

### ROCKHEAD PRISON.—Credit Side.

*Statement of amount credited to Rockhead Prison from 1st May, 1893, to 30th April, 1894.*

1893.	Cr.	
June 7.	By Cash from Wm. Murray .....	\$ 6 00
1894.		
April 11.	" Board of Works for stone, &c.....	252 35
30.	" " " .....	830 00
		<u>\$1088 35</u>

### POOR'S ASYLUM.—Credit Side.

*Statement of Amounts received from Committee of Charities and Paid to the City Treasurer from 1st May, 1893, to 30th April, 1894.*

1893.	Cr.	
May 1.	By Cash from Commissioners for Concrete etc.....	1073 08
19.	" " Provincial Government etc.....	801 86
June 28.	" " Concrete etc.....	428 39
July 5.	" " Provincial Government.....	1331 22
Aug. 11.	" " Private Maintenance.....	300 00
18.	" " " .....	201 92
Oct. 3.	" " Provincial Government etc.....	1300 00
18.	" " Maintenance.....	250 00
Nov. 27.	" " " and Concrete.....	650 00
1894.		
Jan. 4.	" " Provincial Government, etc.....	1639 00
26.	" " Private Maintenance.....	400 00
Feb. 9.	" " " and Concrete.....	400 00
Apl. 3.	" " Prov. Government Maintenance... ..	1484 00
16.	" " Concreté, etc.....	424 26
28.	" " " .....	408 37
		<u>\$11,092 10</u>

**INCOME ACCOUNT.***Statement of Receipts Estimated as Probable Income in Annual Estimate for 1893-94.*

Liquor Licenses, (net amount) .....	9658 98
Hack, Truck, and other Licenses .....	3315 50
Fines and Fees, Police and City Courts .....	5872 47
City Marshal's Fees .....	445 12
Dog Tax .....	475 00
Rents, City Property .....	2017 40
Balance Current Interest .....	3861 83
	\$25,646 30

**HOSPITAL FOR INFECTIOUS DISEASES.***Statement of amount paid for Repairs to Hospital I. D. from 1st May, 1893, to 30th April, 1894.*

1893.		
May. 26.	Paid J. E. M. Taylor for Painting, etc.....	304 00

**SPECIAL LOAN OF \$5250.***Statement of sums paid out of Special Loan payable in 5 years.*

1894.		
Apl. 18.	This amount transferred to Com'r of P. P. Park .....	500 00
	“ “ to Fire Dept. for Hose .....	3000 00
	Paid Power & Co. for work at Cells, City Hall .....	565 10
	Blackadar Bros. for Election Lists .....	419 50
	W. B. Fidler, Springs for Door .....	4 50
	C. W. Davies, work at Doors, Safes, etc .....	326 70
	Macdonald & Co., Suction Hose .....	26 10
	N. S. Telephone Co. for 12 Telephones .....	200 00
	N. S. Furniture Co. for Furniture, etc .....	106 90
	Wm. Judge, Lettering Boards .....	3 00
	Malcom & Johnston, repairing Tile Floor .....	6 75
	J. E. Wilson, Fire Brick, etc .....	3 50
	J. W. Harrison & Co., Glazing, etc .....	31 91
	A. & W. MacKinlay, Indices .....	17 76
	Buckley Bros, Grass Seed .....	5 04
	Mahon Bros, Sheeting .....	1 82
	Lozgard Bros., Lead Pipe, etc .....	5 06
	Baldwin & Co., Spittoons .....	1 50
	H. H. Fuller & Co., Zinc, etc .....	9 80
	E. J. Lordly, Soap and Soda .....	4 80
	R. C. Peart, Mirrors .....	2 10
		\$5241 84

**SPECIAL LOAN FOR STEAM ENGINE, etc., \$15,000,  
PAYABLE IN FIVE YEARS.**

*Statement of Expenditure on Special Loan for \$15,000.*

	Amount expended in 1892, as per Report 1893, page 51 . . .	11,986 09
	P'd after 30th April, 1893: R. Martin & Co. . . . .	240 00
	“ “ “ J. T. Murphy & others 83 33	
		323 33
		<u>12,309 42</u>
	Amount expended from 1st May, '93, to 30th April, '94 ;	
July 31.	A. Stephen & Son, Furniture . . . . .	280 00
	R. O'Brien for Horse . . . . .	140 00
	W. T. Horton, Work at Engine Houses . . . . .	751 33
	W. B. Fidler, Work at Grafton St. Engine House . . . . .	164 43
	Longard Bros., fitting Boilers . . . . .	150 50
	DeWolf & Son, Carriages, etc . . . . .	565 76
	W. B. Fidler, for Work . . . . .	122 34
	DeWolf & Son . . . . .	44 65
	R. Martin & Co. . . . .	172 50
		2391 51
		<u>\$14,700 93</u>
	Balance unexpended . . . . .	\$299 07

**RATES AND TAXES.**

*Statement of City, School and County Rates Collected from 1st  
May 1893 to 30th April 1894.*

CITY RATES.

1893.			
May 31.	Paid City Treasurer by Collector Theakston . . . . .	20,563 80	
June 30.	“ “ “ . . . . .	7406 37	
July 31.	“ “ “ . . . . .	9569 66	
Aug. 31.	“ “ “ . . . . .	14,029 77	
Sept 30.	“ “ “ . . . . .	13,256 47	
Oct. 31.	“ “ “ . . . . .	18,068 24	
Nov. 30.	“ “ “ . . . . .	19,373 29	
Dec. 31.	“ “ “ . . . . .	24,937 93	
1894.			
Jan. 31.	“ “ “ . . . . .	29,327 73	
Feb. 28.	“ “ “ . . . . .	12,748 53	
Mar. 31.	“ “ “ . . . . .	15,948 30	
Apl. 30.	“ “ “ . . . . .	7278 46	
		<u>\$192,508 55</u>	

## SCHOOL RATES.

May 31.	Paid City Treasurer	2075 88
June 30.	"	1958 37
July 31.	"	3665 49
Aug. 31.	"	5187 72
Sep. 30.	"	4992 26
Oct. 31.	"	6477 81
Nov. 30.	"	7732 85
Dec. 31.	"	8357 97
1894.		
Jan. 31.	"	9720 25
Feb. 28.	"	4940 57
Mar. 31.	"	6477 68
Apr. 30.	"	2792 30
		64,879 15

## COUNTY RATES.

May 31.	Paid City Treasurer	251 22
June 30.	"	226 55
July 31.	"	413 61
Aug. 31.	"	584 67
Sept. 30.	"	574 60
Oct. 31.	"	804 90
Nov. 30.	"	872 68
Dec. 31.	"	945 41
1894.		
Jan. 31.	"	1093 72
Feb. 28.	"	565 39
Mar. 31.	"	718 29
April 30.	"	323 38
		7374 42
		264,762 12
Balance of 1893-4 uncollected 30th April, '94		91,381 90
		\$356,144 02
Amount assessed for 1893-4		\$356,144 02

(For Water Rates, see Accounts of City Treasurer.)

## FIRE DEPARTMENT.—Extra.

*The following Accounts against the Fire Department were paid after 1st May, 1894.*

John O'Connell, Horse Shoeing	40 68
Daniel McLeod, "	9 69
Thos. DeYoung, for Sled, etc	32 25
Blackadar Bros., Advertising	19 49
Wm. Jordan, Shoeing	16 56
Forsyth, Sutcliffe & Co., Blue Stone	36 96

T. W. Bateman, repairing Locks, etc	39 25
Jos. S. Cashen, Hay and Straw	77 64
John Tobin & Co., Soda	5 00
Henry Trenaman, Secretary	30 00
Street Carrette Co., Stable Rent	23 78
Timothy Toomey, Rent of Barn	52 00
W. P. C. Inglis, Cab Hire	8 75
Jas. Dempster & Co., Lumber	6 08
R. A. Croucher, Straw	1 32
R. Martin & Co., repairing Harness	22 30
Black Bros. & Co., Hardware	10 75
T. Robinson, Sleigh Hire	30 00
Manufacturers' Life Assurance Co, Insurance of Men	3 45
N. S. Telephone Co., Telephone	87 58
Davidson Bros. for Salt	70
Robt Boak, Rent of Reel House	25 00
W. H. Brown for Brooms	1 00
John Foley, Work at Gerrish St. Engine House	5 95
Industrial School for Kindling	43 50
Farquhar Bros, Stove Fittings	23 47
S. R. Marshall, Mason Work	52 86
J. B. Brownley, Stove Pipes, etc	4 25
Cragg Bros., Hardware	39 86
S. Cunard & Co., Rent of Reel House	25 00
Ill. & Motor Co., Lighting Engine Houses	27 99
Austen Bros., Oil, etc	44 03
Edwd. Phelan, Rent Reel House	25 00
No. 2 Hose Division	25 00
Wm. Roche for Coal	858 65
McDonald & Co., Lead Work, etc	42 43
W. & A. Moir, Machine Work	131 52
No. 1 Division, Rent	25 00
B. Z. Hubley & Co.	87 50
John Connolly, Horse Feed	393 74
Union Engine Co	600 00
Halifax Gas Co	230 40
No. 4 Division, Rent	25 00

3291 38

Amount expended in Regular Account to 30th April, 1894,  
(see page 30.) 22,454 99

\$25,746.37

## Cr.

Appropriation per Estimate	20345 00
Cash received from City Clerk	16 75
“ for Horse Sold	63 00
“ from Victoria General Hospital	122 54
Transfer from Contingent Account	561 43
“ Internal Health Account	800 00

21,908 72

Amount to be provided for by special legislation \$ 3837 65

### PRINTING AND STATIONERY.—Extra.

*The following amounts being overdrawn for 1893-4, to be provided for by Legislation.*

Theakston & Co., Printing, etc.....	177 25
N. S. Printing Co., Printing Reports, etc.....	279 65
A. & W. McKinlay, Stationery.....	73 60
Morning Herald, Advertising.....	12 00
“ “.....	45 80
“ “.....	108 39
“ “.....	5 00
Blackadar Bros., “.....	95 80
Morning Herald.....	62 40
A. & W. Mackinlay.....	23 10
Maritime Steam Lithograph Co.....	67 00
G. & T. Phillips, Binding.....	7 50
Blackadar Bros., Printing Electoral Lists, etc.....	460 83
	<hr/>
	1418 32
Amounted expended up to 30th April, 1894, (See page 44.)	1672 74
	<hr/>
	\$3091 06
CR.	
By Appropriation in Estimate.....	1400 00
	<hr/>
Amount to be provided for.....	\$1691 06

### POORS' ASYLUM.—Extra.

*The following amounts being overdraws for 1893-4, to be provided for by Legislation.*

E. Fenton, for Hay.....	9 64
W. & C. Silver, Dry Goods.....	46 56
George Rent, Slop Pails, etc.....	7 50
Wm. Ross, Soft Hats.....	6 00
Blackadar Bros., Advertising.....	15 04
D. McLeod, Horse-shoeing.....	6 73
B. Mulcahy, Sundries.....	14 88
Chaddock Bros., for Milk.....	71 40
A. M. Bell, Hardware.....	8 10
N. S. Hospital for Insane, for Insane Poor.....	1053 36
Halifax Gas Light Co.....	146 20
Dillon Bros., Groceries.....	524 03

W. A. Maling, for Meat .....	205 31	
Whitten & Carrol, Vegetables.....	3 90	
George Gregoire, Fish .....	16 25	
William Roche, Coal.....	478 74	
A. & W. MacKinlay, Stationery.....	4 95	
	<u>2618 59</u>	
Amount expended up to 30th April, 1894. (See page 38)....	27811 38	
		CR.
		<u>30429 97</u>
By Estimate and Appropriation .....	18000 00	
Income (see page 55).....	11092 10	
		<u>29092 10</u>
Amount to be provided for.....		<u>\$ 1337 87</u>

### BOARD OF HEALTH.—Extra.

*The Following Amounts being Overdraws for 1893-4, to be Provided for by Legislation.*

Paid N. Meagher .....	2 20	
" .....	66 66	
C. Donovan .....	66 66	
A. J. Penny .....	52 00	
Dr. Trenaman .....	83 33	
" C. D. Murray .....	129 20	
" W. E. McKay .....	106 40	
Arthur Wyatt .....	70 00	
H. V. Wier.....	30 40	
W. H. Neal .....	150 40	
P. M. Duggan .....	72 20	
A. W. Redden.....	11 40	
	<u>840 85</u>	
Amount expended up to 30th April, 1894, (see page 46)....	4210 37	
		<u>\$ 5051 22</u>
		CR.
By Appropriation in Estimate.....	4000 00	
Cash from Miss Moran.....	13 50	4013 50
Amount to be Provided for.....		<u>\$1037 72</u>

# BOARD OF CITY WORKS REPORT.

OFFICE OF BOARD OF CITY WORKS,

*Halifax, N. S., April 30th, 1894.*

TO HIS WORSHIP THE MAYOR, AND MEMBERS OF THE CITY COUNCIL :

*Gentlemen,*—In accordance with the usual custom, I herewith respectfully submit for the information of your honorable body, the accompanying report for the year ending 30th April, 1894, shewing the expenditure in connection with the different services under the supervision and control of this Department.

I have the honor to be, Gentlemen,

Your obedient servant,

WM. F. REILLY,

*Clerk of Works.*

## MAINTENANCE.

*Expenditure on above Service for 12 months ending April 30th, 1894.*

Labor .....	\$ 9,386 59
Salaries .....	6,245 06
Hardware .....	213 01
F. W. Christie, Survey Lake Property .....	600 00
Stationery, etc. ....	257 00
T. Robinson, Board Engineer's Horse .....	322 26
W. H. Isnor, Board Water Foreman's Horse .....	204 50
Longard Bros., Sundry Work .....	402 84
T. Bigg & Son, Meters .....	494 07
Quirk, Baxter & Co., Tin Pipes .....	137 58
Custom Duty, .....	32 25
J. Kline, Monuments Chain Lakes .....	180 00
Rent Telephones .....	170 84
McDonald & Co., Repairing No. 5 S. F. Engine, etc. ....	114 70
Coal .....	106 20
Sundry small Bills .....	93 70

Repairs Waggons .....	71 11
"    Harness .....	13 15
Bras D'or Lime Co., Lime .....	50 00
F. W. W. Doane, trip Chicago and Sundries .....	115 14
Advertlsing and Printing .....	47 48
Oil .....	43 01
Horse Shoeing .....	15 64
Lumber .....	26 28
T. Jakeman, Veterinary Surgeon .....	22 50
Gas, Engineer's Office .....	7 21
Directories .....	7 50
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	\$19,379 62

### NEW PIPE LINE.

*Expenditure on above Service for the 12 months ending April 30th 1894.*

Labor .....	13,560 14
Cost of Pipe, Valves, etc. ....	78,628 17
T. Robinson, Truckage Pipes .....	3,017 21
A. McKinnon, Contract Trenching .....	8,411 66
J. W. McDonald " New Road .....	3,800 18
Land Appropriation Account .....	3,281 99
Hardware .....	1,354 53
Lumber .....	145 90
Sundry Small Bills .....	120 32
Advertising and Printing .....	104 00
Fencing New Road, J. W. McDonald .....	90 00
Engineering News Pub. Co. ....	72 85
M. Murphy, Prov. Engineer .....	60 60
Steam Rock Drill and Fittings .....	56 00
F. W. W. Doane, Sundries .....	45 70
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	\$112,748 65

### CONSTRUCTION.

*Expenditure on above Service for the 12 months ending April 30th 1894.*

Hardware, etc .....	697 75
J. A. Thompson, iron Castings .....	553 50
John Hunter, Brass .....	245 36
Duty and Freight on Meters .....	154 86
Lead .....	84 00
J. Patterson Contract, Iron Straps H. Service Main .....	300 00
Henderson & Potts, Metallic Paint .....	58
McDonald & Co., Sundries .....	63 00
Labor .....	2,899 03
	<hr/>
	\$4,998 13

## FUEL ACCOUNT, 1893-4.

Paid S. Cunard & Co., bill Coal.....	112 58
“ Acadia Coal Co. “.....	1,039 50
“ Labor putting in Coal.....	17 47
	<u>\$1,169 55</u>
Less charged to 1892-3.....	369 05
	<u>\$800 49</u>

## TELEPHONE ACCOUNT.

From Jan. 1, 1893, to July 1, 1894.....	<u>\$300 00</u>
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## WARD 1.

*Statement showing Expenditure for Labor, Cartage and Material for Street Work performed during the year ending 30th April, 1894.*

## General Repairs throughout the Ward.

To amount paid for Labor.....	495 62	
“ Haulage.....	236 07	
“ Material.....	496 07	
		<u>1,227 76</u>

## South St., Repairs Culvert.

To amount paid for Labor.....	10 45	
“ Haulage.....	6 00	
“ Material.....	7 18	
		<u>23 63</u>

## Tower Road Repairs.

To amount paid for Labor.....	17 25	
“ Haulage.....	6 00	
		<u>23 25</u>

## Morris St., Repairs.

To amount paid for Labor.....	57 43	
“ Haulage.....	27 60	
“ Material.....	102 90	
		<u>187 93</u>

## Green St., Repairs.

To amount paid for Labor.....	169 27	
“ Haulage.....	75 00	
“ Material.....	1 50	
		<u>245 77</u>

## Queen St., Repairs.

To amount paid for Labor.....	93 34	
“ Haulage.....	42 40	
		<u>136 24</u>

\$1,844 58

## WARD 2.

*Statement showing Expenditure for Labor, Cartage, and Material for Street Work performed during the year ending 30th April, 1894.*

Gen. Repairs throughout the Ward.			
To amount paid for Labor	.....	52 04	
"    Haulage	.....	49 20	
"    Material	.....	242 91	
			344 15
Spring Garden Road (repairs Sidewalks, etc.)			
To amount paid for Labor	.....	17 40	
"    Haulage	.....	6 60	
			24 00
Water Street (general Work).			
To amount paid for Labor	.....	73 66	
"    Haulage	.....	22 00	
			95 66
Jubilee Road (repairs).			
To amount paid for Labor	.....	71 64	
"    Haulage	.....	23 20	
			94 84
Morris Street (repairs).			
To amount paid for Labor	.....	83 05	
"    Haulage	.....	41 00	
			124 05
Hollis St., (laying brick sidewalk, repairs.)			
To amount paid for Labor	.....	93 97	
"    Haulage	.....	33 60	
			127 57
Tower Road, (repairs.)			
To amount paid for Labor	.....	56 45	
"    Haulage	.....	31 00	
			87 45
Sackville St., (setting crossing.)			
To amount paid for Labor	.....	28 50	
"    Haulage	.....	13 00	
			41 50
Pleasant St., (laying granite curbing, etc., gutter, repairs, etc.)			
To amount paid for Labor	.....	102 06	
"    Haulage	.....	44 60	
			146 66
Barrington St., (laying crossing.)			
To amount paid for Labor	.....	21 60	
"    Haulage	.....	8 00	
			29 60
LeMarchant St., (general repairs.)			
To amount paid for Labor	.....	51 78	
"    Haulage	.....	27 40	
			79 18

Oxford Street (repairs).			
To amount paid for	Labor .....	72 88	
"	Haulage .....	19 00	
			91 88
Robie Street (repairs).			
To amount paid for	Labor .....	21 79	
"	Haulage .....	16 00	
			37 79
Vernon Street (repairs).			
To amount paid for	Labor .....	1 64	
"	Haulage .....	7 00	
			8 64
			<u>\$1332 97</u>

## WARD 3.

*Statement showing Expenditure for Labor, Cartage, and Materials for Street Work performed during the year ending 30th April, 1894.*

Gen. repairs throughout the Ward.			
To amount paid for	Labor .....	132 28	
"	Haulage .....	189 00	
"	Material .....	582 32	
			903 60
Jubilee Road (repairs).			
To amount paid for	Labor .....	72 90	
"	Haulage .....	25 20	
			98 10
Barrington Street (laying Crossing).			
To amount paid for	Labor .....	24 95	
"	Haulage .....	13 80	
			38 75
Cheapside (repairs Sidewalk).			
To amount paid for	Labor .....	6 25	
"	Haulage .....	3 00	
			9 25
Cogswell Street (repairing Street and Sidewalk).			
To amount paid for	Labor .....	33 50	
"	Haulage .....	7 80	
			41 30
Bedford Row and George Street (Crossing)			
To amount paid for	Labor .....	90 12	
"	Haulage .....	42 40	
			132 52
Duke Street, (repairs, etc.)			
To amount paid for	Labor .....	51 63	
"	Haulage .....	56 20	
			107 83

George Street (repairs sidewalks.)			
To amount paid for Labor .....	8	00	
"          Haulage .....	3	60	
			11 60
Brunswick, Cogswell and Albermarle Streets (repairs.)			
To amount paid for Labor .....	11	75	
"          Haulage .....	10	80	
			22 55
Buckingham Street (laying curb, gutter and sidewalk )			
To amount paid for Labor .....	62	74	
"          Haulage .....	21	60	
			84 34
Pepperell Street (repairs.)			
To amount paid for Labor .....	50	28	
"          Haulage .....	16	00	
			66 28
Hollis and Duke Streets (repairs sidewalks.)			
To amount paid for Labor .....	60	84	
"          Haulage .....	20	60	
			81 44
Argyle Street (repairs.)			
To amount paid for Labor .....	53	00	
"          Haulage .....	33	20	
			86 20
Water Street (repairs sidewalk.)			
To amount paid for Labor .....	23	54	
"          Haulage .....	15	40	
			38 94
Bedford Row (repairs at Pickering Square.)			
To amount paid for Labor .....	24	22	
"          Haulage .....	5	80	
			30 02
Brunswick and Albermarle Streets (repairs sidewalks.)	5	45	
	3	20	
			8 65
			<u>\$1,771 37</u>

## WARD 4.

*Statement showing Expenditure for Labor, Cartage and Material for Street Work performed during the year ending 30th April, 1894.*

General Work throughout the Ward.			
To amount paid for Labor .....	43	64	
"          Haulage .....	167	90	
"          Material .....	299	71	
			511 25

Allan Street (repairs culvert.)	1 25	
	4 20	5 45
Welsford Street (repairs.)		
To amount paid for Labor	17 75	
"    Haulage	17 23	34 98
Brunswick Street (repairs sidewalk.)		
To amount paid for Labor	5 20	
"    Haulage	13 00	18 20
Windsor Street (repairs Culvert.)		2 50
Brunswick Lane, (laying curb.)		
To amount paid for Labor	215 86	
"    Haulage	63 80	279 66
Duncan Street (repairs.)		
To amount paid for Labor	43 48	
"    Haulage	24 40	67 88
Chebucto Road (repairs.)		
To amount paid for Labor	202 13	
"    Haulage	111 30	313 43
Cornwallis Street (setting crossing.)		
To amount paid for Labor	9 80	
"    Haulage	5 20	15 00
Cogswell Street (widening, etc.)		
To amount paid for Labor	19 40	
"    Haulage	4 00	23 40
Oxford Street (repairs.)		
To amount paid for Labor	222 75	
"    Haulage	334 20	556 95
		<u>\$1,828 70</u>

## WARD 5.

*Statement showing Expenditure for Labor, Cartage, and Material for Street Work performed during the year ending 30th April, 1894.*

Gen. repairs throughout the Ward.

To amount paid for Labor	298 07	
"    Haulage	661 30	
"    Material	264 41	1223 78

<b>Maitland Street (Grading).</b>			
To amount paid for	Labor .....	55 85	
“	Haulage .....	90 80	
			146 65
<b>Uniacke Street (Grading).</b>			
To amount paid for	Labor .....	214 98	
“	Haulage .....	56 80	
			271 78
<b>Woodill Street (Grading).</b>			
To amount paid for	Labor .....	62 52	
“	Haulage .....	20 20	
			82 72
<b>North Street (laying Curb).</b>			
To amount paid for	Labor .....	75 07	
“	Haulage .....	44 80	
			119 87
<b>Brunswick and North Streets (repairs to Sidewalk).</b>			
To amount paid for	Labor .....	13 74	
“	Haulage .....	26 80	
			40 54
<b>Robie Street (Paving Gutter).</b>			
To amount paid for	Labor .....	123 38	
“	Haulage .....	178 60	
			301 98
<b>Cornwallis Street (setting Crossing).</b>			
To amount paid for	Labor .....	9 80	
“	Haulage .....	5 20	
			15 00
<b>Artz Lane (Repairs).</b>			
To amount paid for	Labor .....	78 97	
“	Haulage .....	94 40	
			173 37
<b>West Street (repairs to Sidewalk).</b>			
To amount paid for	Labor .....	1 25	
“	Haulage .....	2 00	
			3 25
			<u>2378 94</u>

## WARD 6.

*Statement showing Expenditure for Labor, Cartage, and Material for Street Work performed during the year ending 30th April, 1894.*

**General Repairs throughout the Ward.**

To amount paid for	Labor .....	662 93	
“	Haulage .....	591 00	
“	Material .....	99 02	
			1352 95

Lady Hammond Road (Repairs).			
	To amount paid for Labor .....	265 67	
	"    Haulage .....	21 00	
			286 67
Young Street (repairing Culvert and Grading).			
	To amount paid for Labor .....	131 06	
	"    Haulage .....	62 20	
	"    Material (flags) .....	73 20	
			266 46
Gottingen Street (Repairs).			
	To amount paid for Labor .....	126 79	
	"    Haulage .....	50 40	
			177 19
Longard Road (Repairs).			
	To amount paid for Labor .....	102 34	
	"    Haulage .....	11 00	
			113 34
North Street (laying Crossing and Curb).			
	To amount paid for Labor .....	38 27	
	"    Haulage .....	17 60	
			55 87
Kempt Road (Repairs).			
	To amount paid for Labor .....	379 80	
	"    Haulage .....	154 60	
			534 40
Chebucto Road (Repairs).			
	To amount paid for Labor .....	202 17	
	"    Haulage .....	111 30	
			313 47
Mumford Road (Repairs).			
	To amount paid for Labor .....	22 73	
	"    Haulage .....	10 60	
			33 33
Washington Road.			
	To amount paid for Labor .....	9 35	
	"    Material .....	2 10	
			11 45
Windsor Street (Macadamizing).			
	To amount paid for Labor .....	43 60	
	"    Haulage .....	237 27	
			280 87
Richmond Street. (Repairs)			
	To amount paid for Labor .....		24 70
			<u>\$345 70</u>

## INTERNAL HEALTH.

*Expenditure on above Service for the 12 months ending April  
30th, 1894.*

Watering Streets.....	3,208 60
Removal of Ashes .....	1,495 00
Spreading Ashes on Dumps.....	808 12
Cleaning Streets .....	5,451 72
Brooms for same.....	141 48
Cleaning Catch Pits.....	1,491 66
Scavenger's work.....	117 00
Boat Hire and Cleaning Esplanade Beach .....	22 40
Sundry small bills .....	166 23
Printing and Advertising.....	23 69
Repairs and Painting Watering Carts.....	234 20
City Prison—cost meals, men and policemen .....	159 25
	\$12,409 35
Less charged 1892-3.....	71 71
	\$12,337 64

## CITY PROPERTY.

*Expenditure on above Service for the 12 months ending April  
30th, 1894.*

City Hall: Sundry Mechanics' work .....	455 22
“ “ “ “ .....	465 09
Exhibition Building: Sundry Mechanics' work .....	1,656 10
Fish Market Building: Tearing down same and erecting fence and boat hire in connection with do. ....	87 17
Sundry Painting and Glazing .....	186 00
Hardware bills.....	56 41
Sundry small bills .....	50 75
	\$2,956 74

## HORSES AND DRIVERS.

*Expenditure on above Service for the 12 months ending April 30th, 1894.*

Wages paid City Drivers .....	1,624 00
Purchase of 3 Horses .....	406 44
Farrier's Account .....	168 50
Purchase of Sleighs, etc. ....	198 85
Forage and Feed .....	1,141 49
Harness, Reps., etc. ....	102 45
Hire of Horse (J. Hubley's) for Watering Carts .....	40 00
Rent of Barn (Mrs. Quinn's) .....	60 00
Sundry small bills .....	6 46
	\$3,748 19
Less charged to 1892-3 .....	376 44
	\$3371 75

## SEWERAGE.

*Statement showing Expenditure on Sewerage Account, from May 1st, 1893, to April 30th, 1894.*

General Account .....	8876 30
Building Sewer Kempt Road .....	7150 28
"    Gottingen Street .....	9601 45
"    Pleasant Street .....	650 23
"    Granville Street, Sackville to Blowers .....	1846 39
"    Blowers Street .....	2011 97
"    Granville Street, Buckingham to Duke .....	1760 76
"    Hollis Street .....	879 04
"    Lower Water Street .....	5381 15
"    Agricola to Macara Streets .....	2909 86
"    Hollis Street, Sackville to Salter Streets .....	1603 40
"    Sackville Street .....	1060 11
"    Prince Street Sewer Outlet .....	2387 90
"    DeWolf's Wharf Sewer " .....	463 38
"    Maitland Street Extension .....	985 22
"    Bedford Row .....	1050 98
Making Concrete Blocks, (Poor Asylum) .....	1004 69-
Building Catch Pits .....	2329 35
Less these amounts :	51352 46
Charged, 1892-3 .....	\$285 57
"    1894-5 .....	874 14
	1159 71
	\$50792 75

## PERMANENT PAVEMENT.

*Expenditure on above Service, for the twelve months ending April  
30th, 1894.*

South Park Street—Gravelling, Labor, Truckage .....	10 95
Brunswick Street—Laying Crossings, “ .....	490 17
Cogswell Street—“ .....	141 73
South Park Street—Laying Curbstones .....	823 31
Granville Street, Duke to George .....	566 78
“ Prince to Sackville .....	584 56
Barrington Street, Blowers to Salter .....	213 20
George Street—Laying Brick Sidewalks .....	102 92
“ —Bricks, Cement, etc .....	159 10
Inglis Street—Laying Curbstones and Gutters .....	2730 04
Water Street, opposite Ordnance .....	423 68
Granville Street, Duke to Buckingham .....	606 94
Hollis Street, Sackville to South Street .....	327 36
Granville Street—Macadamizing Prince to Salter .....	134 13
“ —Laying Crossings, etc .....	101 48
Gottingen Street—“ Curbstones, etc .....	346 91
Messrs. Klines' contract Stone .....	7037 20
Wm. Yeadon “ Granite Gutters .....	2332 28
General Labor .....	1900 60
“ at and hauling stones to Crusher .....	1758 00
Quarrying Stone for Crusher .....	823 73
Sorette & Co., Material and Freight .....	339 30
Hardware Supplies .....	239 29
Coal .....	396 25
Rent of Wharf .....	300 00
F. Hyde & Co., Drain Tiles and Freight .....	297 22
Sundry Iron Castings, etc. ....	101 42
Oil .....	55 69
Sundry small Bills .....	110 64
Lumber .....	61 38
Common Commissioners, Rent Field .....	100 60
City Engineer Doane, ac. trip .....	50 00
Advertising .....	9 26
	24275 52
Add these amounts paid this year, but chargeable	
1892-3 .....	986 28
	885 70
	1871 98
Less :	26147 50
Material used for other services .....	139 04
	\$26008 46

## INSURANCE.

*Statement showing Expenditure for Insurance on City Properties,  
for the Civic Year ending 30th April, 1894*

City Hall .....	130,000	at 60c.....	180 00
“ Prison.....	10,000	“ 1 p.c.....	100 00
“ “ Outbuildings .....	3,000	“ 1 p.c.....	30 00
Exhibition Building .....	14,000	“ 1½ p.c.....	210 00
Machinery in Buildings.....	9,200	“ 1½ p.c.....	138 00
Central Engine House.....	2,000	“ 60c.....	12 00
Gerrish St. “ .....	2,000	“ ½ p.c.....	10 00
Queen St. “ .....	1,800	“ ½ p.c.....	9 00
Isleville “ .....	1,000	“ ¾ p.c.....	7 50
Quinpool Rd. “ .....	2,500	“ ½ p.c.....	12 50
Spring G. Rd “ .....	1,000	“ ½ p.c.....	5 00
Lakemen's Houses, \$500.00 .....	1,000	“ ½ p.c.....	5 00
Hospital Infectious Diseases.....	5,000	“ 1 p.c.....	50 00
Furniture in City Hall.....	10,000	“ ½ p.c.....	50 00
			\$819 00

Caretaker of City Property :

Salary of Thos. Spelman, Caretaker, for 12 months ending April  
30th, 1894..... 1200 00

Caretaker of Exhibition Building :

Salary of Geo. W. Bowser, Caretaker, for 12 months ending  
April 30th, 1894..... \$353 96

# CITY ENGINEER'S REPORT.

CITY ENGINEER'S DEPARTMENT.

<i>City Engineer :</i> F. W. W. DOANE.	<i>Foreman of Water Department :</i> EWAN MORRISON.
<i>Assistant City Engineer :</i> H. W. JOHNSTON, JR.	<i>Plumbing Inspector :</i> CLAUDE DONOVAN.
<i>Foreman of Works :</i> JOHN McDONALD.	<i>Meter Inspector :</i> JOHN E. BURNS.

CITY ENGINEER'S OFFICE,

HALIFAX, N. S., May 1, 1894

*To His Worship the Mayor :*

SIR,—I beg to lay before you the annual report of this department for 1893-4—my third annual report :

## WATER WORKS.

Operations were begun in this department as early as possible. As soon as the pipes were delivered for the change in distribution in connection with the new

## LOW SERVICE

Main, the old six-inch pipe in Brunswick Street, between Jacob Street and George Street, was taken up, and nine-inch pipe with turned and bored joints substituted. The result of this change will be more effective pressure for fire and domestic service in a district where formerly there was no pressure at all at times. On North

Street the old six-inch pipe between Lockman Street and Brunswick Street was taken up, and nine-inch turned and bored pipe laid in its place. The nine-inch pipe on Campbell Road will be supplied through the new pipe in future instead of through the old six-inch pipes. This change will make a great difference in this district, as formerly the capacity of the supply pipes was less than that of the distributing pipes.

Immediately after Mr. Morrison's return from Scotland, the laying of the twenty-four inch turned and bored pipe on Gottingen Street was commenced. This pipe extends from Cogswell Street to West Young Street, where it connects with the new main. The junction with the old twelve-inch and fifteen-inch pipes in Cogswell Street was made with a six-way special. It was a difficult piece of work, but was carried out successfully under the supervision of Foreman Morrison. Both ends of the twenty-four inch pipe have been closed with heavy plates, which may be removed for the purpose of operating the Kennedy-Keating Scraper. Connections were made at Cornwallis Street and North Street with the distribution mains of the Low Service, and at North Street, Bilby Street and Kaye Street with the High Service. The latter will not be used for ordinary domestic supply, but will be available in case of fire in the Low service district in the North end.

A twelve inch pipe was laid on North Street to connect the twenty-four inch main on Gottingen Street with the 12 inch pipe on Brunswick Street, which will increase the pressure largely on the latter street when the new main is in use. A twelve inch pipe was also laid in Kaye Street from Gottingen Street to North Starr Street, where it will be connected with the old Low Service distribution. To complete this service a nine inch pipe will be laid on North Starr Street from Young Street to Russell Street with a high service connection for fire pressure.

A plate closes the end of the 27 inch main at Gottingen St., which can be removed when using the scraper.

In the last annual report of this department it was stated that turned and bored pipes were to be used and that the cost was only fifty-five (55) cents a ton more than for the old pipe. It would appear from this statement that the turned and bored pipe is more expensive than the old style. Such, however, is not the case. The cost of handling is about the same but the joints cost less, and when once made never blow out or leak. The pipes are driven tightly together and should there be a slight leak from any cause it

soon rusts tight. The cost for a lead joint for 24 inch pipe is about \$2.56, and for a wooden joint \$1.10. This expense is saved, to say nothing of the greater efficiency of the service. As there is no loss from leakage at joints, the pressure is much greater. Under the old system of wooden joints, where the pipe was laid in rock, there was a great waste of water that could not be detected. All this is now avoided, and the whole saving is more than we can estimate.

The contract for the excavation of the trench for the 27 inch main was awarded to Archibald McKinnon at \$1.85 for rock and 28c. for earth, measurement limited to four feet in width. Thos. Robinson was awarded the contract for truckage at \$1.25 per ton. All other work was done by day's work and the cost up to date is less than the estimate. The 27 inch pipe has been laid from the old pipe line West of Dutch Village Road to Windsor Road. A portion of the Eastern end was also laid extending from Gottingen St., to the middle of the Hennessey property. This had to be abandoned until the bog dried up sufficiently to get the water out of the trench. In order to avoid the necessity of putting in a blow-off at Kline St., on Bayers road, the pipe was given a continuous fall from Gottingen St., to the City limits. In consequence Bayers Road was raised about 6 feet at Kline Street. The trench along the old mains is being excavated by day's work, as great care was necessary in blasting to prevent accidents to the supply pipes.

#### RIGHT OF WAY

was acquired by deed on Starr St. extension, from the Estate of P. Power, John Ryan, L. R. Kaye and Joseph Kaye. Along the 27 inch main deeds were given by J. M. Chisholm, Estate of P. Power, Henry Walker, William Walker and Henderson & Potts. Right of way was expropriated through the following properties: Thomas Gooley, Edward Walker, Wm. Miller, Samuel Caldwell the Veith Heirs and the Misses Hennessey.

The diversion of the

#### ROAD NEAR CHAIN LAKES

is not completed. The Contract was taken too low and work has been suspended. Immediate action will be taken to have this work completed at the earliest possible date so that the duplicate main may be in operation before the close of the season. The joints of the

## HIGH SERVICE MAIN

cannot be strapped until the new road is completed, as the pipe is laid along the old road for some distance.

## LAND LINES AND BOUNDARIES.

Mr. Christie has surveyed the lines of lots 10, 11 and 12 and set up monuments and filed a plan of the work with full reports in this office. He is now obtaining a description and location of each property on the lots and they will be filed for future reference. The information obtained will be very valuable and with the plan and stone monuments should prevent further disputes.

The work on

## SPRUCE HILL LAKE

Dams was finished and no further expenditure will be needed on them beyond the ordinary repairs. An effort must be made this year to clean these lakes. The decaying stumps, roots, sticks, etc., lining the margin of the upper lake, in some places, and extending into the lake, do not improve the quality of the water. This work has been repeatedly recommended, but no action has been taken by the Board of Works to carry it out.

## • CLEANING MAINS AND SETTLING BASINS.

The settling basins at Chain Lake were thoroughly cleaned, and the scraper was passed through the low service main. Trouble with this scraper was anticipated, as it refused to start with the usual head of water, but when the full head was turned on it moved off at a rapid pace, and made the run in less time than usual. When it emerged at St. Andrew's Cross we discovered that one of the knives had been broken, which probably got jammed in some manner, and caused the scraper to stop.

Last year the 20-inch high service main was cleaned for a portion of its length only, as the scraper lodged, and had to be cut out of the pipe. We had taken every precaution this year to insure a successful operation. The telephone was placed at the hatch-box in the woods, and proved a most valuable addition to our equipment. The water was turned off as early as possible, and a 20-inch valve was placed on the main at its junction with the 15-inch main.

The 15-inch scraper was inserted and the valve closed. We then proceeded to run the 20-inch scraper, starting at the gate-house. It was with some anxiety that we passed the spot where it had stopped last year, but it continued steadily up the grade. Its progress was very slow, as the incrustation on the pipe was very thick, and at times it was difficult to hear the scraper at all. It occupied about an hour in the whole passage. It was removed as soon as it reached the hatch-box, and the reducer replaced. The 15-inch scraper was then started, and reached St. Andrew's Cross about 9 p. m.; the whole high service main having been cleaned in one day, besides the work of cutting the pipe and inserting the valve.

In this connection I must again call your attention to a former statement, that the high service will not be complete until a storage reservoir is constructed in the city, capable of containing several days' supply. When the water is turned off now there is great danger of a fire gaining headway in the high service district before the pipes could be filled again, and the result of any accident to dams or pipes cutting off the supply would be serious.

#### METERS.

There were 73 meters in use at the close of last year. All the meters on hand are now in service, except ten or twelve that are reserved for cases of emergency. The result of their use continues to be satisfactory. The Inspector has been provided with a book containing a form of notice and stub, and the blank is filled out at each monthly visit, showing the consumption since the last reading. This notice is left with the water-taker, so that leaks or waste can be detected at once. It has worked very successfully, and no complaints have been made during the year in reference to the accuracy of the meters. Meters have been put in a number of houses where closets with hopper cocks were found wasting water. In a great many houses where it was proposed to place a meter on hopper closets the owner preferred to replace the hopper cock with a flushing cistern, and the number of hoppers is decreasing rapidly. The result is already noticeable in the increased pressure in some districts affected by the change.

#### LEAKS IN MAINS.

The water was turned off the high service May 16th, at 9.30 a. m., to repair a joint which had blown out. It was on the shore of Lower Chain Lake, and it was necessary to lower the lake to repair

it. The water was again turned on at 8 a. m. on Wednesday, 17th. On Saturday, May 20th, half a joint was blown out on the shore of Upper Chain Lake, and the water was turned off from 10.15 p. m. till 2 a. m. Sunday, 21st.

On August 2nd the water was turned off the low service at 12 a. m., to repair a leak in Roche's field, and was turned on again at 5.30 p. m.

#### FRAZIL ICE

closed the sluice gate at the South dam at Lower Chain Lake during the night of December 11th, shutting off the supply to the 24-inch main. Through the exertions of the foreman and gate-keeper it was cleared and kept open until four o'clock next morning, when the ice stopped running. When the new dam is built precaution will be taken to prevent further trouble from this source.

#### GENERAL.

The number of lineal feet of cast iron distribution mains laid during the year (not including that in connection with the new main) was 4343. 4280 lineal feet of lead service pipe was put in. There were 101 houses supplied with water, and 55 service pipes renewed. No new fire hydrants were set, leaving the total 355. Eight old hydrants were replaced with improved hydrants, protected by frost jackets. The total length of excavation made in carrying out the work was 8623 feet, or 1.63 miles. The total length of mains now in use is 52.54 miles, not including new duplicate service.

The experience of last year respecting waste was not repeated. The vigilance of the officials of the water department and the strict enforcement of our rules, has resulted in a fair pressure all through the winter. On one or two occasions only were there any complaints of lack of pressure. A reference to the last annual report will show a different state of affairs. Your officials are encouraged to believe that the old system has been abolished forever. Turning back the pages of the Turnkey's order book one may find orders for waste prevention written by the officials in charge of such work, countermanded by some aldermanic friend of the offender. I am happy to say such occurrences have been very infrequent during my term of office, and each case is now dealt with on its merits. The beneficial results of the change are already apparent in the improvement in the water service and the discipline among the employees.

The average normal pressure on the fire hydrants had increased last year from 21.81 pounds in 1891 to 30.18 pounds in 1892. In 1893 it had still further increased to 31.57 pounds. A better circulation would be given and the quality of the water in many parts of the City improved if all the dead ends on the various mains were connected.

During the winter every hydrant and valve is inspected daily and promptly repaired when necessary so that they are always in order when required.

Mr. Johnston is keeping an accurate record of the location of the new mains, valves, etc., and a plan will be made and filed when the work is completed.

The report of Mr. Morrison, foreman of the Water Department, showing the work done and stock on hand, also the Meter Inspector's report, is appended.

#### SEWERS.

The total length of new sewers constructed was 8532 feet or 1.61 miles. Gottingen Street sewer was the most expensive work. Several reasons may be given for the excessive cost. The trench was excavated along the street railway track on one of the principal business streets where the traffic is heavy. The rock was hard and flinty and very difficult to take out. Hollis Street sewer between Fawson Street and South Street was the cheapest work done.

#### OUTLETS.

The number of sewer outlets in use is being reduced rapidly, and those which cannot be dispensed with are being extended and improved, or are used only as storm over-flows. During the last year Sackville Street outlet was converted into a storm over-flow and the sewerage is emptied at Prince Street. The outlet at the foot of the latter street was formerly very offensive, but has ceased to be a nuisance. It was extended 280 feet to low water mark. It is four feet in diameter and constructed of concrete blocks on a pile foundation.

The Hollis Street sewer was connected with the Lumber Yard outlet. This connection was made under a concrete catch-basin, and in order to reach the outlet the earth was excavated all round the pit. It was then shored up and the earth underneath it removed until the bottom of the invert of the outlet was reached. The

sewer was laid and a concrete arch built over it to support the catch-basin. After allowing sufficient time for setting the shores were removed and the excavation filled in.

Dewolf's Wharf outlet was extended below low water mark. The size and plan of the work being similar to that adopted at Prince St.

These changes, together with those referred to in the last annual report, have made a great improvement in the sanitary condition of the water front. Several offensive outlets still exist, however, and a strong effort will be made this year to remove or extend them. I regret to say that the prophesy made in former reports respecting the Esplanade outfall has been fulfilled. The nuisance caused by deposits from the sewer has been at times almost intolerable, and the Council should take immediate action in the interest of the residents in that vicinity. A special report has been made on this matter and the necessary legislation should be obtained at the next session of Parliament to enable the Council to carry out the work.

The extension of the Esplanade forms an eddy on the north side at flood tide, and the floating matter emerging from the sewer is washed ashore. Under the quickening action of the summer sun, gases injurious to health are evolved from the foul constituents forming this dangerous deposit. Experiments have been made recently to ascertain the course and flow of the currents, so that the best plan for improvement might be adopted. Two plans have been proposed—one, by the Chairman of the Board of Works, to extend the sewer 75 feet, the other, by your Engineer, to extend the sea-wall north, and cut off the beach, so that no portion of it would be dry at low tide.

In the opinion of your Engineer it would be useless to extend the sewer 75 feet only, as the main current is 500 feet from the sea-wall of the Esplanade. The undertow is very strong, and if the floating matter did not lodge immediately north of the Esplanade it would be washed up on the beach behind the houses in the middle of the block. There is a heavy sea on the shoal during storms, and it would be difficult and expensive to make permanent work. Before any further extension of the outlet is made, the question of sewage disposal in the future should be carefully considered. We cannot afford to throw away the amount of money necessary to make the extension, nor can we afford to experiment.

The same amount, or less money, expended on the sea-wall will give better results, and improve the appearance of that portion of the city. The wall, if extended from the north-east corner of the

Esplanade to the city water lot at Malcolm & Johnston's wharf, would cut off all that portion of the shore which is now dry at low tide, and the sewage would be kept under water. The improvement, as recommended, includes the extension of Inglis street and South Hollis street to the Esplanade. The estimated cost, including land taken, would not exceed \$9,000. The land is nearly all covered at high tide, and is of little value as water property. The water is shallow, and the bottom a reef. No shelter is afforded for boats or shipping, and in storms the sea breaks on the shore. The filling could be done with clean ashes under the removal contract. The value of the vacant land abutting on the extension of South Hollis street does not exceed \$4,000. The city should acquire the whole lot, and divide it into building lots. The amount realized from the sale of lots would give the city the improvement free of cost.

#### CATCHPITS.

During the working season 75 new concrete catchpits were constructed. A great many old pits in the centre of the city have ceased to exist, and complaints respecting bad odors from these nuisances are becoming less frequent. The work to be performed during the coming season should make them a thing of the past.

#### FLUSHING.

Automatic flushing has not been introduced in connection with new sewers. The flushing and cleaning is done by using hose connected with fire hydrants and the work seriously interferes with street car and other traffic. While we have few obstructions or stoppages, yet our sanitary system will not be in a satisfactory condition until automatic flushing apparatus is placed at the upper end of all dead ends on flat grades.

#### PLANS.

When the work of construction begins, surveys are made and profiles prepared showing the surface of the street, size, grade and depth of sewer, location of manholes and depth of cellars on both sides of the street. A plan is also made showing the alignment of the sewer, the street lines and the lines of properties abutting. As the construction proceeds, all information obtainable as to the character of material excavated, number of catchpits, location and size

of house drains and their junction with the sewer is recorded. The information thus obtained is of great value for future reference, and affords a check on the assessment plans.

#### GENERAL.

The cost of work during the year was considerably reduced by the action of the previous Board and Chairman W. F. Pickering. It had been the custom to purchase materials from the local dealers as they were required. Before the expiration of their term the Board decided that it would be in the City's interest to buy all materials as far as possible by tender and contract. The result has been very satisfactory; the cost of material for sewer work being in some cases 50 p. c., less than the price paid under the old system of patronage.

A change has also been made by the Council since the date of the last annual report in the order of construction. At the beginning of the season a report was made to the Council urging the necessity of adopting a more systematic method of procedure. An order of construction for the year was submitted beginning at the old outlets and continuing on the adjacent streets. It was endorsed by the Board of Health, taken up in Council by Alderman Morrow and finally adopted. The same course has been followed for the coming season, and I hope we have seen the last of the old system of building new sewers in the suburbs while the centre of the City is full of offensive old stone drains and catch-pits which are so injurious to the sanitary condition and reputation of the City.

#### HOUSE DRAINS AND PLUMBING.

The number of permits issued for laying drains was 319. The number of sewer connections made was 345. All work of connecting and laying pipe from a sewer to a connection with the house drain is required to be done under inspection and finished to the satisfaction and approval of the City Engineer or his duly authorized inspector. The inspector keeps complete book records of all transactions in that branch of the department.

The work of connecting houses with the sewer is done by the City at cost, on application being made and a deposit paid to the Treasurer sufficient to cover the estimated cost of the work. A complete account is kept of all time and material used, and when

finished a bill of the same is made out and charged to the owner; the excess, if any, in the deposit is returned to the owner. In a few cases the cost may overrun the estimate, owing to unforeseen circumstances, when the bill of excess is collected. Drains are connected with the sewer not less than one foot above the invert, and six inch drains are laid at a grade of not less than 1 in 48. Particular attention is given to the alignment, all drains being laid in a straight line and with a regular grade so that the whole length of pipe may be inspected from the house and cleaned out if necessary with rods without excavating for or breaking into it. The Inspector is also careful to see that a template is used to clean out the pipe as each length is laid. Stoppage and obstructions in old drains are generally caused by the careless work of the drain-layer in not making joints properly, in failing to clean the joints or in not laying the pipe straight, and in a few cases in not connecting the drain to the sewer at all. Under our present system of inspection and supervision these causes of inconvenience and annoyance are reduced to a minimum.

Our efforts to effect a reformation in the house plumbing have received little encouragement from the Council. The work done by this department has had a good effect, however, and householders are taking the law in their own hands. The number of houses from which complaints were received was only 55 or about one-third of the number reported during the previous year. All water supply plumbing in new houses must be approved by the City Engineer or his authorized Inspector before water is turned on. It was very discouraging to the officials and to the Health Board to find that the Plumbing Law was not legally passed. The Board has used every means to obtain the approval of the Council or to get that body to pass some kind of a Plumbing Law. Their efforts have been unsuccessful and the code is still on the order of the day, while plumbing work is being done in any way and every way, as before. Such a condition is disgraceful in this enlightened day. Until we have the drainage system inspected and tested by a competent official, we cannot hope to have houses, often built for speculation or rent, erected with proper sanitary arrangements. The sanitary condition of dwellings either affects or does not affect the health of the inmates; if it does, the City authorities should protect the people who are compelled to live in other people's houses by having proper sanitary by-laws and superintendence. In this

connection I beg to submit the following extract from a report made to the Board of Health in November, 1893:

"The most important question now before the Board is house drainage and plumbing. The importance of sewers in relation to the health of the city cannot well be overstated. It is generally conceded that a system of water works necessitates a system of drainage, and *vice versa*, otherwise the sanitation is imperfect. It is also a well known fact that disease often follows sewer construction in districts where it has never broken out before. Investigation almost invariably shows defects in the plumbing work, the most important part of the drainage system. The business of the plumber is of as vital importance to the family as that of the physician, and more so, as the plumber's work, when properly done, is preventive, while the physician's is curative. House-holders call in their physician when disease breaks out and obey his instructions, trusting him implicitly, because they can see the direct consequence of such a course. The same man may advise in reference to domestic sanitation, yet he is not believed, because it is human nature to doubt everything but the evidence of one's own senses. Some sanitary conditions are within the control of private citizens; but if they neglect to protect themselves and their neighbors all conditions should be within the scope of the Board, whose paramount duty is the protection of the public health. In all towns and cities in America plumbing regulations have or are being adopted, and health laws are introduced regulating the practice of house sanitation. The introduction of such regulations have been opposed in Halifax principally by the landlords, because it will cost them something. If the same objection were urged by electric light companies or electric street railway companies when required to comply with municipal laws passed to protect life and limb the universal answer would be—You cannot expect to be permitted to go on killing and maiming people because it will cost you something to prevent it. The same argument is good with plumbing, for if it is faulty or poorly constructed it means that the health of the occupants, and sometimes their lives, are in constant danger.

Some of the best houses in the city are not fit for habitation. Of 162 houses inspected last year on complaints, not a single one was found in a sanitary condition, and nearly every one was dangerous to health. With one or two exceptions the city plumbers favor the introduction of rigid regulations, and are ready and willing to do good work in accordance with our requirements. The principal ob-

jection made by those opposing the adoption of the rules recommended by the Board, was that the weight of pipe required was much greater than there was any necessity for, and that our weights were copied from Boston and New York, where the conditions were not the same. I obtained a copy of the rules from each health department, and find, on comparison, that every city and town visited has adopted the same standard—that known as extra heavy. It is the same in the small towns as in the large cities. The following statement shows the weight as specified in the Halifax rules, compared with that required in Boston, Newton, Cambridge, Lowell, New York, Brooklyn, Chicago, Washington, Philadelphia, and other cities and towns all over the United States:

Size of Pipe.	Weight per length of 5 feet, Halifax.	Weight used in Newton, Lowell, Boston, etc.
2 inch diameter.....	20 pounds.....	27½ pounds.
3 " .....	30 " .....	47½ "
4 " .....	45 " .....	65 "

From the above it is apparent that if we have erred, it is in favor of the landlord."

"Another objection urged, was that the clause requiring the removal of all pan and hopper cock closets was an injustice, as such closets were good sanitary fixtures. This matter has been thoroughly threshed out, and I do not propose to go into it again. It can be proven, without any difficulty, that there are hundreds of closets in Halifax in a filthy condition, and dangerous to health. The plumbing rules now before the Council, provide for the removal of all closets which cannot be placed in a sanitary condition, but do not require the removal of all hopper closets, as is generally supposed. There is a hopper closet in my own house, and I consider it as good as some of the improved closets, if not better. The use of pan closets is prohibited everywhere. The following clause is copied from the plumbing regulations of Oswego, New York State, a town of 23,000 population."

"Pan closets and all closets having mechanical or moving parts which come in contact with filth are strictly prohibited."

There are similar clauses in the "sanitary code" of every City and Town adopting plumbing laws. The clause given below is taken from the ordinances of Washington, D. C.

"All water closets and privies connected with any house, building or premises within the District of Columbia, in or upon which people

live or assemble or any kind of business is done, kept in an uncleanly and foul condition, and from which offensive smells and noxious gases arise, and all water closets located within and being a part of any such house or building not provided with proper sewer traps so as to prevent the return and escape of noxious gases and offensive odors from any public or private sewer connected therewith, are hereby declared to be nuisances injurious to health, and any person creating, keeping or maintaining such nuisance after due notice served upon him by this Board to abate the same within 24 hours or within such reasonable time as may be determined by this Board, shall upon conviction thereof be punished by a fine of not less than five dollars or more than twenty-five dollars for each and every day such nuisance is allowed to remain unabated."

It would be advisable to add this clause to our sanitary code, as it just fits several cases which we have not been able to reach.

Another clause from the same Ordinances will be of special interest to the Board, as several complaints have been made respecting establishments which this section would include.

"All establishments or places of business for tanning, skinning, scouring or dressing hides or leather within the District of Columbia, in a filthy condition, or from which noisome odors and noxious gases arise, are hereby declared nuisances injurious to health; and any person who shall erect, create, maintain, or continue such nuisance, and who shall fail after due notice from this Board to abate the same, shall, upon conviction, be fined not less than ten or more than fifty dollars for every such offence."

In most cities a section of the "Sanitary Code" provides that "no privy vault will be allowed on premises where there is a main sewer in the street." Section 508 of the City Charter empowers the City Health Board to abolish these receptacles of filth wherever there is a sewer passing the premises. This matter has not received the attention its importance demands. We have enforced the section making the connection of houses with the sewer obligatory; but we should go farther. Our sanitary code will not allow a public funeral if a person dies of a contagious disease, but we allow the waste matter from the same person to be stored in a festering plague spot on the premises. There are hundreds of these epidemic breeders scattered throughout the city and used by hundreds of people who do not realize the danger incurred in living near them. All privy vaults should be burned the same as we burn all infected bedding and clothing. It is a disgrace to the city to allow these

nuisances to exist. There is no reason why they should be tolerated on streets where there are sewers, except the old excuse of expense in putting in closets. There is really no economy in having them because they have to be cleaned frequently at an expense of \$10 00 to \$15.00. A common water closet is far cheaper and less dangerous. I would respectfully recommend that steps be taken in the next year to abolish privy vaults wherever it is practicable.

The President of the American Public Health Association has made a suggestion to local health boards which it would be wise for Your Honorable Board to act upon.

He says: "The Health Officer of a place should have in his possession a brief description from a sanitary point of view, of every premises in the city, and a person proposing to buy or rent a dwelling-house ought to be able, on payment of a proper fee, to obtain a certified copy of the sanitary history of the house he proposes to occupy, its connection with sewers, the number and causes of the deaths that have occurred in it, just as much as he is enabled to obtain a record of title."

Such a record would be greatly appreciated by the public. Already the efforts of the City Health Board are being endorsed by the tenant, and persons about to rent a house apply to the Department for a report on the sanitary condition of the premises before taking it. A house-to-house inspection should be made, and a record kept at the Health Office of detailed reports of the results, covering the condition of every sink, water closet and other fixture, plumbing, cellar, cesspit and condition, and method of disposal of garbage and refuse. In the City Engineer's office we are keeping plans showing all house connections and records of all permits. The plumbing permits and plans will show the extent and character of the work done and the date. All this work could be referred to in the record kept in the Health Office, and any particular information required could be readily turned up if properly filed. The public would soon awaken to the value of such a record, open to inspection in a public office, and the result would more than justify the extra time and work necessary to accomplish it. A copy of the Rules and Regulations of the Health Department of the city of New York is attached hereto. It contains the regulations and instructions for inspectors, and also shows the system of filing reports, complaints and other documents which may be of some service."

In the absence of a plumbing law, which would enable us to control the sanitary condition of houses it may be advisable to give to

householders themselves for their guidance and protection the sanitary information appended hereto:—

#### INTERNAL HEALTH.

The usual work has been performed. A new sprinkling cart was considered necessary by the Board and the purchase ordered but it has not been delivered and I believe no directions have been given for its construction. It should have been ready by the first of April. The contract for removal of ashes and garbage was awarded to Peter Kiddy at \$65.00 per week. The destruction of garbage, refuse and offal, in a manner conforming to sanitary law, has become a matter of vital importance and should receive the attention which so important a factor in the welfare and safety of the people deserves. It is most essential to health that adequate means be provided for the efficient removal of all decomposing refuse. Its final disposal must be carefully attended to before putrefaction sets in, as it is then deprived of its power to cause injury to health, care being taken, of course, to select a system which adapts itself best to meet the particular circumstances of the case both as regards efficiency and economy.

The sanitary regulations provide for the separation of ashes and garbage, but no attempt has been made to enforce them. The practice has been to throw ashes, empty cans, swill, offal, rubbish, garbage, dirt and all other waste matter from houses and buildings into one cart and dump it on the common, esplanade or other public deposit ground. There is no use in attempting to disguise the fact that not only is a disagreeable nuisance created, but the practice of depositing garbage upon the ground, or in the water, in the neighbourhood of dwellings or upon lands which are afterwards to be used for streets or dwellings, is positively dangerous to public health and a menace to the future sanitary condition of the City. The ashes, if kept free from other refuse makes a fairly satisfactory basis for the construction of streets and the filling in of low ground. There is a great deal of work to be done in street grading only the older streets having been brought to a proper grade. A great deal of this work could be done by the ash cart, and "two birds killed with one stone"; but when ashes is mixed with putrescible matter, fermentation sets in, the growth of the lower forms of animal life is promoted, offensive odors are given off, and the dump becomes a nuisance, dangerous to health, and give rise to complaints. It is

generally conceded by the Medical profession that decomposing organic matter is one of the most fruitful sources of diphtheria and some of the fevers, and I think this question of disposal of garbage should be grappled with at once.

It is of course, largely a question of expense. There are different methods in operation in different cities. In Chicago it has been the custom to take the garbage on the cars to the outlying wards and dump it into clay holes. This practice will be abolished in the near future, and it is probable that cremation will take its place. In Washington the refuse matter is collected in water-tight steel carts and taken to the factory of the National Sanitary Company where the grease is extracted and the residue sold as a fertilizer. In Philadelphia the garbage is taken outside of the city and used for feeding hogs and as compost, except in one district of 245,000, where a crematory is in operation. The latter system will be adopted for the whole city at the close of the present year.

Boston uses dumping scows and tow boats. Cremation and chemical treatment is to be adopted in the large portions of the city.

In Halifax, the greater part of the swill, garbage, sweeping of houses, filth of back yards, decayed fruits and vegetables, etc., goes to the dumps. Some swill and offal is given to farmers and fed to swine. The investigation of Dr. Mark, in Boston, several years ago, traced the origin of trichinosis to swine fed upon city swill. Epidemics of Cholera Infantum have been traced to swill milk so positively as to leave no room for doubt that feeding swill to milch cows was directly responsible for the mortality among the children. All cities are adopting and enforcing laws prohibiting the feeding of swill to cows and swine.

The use of dumping scows and tow boats may perhaps seem most desirable for Halifax. There is no doubt that it would offer many advantages and garbage could be taken out far enough to prevent any nuisance. The principal objection would be the expense. It would be necessary to hire or own a tow boat. Hiring would be less expensive than owning one, because the boat would be needed only about two days in a week in summer and perhaps less frequently in winter. The city does not own a wharf, however, and the cost of fitting out would be heavier than for other systems.

Although the matter of dollars and cents is a serious one, especially at the present time, public health and safety is of more importance. One epidemic will cost more than the health department will cost in fifty years. The whole subject of garbage disposal

is yet in its infancy. Sanitary authorities agree that total destruction or complete change in its characteristics is the only solution that will satisfy sanitary requirements. Cremation promises to settle the difficulty with satisfactory results. Lowell has a crematory in operation which I inspected in October last, and against which I could find no objections. It creates no nuisance, and in economy of operation gives satisfaction to the city authorities. It is located on the outskirts of the city, as it was feared that there would be objectionable odors. Such, however, is not the case. At the World's Fair there was a crematory on the grounds, the existence of which no person could discover by the aid of the sense of smell. All of the ashes, garbage, and refuse of the White City was destroyed there without any offensive odor.

A crematory large enough for Halifax could be built at a moderate expense. It could be located on the city lot at the Ccton Factory siding where coal could be delivered cheaply. The cost of removing ashes would be much less, and a large amount of work would be done every year which now cuts down the street appropriation. It would be necessary to add to the sanitary code, rules for the proper carrying out of the service. Whether action is taken in the line suggested or not, I would recommend that hereafter house-holders be compelled to burn all garbage and refuse, or that the laws for the separation of garbage and ashes be enforced, coal and ashes being put in one receptacle, everything else in the other. If not cremated or dumped at sea, the garbage could be deposited in the night soil pit for the present. Although a decided improvement on our present system, it would never be satisfactory, as decomposition would go on slowly, the space available is limited, the land would become contaminated, the expense on account of the extra haul would be quite as great as in other systems, and the matter collected would be valueless, as according to the experience of the best scientists garbage in its raw state has no real worth as a fertilizer.

Immediate action is necessary, and I would urge that the Board of Health and the Council take this matter in hand at once and come to some definite decision.

#### PERMANENT PAVEMENT.

The work performed includes 1,479 square yards of concrete sidewalk, 6884 lineal feet of curb set or reset, and 11,223 lineal feet of granite gutter laid, or relaid.

Some changes were made in the methods of laying concrete sidewalks which resulted in a great reduction in the cost without affecting the efficiency of the work. The cost during the season averaged only \$1.93 per square yard, a difference of 32 cents per yard compared with last year. The cheapest work was done for 1.78 and on one sidewalk only did the cost exceed \$2.00. Leaving out the latter sidewalk, the average cost would be \$1.87, a great saving when compared with the proposed contract work at \$3.00 to \$3.20 per square yard. The report of forman Low shows the work in detail.

#### GENERAL STREET WORK.

The street appropriation was divided and expended by the members of the Board, notwithstanding His Honor the Recorder has stated that it is not authorized by law. Much needed repairs were postponed in some streets in consequence of the division, while work was done in other streets that was not urgent. The amount provided for street work is so small that the best management cannot give satisfaction, and there can be only one result unless it is increased. Three years ago the Council, realizing that the street fund was inadequate for the work, passed the Permanent Pavement Act. This fund will be exhausted in a few years, and in any case can be expended only on the business streets. The amount placed in the estimates for general work should be fixed at the old figure, \$40,000. We would then be in a position to maintain the streets and sidewalks in a manner that would reflect credit on the Council and its officials and remove all cause for adverse criticism, now so frequently heard. The estimates for the ensuing year provide \$18,000 for this work, while in 1892-3 it was \$24,000. The street fund has been robbed of \$6,000 to increase other services. Surely efficient work cannot be expected under these circumstances.

Permanent improvements are essential to the comfort and welfare of the people, and will contribute to the business prosperity of the city. In many United States cities the value of the benefits resulting to individual property owners is considered so great, that their local improvement or betterment laws provide for the assessment of the whole cost of permanent improvements on the abutting properties. In other cities the corporation pays a portion of the cost of some work. The following extract is from a local improvement law:—

“ Payment for street paving shall be proportioned as follows:—  
The owners of abutting property shall pay for two-thirds of the

paving of all lot frontage, to be assessed according to frontage and area of lot. The City shall pay for the paving of all intersections of streets, Lanes and alleys and also for one-third of the paving of all lot frontage. On streets where railways are laid the street railway company shall pay for the paving of the space between the rails and a strip two feet wide on each side of their tracks on said streets."

Our law saddles the whole cost of paving on the taxpayers generally instead of on those getting the greatest benefit from it, and the rate of taxation must go up. This accounts for the difference in the rate of taxation in other cities having the same improvements.

There can be no question that the work already done has made an improvement in the condition of our principal thoroughfares. The paving of Water St., the laying of concrete sidewalks, and granite curbs and gutters and macadamizing of many streets must result in benefit to some citizens. Before the improvements were made these streets were regularly cleaned, but in a few hours thereafter they had the appearance of neglect. The sidewalks were rough, uneven and full of cracks, holes, projections and puddles, the surface of the streets was rutted, out of grade, worn out and without surface drainage. These conditions have been changed, and the streets referred to are properly drained and can be easily cleaned and kept clean. The cleanliness of the streets checks the habits of the residents of throwing out refuse from their houses; the children have cleaner streets and sidewalks to play on and public travel and business is facilitated.

There is much room for further improvement, however. The system of allowing a street to wear out before repairs are made is all wrong. I have urged on the Board of Works the necessity of making a change to enable us to carry out this work properly. Work begins too late in the season. As soon as the frost is out ruts and holes should be attended to instead of being allowed to grow worse until the middle of the summer. There was a balance on street account at the first of April of \$4,000. At least \$3,000 of this amount should have been expended last fall on much needed work in the most important streets in the city, instead of neglecting them until this year. Repairs should have been commenced by the first of April at the latest. Instead of following this course, a frantic effort was made during the last fortnight of the year to spend as much as possible on Gottingen Street and Windsor Street and the remainder must go to unexpended balances while the coming season's appropriation must provide for part of last years work.

In this connection a report was made to the Board of Works dated December 4th, 1893, advocating a change in the civic year. The proposed change was opposed by some of the city officials and the Committee on Public Accounts reported adversely.

The year begins on the first day of May, and it is a month or six weeks later before the amount of taxes paid in is sufficient to carry on the work of this Department. Last year street work was not fairly started before the middle of July, and in consequence the greater part of it was performed late in the season. Work done late in the season is often money thrown away. The street surface cannot be compacted, and the fall rains wash the best material into the gutters. The traffic cuts up the street while it is soft, and with the aid of freezing and thawing, leaves the roadway in the spring as bad as ever, if not worse. Instead of a good hard, smooth surface made in dry weather, the street is full of ruts. If repairs were begun as soon as the frost is out of the ground, the streets would present a creditable appearance at the time of year when strangers visit us, and would be much more easily kept clean. Instead of such a course, our streets are allowed to remain in a dilapidated condition through the summer, and road metal is piled on in the fall, to be carted to the dumps by the street cleaning squad. One dollar spent in the spring is better than two in the fall. Nothing is more destructive to a road than water lying on it, but instead of adopting a preventive policy, we follow the more expensive and less effective curative policy. We not only allow ruts to form, but they are permitted to increase until they become a nuisance and dangerous to traffic before any attention is given to them. The result is, our street appropriation will not cover one-quarter of the work to be done.

Not only is the work of street repair affected, but the cleaning is delayed as well. About the first of April when the snow and ice have vanished, our streets are in a filthier condition than at any other time during the whole year. There is a general demand for the removal of the dirt, and in order to satisfy the demand the custom in the past has been to make an overdraw on internal health account of from \$1,000 upwards. This year, although there was money on hand, no work of any consequence has been done to date.

There is another evil resulting from this custom of crowding all the work into one or two months at the end of the season. Any and all kinds of Foremen have to be employed in order to get the work completed before the frost sets in, and it is the same way with

laborers. The work is expensive, and in many cases is not properly done, because all the skilled labor available is employed elsewhere.

A change in the civic year would alter the existing conditions. The street and catchpit cleaning is carried on later in the season than any other work, but it is finished about the first of December. There is very little work to be done in December, and I would strongly recommend that the civic year be changed to correspond with the calendar year. There is very little work except removal of snow to be performed before March, and by that time there would be plenty of money in the Treasury.

The change recommended would not effect a saving in the amount expended, but if a more systematic method of performing the work were introduced a great deal more would be accomplished for the same outlay.

The result of the change would be beneficial to every department, as an opportunity would be afforded to prepare the annual reports and returns at a season when nearly all work is suspended. Under the existing system, the annual report is demanded at a season when the whole time of each official is required in order to accomplish the work allotted to him.

An effort was made during the last session of the Legislature to obtain authority to enable this department to control the opening of the streets. Each separate underground system is subject to disorder, breakage or defects, and the street surface must be broken for search and repairs. These breaks in the streets and sidewalks are a constant annoyance to the public and fix a blemish upon all streets especially where they have been paved. Hundreds of openings are made every year and constant attention is necessary to secure anything like proper filling and tamping. The adoption of the five dollar deposit system for drain permits has resulted in a great improvement in the condition of the streets. It is difficult to enforce this law properly when one class of workmen are permitted to make openings in the streets without permits. The Gas Company tear up our pavements and finished surfaces at their own sweet will, and the Legislature declines to give us any redress. Few cities of any importance are obliged to submit to such an outrage, and Halifax should not be compelled to allow any corporation to assume control of its streets without permission or supervision.

The principal improvements and alterations during the year were the extension of North Starr St. from Young St. to Russell St.,

the widening and straightening of Bayers' Road at Edward Walker's property, and the grading of Woodill St., Uniacke St., and Welsford St. The west end of Green St. was partially graded.

The necessity for a systematic grading of the streets and sidewalks of the city is every day becoming more apparent. It is impossible to lay sidewalks with satisfactory results until all streets adjoining are reduced to the proper grade and the line determined and buildings erected in accordance with the established grade and line. The pernicious habit of architects of encroaching on the streets and arbitrarily fixing the height of sidewalks and doorsteps of new buildings and blocks without any reference to the established grade or line is still being practiced, to the detriment of public convenience and travel. This should be no longer tolerated. The buildings that are being erected along our business streets are large, solid, and such as are not very easily altered with reference to the grade, therefore the grades of those buildings, whatever they may be, are likely to remain so for many years. On some streets each building has its own sidewalk grade. The sidewalks are an institution for the convenience of public travel more than for the use of the individual property owner, and the latter should consider the claims of the public. A determined stand, the reconstruction of sidewalks to an established grade, and the removal of all new encroachments is needed to put a stop to the existing objectionable practice.

I have repeatedly urged the necessity of fixing the lines and grades and establishing stone or cast iron monuments, and I must again recommend that an Act be passed providing (in brief) that a new survey of the city be made ; that the City Engineer shall lay down lines and grades on all streets shown on the plan ; that public notice shall be given of the completion of the plan ; that the plan shall be submitted to a Board appointed for that purpose who shall hear all objections and thereafter confirm, alter, or amend, the said plan ; that said plan shall be adopted by the Council as the official plan of the city ; that all structures erected thereafter shall be constructed in accordance with the established grades and lines ; that all property taken beyond the present line of any street shall be paid for by the city when taken, the amount to be fixed by a Board of Arbitrators appointed for the purpose.

Such a law would enable us to keep our streets in a condition creditable to the city, while now they resemble the straggling streets of a village.

This plan would be used for various purposes and would be of great value to this department, furnishing the foundation for laying out streets and other improvements, surveys, surface drainage, water pipe location, and for all special assessments, greatly reducing the cost of special work which may be ordered and insuring more intelligent conclusions.

The Assessors require plans, and a plan of the pipe distribution should be furnished to the City Collector as there is no intelligent system of assessment for water.

I had an opportunity last October of inspecting a system of Assessors' plans in the City of Newton Mass., which it would be advisable to adopt: careful surveys are made of all property lines and buildings and topographical features are located and plotted on large district plans. These districts are bounded by important main streets or correspond with the wards, and are sub-divided into sections or blocks. For the Assessors' use a plan of each "block" is made of convenient size, showing all sub-divisions of property. The property in each ward is sub-divided into ten sections, numbered 10 to 19 inclusive for sections in ward one, 20 to 29 inclusive for sections in ward 2, etc. They usually include property bounded by principal streets. The sections are sub-divided into blocks and are areas included within each set of streets. The blocks in each section are numbered from 1 upward. The lots in each block are numbered in the same way and any sub-division of lots is indicated by a letter, A. being the first sub-division, B. the second, etc. Subsequent sub-division of lots take the letter of previous sub-division with A, B, etc., added, thus:—

A lot may be described as being lot 12-8-10 or 12-8-10 A or 12-8-10 A A, which would mean lot No. 10, or lot No. 10 A (one part of the first division of lot No. 10) or lot 10 A A, (one part of the sub-division of lot 10 A), in block 8 of section 12, which would be in ward 1.

This enables the Assessors to keep a complete history of each lot.

The proposed plan would also enable us to number or re-number streets. We have no law or ordinance, except an unwritten one, respecting numbering, and steps should be taken at once to prevent confusion.

#### STREET RAILWAY.

During the year application was made by the company for permission to change the motive power from horse traction to electricity. A report was made, a copy of which is appended, but no action was taken by the Board or Council.

## CITY PROPERTY.

The Exhibition Building was partially repaired, and the work will be finished this year. The total cost will reach \$2,000.00. The Old Fishmarket was torn down and removed, but nothing has been done towards repairing the slip. The city is in need of a wharf, as the public landing wharf is not suitable for storing sand, gravel, stone, etc. Landing privileges cost last year \$400.00. The construction of a wharf at the site of the Old Fishmarket (the only water lot available) would give sufficient accommodation for such supplies as the city obtains by water.

The Department of Works is in need of more suitable quarters for the storage of tools and machinery, and for a repair shop, where the steam roller and other machinery, carts, scrapers, etc., can be properly overhauled and repaired, and painted, when necessary. A good stable is also needed, with accommodation for all city horses, including those of the two foremen and engineer, so that the horses can be centralized and better cared for at less expense than as at present scattered about. A stable is needed in the vicinity of the City Hall as a shelter for our horses. At times four horses are standing at the curb in front of the building. A shelter could be made under the Parade, where it would be out of sight, and comparatively free from objection.

In connection with this office we require a dark room and blue-printing frame. We also require a fire-proof vault for storing plans.

The lighting in the building was changed during the year from gas to electricity. The contract was awarded to the Halifax Illuminating and Motor Co.

It is probably only a question of time when the lighting of the public buildings and streets will be done by the city, with its own plant. The ownership of works, and the manufacture of gas, should also be controlled by the city. Its usefulness and adaptability for convenience in the household and for business, makes it a necessity to the community of continually increasing importance. In every city municipal ownership and control of water works has been most beneficial to the tax-payers, and the tendency to-day is towards the acquirement of similar control over all public franchises, such as street railways, electric lighting, gas works, etc.

## GENERAL.

The expenditure during the year has been the largest in the history of the Board of Works.

The following statement shows the amount expended or appropriated for each service:—

Board of Works .....	56514 00
Waterworks Construction .....	135000 00
Waterworks Maintenance .....	19554 17
City Property .....	5000 00
Sewerage .....	55346 83
Permanent Pavement .....	26147 50
Widening Cogswell Street .....	600 00
Total .....	\$298162 50

The office work during the year has been especially heavy, and it has been impossible to keep up to the routine work alone with our small staff. Besides all the necessary work consequent upon the many public improvements carried on or projected, there was a large amount of back work to be done to bring the records up to date. Complete records and plans of all new work have been made and filed, and old plans and records have been assorted, indexed and filed. The routine work includes innumerable reports and correspondence. The typewriter placed in this office by the preceding Board was of invaluable assistance in performing this portion of the duties of the office. Shortly after the new Board was installed she was removed to the office of the Board, for what reason I have yet to learn. This action has handicapped me seriously, and I am not only expected to attend to an enormous amount of work outside the office, but a great part of my time, which should be directed to important public services, is taken up in work that could be done for \$5.00 per week. I fail to see the wisdom of such a system, and I fervently hope some change will be made during the coming year.

Respectfully submitted,

F. W. W. DOANE,

*City Engineer.*

## SANITARY MAXIMS.

1. It is the duty of every householder to ascertain for himself whether his own house be free or not from well known dangers to health.

2. This duty, imperative at all times, is of surpassing urgency in a house where a confinement is expected, or a surgical operation to be performed.

3. As a rule, the soundness of the sanitary arrangements of a house is taken for granted, and never questioned until "drain begotten" illness has broken out. In other words, we employ illness and death as our drain detectives.

4. Whenever gas from sewers or the emanation from a leaking drain, a cesspool or a fouled well make their way into a house, the inmates are in imminent danger of an outbreak of typhoid fever, diphtheria or other febrile ailments, classed together under the term "Zymotic," not to speak of minor illness and depressed vitality, the connection of which with sewer gas is now fully established. Sewer gas enters a house most rapidly at night when the outer doors and windows are shut, and is then perhaps most potent in contaminating the meat, the milk, and the drinking water, and in poisoning the inmates.

5. The more complete and air-tight the public sewers of a city, the greater the danger to every house connected with such sewers, if the internal drain pipes of the house be unsound and not *disconnected*. In houses so badly connected sewer air is "laid on" as certainly for the detriment of health, as coal gas for illumination, and you can turn off coal gas at the meter.

6. Every hotel and every house let as lodgings ought to have its sanitary arrangements periodically inspected and duly licensed.

7. A house in which children and servants are often ailing with sore throat, headache or diarrhoea, is probably wrong in its drainage.

8. Scamped drain work is one of the most dangerous of the sanitary flaws of new buildings; it is also one of the most common and one of the most difficult to detect, and is rarely found out except by means of the illness it produces.

9. If you are about to buy or to rent a house, be it new or be it old, *take care, before you complete your bargain*, to ascertain the soundness of its sanitary arrangements with no less care and anxiety than you would exercise in testing the soundness of a horse before you purchase it.