	31 92		
	3,008 52		
			3,927 44

Meridian-street bridge (from East Boston to Chelsea).

Sheathed draw, painted draw-tender's house inside one coat, and put in new windows, repaired latches on road gates and machinery on draw, built new gates to pier, repaired stable and boat.

Carpenters	\$362 75		
Painters	74 50		
Lumber	170 34		
Nails and spikes	2 10		
Ironwork	293 86		
Paint stock	31 00		
Car fares	20 40		
Ferry tickets	7 00		
Blinds and windows . . .	8 92		
Repairing boat	21 75		
	\$992 62		

Regular expenses:

Draw-tenders	\$2,505 69		
Substitutes	362 50		
Coal	29 40		
Feed	128 29		
Gas	18 80		
Water	20 00		
Furniture	10 50		
Ice	6 00		
Horse-shoeing	21 90		
Veterinary service . . .	12 09		
Repairing harness	19 50		
Small supplies	55 02		
	3,189 60		
			4,182 22

Mt. Washington-avenue bridge (over Fort Point channel).

Sheathed roadway twice, put in new oak headers, new water-closet in house, repaired waterways, new iron straps on pier, repaired guard, reset buoy twice, and painted draw-tender's house one coat.

Carpenters	\$511 27		
	\$511 27		
<i>Carried forward,</i>			\$71,540 53

<i>Brought forward,</i>	\$511 27	\$71,540 53
Painters	63 75	
Lumber	345 22	
Nails and spikes	8 25	
Ironwork	145 31	
Hardware	1 27	
Paint stock	24 40	
Plumbing	72 41	
Resetting buoys	148 50	
	<hr/>	\$1,320 38

Regular expenses :		
Draw-tenders	\$4,894 17	
Substitutes	115 70	
Coal	31 20	
Gas	52 50	
Water	5 00	
Ice	6 00	
Rent of land	60 00	
New row-boat	70 00	
Small supplies	59 15	
	<hr/>	5,293 72

6,614 10

Neponset bridge (from Dorchester to Quincy).

Sheathed roadway, put in new flaps, repaired waterway, and painted draw underneath two coats, upper side two coats.

Carpenters	\$105 69	
Painters	97 50	
Lumber	179 85	
Nails and spikes	2 44	
Ironwork	43 62	
Paint stock	30 33	
Car fares	6 69	
	<hr/>	\$466 12

Regular expenses :		
Draw-tender	\$398 84	
Substitute	7 67	
Small supplies	4 87	
	<hr/>	411 38

877 50

North Beacon-street bridge (from Brighton to Watertown).

Sheathed roadway and draw, put in new flaps, repaired deck and fence where defective.

Carpenters	\$19 00	
Lumber	23 37	
Nails and spikes	1 48	
Ironwork	2 16	
Car fares	3 20	
	<hr/>	\$49 21

Carried forward,

\$49 21

\$79,032 13

<i>Brought forward,</i>	\$49 21	\$79,032 13
Regular expenses :		
Draw-tender	74 88	
	<u> </u>	124 09

North Harvard-street bridge (from Brighton to Cambridge).

Sheathed roadway and repaired draw.		
Carpenters	\$47 00	
Lumber	3 40	
Nails and spikes	2 53	
Ironwork	7 64	
	<u> </u>	\$60 57
Regular expenses :		
Draw-tender	\$365 56	
Small supplies	75	
	<u> </u>	366 31
		<u> </u>
		426 88

Warren bridge (from Boston to Charlestown).
Sheathed both draws four times, repaired machinery, boilers, service and waste pipes, built shed for tools and oil tanks, also put in new wire cable on draw.

Carpenters	\$623 75	
Painters	15 00	
Lumber	873 37	
Nails and spikes	22 50	
Ironwork	523 57	
Paint stock	5 01	
Plumbing	58 70	
Wire rope for draw	25 24	
Testing boiler	13 60	
Mason work	5 77	
Sheet lead	18 16	
Repairing damage to vessel	96 72	
	<u> </u>	\$2,281 39
Regular expenses :		
Draw-tenders	\$4,933 59	
Substitutes	268 75	
Coal	714 90	
Gas	77 37	
Water	50 00	
Furniture	5 25	
Ice	6 00	
Two oil-tanks	15 00	
Lubricating oil	15 75	
Small supplies	93 36	
	<u> </u>	6,179 97
		<u> </u>
		8,461 36

Carried forward, \$88,044 46

Brought forward,

\$88,044 46

Western-avenue bridge (from Brighton to Cambridge).

Built shed, repaired house and work-shop, and shingled roofs of shed, house, and work-shop.

Carpenters . . .	\$121 00	
Painters . . .	7 50	
Lumber . . .	129 92	
Nails and spikes . . .	3 15	
Ironwork . . .	97 49	
Car fares . . .	2 40	
	<hr/>	\$361 46

Regular expenses:

Draw-tender . . .	\$365 56	
Coal . . .	4 85	
Repairing stove . . .	3 30	
Small supplies . . .	1 82	
	<hr/>	375 53

736 99

Western-avenue bridge (from Brighton to Watertown).

Repaired draw and flaps.

Carpenters . . .	\$4 00	
Ironwork . . .	12 50	
	<hr/>	\$16 50

Regular expenses:

Draw-tender . . .	\$74 88	
Small supplies . . .	4 81	
	<hr/>	79 69

96 19

Winthrop bridge (from Breed's Island to Winthrop).

Sheathed roadway, repaired deck where defective, put in new iron wheel-guard, and painted fence one coat.

Carpenters . . .	\$124 75	
Painters . . .	54 75	
Lumber . . .	302 99	
Nails and spikes . . .	4 20	
Ironwork . . .	148 27	
Paint stock . . .	29 95	
Car fares . . .	9 84	
	<hr/>	\$674 75

Regular expenses:

Draw-tender . . .	100 00	
	<hr/>	

774 75

Carried forward,

\$89,652 39

Brought forward, \$89,652 39

Sundry expenditures on tide-water bridges :

Millwork on bridges	\$39 67	
Repairing row-boats	28 53	
Spare trucks	314 13	
Car fares, mechanics	140 00	
Car fares, chief draw-tender	20 00	
	<u> </u>	\$542 33

Regular expenses :

Chief draw-tender	\$1,570 00	
Messenger	797 68	
Bay horse	200 00	
Red roan horse	150 00	
Concord wagon	225 00	
Repairing harness	11 75	
Reins and weight	5 80	
Blanket	8 50	
Clipping horse	3 00	
Framing rules	28 50	
Small supplies	17 71	
	<u> </u>	3,017 94

3,560 27

Total expended on tide-water bridges \$93,212 66

RECAPITULATION.

Table showing Expenditures on the Tide-water Bridges for the Year, February 1, 1892, to January 31, 1893.

NAME OF BRIDGE.	Repairs, labor, lumber, iron-work, and painting.	Regular expenses, salaries, fuel, and supplies.	Total.
Broadway	\$4,050 22	\$6,209 36	\$10,259 58 ✓
Cambridge-street	291 14	385 99	677 13 ✓
Charles-river	3,057 35	6,044 28	9,101 63 ✓
Chelsea [North]	724 36	4,119 96	4,844 32 ✓
Chelsea [South]	2,483 39	4,595 91	7,079 30 ✓
Chelsea-street	282 80	301 60	584 40 ✓
Commercial-point		50 00	50 00 ✓
Congress-street	2,791 03	6,284 98	9,076 01 ✓
Dover-street	1,645 74	5,430 87	7,076 61 ✓
Essex-street	1,801 83	689 06	2,490 89 ✓
Federal-street	5,002 56	6,743 38	11,745 94 ✓
Granite	202 29	242 77	445 06 ✓
Malden	918 92	3,008 52	3,927 44 ✓
Meridian-street	992 62	3,189 60	4,182 22 ✓
Mt. Washington-avenue	1,320 38	5,293 72	6,614 10 ✓
Neponset	466 12	411 38	877 50 ✓
North Beacon-street	49 21	74 88	124 09 ✓
North Harvard-street	60 57	366 31	426 88 ✓
Warren	2,281 39	6,179 97	8,461 36 ✓
Western-avenue (to Cambridge)	361 46	375 53	736 99
Western-avenue (to Watertown)	16 50	79 69	96 19
Winthrop	674 75	100 00	774 75
Chief draw-tender, and sundry expenditures	542 33	3,017 94	3,560 27
Totals	\$30,016 96	\$63,195 70	\$93,212 66

INLAND BRIDGES.

Albany-street bridge (over Boston and Albany Railroad).

Sheathed roadway.

Carpenters	\$90 20
Lumber	111 62
Nails	1 95

 \$203 77
Athens-street bridge (over New York and New England Railroad).

Painted bridge two coats. Labor charged to Street Improvements, Ward 13.

Paint stock	14 48
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Beacon-street bridge (over outlet to Back Bay Fens).

Red-leaded underneath two coats, and painted fence two coats.

Painters	\$114 00
Paint stock	18 05

 132 05
Beech-street bridge (over Stony Brook).

Built new structure.

Carpenters	\$13 00
Lumber	27 75

 40 75
Berkeley-street bridge (over Old Colony Railroad, Providence Division).

Sheathed roadway and repaired deck where defective, and made repairs for water department as per plans, also painted the same.

Carpenters	\$61 88
Painters	35 00
Lumber	52 03
Nails	1 48
Paint stock	21 99

 172 38
Blakemore-street bridge (over Old Colony Railroad, Providence Division).

Sheathed roadway.

Carpenters	\$47 13
Lumber	57 20
Nails	1 90

 106 23
Boylston-avenue bridge (over Stony Brook).

Sheathed roadway, built new sidewalk, and put in new stringers where defective.

Carpenters	\$90 59
Lumber	126 74

Carried forward,

 \$217 33

 \$669 66

<i>Brought forward,</i>	\$217 33	\$669 66
Nails	2 10	
Ironwork	96	
	<hr/>	220 39

Boylston-street bridge (over Boston & Albany Railroad).

Sheathed roadway.

Carpenters	\$76 97	
Lumber	130 51	
Nails	1 32	
	<hr/>	208 80

Broadway bridge (over Boston & Albany Railroad).

Put in new deck, calked the same, new sidewalks laid, roadway sheathed and ironwork red-leaded two coats, painted top of bridge two coats.

Carpenters	\$535 87	
Painters	830 50	
Lumber	1,738 68	
Nails	27 45	
Paint stock	102 84	
Graving deck	102 50	
	<hr/>	3,337 84

Brookline-avenue bridge (over Boston & Albany Railroad).

Sheathed roadway.

Carpenters	\$75 38	
Lumber	104 50	
Nails	6 30	
	<hr/>	186 18

Central-avenue bridge (from Dorchester to Milton).

Sheathed roadway.

Carpenters	\$30 37	
Lumber	91 71	
Nails	1 95	
Car fares	3 24	
	<hr/>	127 27

Columbus-avenue bridge (over Boston & Albany Railroad).

Sheathed roadways and painted all truss work and water box one coat.

Carpenters	\$40 51	
Painters	194 50	
Lumber	118 25	
Nails	1 95	
Paint stock	37 29	
	<hr/>	392 50

Carried forward,

\$5,142 64

Brought forward,

\$5,142 64

Commonwealth-avenue bridge (over outlet to Back Bay Fens).

Red-leaded underneath two coats, painted top work fence two coats.

Carpenters	. . . . .	\$8 00
Painters	. . . . .	150 00
Paint stock	. . . . .	33 30

191 30

Cottage-street [foot] bridge (from Jeffries Point to Wood Island).

Moved watchman's house twice and repaired and painted house and fence.

Carpenters	. . . . .	\$64 25
Painters	. . . . .	161 75
Lumber	. . . . .	6 66
Nails	. . . . .	2 10
Paint stock	. . . . .	22 55
Car fares and tolls	. . . . .	29 28
Watchman (permanently employed)	. . . . .	728 00
Substitute	. . . . .	14 00
Furniture	. . . . .	6 50
Coal	. . . . .	10 10
New stove	. . . . .	21 50

1,066 69

Dorchester-street bridge (over Old Colony Railroad, Central Division).

Sheathed roadway and laid new sidewalk.

Carpenters	. . . . .	\$9 25
Lumber	. . . . .	30 78
Nails	. . . . .	1 51

41 54

Ferdinand-street bridge (over Boston & Albany Railroad).

Sheathed roadway and painted fence and top of bridge two coats.

Carpenters	. . . . .	\$18 69
Painters	. . . . .	80 75
Lumber	. . . . .	68 50
Nails	. . . . .	1 48
Paint stock	. . . . .	20 41

189 83

Franklin-street [foot] bridge (over Boston & Albany Railroad).

Built new stairs, painted underneath two coats, upper side one coat.

Carpenters	. . . . .	\$128 00
Painters	. . . . .	84 75
Lumber	. . . . .	65 31

Carried forward,

\$278 06

\$6,632 00

<i>Brought forward,</i>	\$278 06	\$6,632 00
Nails	2 25	
Ironwork	9 85	
Paint stock	25 00	
Car fares	12 48	
	<hr/>	327 64
Gold-street [foot] bridge (over New York & New England Railroad).		
Repaired fence.		
Carpenters		7 25
Huntington-avenue bridge (over Boston & Albany Railroad).		
Sheathed roadway.		
Carpenters	\$31 13	
Lumber	73 23	
Nails	1 95	
	<hr/>	106 31
Leyden-street bridge (over Boston, Revere Beach & Lynn Railroad).		
Small repairs made.		
Carpenters	\$2 50	
Painters	7 50	
	<hr/>	10 00
Linden Park-street bridge (over Stony Brook).		
Sheathed roadway.		
Carpenters	\$13 75	
Lumber	48 28	
Nails	2 10	
	<hr/>	64 13
Longwood-avenue bridge (from Roxbury to Brookline).		
Sheathed roadway.		
Carpenters	\$35 55	
Lumber	82 26	
Nails	4 00	
	<hr/>	121 81
Mattapan bridge (from Dorchester to Milton).		
Sheathed roadway and repaired sidewalk.		
Carpenters	\$2 50	
Lumber	28 36	
Nails	74	
	<hr/>	31 60
Milton bridge (from Dorchester to Milton).		
Built new sidewalk.		
Carpenters	\$26 07	
Lumber	78 90	
Nails	1 48	
	<hr/>	106 45
<i>Carried forward,</i>		<hr/>
		\$7,407 19

Brought forward,

\$7,407 19

Shawmut-avenue bridge (over Boston & Albany Railroad).

Sheathed roadway, painted underneath two coats, upper side two coats.

Carpenters	\$58 44
Painters	116 25
Lumber	118 42
Nails	1 95
Paint stock	23 18

318 24

Spring-street bridge (from West Roxbury to Dedham).

Built new fence.

Carpenters	\$63 00
Lumber	63 97
Nails	3 75
Ironwork	5 00

135 72

West Chester-park bridge (over Boston & Albany Railroad).

Sheathed roadway.

Carpenters	\$70 13
Lumber	126 94
Nails	2 22
Turpentine	6 60

205 89

West Chester-park bridge (over Old Colony Railroad, Providence Division).

Repaired sheathing.

Carpenters	\$41 59
Lumber	86 77
Nails	2 10

130 46

Sundry expenditures on inland bridges:

Labor, bridge-cleaners	\$1,261 75
Labor, removing snow	477 17
Sand for slippery walks	14 00
Car fares, mechanics	62 50

1,815 42

Total expended on inland bridges \$10,012 92

RECAPITULATION.

Table showing Expenditures on the Inland Bridges for the Year,
February 1, 1892, to January 31, 1893.

Name of Bridge.	Repairs, Labor, Lumber, Ironwork, and Painting.
Albany street	\$203 77 ✓
Athens street	14 48 ✓
Beacon street (over Outlet)	132 05 ✓
Beech street	40 75 ✓
Berkeley street (over Providence Division, Old Colony Railroad)	172 38 ✓
Blakemore street	106 23 ✓
Boylston avenue	220 39 ✓
Boylston street (over Boston & Albany Railroad)	208 80 ✓
Broadway (over Boston & Albany Railroad)	3,337 84 ✓
Brookline avenue	186 18 ✓
Central avenue	127 27 ✓
Columbus avenue	392 50 ✓
Commonwealth avenue (over Outlet)	191 30 ✓
Cottage street	1,066 69 ✓
Dorchester street	41 54 ✓
Ferdinand street	189 83 ✓
Franklin street	327 64 ✓
Gold street	7 25 ✓
Huntington avenue	106 31 ✓
Leyden street	10 00 ✓
Linden Park street	64 13 ✓
Longwood avenue	121 81 ✓
Mattapan	31 60 ✓
Milton	106 45 ✓
Shawmut avenue	318 24 ✓
Spring street	135 72 ✓
West Chester park (over Boston & Albany Railroad)	205 89 ✓
West Chester park (over Providence Division, Old Colony Railroad)	130 46 ✓
Sundry expenditures	1,815 42 ✓
Total	<u>\$10,012 92</u>

REGULAR MAINTENANCE EXPENSES AT NORTH AND SOUTH YARDS.

NORTH YARD, DISTRICT No. 1.

Warren Bridge.

Messenger	\$797 68
Watchman	735 50
Tools for carpenters	184 87
Tools for painters	22 00
Telephone	146 85
Coal	18 60
Lanterns	18 00
Shovels and ice chisels	27 50
Hose	8 87
Ice	6 00
Small supplies	35 68

\$2,001 55

Built new house on the westerly pier, containing office, stable, and shop, fitted same with water, gas, and steam-heating apparatus, the steam being furnished from the draw-tender's house.

Carpenters	\$753 37
Painters	138 00
Lumber and woodwork	1,111 82
Nails and spikes	32 00
Ironwork	95 68
Hardware	61 58
Paint stock	62 50
Radiators and steam and gas fixtures	275 00
Sheet lead	20 74
Stable fixtures	98 69
Sheathing-paper	29 13

2,678 51

\$4,680 06

STABLE, DISTRICT No. 1.

Teamster	\$783 75
Hostler	325 50
Feed	391 62
Repairs on buggy	167 75
Repairs on wagons	84 31
Horse-shoeing	88 12
Harness and repairs	98 10
Supplies	106 54

Carried forward,

\$2,045 69

\$4,680 06

<i>Brought forward,</i>	\$2,045 69	\$4,680 06
New sleigh	125 00	
Use of vehicle	16 00	
Clipping horses	12 00	
Vegetable food	60 00	
	<hr/>	2,258 69
Amount expended, North Yard and Stable .		<hr/> <u>\$6,938 75</u>

SOUTH YARD, DISTRICT NO. 2.

Foundry Street.

Messenger	\$723 03	
Yardman	490 00	
Watchman	862 50	
Tools for carpenters	138 47	
Tools for painters	71 57	
Telephone	120 00	
Coal	50 90	
Lanterns	33 65	
Shovels and ice-chisels	27 50	
Plumbing	52 20	
Repairing jacks	18 75	
Ice	6 00	
Small supplies	97 34	
Repairing buildings	60 32	
	<hr/>	\$2,752 23

STABLE, DISTRICT NO. 2.

Teamster	\$782 50	
Hostler	771 00	
Feed	493 59	
Repairs on wagons	180 34	
Horse-shoeing	176 25	
Harness and repairs	173 15	
Supplies	90 25	
New sleigh	125 00	
Use of horse	113 00	
Clipping horses	9 00	
Vegetable food	165 00	
Heavy draught horse	300 00	
Heavy wagon	375 00	
New buggy	300 00	
Water	15 00	
	<hr/>	4,069 08
Amount expended, South Yard and Stable .		<hr/> <u>\$6,821 31</u>

SPECIAL APPROPRIATIONS.

Berkeley-street bridge (over Boston & Albany Railroad).

Building new iron bridge.

Carpenters	\$198 19
Painters	96 50
Lumber	1,379 09
Nails and spikes	42 60
Ironwork	32 57
Paint stock	143 25
Inspector	220 00
Engineer's roll	292 50
Placing stone on bridge	300 00
Removing old bridge	350 00
Graving deck	76 00
Advertising (City Architect)	22 50
Copying specifications	4 23
Car fares	4 60
Amount paid for work done by Pav- ing Division	2,675 22

Expended January 31, 1893	\$5,837 25
Transferred to Boylston-street bridge	1,200 00
Transferred to Aldermanic District No. 5	1,800 00
Balance	666 57

\$9,503 82**Chelsea bridge, Steam Apparatus.**

Put in new motive-power for working the North and South draws, built 172 feet of fender guard on Chelsea [North], spliced piles and drove new ones as per City Engineer's plan, sheathed and covered machinery, put in new truss, built new iron fence on Chelsea [South] draw, painted same two coats, and built new sidewalks.

Carpenters	\$1,194 00
Painters	59 00
Lumber	437 15
Ironwork	985 08
Engine work	360 07
Hardware and nails	70 36
Paint stock	20 26
Plumbing	40 48
Inspector	20 00
Furnishing and driving oak piles	835 00
“ “ “ ash “	193 64
Small sundries	16 51

\$4,231 55

Malden bridge, repairs.

Rebuilt draw, drove piles and put in new foundation, new centre pinion, and necessary ironwork.

Inspector	\$292 50
Contract with Josiah Shaw for work done and material furnished	3,650 00
Cash paid by him for labor furnished	192 60
Trucks and wheels	165 00
Turn-tables, suspension rods, ballast, etc., extra work ordered	1,374 88
Advertising	27 95
Ironwork	8 03

Amount expended \$5,710 96

Appropriation \$4,000 00

Furnished from appropriation, Street Improvements, Aldermanic District No. 2 1,710 96

\$5,710 96

STREET IMPROVEMENTS, WARD 13.

Athens-street bridge (over New York & New England Railroad).

Rebuilt all woodwork, new deck, sidewalks, and fence, all ironwork scraped and cleaned, and painted bridge two coats. (Paint stock used taken from yard)

Carpenters	\$169 10
Painters	43 75
Lumber	232 97
Nails, spikes, etc.	5 25

\$451 07

Broadway bridge (over Fort Point channel).
Foundry-street span.

Put in new beams, new deck, calked the same, and new sheathing laid, and red-leadèd ironwork underneath two coats, also laid new concrete sidewalks.

Carpenters	\$656 47
Painters	77 50
Lumber	1,276 21
Nails and spikes	40 80
Ironwork	17 89
Paint stock	203 59
Calking and graving	222 50
Laid new concrete sidewalks	1,184 95

3,679 91

Carried forward,

\$4,130 98

Brought forward,

\$4,130 98

Dover-street bridge (over Fort Point channel).

Built new fence, stringers, deck, and sidewalk,
painted fence two coats, and laid new concrete
sidewalks.

Carpenters	\$642 84
Painters	109 25
Lumber	710 13
Ironwork	4 15
Paint stock	78 00
Laid new concrete sidewalk	316 80
	<hr/>

1,861 17

Mt. Washington-avenue bridge (over Fort Point channel).

Put in new stringers, and laid under-deck for side-
walks, South Boston end, rebuilt fence and
painted same, also laid new concrete sidewalks.

Carpenters	\$653 86
Painters	25 00
Lumber	770 34
Nails and spikes	4 25
Ironwork	55 45
Laid new concrete walks	401 50
	<hr/>

1,910 40

Amount expended by Bridge Division, and charged
to Street Improvements, Ward 13

\$7,902 55**Essex-street bridge.**

Labor performed by carpenters on Essex-street
bridge

\$468 02

For description of work done and material used,
see regular appropriation.

Above amount charged to Street Improvements,
Aldermanic District No. 11.

North Ferry avenue (East Boston).

Repairing sidewalk on North Ferry avenue, East
Boston.

Carpenters	\$30 50
Lumber	9 20
	<hr/>

\$39 70

Charged to Street Improvements, Aldermanic
District No. 1.

LIST OF BOSTON BRIDGES.

I. — BRIDGES WHOLLY SUPPORTED BY BOSTON.

In the list those marked with an asterisk are over navigable waters, and are each provided with a draw.

Agassiz road, in Back Bay Fens.

Allston, over Boston & Albany Railroad at Cambridge street.

Ashland street, Ward 23, over Old Colony Railroad, Providence Division.

Athens street, over N. Y. & N. E. Railroad.

Beacon entrance, Back Bay Fens, over Boston & Albany Railroad.

Beacon street, over outlet to Back Bay Fens.

Beacon street, over Boston & Albany Railroad.

Berkeley street, over Boston & Albany Railroad.

Berkeley street, over Old Colony Railroad, Providence Division.

Blakemore street, over Old Colony Railroad, Providence Division, Ward 23.

Bolton street, over N. Y. & N. E. Railroad.

Boylston street, over Boston & Albany Railroad.

Boylston street, over outlet to Back Bay Fens.

*Broadway, over Fort Point Channel.

Broadway, over Boston & Albany Railroad.

Brookline avenue, over Boston & Albany Railroad.

Byron street, over Boston, Revere Beach & Lynn Railroad.

*Charles river, from Boston to Charlestown.

*Chelsea (South), over South Channel, Mystic river.

*Chelsea street, from East Boston to Chelsea.

Columbus avenue, over Boston & Albany Railroad.

*Commercial Point, or Tenean, Ward 24.

Commonwealth avenue, over outlet to Back Bay Fens.

*Congress street, over Fort Point Channel.

Cornwall street, over Stony Brook, Ward 23.

Cottage-street foot-bridge, from Jeffries Point to Wood Island.

Dartmouth street, over Boston & Albany, and Providence Division of Old Colony Railroad.

*Dover street, over Fort Point Channel.

*Federal street, over Fort Point Channel.

Fen, Back Bay Fens.

Ferdinand street, over Boston & Albany Railroad.

Franklin-street foot-bridge, over Boston & Albany Railroad.

Gold-street foot-bridge, over N. Y. & N. E. Railroad.

Huntington avenue, over Boston & Albany Railroad.

Irrington-street foot-bridge, over Old Colony Railroad, Providence Division.

*L street, over Reserved Channel at junction of Congress and L streets.

Leyden street, over Boston, Revere Beach & Lynn Railroad.

Linden Park street, over Stony Brook.

*Malden, from Charlestown to Everett.

*Meridian street, from East Boston to Chelsea.

*Mt. Washington avenue, over Fort Point Channel.

Neptune road, over Boston, Revere Beach & Lynn Railroad.
 Public Garden foot-bridge.
 Shawmut avenue, over Boston & Albany Railroad.
 Stony Brook, Back Bay Fens.
 Swett street, east of N. Y. & N. E. Railroad.
 Swett street, west of N. Y. & N. E. Railroad.
 *Warren, from Boston to Charlestown.
 West Chester park, over Boston & Albany Railroad.
 West Chester park, over Old Colony Railroad, Providence
 Division.
 West Newton street, over Old Colony Railroad, Providence
 Division.
 West Rutland square foot-bridge, over Old Colony Railroad,
 Providence Division.
 Winthrop, from Breed's Island to Winthrop.

II. — BRIDGES OF WHICH BOSTON SUPPORTS THE PART WITHIN ITS LIMITS.

*Cambridge street, from Brighton to Cambridge.
 Central avenue, from Ward 24 to Milton.
 *Chelsea (North), from Charlestown to Chelsea.
 *Essex street, from Brighton to Cambridge.
 *Granite, from Dorchester, Ward 24, to Milton.
 Longwood avenue, from Ward 22 to Brookline.
 Mattapan, from Ward 24 to Milton.
 Milton, from Ward 24 to Milton.
 *Neponset, from Ward 24 to Quincy.
 *North Beacon street, from Brighton to Watertown.
 *North Harvard street, from Brighton to Cambridge.
 Spring street, from West Roxbury to Dedham.
 *Western avenue, from Brighton to Cambridge.
 *Western avenue, from Brighton to Watertown.

III. — BRIDGES OF WHICH BOSTON PAYS A PART OF THE COST OF MAINTENANCE.

Albany street, over Boston & Albany Railroad.
 Dorchester street, over Old Colony Railroad, Central Division.
 *Harvard, from Boston to Cambridge.
 *Canal, from Boston to Cambridge.
 *Prison Point, from Charlestown to Cambridge.
 *West Boston, from Boston to Cambridge.

The last four bridges are in the care of two Commissioners, one of whom is appointed by the City of Cambridge and the other by the City of Boston.

IV. — BRIDGES SUPPORTED BY RAILROAD CORPORATIONS.

1st. — Boston & Albany Railroad.

Commonwealth avenue, Brighton.
 Harrison avenue.

Market street, Brighton.
Tremont street.
Washington street.

2d. — Boston & Maine Railroad, Eastern Division.

Mystic avenue.
Main street.

3d. — Boston & Maine Railroad, Western Division.

Mystic avenue.
Main street.

4th. — Boston, Revere Beach & Lynn Railroad.

Everett street.

5th. — New York & New England Railroad.

Dorchester avenue.
Harvard street, Ward 24.
Morton “ “
Norfolk “ “
Norfolk “ “
Silver street.
Washington street, Ward 24.
West Broadway.
West Fifth street.
West Fourth street.
West Second street.
West Sixth street.
West Third street.

6th. — Old Colony Railroad, Central Division.

Adams street.
Ashmont street and Dorchester avenue.
Cedar Grove Cemetery.
Freeport street.
Savin Hill avenue.

7th. — Old Colony Railroad, Providence Division.

Beech street, Ward 23.
Bellevue street, Ward 23.
Canterbury street, Ward 23.
Centre street, or Hog Bridge, Ward 23.
Centre and Mt. Vernon streets, Ward 23.
Dudley avenue, Ward 23.
Park street, Ward 23.

RECAPITULATION.

I.	Number wholly supported by Boston	53
II.	Number of which Boston supports the part within its limits	14
III.	Number of which Boston pays a part of the cost of maintenance	6
IV.	Number supported by railroad corporations :	
	1. Boston & Albany	5
	2. Boston & Maine, Eastern Div.	2
	3. “ “ Western Div.	2
	4. Boston, Revere Beach & Lynn	1
	5. New York & New England	13
	6. Old Colony, Central Div.	5
	7. “ “ Providence Div.	7
	Total number	108

The existing regulations for the passage of vessels through drawbridges have been posted on the several bridges, as required by law.

The records of the number of draw-openings, vessels passing through the bridges, time of passage, kind of vessels, number laden with cargo, etc., as kept by the draw-tenders of the several bridges, have been tabulated, and the totals are given in the summary which will be found in Appendices A1 and A6.

A list of widths of openings for vessels in all bridges provided with draws in the city, measurements being furnished by the City Engineer, will be found in Appendix A2.

Appendix A3 is a table, also made by the City Engineer, showing widths of bridges, kind of roadways, sidewalks, etc.

A list of culverts and small bridges will be found in Appendix A4.

Appendix A5 contains a tabulated statement of traffic.

APPENDIX A 1.

DRAW-TENDERS' REPORTS.

Giving the Number of Vessels passing through the Drawbridges controlled by the City of Boston, from February 1, 1892, to February 1, 1893.

NAME OF BRIDGE.	STREAMERS.			SAILING-VESSELS.			TUGS.			ALL OTHERS.			TOTAL NO. VESSELS.			Total No. of Car-goes.	Total No. of Open-ings.
	By Day.	By Night.	Total.	By Day.	By Night.	Total.	By Day.	By Night.	Total.	By Day.	By Night.	Total.	By Day.	By Night.	Total.		
Broadway	4	4	8	2,011	1,107	3,118	1,469	240	1,709	472	154	626	3,956	1,505	5,461	1,822	4,182
Cambridge street				225	11	236	681	52	733	234	35	269	1,140	98	1,238	251	709
Charles river	16	13	29	1,913	887	2,800	2,217	637	2,854	1,472	538	2,010	5,618	2,075	7,693	2,379	5,747
Chelsea (North)	31	4	35	643	74	717	2,646	253	2,899	1,088	117	1,205	4,408	448	4,856	896	3,293
Chelsea (South)	81	4	85	951	86	1,037	2,736	187	2,923	874	112	986	4,642	389	5,031	1,045	3,836
Chelsea street				4	4	8	36	36	36	14	14	14	54	54	54	6	54
Commercial Point										4	4	4	4	4	4		4
Congress street	203	95	298	3,715	1,181	4,896	6,217	1,430	7,647	2,225	609	2,834	12,360	3,315	15,675	3,748	8,281
Dover street	9	1	10	1,729	828	2,557	1,269	236	1,505	404	140	544	3,411	1,205	4,616	1,509	3,789
Essex street	13		13	242	5	247	660	44	704	247	40	287	1,162	89	1,251	208	813

Federal street	6	4	10	2,116	1,179	3,295	1,664	380	2,044	469	177	646	4,255	1,740	5,995	1,978	4,368
Granite				88	3	91	180	4	184	18	1	19	286	8	294	57	196
Malden	3		3	204	11	215	902	77	979	431	42	473	1,540	130	1,670	324	1,032
Meridian street	53	21	74	784	67	851	3,048	303	3,351	1,273	159	1,432	5,158	550	5,708	840	3,685
Mt. Washington avenue	52	18	70	2,704	1,219	3,923	3,957	1,137	5,094	1,574	625	2,199	8,287	2,999	11,286	2,793	6,464
Neponset				170	23	193	194	4	198				364	27	391	94	302
North Beacon street	1		1				3		3				4		4		3
North Harvard street				118	2	120	265	6	272	37	2	39	421	10	431	82	275
Warren	7	10	17	1,199	1,597	2,796	1,291	649	1,940	953	517	1,470	3,450	2,773	6,223	2,009	4,713
Western avenue to Cambridge,				205	6	211	574	45	619	193	35	228	972	86	1,058	221	595
Western avenue to Watertown,	1		1	12		12	15		15				28		28		28
Totals	480	174	654	19,033	8,286	27,319	30,025	5,684	35,709	11,982	3,303	15,285	61,520	17,447	78,967	20,262	52,369

NOTE. — West Boston, Prison Point, Canal (or Craigie's), and Harvard Bridges not included in these tables, being in the care of Commissioners representing the two cities (Boston and Cambridge) connected by these bridges.

APPENDIX A 2.

Table showing the Widths of Openings for Vessels in all Bridges provided with Draws, in the City of Boston, January, 1893.

NAME OF BRIDGE.	Location.	Number of Openings.	Width.
Boston & Maine R.R., Eastern Division	Boston to Charlestown .	1	35 feet 10 inches.
Boston & Maine R.R., Eastern Division	Over Miller's river . .	1	35 " 10 "
Boston & Maine R.R. (freight), Southern Division	Boston to East Cambridge	1	35 " 8 "
Boston & Maine R.R. (passenger), Southern Division	" " " "	1	35 " 10 "
Boston & Maine R.R., Western Division	Boston to Charlestown .	1	35 " 5 "
Boston & Maine R.R., Western Division	Over Miller's river . .	1	35 " 9 "
Broadway	Over Fort Point channel,	1	43 " 3 "
Cambridge st.	Ward 25 to Cambridge .	1	36 " 3 "
Canal (or Craigie's)	Boston to East Cambridge	1	35 " 10 "
Charles river	Boston to Charlestown .	1	36 " 0 "
Chelsea (south channel)	Charlestown to Chelsea,	1	38 " 10 "
Chelsea (north channel)	" " "	1	44 " 10 "
Chelsea st. (East Boston side)	East Boston to Chelsea .	2	33 " 1 "
" " (Chelsea side)	" " " "	. .	34 " 3 "
Commercial point (or Tenean)	Ward 24	1	24 " 0 "
Congress st. (Boston side)	Over Fort Point channel,	2	43 " 3 "
" " (South Boston side)	" " " "	. .	43 " 11 "
Dover st.	" " " "	1	36 " 0 "
Essex st.	Ward 25 to Cambridge .	1	36 " 0 "
Federal st.	Over Fort Point channel,	1	41 " 10 "
Fitchburg R.R.	Boston to Charlestown .	1	36 " 0 "
" " (for teaming freights)	" " " "	1	35 " 11 "

Table showing Width of Openings, etc. — *Concluded.*

NAME OF BRIDGE.	Location.	Number of Openings.	Width.
Grand Junction R.R.	Ward 25 to Cambridge .	1	35 feet 10 inches.
“ “ “	East Boston to Chelsea .	1	34 “ 6 “
Granite	Ward 24 to Milton . . .	1	36 “ 0 “
Harvard (Boston side)	Boston to Cambridge .	2	36 “ 8 “
“ (Cambridge side)	“ “ “	2	36 “ 8 “
L street	Over Reserved channel, South Boston	1	40 “ 0 “
Malden	Charlestown to Everett .	1	43 “ 4 “
Meridian st. (East Boston side) . .	East Boston to Chelsea .	2	59 “ 2 “
“ “ (Chelsea side)	“ “ “ “	2	59 “ 0 “
Mt. Washington ave. (Boston side) .	Over Fort Point channel,	2	42 “ 1 “
“ “ “ (South Boston side)	“ “ “ “	2	42 “ 4 “
Neponset	Ward 24 to Quincy . . .	1	36 “ 0 “
New York & New England R.R. (Boston side)	Over Fort Point channel,	2	41 “ 0 “
New York & New England R.R. (South Boston side)	“ “ “ “	2	40 “ 5 “
New York & New England R.R. . . .	Over South Bay	1	28 “ 4 “
North Beacon st.	Ward 25 to Watertown .	1	30 “ 2 “
North Harvard st.	Ward 25 to Cambridge .	1	36 “ 0 “
Old Colony R.R.	Over Fort Point channel,	1	36 “ 0 “
“ “ “	Ward 24 to Quincy . . .	1	36 “ 0 “
Prison Point	Charlestown to Cam- bridge	1	36 “ 0 “
Warren	Boston to Charlestown .	1	36 “ 3 “
West Boston (Boston side)	Boston to Cambridge . .	2	35 “ 8 “
“ “ (Cambridge side)	“ “ “ “	2	36 “ 0 “
Western ave.	Ward 25 to Cambridge .	1	36 “ 0 “
“ “	Ward 25 to Watertown .	1	36 “ 0 “

APPENDIX A 3.

Table showing Width of Bridges, Kind of Roadways, Sidewalks, etc., on Tide-water Bridges, January 28, 1893.

NAME OF BRIDGE.	Width of Bridge.		ROADWAY.		SIDEWALKS.	
	Ft. In.	Ft. In.	Kind of Roadway.	No.	Width.	Kind of walks.
Broadway	60 0	40 0	Plank	2	10 0	Coal-tar concrete.
Cambridge street	40 0	33 2	"	1	6 0	Plank.
Canal	64 0	48 0	Paved	2	8 0	Brick.
Charles river	50 0	30 2	"	2	8 0	"
Chelsea, North	49 0	40 0	"	1	8 0	Coal-tar concrete.
" South	50 0	43 0	"	2	6 6	" "
" street	30 2 about	24 0 37 0	Plank	1	5 6	Plank.
Commercial Point	34 0	37 0	"	0		
Congress street	60 0	44 0	Paved	2	8 0	Coal-tar concrete.
Dover street	59 0	43 0	"	2	8 0	{ Part " } { Part plank. }
Essex street	31 0	22 8	Plank	1	7 6	Plank.
Federal street	69 0	49 0	Paved	2	10 0	Asphalt.
Granite	30 2	24 4	Plank	1	5 0	Plank.
Harvard	69 4	51 0	"	2	9 2	Asphalt.
L street	60 0	34 0	Paved	2	8 0	"
Malden	40 0	32 0	"	1	7 0	Coal-tar concrete.
Meridian street	50 0	36 0	"	2	7 0	" "
Mt. Washington avenue . .	61 0	39 6	"	2	10 9	" "
Neponset	30 0	23 10	Plank	1	5 5	Plank.
North Beacon street	31 0	25 2	"	1	5 0	"
North Harvard street	28 2	26 7	"	0		
Prison Point	50 0	36 0	{ " part Paved part }	2	7 0	Coal-tar concrete.
Warren	80 0	60 0	Paved	2	10 0	" "
W. avenue to Cambridge . .	33 2	26 3	Plank	1	6 0	Plank.
" " " Watertown	33 0	24 2	"	1	8 0	"
Winthrop	24 2	19 10	"	1	3 7	"
West Boston	50 0	36 0	Paved	2	7 0	Brick.

APPENDIX A 4.

List of Culverts and Small Bridges.

Those marked with (*) are over Stony Brook.

LOCATION.	Span. Feet.	Height of Opening. Feet.	Length. Feet.	Side-walls.	Covering.	Depth of Covering. Feet.
Adams street, south of Park, Dorchester	5.0	4.0	57	Stone	Stone	5.0
*Amory street, near Centre, West Roxbury	each 9.0	each 8.0	35	Double stone arch	Stone	8.0
*Ashland and Canterbury streets, West Roxbury	7.0	4.0	25	Stone arch	Stone	3.0
*Ashland street and Canterbury, West Roxbury	7.6	5.5	75	Stone	Wood.	
Ashland street, near Florence, West Roxbury	3.0	3.0	50	Stone	Stone	6.0
Ashland street, 200 feet from Canterbury, West Roxbury	3.0	3.0	50	Stone	Stone	3.0
Back street, near Morton, Dorchester	5.0	4.0	30	Stone	Stone	2.0
Baker street, at Brook Farm, West Roxbury	15.0	5.0	30	Stone	Wood.	
Baker street, opposite Prospect avenue, West Roxbury	2.67	2.67	60	Stone	Stone	1.0
Beech street, near Anawan avenue, West Roxbury	4.0	4.0	50	Stone	Wood.	
Beech street, near Poplar, West Roxbury	1.5	2.5	40	Stone	Stone	5.0
Blue Hill avenue, Dorchester	2.75	1.67	225	Stone	Stone	2.0
Blue Hill avenue, near Morton street, Dorchester	9.0	7.0	60	Stone	Wood.	
*Boylston avenue, West Roxbury	15.0	9.5	30	Stone	Wood.	

List of Culverts and Small Bridges. — *Continued.*

LOCATION.	Span. <i>Feet.</i>	Height of Opening. <i>Feet.</i>	Length. <i>Feet.</i>	Side-walls.	Covering.	Depth of Covering. <i>Feet.</i>
*Boylston street, at Boylston Station, West Roxbury	each 7.0	9.0 & 8.0	47	Double brick arch.	Brick.	
Brighton avenue, west of Babcock street, Brighton	3.5	3.0	50	Stone	Stone	1.25
Brighton avenue, West of Essex street, Brighton	3.0	3.0	50	Wood	Wood and earth.	8.0
Canterbury street, near Morton, West Roxbury	2.0	3.0	40	Stone	Stone	4.0
Canterbury street, near Neponset avenue, West Roxbury	10.0	5.0	42	Stone arch	Stone	3.0
Canterbury street, near Poplar, West Roxbury	2.5	2.5	50	Stone	Stone	8.5
Centre street, near Spring, West Roxbury	4.0	4.0	50	Stone	Stone	3.0
Centre street, near Walter, West Roxbury	2.5	3.0	50	Stone	Stone	5.0
Centre street, at Williams farm, West Roxbury	4.0	4.0	50	Stone arch	Stone	4.0
Centre street, at Williams farm, West Roxbury	1.5	3.0	50	Stone	Stone	5.0
Centre street, corner Willow, West Roxbury	2.5	2.5	60	Stone	Stone	4.5
Church street, west of Weld, West Roxbury	2.67	4.5	65	Stone	Stone	3.0
Corey street, near Highland station, West Roxbury	2.5	3.0	45	Stone	Stone	2.0
Everett street, near B. & A. R.R., Brighton	3.0	2.0	65	Stone	Stone	2.0
Faneuil street, junction of Brooks, Brighton	3.5	3.5	130	Stone	Stone	2.5
Faneuil, West of Parsons, Brighton	4.0	4.83	50	Stone arch	Stone	4.0

Gardner street, near Cow Island, West Roxbury	5.0	5.5	33	Wood	Wood.	
*Green street, at Brookside avenue, West Roxbury	each 10.0	7.0 & 8.0	260	Double stone arch.	Stone	4.0
Harvard avenue, near Washburn street, Brighton	2.67	3.0	58	Stone	Stone	6.0
Harvard avenue, south of Washburn street, Brighton	2.75	3.75	55	Stone	Stone	4.0
*Hyde Park avenue and Washington street, West Roxbury	each 8.0	each 7.0	361 & 93 each. 451	Double stone and brick arch . . . }	Brick and stone.	5.0
*Hyde Park avenue, West Roxbury	19.5	5.0	50	Stone	Wood.	
La Grange street, corner of Pleasant, West Roxbury	3.0	2.0	70	Stone	Stone	1.0
La Grange street, north-west of Weld, West Roxbury	3.0	1.5	90	Stone	Stone	1.5
La Grange street, opp. Mt. Benedict Cem., West Roxbury	2.0	2.5	50	Stone	Stone	2.0
La Grange street, south-east of Weld, West Roxbury	2.0	3.0	50	Stone	Stone	3.0
Lake street, opposite Chandler's pond, Brighton	4.5	4.92	43.85	Stone (double) .	Stone	2.0
Lake street, south of Washington, Brighton	5.5	5.92	40	Stone (double) .	Stone	1.2
Mill street, Dorchester	each 6.75	each 9.5	50	Double stone arch.	Stone	5.0
Morton street, near Austin farm, West Roxbury	4.0	5.0	50	Stone	Stone	2.0
*Morton street, near Washington, West Roxbury	15.0	10.0	50	Stone arch . . .	Stone	4.0
*Mount Hope street, West Roxbury	each 8.0	each 5.0	40	Double stone arch.	Stone	3.0
Mount Hope street, West Roxbury	5.0	4.0	40	Stone arch . . .	Stone	2.0
Neponset avenue, Dorchester	2.5	2.5	60	Wood	Earth and wood.	7.17
Neponset avenue, 500 feet from Hyde Park avenue, West Roxbury	5.0	4.0	40	Stone arch . . .	Stone	2.0
*Neponset avenue, West Roxbury	14.0	6.0	45	Stone arch . . .	Stone	2.5

List of Culverts and Small Bridges. — *Concluded.*

LOCATION.	Span. <i>Feet.</i>	Height of Opening. <i>Feet.</i>	Length. <i>Feet.</i>	Side-walls.	Covering.	Depth of Covering. <i>Feet.</i>
North Harvard street, near Franklin, Brighton	4.0	2.67	40	Stone	Stone	3.0
Oakland street, south of Faneuil, Brighton	6.0	5.5	39.5	Stone (double)	Stone and brick.	1.6
Park street, west of Dorchester avenue, Dorchester	5.0	3.67	50	Stone	Wood.	
Park street, west of O. C. R.R., Dorchester	8.5	5.0	50	Stone	Wood.	
Parsons street, north of Faneuil, Brighton	4.0	4.0	40	Stone	Stone	15.0
Perkins street, near Jamaica pond, West Roxbury	5.0	4.0	40	Stone arch	Stone	4.0
Poplar street, 500 feet from Beech, West Roxbury	3.0	1.5	110	Stone	Stone	4.5
Poplar street, Roslindale, West Roxbury	7.0	4.0	40	Stone arch	Stone	2.0
Preston street, Dorchester	9.0	5.08	40	Wood	Wood and earth.	4.3
River street and Blue Hill avenue, Dorchester	2.17	2.75	140	Stone	Stone	4.67
River street, Dorchester	3.25	2.5	50	Stone	Stone	1.25
Saratoga street, East Boston	5.0	6.0	50	Oval brick	Brick	6.0
South street, at Arnold Arboretum, West Roxbury	4.5 & 2.0	3.5 & 1.5	30	Double stone	Brick	1.5 & 3.5
Spring street, near Spring-street station, West Roxbury	2.67	2.67	63	Stone	Wood.	
Summer street, near Spring-street station, West Roxbury	4.0	4.5	40	Stone	Wood.	
Tencan street, near Fulton, Dorchester	6.25	6.25	40	Wood	Earth and wood.	6.5

*Texas street, off Tremont street	14.0	about 8.0	20	Stone	Wood	3.0
Walk Hill street, near Canterbury street, West Roxbury	8.0	4.0	50	Stone arch	Stone	3.0
Walter street, north of Bussey park, West Roxbury	3.0	4.0	60	Stone	Stone	3.0
Washington street, corner Beaumont avenue, Brighton	3.0	3.5	65	Stone	Stone	3.0
*Washington street (Musk-Rat Village), West Roxbury	14.0	6.0	40	Stone arch	Stone	4.5
Washington street, near Poplar street, West Roxbury	14.0	5.0	38	Stone	Wood	3.4
*Washington street, near Williams, West Roxbury	each 7.0	each 7.0	70	Double stone arch	Stone	4.5
Weld street, near La Grange, West Roxbury	2.0	4.0	30	Stone	Stone	4.0
Western avenue, near North Harvard street, Brighton	4.0	3.0	60	Stone	Stone	4.0
*Williams street, West Roxbury	15.5	8.0	40	Stone	Wood	
Williams street, West Roxbury	5.0	5.0	50	Wood	Wood	

APPENDIX A 4. — (*Supplement.*)
List of Culverts and Small Bridges built in 1891.

LOCATION.	Span. <i>Feet.</i>	Height of Opening. <i>Feet.</i>	Length. <i>Feet.</i>	Side-walls.	Covering.	Depth of Covering. <i>Feet.</i>
DORCHESTER.						
Blue Hill avenue, near Harvard street	5.0	4.42	85	Stone	Stone	1.5
Harvard street, near Blue Hill avenue	5.0	4.42	45	Stone	Stone	2.0
Bailey street, near Hillside terrace	4.0	3.42	40	Stone	Stone	2.5
Fuller street, " "	4.0	3.42	40	Stone	Stone	1.5
Dorchester avenue, near Van Winkle street	4.0	3.42	60	Stone	Stone	1.5
" " King street	4.5	4.92	60	Stone	Stone	1.5
Carruth street, near Codman street	51.0	5.0	72	Stone	Stone	1.5
Centre street, near Seaborn street	3.0	3.42	40	Stone	Stone	2.0
WEST ROXBURY.						
Syeamore and Florence streets	4.0	3.92	73	Stone	Stone	2.0
Allandale street, near the spring	3.5	3.92	40	Stone	Stone	2.0
" " lower brook	1.5	1.5	40	Pipe	Pipe	2.5
Cornell street, near Washington street	4.0	3.42	41	Stone	Stone	2.5
BRIGHTON.						
Hobart street, near Faneuil street	6.0	7.5	44	Stone	Brick	1.5
Dustin street, near North Beacon street	5.0	5.0	40	Stone	Stone	1.2

List of Culverts and Small Bridges built in 1892.

LOCATION.	Span. <i>Feet.</i>	Height of Opening. <i>Feet.</i>	Length. <i>Feet.</i>	Side-walls.	Covering.	Depth of Covering. <i>Feet.</i>
DORCHESTER.						
Arundine street, 350 ft. from Washington street	2.0	2.0	61.00	Pipe	Pipe	2.0
Ashmont street, 250 ft. west of Adams street	3.0	3.3	50.00	Stone	Stone	2.0
Park street, between Bournside and Upland avenues	3.0	3.0	41.00	Stone	Stone	2.0
Rill street, 165 ft. from Hancock street	3.0	3.3	40.00	Stone	Stone	2.0
Trull street, 165 ft. from Hancock street	3.0	3.3	41.00	Stone	Stone	2.0
WEST ROXBURY.						
Call street, 200 ft. from Keyes street	6.0	4.0	44.00	Stone	Stone	2.0
Hawthorn street and Sycamore street	3.5	3.3	83.00	Stone	Stone	2.0
Sycamore street, near Prospect street	4.0	3.0	200.0	Stone	Stone	2.0
BRIGHTON.						
Commonwealth avenue, 550 ft. east of Malvern street	6.0	6.0	160.00	Stone	Stone	12.5
Commonwealth avenue, 650 ft. west of Essex street	7.0	7.0	304.64	Stone	Stone	10.0

APPENDIX A5.

Statement of Traffic on Wednesday, June 29, 1892, between the hours of 6 A.M. and 7 P.M.

North Bridges.

NAME OF BRIDGE.	Foot Passengers from Boston.	Foot Passengers to Boston.	Teams from Boston.	Teams to Boston.	Horse and Electric Cars from Boston.	Horse and Electric Cars to Boston.
Charles river	3,585	3,270	2,030	1,535		
Chelsea, North	770	775	815	728	206	216
Chelsea, South	2,297	2,367	852	811	210	222
Meridian street	990	1,050	580	600	107	110
Warren	7,290	7,045	3,195	3,355	1,155	1,165

South Bridges.

Broadway	4,150	4,895	1,020	1,175		
Congress street	3,104	3,117	2,701	2,869		
Dover street	3,919	4,064	939	913	196	193
Federal street	5,135	6,061	1,421	1,620	499	505
Mt. Washington avenue .	1,730	1,888	828	1,070		

APPENDIX
DRAW-TENDERS

Giving the Number of Vessels passing through the Drawbridges controlled by the City of Boston, during the years 1881-1892.

NAME OF BRIDGE.	STEAMERS.													SAILING-VESSELS.																					
	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	Jan., 1892.	1892.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	Jan., 1892.	1892.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	
Broadway	20	34	34	36	10	54	21	11	22	22	4	8	4,201	3,772	3,550	3,905	3,825	3,391	3,188	3,168	3,270	3,736	3,311	71	3,118	2,010	2,011	1,843	1,705	1,625	1,440	1,390	1,370		
Cambridge street	6							2			2		411	372	398	391	431	176	461	531	439	274	325		296	691	557	1,187	878	736	809	781			
Charles river	46	84	60	57	76	86	53	30	12	17	44		5,868	5,386	5,089	4,851	4,818	5,139	4,785	4,753	4,311	3,963	3,256	81	2,800	2,581	2,587	2,416	2,065	1,510	1,715	1,860	2,100		
Chelsea (North)	63	125	95	174	191	146	89	229	194	122	115	9	919	909	818	866	730	779	786	1,906	879	805	967	26	717	1,447	1,595	1,781	1,720	1,220	1,330	1,021	3,100		
Chelsea (South)	2	7	17	18	30	4	2		6	7	8		1,380	1,188	1,122	1,225	1,100	1,113	1,196	1,086	938	1,027	998	50	1,037	1,912	2,018	2,192	2,009	1,997	2,286	2,078	3,100		
Chelsea street						1	1											3	1	12	2				1						2	1			
Commercial Point																																			
Congress street	216	254	329	358	310	356	365	391	343	318	306	12	7,818	6,667	6,021	6,008	6,173	5,711	5,555	5,337	5,118	5,379	5,117	127	4,896	7,778	8,709	8,925	7,122	6,143	6,710	5,911	6,300		
Dover street	26	36	32	37	10	53	19	11	14	26	13		3,447	3,103	2,695	3,013	2,922	2,581	2,671	2,741	2,786	3,072	2,685	49	2,557	1,874	1,997	1,658	1,562	1,505	1,352	1,255	1,100		
Essex street	99	1	1					4		2	4		143	421	411	437	177	526	512	592	499	300	493		247	718	570	1,237	904	781	875	829	900		
Federal street	20	34	34	36	7	55	20	14	23	11	2		4,201	3,735	3,588	3,934	3,854	3,398	3,337	3,390	3,464	3,914	3,513	89	3,295	2,293	2,270	2,126	1,931	1,890	1,678	1,730	1,800		
Granite													104	90	69	91	113	109	169	141	110	120	100		91	132	95	120	132	160	170	167	200		
Malden	28	16				2	4		6	4	2		393	350	308	421	346	300	298	386	365	282	349	13	215	735	781	804	853	776	792	775	900		
Meridian street	88	116	29	27	9	17	25	75	97	97	86	8	928	1,038	886	1,054	1,019	1,002	1,063	1,095	1,921	765	755	27	831	2,123	2,300	1,899	2,225	2,214	2,109	2,133	2,700		
Mt. Washington avenue	26	51	76	65	4	79	60	63	32	85	91	4	5,375	4,816	4,533	4,693	4,681	4,311	4,011	3,915	3,958	4,468	4,108	102	3,923	1,879	5,197	5,196	4,693	4,225	4,187	3,923	4,200		
Nepouset													135	137	130	156	185	138	222	243	176	173	167		193	92	118	126	134	166	174	162	200		
No. Beacon street										1										2															
No. Harvard street													136	125	106	119	97	183	159	169	168	142	138		120	214	226	937	472	468	264	281	300		
Warren	39	82	61	51	7	82	11	46	25	17	47		4,877	4,395	4,186	4,095	3,921	4,298	3,933	4,230	4,960	3,289	3,123	88	2,796	1,685	1,493	1,204	1,111	680	846	894	960		
Western avenue to Cambridge	2							2			2		384	341	348	355	383	427	417	465	389	228	236		211	654	539	1,136	821	653	769	723	800		
Western avenue to Waterdown	2	4		2	4					1			48	61	29	61	33	2	12	4	2		5		12	37	21	35	36	56	24	25	300		
Totals	683	841	768	864	695	935	793	884	774	763	726	33	41,962	36,923	34,330	35,684	35,104	33,832	32,760	31,980	32,016	31,728	29,639	723	27,319	31,922	33,134	31,618	29,896	26,747	27,352	27,100	32,210		

West Boston, Prison Point, Canal (or Cruise's), and Harvard Bridges not included in these tables, being in the care of commissioners representing the two cities.

NDIX A 6.

ERS' REPORTS.¹

n, during the Years 1881, 1882, 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890, 1891, and 1892.

ALL OTHERS.															TOTAL NO. OF VESSELS.										TOTALS.		NAME OF BRIDGE.							
1888.	1885.	1890.	1891.	Jan-1892.	1892.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	Jan-1892.	1892.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.		1889.	1890.	1891.	Jan-1892.	1892.	1881 to Feb. 1, 1893.	
1,578	1,258	1,416	1,365	86	1,709	189	277	136	245	126	194	194	206	581	321	430	30	626	6,411	6,124	5,543	5,891	5,616	5,082	4,763	1,996	5,143	5,495	5,143	187	5,461	65,865	Broadway.	
941	967	790	765	10	733	70	33	1,025	451	28	35	61	80	113	331	398	6	269	1,178	982	2,610	1,723	1,195	1,351	1,305	1,569	1,519	1,403	1,490	16	1,238	17,480	Cambridge street.	
2,118	2,269	2,611	2,947	190	2,854	741	712	537	506	421	658	880	800	1,420	1,822	2,119	125	2,010	9,336	8,769	8,132	7,479	6,825	7,628	7,591	7,719	8,045	8,113	8,376	396	7,693	96,113	Charles river.	
3,263	3,274	4,338	4,108	91	2,869	446	385	562	433	191	269	338	970	2,619	3,487	2,543	23	1,205	2,866	3,014	3,289	3,183	2,332	2,515	2,634	6,368	6,936	8,592	7,733	119	4,856	31,897	Chelsea (North).	
3,124	2,087	3,954	3,193	172	2,923	365	449	502	1,012	509	517	532	950	838	2,335	1,920	85	986	3,659	3,653	3,833	1,864	3,616	3,920	4,498	5,169	4,489	7,343	5,819	367	5,931	56,102	Chelsea (South).	
		2			36			6	6	1	4	10	10	11	23	30	2	14				9	6	6	7	23	42	11	25	30	2	54	185	Chelsea street.
						9	5	6	11	10	5	3	1	1	3	2		4	9	5	6	11	10	5	3	1	1	3	2		4	60	Commercial Point	
6,312	5,423	6,909	7,121	464	7,647	1,643	2,187	4,021	2,260	1,701	2,243	1,899	1,599	2,187	2,360	2,323	179	2,834	17,455	17,877	18,969	15,748	14,690	14,820	13,754	13,620	13,101	13,087	15,667	782	15,675	186,531	Congress street.	
1,458	1,113	1,230	1,205	66	1,505	229	221	233	314	230	316	296	185	613	349	411	20	544	5,573	5,267	4,618	4,926	4,697	4,392	4,171	4,398	4,926	4,677	4,317	135	4,646	56,223	Doves street.	
963	1,058	969	1,041	10	794	12	33	932	127	26	44	42	62	106	361	551	6	287	1,302	1,025	2,611	1,768	1,281	1,445	1,383	1,651	1,969	1,572	1,982	16	1,259	18,323	Essex street.	
1,808	1,531	1,810	1,646	113	2,044	400	190	256	319	213	344	244	305	725	510	672	47	646	6,827	6,529	6,004	6,220	5,914	5,475	5,111	5,517	5,743	6,218	5,863	249	5,995	71,745	Federal street.	
246	186	228	219		181										4	37		19	236	193	189	226	274	279	276	387	306	352	356		294	5,367	Granite.	
902	947	936	1,228	43	970	135	120	145	238	303	242	165	385	308	376	437	18	473	1,294	1,273	1,647	1,515	1,415	1,296	1,242	1,733	1,620	1,648	2,066	74	1,670	18,436	Malden.	
2,754	2,969	2,553	2,511	169	3,351	767	845	904	803	662	987	719	834	1,052	931	1,132	78	1,432	3,906	4,329	3,988	4,109	3,904	3,715	4,310	4,648	5,079	4,746	4,484	282	5,708	52,558	Meridian street.	
4,272	3,551	4,544	4,779	409	5,094	1,059	1,313	1,939	1,845	1,364	1,115	1,234	1,211	1,659	1,600	1,812	118	2,199	11,330	11,377	11,744	11,206	10,331	9,695	9,291	9,191	9,200	10,667	10,781	533	11,286	126,905	Mt. Washington avenue.	
252	265	233	237		198		2	10		8	18	3	21	6	7			227	257	266	290	339	331	387	506	387	413	404		301	1,217	Nepesmet.		
		2	1		3	1		4		2	2			1				1		4		2	2		2	1	3	1		4	20	No. Beacon street.		
317	352	278	243		272	21	26	823	440	11	26	24	28	35	28	23		39	101	377	1,965	1,611	276	423	467	514	555	418	404		431	7,473	No. Harvard street.	
965	1,192	1,329	1,160	115	1,940	603	550	322	351	319	527	905	591	866	1,171	1,636	209	1,470	7,291	6,520	5,773	5,647	5,000	5,753	5,746	5,832	6,113	6,019	6,796	412	6,223	73,968	Warren.	
814	833	687	594		619	79	32	1,024	467	28	32	57	39	81	287	278		228	1,110	912	2,508	1,643	1,694	1,228	1,197	1,359	1,294	1,302	1,107		1,058	15,973	Weston avenue to Cambridge	
22	21		18		15	18	27	22	9	28	18	18	16	14	22	14			105	116	86	108	121	41	55	42	37	33	27		28	812	Western avenue to Watertown.	
32,212	29,786	35,224	35,292	1,838	35,709	6,799	7,698	13,769	10,140	6,084	7,196	7,394	8,302	13,289	16,354	16,591	946	15,286	89,457	78,599	83,425	77,881	68,873	69,315	68,157	75,187	75,865	81,069	82,158	3,510	78,967	926,496		

cities (Boston and Cambridge) counted by these bridges.

NOTE. — Columns headed 1892 cover time from February 1, 1892, to February 1, 1893.

APPENDIX B.

REPORT OF DEPUTY SUPERINTENDENT OF
PAVING DIVISION.

OFFICE PAVING DIVISION,
ROOM 41, CITY HALL, BOSTON, February 1, 1893.

H. H. CARTER, *Superintendent of Streets*:

DEAR SIR: In compliance with the order conveyed in your letter of January 14, 1893, requesting a statement of the work of the Paving Division for the year 1892, the following report is submitted, showing the expenditures of this division from February 1, 1892, to January 31, 1893, the nature of the work, the number and variety of permits issued, and the details of expenditures involved in paving, macadamizing, and regulating the various streets.

The following list shows the total yearly expenditures of the Paving Division, according to the report of the Superintendent of Streets, for the last thirty-seven years, the expenditures being from January 1 to December 31, inclusive, of each year, except of 1891, that year extending to January 31, 1892, making a period of thirteen months, and for the year 1892, which extends from February 1, 1892, to January 31, 1893:

1856 . . .	\$192,458 48	1876 . . .	\$980,741 42
1857 . . .	201,528 49	1877 . . .	1,077,475 81
1858 . . .	187,160 92	1878 . . .	644,821 76
1859 . . .	186,295 77	1879 . . .	727,340 05
1860 . . .	197,170 63	1880 . . .	1,015,063 06
1861 . . .	176,978 76	1881 . . .	966,366 49
1862 . . .	175,981 68	1882 . . .	1,088,551 14
1863 . . .	151,130 27	1883 . . .	934,656 58
1864 . . .	156,959 65	1884 . . .	1,310,172 16
1865 . . .	173,258 13	1885 . . .	1,018,693 39
1866 . . .	244,953 55	1886 . . .	1,170,863 01
1867 . . .	283,641 56	1887 . . .	1,260,530 03
1868 . . .	407,053 89	1888 . . .	1,043,475 52
1869 . . .	667,817 90	1889 . . .	1,051,460 18
1870 . . .	804,384 89	1890 . . .	1,061,722 40
1871 . . .	923,312 37	1891 . . .	1,991,524 28
1872 . . .	1,010,508 48	1892 . . .	1,972,857 88
1873 . . .	931,019 01		
1874 . . .	1,683,848 67	Total . . .	\$29,134,186 81
1875 . . .	1,062,408 55		

STREET NUMBERING.

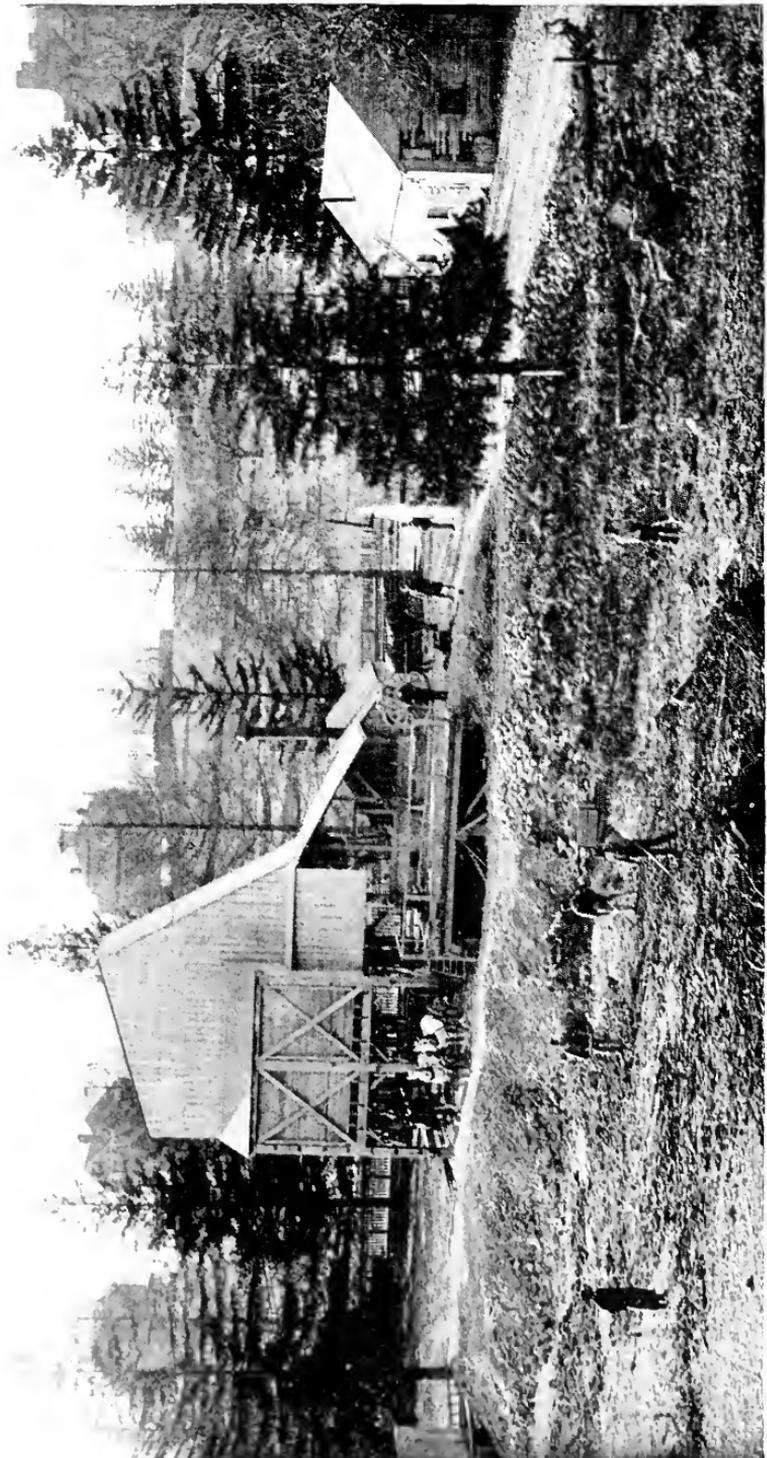
Numbers have been assigned to the estates in the different districts as follows :

South Boston	parts of	21 streets.
East Boston	parts of	15 streets.
Charlestown	2 streets and parts of	6 streets.
Brighton	10 streets and parts of	20 streets.
West Roxbury	4 streets and parts of	30 streets.
Dorchester	10 streets and parts of	38 streets.
Roxbury	7 streets and parts of	52 streets.
City Proper	2 streets and parts of	32 streets.
Total		214

PERMITS.

Permits to open the streets for underground work, between February 1, 1892, and January 31, 1893, have been issued as follows :

Company.	Permits.	Feet.
Barber Asphalt Co.	42	3,460
Boston Electric Light Co.	140	765
Boston Gas Light Co.	972	30,709
Boston Water Department, Eastern Division	3,231	99,720
“ “ “ Mystic “	133	2,257
Boston & Maine Railroad Co.	2	210
Boston & Revere Electric Railway Co.	1	2,000
Brookline Gas Light Co.	138	17,680
Charlestown Gas Light Co.	38	685
Dorchester Gas Light Co.	404	15,410
East Boston Gas Light Co.	122	5,931
Edison Electric Illuminating Co.	626	50,505
Fire-Alarm Department	13	184
Improved Sewerage Co.	1	20
Jamaica Plain Gas Light Co.	194	11,080
“ Pond Aqueduct Co.	3	90
Lynn & Boston Railway Co.	3	3,496
New England Telegraph & Telephone Co. of Massachusetts	164	17,634
New England Telegraph Co.	3	22
National Construction Co.	8	1,080
Postal Telegraph Cable Co.	10	206
Roxbury Gas Light Co.	338	11,390
Sewer Division	326	43,590
South Boston Gas Light Co.	111	4,600
Standard Oil Co.	1	600
West End Street Railway Co.	269	125,995
Western Union Telegraph Co.	34	6,270
Miscellaneous	3,369	82,357
		<hr/>
		10,696
		<hr/>
		537,946



ROSSETER-STREET STONE-CRUSHER, MT. BOWDOIN.

One hundred and one and nine-tenths miles (101.9), an average length for each permit, 50.3 feet.

There have been issued, in addition to the above, 79 emergency permits to the various departments and corporations, on which there have been 2,237 openings, at an average length of about 6 feet each. A record of these openings is on file in this office.

Other permits have been granted as follows :

Coal-holes and areas	19
Moving buildings	55
Distributing sand	43
Erecting awnings	383
Driving cattle	59
Erecting and repairing buildings	4,477
Raising and lowering safes, machinery, etc.	405
Advertising by man wearing hat and coat (lettered)	17
Cleaning snow from roofs of buildings	54
Special to Sewer Division	10
Special for various purposes	255
Occupy sidewalks for more than ten minutes to load and unload	40
Watering carts	88
Pedlers, four different classes	685
To feed or bait horses in the streets	1,430
	<hr/>
	8,020

Total number of permits of all kinds issued 18,795

There have been 10,349 notices sent to the various foremen to repair defects in the streets which had been reported by the police ; also 2,065 to private parties to repair defects in Hyatt lights, coal-holes, and work which had been imperfectly done under permits granted them.

During October last the form of notice was changed to conform to the Revised Ordinances (Sect. 8, Chap. 36), and at the same time the notices were sent to the various parties, an order was sent to the foreman of the district, directing him to make the necessary repairs in case the parties notified failed to do so within the time specified in the notice, charging the expense to the persons notified.

The system seems to have had a good effect, as 301 such notices have been sent, and but very few have failed to repair within the limited time.

There have been about 1,000 notices sent to the various departments and corporations, regarding contemplated street improvements, during the year.

There have been 543 bonds filed during the year in accordance with Chapter 35, Revised Ordinances, 1892.

There have been 140 requests sent to Police Department, asking for information regarding locations, where people had asked for permits to occupy the sidewalk to load and unload goods. In most cases the answers have been favorable, and the permits have been granted when called for.

Streets Laid Out or Extended.

DATE.	Street.	Location.	Length. Lin. Feet.
Feb. 26,	Judson st.	West Cottage to Dromey ave.,	603
April 8,	Windom st.	Cambridge st. to near and north-west of Home ave. . .	794
April 21,	Denny st.	Savin Hill ave. to Springdale st.	400
April 29,	Hopedale st.	North Harvard to north-east of Windom st.	1,087
May 5..	Seattle st.	Cambridge st. to near and north-west of Hopedale st.,	755
May 6..	Burney st.	Tremont st. to Delle ave. . . .	295
May 6..	Sorrento st.	Cambridge st. to land of Boynton heirs.	239
June 8..	Howland st.	West of Humboldt ave.	218
June 13.	Landseer st.	La Grange to Bellevue st. . . .	779
June 13.	Hastings st.	Centre to Carl st.	1,138
June 15.	Evelyn st.	Blue Hill ave. to Norfolk st. .	911
June 16.	Porter st.	from near Jess st. to Bismarck st.	123
June 16.	Lawn st.	Heath to Hayden st.	477
June 22.	Child st.	Lee to South st.	949
June 24.	Cornell st.	Washington to Poplar st. . . .	2,688
July 8 ..	Shannon st.	Washington to Union st.	719
July 18 .	Amboy st.	Seattle to Windom st.	160
July 21 .	Mt. Hope st.	Canterbury st. to Mt. Hope Cemetery	539
July 21 .	Newark st.	Cedar st. southwardly	418
July 28 .	Cunningham st.	Howard avenue to Hartford st.,	527
July 28 .	Hartwell st.	Schuyler to Georgia st.	606
Aug. 4..	Tudor st.	F. to Dorchester st.	356
Aug. 4..	Woolson st.	Blue Hill ave. to Norfolk st. . .	1,233
Aug. 10.	Sydney st.	Savin Hill ave. to Harbor View st.	1,923
Aug. 10.	Sprague st.	Bunker Hill to Princeton st. . .	341
Aug. 12.	Talbot ave.	Washington st. to Dorchester ave.	2,658
Aug. 16.	Hecla st.	Adams st. to Dorchester ave. .	901
Aug. 24.	Coolidge st.	Mansfield st. to North Harvard st.	945
Aug. 24.	Haskell st.	Coolidge st. to Hooker st. . . .	574
Aug. 24.	Royal st.	Cambridge st. to Coolidge st. .	832
Aug. 26.	Holman st.	Coolidge st. to Hooker st. . . .	467
Aug. 26.	Hooker st.	North Harvard st. to Royal st.,	912
Aug. 26.	Arden st.	Coolidge st. to Hooker st. . . .	533
Aug. 26.	Ophir st.	Washington st. to Brookside ave.	532
<i>Carried forward.</i>			26,632

Streets Laid Out or Extended. — *Concluded.*

DATE.	Street.	Location.	Length. <i>Lin. Feet.</i>
		<i>Brought forward</i>	26,632
Sept. 23.	Penfield st.....	Brandon st. to Birch st.	1,052
Oct. 7 ..	Pierpont st.....	Station to Prentiss st.....	504
Oct. 7 ..	Hopkins st.	Evans st. to Corbet st.....	477
Oct. 11 .	Sutherland road,	Englewood ave. to Common-	
		wealth	1,526
Oct. 12 .	E. st.	West Ninth st. to Old Colony R.R.	198
Oct. 15 .	Fairbanks st....	Washington st. to Faneuil st.	1,166
Oct. 14 .	Dean st.....	Howard ave. to Judson st....	519
Oct. 15 .	Intervale st.....	Warren st. to Blue Hill ave...	583
Oct. 15 .	Brunswick st. . .	Warren st. to Blue Hill ave...	470
Nov. 3..	Shenandoah st...	Wessex st. to Carruth st.....	390
Nov. 3..	Ingleside st.....	Blue Hill ave. to Dacia st. . .	346
Nov. 15.	Hammett st.....	Grinnell st. to Sarsfield st. . .	189
Nov. 21.	St. Joseph st....	South st. to Woodman st.....	402
Nov. 26.	Brigham st.....	Webster st. to south-east of Ida st.....	434
Nov. 26.	Ida st.....	Ruth st. to Brigham st.	72
Nov. 26.	Ruth st.	Webster st. to Brigham st....	340
Nov. 29.	Savoy st.	Washington st. to Harrison ave.....	301
Nov. 29.	Elmo st.....	South of Erie st.	1,354
Dec. 1..	Hamerton st....	Crawford st. to Harold st....	285
Dec. 2..	Holworthy st....	Walnut ave. to Harold st....	378
Dec. 28.	Aldie st.....	Athol st. to Everett st.....	469
Dec. 28.	Hollander st....	Crawford st. to Harold st....	340
Dec. 28.	Howell st.	Boston st. to Dorchester ave.,	582
Dec. 28.	Sunnyside st....	Centre st. to Creighton st....	922
Dec. 29.	Rawson st.....	Boston st. to Dorchester ave.,	455
Dec. 29.	McLellan st.....	Old road to Erie st.	351
	or 7.715 miles.		40,737

Streets Widened and Relocated.

DATE.	Street.	Location.	Sq. Ft.
April 21,	Linden st.....	Corner of Cambridge st.....	75
Aug. 10.	North sq.....	Corner of Moon st.....	133
Sept. 23.	High st.....	North-east side, bet. Pearl and School st.....	22
Oct. 3 ..	Park st.	North-west side, bet. City sq. and Henley st.....	97
Oct. 7 ..	Dorchester ave...	Corner of Centre st.....	165
Oct. 10 .	Kingston st.	East side, north cor. of Essex st.	14
Oct. 12 .	Tremont st.....	Corner of Heath st.....	7,639
Oct. 12 .	Heath st.....	At and near cor. of Tremont.	4,502
Oct. 14 .	North sq.....	On north-west side, near North st.....	41
Oct. 14 .	Norfolk st.....	Milton ave. to New Eng. R.R.	42,589
Oct. 14 .	Harvard st.....	Harvard ave. to Warner ave..	14,489
Oct. 15 .	Washington st..	East side, bet. Water st. and Spring Lane.....	273
Oct. 15 .	Water st.	South side, at and near Washington st.	69
Nov. 29.	Blue Hill ave....	Bet. Mt. Pleasant ave. and La Grange pl.....	166
Dec. 28.	Milk st.	North-west side, Battery- march to Broad.....	966
1893.			
Jan. 31.	Commonwealth ave.....	North side, junct. Beacon st..	1,545
Jan. 31.	Commonwealth ave.....	South side, junction of Brook- line ave.....	1,927
Jan. 31.	Beacon st.	South side, junction of Brook- line ave.....	195
Jan. 31.	Brookline ave....	North side, junct. Beacon st..	37
			<hr/> 74,944

Streets Discontinued.

DATE.	Street.	Location.	Sq. Ft.
Oct. 10 .	Kingston st.....	Cor. of Essex st., north-east side.....	0.40
Oct. 10 .	Essex st.....	Cor. of Kingston st., north- easterly	12.50
Dec. 29.	E. Chester Park .	Junction of Boston st.....	69.50
Jan. 6..	Spring Lane	At and near Washington st..	139.00
			<hr/> 221.40



CHESTNUT-HILL STONE-CRUSHER, BRIGHTON.

The record of the Street Commissioners for the year 1892 shows the following results :

Streets laid out or extended	. 40,737 lin. ft., or 7,715 miles.
Streets widened and relocated	. 74,944 sq. ft.
Streets discontinued	. . . 221.4 sq. ft.
Increase in mileage	. . . 40,737 lin. ft., or 7,715 miles.

FINANCIAL STATEMENT.

Appropriation for Paving Division for 1892-93	. \$850,000 00
Transferred from Boat Landing	. . . . . 30 00
Transferred from Street-Cleaning Division	. . . . . 7,500 00
Transferred from Street-Watering	. . . . . 4,500 00
Transferred from Laying Out and Construction of Highways	. . . . . 207,500 00
Transferred from Washington street on account of old blocks removed	. . . . . 4,729 64
Amount collected by City Collector for repairs done by Paving Division for different companies,	. . . . . 61 71
	<u>\$1,074,321 35</u>

EXPENDITURES.

Amount of expenditures from February 1, 1892, to January 31, 1893,	\$915,460 99
Transferred to Sewer Division	. 72,323 67
Transferred to Sewer Division from Laying Out and Construction of Highways	. . . . . 19,034 66
Transferred to Bridge Division	. . . . . 2,047 22
Transferred to Sanitary Division	. . . . . 12,370 74
Transferred to Street-Cleaning Division	. . . . . 11,820 42
	<u>1,033,057 70</u>
Transferred to city treasury	. . . . . <u>\$41,263 65</u>
Total expenditures from regular appropriation	. \$915,460 99
Total expenditures from street-watering appropriation	. . . . . 94,507 80
Total expenditures from special appropriations	. . . . . 962,889 09
Grand total (regular and special)	. . . . . <u>\$1,972,857 88</u>

INCOME.

Statement showing the amount of bills deposited with the City Collector from February 1, 1892, to January 31, 1893, on account of the Paving Division :

Edgestone and sidewalk assessments (old law)	\$36,469 09
Sidewalk construction assessments (new law)	224,171 76
Old paving-blocks	4,729 64
Repairs of streets (Chap. 36, Sect. 8, R. O. 1892),	524 23
Fort Hill Wharf (rent)	500 00
Miscellaneous	431 50
	<hr/>
	\$266,826 22
	<hr/>

The amount paid into the city treasury during the same period on account of the Paving Division :

Edgestone and sidewalk assessments (old law)	\$30,624 10
Sidewalk construction assessments (new law)	31,616 92
Old paving-blocks	4,729 64
Repairs of streets (Chap. 36, Sec. 8, R. O. 1892),	61 71
Fort Hill Wharf (rent)	500 00
Miscellaneous	260 00
	<hr/>
	\$67,792 37
	<hr/>

Table showing Expenses paid from the Regular Appropriation, classified by Districts, from February 1, 1892, to January 31, 1893.

	Maintenance and Construction of Streets.	Removal of Snow.	Executions of Court.	Miscellaneous.	Sidewalk Construction.	Total.
South Boston	\$23,20070	\$7,745 11	.....	.....	.....	\$30,945 81
East Boston	24,234 16	3,879 03	.....	.....	.....	28,113 19
Charlestown	25,809 33	5,552 63	.....	.....	.....	31,361 96
Brighton	55,600 30	3,424 37	.....	.....	.....	59,024 67
West Roxbury	87,971 07	4,482 13	.....	.....	.....	92,453 20
Dorchester	52,271 67	4,469 49	.....	.....	.....	56,741 16
Roxbury	134,073 76	5,311 02	.....	.....	.....	139,384 78
City Proper.....	170,058 64	25,326 42	.....	.....	.....	195,385 06
Executions of Court, etc. ....	.....	.....	\$11,812 51	.....	.....	11,812 51
Miscellaneous .....	.....	.....	.....	\$50,908 35	.....	50,908 35
Sidewalk Construction .....	.....	.....	.....	.....	\$219,330 30	219,330 30
Total	\$573,219 63	\$60,190 20	\$11,812 51	\$50,908 35	\$219,330 30	\$915,460 99

EXPENDITURES. (DETAILS.)

Salary of C. R. Cutter, Deputy Superintendent of Streets, January 29, 1892, to January 26, 1893 .	\$3,402 03
Salary of office clerks	9,851 13
Advertising in and subscribing for daily papers .	905 99
Dorchester ledge, construction of	2,690 95
Horses, carts, and harnesses (new)	7,418 74
Printing and stationery	2,748 46
Repairing stables, sheds, etc.	1,250 84
Savin Hill ledge, construction at	494 08
Sundries	6,993 42
Street signs and numbering	2,985 73
Telephone, expenses of	1,321 19
Tools, cost of keeping the same in repair, etc. .	10,845 79
	\$50,908 35

EXECUTIONS OF COURT, ETC.

Baker, Rebe T., personal injuries	\$150 00
Billings, Alfred E., "	152 49
Carroll, Patrick, "	327 49
Conley, Cornelius F., "	300 00
Clark, Thomas, "	120 52
Costello, James J., Execution Court	3,109 43
Davidson Archibald T., personal injuries	976 77
Dolan Edward J., "	400 00
Fallon, Patrick, "	150 00
Fay Martin, injury to horse	33 55
Finley, Michael, damage to premises	55 00
Freeman, Annie C., personal injuries	125 78
Farrington, Ellen A., "	200 12
Horgan, Mary A. C., "	325 78
Hanley, John J., "	500 00
Hart, Jennie E., "	230 12
Jordan, Jediah P., "	1,525 12
Knowles, Josephine, grade damages	616 61
Mulchinock, Mary E., personal injuries	75 00
McQueeney, Francis J., carriage damage	6 00
Murray, John, damage to wagon	50 00
Murphy, Mary A., personal injuries	100 00
McGill, Timothy, } Executors for Estate of Dan'l Hughes,	750 00
McShane, William {	
Moakley, John F., personal injuries	50 00
Moore, Charles A., "	144 79
Maguire, Mary E., "	150 00
Parker, Sarah, "	350 00
Perry, Helen P., "	150 00
Richardson, Robert, "	120 52
Ritchie, Hannah K., "	426 50
Shute, Benj. P., damage to herdic	15 80
Sharkey, Katherine, personal injuries	125 12
	\$11,812 51

REGULAR EXPENDITURES.

The following schedule shows the expenditures from the maintenance appropriation of this division, devoted to the various streets in the several districts :

*SOUTH BOSTON.***Buttonwood street.**

In excess of special appropriation	\$798 25
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Silver street.

In excess of special appropriation	73 50
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Vinton street.

In excess of special appropriation	635 75
--	--------

Vale street, grading.

Filling	1,206 23
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Crossings.

Labor and material	843 50
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Edgestones, sidewalks, and gutters.

Labor	\$3,089 67
Teaming	1,900 50
Material	2,495 53
	<hr/>
	7,485 70

Fences and plank walks.

Labor	\$704 56
Material	1,109 12
	<hr/>
	1,813 68

Snow.

Labor	\$6,855 61
Teaming	889 50
	<hr/>
	7,745 11

Repairs on streets.

Labor	\$2,153 99
Teaming	4,023 00
Material	4,167 10
	<hr/>
	10,344 09

	<hr/>
	\$30,945 81

*EAST BOSTON.***Border street, at Condor.**

In excess of special appropriation	\$350 00
(Aldermanic District No. 1.)	

Chelsea street.

In excess of special appropriation	1,397 50
(Aldermanic District No. 2.)	

Falcon street.

In excess of special appropriation	294 03
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Carried forward,

	<hr/>
	\$2,011 53

<i>Brought forward,</i>		\$2,041 53
Crossings.		
Labor and material		443 25
Edgestones, sidewalks, and gutters.		
Labor	\$1,184 81	
Teaming	721 50	
Material	757 11	
	<hr/>	2,663 42
Fences and plank walks.		
Labor	\$173 01	
Material	792 98	
	<hr/>	965 99
Snow.		
Labor	\$3,519 03	
Teaming	360 00	
	<hr/>	3,879 03
Repairs on streets.		
Labor	\$10,735 64	
Teaming	3,360 00	
Material	4,024 33	
	<hr/>	18,119 97
		<hr/>
		<u>\$28,113 19</u>

CHARLESTOWN.

Bunker Hill street.		
In excess of special appropriation		\$355 80
Rutherford avenue.		
In excess of special appropriation		2,656 32
Crossings.		
Labor and material		1,056 98
Edgestones, sidewalks, and gutters.		
Labor	\$1,619 97	
Teaming	888 00	
Material	1,646 80	
	<hr/>	4,154 77
Fences and plank walks.		
Labor	\$536 81	
Material	133 22	
	<hr/>	670 03
Snow.		
Labor	\$4,520 63	
Teaming	1,032 00	
	<hr/>	5,552 63
Repairs on streets.		
Labor	\$8,611 10	
Teaming	4,882 50	
Material	3,421 83	
	<hr/>	16,915 43
		<hr/>
		<u>\$31,361 96</u>

BRIGHTON.

Ashford street, regulating and grading.

Labor	\$301 20	
Teaming	279 00	
Paving	181 84	
Edgestone	654 91	
Gravel	530 25	
	<hr/>	\$1,947 20

Bradbury street.

In excess of special appropriation	766 60
(Aldermanic District No. 11.)	

Cambridge street, regulating and macadamizing.

5,000 sq. yds. 6-in. macadam.		
Labor	\$882 83	
Teaming	1,165 50	
Stone	2,021 50	
Gravel	1,698 47	
Paving	441 43	
Blocks	756 56	
Flagging	169 20	
	<hr/>	7,135 49

Dustin street, grading and gravelling.

Labor	\$228 75	
Teaming	405 00	
Gravel	1,764 40	
Filling	963 60	
	<hr/>	3,361 75

Englewood avenue.

In excess of special appropriation	1,702 85
(Aldermanic District No. 11.)	

Menlo street.

In excess of special appropriation	113 50
(Aldermanic District No. 11.)	

Murdock street.

In excess of special appropriation	865 45
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North Beacon street, regulating and grading.

Labor	\$149 20	
Teaming	276 00	
Gravel	478 80	
Stone	399 00	
	<hr/>	1,303 00

Seattle, Hopedale, Windom, and Sorrento streets.

In excess of special appropriation	1,349 50
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Union street, grading and gravelling.

Labor	\$129 55	
Teaming	199 50	
Gravel	962 50	
	<hr/>	1,291 55

Carried forward,\$19,836 89

<i>Brought forward,</i>		\$19,836 89
Western avenue, grading and macadamizing.		
5,500 sq. yds. 4-in. macadam.		
Labor	\$842 21	
Teaming	901 50	
Stone	1,642 45	
Gravel	608 65	
Flagging	76 68	
	<hr/>	3,571 49
Crossings.		
Labor and material		229 80
Edgestones, sidewalks, and gutters.		
Labor and material		2,266 66
Fences and plank walks.		
Labor	\$791 58	
Material	1,527 83	
	<hr/>	2,319 41
Repairs on streets.		
Labor	\$7,607 27	
Teaming	6,016 50	
Material	13,752 28	
	<hr/>	27,376 05
Snow.		
Labor	\$2,359 37	
Material	1,065 00	
	<hr/>	3,424 37
		<hr/>
		\$59,024 67

WEST ROXBURY.

Allandale street.		
In excess of special appropriation		2,261 04
Centre street, at Baker, grading and gravelling.		
Labor	\$242 20	
Teaming	907 50	
Gravel	1,393 20	
Stone	559 75	
	<hr/>	3,102 65
Centre street.		
In excess of special appropriation		1,133 00
Cohasset street.		
In excess of special appropriation		662 28
(Aldermanic District No. 11.)		
Canterbury street, grading and macadamizing.		
6,000 sq. yds. 6-in. macadam.		
Labor	\$691 80	
Teaming	2,059 50	
Gravel	2,541 92	
Stone	2,427 25	
Filling	103 80	
	<hr/>	7,824 27
		<hr/>
<i>Carried forward,</i>		\$11,983 24

<i>Brought forward,</i>		\$14,983 24
Henshaw street.		
In excess of special appropriation		2,733 74
Keyes street, grading and macadamizing.		
2,500 sq. yds. 4-in. macadam.		
Labor	\$43 70	
Teaming	168 00	
Gravel	200 88	
Stone	985 00	
	<hr/>	1,397 58
Mount Hope street.		
In excess of special appropriation		534 05
(Aldermanic District No. 11.)		
Poplar street.		
In excess of special appropriation		2,053 72
Sycamore street.		
In excess of special appropriation		2,235 32
(Aldermanic District No. 11.)		
Spring and Baker streets, grading and gravelling.		
Labor	\$207 25	
Teaming	622 50	
Gravel	1,398 60	
Stone	298 00	
	<hr/>	2,526 35
Short street.		
In excess of special appropriation		70 50
Washington street, at Green, resurfacing.		
Labor	\$456 75	
Teaming	750 00	
Stone	821 50	
	<hr/>	2,028 25
Wenham street.		
In excess of special appropriation		77 50
Walter street.		
In excess of special appropriation		1,653 16
(Aldermanic District, No. 11.)		
Crossings.		
Labor and material		1,283 30
Edgestones, sidewalks, and gutters.		
Labor	\$471 43	
Teaming	330 00	
Material	2,085 33	
	<hr/>	2,886 76
Fences and plank walks.		
Labor	\$2,077 31	
Material	1,773 74	
	<hr/>	3,851 05
<i>Carried forward,</i>		<hr/>
		\$38,314 52

Brought forward,

\$38,314 52

Repairs on streets.

Labor	\$13,508 62	
Teaming	19,668 00	
Material	16,479 93	
	<u> </u>	49,656 55

Snow.

Labor	\$3,303 13	
Teaming	1,179 00	
	<u> </u>	4,482 13
		<u><u>\$92,453 20</u></u>

*DORCHESTER.***Geneva avenue.**

In excess of special appropriation	\$5,955 05
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Minot street.

In excess of special appropriation	4,953 15
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Shenandoah street, grading and regulating.

Labor	\$126 50	
Teaming	111 00	
Material	1,188 97	
	<u> </u>	1,426 47

Crossings.

Labor and material	1,071 95
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Edgestones, sidewalks, and gutters.

Labor	\$781 65	
Teaming	544 50	
Material	806 46	
	<u> </u>	2,132 61

Fences and plank walks.

Labor	\$1,163 74	
Material	3,751 96	
	<u> </u>	4,915 70

Repairs on streets.

Labor	\$2,107 97	
Teaming	9,234 10	
Material	20,474 67	
	<u> </u>	31,816 74

Snow.

Labor	\$3,227 19	
Teaming	1,242 30	
	<u> </u>	4,469 49

\$56,741 16

ROXBURY.

Brunswick street.

In excess of special appropriation \$1,118 50
 (Aldermanic District No. 10.)

Cabot street.

In excess of special appropriation 1,448 48
 (Aldermanic District No. 9.)

Dale street, Washington to Warren, regulating and macadamizing.

4,900 sq. yds. 6-in. macadam.
 Labor \$187 38
 Teaming 621 00
 Gravel 698 70
 Stone 1,981 00

 3,488 08

Dearborn street.

In excess of special appropriation 371 53

Dalmatia street, regulating and macadamizing.

1,000 sq. yds. 8-in. macadam.
 Labor \$242 80
 Teaming 302 50
 Stone 813 75
 Gravel 132 60
 Paving 75 36

 1,567 01

Dudley street.

In excess of special appropriation 954 11

Elmore street, regulating and resurfacing.

2,000 sq. yds. 3-in. macadam.
 Labor \$185 80
 Teaming 144 00
 Steam roller 90 00
 Stone 472 25
 Gravel 129 20

 \$1,021 25

Forest street, regulating and macadamizing.

3,802 sq. yds. 4 in. macadam.
 Labor \$113 80
 Teaming 285 00
 Stone 1,069 00
 Steam roller 110 80
 Gravel 235 40

 1,814 00

Fulda street.

In excess of special appropriation 1,690 51

Hartwell street, regulating and macadamizing.

540 sq. yds. 6-in. macadam.
 Labor \$183 95
 Teaming 240 00
 Gravel 193 80

Carried forward,

\$13,473 47

<i>Brought forward,</i>		\$13,473 47
Stone	\$223 75	
Paving	82 15	
	<hr/>	923 65
Heath street.		
In excess of special appropriation		4,675 72
Intervale street.		
In excess of special appropriation		878 55
(Aldermanic District No. 10.)		
Judson street, grading.		
Labor	\$59 66	
Filling	1,031 50	
	<hr/>	1,091 16
Kemble street.		
In excess of special appropriation		1,886 99
(Aldermanic District No. 10.)		
Marcella street, Highland to Centre, regulating and macadamizing.		
2,246 sq. yds. 6-in. macadam.		
Labor	\$244 70	
Teaming	393 00	
Gravel	348 50	
Steam roller	130 00	
Stone	914 75	
Blocks	74 00	
Paving	22 92	
	<hr/>	2,127 87
Maywood street, regulating and macadamizing.		
1,880 sq. yds. 6-in. macadam.		
Labor	\$457 40	
Teaming	271 50	
Blocks	470 41	
Stone	751 75	
Sand	57 60	
Gravel	236 30	
Steam roller	80 00	
	<hr/>	2,324 96
Prentiss street.		
In excess of special appropriation		1,210 76
(Aldermanic District No. 9.)		
Reading street.		
In excess of special appropriation		803 17
(Aldermanic District No. 10.)		
Regent street, regulating and macadamizing.		
5,100 sq. yds. 3-in. macadam.		
Labor	\$216 00	
Teaming	354 00	
Steam roller	290 00	
Gravel	423 30	
Stone	1,053 25	
	<hr/>	2,336 55
<i>Carried forward,</i>		<hr/> <hr/> \$81,732 85

Brought forward, \$31,732 85

Roxbury street, Washington street to Centre, regulating and macadamizing.

4,635 sq. yds. 4-in. macadam.		
Labor	\$243 70	
Teaming	255 00	
Stone	1,236 25	
Gravel	515 10	
Steam roller	150 00	
		2,400 05

Tremont street, Roxbury crossing to Huntington avenue.

In excess of special appropriation 393 75

Vernon street, regulating and macadamizing.

3,960 sq. yds. 4-in. macadam.		
Labor	\$212 00	
Teaming	438 00	
Gravel	549 10	
Stone	1,055 00	
Steam roller	100 00	
		2,354 10

Warren street, granite blocks.

In excess of special appropriation 448 80

Warren street, at Blue Hill avenue.

In excess of special appropriation 2,923 64

Zeigler street, Harrison avenue to Washington street, regulating and macadamizing.

1,200 sq. yds. 6-in. macadam.		
Labor	\$258 58	
Teaming	300 00	
Gravel	249 90	
Steam-roller	100 00	
Stone	552 25	
		1,460 73

Crossings.

Labor and material 2,210 73

Edgestones, sidewalks, and gutters.

Labor	\$4,231 28	
Teaming	2,631 00	
Material	10,028 24	
		16,890 52

Fences and plank walks.

Labor	\$1,493 08	
Material	923 34	
		2,416 42

Repairs on streets.

Labor	\$8,661 86	
Teaming	27,327 00	
Material	34,853 31	
		70,842 17

Carried forward, \$134,073 76

Brought forward,

\$134,073 76

Snow.

Labor	\$3,772 02	
Teaming	1,539 00	
	<hr/>	5,311 02
		<hr/>
		\$139,384 78

*CITY PROPER.***Allen street.**

In excess of special appropriation	\$1,559 95
(Aldermanic District, No. 3.)	

Beacon street, Park to Charles. Regulating and macadamizing.

7,636 square yards 8-in. macadam.

Labor	\$997 60	
Teaming	852 00	
Stone	3,365 99	
Gravel	217 56	
Steam roller	505 00	
Flagging	153 00	
Edgestone	18 60	
	<hr/>	6,109 75

Beacon street, West Chester park to Dartmouth.

In excess of special appropriation	135 07
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Boylston street, Washington to Tremont, north side, repaving.

Teaming	\$261 00	
Blocks	886 80	
Edgestone	16 56	
Flagging	23 58	
	<hr/>	1,187 94

Brighton street.

In excess of special appropriation	418 11
(Aldermanic District, No. 3.)	

Boylston street, Exeter to West Chester Park, west side, paving gutters and regulating.

Labor	\$257 60	
Teaming	139 50	
Stone	1,092 97	
Blocks	258 12	
Paving	102 86	
	<hr/>	1,851 05

Chester square, Shawmut avenue to Washington.

In excess of special appropriation	830 00
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Commonwealth avenue, West Chester Park to Arlington.

In excess of special appropriation	2,159 96
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Carried forward,

\$14,251 83

<i>Brought forward,</i>		\$14,251 83
Chestnut avenue, at Malcolm.		
In excess of special appropriation		273 21
(Aldermanic District, No. 4.)		
Charles street, Mt. Vernon to Pinckney.		
In excess of special appropriation		369 35
Dartmouth street, Huntington avenue to Boylston, regulating and macadamizing.		
Labor	\$772 80	
Teaming	432 00	
Material	335 64	
	<hr/>	1,540 44
Eliot street.		
In excess of special appropriation		180 40
Groton street, resurfacing.		
Teaming	\$15 00	
Inspection	25 00	
Asphalt	1,016 81	
	<hr/>	1,056 81
Kilby street, resurfacing.		
Asphalt		2,296 91
Longwood avenue.		
In excess of special appropriation		100 00
McLean street, regulating and macadamizing.		
Labor	\$789 78	
Teaming	526 50	
Material	820 05	
	<hr/>	2,136 33
Motte street.		
In excess of special appropriation		165 49
Park square, regulating.		
Labor	\$22 50	
Teaming	204 00	
Material	220 00	
Paving	1,028 99	
	<hr/>	1,475 49
Poplar street.		
In excess of special appropriation		819 75
(Aldermanic District No. 3.)		
Stanhope street.		
In excess of special appropriation		2,098 45
School street.		
In excess of special appropriation		1,306 96
Stoddard street.		
In excess of special appropriation		168 50
(Aldermanic District No. 3.)		
		<hr/>
<i>Carried forward,</i>		\$28,239 92

<i>Brought forward,</i>		\$28,239 92
West Chester park, Huntington avenue to Beacon, regulating and macadamizing.		
21,500 sq. yds. 3-in. macadam.		
Labor	\$838 73	
Teaming	919 50	
Gravel	193 05	
Stone	4,436 47	
Paving	311 61	
Blocks	241 44	
Flagging	195 60	
	<hr/>	7,136 40
Worcester square.		
In excess of special appropriation		1,127 40
Washington street, Davis to Florence.		
In excess of special appropriation		119 25
West Newton street, Columbus avenue to O. C. R.R.		
In excess of special appropriation		1,592 05
West Chester park, Tremont street to Columbus avenue.		
In excess of special appropriation		242 66
Worcester street.		
In excess of special appropriation		107 40
(Aldermanic District No. 8.)		
West Dedham street.		
In excess of special appropriation		104 37
(Aldermanic District No. 8.)		
Crossings.		
Labor	\$1,062 07	
Teaming	343 50	
Material	4,966 01	
	<hr/>	6,371 58
Edgestones, sidewalks, and gutters.		
Labor	\$10,879 08	
Teaming	6,444 00	
Material	9,383 57	
	<hr/>	26,706 65
Fences and plank walks.		
Labor	\$3,287 12	
Material	2,942 20	
	<hr/>	6,229 32
Repairs on streets.		
Labor	\$25,044 59	
Teaming	22,760 16	
Material	31,619 89	
	<hr/>	79,424 64
Roxbury Canal, sea wall, South yard.		
Contract construction		12,657 00
		<hr/>
<i>Carried forward,</i>		\$170,058 64

Brought forward, \$170,058 64

Snow.

Labor	\$18,333 42	
Teaming	6,993 00	25,326 42
		<u>\$195,385 06</u>

REMOVAL OF SNOW.

South Boston	\$7,745 11
East Boston	3,879 03
Charlestown	5,552 63
Brighton	3,424 37
West Roxbury	4,482 13
Dorchester	4,469 49
Roxbury	5,311 02
City Proper	25,326 42
	<u>\$60,190 20</u>

STREET-WATERING.

South Boston	\$6,785 40
East Boston	5,353 20
Charlestown	5,859 90
Brighton	10,174 84
West Roxbury	14,759 20
Dorchester	11,522 30
Roxbury	14,309 80
City Proper	25,743 16
	<u>\$94,507 80</u>

DETAILS OF EXPENDITURES MADE UNDER SPECIAL APPROPRIATIONS.

Allandale street, Brookline, line to westerly line Souther estate, grading and macadamizing.

Areas: 6,211 sq. yds. macadam and 3,105 sq. yds. gravel sidewalks.

Labor	\$3,484 09
Teaming	2,127 00
Gravel	661 58
Powder	126 00
Roller	220 00
	<u>\$6,618 67</u>

Amount of special appropriation	\$3,770 59
Amount paid out of appropriation for street improvements, Aldermanic District No. 11	587 04
Amount paid out of appropriation for Paving Division	2,261 04
	<u>\$6,618 67</u>

Austin street, paving and regulating.

Area: 1,077 sq. yds.

Labor	\$1,230 75
Teaming	195 00
Gravel	284 24
30,692 granite paving-blocks	2,240 51
4,500 paving-bricks	49 50
	<hr/>
Amount of special appropriation	\$4,000 00

Allston Bridge.

Labor	\$144 90
Teaming	108 00
	<hr/>
	\$252 90

Baldwin street, Ward 4, Main st. to Rutherford avenue, regulating, grading, and macadamizing.

Area: 762 sq. yds.

Labor	\$1,686 09
Teaming	501 00
Filling	339 00
Gravel	176 16
Stone	712 77
454 feet 8 inches edgestone, and two large corners	329 07
Paving	81 77
Work done by Sewer Division, building 2 new catch-basins and laying 258.5 feet of 15-inch pipe sewer	981 40
	<hr/>
	\$4,807 26
Amount of special appropriation	\$4,807 26

Beacon street, Ward 25, grading and macadamizing.

Labor	\$1,457 25
Teaming	975 00
Gravel	1,984 15
Stone	610 75
Powder and fuse	124 00
	<hr/>
	\$5,151 15

Beacon street, Dartmouth street to Gloucester street, regulating and asphaltting, edgestones reset and sidewalks relaid.

Labor, including inspection and engineering	\$5,252 34
Teaming	3,024 00
Gravel	120 00
Sand	36 75
Stone	905 20
1,825 paving-blocks	49 27
20,500 paving-brick	330 50
Sundries	115 59

Amount paid to Metropolitan Construction Company:

1,546 cu. yds. cement concrete base, at \$5	\$7,730 00
821 sq. yds. sand bedding, at 21 cts.	172 41
821 sq. yds. asphalt block pavement, at \$2.89	2,372 69
	<hr/>
	10,275 10

*Carried forward,***\$20,108 75**

<i>Brought forward,</i>		\$20,108 75
Amount paid to Barber Asphalt Paving Company:		
9,277 sq. yds. Trinidad asphalt laid, at \$2.25		20,873 25
Amount paid to F. H. Cowin & Co., for paving:		
3,308.5 lin. feet edgestone set, at 8 cts.	\$264 68	
103 sq. yds. brick paving, herring bone, at 36 cts.		37 08
544 sq. yds. brick paving, herring bone, at 18 cts.		97 92
119 sq. yds. block paving, at 25 cts.		29 75
		<hr/>
		429 43
Amount paid to James Grant:		
7 sq. yds. block paving, at 25 cts.	\$1 75	
3,502 sq. yds. brick paving, at 18 cts.	630 36	
83 sq. yds. brick paving on edge, at 36 cts.,	29 88	
314 sq. yds. brick paving, herring bone, at 36 cts.		113 04
187 sq. yds. brick paving, herring bone, on edge, at 50 cts.		93 50
9.5 sq. yds. flagging crosswalks, at 25 cts.,		2 38
		<hr/>
		870 91
Amount paid for work done by Sewer Division: Repairing		
24 catch-basins and 7 manholes		362 05
		<hr/>
		\$42,644 39
Amount of special appropriations	\$41,174 62	
Amount charged to appropriation for Street Improvements, Aldermanic District No. 5,	1,334 70	
Amount charged to Paving Division	135 07	
		<hr/>
		\$42,644 39

Berkeley-street bridge, regulating approaches.

Labor		\$1,376 20
Teaming		300 00
Gravel		681 25
Sand		198 47
37.8 feet of edgestone		48 97
14.6 feet of flagging		11 68
Lumber		26 65
Sundries		32 00
		<hr/>
		\$2,675 22

Boat Landing, Commercial Wharf.

Building landing, according to contract		\$970 00
		<hr/>

Bolton street, Second street to D street, regulating and macadamizing.

Labor		\$1,346 45
Teaming		256 50
Gravel		129 00
Stone		35 05
		<hr/>
		\$1,767 00
Amount of special appropriation		\$1,767 00
		<hr/>

Boston street, Andrew square to Mt. Vernon street, grading and regulating.

Areas: 2,151 sq. yds. gutters, 8,605 sq. yds. of roadway.

Labor		\$1,683 62
Teaming		1,003 50
Gravel		1,341 30
Sand		262 90
Stone		126 18
86,954 gutter blocks		2,347 75
Building fences		274 63
Amount paid to H. Gore & Co. :		
551.8 feet of edgestone reset, at 8 cts.	\$44 15	
1,304.2 sq. yds. of block paving relaid, at 25 cts.	326 06	
157.5 sq. yds. of brick paving relaid, at 18 cts.	28 35	
		<u>398 56</u>
		<u>\$7,438 44</u>
Amount of special appropriation	\$5,000 00	
Amount paid out of appropriation for Street Improvements, Aldermanic District No. 7	2,438 44	
		<u>\$7,438 44</u>

Boylston street, Church street to Arlington street, paving and regulating (tar joints on gravel base).

Labor, including inspection and engineering		\$457 84
Advertising		42 68
71 feet edgestone		39 76
45,175 granite paving-blocks		3,321 52
Amount paid to Jas. Doherty & Co., as per contract :		
1,728 sq. yds. block paving, tar joints, at \$1.49, \$2,574 72		
709 lin. ft. edgestone reset, at 23 cts.	163 07	
947 sq. yds. brick paving relaid, at 69 cts.	653 43	
61 sq. yds. flagging crosswalks relaid, at \$1.25,	76 25	
		<u>3,467 47</u>
Amount paid for work done by Sewer Division: Repairing 3 catch-basins, 2 manholes, and building 1 new catch-basin		181 76
		<u>\$7,511 33</u>

Brent street, regulating and grading.

Labor		\$503 42
Teaming		318 00
Stone		806 50
32,000 gutter blocks from Washington street		800 00
Amount paid to John Bradley :		
645 cu. yds. earth excavation, at 60 cts.	387 00	
Amount paid to Jas. Doherty & Co. :		
1,098 sq. yds. block paving laid, at 60 cts.	658 80	
		<u>\$3,473 72</u>

Bristol street, regulating and grading.

Labor		\$457 22
Teaming		232 50
Masonry		90 00
Gravel		30 00
		<u>\$809 72</u>

Bunker Hill street, between Pearl and Sackville streets, paving and regulating.

Labor and inspection		\$1,364	30
Teaming		369	00
Gravel		268	88
6 9-12 ft. of edgestone		4	72
42,975 granite paving-blocks		3,352	05
Sundries		9	58
Amount paid to P. Brennan & Co.:			
744 lin. feet of edgestone reset, at 8 cts.	\$59	52	
1,711 sq. yds. of block paving, laid, at 25 cts.	427	75	
		<u>487</u>	27
			<u>\$5,855</u>
Amount of special appropriation	\$5,500	00	
Amount paid out of Paving Division		355	80
		<u>\$5,855</u>	<u>80</u>

Buttonwood street, between Mt. Vernon and Locust streets, macadamizing and regulating.

Area: 1,348 sq. yds. 6-in. macadam.			
Labor		\$704	26
Teaming		126	00
Gravel		422	40
Filling		60	50
Stone		68	76
901.75 feet of edgestone		541	06
4 small curb-corners		15	00
500 paving-brick		6	00
Steam roller		120	50
Amount paid to H. Gore & Co.:			
992.5 lin. feet of edgestone reset, at 8 cts.	\$79	40	
500.5 sq. yds. block paving laid (blocks from Dorchester avenue), at 25 cts.	125	13	
35.4 sq. yds. brick paving laid, at 36 cts.	12	74	
12.8 sq. yds. flagging crosswalks, at 25 cts.	3	20	
		<u>220</u>	47
			<u>\$2,284</u>
Amount of special appropriation	\$1,486	70	
Amount paid out of Paving Division		798	25
		<u>\$2,284</u>	<u>95</u>

Centre street, Ward 23, Holbrook street to Lowder's lane, macadamizing.

Area, 3,780 sq. yds. 4-in. macadam.			
Labor		\$652	02
Teaming		405	00
Gravel		204	12
Stone		1,008	00
Roller		125	00
		<u>\$2,394</u>	14
Amount of special appropriation	\$1,133	00	
Amount paid out of Paving Division		1,261	14
		<u>\$2,394</u>	<u>14</u>

Chardon street, paving and regulating (tar joints on concrete).

Labor, including inspection and engineering	\$661 80	
Teaming	67 50	
Advertising	33 33	
57,990 granite paving-blocks	3,995 52	
22,000 paving-brick	275 00	
362 feet of edgestone and 12 small curb-corners	311 70	
543 feet of flagging	434 40	
Amount paid to Jones and Meehan, for paving, as per contract:		
2,198.8 sq. yds. block paving on concrete, at \$2.50	\$5,497 00	
1,348.5 lin. feet of edgestone reset, at 40 cts.,	539 40	
833.5 sq. yds. brick paving, at 65 cts.	541 78	
104 sq. yds. flagging crosswalks, at \$2.90	301 60	
Extra work as ordered	109 26	
		6,989 04
Amount paid for work done by Sewer Division: Repairing 3 catch-basins, 1 manhole, and building 2 new catch-basins		252 70
		<u>\$13,020 99</u>
Amount retained from Jones & Meehan		349 45
		<u>\$12,671 54</u>

Charles street, Beacon street to Pinckney street, paving and regulating (tar joints on concrete).

Labor, including inspection and engineering	\$2,052 54	
Teaming	1,663 50	
Gravel	195 99	
Sand	35 10	
Cement	552 90	
196 ft. of edgestone	147 00	
25,500 granite paving-blocks	1,884 45	
21,200 paving-brick	246 40	
81 ft. of flagging	64 80	
Sundries	7 19	
Amount paid to Metropolitan Con. Co.:		
2,345 sq. yds. cement concrete base, at 60 cts.		1,407 00
Amount paid to James Grant:		
1,585 lin. ft. of edgestone set, at 8 cts.	\$126 80	
950 lin. ft. of edgestone set, at 15 cts.	142 50	
982 sq. yds. of brick paving, at 23 cts.	225 86	
37 sq. yds. of brick paving, at 50 cts.	18 50	
343 sq. yds. of brick paving, at 18 cts.	61 74	
		575 40
Amount paid to James Doherty & Co.:		
2,290 sq. yds. block paving, tar joints, at 91 cts.	\$2,083 90	
95 sq. yds. flagging crosswalks, at 91 cts.,	86 45	
110 cubic yds. earth excavation, at \$1	110 00	
136 cubic yds. earth excavation, at \$1.40	190 40	
7 cubic yds. earth excavation, at \$1.25	8 75	
172 sq. yds. block paving laid, at 35 cts.	60 20	
		2,539 70
Amount paid out for work done by Sewer Division: Repairing 5 catch-basins		38 09

Carried forward,\$11,410 06

<i>Brought forward,</i>		\$11,410 06
Amount of special appropriation	\$11,040 71	
Amount paid out of Paving Division	369 35	
	_____	\$11,410 06

Cherry street, asphaltting and regulating.

Labor and inspection		\$36 00
Amount paid to John Casey:		
77.6 cu. yds. earth excavation, at 89 cts.	\$69 06	
221.8 sq. yds. paving removed, at 35 cts.	77 63	
	_____	146 69
Amount paid to Metropolitan Con. Co.:		
96.44 cu. yds. cement concrete base, at \$5		482 20
Amount paid to Barber Asphalt Paving Co.:		
578.7 sq. yds. Trinidad asphalt pavement laid, at \$2.25		1,302 07
		\$1,966 96
Amount retained from Barber Asphalt Paving Co.		65 10
		\$1,901 86

Chester square, Washington street to Tremont street, asphaltting and regulating.

Labor, including inspection and engineering		\$1,285 14
Teaming		1,353 50
Sand		73 80
5.8 feet of flagging		4 64
Amount paid to Metropolitan Con. Co.:		
655 cu. yds. cement concrete base, at \$5		3,275 00
Amount paid to Barber Asphalt Paving Co.:		
3,928 sq. yds. Trinidad asphalt pavement, at \$2.25		8,838 00
		\$14,830 08
Amount of special appropriation	\$14,000 00	
Amount paid out of Paving Division	830 08	
	_____	\$14,830 08

Chestnut avenue, Ward 9, asphaltting and regulating.

Labor and teaming		\$276 00
Gravel		14 80
Sand		18 00
3,000 paving-brick		39 00
50 feet of edgestone		32 50
Amount paid to Barber Asphalt Paving Co.:		
145.9 sq. yds. Trinidad asphalt paving laid, at \$2.25		328 27
Amount paid to Metropolitan Construction Co.:		
158.9 sq. yds. concrete base, at 83 cts.		131 89
Amount paid to Jas. Grant:		
542 feet of edgestone set, at 8 cts.	\$43 36	
62.9 sq. yds. of block paving, at 25 cts.	15 73	
84.5 sq. yds. of brick paving at 28 cts.	23 66	
	_____	82 75
		\$923 21
Amount of special appropriation	\$650 00	
Amount paid out of Paving Division	273 21	
	_____	\$923 21

Child street, macadamizing and regulating.

Areas : 2,018 sq. yds. 6-in. macadam and 865 sq. yds. paved gutters.	
Labor	\$329 20
Teaming	363 00
Gutter blocks	580 50
Gravel	91 80
Stone	807 20
Roller	140 00
Paving	188 30
	<hr/>
	\$2,500 00
Amount of special appropriation	\$2,500 00

City Wood Yard, Commercial street, paving.

Paving	\$121 25
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Commonwealth avenue, construction.

Labor, including inspection and engineering	\$18,614 91
Teaming	3,936 00
Gravel	902 30
Shovels, etc.	145 56
Stone	1,474 83
Advertising	102 23
Stakes	198 30
Powder and fuse	72 00
Sundries	348 32

Amount paid to M. Kiernan :

15,666 cu. yds. earth excavation, at 45 cts.	7,049 70
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Amount paid to Boston Contracting Company :

46,640 cu. yds. filling, at 49½ cts.	\$23,086 60
21,099 cu. yds. filling, at 37½ cts.	7,806 63
Gravel	7,000 00
	<hr/>
	37,893 43

Amount paid to James H. Seamans, George H. Worthley,
and Emery B. Gibbs, Trustees, for gravel :

26,054 cu. yds. gravel, at 12½ cts.	3,256 75
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Amount paid for work done by Sewer Division : 2,492 ft.

32-in. × 42-in. brick sewer ; 3,490 ft. 18-in. pipe sewer ;

206.5 ft. 24-in. pipe sewer ; 1,103.5 ft. 15-in. pipe sewer ;

6 ft. 12-in. sewer ; 160 ft. 6 ft. × 6 ft. stone culvert ;

304.64 ft. 7 ft. × 7 ft. stone culvert

50,360 49

\$124,354 82

Amount retained from Boston Contracting Co.	1,184 01
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\$123,170 81

Commonwealth avenue, Arlington street to Berkeley street, west side, macadamizing and regulating ; and from Berkeley street to West Chester park, repairs.

Area : 2,300 sq. yds. 6-in. macadam, excluding repaired roadway.

Labor	\$591 06
Teaming	565 00
Stone	2,050 00
Roller	350 00

Carried forward,

\$3,556 06

STREET DEPARTMENT — PAVING DIVISION. 225

<i>Brought forward,</i>		\$3,556 06
Amount of special appropriation	\$1,396 10	
Amount paid out of Paving Division	2,159 96	
	<u>2,159 96</u>	<u>\$3,556 06</u>

Conant street, macadamizing and regulating.

Area, 3,511 sq. yds. 6-in. macadam.		
Labor		\$768 40
Teaming		586 50
Gravel		1,462 00
Sand		152 20
Stone		1,440 00
Amount paid to Payson & Co.:		
1,267 sq. yds. of block paving, at 25 cts.	\$316 75	
220 sq. yds. of brick paving, at 18 cts.	39 60	
2,143 lin. feet of edgestone set, at 8 cts.	171 44	
	<u>527 79</u>	527 79
Amount paid for work done by Sewer Division: Repairing		
5 catch-basins, 1 manhole, and building 1 new catch-basin		214 17
		<u>\$5,151 06</u>

Cornwall street, laying out and constructing.

Grade damages		<u>\$1,000 00</u>
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Davis street, asphaltting and regulating.

Labor, including inspection and engineering		\$351 27
Teaming		295 50
Sundries		24 75
Amount paid to Metropolitan Construction Company:		
106.5 cu. yds. 6-in. concrete base, at \$5		532 50
Amount paid to Daniel Sullivan:		
661 lin. feet edgestone reset, at 18 cts.	\$118 98	
353 sq. yds. brick paving relaid, at 28 cts.,	98 84	
	<u>217 82</u>	217 82
Amount paid to Barber Asphalt Paving Company:		
639.5 sq. yds. Trinidad asphalt paving, at \$2.25		1,438 87
		<u>\$2,860 71</u>
Amount of special appropriation		<u>\$2,860 71</u>

Dearborn street, Eustis street to Dudley street, paving and regulating.

Area, 917 sq. yds.		
Labor		\$415 48
Teaming		189 00
Gravel		212 50
Sand		66 60
18,910 granite paving-blocks		1,321 63
205.7 feet of flagging		185 13
3,700 paving-brick		48 10

<i>Carried forward,</i>	<u>\$2,438 44</u>
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<i>Brought forward,</i>		\$2,438 44
Amount of special appropriation	\$2,066 91	
Amount paid out of Paving Division	371 53	
	<hr/>	<u>\$2,438 44</u>

Decatur street, Ward 16, asphaltting and regulating.

Labor, including inspection and engineering		\$399 71
Teaming		205 50
Sand		5 40
47 feet of flagging		37 60
Amount paid to Metropolitan Construction Company:		
118.5 cu. yds. 6-in. concrete base, at \$5		592 50
Amount paid to P. W. Hernan:		
477.5 sq. yds. brick paving, at 28 cts.	\$133 70	
887 lin. feet edgestone reset, at 18 cts.	159 66	
	<hr/>	293 36
Amount paid to H. Gore & Co., for paving:		
711 sq. yds. Sicilian rock asphalt pavement, at \$2.25		1,599 75
		<hr/>
		\$3,133 82
Amount of special appropriation		<u>\$3,133 82</u>

Dorchester avenue, Wards 15 and 24; paving, macadamizing, and regulating.

Area: Ward 15, 3,917 sq. yds. of block stone paving. Areas: Ward 24, 17,578 sq. yds. block-stone paving, 6,812 sq. yds. gutter paving, and 17,585 sq. yds. 12-in. Telford macadam.

Labor, including inspection and engineering		\$23,869 20
Teaming		10,224 00
Gravel		12,544 05
4,636 lin. feet of flagging		3,613 20
555,479 granite paving-blocks		34,754 74
Wharfage		505 80
Stone		14,068 00
Roller		1,180 00
Powder and fuse		705 00
Grade damages		1,175 00

Amount paid to J. J. Sullivan:

1,744 cu. yds. earth excavation, at 80 cts.	\$1,395 20	
328.9 sq. yds. pavement removed, at 35 cts.,	1,151 15	
415 cu. yds. earth excavation, at 25 cts.	103 75	
15 cu. yds. rock excavation, at \$1.75	26 25	
	<hr/>	2,676 35

Amount paid to M. Donnellan:

870 cu. yds. earth excavation, at 62 cts.	\$539 40	
1,266 cu. yds. pavement removed, at 18½ cts.,	234 21	
	<hr/>	773 61

Amount paid to Jas. McGovern:

607½ cu. yds. earth excavation, at 70 cts.	\$425 25	
2,655.5 cu. yds. earth excavation, at 62½ cts.,	1,659 69	
	<hr/>	2,084 94

Amount paid to H. Gore & Co.:

16,152.3 sq. yds. block paving, at 25 cts.	\$4,038 08	
525 sq. yds. crosswalks, at 25 cts.	131 25	
420 sq. yds. block paving, at 35 cts.	147 00	
	<hr/>	4,316 33

Carried forward,

\$112,490 22

<i>Brought forward,</i>	\$112,490 22
Amount paid to Chas. J. Coates:	
9,024.4 sq. yds. block paving, at 25 cts.	\$2,255 35
93 sq. yds. crosswalks, at 25 cts.	23 25
	2,278 60
Amount paid for work done by Sewer Division: Building	
15 new catch-basins, repairing 3 catch-basins, and laying	
195 ft. of 12-in. pipe sewer	2,530 81
	\$117,299 63

Dorchester street, Ninth street to Broadway, paving, macadamizing, and regulating.

Ninth street to Eighth street — Area: 525 sq. yds. block paving; Eighth street to Broadway — Area: 5,475 sq. yds. 4-in. macadam.

Labor	\$2,971 19
Teaming	963 50
Gravel	567 00
Stone	1,664 45
Roller	500 00
8,912 granite paving-blocks	658 60
27,000 paving-brick	324 00
437 feet of flagging	349 60
Amount paid to H. Gore & Co.:	
1,754 lin. feet edgestone reset, at 8 cts.	\$140 32
1,386 sq. yds. block paving, at 25 cts.	346 50
2,351 sq. yds. brick paving, at 18 cts.	423 18
158 sq. yds. brick paving, herring bone, at	
36 cts.	56 88
	966 88
Amount paid for work done by Sewer Division: Building	
2 new manholes	99 43
	\$9,064 65

Dudley street, Blue Hill avenue to Shirley street, and Brook avenue to Dennis street, paving and regulating.

Area: 3,199 sq. yds. paving.

Labor	\$2,025 80
Teaming	996 00
Gravel	1,159 40
Sand	104 40
91,487 granite paving-blocks	5,879 95
71 feet of flagging	56 80
Advertising	8 40
Amount paid to Wm. McEleney:	
799 feet of edgestones reset, at 8 cts.	\$63 92
1,199 sq. yds. block paving, at 25 cts.	299 75
563 sq. yds. brick paving, at 18 cts.	101 34
	465 01
Amount paid for work done by Sewer Division: Building	
1 new catch-basin and repairing 40 feet of sewer	416 33
	\$11,112 09
Amount of special appropriations	\$10,157 98
Amount paid out of Paving Division	954 11
	\$11,112 09

Dudley street, Washington street to Vine street.

Amount paid to James Grant & Co. (being the amount retained for paving laid in 1891) \$721 61

East Fifth street, L street to N street, macadamizing and regulating.

Area: 3,063 sq. yds. 6-in. macadam.

Labor	\$880 90
Teaming	473 10
Gravel	225 00
Stone	1,253 30
Roller	300 00

Amount paid for work done by Sewer Division: Building
1 new catch-basin 112 61

\$3,244 91

Amount of special appropriation \$3,244 91

Edgestones, Ward 21.

Sand	\$23 40
Gravel	178 50
898.5 feet of edgestone	503 16
Paving	294 94

\$1,000 00

Amount of special appropriation \$1,000 00

Eighth street, L street to O street, grading and regulating.

Labor	\$1,564 06
Teaming	472 50
Hill gravel	347 00
Beach gravel	303 00
Stone	171 75

Amount paid to H. Gore & Co.:

1,335 lin. feet of edgestone set, at 18 cts.	\$240 30
1,198 sq. yds. round paving,* at 35 cts.	419 30
830 sq. yds. brick paving, at 28 cts.	232 40

892 00

\$3,750 31

* Round stone for gutters taken from Dorchester street.

Eliot street, Washington street to Park square, paving and regulating (tar joints on concrete).

Labor, including inspection and engineering	\$705 46
Teaming	84 00
Advertising	9 00
711 ft. of edgestone	496 12
942.65 ft. of flagging	784 97
64,780 granite paving-blocks	4,787 24
41,600 paving-brick	499 20
Wharfage	220 22

Amount paid to C. B. Payson & Co.:

2,655 sq. yds. block paving on American cement concrete base, at \$2.97	\$7,885 35
554 sq. yds. block paving on gravel, tar joints, at \$2.37	1,312 98

Carried forward,

\$9,198 33 \$7,586 21

<i>Brought forward,</i>	\$9,198 33	\$7,586 21
1,837 ft. of edgestone set, at 23 cts.	422 51	
1,384 sq. yds. brick paving, at 69 cts.	954 96	
116 sq. yds. crosswalks on American concrete base, at \$2.97	344 52	
26 $\frac{3}{4}$ days stone-cutter, at \$4.00	123 05	
	<hr/>	11,043 37
Amount paid for work done by Sewer Division:		
Repairing 2 catch-basins, 2 manholes, and building 2 new catch-basins		276 39
		<hr/>
		\$18,905 97
Amount retained from C. B. Payson & Co.		552 17
		<hr/>
		\$18,353 80
Amount of special appropriation	\$9,000 00	
Amount paid out of Paving Division	180 40	
Amount paid out of Street Improvements:		
Ward 12	9,173 40	
	<hr/>	\$18,353 80
Ellery street, macadamizing and regulating.		
Labor		\$511 42
Teaming		165 00
Gravel		410 85
430 feet edgestone, and 10 small corners		278 30
Amount paid to Collins & Ham:		
782.6 lin. feet of edgestone set, at 15 cts.	\$117 39	
305.2 sq. yds. block-paving laid, at 35 cts.	106 82	
	<hr/>	224 21
Blocks furnished from Dorchester avenue, between South Boston Line and Mt. Vernon streets.		
Amount paid for work done by Sewer Division: Building 2 new catch-basins		190 61
		<hr/>
		\$1,780 39
Amount of special appropriation		\$1,780 39
Falcon street, macadamizing, grading, and regulating.		
Labor		\$1,425 31
Teaming		636 00
Gravel		259 00
Sand		18 00
Stone and stone screenings		1,035 00
Paving		60 03
Amount paid for work done by Sewer Division: Repairing 3 manholes and building 2 new catch-basins		277 99
		<hr/>
		\$3,711 33
Amount of special appropriation	\$2,286 60	
Amount paid out of Street Improvements, District No. 1	1,130 70	
Amount paid out of Paving Division	294 03	
	<hr/>	\$3,711 33
First street, Ward 14, paving and regulating at I street.		
400 sq. yds. block paving.		
Labor		\$365 70
Teaming		105 00
339.8 feet of edgestone and 6 large curb-corners		223 88
		<hr/>
<i>Carried forward,</i>		\$694 58

<i>Brought forward,</i>	\$694 58
180.95 feet of flagging	190 00
9,695 granite paving-blocks	711 30
Beach gravel	51 75
Amount paid to Collins & Ham (being the amount retained from work done in 1891)	646 21
Amount paid for work done by Sewer Division: Repairing 1 catch-basin, 1 manhole, and building 2 new catch-basins	270 97
	<u>\$2,564 81</u>

Florence street, laying asphalt blocks on concrete base, and regulating.

Labor, including inspection and engineering	\$506 04
Teaming	279 00
Sundries	31 82
Amount paid to Metropolitan Construction Company:	
76.5 cu. yds. 4-in. concrete base, at \$5	382 50
Amount paid to Daniel Sullivan:	
334 sq. yds. brick paving, at 28 cts.	93 52
Amount paid to Metropolitan Construction Company:	
688 sq. yds. asphalt block pavement laid, at \$3.10	\$2,132 80
Less allowance for reduction of gravel base	144 48
	<u>1,988 32</u>
	\$3,281 20
Amount of special appropriation	<u>\$3,281 20</u>

Fulda street, macadamizing and regulating.

Area: 1,622 sq. yds. 6-in. macadam.

Labor	\$345 24
Teaming	567 00
Gravel	900 10
Sand	25 20
Stone	617 75
Rolling	85 00
208 feet of edgestone	116 48
326 feet of flagging	293 40
2,240 granite paving-blocks	165 76
Paving	209 79
	<u>\$3,325 72</u>
Amount of special appropriation	\$505 53
Amount paid out of Street Improvements, District No. 9	327 00
Amount paid out of Street Improvements, District No. 10	802 68
Amount paid out of Paving Division	1,690 51
	<u>\$3,325 72</u>

Geneva avenue, Bowdoin street to Josephine, grading and macadamizing.

Area: 4,300 sq. yds. 15-in. Telford macadam and 2,000 sq. yds. 6-in. macadam.

Labor	\$1,777 88
	<u>\$1,777 88</u>

Carried forward,

\$1,777 88

<i>Brought forward,</i>		\$1,777 88
Teaming		2,236 50
Gravel		851 40
Filling		1,800 00
Stone		4,614 36
Roller		500 00
Execution of court		925 12

\$12,705 26

Amount of special appropriation	\$6,750 21
Amount paid out of Paving Division	5,955 05

\$12,705 26

Harvard street, Washington street to Albany street.

Paving	<u>\$239 80</u>
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Haviland street, macadamizing.

Labor	\$156 28
Teaming	42 00
Stone	343 70

\$541 98

Amount of special appropriation	<u>\$541 98</u>
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Hawes street, paving.

Area: 247 square yards.

Labor	\$398 39
Teaming	186 00
Gravel	96 80
5,745 granite paving-blocks	418 81

\$1,100 00

Amount of special appropriation	<u>\$1,100 00</u>
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Heath street, widening, etc., Day street to Tremont street, macadamizing and regulating.

Area: 7,980 sq. yds. 6-in. macadam.

Labor	\$4,575 28
Teaming	2,964 00
Gravel	2,777 80
Stone	3,239 00
Powder and fuse	297 00
1,026.96 feet of edgestone and 4 small corners	631 18
151.6 feet of flagging	136 44
80,000 granite paving-blocks	2,160 00
Roller	653 30
Sundries	232 44

Amount paid to Jas. Doherty & Co.,	
445 feet of edgestone set, at 18 cts.	\$746 10
1,707 sq. yds. block paving, at 35 cts.	597 45
257.6 sq. yds. block paving, at 25 cts.	64 40

1,407 95

\$19,074 39

Amount of special appropriation	\$14,398 67
Amount paid out of Paving Division	4,675 72

\$19,074 39

Henshaw street (now Hastings street), macadamizing and regulating.

Area: 3,329 sq. yds. 6-in. macadam.

Labor		\$737 00
Teaming		1,129 50
Gravel		980 64
Stone		1,438 00
		<u>\$4,285 14</u>
Amount of special appropriation	\$1,000 00	
Amount paid out of Street Improvements, District No. 11	551 40	
Amount paid out of Paving Division	2,733 74	
		<u>\$4,285 14</u>

Horace and Homer streets, grading.

Labor		\$636 26
Teaming		99 00
Gravel		509 00
Stone		91 00
		<u>\$1,335 26</u>
Amount of special appropriation	\$1,169 26	
Amount paid out of Street Improvement, District No. 1	166 00	
		<u>\$1,335 26</u>

Houghton street, macadamizing.

Labor		\$437 60
Teaming		12 00
		<u>\$449 60</u>

Hudson street, asphaltting.

Amount retained from Barber Asphalt Paving Co., as per contract, for asphalt laid in 1891		<u>\$886 32</u>
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Humboldt avenue, extension.

Grade damages		<u>\$1,650 00</u>
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Hunnean street, grading and construction.

Labor		\$330 00
Teaming		229 50
Stone		740 85
Gravel		239 70
Filling		3,713 70
Grade damages		7,800 00
		<u>\$13,053 75</u>

India street, State street to Central street (tar joints on concrete), paving and regulating.

Labor, including inspection and engineering		\$603 34
Teaming		676 50
144 feet of edgestone		108 00
24,750 granite paving-blocks		1,829 03

Carried forward,\$3,216 87

<i>Brought forward,</i>		\$3,216 87
500 feet of flagging		400 00
3,000 paving-brick		37 50
Amount paid to J. J. Sullivan:		
805 sq. yds. block paving removed, at 60 cts.		483 00
Amount paid to H. P. Nawn:		
153.4 cu. yds. American cement concrete base, at \$5.25		805 35
Amount paid to James Doherty & Co.:		
841.9 sq. yds. block paving, tar joints, at		
91 cts.	\$766 13	
141 feet of edgestone set, at 18 cts.	25 38	
137.3 sq. yds. brick paving laid, at 28 cts.	38 44	
78.5 sq. yds. crosswalks laid, at 91 cts.	71 44	
		<u>901 39</u>
		\$5,844 11
Amount of special appropriation	\$979 01	
Amount paid out of Street Improvements, District No. 3	4,865 10	
		<u>\$5,844 11</u>

K street, Broadway to First street, macadamizing and regulating.

Area: 3,320 sq. yds. 4-in. macadam.		
Labor		\$563 66
Teaming		280 00
Gravel		190 05
Stone		866 29
Roller		100 00
		<u>\$2,000 00</u>
Amount of special appropriation		\$2,000 00

L street, grading, etc., First street to the bridge.

Labor, including inspection and engineering		\$863 65
Filling		3,150 06
Advertising		54 23
Lumber		67 67
Amount paid to Perkins & White:		
Building abutment to bridge	\$3,118 30	
733 cu. yds. material dredged at bulkhead	146 60	
		<u>3,264 90</u>
Amount paid to Thomas A. Rowe:		
Building retaining-wall, as per contract	\$9,431 00	
Part payment for coping for retaining-wall,	163 02	
		<u>9,594 02</u>
		<u>\$16,994 53</u>

La Grange street, Ward 23, grading.

Labor		\$1,060 40
Teaming		497 50
Gravel		172 80
		<u>\$1,730 70</u>

Landing, Federal-street bridge.

M. F. Sullivan, building landing as per agreement		\$500 00
		<u>\$500 00</u>

Lexington avenue, now Shannon street.

Labor	\$200 10
Filling	597 00
	<hr/>
	\$797 10

Longwood avenue, Parker street to Huntington avenue.

Labor	\$100 00
Amount paid to J. Doherty & Co.:	
Amount retained on contract for work done in 1891	407 88
	<hr/>
	\$507 88
Amount of special appropriation	\$407 88
Amount paid out of Paving Division	100 00
	<hr/>
	\$507 88

Lynde street, Charlestown.

Labor	\$244 85
Teaming	99 00
Gravel	52 36
	<hr/>
	\$396 21
Amount of special appropriation	\$396 21

Magazine street, East Chester park to Norfolk avenue, grading and gravelling.

Labor	\$561 09
Teaming	135 00
Screenings	610 20
Amount paid for work done by Sewer Division: Building	
2 new catch-basins	267 91
	<hr/>
	\$1,574 20
Amount of special appropriation	\$1,574 20

Medford street, Lexington street to Chelsea street, and Main street to Quincy street, regulating.

Area: 4,500 sq. yds. repaving.	
Labor	\$989 29
Teaming	227 50
Gravel	910 74
1,976 granite paving-blocks	144 24
8.66 feet of edgestone	6 07
Amount paid to P. Brennan & Co.:	
1,350.6 feet of edgestone reset, at 8 cts.	\$108 05
3,235 sq. yds. block paving relaid, at 25 cts.	808 75
	<hr/>
	916 80
	<hr/>
	\$3,194 64
Amount of special appropriations	\$3,194 64

Mercer street, resurfacing.

Labor and material	\$945 02
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Minot street, Neponset avenue to Adams street.

Area, 7,411 sq. yds. 6-in. macadam.

Labor	\$846 35
Teaming	1,230 00
Stone	3,423 00
Gravel	348 30
Roller	320 00
Paving	69 04
52 small and 6 large corners	223 10
2,304 gutter blocks	52 99
	<hr/>
	\$6,512 78

Amount of special appropriation	\$1,559 63
Amount paid out of Paving Division	4,953 15
	<hr/>

\$6,512 78**Motte street**, asphaltting and regulating.

Labor, including inspection and engineering	\$112 30
Teaming	21 00
Gravel	34 50
Sundries	85 46

Amount paid to H. P. Nawn:

101 cu. yds. American cement concrete base, at \$5	\$505 00
7 loads crushed stone, at \$2.10	14 70
	<hr/>

519 70

Amount paid to National Construction Company : 616 sq. yds. Sicilian rock asphalt laid, at \$2.25	1,386 00
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\$2,158 96

Amount retained from National Construction Company	69 30
	<hr/>

\$2,089 66

Amount of special appropriation	\$1,500 00
Amount paid out of Street Improvements, District No. 5	424 17
Amount paid out of Paving Division	165 49
	<hr/>

\$2,089 66**Murdock street**, Ward 25, grading and gravelling.

Labor	\$288 86
Teaming	232 50
Gravel	1,338 03
	<hr/>

\$1,859 39

Amount of special appropriation	\$993 94
Amount paid out of Paving Division	865 45
	<hr/>

\$1,859 39**Ninth street**, Old Harbor street to N street, macadamizing and regulating.

Area: 3,000 square yards 6-in. macadam.

Labor	\$570 35
Teaming	390 00
Gravel	300 00
Stone	1,210 00
Roller	200 00
228 feet of edgestone	127 68
	<hr/>

\$2,798 03*Carried forward,*

<i>Brought forward,</i>		\$2,798 03
Amount paid to P. W. Hernan,		
1,101.4 sq. yds. block paving,* at 25 cents,	\$275 35	
30.5 sq. yds. brick paving, at 18 cts.	5 49	
		<u>280 84</u>
* Blocks furnished from Dorchester avenue.		<u>\$3,078 87</u>

North Margin street, continuation of laying out at Stillman street.

Labor		\$988 40
Teaming		373 50
200 feet of edgestone		150 00
Paving		34 31
		<u>\$1,546 21</u>

Parker street, Huntington avenue to Westland avenue.

Labor		\$580 00
		<u>580 00</u>

Poplar street, regulating.

Labor, including inspection and engineering		\$471 50
Teaming		117 00
Amount paid to Barber Asphalt Paving Co. :		
1,292.5 sq. yds. Trinidad asphalt laid, at \$2.50		3,231 25
		<u>\$3,819 75</u>

Amount of special appropriation	\$3,000 00	
Amount paid out of Paving Division	819 75	
		<u>\$3,819 75</u>

Randolph street, regulating.

Labor		\$345 65
Gravel		43 20
Paving		407 83
Amount paid for work done by Sewer Division: Laying		
827 feet of sewer and connections and building new		
catch-basins		4,055 03
		<u>\$4,851 71</u>

Rutherford avenue, South Eden street to Allen street, paving and regulating.

Area: 5,000 sq. yds. paving.

Labor		\$3,609 39
Teaming		883 50
Gravel		1,883 14
Lumber		102 80
Crossing-blocks		68 25
421.75 feet of edgestone		295 22
127,731 granite paving-blocks		9,510 28
Amount paid to P. Brennan & Co., for paving :		
322.1 feet of edgestone reset, at 8 cts.	\$25 77	
996.7 sq. yds. block paving, at 25 cts.	249 18	
54.2 sq. yds. brick paving, at 18 cts.	9 75	
		<u>284 70</u>

Carried forward,

\$16,637 28

<i>Brought forward,</i>		\$16,637 28
Amount paid to J. Turner & Co.:		
1,606 feet of edgestone reset, at 8 cts.	\$128 48	
2,619.1 sq. yds. block paving, at 25 cts.	654 77	
27 sq. yds. brick paving, at 18 cts.	4 86	
		788 11
Amount paid for work done by Sewer Division:	Building	
15 new catch-basins and repairing 1		1,016 70
		<u>\$18,442 09</u>
Amount of special appropriation	\$5,696 73	
Amount paid out of Paving Division	2,656 32	
Amount paid out of Street Improvements, District No. 2	10,089 04	
		<u>\$18,442 09</u>

Sawyer avenue, grading and regulating.

Labor		\$279 60
Teaming		255 00
Stone		740 09
268 cu. yds. earth excavation		187 60
Amount paid to J. Doherty & Co., for paving:		
743.6 feet of edgestone reset, at 18 cts.	\$133 85	
1,150.7 sq. yds. block paving (blocks furnished from South yard), at 60 cts.	690 42	
		824 27
		<u>\$2,286 56</u>

School street, paving and regulating (tar joints on concrete base).

Labor, including inspection and engineering		\$809 10
Teaming		306 00
Sand		8 10
8,800 paving-brick		114 40
31,700 paving-blocks		2,342 63
44 feet of edgestone		26 40
369 cu. yds. earth excavation		369 00
Amount paid to C. B. Payson & Co.:		
1,246.2 sq. yds. block paving, pitch joints, at \$1.18	\$1,470 52	
378 feet of edgestone reset, at 18 cts.	69 84	
213 sq. yds. brick paving, at 23 cts.	48 99	
50.6 sq. yds. crosswalks, at \$1.18	59 71	
		1,649 06
Amount paid for work done by Sewer Division:	Building	
1 new manhole		82 27
		<u>\$5,806 96</u>
Amount of special appropriation	\$4,500 00	
Amount paid out of Paving Division	1,306 96	
		<u>\$5,806 96</u>

**Seattle, Hopedale, Windom, Sorrento, and Amboy streets,
Brighton, construction.**

Labor		\$753 30
Teaming		1,135 50
		<u>\$1,888 80</u>

Carried forward,

<i>Brought forward,</i>		\$1,888 80
Gravel		5,026 35
Filling		6,106 80
Stone		1,340 50
		<hr/>
Amount of special appropriation	\$9,000 00	\$14,362 45
Amount paid out of Paving Division	1,349 50	
Amount paid out of Street Improvements, District No. 11	4,012 95	
		<hr/>
		\$14,362 45

Second street, B street to E street, paving and regulating.

Labor, including inspection and engineering		\$829 90
Teaming		103 50
162,336 granite paving-blocks		11,929 60
1,600 feet of flagging		1,280 00
52,500 paving-brick		630 00
120 feet of edgestone, 4 small and 2 large corners		114 60
Advertising		12 08
Amount paid to H. Gore & Co.:		
6,647 sq. yds. block paving, at 90 cts.	\$5,982 30	
3,073 feet of edgestone set, at 30 cts.	921 90	
2,547 sq. yds. brick paving, at 60 cts.	1,528 20	
288 sq. yds. crosswalks, at \$1.10	316 80	
Extra work as ordered	145 51	
		<hr/>
		8,894 71
		<hr/>
		\$23,794 39

Amount of special appropriation	\$5,000 00	
Amount paid out of Street Improvements, District No. 6	7,142 91	
Amount paid out of Street Improvements, Ward 13	11,651 48	
		<hr/>
		\$23,794 39

Second street, Dorchester street to I street, paving and regulating.

Area: 3,501 sq. yds. paving.		
Labor		\$3,477 54
Teaming		832 50
Gravel		687 75
11,800 paving-brick		140 70
1,127.1 feet of flagging		901 68
89,215 granite paving-blocks		6,418 84
Wharfage		76 81
Amount paid for work done by Sewer Division		94 88
		<hr/>
		\$12,630 70

Seventh street, D street to E street, paving and regulating.

Labor, including inspection and engineering		\$1,255 73
Teaming		474 00
Gravel		510 75
159 feet of flagging		127 20
21,000 paving-brick		262 50
59,526 paving-blocks		2,748 05
		<hr/>
<i>Carried forward,</i>		\$5,378 23

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<i>Brought forward,</i>		\$5,378 23
Wharfage		33 00
Amount paid to J. J. Sullivan:		
455 cu. yds. earth removed, at 60 cts.	\$273 00	
331 sq. yds. paving removed, at 20 cts.	66 20	
	<hr/>	339 20
Amount paid to H. Gore & Co.:		
758.8 feet of edgestone reset, at 8 cts.	\$60 70	
1,706 sq. yds. block paving, at 25 cts.	426 50	
48 sq. yds. brick paving, herring bone, at 36 cts.	17 28	
529.5 sq. yds. brick paving, at 18 cts.	95 31	
	<hr/>	599 79
Amount paid for work done by Sewer Division: Repairing,		84 84
		<hr/>
		\$6,435 06
Amount of special appropriation	\$6,000 00	
Amount paid out of Street Improvements, District No. 7	435 06	
	<hr/>	\$6,435 06
Shirley street.		
Filling		\$150 00
Short street, West Roxbury, grading.		
Labor		\$2,093 90
Teaming		1,380 00
		<hr/>
		\$3,473 90
Amount of special appropriation	\$3,403 40	
Amount paid out of Paving Division	70 50	
	<hr/>	\$3,473 90
Silver street, C street to D street, regulating.		
Labor		\$409 34
Teaming		258 00
		<hr/>
		\$667 34
Amount of special appropriation	\$409 34	
Amount paid out of Paving Division	73 50	
Amount paid out of Street Improvement, Ward 13	184 50	
	<hr/>	\$667 34
Smith street, construction, grading and regulating.		
Labor		\$571 55
Teaming		583 50
Gravel		834 70
Stone		144 00
13,099 gutter blocks		353 67
Paving		174 75
Amount paid for work done by Sewer Division: Building 3 catch-basins and repairing 3 manholes		432 42
		<hr/>
		\$3,094 59
Stanhope street, paving and regulating.		
Labor		\$797 65
Teaming		805 50
		<hr/>
		\$1,603 15
<i>Carried forward,</i>		

<i>Brought forward,</i>		\$1,603 15
Gravel		320 54
Sand		89 25
4,100 paving-brick		49 20
64 ft. of flagging		36 80
130 ft. edgestone and 8 small corners		114 50
9,435 granite paving-blocks		698 24
Amount paid to C. B. Payson & Co.:		
378 ft. of edgestone reset, at 8 cts.	\$30 24	
202.5 sq. yds. brick paving, at 18 cts.	36 45	
1,635 sq. yards block paving (blocks from Eliot street), at 25 cts.	408 75	
		<u>475 44</u>
Amount paid to F. H. Cowin & Co.:		
129 feet of edgestone reset, at 8 cts.	\$10 32	
458 sq. yds. block paving, at 25 cts.	114 50	
		<u>124 82</u>
Amount paid for work done by Sewer Division: Building 2 new catch-basins and 2 manholes		270 01
		<u>\$3,781 95</u>
Amount of special appropriation	\$1,683 50	
Amount paid out of Paving Division	2,098 45	
		<u>\$3,781 95</u>
Stanton street, grading and regulating.		
Labor		\$1,648 81
Teaming		663 00
Stone		352 93
32,000 gutter-blocks		800 00
Amount paid to J. Doherty & Co.:		
201 feet of edgestone set, at 18 cts.	\$36 18	
831.3 sq. yds. block paving, at 60 cts.	499 08	
		<u>535 26</u>
		<u>\$4,000 00</u>
Stillman street, asphaltting.		
Asphalt pavement		\$881 10
Amount of special appropriation	\$837 05	
Amount paid out of Paving Division	44 05	
		<u>\$881 10</u>
Story street, excavation.		
Labor		\$38 93
Teaming		659 37
		<u>\$698 30</u>
Amount of special appropriation		\$698 30
		<u>\$698 30</u>
STREET IMPROVEMENTS, ALDERMANIC DISTRICT NO. 1.		
Bennington street, Porter street to Marion street, paving and regulating; Saratoga street to Wadsworth street, regulating.		
Area: 2,139 sq. yards.		
Labor		\$1,416 80
Teaming		496 50
Gravel		877 85
49,849 granite paving-blocks		3,738 68
		<u>\$6,529 83</u>
<i>Carried forward,</i>		\$6,529 83

<i>Brought forward,</i>		\$6,529 83
Amount paid to P. J. Attridge:		
305 cu. yards earth removed, at 44 cts.	\$134 20	
1,082 sq. yards paving removed, at 19 cts.	205 58	
		339 78
Amount paid to J. Doherty & Co., for paving		481 39
		<u>\$7,351 00</u>

Border street, White street to Condor street, paving and regulating.

Labor		\$365 00
74,694 granite paving-blocks		5,602 05
Advertising		47 78
195 feet of flagging		175 50
Sundries		21 99
Building iron fence		350 00
Amount paid to H. Gore & Co.:		
2,767 sq. yds. block-paving, at 96 cts.	\$2,656 32	
1,475 feet of edgestones set, at 35 cts.	516 25	
831 sq. yds. brick paving, at 65 cts.	540 15	
40 sq. yds. flagging, at 96 cts.	38 40	
124 cu. yds. mason work, at \$3.70	458 80	
174 cu. yds. mason work, laid dry, at \$3.30,	574 20	
314½ tons new wall stone, at \$2.30	723 93	
117.7 tons stone ballast, at \$1.50	176 55	
225.5 ft. cap stone, furnished and set, at \$2.55,	575 02	
Extra work as ordered	127 63	
		<u>6,387 25</u>
Amount retained from H. Gore & Co.		\$12,949 57
		319 36
		<u>\$12,630 21</u>

Amount paid out of Street Improvements,

District No. 1	\$12,280 21	
Amount paid out of Paving Division	350 00	
		<u>\$12,630 21</u>

Central square.

Labor		\$118 82
Teaming		51 00
Gravel		20 00
Paving		24 35
		<u>\$214 17</u>

Chelsea street, regulating, paving gutters.

Labor, including inspection and engineering		\$3,103 32
Teaming		558 00
Gravel		547 58
Stone		1,890 00
64,446 granite paving-blocks		1,740 12
Rolling		260 00
800 crossing-blocks		400 00
21 feet of edgestones		16 80
Amount paid to J. Doherty & Co.:		
139.5 feet of edgestone reset, at 8 cts.	\$11 16	
1,691.2 sq. yds. block paving, at 25 cts.	422 81	
		<u>433 97</u>

Carried forward,

\$8,949 79

<i>Brought forward,</i>		\$8,949 79
Amount paid out of Street Improvements, District No. 1	\$7,552 29	
Amount paid out of Paving Division	1,397 50	
	<hr/>	<u>\$8,949 79</u>

North ferry, regulating.

Labor, including inspection and engineering		\$83 33
2,875 granite paving-blocks		215 62
400 feet of flagging		360 00
Amount paid to A. A. Libby & Co.:		
1,833 sq. yds. block repaving, at 60 cts.	\$1,099 80	
539 feet of edgestone reset, at 25 cts.	134 75	
195 sq. yds. brick paving, at 50 cts.	97 50	
236.3 sq. yds. flagging, at \$1.20	283 56	
1 day's labor, mason	4 50	
	<hr/>	1,620 11
		<u>\$2,279 06</u>

Porter street, regulating and resurfacing.

Labor		\$759 00
Teaming		489 00
Gravel		200 73
Stone		659 20
		<hr/>
		<u>\$2,107 93</u>

West Eagle street.

Labor		\$25 30
Teaming		6 00
Gravel		39 00
		<hr/>
		<u>\$70 30</u>

Work done by Surveyor's Department \$185 49

Work done by Bridge Division \$39 70

Work done by Sewer Division: Laying 337 feet of 18-inch pipe sewer, 210 feet of 12-inch pipe sewer, building 10 new catch-basins, repairing 5 catch-basins and repairing 7 manholes \$2,088 98

STREET IMPROVEMENTS, ALDERMANIC DISTRICT NO. 2.

Work done by Bridge Division, on Malden Bridge \$1,710 96

STREET IMPROVEMENTS, ALDERMANIC DISTRICT NO. 3.

Allen street, regulating.

Labor		\$687 13
Teaming		610 50
Gravel		354 55
Sand		111 60
Stone		792 25
8,654 paving-brick		112 50
		<hr/>

Carried forward, \$2,668 53

<i>Brought forward,</i>		\$2,668 53
Wharfage		200 00
50 crossing-blocks		25 00
Amount paid to P. W. Hernan:		
174 feet of edgestone, at 8 cts.	\$13 92	
440 sq. yds. round paving, at 25 cts.	110 00	
585 sq. yds. brick paving, at 25 cts.	105 30	
839 feet of edgestone reset, at 15 cts.	125 85	
394 sq. yds. block paving, at 35 cts.	137 90	
706 sq. yds. brick paving, at 23 cts.	162 38	
27 sq. yds. brick paving, herring bone, at 41 cts.	11 07	
	<u>11 07</u>	666 42
		<u>\$3,559 95</u>

Amount paid out of Street Improvements, District No. 3	\$2,000 00	
Amount paid out of Paving Division	1,559 95	
	<u>1,559 95</u>	\$3,559 95

Blossom street, regulating.

Labor		\$563 50
Teaming		154 50
Gravel		138 75
7,000 paving-brick		87 50
Amount paid to P. W. Hernan:		
730 feet of edgestone reset, at 8 cts.	\$58 40	
343.5 sq. yds. block paving relaid, at 25 cts.,	85 87	
549 sq. yds. brick paving relaid, at 18 cts.,	98 82	
	<u>98 82</u>	243 09
		<u>\$1,187 34</u>

Brighton street, asphaltting and regulating.

Labor, including inspection and engineering		\$581 62
Teaming		361 50
Gravel		90 00
Advertising		20 00
9,500 paving brick		118 75
Amount paid to Barber Asphalt Paving Co.:		
1,876.7 sq. yds. Trinidad asphalt laid, at \$2.25,	\$4,222 57	
Amount paid for extra work as ordered	811 37	
	<u>811 37</u>	5,033 94

Amount paid to P. W. Hernan:		
1,195 sq. yds. block paving relaid, at 25 cts.,	\$298 75	
772 ft. edgestone reset, at 8 cts.	61 76	
380 sq. yds. brick paving, at 18 cts.	68 40	
	<u>68 40</u>	428 91
		<u>\$6,634 72</u>

Amount paid out of Street Improvements, District No. 3	\$6,216 61	
Amount paid out of Paving Division	418 11	
	<u>418 11</u>	\$6,634 72

Clark street, asphaltting and regulating.

Areas: 336 sq. yds. asphalt; 76 sq. yds. paving. Amount paid for asphaltting, etc.		\$795 54
		<u>\$795 54</u>

Hanover avenue, asphaltting and regulating.

Area: 304.5 sq. yds. asphalt.

Asphaltting	\$762 95
Advertising	10 80
	<hr/>
	\$773 75

Hawkins street, paving and regulating.

Labor	\$1,122 00
Teaming	663 00
Gravel	165 00
8,000 paving-brick	96 00
19,060 granite paving-blocks	1,448 56
250 ft. of edgestone	262 50
Amount paid to Jas. Grant & Co.:	
794 feet of edgestone reset, at 8 cts.	\$63 52
834 sq. yds. block paving, at 25 cts.	208 50
157 sq. yds. block paving, tar joints, at 97 cts.	152 29
3.6 sq. yds. brick paving, herring bone, at 36 cts.	1 30
346 sq. yds. brick paving, at 18 cts.	62 28
	<hr/>
	487 89
	<hr/>
	\$4,244 95

Stoddard street, asphaltting and regulating.

Teaming	\$123 00
Labor	121 90
Gravel	44 70
2,000 paving-brick	25 00
16.8 ft. edgestone	21 67
Paving	299 25
Asphaltting	65 47
Sand	10 80
25 crossing-blocks	12 50
	<hr/>
	\$724 29

Amount paid out of Street Improvements, District No. 3	\$555 79
Amount paid out of Paving Division	168 50
	<hr/>
	\$724 29

Pay-roll **\$125 51**

Engineering Department **\$190 00**

Work done by Sewer Division: Building 6 new catch-basins, 2 new manholes, and repairing 3 manholes **\$1,029 67**

STREET IMPROVEMENTS, ALDERMANIC DISTRICT NO. 4.

Beacon street, Tremont street to Somerset street.

Labor and material **\$605 34**

STREET IMPROVEMENTS, ALDERMANIC DISTRICT NO. 6.

Broadway, Dorchester avenue to A street, asphaltting and regulating.

Labor		\$58 54
Teaming		72 00
Gravel		52 50
Sand		13 50
17,200 paving-bricks		206 83
Amount paid to National Construction Company:		
116.8 sq. yds. block paving, on concrete, at \$3.55	\$414 64	
1,276.5 sq. yds. Sicilian rock asphalt paving, at \$3 55	4,531 58	
684 feet of edgestone reset, at 18 cts.	123 12	
1,145 sq. yds. brick paving relaid, at 28 cts.,	320 60	
15.3 sq. yds. cross-walks relaid, at 65 cts.	9 95	
Extra work as ordered	34 30	
	<hr/>	5,434 19
		<hr/>
		\$5,837 56
Amount paid out of Street Improvements, District No. 6		
	\$5,728 76	
Amount paid out of Street Improvements, Ward 13		
	108 80	
	<hr/>	\$5,837 56

Third street, A street to B street, regulating.

Labor		\$384 60
Teaming		153 00
Sand		1 80
Gravel		141 00
		<hr/>
		\$680 40
Amount paid out of Street Improvements, District No. 6		
	\$527 40	
Amount paid out of Street Improvements, Ward 13		
	153 00	
	<hr/>	\$680 40
		<hr/>
Amount paid for work done by Sewer Division: Building 8 new catch-basins and repairing 1		
		\$905 85

STREET IMPROVEMENTS, ALDERMANIC DISTRICT NO. 7.

Dorchester street, First street to Third street, paving and regulating.

Area: 2,100 sq. yds. paving.		
Labor		\$2,027 50
Teaming		555 00
Gravel		434 25
51,268 granite paving-blocks		3,763 38
386 feet of flagging		443 61
		<hr/>
		\$7,223 74
		<hr/>

I Street, First street to Second street, paving and regulating.

Area: 1,200 sq. yds. paving.

Labor	\$1,288 00
Teaming	343 50
Gravel	219 75
4,100 paving-brick	49 20
30,000 granite paving-blocks	2,217 00
177.9 feet edgestone	142 32
	<hr/>
	\$4,259 77

Sixth street, N street to O street (south side), paving and regulating.

Labor	\$305 80
Teaming	73 50
Gravel	326 20
16,000 second quality blocks	400 00
Amount paid to M. Donnellan:	
195 cu. yds. earth excavation, at 64½ cts.	\$125 78
157 sq. yds. paving removed, at 19½ cts.	30 62
	<hr/>
	156 40
Amount paid to H. Gore & Co.:	
124.5 feet of edgestone reset, at 8 cts.	\$9 96
660.6 sq. yds. block paving, at 25 cts.	165 15
114 sq. yds. brick paving, at 18 cts.	20 52
	<hr/>
	195 63
	<hr/>
	\$1,457 53

Tudor street, regulating.

Labor	\$249 84
Teaming	615 00
Gravel	168 25
Paving	76 61
	<hr/>
	\$659 70

Amount paid for work done by Sewer Division: Building 19 new catch-basins, repairing 7 catch-basins, and building 5 new manholes

\$2,244 26

STREET IMPROVEMENTS, ALDERMANIC DISTRICT NO. 8.

West Dedham street, regulating.

Labor	\$468 53
Teaming	156 00
Rolling	75 00
Stone	600 00
Gravel	11 37
	<hr/>
	\$1,310 90

Amount paid out of Street Improvements, District No. 8

\$1,206 53

Amount paid out of Paving Division

104 37

\$1,310 90**West Newton street**, Columbus avenue to St. Botolph street, macadamizing and regulating.

Area: 2,400 square yards 6-in. macadam.

STREET DEPARTMENT — PAVING DIVISION. 247

Labor		\$542 45
Teaming		465 00
Material		1,123 05
Roller		100 00

\$2,230 50

Amount paid out of Street Improvements, District No. 8		\$638 45
Amount paid out of Paving Division		1,592 05

\$2,230 50

Worcester street, regulating.

Labor		\$613 10
Teaming		156 00
Gravel		44 40

\$813 50

Amount paid out of Street Improvements, District No. 8		\$706 10
Amount paid out of Paving Division		107 40

\$813 50

STREET IMPROVEMENTS, ALDERMANIC DISTRICT NO. 9.

Burke street, regulating.

Labor		\$127 60
Teaming		36 00
Gravel		95 20

\$258 80

Cabot street, Ruggles street to Vernon street, asphaltting and regulating.

Labor, including inspection and engineering		\$2,012 15
Teaming		1,303 50
Gravel		520 20
Sand		154 80
Stone		350 00
12,200 paving-brick		153 60
198.5 ft. of flagging		206 44
Sundries		15 45

Amount paid to T. H. Payson:		
1,292.4 ft. of edgestone reset, at 8 cts.		\$103 39
370.4 sq. yds. block paving relaid, at 25 cts.		92 61
968 sq. yds. brick paving relaid, at 18 cts.		174 24

370 24

Amount paid to Metropolitan Construction Co.:		
479 cu. yds. cement concrete base, at \$5		2,395 00

Amount paid to Barber Asphalt Paving Co.:		
2,907 sq. yds. Trinidad asphalt laid, at \$2.25		6,540 75

\$14,022 13

Amount paid out of Street Improvements, District No. 9		\$12,573 65
Amount paid out of Paving Division		1,448 48

\$14,022 13

Prentiss street, paving and regulating.

Labor	\$21 20
Advertising	154 80
60,078 granite paving-blocks	3,364 36
126 ft. edgestone, 1 large and 2 small corners	106 80
24,250 paving-brick	291 00

Amount paid to H. Gore & Co.:

1,737 sq. yds. granite blocks on gravel, at \$1.08,	\$1,875 96
1,020 ft. edgestone set, at 38 cts.	387 60
749 sq. yds. brick paving, at 65 cts.	486 85
79 sq. yds. crosswalks, at \$1.20	94 80
Extra work as ordered	78 48

\$2,923 69

Less amount for old blocks teamed by the city	114 96
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2,808 73

\$6,746 89

Less amount retained from H. Gore & Co.	146 18
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\$6,600 71

Amount paid out of Street Improvements,

District No. 9	\$5,389 95
Amount paid out of Paving Division	1,210 76

\$6,600 71

Ruggles street, regulating.

Teaming	\$168 00
Gravel	120 70
Stone	100 00

\$388 70

Texas street, paving and regulating.

Labor	\$164 05
Teaming	22 50
Gravel	209 10
12,415 granite paving-blocks	695 24

\$1,090 89

Amount paid for work done by Sewer Division: Building 5 catch-basins, repairing 6 catch-basins, and repairing 8 manholes

\$971 01

STREET IMPROVEMENTS, ALDERMANIC DISTRICT NO. 10.**Brunswick street, grading.**

Labor	\$366 73
Teaming	399 00
Filling	1,320 00
Stone	706 50

\$2,792 23

Amount paid out of Street Improvement, District No. 10

\$1,673 73

Amount paid out of Paving Division	1,118 50
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\$2,792 23

Eustis street, Washington street to Dearborn street, paving and regulating.

Labor, including inspection and engineering	\$2,043 01
Advertising	5 60
74,464 granite paving-blocks	5,461 15
656 feet flagging	605 77
135 feet of edgestone	101 25
25,200 paving-brick	302 40

Amount paid to A. A. Libby & Co.:	
3,456 sq. yds. block paving, at \$1.05	\$3,628 80
2,150 feet of edgestone set, at 20 cts.	430 00
1,425 sq. yds. brick paving, at 65 cts.	926 25
326 sq. yds. crosswalks, at \$1.50	489 00
Extra work as ordered	54 17
	<hr/>
	5,528 22

Amount retained from A. A. Libby & Co.	\$14,047 40
	276 41
	<hr/>

Amount paid out of Street Improvements, District No. 10	\$13,770 99
	<hr/>
	\$13,770 99

Georgia street, regulating.

Labor	\$347 20
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Highland Park avenue and Fort avenue, regulating.

Labor	\$497 00
Teaming	129 00
Sand	72 00
Gravel	433 50

Amount paid to Wm. McEleney:	
1,152 feet of edgestone reset, at 8 cts.	\$92 16
3,776 sq. yds. block paving, at 25 cts.	94 39
681.5 sq. yds. brick paving, at 18 cts.	122 67
	<hr/>
	309 22

	<hr/>
	\$1,440 72

Intervale street, grading.

Area: 1,742 sq. yds. 6-in. macadam.	
Labor	\$443 57
Teaming	441 00
Filling	640 00
Stone	694 75
Roller	170 00

	<hr/>
	\$2,389 32

Amount paid out of Street Improvements, District No. 10	\$1,510 77
Amount paid out of Paving Division	878 55
	<hr/>
	\$2,389 32

Kemble street, paving and regulating.

Labor, including inspection and engineering	\$724 91
Advertising	4 00
88,263 granite paving-blocks	6,510 05
747 feet of flagging	623 07

<i>Carried forward,</i>	<hr/>
	\$7,862 03

<i>Brought forward,</i>		\$7,862 03
26,550 paving-brick		331 87
Sundries		85 98
Amount paid to Collins & Ham :		
3,667 sq. yds. block paving, at 90 cts.	\$3,300 30	
2,337 feet edgestone set, at 48 cts.	1,121 76	
553 sq. yds. brick paving, at 80 cts.	442 40	
183 sq. yds. flagging-walks, at \$1.50	274 50	
Extra work as ordered	316 68	
		<u>5,455 64</u>
		\$13,735 52
Amount retained from Collins & Ham		818 35
		<u>\$12,917 17</u>
Amount paid out of Street Improvements, District No. 10	\$11,030 18	
Amount paid out of Paving Division	1,886 99	
		<u>\$12,917 17</u>
Longmeadow street, paving gutters.		
Gravel		\$73 10
8,099 gutter-blocks		218 67
Paving		85 48
		<u>\$377 25</u>
Moreland street, Blue Hill avenue to Dennis street, grading, macadamizing, and regulating.		
Labor		\$920 20
Teaming		303 00
Gravel		266 90
Stone		402 00
Paving		103 78
Amount paid to John J. Nawn :		
780 cu. yds. earth excavated, at 40 cts.	\$312 00	
274 cu. yds. rock cutting, at \$2	548 00	
		<u>860 00</u>
		<u>\$2,855 88</u>
Newcomb street and Reed street, grading.		
Labor		\$130 70
Filling		513 00
		<u>\$643 70</u>
Reading street, paving and regulating gutters.		
Labor		\$435 70
Teaming		308 50
Gravel		719 60
39,202 granite paving-blocks		1,071 37
Stone		399 66
958 sq. yds. block paving		335 30
		<u>\$3,270 13</u>
Amount paid out of Street Improvements, District No. 10	\$2,466 96	
Amount paid out of Paving Division	803 17	
		<u>\$3,270 13</u>

Engineering Department	<u>\$279 91</u>
Surveyor's Department	<u>\$72 00</u>
Work done by Sewer Division: Laying 110 feet 12-inch pipe sewer, building 18 new catch-basins, repairing 6 catch-basins, and building 6 new manholes	<u>\$3,728 03</u>

STREET IMPROVEMENTS, ALDERMANIC DISTRICT NO. 11.

Arlington street, regulating and gravelling.	
Labor	\$301 30
Teaming	223 50
Gravel	956 20
	<u>\$1,481 00</u>

Asphalt sidewalks repaired.	
Amount paid to Simpson Bros.:	
2,028 sq. yds. new concrete laid, at \$1	\$2,028 00
670.3 sq. yds concrete repaired, two layers, at 65 cts.	435 69
1,131.1 sq. yds. concrete repaired, one layer, at 50 cts.	565 55
	<u>\$3,029 24</u>

Bradbury street, regulating and gravelling.	
Labor	\$165 60
Teaming	159 00
Gravel	607 60
	<u>\$932 20</u>

Amount paid out of Street Improvements, District No. 11	\$165 60
Amount paid out of Paving Division	766 60
	<u>\$932 20</u>

Cohasset street, grading.	
Labor	\$75 40
Teaming	174 00
Filling	131 00
Gravel	281 88
	<u>\$662 28</u>

Dustin street,, grading.	
Labor	<u>\$259 30</u>

Easton street, grading.	
Labor	\$108 70
Teaming	32 40
	<u>\$141 10</u>

Englewood avenue, grading, paving gutters.	
Labor	\$553 85
Teaming	423 00
Gravel	1,603 35
	<u>\$2,580 20</u>

Carried forward, \$2,580 20

<i>Brought forward,</i>		\$2,580 20
Stone		266 00
162.67 feet of flagging		146 40
Amount paid to D. Sullivan:		
1,139 sq. yds. block paving (blocks from Brighton yard), at 25 cts.	\$284 75	
76.4 feet edgestone reset, at 8 cts.	6 11	
	<hr/>	290 86
		<hr/>
		\$3,283 46
Amount paid out of Street Improvement, District No. 11	\$1,580 61	
Amount paid out of Paving Division	1,702 85	
	<hr/>	\$3,283 46
Menlo street, regulating.		
Labor		\$287 90
Teaming		123 00
Gravel		22 75
Paving		83 72
		<hr/>
		\$517 37
Amount paid out of Street Improvement, District No. 11	\$403 87	
Amount paid out of Paving Division	113 50	
	<hr/>	\$517 37
Mount Hope-street extension, grading.		
Labor		\$210 05
Teaming		514 50
		<hr/>
		\$724 55
Amount paid out of Street Improvements, District No. 11	\$190 50	
Amount paid out of Paving Division	534 05	
	<hr/>	\$724 55
South street, Centre street to railroad, resurfacing.		
Labor		\$583 51
Teaming		988 50
Gravel		569 16
		<hr/>
		\$2,141 17
Sycamore street, Florence street to Ashland street, grading.		
Labor		\$737 00
Teaming		2,389 50
Material		1,170 62
		<hr/>
		\$4,297 12
Amount paid out of Street Improvement, District No. 11	\$2,061 80	
Amount paid out of Paving Division	2,235 32	
	<hr/>	\$4,297 12
Walter street, Proctor street to Mendum street, grading.		
Labor		\$504 70
Teaming		1,147 50
Material		893 08
		<hr/>
		\$2,545 28
<i>Carried forward,</i>		

<i>Brought forward,</i>		\$2,545 28
Amount paid out of Street Improvement, District No. 11	\$892 12	
Amount paid out of Paving Division	1,653 16	
		<u>\$2,545 28</u>

Washington street, at Roslindale, regulating.

Teaming	\$309 00
Labor	159 40
	<u>\$468 40</u>

Work done by Bridge Division \$468 02

**Work done by Sewer Division: Building 200 feet 4 × 3
stone culvert, 23 feet 3 × 3½ stone culvert, building 6
new catch-basins** \$3,502 45

STREET IMPROVEMENTS, ALDERMANIC DISTRICT NO. 12.

**Adams street, Templeton street to a point within 200 feet of
Minot street, Ward 24.**

Area: 7,270 sq. yds. 6-in. macadam.

Labor	\$916 16
Teaming	1,314 00
Stone	3,635 00
Gravel	390 00
Roller	500 00
	<u>\$6,755 16</u>

Bailey street.

Area: 4,200 sq. yds. 6-in. macadam.

Labor	\$1,299 82
Teaming	568 50
Gravel	961 95
Stone	1,680 00
52,000 gutter blocks	1,300 00
Amount paid to J. McGovern: 843 cu. yds. earth excavation, at 70 cts.	590 10
Amount paid to C. J. Coates: 1,329 sq. yds. block paving, at 49 cts.	651 21
	<u>\$7,051 58</u>

Bullard street, regulating.

Labor	\$87 40
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**Freeport street, Dorchester avenue to Mill street, repaving and
regulating.**

Labor	\$836 18
Teaming	552 00
Gravel	2,277 00
37,595 granite paving-blocks	2,390 00
170.6 feet of flagging	136 48
Amount paid to F. H. Cowin & Co.: 2,053.4 feet of edgestone set, at 18 cts.	\$369 61
7,709.6 sq. yds. block paving, at 35 cts.	2,698 36
9.5 sq. yds. brick paving, at 28 cts.	2 66
	<u>3,070 63</u>

\$9,262 29

Harvard street, widening and grading.

Labor	\$184 00
Material	265 60
	<u>\$449 60</u>

Hecla street, grading.

Labor	\$207 00
Teaming	156 00
	<u>\$363 00</u>

Nelson and Evans streets, grading.

669 cu. yds. earth excavation, at 55 cts.	\$367 95
20 cu. yds. rock cutting, at \$2.25	45 00
	<u>\$412 95</u>

Norfolk street, grading.

Teaming and labor	\$48 00
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Whitfield street, South Park street to Wheatland avenue, grading and macadamizing.

Area: 3,800 sq. yards.

Labor	\$926 60
Teaming	560 50
Stone	786 32
Gravel	212 20
	<u>\$2,485 62</u>

Surveyor's Department \$385 57**Engineering Department** \$168 93

Work done by the Sewer Division: Building 175 ft. stone culvert, 685 ft. pipe sewer, 17 new catch-basins, repairing 1 catch-basin and 9 manholes \$5,761 94

STREET IMPROVEMENTS, WARD 12.

Bread street, paving and regulating.

Labor	\$320 25
Gravel	90 00
Advertising	22 20
100 ft. edgestone	65 00
11,075 granite paving-blocks	841 70
Amount paid to Jas. Grant:	
156 ft. of edgestone reset, at 8 cts.	\$12 48
427 sq. yds. block paving, at 25 cts.	106 75
71.5 sq. yds. brick paving, at 18 cts.	12 87
	<u>132 10</u>
	<u>\$1,471 25</u>

Fort Hill square, regulating, concreting sidewalks around square.

Labor	\$276 42
Teaming	18 00

Carried forward, \$294 42

STREET DEPARTMENT — PAVING DIVISION. 255

<i>Brought forward,</i>	\$294 42
Advertising	16 00
Amount paid to Daniel Sullivan:	
663 ft. edgestone reset, at 18 cts.	\$119 34
662 sq. yds. block paving relaid, at 35 cts.	231 70
	351 04
Amount paid to Simpson Bros., concreting:	
559 sq. yds. Sicilian asphalt, at \$2.34	1,308 06
	\$1,969 52

Oak street, Harrison avenue to Hudson street, paving.

Labor	\$701 32
Teaming	132 00
Gravel	186 75
34,620 granite paving-blocks	1,938 72
200.5 feet of flagging	160 33
Amount paid to E. A. Janse:	
262 cu. yds. earth excavated, at 78 cts.	\$204 36
231 sq. yds. cobble removed, at 20 cts.	46 20
96 sq. yds. crossings removed, at 20 cts.	19 20
	269 76
Amount paid to James Grant:	
694 feet edgestone reset, at 8 cts.	\$55 52
1,045.1 sq. yds. block paving, at 25 cts.	261 28
310 sq. yds. brick paving, at 28 cts.	86 80
11 days, stone cutter, at \$4.50	49 50
	453 10
	\$3,841 98

Pleasant street, Washington street to Shawmut avenue, paving and regulating.

Labor	\$143 40
Teaming	159 00
Gravel	158 25
Sand	11 70
351 feet of edgestone and 1 large corner	268 65
64.4 feet flagging	51 52
Amount paid to J. Turner & Co.:	
759 feet of edgestone set, at 15 cts.	\$113 85
435 sq. yds. brick paving, at 23 cts.	100 05
876 sq. yds. block paving (blocks from Motte and Eliot streets), at 57½ cts.	503 70
	717 60
	\$1,510 12

STREET IMPROVEMENTS, WARD 13.

Athens street, B street to C street, regulating and asphaltting.

Labor	\$105 22
Teaming	27 00
Gravel	66 75
124 feet edgestone and 2 large corners	104 20
21.3 feet flagging	17 04
9,400 paving-brick	117 50
	\$437 71

Carried forward,

<i>Brought forward,</i>		\$437 71
Amount paid to H. Gore & Co. :		
726 sq. yds. Sicilian rock asphalt, at \$3.55 cts.,	\$2,577 30	
1,013 feet of edgestone reset, at 18 cts.	182 34	
443 sq. yds. brick sidewalks, at 28 cts.	124 04	
43 sq. yds. crosswalks, at 55 cts.	23 65	
	<hr/>	2,907 33
		<hr/>
		\$3,345 04
Amount paid out of Street Improvements, Ward 13	\$3,187 67	
Amount paid out of Street Improvements, District 6	157 37	
	<hr/>	\$3,345 04
		<hr/>
Gold street, B street to railroad, regulating.		
Labor		\$31 10
Teaming		31 50
Gravel		64 45
		<hr/>
		\$127 05
Amount paid out of Street Improvements, Ward 13	\$60 75	
Amount paid out of Paving Division	66 30	
	<hr/>	\$127 05
		<hr/>
Seventh street, B street, towards C street, paving.		
Labor		\$89 70
Teaming		67 50
Gravel		157 50
Excavating		364 00
Paving		145 55
		<hr/>
		\$824 25
		<hr/>
Engineering Department		\$177 00
		<hr/>
Work done by Bridge Division		\$7,902 55
		<hr/>
		<hr/>
STREET IMPROVEMENTS, WARD 23.		
Poplar street, grading and regulating.		
Labor		\$1,240 74
Material		2,503 38
Rolling		220 00
		<hr/>
		\$3,964 12
Amount paid out of Street Improvements, Ward 23	\$1,800 00	
Amount paid out of Street Improvements, District No. 11	110 40	
Amount paid out of Paving Division	2,053 72	
	<hr/>	\$3,964 12
		<hr/>
Terrace street, paving.		
Amount retained from A. A. Libby & Co., for work done in 1891		\$477 20
		<hr/>

Thacher street, Charlestown street to Endicott street, asphaltting.

Labor		\$339 80	
Teaming		126 00	
Amount paid to Barber Asphalt Paving Co.:			
158.7 sq. yds. asphalt laid, at \$3.10	\$491 97		
289.1 sq. yds. asphalt laid, at \$2.25	650 47		
			<u>1,142 44</u>
			\$1,608 24
Amount of special appropriation	\$1,578 69		
Amount paid out of Paving Division	29 55		
			<u>\$1,608 24</u>

Tremont street, Roxbury crossing to Huntington avenue, regulating.

Labor		\$887 17	
Teaming		288 00	
Gravel		880 60	
Stone		624 44	
Fuel		18 00	
			<u>\$2,698 21</u>
Amount of special appropriation	\$2,304 46		
Amount paid out of Paving Division	393 75		
			<u>\$2,698 21</u>

Tuttle street.

Area: 2,500 sq. yds. 6-in. macadam.

Labor		\$296 70	
Teaming		168 00	
Stone		1,023 54	
30,000 gutter blocks (from Washington street)		750 00	
Amount paid to J. Doherty & Co.:			
816.5 sq. yds. block paving, at 60 cts.	\$489 90		
30.5 feet edgestone reset, at 18 cts.	5 49		
			<u>495 39</u>
Amount paid for work done by Sewer Division: Building			
2 new catch-basins		184 78	
			<u>\$2,918 41</u>
Amount of special appropriation		\$2,918 41	

Vinton street, macadamizing and regulating.

Area: 1,800 sq. yds. 4-in. macadam.

Labor		\$940 50	
Teaming		102 00	
Gravel		99 00	
Stone		334 25	
Rolling		160 00	
			<u>\$1,635 75</u>
Amount of special appropriation	\$1,000 00		
Amount paid out of Paving Division	635 75		
			<u>\$1,635 75</u>

Walnut avenue, Warren street to Townsend street.

Area: 13,100 sq. yds. 6-in. macadam.

Labor	\$1,570 42
Teaming	1,210 50
Gravel	1,099 08
Stone	5,220 00
Rolling	900 00
	<hr/>
	\$10,000 00
Amount of special appropriations	<u>\$10,000 00</u>

Warren street, Dale street to Blue Hill avenue, regulating.

Labor	\$2,694 65
Teaming	2,049 00
Gravel	1,394 00
Sand	174 60
Stone	824 25
241.33 feet of flagging	217 20
Amount paid to Payson & Co.:	
709.5 feet of edgestone reset, at 8 cts.	\$56 76
1,203 feet of edgestone reset, at 18 cts.	216 54
238.8 sq. yds. block paving relaid, at 25 cts.,	59 70
255 sq. yds. block paving relaid, at 35 cts.,	89 25
786.9 sq. yds. brick paving relaid, at 18 cts.,	141 64
21.6 sq. yds. brick paving relaid, at 28 cts.,	6 05
	<hr/>
	569 94
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	\$7,923 64
Amount of special appropriation	\$5,000 00
Amount paid out of Paving Division	2,923 64
	<hr/>
	<u>\$7,923 64</u>

Warren street, Walnut avenue to Rockland street, paving with granite blocks.

Area: 1,000 square yards.

Labor	\$749 80
Teaming	591 00
Gravel	368 90
22,719 granite paving-blocks	1,657 35
	<hr/>
	\$3,367 05
Amount of special appropriation	\$2,918 25
Amount paid out of Paving Division	448 80
	<hr/>
	<u>\$3,367 05</u>

Warrenton street.

Amount retained from Barber Asphalt Paving Co., for work done in 1891

\$250 56**Washington street, Boylston street to Adams square, paving.**

Labor	\$3,959 16
Teaming	552 00
193,525 granite paving-blocks	14,258 92
Wharfage	825 52
3,333.2 feet of flagging	2,681 70
915 feet of edgestone, 1 large and 2 small corners	703 58
30,650 paving-brick	371 30
	<hr/>
	\$23,352 18

Carried forward,\$23,352 18

<i>Brought forward,</i>		\$23,352 18
Advertising		77 00
Sundries		22 01
528 sq. yds. concrete base laid		475 20
486.4 sq. yds. paving on concrete, at \$1.18		573 95
39.3 sq. yds. crosswalks on concrete, at \$1.18		46 37
Excavating		321 00
Amount paid to Jones and Meehan :		
7,254.5 sq. yds. block paving on concrete, at \$2.73	\$19,804 79	
1,415.2 feet of edgestone set, at 35 cts.	495 32	
947.6 sq. yds. brick paving, at 65 cts.	615 94	
761.5 sq. yds. flagging crosswalks, at \$2.70,	2,056 05	
Extra work as ordered	1,057 34	
	<hr/>	\$24,029 44
Less amount charged to Dorchester avenue for old blocks	1,462 36	
		<hr/>
		22,567 08
Amount paid for work done by Sewer Division : Building 9 new catch-basins, 4 manholes, repairing 21 catch- basins and 16 manholes		1,766 68
		<hr/>
		\$49,201 47
Amount retained from Jones & Meehan		1,201 47
		<hr/>
		\$48,000 00
Amount of special appropriation		\$48,000 00
		<hr/>
Washington street, Florence street to Davis street, paving.		
Area : 350 square yards paving.		
Labor		\$404 33
Gravel		59 77
350 paving-brick		4 55
8,802 paving-blocks		650 60
		<hr/>
		\$1,119 25
Amount of special appropriation	\$1,000 00	
Amount paid out of Paving Division	119 25	
		<hr/>
		\$1,119 25
		<hr/>
Way street, paving and regulating.		
Area : 1,600 sq. yds. paving.		
Labor		\$1,750 12
Teaming		447 00
Gravel		227 20
Sand		72 00
82.2 feet of flagging		65 76
40,193 granite paving-blocks		2,883 25
Repairing coal-holes		160 00
		<hr/>
		\$5,605 33
Amount of special appropriation		5,605 33
		<hr/>
Wenham street, construction, edgestones, sidewalks, gutters paved.		
2,831 sq. yds. 6-in. macadam.		
Labor		\$1,592 72
		<hr/>
<i>Carried forward,</i>		\$1,592 72

<i>Brought forward,</i>		\$1,592 72
Teaming		655 50
Gravel		746 03
Stone		1,132 40
Roller		260 00
1,018 feet of edgestone and 6 small corners		681 09
Amount paid to T. H. Payson:		
1,824.6 feet of edgestone reset, at 8 cts.	\$145 97	
439 sq. yds. brick paving, at 18 cts.	79 02	
940.2 sq. yds. block paving, at 25 cts.	235 06	
		<u>460 05</u>
Amount paid for work done by Sewer Division: Building		
5 new catch-basins		549 71
		<u>\$6,077 50</u>
Amount of special appropriation	\$6,000 00	
Amount paid out of Paving Division	77 50	
		<u>\$6,077 50</u>
West Chester park, Columbus avenue to Tremont street, asphalt- ing and regulating.		
Labor		\$1,817 33
Teaming		1,712 50
Sand		91 80
Sundries		79 93
Amount paid to Metropolitan Construction Co.:		
262.5 cu. yds. concrete base, at \$5	\$1,312 50	
1,607 sq. yds. Hastings asphalt block laid, at \$3.02	4,853 14	
		<u>6,165 64</u>
Amount paid to Barber Asphalt Paving Co.:		
1,575 sq. yds. Trinidad asphalt pavement laid, at \$2.25		3,543 75
Amount paid for work done by Sewer Division: Building		
7 new catch-basins and repairing 2 catch-basins		1,028 18
		<u>\$14,439 13</u>
Amount of special appropriation	\$14,196 47	
Amount paid out of Paving Division	242 66	
		<u>\$14,439 13</u>
West Newton street, Shawmut avenue to Washington street, paving with asphalt blocks and regulating.		
Labor		\$223 85
Teaming		303 00
Paving		325 27
Amount paid to Metropolitan Construction Co.:		
1,116 sq. yds. Hastings asphalt block, at \$2.89	\$3,225 24	
Extra work, as ordered	234 36	
		<u>3,459 60</u>
		<u>\$4,311 72</u>
Amount retained from Metropolitan Construction Co.		172 98
		<u>\$4,138 74</u>
Worcester square, resurfacing and regulating.		
Labor		\$210 22
Teaming		704 65
		<u>\$914 87</u>
<i>Carried forward,</i>		\$914 87

<i>Brought forward,</i>		\$914 87
Gravel		342 40
Sand		54 25
Stone		756 00
Repairing coal-holes		133 00
Amount paid to J. Doherty & Co.:		
1,290 feet of edgestone reset, at 15 cts.	\$193 50	
429.5 sq. yds. block paving relaid, at 21 cts.	90 20	
1,158 sq. yds. brick paving relaid, at 21 cts.,	243 18	
		<u>526 88</u>
		<u>\$2,727 40</u>
Amount of special appropriation	\$1,600 00	
Amount paid out of Paving Division	1,127 40	
		<u>\$2,727 40</u>

Worthington street, macadamizing and regulating.

Area: 2,150 sq. yds. 6-in macadam.		
Labor		\$1,132 74
Teaming		303 00
Gravel		629 00
Stone		850 00
Amount paid to Payson & Co.:		
444 feet of edgestone set, at 8 cts.	\$35 52	
760.8 sq. yds. block paving (blocks from Roxbury yard), at 25 cts.	190 19	
516.1 sq. yds. brick paving, at 18 cts.	92 89	
903 ft. of marble set, at 8 cts.	72 24	
4.3 sq. yds. marble set, at 25 cts.	1 07	
20.4 sq. yds. brick paving, herring bone, at 36 cts.	7 34	
		<u>399 25</u>
Amount paid for work done by Sewer Division: Building 5 new catch-basins		686 01
		<u>\$4,000 00</u>
Amount of special appropriation		<u>\$4,000 00</u>

SUMMARY OF EXPENDITURES UNDER SPECIAL APPROPRIATIONS.

TOTAL AMOUNT EXPENDED.

Allandale street	\$6,618 67
Allston bridge	252 90
Austin street	4,000 00
Baldwin street, Ward 4	4,807 26
Beacon street, Ward 25	5,151 15
Beacon street, Arlington to Gloucester	42,644 39
Berkeley-street bridge	2,675 22
Boat landing, Commercial wharf	970 00
Bolton street, Second street to D street	1,767 00
Boston street, Andrews square to Mt. Vernon street	7,438 44
Boylston street, Church street to Arlington street	7,511 33
Brent street	3,473 72
Bristol street	809 72
Bunker Hill street, between Pearl and Sackville streets	5,855 80
Buttonwood street, between Mt. Vernon and Locust streets,	2,284 95
	<u>\$96,060 55</u>

Carried forward,

<i>Brought forward,</i>	\$96,060 55
Centre street, Ward 23	2,394 14
Chardon street	12,671 54
Charles street	11,410 06
Cherry street	1,901 86
Chester square, Washington street to Tremont street	14,830 08
Chestnut avenue, Ward 9, paving	923 21
Child street	2,500 00
City Wood-yard, Commercial street, paving	121 25
Commonwealth avenue, construction	123,170 81
Commonwealth avenue, West Chester park to Arlington street	3,556 06
Conant street, macadamizing	5,151 06
Cornwall street, laying out and constructing	1,000 00
Davis street, asphalt	2,860 71
Dearborn street, Eustis street to Dudley street	2,438 44
Decatur street, Ward 16, asphalt	3,133 82
Dorchester avenue, paving, Wards 15 and 24	117,299 63
Dorchester street, Ninth street to Broadway	9,064 65
Dudley street, Blue Hill avenue and Shirley street, and between Dennis street and Brook avenue	11,112 09
Dudley street, Washington street to Vine street	721 61
East Fifth street, between L and N streets	3,244 91
Edgestones, Ward 21	1,000 00
Eighth street, L to O street, edgestones, etc.	3,750 31
Eliot street, Tremont street to Park square	18,353 80
Ellery street	1,780 39
Falcon street, macadamizing	3,711 33
First street, Ward 14	2,564 81
Florence street, asphalt	3,281 20
Fulda street, macadamizing	3,325 72
Geneva avenue, grading	12,705 26
Harvard street, Washington street to Albany street	239 80
Haviland street, macadamizing	541 98
Hawes street	1,100 00
Heath street, widening, etc.	19,074 39
Henshaw street, construction	4,285 14
Horace and Homer streets	1,335 26
Houghton street, macadamizing	449 60
Hudson street, asphalt	886 32
Humboldt-avenue extension, grade damages	1,650 00
Hunneman street, grading and constructing	13,053 75
India street, paving	5,844 11
K street, Broadway to First street	2,000 00
L street, grading, etc.	16,994 53
La Grange street	1,730 70
Landing, Federal-street bridge	500 00
Lexington avenue	797 10
Longwood avenue, Parker street to Huntington avenue	507 88
Lynde street	396 21
Magazine street, between East Chester park and Norfolk avenue	1,574 20
Medford street, Lexington street to Chelsea street, and between Main street and Quincy street	3,194 64
Mercer street, Dorchester street to Eighth street	945 02
Minot street	6,512 78
Motte street, asphalt	2,089 66
Murdock street	1,859 39

Carried forward,

\$563,601 76

<i>Brought forward,</i>	\$563,601 76
Ninth street, Old Harbor street to N street	3,078 87
North Margin street, construction	1,546 21
Parker street, Huntington avenue to Westland avenue	580 00
Poplar street, regulating, Ward 8	3,819 75
Randolph street	4,851 71
Rutherford avenue, paving	18,442 09
Sawyer avenue	2,286 56
School street	5,806 96
Seattle, Hopedale, Windom, and Sorrento streets, macadamizing	14,362 45
Second street, B street to D street, paving	23,794 39
Second street, Dorchester street to I street	12,630 70
Seventh street, D street to E street	6,435 06
Shirley street	150 00
Short street, West Roxbury	3,473 90
Silver street, A street to D street	667 34
Smith street, construction	3,094 59
Stanhope street	3,781 95
Stanton street	4,000 00
Stillman street, paving	837 05
Story street	698 30
Street Improvements, Aldermanic District No. 1	35,216 63
Street Improvements, Aldermanic District No. 2	1,710 96
Street Improvements, Aldermanic District No. 3	19,665 72
Street Improvements, Aldermanic District No. 4	905 34
Street Improvements, Aldermanic District No. 6	7,423 81
Street Improvements, Aldermanic District No. 7	15,845 00
Street Improvements, Aldermanic District No. 8	4,354 90
Street Improvements, Aldermanic District No. 9	23,332 24
Street Improvements, Aldermanic District No. 10	44,884 53
Street Improvements, Aldermanic District No. 11	24,452 94
Street Improvements, Aldermanic District No. 12	33,232 04
Street Improvements, Ward 12	8,792 87
Street Improvements, Ward 13	12,375 89
Street Improvements, Ward 23	3,964 12
Terrace street, paving	477 20
Thacher street, Charlestown street to Endicott street, asphalt	1,578 69
Tremont street, between Roxbury crossing and Huntington avenue	2,698 21
Tuttle street	2,918 41
Vinton street, macadamizing	1,635 75
Walnut avenue	10,000 00
Warren street and Blue Hill avenue	7,923 64
Warren street, granite blocks	3,367 05
Warrenton street	250 56
Washington street, Boylston street to Adams square	48,000 00
Washington street, Florence street to Davis street	1,119 25
Way street, paving	5,605 33
Wenham street, construction	6,077 50
West Chester Park	14,439 13
West Newton street, Washington street to Shawmut avenue	4,138 74
Worcester square, Washington street to Harrison avenue	2,727 40
Worthington street, edgestones, etc.	4,000 00
Total	\$1,031,253 49
Less amount paid out of appropriation for Paving Division	68,364 40
Total	\$962,889 09

NEW EDGESTONE.

The following tables show the amount of new edgestone set during the year :

CITY PROPER.

Wards 6, 7, 8, 9, 10, 11, 12, 16, 17, and 18. (Paving Districts Nos. 8, 9, and 10.)

	Lin. ft.
Bay State Road	96
Beacon street	204
Boylston street	1,484
Bristol street	367
Commonwealth avenue	296
Dalton street	963
Fairfield and Boylston streets	129
Falmouth street	131
Follen and St. Botolph streets	413
Harcourt street	114
Huntington avenue	105
Newbury street	122
Randolph street	1,150
St. Botolph street	666
Stanhope street	263
West Chester Park	2,719
	<hr/>
	9,222
	<hr/>

ROXBURY.

Wards 19, 20, 21, and 22. (District No. 7.)

	Lin. ft.
Bickford street	181
Blue Hill avenue	212
Burke street	590
Conant street	368
Cunningham street	632
Dacia and Dalmatia streets	544
Danube and Dewey streets	347
Elmore street	162
Fulda street	1,680
Gaston street	272
George street	287
Georgia street	1,254
Gerard street	115
Hartwell street	656
Hewes street and Rock street	185
Heath street	1,227
Holborn street	260
Howland street	333
Hulbert street	175
Humboldt avenue	183
Intervale street	142
Kemble street	2,227
Longmeadow street	572
Maple street	209
Maywood street	841
Moreland street	719
Munroe street	322
	<hr/>

Carried forward,

14,695

	Lin. ft.
<i>Brought forward,</i>	14,695
Oregon street	454
Newcomb street	174
Parker street	185
Reading street	1,855
Reed and East Lenox streets	475
Ruthven street	550
St. Stephen street	300
Smith street	1,118
Thornton and Ellis streets	620
Valentine street	782
Walnut avenue	553
Ward street	211
Warren street	807
Westland avenue	103
Westminster street	197
Williams street	204
Worthington street	1,482
Sundry streets in small quantities	741
	<hr style="border-top: 1px solid black; border-bottom: 3px double black;"/>
	25,506

SOUTH BOSTON.

Wards 13, 14, and 15. (District No. 1.)

	Lin. ft.
Boston street	3,832
Buttonwood street	867
Colton street	358
East Eighth street	1,360
East Sixth street	411
Ellery street	775
Gold street	301
Tudor street	482
West Seventh street	353
West Third street	615
Sundry streets in small quantities	277
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	9,631

EAST BOSTON.

Wards 1 and 2. (District No. 2.)

	Lin. ft.
Bennington street	4,023
Border street	1,002
Chelsea street	4,898
Falcon street	693
Putnam street	116
West Eagle street	357
Sundry streets in small quantities	149
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	11,238

DORCHESTER.

Ward 2A. (District No. 6.)

	Lin. ft.
Bailey street	3,895
Beach street	415
Brent street	2,191
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Carried forward,

6,501

	Lin. ft.
<i>Brought forward,</i>	6,501
Bullard street	333
Columbia and Quincy streets	263
Centre street	160
Dorchester avenue	16,370
Freeport street	2,082
Houghton street	903
King street	205
Lawrence avenue	179
Mt. Everett street	219
Sagamore street and Belfort street	491
Sawyer avenue	3,143
Shenandoah street	829
Stanton street	2,274
Tuttle street	2,348
Washington street	282
Welles avenue	102
Sundry streets in small quantities	175
	<hr/>
	36,859

WEST ROXBURY.

Ward 23. (District No. 5.)

	Lin. ft.
Alveston street	470
Armstrong street	1,007
Brookside avenue	205
Child street	2,380
Danforth street	130
Lamartine street	273
Paul Gore street	181
Sylvia street	500
Walnut avenue	103
Washington street	1,950
Wenham street	2,583
Sundry streets in small quantities	238
	<hr/>
	9,970

BRIGHTON.

Ward 25. (District No. 4.)

	Lin. ft.
Ashford street	1,033
Bennett street	232
Cambridge street	2,860
Chester street	484
Englewood avenue	3,229
Menlo street	933
Pomeroy street	230
	<hr/>
	9,001

CHARLESTOWN.

Wards 3, 4, and 5. (District No. 3.)

	Lin. ft.
Baldwin street	502
Rutherford avenue	2,253
Cedar and Bartlett streets	49
	<hr/>
	2,804

RECAPITULATION.

	Lin. ft.
City Proper	9,222
Roxbury	25,506
South Boston	9,631
East Boston	11,238
Dorchester	36,859
West Roxbury	9,970
Brighton	9,001
Charlestown	2,804
	<hr/>
	114,231
	<hr/>

NEW BRICK SIDEWALKS.

The following tables show the number of square yards of new brick sidewalks laid during the past year:

CITY PROPER.

Wards 6, 7, 8, 9, 10, 11, 12, 16, 17, and 18. (Districts Nos. 8, 9, and 10.)

	Sq. yds.
Bay State road	116
Beacon street	249
Belvidere street	50
Boylston street	2,313
Bristol street	382
Exeter street	442
Falmouth street	98
Follen and St. Botolph streets	321
Harcourt street	95
Huntington avenue	577
Marlborough and Exeter streets	529
Newbury street	88
Randolph street	630
St. Botolph street	492
Stanhope street	129
Union Park street	124
West Chester park	3,788
	<hr/>
	10,423
	<hr/>

ROXBURY.

Wards 19, 20, 21, and 22. (District No. 7.)

	Sq. yds.
Bickford street	133
Bower street	147
Burke street	338
Conant street	1,770
Dudley street	508
East Lenox and Reed streets	270
Elmore street	105
Fulda street	957
Gaston street	189
Georgia street	536
Harrison avenue and Newcomb street	253
Hartwell street	317
	<hr/>
	5,523
	<hr/>

Carried forward,

5,523

	Sq. yds.
<i>Brought forward,</i>	5,523
Howland street	220
Holborn street	253
Humboldt avenue	146
Hewes, Rock, and Regent streets	193
Kemble street	537
Maywood street	423
Maple street	145
Moreland street	472
Munroe street	127
Oscar street	112
Oregon street	209
Parker street	208
Prentiss street	381
Reading street	1,171
Ruthven street	263
St. Stephen street	241
Smith street	714
Thornton street	449
Valentine street	494
Walnut avenue	1,103
Warren street	4,319
Washington and Dale streets	118
Westland avenue	131
Westminster and Williams streets	213
Worthington street	1,008
Sundry streets in small quantities	1,058

 20,231

SOUTH BOSTON.

Wards 13, 14, and 15. (District No. 1.)

	Sq. yds.
A street	102
Boston street	1,836
Broadway	362
Colton street	126
Dorchester avenue	219
East Eighth street	416
East Sixth street	280
Gold street	100
West Seventh street	311
O street	123
Tudor street	142
West Third street	108
Sundry streets in small quantities	359

 4,484

EAST BOSTON.

Wards 1 and 2. (District No. 2.)

	Sq. yds.
Bennington street	4,065
Border street	767
Chelsea street	6,609
Falcon street	495
Orleans street	300
Putnam street	107
West Eagle street	316
Sundry streets in small quantities	188

 12,847

DORCHESTER.

Ward 24. (District No. 6.)

	Sq. yds.
Bailey street	2,695
Brent street	1,072
Codman street	175
Columbia and Quincy streets	185
Cushing avenue	139
Dorchester avenue	117
Dracut street	130
Minot street and Neponset avenue	100
Mt. Everett street	119
Sagamore and Belfort streets	349
Savin Hill and Dorchester avenues	193
Sawyer avenue	1,449
Stanton street	1,311
Tuttle street	1,632
Washington street	270
Sundry streets in small quantities	526
	<hr/>
	10,462

WEST ROXBURY.

Ward 23. (District No. 5.)

	Sq. yds.
Alveston street	246
Armstrong street	613
Centre and Wyman streets	112
Child street	878
Paul Gore street	404
Wenham street	439
Sundry streets in small quantities	213
	<hr/>
	2,905

BRIGHTON.

Ward 25. (District No. 4.)

	Sq. yds.
Cambridge street	1,068

CHARLESTOWN.

Wards 3, 4, and 5. (District No. 3.)

	Sq. yds.
Cedar and Bartlett streets	26
Rutherford avenue	3,425
	<hr/>
	3,451

RECAPITULATION.

	Sq. yds.
City Proper	10,423
Roxbury	20,231
South Boston	4,484
East Boston	12,847
Dorchester	10,462
West Roxbury	2,905
Brighton	1,068
Charlestown	3,451
	<hr/>
	65,871

The following tables show the number of square yards of block-stone driveways (gravel and asphalt) laid in various parts of the city, as part of sidewalk work, during the year :

CITY PROPER.

WARDS 6, 7, 8, 9, 10, 11, 12, 16, 17, 18.	Driveway. sq. yds.	Gravel. sq. yds.	Asphalt. sq. yds.
Bristol street	50.3		
Dalton street	12.9		
Follen street.....	9.2		
Newbury street	80.6		
Randolph street.....	97.3		
Stanhope street	4.7		
St. Botolph street, cor. Albemarle street,	16.2		
West Chester Park.....	14.7		
	285.9		

ROXBURY.

WARDS 19, 20, 21, and 22.	Driveway. sq. yds.	Gravel. sq. yds.	Asphalt. sq. yds.
Burke street	5.30		
Conant street	80.00		
Clifton street	7.25		
Dudley street.....	9.30		
East Lenox street	15.10		
Elmore street.....	7.00		
Fulda street	5.20		
George street	51.80		
Georgia street.....	8.90		
Gerard street.....	31.30		
Heath street.....	81.50		
Howland street	6.00		
Hulbert street	6.30		
Intervale street	12.30		
Kemble street.....	17.00		
Maywood street.....	35.20		
Moreland street.....	7.40		
Newcomb street.....	11.20		
Oregon street.....	9.50		
Prentiss street	25.20		
Reading street	254.80		
Smith street	31.80		
Ruthven street.....	6.70		
Thornton street	4.80		
Worthington street.....	7.30		
	738.15		

SOUTH BOSTON.

WARDS 13, 14, and 15.	Driveway. sq. yds.	Gravel. sq. yds.	Asphalt. sq. yds.
Boston street	115.0		
Dorchester street	7.8		
East Eighth street	20.3		
East Sixth street	50.2		
Ellery street	28.7		
Tudor street	70.5		
West Seventh street	82.6		
West Third street	16.3		
	391.4		

EAST BOSTON.

WARDS 1 and 2.	Driveway. sq. yds.	Gravel. sq. yds.	Asphalt. sq. yds.
Bennington street	45.1		
Border street	82.1		
Chelsea street	353.6		
	480.8		

DORCHESTER.

WARD 24.	Driveway. sq. yds.	Gravel. sq. yds.	Asphalt. sq. yds.
Bailey street	32.50		
Beach street	7.05	287.0	
Brent street	6.70	439.7	
Bullard street		241.0	
Centre street	10.90		
Dorchester avenue	721.06	13,864.0	
Freeport street	189.10		
Houghton street		448.1	
Mt. Everett street		15.8	
Stanley street			14.50
Stanton street	62.50	385.4	
Tuttle street	22.25		
Sawyer avenue	31.50	1,123.0	
Washington street	32.40		
	1,115.96	16,804.0	14.50

WEST ROXBURY.

WARD 23.	Driveway. sq. yds.	Gravel. sq. yds.	Asphalt. sq. yds.
Armstrong street.....	57.9		
Brookside avenue	23.0		
Child street.....	56.9	224.0	
Cohasset street.....	6.6		
Danforth street	7.8		
Lamartine street.	18.0		
Sylvia street	6.0		
Washington street.....	19.3		
	195.5	224.0	

BRIGHTON.

WARD 25.	Driveway. sq. yds.	Gravel. sq. yds.	Asphalt. sq. yds.
Ashford street.....	26.3	.....	1,326.1
Bennett street.....	12.5	.....
Cambridge street.....	141.9	.....
Chester street.....	.....	.....	347.5
Englewood avenue	53.0	.....	2,498.0
	233.7	.....	4,171.6

CHARLESTOWN.

WARDS 3, 4, and 5.	Driveway. sq. yds.	Gravel. sq. yds.	Asphalt. sq. yds.
Rutherford avenue.....	173.4		

RECAPITULATION.

	B. S. Driveways. sq. yds.	Gravel Walks. sq. yds.	Asphalt Walks. sq. yds.
City Proper.....	285.90		
Roxbury	738.15		
South Boston.....	391.40		
East Boston	480.80		
Dorchester	1,115 96	16,804	14.50
West Roxbury.....	195.50	224	
Brighton	233.70	.....	4,171.60
Charlestown	173.40		
Total	3,614.81	17,028	4,186.10

PROPERTY IN CHARGE OF THE DEPUTY SUPERINTENDENT OF PAVING DIVISION.

Buildings and wharf on Albany street, opposite Sharon street. The building is of brick and wood and covers some 8,000 square feet of land, and is divided into a shed for breaking stone for macadamizing, blacksmith's and carpenter's shops, tool-room, and stable. The total contents of the lot, including wharf and building, are 63,180 square feet.

Fort Hill wharf, containing 21,054 square feet, placed in charge of the Paving Department May 18, 1874, to be used for the landing and storage of paving-blocks and gravel until such time as said wharf shall be wanted for the extension of Oliver street. A part of said wharf is occupied by a tenant-at-will, at \$500 per annum, part by Sanitary Division.

Lot on Chelsea, Marion, and Paris streets, East Boston, containing 43,550 square feet. Part of this lot used by the Sewer Division.

Ledge lot on Washington street, corner Dimock street, Roxbury, containing 134,671 square feet. Upon this lot are buildings containing a steam-engine and stone-crusher.

Highland-street Stable lot. Upon this lot is a large brick stable, erected in 1873, and occupied by the Sanitary and Paving Divisions; also a brick building used as a blacksmith's shop, and a shed for the storage of tools, etc.

Ledge lot on Codman street, Dorchester, containing 299,000 square feet, was purchased in 1870. Upon this lot is a shed containing a steam-engine and stone-crusher, also a stable and tool-house.

On the Almshouse lot, Hancock street, Dorchester, there are two stables, also a shed and tool-house.

Ledge lot on Magnolia street and Bird place, Dorchester, containing 81,068 square feet. This lot was purchased by the town of Dorchester in 1867.

Downer-avenue lot, Dorchester, containing 35,300 square feet.

West Roxbury. — On Child street, a lot of land containing 43,024 square feet, upon which are a stable and shed, blacksmith's shop and tool-house.

Gravel lots. — In the town of Milton, on Brush hill road, containing 64,523 square feet, hired by the town of Dorchester for nine hundred and ninety-nine years. Morton street, Ward 23, containing about one-

third of an acre, purchased by the town of West Roxbury in 1890, used for storage purposes.

Ledge and gravel lot, rear of Union street, containing about 37,000 square feet, purchased by the town of Brighton. This lot is at present leased.

Gravel and stones on lot on Market street, Ward 25, purchased by town of Brighton.

On Rockland street, Ward 25, adjacent to engine-house, a brick building, containing a shed and tool-house.

Ledge lot on Chestnut Hill avenue, Brighton, containing about 13 acres, upon which are an office, engine-house, stable, and crusher-plant.

On Medford street, Charlestown, a wharf lot, foot of Elm street, containing 8,000 feet, upon which are sheds, office, stable, etc.

Property belonging to the Paving Division, consisting of 90 horses, 65 carts, 16 water-carts, 13 wagons, 6 steam-rollers, 9 stone-crushers, and 5 engines.

In South Boston, corner of H and Ninth streets, stable, carriage-house, shed, tool-house, and office, on leased land.

On Hereford street, a yard with shed, tool-house, and office.

Wharf, known as Atkins' wharf, 521 Commercial street, purchased in 1887 for \$24,000, containing 22,553 square feet, having on it an office and stable.

Respectfully submitted,

C. R. CUTTER

Deputy Superintendent Paving Division.

APPENDIX C.

REPORT OF DEPUTY SUPERINTENDENT OF THE
SANITARY DIVISION.STREET DEPARTMENT, SANITARY DIVISION,
12 BEACON STREET, February 1, 1893.H. H. CARTER, ESQ., *Superintendent of Streets*:

SIR: I herewith submit my annual report of acts and expenditures from February 1, 1892, to January 31, 1893.

GEORGE W. FORRISTALL,
Deputy Superintendent.

ITEMS OF EXPENDITURES.

	Amount expended.
For labor in collecting and removing house-dirt and ashes	\$144,423 51
For labor in collecting house-offal	100,258 75
For labor of foremen, mechanics, watchmen, and feeders	26,056 38
For labor of men employed in stables and yard	14,624 35
Official pay-roll: Salaries of deputy superintendent and clerks in office	8,769 06
Grain used in city stables	22,391 12
Hay and straw used in city stables	14,251 48
For collection of ashes in East Boston	10,404 00
For purchase of new horses	8,140 00
For stock and tools used in blacksmith shop	3,246 64
For stock and tools used in wheelwright shop	2,614 30
For stock and tools used in harness shop	1,730 65
For stock and tools used in paint shop	469 90
Extra team work in collecting ashes	69,275 00
Repairs on stables and sheds	2,647 32
Fuel, gas, and electric lights	1,868 38
Medical attendance on horses and medicine	676 96
Shoeing horses (outside shops)	705 13
Printing, stationery, and advertising	1,043 13
Contracts for the collection and removal of house-offal in East Boston and Brighton	7,650 00
Water-rates	854 22
Offal stock, consisting of buckets, etc.	501 82
Ash stock, consisting of cart covers, baskets, etc.	297 50

Carried forward,

\$442,899 60

	Amount expended.
<i>Brought forward,</i>	\$442,899 60
Stable stock, consisting of curry-combs, brushes, sponges, soap, blankets, manure-forks, etc.	1,160 33
Dumping-boat, rental, royalty, towage, rent of wharf, repairs, labor, etc.	23,898 74
Incidental expenses, as follows :	
Telephone rental	\$491 40
Stabling horses, East Boston, Dorchester, and West Roxbury	433 96
Travelling expenses	120 10
Boston Directories	22 00
Damages by city teams	277 31
Clipping horses	9 00
Newspapers	9 50
Office furniture, miscellaneous supplies, etc.	48 80
	<hr/> 1,412 07
	<hr/> <u>\$469,370 74</u>

REVENUE.

Amount of money deposited and bills presented to the City Collector for collection, for material sold and work performed by the Sanitary Division of the Street Department during the year ending January 31, 1893 :

Money deposited with City Collector.

From the sale of house-offal	\$21,282 82	
From the sale of tin cans	3,041 10	
From the sale of manure	26 00	
From the sale of wood	2 00	
From the letting of scow privileges	504 25	
	<hr/>	\$24,856 17

Bills deposited with City Collector.

For the removal of engine-ashes	\$5,447 25	
For the sale of manure	1,191 75	
For the sale of ashes	4,084 79	
For the sale of house-offal	198 84	
For the sale of tin cans	647 36	
	<hr/>	11,569 99
		<hr/> <u>\$36,426 16</u>

Amount collected by City Collector.

Placed to the credit of the division	<u>\$35,856 70</u>
--	--------------------

**Amount expended for the Collection of House-dirt and House-offal,
Labor and Contracts.**

DISTRICTS.	Expended for collecting Ashes.	Expended for collecting House-offal.
City Proper	\$88,241 56	\$54,795 25
South Boston	6,376 00	7,824 00
East Boston	¹ 10,404 00	¹ 5,500 00
Charlestown	10,974 00	6,178 00
Roxbury	23,408 75	14,192 50
West Roxbury	5,661 00	6,146 00
Dorchester	7,141 00	11,123 00
Brighton	2,621 50	¹ 2,150 00
Totals	\$156,827 51	\$107,908 75

¹ Contract work.

Total Cost for Removal of House-dirt and House-offal.

HOUSE-DIRT ACCOUNT.

Expended labor, per pay-rolls	\$144,423 51	
Expended for stock, per ledger account	133,547 13	
Expended for East Boston contract	10,404 00	
		\$288,374 64

HOUSE-OFFAL ACCOUNT.

Expended labor, per pay-rolls	\$100,258 75	
Expended for stock, per ledger account	62,906 22	
Expended for contracts, East Boston and Brighton	7,650 00	
		170,814 97
Salaries	8,769 06	
Incidentals	1,412 07	
		10,181 13
		<u>\$469,370 74</u>

Material collected by Districts.

	TEAMS.						
	South Yard.	West Yard.	Roxbury Yard.	Chas'n Yard.	E. Boston Yard.	Brigh'n Yard.	Total Loads.
House-dirt and ashes	125,445	77,780	64,311	18,548	12,751	5,043	303,878
House-offal	33,931	.....	9,802	2,610	.....	.....	46,343
	159,376	77,780	74,113	21,158	12,751	5,043	350,221

Disposition of Material collected.

WHERE DUMPED.	Loads House-dirt and Ashes.	Loads House- offal.	Street-sweep- ing by Street- Cleaning Div.	Total Loads.
Swett street	37,085	.....	.....	43,476
Huntington avenue	29,876	.....	.....	29,876
East Cambridge	21,400	.....	.....	21,400
Commonwealth flats	11,876	.....	.....	11,876
Mill Pond, Charlestown	11,509	.....	.....	12,210
Howard avenue	8,582	.....	.....	8,582
East Boston Land Company	7,630	.....	.....	7,630
East Chester park	6,490	.....	.....	6,490
Ninth street, South Boston	6,090	.....	.....	6,090
O'Riorden's, Charlestown	5,965	.....	.....	6,060
Various places	74,112	7,963	.....	74,888
At sea by scows	83,263	7,607	33,370	124,240
Sold to farmers.....	.....	30,773	.....	30,773
	303,878	46,343	33,370	383,591

Comparative Table, showing Cost of collecting Ashes and Garbage and delivering Same at Dumps.

Cost per cart-load, including administration expenses	\$1.31
“ “ “ minus “ “	1.28
“ “ “ of ashes, labor only	0.74
“ “ “ “ hired teams	0.65
“ “ “ “ offal, “ “	2.17
“ “ “ “ “ labor only	2.47
“ “ “ “ “ city labor and hired team	2.43
“ “ “ “ “ ashes, “ “ “ “	0.73
“ “ boat-load to transport garbage to sea	93.75
“ “ cart-load “ “ “ “ “	0.22

Material collected and Cost of Hired Teams.

	South Yard.		West Yard.		Roxbury Yard.		Charlestown Yard.		E. Boston.		Brighton.		Total.	
	Single team.	With extra man.	Single team.	With extra man.	Single team.	With extra man.	Single team.	With extra man.	Single team.	With extra man.	Single team.	With extra man.	Single team.	With extra man.
Days' work	3,170½	8,403	585	1,178½	1,509	3,485½	314	156	11	1,568½	.....	166½	5,589½	13,389½
Number of loads collected } Ashes .	71,741		13,229		24,250		2,709		12,751		1,131		125,811	
} Offal ..	3,333		.....		2,357		167		.....		.....		5,857	
	75,074		13,229		26,607		2,876		12,751		1,131		131,668	
Amount expended	\$51,526 50		\$7,647 50		\$21,954 50		\$1,722 00		\$10,406 90		\$832 50		\$94,122 90	

Expenses of Dumping-boats.

Amount expended for	Royalties (per year)	\$1,500 00
“ “ “	Rental	5,362 00
“ “ “	Towing	8,078 00
“ “ “	Wharfage	2,000 00
“ “ “	Repairs on boats	\$3,531 67
“ “ “	“ “ wharf, etc.	1,302 10
		<hr/>
		4,833 77
“ “ “	Labor	5,164 76
“ “ “	Dredging	255 00
“ “ “	Insurance	160 00
“ “ “	Incidentals, Manila rope	\$95 29
	Log, repairs, etc.	35 86
	Disinfectants	41 04
	Car-fares	11 75
	Coal	9 70
	Survey	10 00
	Oil-can, cards, etc.,	6 33
		<hr/>
		209 97
		<hr/>
		<u>\$27,563 50</u>

Number of trips to sea, 294.
 Making the cost per trip, \$93.75.
 Number of cart-loads of garbage carried to sea, 124,240.
 Making the cost per cart-load, 22 cts.

Number of Carts collecting House-dirt, Ashes, and Offal.

Offal-wagons owned by Sanitary Division	93	
“ “ in use by Thomas Mulligan, E.B.	6	
“ “ “ Allen Clarke, Brighton	2	
		<hr/>
		101
Ash-carts owned by Sanitary Division	172	
Market-wagons owned by Sanitary Division	7	
Ash-carts in use by Patrick Morrison, E.B.	5	
		<hr/>
		184
		<hr/>
Total		285

Cost of Carts.

1884. Ash-carts	\$148 00
1886. “	142 00
1888. “	107 00 Light, built for Roxbury District.
1891. “	133 00
1892. “	142 00

Account of the Number of Loads of Material collected from 1882 to February 1, 1893.

YEAR.	Ashes.	Offal.	Street-sweepings.	Cesspool Matter.	Total Loads.
1882 ...	159,197	28,385	52,381	10,051	250,014
1883 ...	169,610	27,408	58,272	8,801	264,091
1884 ...	182,642	28,520	62,222	12,578	285,962
1885 ...	193,734	31,206	61,455	13,151	299,546
1886 ...	209,129	33,170	59,875	11,392	313,566
1887 ...	220,186	36,724	68,990	14,333	340,233
1888 ...	233,514	37,709	68,019	¹ 5,644	344,886
1889 ...	227,325	40,183	70,476	.....	337,984
1890 ..	245,730	40,525	70,449	.....	356,704
1891 ...	² 313,464	46,742	³ 10,564	.....	370,770
1892 ...	303,878	46,343	.....	.....	350,221
	2,458,409	396,915	582,703	75,950	3,513,977

¹ July 1, 1888, the Sewer Department commenced cleaning out cesspools.
² Ashes from January 1, 1891, to May 1, 1891 104,046
 Ashes from May 1, 1891, to February 1, 1892 209,418
 313,464
³ May 1, 1891, cleaning of streets transferred to Street-Cleaning Division.

Cost of Horse-shoeing and Blacksmithing.

HORSE SHOEING.		Division Shop.	Outside Shops.
Stock	\$1,887 44		
Labor	3,310 87		
		\$5,198 31	<u>\$627 06</u>

NUMBER OF SHOES PUT ON.

Horses owned by Sanitary Division	10,052
“ “ “ Street-Cleaning Division	2,198
“ “ “ Paving Division	1,348
Total	<u>13,598</u>

Average cost per shoe, about 38 cents.

BLACKSMITHING.

Teams and cart repaired at division shop.	
Stock	\$1,660 08
Labor	4,404 25
	<u>\$6,064 33</u>

Hay and Grain.

Account of Hay, Straw, and Grain fed out and used from January 1, 1892, to February 1, 1893.

YARD.		Bales.	Bushels.	Pounds.	Total Cost.	Horse per Day, Cost.	Horse per Day, Lbs.	Horses. Divisions: San. St.-Cl.
South	Hay	2,688	564,260	\$5,412 88	\$0.11 ⁵³ / ₁₀₀	11,283 ²⁹ / ₁₀₀	35,623 13,098
	Salt	7 sacks.	.....	.....	4 90	.....	.....
	Oats	.....	20,138	644,434	8,957 99	.18 ¹⁸⁸ / ₁₀₀	13,106 ¹ / ₁₀₀
	Shorts	9,000	96 50	9,000	Average per day, 32
	Corn	.....	3,290	184,240	2,009 90	.04 ⁶¹ / ₁₀₀	3,380 ⁷⁷ / ₁₀₀
	Carrots	.....	.....	6,175	42 62	.....	6,175
	Straw	433	.....	98,009	794 95	.01 ³⁰⁷ / ₁₀₀	2,567
	Vegetable food	22½ bbls.	.....	4,500	337 50	.....	4,500
			23,428	1,510,618	\$17,657 24	\$0.36 ¹⁴⁷ / ₁₀₀	31 ²⁵⁷ / ₁₀₀	
West	Hay	2,116	482,636	\$4,609 19	\$0.14 ²⁰ / ₁₀₀	15,173 ¹ / ₁₀₀	20,562 11,499
	Salt	5 sacks.	.....	.....	3 50	.....	.....
	Oats	.....	13,458½	430,672	6,001 43	.18 ²³⁰ / ₁₀₀	13,135 ⁷⁹ / ₁₀₀
	Shorts	11,750	122 12	11,750	Average per day, 29
	Corn	.....	290	16,240	170 80	.....	16,340
	Carrots	.....	.....	4,850	33 94	.....	4,850
	Straw	400	.....	89,117	725 69	.02 ⁸⁴ / ₁₀₀	2,493 ⁵ / ₁₀₀
	Vegetable food	6 bbls.	.....	1,200	90 00	.....	1,200
			13,748½	1,036,465	\$11,756 67	\$0.36 ²⁴⁴ / ₁₀₀	32 ¹⁰⁵ / ₁₀₀	

Hay and Grain. — *Concluded.*

Yard.	Bales.	Bushels.	Pounds.	Total Cost.	Horse per Day, Cost.	Horse per Day, Lbs.	Horses, Divisions: San. St., Cl.	
Highland	Hay.....	1,263	285,009	\$2,735 01	\$0.14,477.1 1.39	14,639.0 1,919.9%	17,759 1,436	
	Salt.....	2 sacks.	.....	1 30	.....	.....	.....
	Oats.....	8,637	276,384	3,884 73	-.20,457.3	9,500	Average per day, 4	
	Shorts.....	.....	9,500	100 25	1.00,25	2,125.0	45
	Corn.....	915	51,240	574 00	.02,901.0	3,500	.....
	Carrots.....	.....	4,500	31 50	3.15,0	1,834.7	.....
	Straw.....	128½	27,542	255 93	.01,633.8	900	.....
	Vegetable food.....	3 bbls.	.....	45 00	45.00	.....	.....
			9,552	654,805	\$7,627 72	\$0.39,446.7 1,919%	34,317.5
	Charlestown	Hay.....	681	158,885	\$1,505 69	\$0.17,299.7	18,254.7	6,111 2,575
Oats.....		4,329	138,528	1,884 21	-.21,601.5	15,823.8	Average per day, 6	
Shorts.....		.....	4,700	51 86	5.18,6	47.00	15
Corn.....		139	7,784	85 75	85.75	7.784	.....
Carrots.....		.....	2,500	16 25	16.25	2,500	.....
Straw.....		62	13,758	107 63	.01,207.7	1,507.2	.....
Vegetable food.....		3 bbls.	.....	45 00	45.00	600	.....
			4,468	326,755	\$3,696 39	\$0.42,483.7 865%	37,637.3

Recapitulation.

MATERIAL.	Pounds.	Cost.	HORSES PER DAY.		Number of Horses fed.
			Cost.	Fed out, Pounds.	
Hay	1,490,820	\$14,262 77	\$0.1313458 108663	1378201 108663	80,055
Vegetable food	6,900	517 50	517.50	5000	
Oats	1,490,018	20,728 36	.198339	1377399	28,608
Shorts	34,950	370 73	370.73	34950	
Straw	228,426	1,884 20	.0129757	211100	108,663
Corn	259,504	2,840 45	.0255119	242178	
Carrots	18,025	124 31	124.31	18025	
Salt		9 70	9.70		
	3,528,643	\$40,738 02	\$0.3753371 108663	3251427 108663	

80,055 Sanitary Division horses (average number per day201) } at \$0.3753371 = \$30,012.8121807
 28,608 Street-Cleaning Division horses (average number per day.....72) } = 10,725.2088856
108,663 horses (average number per day 273) at \$0.3753371 = \$40,738.02

HOUSE-OFFAL.

There are employed in removing house-offal 154 men and 93 wagons. The offal is removed from dwelling-houses three times a week during the summer months, and twice a week during the winter; from hotels, markets, and restaurants it is removed daily. There are 62 routes. The men are required to enter the yards, collect the offal, and empty the same into wagons; then to drive to one of the depots, located as follows: one on Albany street, one on Highland street, Roxbury, and one at the Almshouse, Charlestown.

The offal is sold to farmers of adjoining towns mostly, the balance is thrown away on scow and carried to sea; about 30 per cent. of the quantity collected during the past year has been disposed of in this manner.

During the past year numerous patents have been introduced for the disposal of garbage by crematory process, etc.; at the present time private parties are making an experiment of the city's offal at the Division yard on Albany street.

HOUSE-DIRT AND ASHES.

In the collection of house-dirt and ashes, there are employed 202 men and 179 carts. This material is removed from hotels, tenement-houses, and stores daily, from dwelling-houses once a week. There are 82 regular routes. The City Ordinances of 1892 require that house-dirt and ashes shall be kept in an easy, accessible place for removal; the men being obliged to enter yards and areas, remove receptacles to the sidewalk, where their contents are loaded upon teams. The receptacle is then placed in its original position. The material collected is disposed of if possible on low lands, being used for filling, and also dumped on scows to be carried to sea. Of the amount collected last year, 35 per cent. was disposed of in this manner.

ORGANIZATION, 1893.

Street Department, Sanitary Division.

1 deputy superintendent.
4 clerks.
4 foremen.
1 captain of scows.
6 sub-foremen.
2 inspectors.
16 mechanics.
3 tallymen.
5 watchmen.
4 feeders.
3 messengers.
7 stablemen.
11 yardmen.
16 dumpers.
202 ash-drivers and helpers.
154 offal-drivers and helpers.
—
439 employees.

The mechanics of this division are engaged in the construction of new wagons and carts, the painting and repairing of same, shoeing of horses for this division, and a number of horses for the Street-Cleaning and Paving Divisions, and the making and repairing of harnesses.

Horse Account.

1892.		Dr.	1892.		Cr.
Jan. 1.	On hand,	199	Feb. 12.	Exch'd, W. K. Porter,	7
Jan. 5.	Purchased,	2	Mar. 8.	Died,	1
Jan. 7.	"	2	Mar. 22.	"	1
Jan. 12.	"	2	April 6.	Exch'd, M. Kiernan,	1
Jan. 16.	"	2	July 17.	Killed,	1
Jan. 27.	"	2	July 22.	"	1
June 10.	"	1	Sept. 4.	Died,	1
July 1.	"	1	Sept. 16.	Exch'd, M. Kiernan,	3
Aug. 25.	"	2	Sept. 20.	" W. K. Porter,	3
Sept. 1.	"	2	Nov. 1.	" S. S. Chase,	1
Sept. 9.	"	2	Dec. 6.	" W. K. Porter,	6
Sept. 12.	"	1	Dec. 16.	Killed,	1
Nov. 21.	"	2		On hand,	198
Dec. 1.	"	1			
Dec. 6.	"	2			
Dec. 6.	"	2			
Total,		225	Total,		225

APPENDIX D.

REPORT OF THE DEPUTY SUPERINTENDENT OF THE
SEWER DIVISION.

CITY HALL, ROOM 44, BOSTON, February 1, 1893.

MR. H. H. CARTER, *Superintendent of Streets* :

DEAR SIR: I herewith submit my report of work done and expenditures of the Sewer Division from February 1, 1892, to January 31, 1893.

Yours respectfully,

H. W. SANBORN,
Deputy Supt. Sewer Division.

Financial Statement.

APPROPRIATIONS.		Balances on hand Feb. 1, 1892.	Appropriations and Revenue added during the year.	Total Credits.	Expenditures during the year.	Balances on hand Jan. 31, 1893.
Sewer Division		\$2,296 00	a \$568,312 19	\$560,008 19	\$560,608 19	
Catch-basins, etc., Huntington avenue		18 61		18 61	18 61	
Catch-basins, Stanhope street		227 05		227 05	227 05	
Charlestown sewers, repairing		2,031 29		2,031 29	2,031 29	
Dike, Windrop Junction		b 2,333 33		2,333 33	2,333 33	
Improved Sewerage, Brookline avenue, connection		4,533 95		4,533 95	4,533 95	
Rebuilding Dorchester-brook sewer			c 30,000 00	30,000 00	30,000 00	
Sewer, Albano street (all transferred)						
Sewer, Arlington street		137 63		137 63	137 63	
Sewers, Beacon street and Commonwealth avenue		d 3,379 17		3,379 17	3,379 17	
Sewer, between Rostindale and West Roxbury		8,136 30	e 18,200 00	26,336 30	19,429 57	\$6,906 73
Sewers, Brighton		6,726 70	f 5,600 00	12,326 70	9,840 23	2,486 47
Sewers, Burke and Tremont streets (all transferred)						
Sewer, Canal street (all transferred)						
Sewer, Crawford street, Humboldt to Walnut avenues		g 2,682 51	h 1,437 04	2,682 51	2,682 51	
Sewer, Dorchester avenue, Crescent avenue to Grafton street				1,437 04	1,437 04	
Sewer, Dorchester Lower Mills (all transferred)						
Sewers, East Boston		2,274 30	i 4,350 84	6,625 14	6,625 14	
Sewers, Eleventh Aldermanic District (all transferred)						
Sewers, Hammond-street District (all transferred)						
Sewers, Lawrence avenue, Quincy and Magnolia streets		1,856 88		1,856 88	1,856 88	
Sewer, New street		j 273 33		273 33	273 33	
Sewers, Orient Heights		64 96		64 96	64 96	
Sewer outlet, Byron street, East Boston		3 64		3 64	3 64	
Sewer outlets, D street		6,023 83		6,023 83	6,023 83	
Sewer outlets, East Boston			10,000 00	10,000 00	10,297 48	5,726 35
Sewer, Peter Parley road		24 27	12,000 00	12,000 00	10,237 05	1,762 95
Sewers, Rockwell and Armandine streets					24 27	
Sewers, Roxbury		k 7,199 07		6,199 07	6,199 07	
Sewers, Savin Hill District		283 56		7,859 43	7,859 43	
Sewers, South Boston		3,768 89	l 400 00	683 56	683 56	
Sewers, Ward 23			m 3,000 00	3,000 00	1,293 75	3,475 14
Sewers, Westville, Freeman, and Charles streets		3,996 64	n 6,000 00	9,996 64	2,583 59	716 41
Sewer, Whitmore street (all transferred)		4,500 00		4,500 00	8,542 08	5,957 92
Stables and sheds, Brighton		85 14		85 14	85 14	
Stony Brook, Improvement of					12,567 50	12,432 50
Tow-boat						
		\$69,716 48	\$685,900 07	\$755,016 55	\$714,310 56	\$40,705 99

In addition to above amount of \$714,310.56 there was expended on account of Paving Division, for building catch-basins and sewers necessitated by street construction, the sum of \$87,569.02, making the total amount expended by this division \$801,879.58.

The cost of this work is shown in the tables of the different city districts.

<i>a</i> General appropriation	.....	\$350,000 00
Revenue	.....	205 79
From "Laying Out and Construction of Highways"	.....	102,500 00
Transferred from "Sewer, Crawford street, etc."	.....	286 69
From Street-Cleaning Division	.....	161 38
From Paving Division	.....	20,000 00
From Paving Division (balance of "Laying Out and Construction of Highways")	.....	72,823 67
	.....	19,034 66
	.....	\$564,512 19
Less transferred to Street-Cleaning Division	.....	6,200 00

b Original appropriation, \$2,350, of which \$16.67 was transferred to Street Improvements, Aldermanic District No. 1.

c Original appropriation, \$60,000, of which \$30,000 was transferred to Street Improvements, Aldermanic District No. 1.

d Actual balance February 1, 1892. \$8,412 18

Added from loan 26,200 00

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IMPROVED SEWERAGE.

Office salaries	\$500 00
Pumping-station, inside	39,447 61
Pumping-station, outside	14,722 05
Engines and boilers	5,629 23
Main and intercepting sewers	11,709 98
Moon Island	19,479 28
Tow-boat	4,555 03
	<hr/>
	<u>\$96,043 18</u>

STONY-BROOK IMPROVEMENT.

Maintenance	\$15,038 98
Damages and claims	2,790 00
Roslindale channels	\$982 03
Less amount furnished by Paving Division	802 39
	<hr/>
	179 64
	<hr/>
	<u>\$18,008 62</u>

NOTE.—The total amount expended by the Sewer and Paving Divisions on account of Stony-Brook Improvement is \$18,811.01.

Buildings, stables, and sheds, Brighton	<u>\$8,542 08</u>
Building dike, Winthrop Junction	<u>\$2,333 33</u>
New tow-boat (partial payment)	<u>\$12,567 50</u>

MISCELLANEOUS.

Office expenses, including salaries of deputy superintendent, clerks, and draughtsmen, stationery, drawing materials, etc.	\$17,237 64
Engineering expenses, including salaries of engineers, instruments, etc.	27,355 28
Current expenses of 8 yards and lockers	22,766 58
Current expenses of 7 stables, including cost of horses, vehicles, harnesses, etc.	24,176 55
Repairing sewers	\$9,485 26
Less amount paid by Paving Division	2,402 66
	<hr/>
	7,082 60
Cleaning and flushing sewers	21,334 85
Cleaning catch-basins	34,519 76
Repairing streets	\$1,040 35
Less amount furnished by Paving Division	40 50
	<hr/>
	999 85
	<hr/>
<i>Carried forward,</i>	<u>\$155,473 11</u>

<i>Brought forward,</i>		\$155,473 11
Building and repairing culverts and surface drains	\$26,578 50	
Less amount furnished by Paving Division	18,579 76	
		<hr/> 7,998 74
Examining and locating		5,578 78
Work for departments and others, including in- spection of private jobs		6,808 76
House connections		4,673 87
Water-rates		6,643 70
Damages and claims		21,660 70
Holidays		19,463 72
Travelling and incidental expenses		4,051 69
Balances on old contracts		18,350 92
Repairs of department buildings, stables, and yards		1,223 27
Hardware, blacksmithing, and tools		14,178 91
Rubber goods		1,574 13
Engines and boilers, and repairs		770 62
Rebates on assessments		199 43
Assessments for school-house property, charged in error to this department		265 00
Stock and supplies not included elsewhere		6,272 33
General repairs		917 36
		<hr/> <hr/> \$276,105 04

NOTE.—The total amount expended by the Sewer and Paving Divisions, on account of miscellaneous expenditures, is \$297,127.96.

City Proper.

Sewers built between February 1, 1892, and February 1, 1893, by the City, either by Contract or Day Labor.

LOCALITY.		Length in Feet.	Dimensions and Material.	Cost.	REMARKS.
Built in	Between				
Cambria st.	Old sewer and Bothnia st.	70.12	12-in., pipe.	\$327 32	Built by contract. } Built by day labor. } Deep cut.
Kingston st.	Tufts st. and Essex st.	42.32 6.89	12-in., pipe. 15-in., pipe.	387 16	
North Hudson st.	Snowhill st. and Hull st. ..	179.72	12-in., pipe.	304 14	Rebuilt. (Cost shown in repairing sew- ers.)
Randolph st.	Albany st. and Harrison ave.	827.49	12-in., pipe.	4,549 99	
* Sewers built on account of Paving Division.....		1,126 54		\$5,568 61	{ Plank bottom and gravel refill, \$3,741 13 * Paid by Paving Division.
				3,741 13	
				\$1,827 48	
44 new catch-basins and connections built, and 145 repaired			\$7,813 49		
Less amount furnished by Paving Division.....			5,171 22		
				2,642 27	
				\$4,469 75	

Sewers built between February 1, 1892, and February 1, 1893, by Private Parties.

Trinity place.....	Old sewer and B. & P. R.R.	63.39	12-in., pipe.
<i>Surface Drains built between February 1, 1892, and February 1, 1893, by the City.</i>			
Randolph st.	Harrison ave. and Albany st.	509.95	12-in., pipe.

The cost of this work is included in the amount expended for building culverts, etc.

Work done for and paid by Paving Division, City.

STREET.	CATCH-BASINS.		MANHOLES.		SEWERS.	
	Built.	Repaired.	Built.	Repaired.	Length in feet.	Size.
Charles st.....		5				
Boylston st.....	1	3	.....	2		
St. Botolph st. . .	1					
W. Chester park,	7	2				
Dartmouth st....	2					
Beacon st.		24	.....	7		
Pearl st.	1					
Stanhope st.	2	.....	2			
Washington st...	9	15	4	16		
School st.....			1			
So. Market st....	1					
Allen st.....				3		
Kilby st.....					16 rep'd.	12-in. pipe.
Stillman st.	1					
India st.	2					
Hawkins st.....	2					
Poplar st.			2			
Pleasant st.....	1					
Chardon st.	2	3	.....	1		
Randolph st.	2	.....	.....		680.24	12-in. pipe.
Eliot st.	2	2	.....	2		

SUMMARY.

36 catch-basins built.

54 " repaired.

9 manholes built.

31 " repaired.

696.24 feet of sewers built and repaired.

Charlestown.

Sewers built between February 1, 1892, and February 1, 1893, by the City, either by Contract or by Day Labor.

LOCALITY.		Length in Feet.	Dimensions and Material.	Cost.	Remarks.
Built in	Between				
Bainbridge st.	Moulton and Decatur sts....	149.65	12-in., pipe.	\$315 48	Tide work.
Baldwin st.	Main st. and Rutherford ave.	238.50	15-in., pipe.	672 99	{ *Paid by Paving Division. Tide work. Trench ran through old tan- nery; large timbers had to be removed.
Bartlett st.....	Green and Elm sts.	215.75	12-in., pipe.	455 15	
Ellwood st.	Putnam st. and about 200 feet east	212.97	12-in., pipe.	515 19	Rebuilding. House-drains reconnected.
Harvard st.	Washington and Bow sts....	334.98	12-in., pipe.	689 42	{ Water-pipe crossed the trench twice and ran along the trench for 70 feet. It was not located as shown on W. W. Plans.
Joiner st.	Water and Chelsea sts.	238.30	12 in., pipe.	750 94	{ Rebuilding. Tide work. House-drains reconnected.
Joiner st.	Chelsea and Park sts.	185.55	12-in., pipe.	740 01	{ Built in 1891.
Lynde st.	Union and Austin sts. ....	.....	.....	318 90	Rebuilding. Not yet completed. House- drains reconnected.
Mead st.	Main and Russell sts.	150.00	12-in., pipe.		
Monument st.	Monument sq. and Bunker Hill st.	398.20	12-in., pipe.	641 19	Rebuilding. House-drains reconnected.
School st.	Summer and Bartlett sts....	200.60	12-in., pipe.	435 01	
Stacey st.	Dunstable and Main sts....	{ 409.70 92.40	{ 18-in., pipe. 12-in., pipe.	{ 1,058 66	{ About 200 feet of old private drain re- moved and house-drains reconnected. Narrow street with stables on each side. Only a short length of trench could be opened at one time.
<i>Carried forward</i>				\$6,592 94	

Charlestown. — Concluded.

LOCALITY.		Length in Feet.	Dimensions and Material.	Cost.	Remarks.
Built in	Between				
<i>Brought forward</i>					
Tremont st.	{ Prospect st. about 75 feet westerly	89.05	12-in., pipe.	\$6,592 94	{ End of old sewer was not located as shown on Sec. plans. Two days spent in digging test pits to find it. Built in 1891.
Vine st.	Chelsea and Moulton sts.			314 28		362 41
		2,935.65		\$7,269 63	
* Sewer built on account of Paving Division.....				672 99	
Thirteen new catch-basins and connections built and 37 repaired, \$2,498 70				\$6,596 64	
Less amount furnished by Paving Division				1,186 14	
Total				\$7,782 78	

Work done for and paid by Paving Division, Charlestown.

STREET.	CATCH-BASINS.		SEWERS.	
	Built.	Repaired.	Length in Feet.	Size.
Rutherford avenue.....	8	1		
Baldwin street.....	2	.....	258.51	15-in. pipe.

SUMMARY.

10 catch-basins built.
 1 catch-basin repaired.
 258.51 feet of sewers built.

East Boston.

Sewers built between February 1, 1892, and February 1, 1893, by the City, either by Contract or by Day Labor.

LOCALITY.		Length in Feet.	Dimensions and Material.	Cost.	Remarks.
Built in	Between				
Bennington st.	Wordsworth st. and about 1,600 ft. easterly	{ 1217.29 398.80	{ 30 in. X 36 in., brick. } 15-in., pipe.	\$10,518 11	Contract.
Bennington st.	{ Siphon under Saratoga st. and towards sluice-way . . . . .	.....	.....	1,146 09	
Byron st.	Bennington and Horace sts.	227.75	12-in., pipe.	333 83	Built in 1891.
Border st. . . . .	.....	.....	.....	24 06	
Byron st.	Saratoga and Bennington sts.	200.00	12-in., pipe.	245 64	Built in 1891.
Byron-st. outlet . . . . .	.....	.....	.....	3 64	
Bremen st.	Putnam and Prescott sts.	579.20	15-in., pipe.	732 39	Built in 1891.
Horace st. . . . .	.....	.....	.....	31 65	Built in 1891.
Chelsea st.	Porter and Decatur sts.	582.65	18-in., pipe.	1,810 84	Rebuilding.
Cottage st.	Maverick and Porter sts.	{ 514.40 308.10 102.90 255.90	{ 3 ft. X 4 ft., wood. 2 ft. 4 in. X 3 ft., wood. 2 ft. 4 in. X 4 ft., " 2 ft. 4 in. X 3 ft. 6 in., brick.	7,020 14	
Homer and Byron sts.	.....	324.00	12-in., pipe.	61 59	Built in 1891.
Cowper st.	Moore and Short sts.	.....	.....	461 33	
Falcon st. . . . .	.....	.....	.....	86 50	Built in 1891.
Jeffries st.	Everett st. and No. 11 Jeffries st.	156.70	15-in., pipe.	266 68	Work just begun.
Lanson st. . . . .	.....	.....	.....	256 91	

Moore st.	Cowper st. and B., R.B. & L. R.R.	66.00	4 ft. 6 in X 4 ft. 9 in., brick.	1,858 54
Sumner and Orleans sts. ....	.....	.....	.....	1,856 07
New st.	Cross and Maverick sts.	202 00	12-in., pipe.	321 35
Walley, Leyden, and Gladstone sts. ....	.....	.....	.....	549 99
Private st.	Walley and Leyden sts.	279.20	12-in., pipe.	429 33
Saratoga, Ford, Breed, and Leyden sts.	{ Bennington st. and existing sewer in Leyden st. }	{ 872.24 303.37 354.80 }	{ 2 ft. 10 in. X 4 ft. 3 in., brick. 18-in., pipe. 12-in., pipe. }	{ 6,076 75
	Total	6,945.30		\$34,091 43
19 new catch-basins and connections built, and 52 repaired. ....	.....	.....	.....	4,556 37
Less amount furnished by Paving Division .....	.....	.....	.....	\$38,647 80

Surface Drains built between February 1, 1892, and February 1, 1893, by the City, either by Contract or by Day Labor.

Butler avenue and Bayswater street.	{ Saratoga street and tide water. }	337.70 209.70	18-in., pipe. 12-in., pipe.	
	Total	547.40		

The cost of this work is included in the amount expended for building culverts, etc.

Work done for and paid by Paving Division, East Boston.

STREET.	CATCH-BASINS.		MANHOLES.		SEWERS.	
	Built.	Repaired.	Built.	Repaired.	Length in Feet.	Size.
Falcon st.....	2	.....	.....	3		
Border st.....	4	.....	.....	4		
No. Ferry.....	1	1				
Bennington st.....	.....	4				
Leyden st.....	3					
Butler ave.....	2	.....	.....	.....	{ 337.7 } { 209.7 }	18-in. pipe 12-in. pipe

SUMMARY.

12 catch-basins built.
 5 " repaired.
 7 manholes "
 547.40 feet of storm-sewer built.

Brighton.

Sewers built between February 1, 1892, and February 1, 1893, by the City, either by Contract or by Day Labor.

LOCALITY.		Length in Feet.	Dimensions and Material.	Cost.	Remarks.
Built in	Between				
Arlington st.	Parsons and end of street. . . . .	.....	.....	\$120 73	Built in 1891. { Connection with Metropolitan Main Sewer.
Cambridge st.	Near Seattle st.	{ 1 Regulator M.H. 12.00	15-in., pipe.	380 53	{ Excavation and pumping paid for by Metropolitan Sewerage Commission.
		{ 8.00	12-in., pipe.		{ Sewer rebuilt. Paid for by Grade Crossing Commission.
Cambridge st.	Highland ave. and Linden st.	114.40	24-in. X 31-in., brick	.....	{ Built by contract. A large amount of rock excavated.
Englewood ave.	{ Lanark road and Chestnut Hill ave.	745.00	12-in., pipe.	3,528 71	{ About 60 c. y. rock excavated.
Harvard ave.	{ Brighton and Commonwealth aves.	611.00	12-in., pipe.	1,525 73	{ Built by contract.
Henshaw st.	{ Market and Menlo sts.	621.98	12-in., pipe.	1,240 89	{ Built by contract.
Kelley ct.	{ Western ave. and end of court.	292.77	10-in., pipe.	636 04	{ Built by contract.
N. Harvard st.	Rena and Kingsley sts.	345.45	15-in., pipe.	1,087 30	{ Outlet for Shannon st.
Private land and Shannon st.	Shepard and Shannon sts.	965.57	12-in., pipe.	1,809 65	{ Cost shown with Commonwealth-ave. culvert at Cottage Farm.
Private land and Commonwealth ave.	Southerly side of avenue to B. & A. R. R.	285.00	18-in., pipe.	.....	{ One sump and one regulator manhole built, and connection made with Metropolitan Main Sewer.
Rena and N. Harvard sts.	{ Metropolitan main sewer and Coolidge road	{ 1,325.95	18-in., pipe.	5,168 16	
		{ 18.50	15-in., pipe.		
		{ 14.00	12-in., pipe.		
<i>Carried forward</i>				\$15,497 74	

Brighton.—*Continued.*

LOCALITY.		Length in Feet.	Dimensions and Material.	Cost.	Remarks.
Built in	Between				
<i>Brought forward.</i>				\$15,497 74	
Salt Creek regulator and sewer				1,033 38	Just started.
Washington st.	{ Shepard st. and Nantas- ket ave. }	772.80	15-in., pipe.	1,773 84	About 25 c. y. of rock excavated.
Western ave.	At Market st.	{ 34.31 21.92 }	{ 18-in., pipe. 18-in., pipe. }	.....	{ Cost \$1,982.62, paid for by City Engineer. Connection with Metropolitan Sewer. Rebuilt: one sump and one regulator manhole.
Western ave.	Near Everett st.	{ 9.33 10.50 92.20 }	{ 4-ft. circ., brick. 24-in., pipe. 15-in., pipe. }	551 10	{ One sump, one regulator manhole, and one tide-gate chamber. Also connection made with Met. Sewer. Partial cost; to be paid for by City Engineer.
Wicklów st.	N. Beacon and Market sts.	1,374.38	12-in., pipe.	2,579 99	Built by contract.
	Total	7,675.06		\$21,436 05	
22 new catch-basins and connections built, and 9 repaired			\$4,449 17		
Less amount furnished by Paving Division			319 36	4,129 81	
				\$25,565 86	

Sewers built between February 1, 1892, and February 1, 1893, by Private Parties.

Alcott st.	Mansfield and Franklin sts.	479.30	12-in., pipe.
Aldie st.	Everett st. and existing sewer ...	328.83	12-in., pipe.
Bayard st.	Rena and Kenneth sts.	66.78	18-in., pipe.
Kenneth st.	Franklin and Bayard sts.	626.90	15-in., pipe.
Leicester st.	Arlington and Bennett sts.	184.60	12-in., pipe.
Nantasket ave.	Washington and Union sts.	275.25	12-in., pipe.
Waltz st.	Franklin and Bayard sts.	205.35	12-in., pipe.
		275.45	12-in., pipe.
		<u>2,442.46</u>	

Surface Drains built between February 1, 1892, and February 1, 1893, by the City, either by Contract or by Day Labor.

Almy st.	Windom and Seattle sts. ...	199.85	18-in., pipe.
Hopedale st.	Windom and Sorrento sts. ...	502.50	18-in., pipe.
Private land and Shannon st.	Shepard and Union sts.	245.70	24-in., pipe.
Private land	Windom st. and tidal creek.	598.90	18-in., pipe.
Seattle st.	Almy and Goddard sts.	169.13	18-in., pipe.
Windom st.	Almy and Hopedale sts.	454.45	18-in., pipe.
	Total	<u>2,170.53</u>	..... Outlet for Windom st.

The cost of this work is included in the amount expended for culverts, etc., also new catch-basins, etc.

Brighton. — *Concluded.*
Culverts.

LOCALITY.		Length in Feet.	Dimensions and Material.	Cost.	Remarks.
Built in	Between				
Commonwealth ave...	About 550 ft. east of Malvern st.....	160.00	6 ft. X 6 ft., stone.		
Commonwealth ave...	About 600 ft. west of Essex st.	304.64	7 ft. X 7 ft., stone.		
	Total.....	464.64			

The cost of this work is included in work done for and paid by Paving Division.

Work done for and paid by Paving Division, Brighton.

STREET.	CATCH-BASINS.	
	Built.	Repaired.
Easton st.	2	
Bradbury st.	1	

SUMMARY.

3 catch-basins built.

South Boston.

Sewers built between February 1, 1892, and February 1, 1893, by the City, either by Contract or by Day Labor.

LOCALITY.		Length in Feet.	Dimensions and Material.	Cost.	Remarks.
Built in	Between				
C st.....	Fifth and Sixth sts.....	226.30	15-in., pipe.	\$821 93	Built by contract. Rebuilding.
Colton st.....	.....	.....	.....	23 70	Built in 1891.
D and Anchor sts....	West First and E sts.....	529.00	5 ft. X 4 ft., wood.	9,547 58	Built by contract.
N st.....	.....	.....	.....	10 16	Built in 1891.
Total.....	.....	755.30	.....	\$10,403 37	.....
Thirty-six new catch-basins and connections built, and twenty-one repaired.....	.....	.....	.....	\$4,496 83	.....
Less amount furnished by Paving Division.....	.....	.....	.....	4,296 83	.....
Total.....	.....	.....	.....	200 00	.....
				\$10,603 37	.....

Sewers built between February 1, 1892, and February 1, 1893, by Private Parties.

Jackson st.....	Boston st. and Dorchester ave.	165.30	12-in., pipe.		
Sleeper st.	Congress st. and about 260 ft. westerly	296.52	12-in., pipe.		
Total.....	.....	461.82	.....	

**Work done for and paid by Paving Division, South
Boston.**

STREET.	CATCH-BASINS.		MANHOLES.	
	Built.	Repaired.	Built.	Repaired.
First st.	2	1	.....	1
Dorchester ave.	13	2		
Athens st.	3	.....	1	
Second and B sts.	2	4		
Second st., Dorchester to I st.	1			
E. Fifth st., L to N st.	1			
Seventh st., between B and E sts. ....	.....	1		
Ellery st.	2			
Dorchester st.	4	.....	2	
I and Second sts. ....	.....	4		
C st.	1			
N and Sixth sts.	1			
Boston st.	14			

SUMMARY.

44 catch-basins built.
 12 " repaired.
 3 manholes built.
 1 manhole repaired.

Dorchester.

Sewers built between February 1, 1892, and February 1, 1893, by the City, either by Contract or Day Labor.

LOCALITY.		Length in Feet.	Dimensions and Material.	Cost.	Remarks.
Built in	Between				
Adams st.....	Linden and East sts.....	{ 229.00 315.00 71.00	{ 18-in., pipe. 15-in., pipe. 12-in., pipe.	{ \$1,589 27	{ Considerable rock.
Adams, Beaumont, Burgoyne sts.....	Dudley and Lebanon sts.....	350.85	15-in., pipe.	175 54	Built in 1891.
Alexander ave.....	Washington and Ocean sts., Ashmont and Armandine sts.....	469.00	2 ft. 4 in. X 3 ft. 6 in., brick.	1,087 45	Old sewer rebuilt.
Washington st.....	Washington st. and Milton ave.....	{ 100.00 112.00 284.00	{ 2 ft. X 3 ft., brick. 2 ft. 4 in. X 3 ft. 6 in., brick. 2 ft. X 3 ft., brick.	{ 6,782 88	{ Day labor. Much rock.
Armandine st.....	.....	.....	.....	5,050 06	Contract. Much rock.
Ashmont st.....	.....	.....	.....	11 93	Work just begun.
Bay st, etc.....	.....	.....	.....	492 13	Built in 1891.
Brent st.....	.....	.....	.....	25 82	Built in 1891.
Cherry and Dalmatia sts.....	Dorchester - brook sewer and Cherry st.....	{ 126.75 10.00	{ 12-in., pipe. 8-in., pipe.	{ 675 15	{ Contract.
Codman st.....	Hutchinson st. and Dor- chester ave.....	336.05	15-in., pipe.	1,346 00	
Dorchester ave.....	Codman st. and 250 feet northerly.....	369.48	12-in., pipe.		
Corwin st.....	Arcadia and Westville sts., Corwin and Draper sts.....	{ 391.70	{ 12-in., pipe.	{ 751 11	{ Contract. A little rock.
Westville st.....	.....	.....	.....	108 38	Built in 1891.
Dewey st.....	.....	.....	.....

Dorchester. — Continued.

LOCALITY.		Length in Feet.	Dimensions and Material.	Cost.	Remarks.
Built in	Between				
<i>Brought forward</i>.....	.....	.....	.....	.....	.....
Private land and } Charles st. }	Westville st. and Geneva ave.	{ 111.67 263.98 386.01	2 ft. 3 in. X 2 ft. 11 in., brick. 24-in., pipe. 18-in., pipe.	{ \$56,598 84 }	
Westville st.	Geneva ave. and Draper st., Existing sewer and Free- man st.	{ 364.76 319.65 237.55	12-in., pipe. 15-in., pipe. 12-in., pipe.	9,054 97	
Charles st. ....	.....	12.60	12-in., iron pipe.		
Wrentham st.	Dracut st. and summit of hill	624.43	12-in., pipe.	1,234 65	Some rock. Contract.
Fifty-seven new catch-basins and connections built, and twenty-three re- paired, and one stone culvert built		16,104.36	.....	\$66,883 46	
Less amount furnished by Paving Division .....		.....	.....	748 05	
Total .....		.....	.....	\$67,631 51	

Sewers built between February 1, 1892, and February 1, 1893, by Private Parties.

Buttonwood-st. ext'n,	Crescent ave. and Grafton st.	{ 51.00 273.75	15-in., pipe. 12-in., pipe		
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Dorchester. — *Continued.*
Sewers built between February 1, 1892, and February 1, 1893, by Private Parties.

LOCALITY.		Length in Feet.	Dimensions and Material.	Remarks.
Built in	Between			
<i>Brought forward.</i>		8,520.91		
Samosett st.	Centre st., southerly	40.00	12-in., pipe.	
Upland ave.	Park st. and Intervale pk.	425.90	12-in., pipe.	
Vinson st.	Geneva ave. and Park st.	510.38	15-in., pipe.	
Wrentham st.	Dracut and Ashmont sts.	243.33	12-in., pipe.	
Warner ave.	Coolidge ave. and Park st.	393.07	12-in., pipe.	
Woodlyffe st.	Howard ave. and Cunningham st.	192.35	10-in., pipe.	
Walton st.	Washington and Harley sts.	155.00	12-in., pipe.	
Waldeck st.	Park st. and Tremlett pk.	249.80	15-in., pipe.	
		247.55	12-in., pipe.	
		472.20	12-in., pipe.	
		11,450.49		

Surface Drains and Culverts built between February 1, 1892, and February 1, 1893, by the City, either by Contract or Day Labor.

Bailey st.	Dorchester ave. and Washington st.	442.43	12-in., pipe.	Rock.
Dorchester ave.	Culvert, near King st. and Welles ave.	332.48	18-in., pipe.	
Dorchester ave.	Tenean brook to Park st.	174.00	18-in., pipe.	
		75.00	10-in., pipe.	

Freeport st	Catch-basin to Merriam's Dock.....	160.00	15-in., pipe.	
		18.00	12-in., pipe.	
		64.00	10-in., pipe.	
Geneva ave.....	Bowdoin and Westville sts.....	280.86	3-ft. circ., brick.	
		240.00	2 ft. 9 in. circ., brick.	
		368.57	24-in., pipe.	
		535.00	18-in., pipe.	
		33.50	2 ft. X 2 ft. 6 in., wooden.	
Neponset river ...	Washington and Island sts.	117.00	18-in., pipe.	
Private land of } Water Departm't. }	Tenean brook and Gibson st.	63.02	18-in., pipe. }	
		428.25	15-in., pipe. }	Rock. Contract.
Savin Hill ave.....	Denny st. and O. C. R.R....			
Van Winkle st.....	Davenport brook and Dorchester ave.....	270.00	15-in., pipe.	
		50.90	4 ft. 6 in. circ., brick.	
		42.88	3 ft. 6 in. circ., brick.	
Westville st.	Geneva ave. and Draper st.	198.00	15-in., pipe.	
		3,893.89		

The cost of this work is included in the amount expended for building culverts, etc.

Dorchester. — *Concluded.*
Culverts built between February 1, 1892, and February 1, 1893, by the City, either by Contract or Day Labor.

LOCALITY.		Length in Feet.	Dimensions and Material.	Remarks.
Built in	Between			
Adams st.	Near Gibson st.	16.50	24-in., pipe.	
Armadine st.	350 ft. from Washington st.	61.00	double set, 24-in., pipe.	
Ashmont st.	250 ft. west of Adams st.	50.00	3 ft. X 3 ft. 4 in., stone.	.....
Bailey st.	Extension of old culvert. . .	43.90	4 ft. X 3 ft. 6 in., stone.	.....
Melville ave.	Bourneside ave. and Upland ave.	50.00	3 ft. X 3 ft., stone.	
Park st.	Bourneside ave. and Upland ave.	41.00	3 ft. X 3 ft. 4 in., stone.	
Rill st.	165 ft. from Hancock st. . .	40.00	3 ft. X 3 ft. 4 in., stone.	
Trull st.	165 ft. from Hancock st. . .	41.00	{ 4 ft. 6 in. X 2 ft. 4 in., stone. 3 ft. X 3 ft. 4 in., stone.	
		343.40		

The cost of this work is included in the amount expended for building culverts, etc.

Work done for and paid by Paving Division, Dorchester.

STREET.	CATCH-BASINS.		MANHOLES.		SEWERS.		Culverts.
	Built.	Repaired.	Built.	Repaired.	Length in feet.	Size.	
Tuttle st.	2						
Geneva ave.	1			4			
Bath ave.				4			
Clarkson st.				1			
Ashmont st.							50 feet, 3 ft. X 3 ft. 4 in., stone. 41 feet { 4 ft. 6 in. X 2 ft. 4 in. } stone. { 3 ft. X 3 ft. 4 in. }
Trull st.							Catch-basin connection.
Boston st.	2						
Lower Mills.							
Sawyer ave.	4						
Rill st.							
Bailey st.	7				442.43		
Freeport st.	3				{ 160. 18. 64.	12-in., pipe. 15-in., pipe. 12-in., pipe. 10-in., pipe.	40 feet, 3 ft. X 3 ft. 4 in., stone. 43.9 feet, 4 ft. X 3 ft. 6 in., stone.
Dorchester ave.	2	1			Repair sewer.		
Carruth st.							

SUMMARY.

21 catch-basins built.
 1 catch-basin repaired.
 9 manholes repaired.
 684.43 feet of sewer built.
 174.9 feet of culverts built.

Roxbury.

Sewers built between February 1, 1892, and February 1, 1893, by the City, either by Contract or Day Labor.

LOCALITY.		Length in Feet.	Dimensions and Material.	Cost.	Remarks.
Built in	Between				
Brookline ave.	Across Muddy river.....	{ 168.78 108.00 }	24-in., pipe. } 24-in., iron pipe. }	\$4,765 31	Coffer dam and pumping. { Gravel refill; old sea-wall removed which lay in line of trench. Bills brought over from previous year. }
Beacon st.	Brookline ave. and Raleigh st.....	112.73	15-in., pipe.	2,965 89	
Beacon st.	Raleigh st. and Charles- gate West.....	409.40 218.09	2 ft. 6 in. X 3 ft., brick. 12-in., pipe. }	4,028 32	
Crawford st.	Holland st. and top of hill.	{ 390.60 312.90 }	10-in., pipe. } 15-in., pipe. }	2,895 55	Some rock.
Creighton st.....	Day st. and Centre st.....	{ 380.52 263.71 }	12-in., pipe. } 10-in., pipe. }	1,194 28	A little rock.
Carlisle st. and pri- vate land	Carlisle st. and Galena st. .			1,277 49	Some rock and heavy bank wall to pierce.
Centre st.....	Gardner st. and Linwood st.,	360.71	12-in., pipe.	1,417 04	Considerable rock. *Paid by Paving Division.
Commonwealth ave. .	Beacon st. and Essex st. . .	{ 2,492.00 3,490.02 }	32 in. X 42 in., brick. 18-in., pipe.	23,745 95 11,842 15	Gravel refill. *Paid by Paving Division. Concrete foundation and pipe encased in concrete.
Centre st.....	Wyman st. and Forbes st. . .	390.66	12-in., pipe.	757 77	Built by contract.
Dorchester brook....	Clapp st. and Norfolk ave.	484.47	13 ft. X 9 ft., brick.	25,267 35	Pile foundation.
Fulda st.	Valentine st. and High'd st.	109.76	12-in., pipe.	327 64	*Paid by Paving Division.

Humboldt ave.	Brookledge st. and Seaver st.	99.60	12-in., pipe.	1,023 75	Built by contract. All rock.
Humboldt ave.	Homestead and Hutchins sts.			898 33	“ “ in 1890-91.
Hillside, Sunset, and Eldora st.	Crawford st. and Ruthven st.	512.00	12-in., pipe.	1,044 80	Built by contract.
Harold st.	End of old sewer and Harleston st.	174.62	12-in., pipe.	811 62	Much rock.
Hillside st.	Parker Hill ave. and Wait st.	62.00	12-in., pipe.	100 64	
Huntington ave.	Vancouver st. and Longwood ave.	{ 523.29	2 ft. 4 in. X 3 ft. 6 in., brick.	21 97	Built in 1891.
Lawn st.	Heath st. and Hayden st.	465.68	2 ft. X 3 ft., brick.	7,485 76	
Lawn st.	East from Hayden st.	476.25	12-in., pipe.		Built by contract. All rock.
Longwood ave.	Huntington ave. and Bumstead lane.	149.67	12-in., pipe.	1,131.93	Built by contract.
Longwood ave.	Phillips st. and Bumstead lane.	238.58	18-in., pipe.	531.91	
Mt. Pleasant ave.	Vine st. and Fairland st.	{ 94.00	8-in., pipe.	78.60	
Norfolk ave.	Ames 40-ft. strip and Clapp st.	155.25	12-in., pipe.	2,502.17	Much rock.
Parker Hill ave.	South from Hillside sts.	205.00	8-in., pipe.		
Reading st.	Farnham st. and Kemble st.	517.51	8 ft. 6 in. X 8 ft., brick.	20,955.99	Pile foundation.
Shirley st.	George st. and Dudley st.	507.91	12-in., pipe.	1,177.34	
St. Stephens st.	Gainsboro st., westerly.	45.00	10-in., pipe.	89.25	
Smith st.	Bumstead lane and Worthington st.	109.15	8-in., pipe.	108.90	
Tremont st.	Parker Hill ave. and Shepherd ave.	241.00	2 ft. 6 in. X 3 ft., brick.	2,031.01	Pile foundation.
		290.30	12-in., pipe.	493.20	Built by contract.
		240.00	2 ft. X 3 ft., brick.	2,316.19	
				<u>123,288 10</u>	

Carried forward..

Roxbury. — Concluded.

LOCALITY.		Length in Feet.	Dimensions and Material.	Cost.	Remarks.
Built in	Between				
<i>Brought forward.</i>					
Townsend st.	Codman park and Walnut ave.	221.83	15-in., pipe.	\$123,288 10	} Much rock.
Vila st.	Back Bay Fens and Longwood ave.	434.14	12-in., pipe.	3,043 42	
Worthington st.	Longwood ave. and Tremont st.	50.00	24-in. circ., brick.	1,704 46	
		902.73	12-in., pipe.	715 26	Pile foundation.
		16,398.86		1,419 68	Built by contract.
* Less amount furnished by Paving Division				\$130,170 92	
44 new catch-basins and connections built, and 84 repaired				35,915 74	
Less amount furnished by Paving Division				\$94,255 18	
				3,173 54	
				\$97,428 72	

Sewers built between February 1, 1892, and February 1, 1893, by Private Parties.

Brunswick st.	Blue Hill ave. and Warren st.	440.44	12-in., pipe.		
Gayland ave.	Judson and West Cottage sts.	288.00	10-in., pipe.		

Holborn st.	Galena st. and Blue Hill ave.	158.07	12-in., pipe.
Hutchings st.	Humboldt ave. and Harold st.	666.22	12-in., pipe.
Hammett ave.	Sarsfield st. and	199.96	12-in., pipe.
Intervale st.	Blue Hill ave. and Warren st.	440.07	12-in., pipe.
Julian ave.	Dorchester-brook sewer and Rand st.	4.93	10-in., pipe.
Parker st.	Heath st. and Bromley park	364.32	12-in., pipe.
Private st.	Blue Hill ave. and Gaston st.	7.60	12-in., pipe.
Passageway.	Off Gainsboro' st.	88.00	10-in., pipe.
Private st.	Day st. and Riverdale park	290.19	12-in., pipe.
Pontine st.	Norfolk ave. and Clifton st.	367.00	12-in., pipe.
Shepherd ave.	Tremont st. and end of street.	190.47	10-in., pipe.
Willow park and pas- sageway	Williams st. and Shawmut ave.	450.98	12-in., pipe.
		3,956.25	

Surface Drains built between February 1, 1892, and February 1, 1893, by the City.

Commonwealth ave.,	Beacon st. and Essex st. ...	$\left\{ \begin{array}{l} 206.50 \\ 1,103.50 \\ 6.00 \end{array} \right.$	24-in., pipe. 15-in., pipe. 12-in., pipe.
		1,316.00	

The cost of this work is included in work done for and paid by Paving Division.

Work done for and paid by Paving Division, Roxbury.

STREET.	CATCH-BASINS.		MANHOLES.		SEWERS.	
	Built.	Repaired.	Built.	Repaired.	Length in Feet.	Size.
Magazine st.	2					
Halleck st.	1					
Creighton st.	2					
Cabot st.		2		4		
Prentiss st.	1	4		4		
Texas st.	2					
Smith st.	3			3		
Dudley st.	1				90 rep'd.	
Blue Hill ave.	1					
Walnut ave.	1					
Gaston and Ga- lena sts.	1					
Cherry st.	1					
Kemble st.	4		4			
Harrishoff st.	2					
Carlisle st.	1					
Worthington st.,	5					
Conant st.	1	5		1		
Brunswick and Intervale sts.	4					
Washington st.		6				
Fulda st.	1				109.76	12-in., pipe.
Eustis st.	2		2			

SUMMARY.

36 catch-basins built.

17 " repaired.

6 manholes built.

12 " repaired.

199.76 feet of sewer built and repaired.

West Roxbury.

Sewers built between February 1, 1892, and February 1, 1893, by the City, either by Contract or Day Labor.

LOCALITY.		Length in Feet.	Dimensions and Material.	Cost.	Remarks.
Built in	Between				
Albano st.	Kittredge and Norfolk sts.	383.40	12-in., pipe.	\$641 18	Contract.
Ashfield st.	Walter st. and 300 ft. east- erly	394.63	10-in., pipe.	706 62	Contract.
A st.	Boylston st. and Spring park ave.	180.00	12-in., pipe.	283 55	Some rock. Contract.
Boynton st.	Call and South sts.	926.00	12-in., pipe.	924 33	
Custer st.	Goldsmith st., westerly	180.60	18-in., pipe.	1,029 77	Quicksand.
Centre st. } May st. }	Orchard and May sts. } Centre and Pond sts. }	1,700.00	2 ft. 6 in. X 3 ft. 3 in., brick.	7,714 97	
Clive st.	Boylston st. and Spring park ave.	514.01	12-in., pipe.	1,101 98	Much rock.
Peter Parley st.	Forest Hills st. and Walnut ave.	980.00	10-in., pipe.	1,689 02	Some rock. Contract.
Poplar st.	Sycamore and Hillborn sts.	868 84 176 30 459 54	2 ft. X 3 ft., brick. 15-in., pipe. 12-in., pipe.	4,891 96	A little rock.
<i>Carried forward</i>				\$18,983 38	

West Roxbury. — Concluded.

LOCALITY.		Length in Feet.	Dimensions and Material.	Cost.	Remarks.
Built in	Between				
<i>Brought forward.</i>					
ROSLINDALE AND WEST ROXBURY TRUNK SEWER.				\$18,983 38	
In private land of sundry parties, also land of Julia E. Bradford and Anna S. McCoy (between Central station and Anawan ave.), and in Anawan ave. }	Central station and Beech st. }	559.96 837.99	2 ft. 4 in. X 3 ft. 6 in., brick. 2 ft. X 3 ft., brick.	13,753 18	
Beech st., private land, and Railroad ave. }	Anawan ave. and Corey st. }	211.55 1,168.00	2 ft. 4 in. X 3 ft. 6 in., brick. 2 ft. X 3 ft., brick.	13,665 46	
Washington st.	Atherton ave. and Metropolitan ave.	350.00	12-in., pipe.	502 00 98 47	Built in 1891.
Wenham st.	Walkhill and Weldon sts.				
		9,890.82		\$47,002 49	
	19 new catch-basins and connections built and 11 repaired			\$2,559 97	
	Less amount furnished by Paving Division			1,578 53	
				\$48,581 02	

Sewers built between February 1, 1892, and February 1, 1893, by Private Parties.

Boylston terrace.....	Centre and Boylston sts. ...	1,134.36	10-in., pipe.
Germania st.	Brookside ave. and Baker st.	322.20	10-in., pipe.
Georgiana and Dalrymple sts.	Boylston and Egleston sts.,	729.33	12-in., pipe.
Moss hill and Woodland roads.	May and Pond sts.	1,348.03	12-in., pipe.
Weldon st.	Wenham st. and Forest Hills Cemetery.	658.40	12-in., pipe.
		4,192.32	

Surface Drains and Culverts built between February 1, 1892, and February 1, 1893, by the City, either by Contract or Day Labor.

Centre st.	Alaric and Brook sts.	239.00	12-in., pipe.
Centre and Central sts.	Centre st. and Central station.	421.30	18-in., pipe.
		49.00	15-in., pipe.
		4.00	10-in., pipe.
Hawthorne st.	Cor. Hawthorne and Sycamore sts.	15.00	12-in., pipe.
Private land of S. C. Brown.	Walter and Brook sts.	145.00	15-in., pipe.
		175.50	18-in., pipe.
Call st.	200 ft. from Keyes st.	44.00	6 ft. X 4 ft., stone.
Hawthorne and Sycamore sts.	Corner of Hawthorne and Sycamore sts.	83.15	3 ft. 6 in. X 3 ft. 4 in., stone.
Sycamore st.	Near Prospect ave.	200.00	4 ft. X 3 ft., stone.
Washington st.	No. 3,607, near James V. Poole's.	23.00	3 ft. X 3 ft. 4 in., stone.
		1,398.95	

The cost of this work is included in the amount expended for building culverts, etc.

Work done for and paid by Paving Division, West Roxbury.

STREET.	CATCH-BASINS.		MANHOLES.		Culverts.
	Built.	Repaired.	Built.	Repaired.	
South and Hall sts.....	1				
Custer st.....	1				
Sycamore st.....	3				200 ft., 4 ft × 3 ft., stone.
Washington st....					23 ft., 3 ft. × 3 ft. 4 in., stone.
Wenham st.....	5				
Brook channels.					

SUMMARY.

10 catch-basins built.
223 feet of culverts built.

RECAPITULATION.

SEWERS.

City Proper	\$5,568 61
Charlestown	7,269 63
Brighton	21,436 05
East Boston	34,091 43
South Boston	10,403 37
Dorchester	66,883 46
Roxbury	130,170 92
West Roxbury	47,002 49
	\$322,825 96

CATCH-BASINS.

City Proper	\$7,813 49
Charlestown	2,498 70
Brighton	4,449 17
East Boston	6,086 62
South Boston	4,496 83
Dorchester	6,733 55
Roxbury	8,990 23
West Roxbury	2,559 97
	43,628 56
Improved Sewerage maintenance	96,043 18
Stony-Brook Improvement	18,811 01
Building stables and sheds, Brighton	8,542 08
	\$489,850 79

Carried forward,

<i>Brought forward,</i>	\$489,850 79
Building dike, Winthrop Junction	2,333 33
New tow-boat	12,567 50
Miscellaneous	297,127 96
	\$801,879 58
Less total amount furnished in fiscal year 1892-93 by Paving Division	87,569 02
	\$714,310 56

Summary of Sewer Construction for the Twelve Months ending Jan. 31, 1893.

DISTRICT.	Built by the City, by Con- tract or Day Labor.	Built by Private Parties.	Total Length built during the 12 Months ending Jan. 31, 1893.
	Feet.	Feet.	Feet.
City.....	1,699.88	.....	1,699.88
Charlestown	2,935.65	.....	2,935.65
East Boston.....	7,492.70	.....	7,492.70
Brighton	9,845.59	2,442.46	12,288.05
South Boston.....	755.30	461.82	1,217.12
Dorchester	19,998.25	11,450.49	31,448.74
Roxbury.....	17,714.86	3,956.25	21,671.11
West Roxbury.....	10,939.62	4,192.32	15,131.94
Total.....	71,381.85	22,503.34	93,885.19

- 249 catch-basins built.
- 382 " repaired.
- 51 manholes built.
- 320 " repaired.
- 944,684 lineal feet of sewers flushed.
- 3,037 cu. yds. of material removed from sewers.
- 6,927 catch-basins cleaned.
- 19,213 cu. yds. of material removed from catch-basins.
- 1,158.19 feet of culverts built.
- 239 " " " repaired.

There are now 349.1 miles of sewers in charge of the Sewer Division.

The amount expended by this division during the twelve months ending Jan. 31, 1893, including the amount spent under special appropriations, was \$801,879.58.

The items of expenditure are shown in the financial statement.

Schedule of Sewers built to Date in the City of Boston.

WARDS.	Feet.	WARDS.	Feet.	WARDS.	Feet.	
1.....	79,801	10....	38,382	18....	59,573	
2.....	42,477	11....	74,575	19....	46,501	
3 . . .	31,363	12...	41,817	20....	100,196	
4.....	40,782	13 ...	52,179	21....	128,394	
5.. ..	39,687	14....	75,097	22....	99,515	
6... ..	45,434	15....	46,954	23....	153,300	
7.....	36,779	16....	31,626	24. . .	274,586	
8.....	18,532	17....	42,765	25....	100,959	
9.....	27,119					
					1,728,393	or 327.3 miles.
Intercepting sewers.					21.8	"
Total,					349.1	"

Fall of Rain and Snow in Inches at South Yard, Albany Street, in twelve months ending January 31, 1893.

DAY.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	January.
1				.10		.07	1.04					
2				.06								1.08
3	.88	.16			.26	.48	.36			.55	.02	
4			.05	.68								
5									2.01	.14		
6								.06			.15	
7												
8	.29	.60										
9					.21	.02			.05		.63	
10										1.89		1.19
11		.40										
12	.06						2.11					
13				.57								
14					.14	.10						
15	.08			.97				1.19			.27	.10
16				.89		.27				1.34		
17					.98				.23			
18										.19		
19		.80										
20											.08	
21	.02											
22			.40	2.00								
23		.65	.19	.48								
24	.08											
25					.48	.26						
26				.30	.61		1.20	.07				
27				.12			1.89					
28					.30					.15		
29			.17			.16			.08			.33
30					.12					.40		
31							.25					
Totals.....	1.41	2.61	.81	6.17	3.10	1.36	5.65	2.45	2.44	4.66	1.15	2.70

Total for twelve months, 34.51 inches.

Sewer Department, Pumping-Station.
Report of Pumping done from February 1, 1892, to January 31, 1893.

	ENGINE 1.		ENGINE 2.		ENGINE 3.		ENGINE 4.		Total gallons pumped.	Daily average number gallons pumped.	Daily average pounds coal used.	Per cent. of ashes and clinkers.	Gallons pumped per pound of coal used.	Daily average lift in feet.	Daily average duty in lbs. per 100 lbs. coal used.	Rainfall.
	Pumping time.	Gallons pumped.														
1892.																
February .	H.M. 59 50	85,151,355	H.M. 21 10	31,725,363	H.M. 690 00	1,013,584,140	H.M. 678 45	976,962,492	2,107,421,350	72,669,702	22,965	10.0	3,164	33.60	88,981,510	1.12
March . .	171 30	235,552,225	78 55	118,802,005	629 25	890,369,316	729 54	1,028,458,512	2,273,183,058	73,328,486	28,045	9.2	2,615	35.20	77,025,319	2.33
April . . .	5 20	7,156,050	. . . . .	. . . . .	376 07	472,556,988	. . . . .	928,407,168	1,408,120,206	46,937,340	17,620	10.8	2,664	35.32	78,742,071	.66
May	220 00	317,554,184	. . . . .	. . . . .	568 23	775,110,276	. . . . .	991,755,648	2,084,420,108	67,239,358	23,782	8.5	2,827	34.53	81,704,378	3.47
June	63 30	90,452,376	. . . . .	. . . . .	541 00	714,359,016	. . . . .	949,223,844	1,754,035,236	58,467,841	20,766	7.7	2,816	34.33	82,306,922	2.21
July	119 00	170,883,390	. . . . .	. . . . .	431 42	565,637,292	. . . . .	967,133,064	1,703,654,346	54,956,592	20,419	7.5	2,096	34.75	78,273,310	3.33
August . . .	24 20	32,883,412	. . . . .	. . . . .	677 10	916,287,372	. . . . .	1,002,474,468	1,951,645,252	62,956,298	21,239	7.5	2,964	35.63	88,388,240	4.62
September, . . . . .	. . . . .	. . . . .	8 30	11,072,369	626 48	836,172,864	677 30	806,790,456	1,744,035,089	58,134,523	20,203	7.7	2,877	35.24	84,864,824	1.55
October	36 40	49,231,842	291 35	419,433,646	246 45	316,424,304	661 20	909,154,096	1,087,243,888	54,427,222	21,032	9.7	2,588	35.37	76,602,725	2.32
November,	29 30	41,400,519	68 00	99,954,801	678 37	912,603,888	602 38	819,554,040	1,873,513,248	62,450,441	21,087	9.5	2,961	34.65	85,881,084	3.56
December	30	675,273	55 30	81,198,250	662 02	856,421,028	731 40	973,680,012	1,911,974,563	61,676,399	20,947	10.4	2,944	35.38	87,133,349	1.04
1893.																
January	17 50	24,128,517	155 05	222,185,718	709 35	979,118,100	716 35	967,952,592	2,193,384,927	70,754,352	24,171	9.7	2,927	35.58	87,164,188	1.34
Totals	746 00	1,053,070,143	678 45	984,370,152	6,837 34	9,248,644,584	8,404 37	11,404,546,992	22,692,631,871	61,999,896	21,856	9.02	2,837	35.01	83,088,993	27.55

The following is a record of sludge received in and removed from deposit sewers for twelve months ending January 31, 1893 :

	Received.	Removed.
February	390 cubic yards.	474 cubic yards.
March	352 “	398 “
April	469 “	478 “
May	753 “	550 “
June	1,114 “	470 “
July	454 “	703 “
August	971 “	785 “
September	536 “	705 “
October	527 “	550 “
November	672 “	399 “
December	246 “	558 “
January	230 “	396 “
	<hr/>	<hr/>
	6,714 “	6,466 “

PROPERTY IN CHARGE OF THE SEWER DIVISION.

Sewer yard, with buildings, at 678 Albany street.

Sewer yard, with building, on North Grove street.

Sewer yard, on Gibson street, Dorchester, with buildings. This is Gibson School-fund land. The buildings were erected by the Sewer Department.

Sewer yard, with shed, on Boylston street, Jamaica Plain.

Small lot of land on Stony brook, corner of Centre street, Ward 21.

Gatehouse on Stony brook, Pyncheon street, built in 1889.

Sewer yard, with buildings, on Rutherford avenue, Charlestown.

Sewer yard, with buildings, corner Paris and Marion streets.

Sewer yard, with buildings, on East Chester park, near Albany street.

A small shed on Cypress street, Ward 9, on land hired by the city.

Sewer yard, with buildings, on Western avenue, Ward 25.

Summary of Sewer Construction for Six Years.

	1887.	1888.	1889.	1890.	1891.	1892.
	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>
Built by city, by contract or day labor.....	63,062.79	34,633.81	30,003.03	24,200.25	59,250.18	71,318.46
Built by private parties.....	8,932.23	44,368.47	13,191.45	17,218.10	20,714.24	22,566.73
Total number of feet built.	71,995.02	49,002.28	43,194.48	41,418.35	79,964.42	93,885.19

Brookline-Avenue Improved Sewerage Connection.

Labor	\$2,668 15
16,700 brick	174 00
141 bbls. cement	187 82
39 double loads sand	78 00
52 double loads screenings	98 00
44 double loads gravel	83 25
114 double loads clay	228 00
4 manhole frames and covers	53 69
42 manhole steps	23 10
Teaming	423 00
9,755 feet lumber	159 98
183 feet pipe	215 77
Bends, etc.	43
Regulator	246 25
Iron pipe	19 50
8 tons coal	35 60
Hardware, tools, and blacksmithing	70 77
	<hr/>
	\$4,765 31

Size and Length of Sewer.

168.78 feet of 24-in. drain pipe.

108 feet of 24-in. iron pipe.

The cost of this sewer and the amount of work done is a continuation of the cost and work done in 1891.

Townsend Street.

Labor	\$2,105 35
2,030 brick	20 30
13 bbls. cement	15 69
1 manhole frame and cover	11 75
10 manhole steps	5 50
Powder	153 95
Teaming	238 88
3,773 feet lumber	61 88
183 feet pipe	73 96
Branches, bends, etc.	44 30
Tools and blacksmithing	254 53
9 tons coal	46 80
Miscellaneous supplies	10 53
	<hr/>
	\$3,043 42

Size and Length of Sewer.

221.83 feet of 15-in. pipe.

Centre Street, between Orchard Street and May Street.

Labor	\$5,018 81
177,436 brick	1,940 48
423 bbls. cement	504 79
2 double loads sand	2 16
6 manhole frames and covers	70 50
Teaming	42 00
2,554 feet lumber	42 78
15 feet pipe	4 92
Branches, bends, etc.	20 82
Profiles, centres, etc.	44 07
3,000 lbs. coal	8 21
Blacksmithing	10 65
Miscellaneous supplies	4 78
	<hr/>
	\$7,714 97

Size and Length of Sewer.

1,700 feet of 2 ft. 6 in. × 3 ft. 3 in., brick.

Norfolk Avenue.

Labor	\$11,769 83
245,850 brick	2,458 50
871 bbls. cement	1,037 02
313 double loads sand	563 40
100 double loads screenings	135 00
317 double loads stone	427 95
6 manhole steps	3 30
Teaming	857 00
46,990 feet lumber	781 36
Profiles, centres, etc.	747 26
217 feet pipe	32 04
Branches, bends, etc.	16 23
Miscellaneous supplies	160 74
Hire of trench machine	240 60
Hire of engine and derrick	565 75
Pile-driving	920 22
36 ³ / ₁₀ tons coal	201 29
Tide gate	38 50
	<hr/>
	\$20,955 99

Size and Length of Sewer.

517.51 feet of 8 ft. 6 in. × 8 ft., brick.

Dorchester-Brook Sewer.

Labor	\$11,546 94
457,872 brick	4,578 72
1,837 bbls. cement	2,174 26
	<hr/>
<i>Carried forward,</i>	\$18,299 92

<i>Brought forward.</i>	\$18,299 92
418 double loads sand	752 40
132 double loads screenings	178 20
18 manhole steps	9 90
278 double loads stone	375 30
Profiles, centres, etc.	270 90
Teaming	1,177 50
Tools, supplies, and hardware	356 56
118,838 feet lumber	1,995 62
646 feet pipe	124 03
Branches, bends, etc.	3 00
Hire of derrick, engine, and box	505 00
Pile-driving	675 84
64 tons coal	318 75
Blacksmithing	27 34
Miscellaneous supplies	202 09
	<hr/>
	\$25,267 35

Size and Length of Sewer.

484.47 feet of 13 ft. × 9 ft., brick.

The cost of this sewer and the amount of work done is a continuation of the cost and work done during the year 1891.

Washington Street, Cohasset Street, and Private Land.

Labor	\$8,386 10
158,500 brick	1,902 00
540 bbls. cement	659 61
94 double loads sand	114 54
96 double loads gravel	121 74
10 manhole frames and covers	118 13
24 manhole steps	13 20
32 tons coal	186 37
Teaming	270 50
Profiles, centres, etc.	30 54
13,022 feet lumber	239 70
1,100 feet pipe	111 75
Branches, bends, etc.	14 52
Hire of trench machine	600 60
Hire of engine	388 85
Miscellaneous supplies	595 03
	<hr/>
	\$13,753 18

Size and Length of Sewer.

559.96 feet of 2 ft. 4 in. × 3 ft. 6 in., brick.

837.99 feet of 2 ft. × 3 ft., brick.

The cost of this sewer and amount of work done is a continuation of the cost and work done during the year 1891.

Railroad Avenue.

Labor	\$8,536 32
188,000 brick	2,256 00
645 bbls. cement	811 80
111 double loads sand	119 88
268 double loads gravel	272 16
1 manhole frame and cover	11 81
24 manhole steps	13 20
19 $\frac{3}{4}$ tons coal	121 70
Teaming	149 50
21,770 feet lumber	357 87
350 feet pipe	34 13
Branches, bends, etc.	3 50
Rent of trench machine and engine	738 81
Blacksmithing	125 62
10 cords manure	60 00
2 double loads loam	4 00
Miscellaneous supplies	49 16
	<hr/>
	\$13,665 46

Size and Length of Sewer.

211.55 feet of 2 ft. 4 in. \times 3 ft. 6 in., brick.
 1,168 feet of 2 ft. \times 3 ft., brick.

Huntington Avenue.

Labor	\$3,876 70
96,100 brick	1,056 90
350 $\frac{1}{2}$ bbls. cement	405 93
112 $\frac{1}{3}$ double loads sand	224 67
107 double loads screenings	187 25
3 manhole frames and covers	35 25
Teaming	846 00
6,421 feet lumber	105 30
500 feet pipe	54 03
Branches, bends, etc.	12 53
Rent of trench machine and engine	372 50
13 tons coal	81 75
Profiles, centres, etc.	172 75
Blacksmithing	23 70
Miscellaneous supplies	30 50
	<hr/>
	\$7,485 76

Size and Length of Sewer.

523.29 feet of 2 ft. 4 in. \times 3 ft. 6 in., brick.
 465.68 feet of 2 ft. \times 3 ft., brick.

Commonwealth Avenue.*(Pipe Sewer.)*

Labor	\$7,338 06
19,525 brick	195 25
273 bbls. cement	314 59
20½ double loads sand	40 25
2 double loads gravel	3 50
359 double loads screenings	634 50
12 manhole frames and covers	141 00
Teaming	668 25
23,550 feet lumber	385 51
3,273 feet pipe	1,698 18
Branches, bends, etc.	315 34
Blacksmithing	107 72
	<hr/>
	\$11,842 15

Size and Length of Sewer.

3,490 feet of 18-in. pipe.

(Brick Sewer.)

Labor	\$11,049 80
348,550 brick	3,483 00
1,424¼ bbls. cement	1,660 21
243 double loads sand	485 05
548 double loads screenings	981 75
240 double loads gravel	394 60
10 manhole frames and covers	117 50
42 manhole steps	23 10
Teaming	3,499 00
Lumber, profiles, etc.	452 61
1,666 feet pipe	190 10
Branches, bends, etc.	24 22
41 tons coal	204 20
Trench machine and engine hire	964 00
Miscellaneous supplies	216 81
	<hr/>
	\$23,745 95

Size and Length of Sewer.

2,492 feet of 32 in. × 42 in., brick.

Elm Road and Ashmont Street, Dorchester.

D. O'Connell, contractor	\$2,324 44
Inspection	150 50
65,000 brick	747 50
206 bbls. cement	255 44
5 manhole frames and covers	58 75
1,201 feet pipe	282 01
Branches, bends, etc.	110 97
	<hr/>
	\$3,929 61

Size and Length of Sewer.

356.42 feet, 2 ft. × 3 ft., brick.

350.86 feet, 15 in., pipe.

476.06 feet, 12 in., pipe.

Savin Hill Avenue.

D. O'Connell, contractor	\$2,286 04
Inspector	140 00
15,100 brick	151 00
39 bbls. cement	46 02
7 manhole frames and covers	82 25
974 feet pipe	385 28
Branches, bends, etc.	81 67

\$3,172 26
Size and Length of Sewer.

45.04 feet, 1 ft. 8 in. × 2 ft. 6 in., brick.

593.72 feet, 15 in., pipe.

Topliff Street.

Labor	\$2,468 11
9,200 brick	94 85
30½ bbls. cement	36 29
3 double loads sand	5 40
4 double loads gravel	6 60
6 manhole frames and covers	70 50
Powder)	49 78
Fuse)	
Caps)	
Teaming	174 00
1,183 feet pipe	371 65
Branches, bends, etc.	121 00

\$3,398 18
Size and Length of Sewer.

375.80 feet, 15 in., pipe.

952.44 feet, 12 in., pipe.

Park Street.

D. O'Connell, contractor	\$3,718 78
Inspection	281 00
106,100 brick	954 90
310 bbls. cement	364 70
5 manhole frames and covers	58 75
Teaming	18 00
1,135 feet pipe	318 68
Branches, bends, etc.	133 30

\$5,848 11

Size and Length of Sewer.

745.16 feet, 2 ft. × 3 ft., brick.

588.45 feet, 18 in., pipe.

Englewood Avenue.

Metropolitan Construction Co., contractors	\$2,601 75
Inspection	357 00
20 bbls. cement	23 80
30 double loads gravel	52 50
6 manhole frames and covers	70 50
1,031 feet pipe	284 45
Branches, bends, etc.	134 99
Coal	3 72
	<hr/>
	<u>\$3,528 71</u>

Size and Length of Sewer.

745 feet, 12 in., pipe.

Bennington Street.

D. O'Connell, contractor	\$6,822 99
Labor	518 50
179,855 brick	1,692 67
849 bbls. cement	987 15
7 manhole frames and covers	87 08
38 manhole steps	20 90
Teaming	1 50
1,503 feet pipe	303 28
Branches, bends, etc.	82 09
Miscellaneous supplies	1 95
	<hr/>
	<u>\$10,518 11</u>

Size and Length of Sewer.

1,217.29 feet, 30 in. × 36 in., brick.

398.80 feet, 15 in., pipe.

Poplar Street, West Roxbury.

Labor	\$2,562 02
116,750 brick	1,401 00
269 bbls. cement	332 98
Sand	78 84
7 manhole frames and covers	82 25
Powder }	11 25
Fuse }	
Caps }	
Teaming	114 00
3,294 feet lumber	55 17
357 feet pipe	89 70
Branches, bends, etc.	137 94
Miscellaneous supplies	26 81
	<hr/>
	<u>\$4,891 96</u>

Size and Length of Sewer.

868.84 feet, 2 ft. × 3 ft., brick.

176.30 feet, 15 in., pipe.

459.54 feet, 12 in., pipe.

Saratoga Street.

Labor	\$2,035 61
161,000 brick	1,610 00
564½ bbls. cement	720 31
158 tons sand	275 75
200 double loads gravel	400 00
6 manhole frames and covers	70 50
40 manhole steps	22 00
Teaming	395 00
10,300 feet lumber	176 95
788 feet pipe	258 18
Branches, bends, etc.	95 00
15 tons coal	76 20
Miscellaneous supplies	16 25
	<hr/>
	\$6,151 75
Less excavated material sold	75 00
	<hr/>
	<u>\$6,076 75</u>

Size and Length of Sewer.

872.24 feet, 2 ft. 10 in. × 4 ft. 3 in., brick.

303.37 feet, 18 in., pipe.

354.80 feet, 12 in., pipe.

Armandine Street.

Collins & Ham, contractors	\$3,781 78
Inspection	472 50
51,500 brick	515 00
113 bbls. cement	133 34
2 manhole frames and covers	23 50
510 feet pipe	107 27
Branches, bends, etc.	16 67
	<hr/>
	<u>\$5,050 06</u>

Size and Length of Sewer.

112 feet, 2 ft. 4 in. × 3 ft. 6 in., brick.

284 feet, 2 ft. × 3 ft., brick.

Hutchinson and Brook Streets and Dorchester Avenue.

Labor	\$4,519 64
141,050 brick	1,421 50
315 bbls. cement	383 05
	<hr/>
<i>Carried forward,</i>	<u>\$6,324 19</u>

<i>Brought forward,</i>	\$6,324 19
50 double loads sand	90 00
5 single loads rubble stone	3 75
6 manhole frames and covers	70 50
Powder, etc.	22 77
Teaming	163 50
15,290 feet lumber	250 75
1,424 feet pipe	207 10
Branches, bends, etc.	24 71
	<hr/>
	\$7,157 27

Size and Length of Sewer.

1,035.27 feet, 30 in. × 36 in., brick.

Beacon Street (Raleigh to Charlesgate west).

Labor	\$1,890 82
53,155 brick	531 55
252 $\frac{1}{4}$ bbls. cement	288 93
56 $\frac{7}{12}$ double loads sand	114 58
51 double loads gravel	89 25
76 double loads screenings	133 00
3 manhole frames and covers	35 25
Teaming	541 50
Lumber	130 02
142 feet pipe	13 85
Branches, bends, etc.	6 07
Trench machine and engine hire	185 00
7 tons coal	36 90
Blacksmithing	31 60
	<hr/>
	\$4,028 32

Size and Length of Sewer.

409.41 feet, 2 ft. 6 in. × 3 ft., brick.

Cottage-Street Outlet.

Labor	\$1,455 88
41,500 brick	415 00
197 bbls. cement	228 52
50 tons sand	87 50
131 $\frac{1}{2}$ double loads gravel	263 00
1 manhole frame and cover	11 75
6 manhole steps	3 30
Teaming	235 00
104,148 feet lumber	1,744 48
60 feet pipe	20 59
Branches, bends, etc.	6 42
Pile-driving	1,403 85
Bolts and washers (galvanized)	1,059 65
Hardware and supplies	64 65
4 tons coal	20 55
	<hr/>
	\$7,020 14

Size and Length of Sewer.

514.41 feet, 3 ft. × 4 ft., wood.
 308.10 feet, 2 ft. 4 in. × 3 ft., wood.
 102.90 feet, 2 ft. 4 in. × 4 ft., wood.
 255.90 feet, 2 ft. 4 in. × 3 ft. 6 in., brick.

Randolph Street.

Labor	\$2,963 56
12,300 brick	123 00
60 bbls. cement	73 44
Sand	15 75
Gravel	114 99
7 manhole frames and covers	82 25
56 manhole steps	30 80
Teaming	519 00
Lumber	199 29
1,140 feet pipe	314 90
Branches, bends, etc.	108 52
Miscellaneous supplies	4 49
	<hr/>
	\$4,549 99

Size and Length of Sewer.

827.49 feet, 12 in., pipe.

Sewer Outlet, D and Anchor Streets.

A. A. Hall, contractor	\$9,141 29
Inspection	355 00
3 manhole frames and covers	35 44
20 manhole steps	11 00
1 ton coal	4 85
	<hr/>
	\$9,547 58

Size and Length of Sewer.

529 feet, 5 ft. × 4 ft., wood.

The cost of this sewer and the amount of work done is a continuation of the cost and work done during the year 1891.

Lawrence Avenue and Magnolia Street.

Labor	\$2,627 19
2,150 brick	21 58
9 bbls. cement	10 86
Sand	4 60
2 manhole frames and covers	23 50
5 manhole steps	2 75
450 lbs. powder	162 00
500 caps	20 20
	<hr/>

Carried forward,

\$2,872 68

<i>Brought forward,</i>	\$2,872 68
Teaming	273 00
156 feet pipe	45 76
Branches, bends, etc.	56 08
Blacksmithing	200 50
Miscellaneous supplies	8 81
	<hr/>
	\$3,456 83

Size and Length of Sewer.

566.90 feet, 12-in. pipe.

The cost of this sewer and the amount of work done is a continuation of the cost and work done during the year 1891.

Rena and North Harvard Streets.

Labor	\$3,346 75
16,870 brick	161 70
64½ bbls. cement	79 89
7½ double loads sand	14 45
6 manhole frames and covers	77 00
14 manhole steps	7 70
Teaming	142 50
Lumber	126 92
2,564 feet pipe	834 51
Branches, bends, etc.	215 35
1 set regulator stones	50 00
13 tons coal	60 16
Miscellaneous supplies	51 23
	<hr/>
	\$5,168 16

Size and Length of Sewer.

345.45 feet, 15-in. pipe.

The cost of this sewer and amount of work done is a continuation of the cost and work done during the year 1891.

Ashmont, Washington, and Armandine Streets.

Labor	\$4,359 14
128,650 brick	1,316 63
270 bbls. cement	318 60
67 double loads sand }	144 60
24 tons sand }	
2 manhole frames and covers	23 50
150 lbs. powder	54 00
1,200 feet fuse	5 81
388 caps	4 85
Teaming	160 50
764 feet pipe, branches, bends, etc.	84 65
Blacksmithing and repairs of tools	310 60
	<hr/>
	\$6,782 88

Size and Length of Sewer.

469 feet, 2 ft. 4. in. \times 3 ft. 6 in., brick.

100 feet, 2 ft. \times 3 ft., brick.

The cost of this sewer and the amount of work done is a continuation of the cost and work done during the year 1891.

Westville, Freeman, and Charles Streets.

Labor	\$4,110 75
214,500 brick	2,214 53
438 bbls. cement	517 32
120 double loads sand }	244 70
29 tons sand }	
5 double loads gravel	8 25
17 manhole frames and covers	199 75
1 lamphole hydrant frame and cover	6 19
Powder)	7 12
Fuse)	
Caps)	
Teaming	234 00
2,250 feet pipe	1,056 22
Branches, bends, etc.	260 94
Blacksmithing	195 20
	<hr/>
	<u>\$9,054 97</u>

Size and Length of Sewer.

111.67 feet, 2 ft. 3 in. \times 2 ft. 11 in., brick.

263.98 feet, 24 in., pipe.

386.01 feet, 18 in., pipe.

319.65 feet, 15 in., pipe.

602.31 feet, 12 in., pipe.

12.60 feet, 12 in., iron pipe.

The cost of this sewer and the amount of work done is a continuation of the cost and work done during the year 1891.

APPENDIX E.

REPORT OF THE DEPUTY SUPERINTENDENT OF THE
STREET-CLEANING DIVISION.STREET DEPARTMENT, STREET-CLEANING DIVISION,
14 BEACON ST., BOSTON, Feb. 25, 1893.H. H. CARTER, ESQ., *Superintendent of Streets, Boston, Mass.* :

SIR: In reply to your circular of the 14th ult. in regard to the annual report, I beg leave to present the following record of the expenditures, business, and income of the Street-Cleaning Division of the Street Department during the financial year ending January 31, 1893 :

FINANCIAL STATEMENT.

Amount of appropriation	\$300,000 00
Transfer from Street-Watering Division	4,000 00
Transfer from Paving Division	11,820 42
	<hr/>
	\$315,820 42
Transferred to Sewer Division	\$20,000 00
Transferred to Paving Division	7,500 00
Total amount of expenditures	288,320 42
	<hr/>
	<u>\$315,820 42</u>

OBJECTS OF EXPENDITURE.

Superintendence.

Salary of Deputy Superintendent	\$3,000 00
Office pay-rolls, including pay of clerks, messengers, etc.	5,043 08
Stationery	185 47
Printing	496 01
Maps, plans, etc.	93 25
Telephone service	156 60
Board of horses	483 33
Use of carriages	24 50
	<hr/>
Total cost of superintendence	<u>\$9,482 24</u>

CLEANING STREETS.

Including the Cost of Sweeping, Loading, and Removal of Street-dirt.

District 1.	West End	\$17,662 71
District 2.	North End	20,508 54
District 3.	South End	20,894 41
District 4.	South End	17,670 03
District 5.	Back Bay	12,847 77
District 6.	South Boston and Dorchester	17,423 39
District 7.	Roxbury	12,145 69
District 8.	Brighton	
District 9.	Charlestown and East Boston	12,088 08
Total cost of cleaning streets		<u>\$131,240 62</u>

CLEANING GUTTERS.

Including Cost of Sweeping, Loading, and Removal of Street-dirt.

District 1.	West End	\$2,250 93
District 2.	North End	
District 3.	South End	
District 4.	South End	2,354 68
District 5.	Back Bay	7,229 58
District 6.	South Boston and Dorchester	2,411 18
District 7.	Roxbury	7,068 09
District 8.	Brighton	
District 9.	Charlestown and East Boston	4,554 80
Total cost of cleaning gutters		<u>\$25,869 26</u>

Total length cleaned, 1,923 miles.

Average cost per mile, \$13.71.

CLEANING CROSSINGS.

Including Cost of Manual and Machine Labor.

Total cost of cleaning crossings	<u>\$1,432 70</u>
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COST OF MAINTAINING DUMPS.

District 1.	West End	\$570 52
District 2.	North End	525 76
District 3.	South End	450 20
District 4.	South End	428 44
District 5.	Back Bay	560 55
District 6.	South Boston and Dorchester	457 10
District 7.	Roxbury	
District 8.	Brighton	
District 9.	Charlestown and East Boston	503 02
Total cost of dumps		<u>\$3,495 59</u>

COST OF REMOVAL OF SNOW.

Including Labor and Carting.

District 1.	West End	\$3,252 18
District 2.	North End	3,434 71
District 3.	South End	2,947 64
District 4.	South End	3,217 36
District 5.	Back Bay	3,652 23
District 6.	South Boston and Dorchester	4,313 00
District 7.	Roxbury }	3,983 63
District 8.	Brighton }	
District 9.	Charlestown and East Boston	2,204 33
Charged by Sanitary Division		511 00
Total cost of removing snow		<u>\$27,516 08</u>

COST OF SCRAPING.

Macadamized Streets.

District 8.	Brighton.	
Labor		\$2,067 28
Carting		569 40
Watering		2 17
Total cost of scraping		<u>\$2,638 85</u>

This shows the cost of scraping with hoes the entire streets from curb to curb. 27.33 miles; cost per mile, \$96.55.

COST OF COLLECTING LEAVES

And of Weeding, etc., in Districts 7 and 8.

District 7.	Roxbury.	
Leaves		\$328 53
District 8.	Brighton.	
Leaves		273 00
Weeding, etc.		1,319 42
Total cost of collecting leaves, etc.		<u>\$1,920 95</u>

COST OF CLEANING PRIVATE WAYS.

Labor and teaming, not including superintendence	<u>\$1,100 91</u>
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This represents work done for the Health Department during the "cholera" excitement, exclusive of superintendence, etc., the cost of same to be made good to this division later by said department.

PATROL SYSTEM.

Push carts, including labor and teaming	\$21,385 94
Paper patrol, including labor and teaming	1,373 11
Snow	3,033 99
Superintendence	1,196 52
Total	<u>\$26,989 56</u>

Recapitulation of Expenses, exclusive of Superintendence, Stable and Yard Expenses, Stock Account, and Miscellaneous.

Districts.	Cost of cleaning streets.	Cost of cleaning gutters.	Cost of cleaning crossings.	Cost of dumps.	Cost of removing snow.	Cost of scraping macadamized streets.	Cost of collecting leaves, weeding, etc.	Cost of cleaning private ways.	Cost of patrol system.	Total.
1	\$17,662 71	\$2,250 93	.....	\$570 52	\$3,252 18	.....	.....	.....	.....	\$23,736 34
2	20,508 54	.....	.....	525 76	3,434 71	.....	.....	.....	.....	24,469 01
3	20,894 41	.....	.....	450 20	2,947 64	.....	.....	.....	.....	24,292 25
4	17,670 03	2,354 68	.....	428 44	3,217 36	.....	.....	.....	.....	23,670 51
5	12,847 77	7,229 58	.....	560 55	3,652 23	.....	.....	.....	.....	24,290 13
6	17,423 39	2,411 18	.....	457 10	4,313 00	.....	.....	.....	.....	24,604 67
7	12,145 69	7,068-09	.....	.....	.....	.....	.....	.....	.....	23,498 94
8	.....	.....	.....	.....	3,983 63	\$2,638 85	\$328 53	.....	.....	4,258 27
9	12,088 08	4,554 80	.....	503 02	2,204 33	.....	1,592 42	.....	.....	19,350 23
Paid to Sanitary Division	.....	.....	.....	.....	511 00	.....	.....	.....	.....	511 00
Cleaning Private Ways.	.....	.....	.....	.....	.....	.....	.....	\$1,100 91	.....	1,100 91
Patrol System	.....	.....	.....	.....	.....	.....	.....	.....	\$26,989 56	26,989 56
Cleaning Crossings.	.....	.....	\$1,432 70	.....	.....	.....	.....	.....	.....	1,432 70
Total	\$131,240 62	\$25,869 26	\$1,432 70	\$3,495 59	\$27,516 08	\$2,638 85	\$1,920 95	\$1,100 91	\$26,989 56	\$222,204 52

STABLE AND YARD EXPENSES.

Including the Cost of the South End, West End, Roxbury, South Boston, and Charlestown Stables, as follows:

Superintendence	\$2,393 04
Labor, including cost of feeders, hostlers, broom-makers, blacksmiths, carpenters, watchmen, yardmen, etc.	15,014 10
Cart and carriage repairs	2,840 61
Coal	13 95
Harness repairs	366 85
Horse-shoeing	2,585 64
Repairs on sweeping-machines	864 27
Repairs on stables, sheds, etc.	765 17
Street-car tickets and ferry passes	656 45
Tool repairs	18 00
Veterinary services and medicine	281 65
	<hr/>
Total stable and yard expense	<u>\$25,799 73</u>

STOCK ACCOUNT.

Broom stock purchased	\$6,378 78
Carts and carriages purchased	545 00
Harnesses, horse furnishings purchased	2,742 31
Horses purchased	3,700 00
Sweeping-machines purchased	778 00
Tools purchased	1,051 30
Patrol stock and maintenance of same	2,408 77
	<hr/>
Total	<u>\$17,604 16</u>

MISCELLANEOUS.

Holidays	\$11,858 57
Sand	206 30
Building South Boston stable, grading yard, etc.	1,481 83
Sundries	531 79
	<hr/>
Total	<u>\$14,078 49</u>

GENERAL RECAPITULATION OF EXPENSES.

Superintendence	\$9,482 24
Cleaning of streets	131,240 62
Cleaning of gutters	25,869 26
Cleaning of crossings	1,432 70
Scraping macadamized streets	2,638 85
Maintaining dumps	3,495 59
Removal of snow and ice	27,516 08
Collecting leaves, weeding, etc.	1,920 95
Patrol system	26,989 56
	<hr/>
<i>Carried forward,</i>	\$230,585 85

<i>Brought forward,</i>	\$230,585 85
Cleaning private ways	1,100 91
Stable and yard expenses	25,799 73
Stock account	17,604 16
Miscellaneous	14,078 49
Total	\$289,169 14

\$848.72 of the above amount paid by other divisions and departments on account of work done by this division, making the net expenses of this division, as shown in financial statement, \$288,320.42.

Table showing the Cost per Mile of Cleaning the Streets in each District, exclusive of Supervision and other Expenses.

Districts.	No. Miles Cleaned.	Cost of Cleaning.	Pro Rata Cost of Dump.	Total Cost.	Cost per Mile.
No. 1.	1,322.35	\$17,662 71	\$507 76	\$18,170 47	\$13 74
No. 2.	1,943.39	20,508 54	525 76	21,034 30	10 82
No. 3.	1,331.49	20,894 41	450 20	21,344 61	16 03
No. 4.	1,468.06	17,670 03	377 03	18,047 06	12 29
No. 5.	538.71	12,847 77	353 15	13,200 92	24 50
No. 6.	659.42	17,823 39	402 25	17,825 64	27 03
No. 7.	361.80	12,145 69	.....	12,145 69	33 57
No. 8 ¹ . . . . .	.....	.....	.....	.....	.....
No. 9.	672.83	12,088 08	367 20	12,455 28	18 51
	8,298.05	\$131,240 62	\$2,983 35	\$134,223 97	

¹ See tables on page 347.

Average cost per mile of cleaning streets in eight districts, exclusive of supervision, etc., \$16.17.

Table showing the Cost per Mile of Cleaning Streets in each District, including Supervision, Labor, Yard, and Stable Expenses.

Districts.	No. Miles Cleaned.	Cost of Cleaning Streets.	60% of the Total Cost of Supervision.	6% of the Total Cost of Yard and Stable Expense.	Total Expense.	Total Cost per Mile.
No. 1.	1,322.35	\$18,170 47	\$770 18	\$2,374 98	\$21,315 63	\$16 12
No. 2.	1,943.39	21,034 30	891 58	2,749 29	24,675 17	12 69
No. 3.	1,331.49	21,344 61	904 72	2,789 85	25,039 18	18 80
No. 4.	1,468.06	18,047 06	764 96	2,358 85	21,170 87	14 42
No. 5.	538.71	13,200 92	559 55	1,725 43	15,485 90	28 74
No. 6.	659.42	17,825 64	755 58	2,329 92	20,911 14	31 71
No. 7.	361.80	12,145 69	514 83	1,587 52	14,248 04	39 38
No. 8. ....	.....	.....	.....	.....	.....	.....
No. 9.	672.83	12,455 28	527 94	1,627 97	14,611 19	21 71
	8,298.05	\$134,223 97	\$5,689 34	\$17,543 81	\$157,457 12	

Average cost per mile of cleaning streets in eight districts, including supervision, etc., \$18.97.

Table showing the Number of Loads of Street Dirt removed.

DISTRICTS.	Number of Loads of Dirt removed.	Cost, including Foremen's Superintendence.
1	10,361	\$1.92
2	10,294	1.99
3	11,514	1.81
4	10,841	1.84
5	13,767	1.45
6	13,332	1.48
7	16,104	1.19
8 ¹	5,793	....
9	10,928	1.52
	102,934	
Patrol System	3,456	equal to 43,545 barrel loads.
Patrol System	439	carted by paper patrol.
Total loads	106,829	

¹ See previous note on District 8.

About thirty-three per cent. of these loads delivered at the dumping scow.

INCOME.

Amount of bills deposited with the City Collector during the financial year ending January 31, 1893, \$8,256 37

COMPLAINTS.

Through Central Office	22
Made by individuals, personally and by letter	19
Anonymous	3
By telephone	2
Total number of complaints	<u>46</u>

AVERAGE FORCE EMPLOYED JANUARY 31, 1893.

Deputy Superintendent	1
Chief Clerk	1
Messengers	2
Employees	343
Entire force	<u>347</u>

Respectfully submitted,

PHILIP A. JACKSON,
Deputy Superintendent.

