REPORT

OF THE BOARD OF

WATER COMMISSIONERS

OF THE

CITY OF RAHWAY, N. J.,

FOR THE

YEAR ENDING DECEMBER 31st, 1885,

WITH TABLES ANNEXED,

SHOWING THE FULL OPERATION OF THE WORKS, TOGETHER WITH RULES, REGULATIONS, WATER RATES, ETC.

H.F.G.

RAHWAY WATER BOARD,

1885-6

COMMISSIONERS ELECTED BY THE PEOPLE.

Dr. W. U. SELOVER, President, Term expires May, 1887.
JOHN B. BROWN " " " 1888.
M. H. ACKEN " " " 1886.
Dr. J. J. DALY, Mayor, *Ex Officio*.
ANTOINE LOHMILLER, *Ex Officio* Chairman Fire and Water Committee.

CLERK AND SUPERINTENDENT,

HOWARD B. BUNN.

ENGINEER,

OLIN D. SHERWOOD.

ASSISTANT, JOHN DRESLER,

Office, Savings Bank Building, Entrance on Monroe street.
Regular meetings of the Board, first Wednesday of each month, at 8 P. M.

REPORT

OF THE

BOARD OF WATER COMMISSIONERS.

WATER COMMISSIONERS' OFFICE,
RAHWAY, December 31, 1885.

To the Honorable the Mayor and Common Council of the City of Rahway:

GENTLEMEN:

We herewith submit our report for the year 1885.

The operations of the department in its several branches have been successfully continued.

The total receipts for the year have been $12,554.81, and total expenditures $14,165.94, which, with $2,478 84 on deposit at beginning of year, leaves a balance on hand of $867.71.

The water rents received exceed any year except 1883, when a large amount of arrearages were collected, as a result of the efficient service and extra efforts of our Clerk and Superintendent. The yearly water rents now amount in round numbers to $9,600.00. How to prevent the needless waste of water except when meters are used is the unsolved problem of all cities having a public water supply, and frequently appeals are made to the citizens to heed their admonitions in this matter, and at the rate which this evil has been increasing in our city it will not be many years before increased facilities for water supply will be required with a corresponding increase in expense, and we apprehend the only true policy in supplying water to heavy consumers, is in the use of water meters. After a long and careful study of the subject, with a view of preventing this waste, in a measure, we have framed and adopted a set of rules and regulations which will specify the manner in which all plumbing work shall be done hereafter.

Appended you will find the report of the Clerk and Superintendent, and also the one of the Engineer, accompanied with tables and statements, showing the receipts and disbursements, amount of water pumped, and operations of the Works since their establishment, which have been received and accepted by our Board, all of which we commend to your attentive examination, and recommend their careful perusal by our citizens.

Respectfully submitted,

W. UPDYKE SELOVER.
JOHN J. DALY,
JOHN B. BROWN,
A. LOHMILLER,
M. H. ACKEN.

CLERK AND SUPERINTENDENT'S REPORT.

WATER COMMISSIONERS OFFICE,
RAHWAY, N. J., December 31, 1885.

To the Board of Water Commissioners:

GENTLEMEN—In accordance with that part of my duties, I herewith submit my annual report of the receipts and disbursement of this department, together with statements of the general operation of the works from May, 1871 to January 1st, 1886.

PUMPING SERVICE

The engines and pumping machinery have required but slight repairs during the year. The quantity of water pumped the present year exceed in quantity of last year 17,117,663 gallons, and as will be observed only twenty new services were laid, this is in addition to the lavish waste ordinarily practiced. In extremely warm weather consumers allow water to flow in order to secure cool water, which is useless. The longer the water remains underground in the mains the cooler it becomes; also it is becoming more and more universal to allow Lawn Sprinklers to run a greater part of the day, when only two hours is allotted for their use. In winter upon almost every service, water has been allowed to run to prevent freezing, sometimes the full capacity of the spigot; taking the 450 consumers, and allowing only one (but more are often run) on each service the quantity wasted is enormous. On extremely cold nights with this great draft on the mains, in case of fire it would be doubtful if an effective pressure could be maintained to meet the supply of water needed for fire purposes.

The rules adopted require all services to be provided with a stop and waste cock where the pipe enters a building, and if a little care should be exercised by the occupants or owners of the premises by turning off the supply at this point, and drain the pipes on cold nights, the expense of frozen pipes, inconvenience and trouble to themselves, and the general waste of water, causing fears that the works, in case of fire, might fail to supply the demand, would be avoided.

By experience the managers of every Water Works find but one effective plan to remedy this matter, and that is by the use of meters.

The accompanying report of the engineer, with tables, will give in detail the operations of the works until the present time

I herewith submit the following report of the Pumping Engines for the year ending December 31st, 1885. There was pumped during the year, 265,292,734 gallons of water, averaging 726,829 per day, an increase of 17,117,663 gallons over the year 1884. The amount of coal consumed during the year for pumping was 656,200 lbs., or $328\frac{1}{10}$ net tons, an average of $1797\frac{8}{10}$ lbs per day. The following table shows the operations of the engines for the year.

	Strokes	Gallons pumped.	Gallons per day	Pounds of coal consumed.	Pounds of coal per day.	Duty	Pounds of ashes.	Per cent of ashes.
January	425,498	22,551,484	727 467 5/10	53 000	1,709 1/10	51,121,889	8,275	15 6/10
February	413 788	21 5 16,976	768,436 4/10	51,400	1,835 7/10	48,43) 826	7,090	13 7/10
March	428 584	22,719,952	732,579	52,200	1,716 4/10	52,281,755	7,655	14 6/10
April	385 415	20,302,470	676,749	50,800	1,693 3/10	48,066,536	7,320	14 5/10
May	288,922	20,066,371	668,545	53,800	1,735 5/10	48,429,654	8,930	16 5/10
June	422,394	22,386,882	746,226	55,800	1,860	48 262,254	8,895	15 9/10
July	477,114	24 827,437	800 885	57,400	1,851 6/10	51,994,121	9,370	14 6/10
August	427 576	22,661,528	731,017	56,400	1,690 3/10	48,274,543	9,715	17 2/10
September	399,445	21,705,585	723,519 5/10	55,400	1,846 6/10	45,912,525	9,595	17 3/10
October	429,332	24,391 223	786,813	57,400	1,851 6/10	51,108,713	9,955	17 3/10
November	397,827	20,687.004	689,566	55.000	1,833 3/10	45,245,575	9 340	16 3/10
December	410,779	21,475,822	692,768	57,600	1,858	44,816,472	9,875	17 1/10
	4,901,674	265,292.734		656 200			106,015	

THE TABLE BELOW GIVES THE RECORD OF THE OPERATIONS OF ENGINES FROM 1873 TO JANUARY 1, 1886.

Years	Counter stroke of engines	GALLONS PUMPED. Per year	GALLONS PUMPED. Average per day	COAL CONSUMED. Per year in lbs.	COAL CONSUMED. Average per day in pounds	Ashes and clinkers removed in pounds	Percentage of ashes in coal	Duty for each 100 lbs of coal consumed	Head in feet pumped at	Steam pressure	Vacuum	Kind of coal burned
1873	1,085,510	58,617,570	160,596	391,200	1,071 9/10	No record	"	13,080,506	100	45	24	Egg.
1874	1,532,863	82,774,602	226,779	438,800	1,202 1/10	"	"	17,977,587	109 3/10	45	26	"
1875	2,106,004	113,724,216	311,573	480,250	1,315 7/10	"	"	24,951,061	120 7/10	50	26	"
1876	2,206,181	119,133,774	326,393	476,550	1,305 8/10	"	"	26,318,270	120 7/10	50	26	"
1877	2,070,935	121,830,490	333,782	466,400	1,277 8/10	"	"	25,242,382	120 7/10	50	26	"
1878	2,267,111	122,323,994	335,132	468,200	1,282 7/10	"	"	32,841,150	120 7/10	50	27	"
1879	2,853,005	146,210,655	400,577	521,860	1,429 8/10	63,152	12 1/10	27,368,709	120 7/10	50	28	"
1880	3,078,193	144,675,071	395,285	553,000	1,510 1/10	83,316	15	26,319,387	120 7/10	50	28	July 10, Pea coal
1881	3,583,310	168,415,570	461,412	585,400	1,603 8/10	109,740	18 7/10	29,944,251	120 7/10	50	28	Pea coal.
1882	4,533,983	211,608,183	583,827	600,600	1,645 1/10	112,057	18 8/10	35,694,736	132	50	28	"
1883	5,217,519	245,324,051	671,844	646,600	1,771 8/10	118,364	18 3/10	38,153,767	132	50	28	"
1884	5,095,647	248,175,071	678,073	654,600	1,788 8/10	124,991	19	44,459,622	144	50	28	"
1885	5,001,674	265,292,734	719,416	656,200	1,797 8/10	106,015	16 1/10	48,657,071	144	50	28	"

In looking over the columns of strokes of engines, in the totals for years, and that of the gallons pumped it will be noticed that different years have a greater number of gallons of water pumped for less strokes made than others and vice versa.

This was caused by changing the High Pressure Plunger in both pumps a numbes of times.

In 1879 the Plungers were changed from 12½ inches to 10 inches in diameter; this caused the engines to make more strokes to pump the same amount of water as before the alteration. In August, 1884, I changed them to 11¼ and 11¾ inches respectively. This last alteration has made a marked difference in the working of the engines for the better, and the duty obtained is the highest attained at the Works. I also respectfully call the attention of the Board to the fact that the amount of water pumped as shown for the last three years, is the whole quantity that has passed into the mains to the city, no part of the same has been used for condensing purposes, the supply now demanded by the city keeps the engines at such a speed that the river gate is always closed. The amount of water used for condensation, and what was wasted through the river gate, to keep the engines in uniform motion, was from 30 to 40 millions of gallons per year, all of which was registered as water pumped into the mains to the city, but was going back into the river.

STREET MAINS.

Four breaks have occurred during the year; two in suddenly closing fire hydrants under high pressure at fires, and two from rust of pipes; also one slight leak. As our mains consist of cement lined pipes, this showing is quite remarkable with the system of direct pumping. Iron pipes only subjected to a gravity pressure, frequently exceed this. I feel grateful for the courtesy shown by the citizens for reporting breaks and leaks when occurring.

GATE VALVES AND BOXES.

One valve stem and slide has been replaced on account of stripping. 15 have been repacked and oiled; 17 wooden boxes have been replaced by iron ones.

The expense attached to them is mostly in the supply of iron boxes obtained of which 19 are now on hand, and in their present apparent good working order, bnt little expense will be needed upon them the coming year. The size in inches of main pipes, with length in feet, also number and size in inches of gate valves are here given.

Inches.	Gate Valves.	Feet cement lined pes.	Feet cast iron pipes	
12	12	12677½		
10	7	8810½		
8	9	5479	825	
6	35	26166$\frac{8}{16}$		
4	20	10446$\frac{2}{16}$	2166	
Totals	83	63580	2991	or 12.60 miles

FIRE HYDRANTS.

The Fire Hydrants require much time and attention in cold weather. The suggestion of last year of draining a number to the sewers, has been carried out 12 located where the ground was of heavy and wet nature, have been drained, making 23 now drained. A bed of stones has been placed below the waste of bottom of 23 of them, which concludes about the whole number, and I think all arenow even in a better condition for wasting than when first set. 22 have been repacked, new bottom valves have been put in, and caps put on where needed. It has been a custom with some *unauthorized persons* to open and tamper with the fire hydrants with impunity, and is the cause of many being out of order. No one but the superintendent should possess this right, except as expressed in Section 18, of the Rules and Regulations.

A hydrant may be opened and get out of order, remain full of water after being closed, or if opened a few times, and water wasted from it, the soil around it becomes saturated to such an extent, the water remains in it, and is frozen, all unknown to the party in charge, whereas if only opened in case of fire, those used can be examined directly.

The penalty for opening them should be rigidly enforced according to the rules, Three new ones have been procured, to have on hand in case of any accident. There are now in the city 123. Private 6.

INSPECTION.

Of the inspection of water fixtures and premises where water is used, the examinations made during the year developed a number of fixtures, and where service had been extended, not reported by plumbers, the arrears amounting to $50.00, all have now been assessed, adding a yearly revenue of $40.00. Taking the inspection of three years ago where fixtures were found in use at 71 places, from which no revenue was being received, and a number of places where water was being used, without any assessment whatever, from which $762.65 have been received for arrears, and adding $569 00 to the yearly assessments, an increase of some amount already.

The results speak for themselves, and should be continued annually if only resulting in discovering and causing to be repaired, leaks in fixtures and pipes.

SERVICE PIPES.

There have been laid during the year, and connected with the main pipe, twenty service pipes, connected previous 542.

Whole number connected December 31, 1885.		562
Shut off for non-payment remaining off Dec. 31, 1884,	56	
Turned on the past year,	3	
Leaving still shut off	—53	
Shut off for non-papment the past year	2	
Turned on of these	1	
Leaving still shut off	— 1	
Shut off by request remaining of Dec. 31, 1884	40	
Turned on the past year	7	
Leaving still shut off	—33	
Shut off by request the past year	19	
Turned on the past year	10	
Leaving still shut off	— 9	
Number never been in use	7	
Shut off because of fire	3	
Shut off because buildings were removed	4	
Number of services remaining off, Dec. 31, 1885		110
Leaving in use December 31, 1885		452

Annual water rents are $9,000.00

Appended will be found tables showing state of finances for each year, and location of fire hydrants.

Respectfully submitted,

HOWARD B. BUNN,

Clerk and Superintendent.

The following Table is a comparative Summary of the Annual Receipts and Disbursements of the Water Works from the period of their organization.

RECEIPTS.

	1871	1872	1873	1874	1875	1876	1877	1878	1879	1880	1881	1882	1883	1884	1885	
From Proceed of Water Bonds	$100,000 00	$55.350 00	$23,250 00													$178,600 00
" Interest on " "	2,088 62															2,088 62
" City Tax																70,615 57
" City Tax, Interest on Bonds			9,000 00	$16,403 35	$14,596 65	$13,000 00	$12,000 00		$ 500 00	$ 4,515 57	$ 1,430 11	$ 2,869 74	$ 2,004 74	$ 997 88	$ 642 42	7,444 89
" " Maintenance of Works											1,642 03	1,475 19	743 65	373 48	289 83	4,474 78
" Construction Account								$ 9 00	20 81							381 31
" Service Pipe "		75	75		350 00											50 35
" Water Rent					31 18	25 29										110,209 23
" Expense Account		14 00	6 221 55	7,907 64	8,462 72	7,805 10	10,700 79	10,753 22	7,671 80	6,296 80	3,015 36	8,443 94	11,132 04	10,839 80	10,944 81	103 54
" Hydrants										12 75		36 79	55 00			95 25
" Stop Cocks		45 00	45 00			5 25										720 00
" Street Boxes					48 30	117 00	91 30	65 50	55 93	67 80	19 00	81 25	72 00	52 00	55 00	206 85
" Main Pipe Connections								1 20	15 00	14 60	3 00	18 00	49 50	48 40	58 75	304 40
" Fixture Account				159 90	204 50									3 19		168 19
" Bondsmen of C L. Woodruff										165 00					614 00	614 00
Total	$102,088 02	$55.409 75	$38,517 30	$24,470 89	$23,688 30	$20,972 37	$22,801 09	$10,828 92	$ 8,288 12	$11,069 02	$ 6,110 10	$12,423 91	$14,117 53	$12,254 75	$12,551 81	$376,142 48

DISBURSEMENTS.

For Real Estate	$ 3,443 16															$ 3,443 16
" Construction Account	13,802 22	$16,064 07	$ 2,390 50	$ 405 55	$ 110 50	$ 300 98										33,052 58
" American Water and Gas Pipe Co	57,025 48	11,251 04	15,000 00	300 00	3,409 01											87,045 53
" R. R. Worthington	6,000 00	18,000 00	5,000 00	30 15					$ 20 81							29 176 60
" Commissioners' Salary	1,250 00	2,000 00	750 00	1,500 00	500 00	$ 25 00	$ 750 00		146 45							7,475 00
" Attorney Salary		300 00	200 00	200 00	200 00	300 00	100 00									1,800 00
" Clerk "	200 00	400 00	1,050 00	1,300 00									$ 500 00			2,950 00
" Superintendent Salary		583 34	916 66	500 00												2,400 00
" Clerk and Superintendent Salary					1,283 31	999 96	917 14	$ 774 13	549 96	$ 549 99	$ 595 79	$ 320 84	$ 599 99	$ 675 00	$ 700 00	7,956 11
" Engineer's Salary		784 00	1,250 00	1,625 00	1,625 00	1,500 00	1,550 00	1 599 96	1,399 92	1,366 61	1,300 00	1,199 99	1,400 01	1,450 00	1,500 00	19,550 49
" Pipe Extension			162 11	8 95			209 00						859 91			1,030 97
" Fixture Account					54 00	479 05		82 70								704 75
" Coal		1,189 23	1,588 25	698 97	2,129 39	1,688 80	1,213 18	1,225 87	827 50	1,036 98	783 54	700 89	1,405 32	1,004 19	1 010 90	16,602 44
" Wood		16 00	16 00		80 00	40 00		6 00			10 00	10 00	12 00	12 00		260 00
" Oil		90 80	103 62	106 45	110 75	121 03	22 75	45 62	75 91	98 17	202 90	285 25	171 80	132 48	176 33	1,763 79
" Stop Cocks			88 88	61 88	64 76	56 25		60 00	3 90	40 15			13 08	11 00	10 15	411 25
" Street Extension Boxes									19 80	16 80	19 45	84 05	65 70	50 65	72 25	278 70
" Water Rent Returned							74 90									74 90
" Service Pipe		4,300 95	914 88		30 38	22 04	105 00									5,268 25
" Insurance		350 00										82 50		70 00	20 00	517 50
" Attorney Fees												188 50	280 80	28 62	115 14	554 30
" Breaks in Mains						7 00	5 88	18 31	10 40	4 00		182 65	38 74	25 60	102 40	437 92
" Gate Valves					38 06	8 00	73 17	20 00	76 18	69 56	37 75		108 90	25 60	102 40	861 65
" Hydrants			344 38		3 00	267 72		58 55	158 85	42 59	23 84	50 28	139 75	129 75	109 66	6.929 41
" Fountains	4,950 00		900 00		21 25	36 77		21 80	14 13	39 36	93 32	87 35	46 60	8 61	25 27	591 37
" Stationery, Printing and Advertising					255 11	89 70	55 85		34 16	243 01		82 45	30 05	10 00	45 00	1 429 90
" Expense Account	281 88	14 75	344 03	119 50	69 32	815 78							986 46	1,079 03		15.889 35
" Interest on Water Bonds		77 19	697 28	361 91	1 799 10	1,059 58	19,582 70	574 59	1,109 06	598 11	2,412 24	2,864 88	1,480 54	14.284 53	9,190 21	123,151 93
	3,750 00	4,875 00	11,650 00	10 000 00	18.580 45	13.183 04		5,775 00	4,180 00	5,565 00			2,760 00			
Total	$ 90.702 74	$60.285 37	$43.316 19	$17.231 41	$30,414 90	$20 844 77	$25,475 20	$10.285 53	$ 8,577 06	$ 9,640 91	$ 5,588 83	$ 6.083 13	$ 9,837 70	$18.877 89	$14,165 91	$371,287 85
																* $3,986 92
Deducting Interest on Bonds, General running expenses are						$ 7,661 78	$ 5,893 60	$ 4,510 58	$ 4,447 06	$ 4,075 91	$ 7,130 83	$ 4,491 13	$ 5,917 88	$ 4,596 36	$ 4,966 73	* 867 71
																$376,142 48

*Owing to the discrepancy of the account of the former Clerk during 1880-81, no balance could be shown of the amount of cash on hand by the cash book. The amount of cash found was $1 770 25; amount of credit, $5,757.17; the difference between these amounts is $3,986.92, which, added to the whole amount of disbursements, together with $867 71, amount of cash on hand December 31, 1885, equals the amount of receipts. It is to the amount of $1,592.00 incurred in 1881, but paid in 1882, deducted, and added to the year 1881, make the running expenses as given. Also, $500 00 for Attorney's salary paid in 1883, should have been paid previous to year 1882, and with the deduction of amount for pipe extension and interest on bonds, make the running expenses for 1883 as given.

HYDRANTS.

STREET		LOCATION.	
Adams	street	Between	New Brunswick ave. & Main Street
Broad	"	Corner	Clinton "
"	"	Cor. of	Commerce "
"	"	Cor. of	Adams "
Bryant	"	Cor. of	" "
Cherry	"	By the Park	
"	"	Cor. of	Campbell Street
"	"	Between	Campbell & Whittier "
"	"	Cor. of	Whittier "
Campbell		Between	Elm avenue & Central avenue
Central	ave	Cor. of	Campbell Street
"	"	Cor. of	Whittier "
Clinton	st.	Cor. of	Georgia "
Commerce		Cor. of	Pierce "
"		Between	Broad street and Jaques avenue
"		Cor. of	Bryant street
Elm	avenne	Cor. of	Campbell "
"	"	Cor. of	Whittier "
"	"	Cor. of	Bryant "
"	"	Cor. of	Pierpont "
"	"	Between	Bryant and Pierpont "
Elizabeth	ave	Between	Main and Grand "
"	"	Cor of	Jackson avenue
"	"	Cor. of	Scott "
Essex	st.	Cor. of	Lafayette street
"	"	Between	Mouroe and Bridge street
Fulton	street	Between	Milton ave and Commerce "
"	"	Between	Commerce and Adams "
"	"	Between	Adams and Hazelwood avenue
Grand	"	Cor. of	Montgomery street
"	"	Cor. of	Lawrence "
"	"	Front of	Bridge "
"	"	Cor. of	Elizabeth avenue
"	"	Cor. of	Allen street
"	"	Cor. of	Newton "
"	"	Front of	Irving "
"	"	Cor. of	Oliver "
"	"	Between	Oliver and Church "
"	"	Cor. of	Church "
"	"	Between	Church and Factory "
"	"	Cor. of	Factory "
"	"	Between	Factory and St. George ave.
Hamilton	st.	South of	River Bridge

STREET,	LOCATION,
" "	Cor. of Gordon Place
" "	Cor. of Oliver street
" "	Cor. of Church "
" "	Between Church and Fernote "
" "	Between Fernote and St. George ave.
Hazelwood ave	Cor. of Fulton street
" "	Cor. of Broad east side of R. R.
" "	Cor of Jaques ave.
" "	Cor. of Bryant street
" "	Cor. of Leesville ave.
" "	Between Leesville ave. and Edgar street
" "	Cor. of Edgar "
Irving street	Cor. of Cherry "
" "	North side of Railroad
" "	Cor. of Elm avenue
" "	Cor. of Elizabeth "
" "	Front of Seminary street
Jaques ave.	Cor. of Milton avenue
" "	Cor. of Commerce street
" "	Cor. of Adams "
Main street	Cor. of Hazlewood ave.
" "	Front of Adams street
" "	Near Leonards Pottery
" "	Front of Commerce street
" "	Cor. of Haydock "
" "	Cor. of Milton avenue
" "	Cor. of Lewis street
" "	Front of Cherry "
" "	Cor. of Monroe "
" "	Cor. of Bridge "
" "	Front of Elm avenue
" "	Cor. of Elizabeth "
" "	Between Elizabeth ave. and Irving street
" "	Cor. of Irving "
Monroe st.	Cor of Essex "
" "	Cor of Lawrence "
" "	Cor. of Montgomery "
" "	Cor. of Grand "
Milton ave.	Cor. of Irving "
" "	South side of Railroad
" "	North side of Railroad
" "	Front of Georgia street
" "	Cor. of Bryant "
" "	Between Bryant and Pierpont "
" "	Cor. of Pierpont "

STREET.	LOCATION.
New Brunswick ave.	Cor. of Adams st.
" "	Cor. of Hazlewood avenue
Scott ave.	North side of Railroad
Seminary st	Front Gordon Press Works
" "	Cor. of Oliver street
" "	Cor. of Church "
" "	Between Church and Fernote "
" "	Cor. of Fernote "
St. Georges ave	Cor. of Hazelwood avenue
" "	Cor. of Milton "
" "	Cor. of Elm "
" "	Front of Stone "
" "	Cor. of Miller's Lane
" "	Cor. of Hamilton street
" "	Cor. of Seminary "
" "	Cor. of Harrison "
" "	Cor. of Factory Lane
" "	Cor. of River Street
" "	Cor. of Scott avenue
" "	Above Scott, near Nix Property
" "	Near house occupied by G. W. Craig
Union street	Cor. of Whittier street
" "	Cor. of Oliver "
" "	Cor. of Church "
" "	Cor. of Ludlow "
" "	Cor. of Factory "
" "	Cor. of St. Georges ave
William "	Between New Brunswick ave and Main street
Westfield ave	Cor. of St Georges avenue
" "	Front of High street
" "	Cor. of Jefferson avenue
" "	Front of Entrance to Water Works
Whittier st.	Front of Harrison street
" "	Between Central ave, and Elm ave
Water Works	Near the building
Private	Urmston's Factory
	Saw Mill
	Gas House
	Marsh's Factory Hamilton street
	Jardine's Paper Factory
	Butler's (Zabriskie's)
All are R. D. Wood & Co.. M'f'r'g	

Revised Rules, Regulations and Rates

OF THE

RAHWAY WATER WORKS,

ADOPTED BY

The Board of Water Commissioners, February 19, 1886.

SECTION 1. The following regulations shall be considered a part of the contract with every person who uses the water, and the fact of using shall be considered as expressing assent on the part of the user to be bound thereby.

SEC. 2. All applications for the use of water must be made at the office of the Water Commissioners by the owner or authorized agent in charge of premises. The applicant must state fully all purposes for which water is required, and answer all questions asked by the clerk or authorized agent, relative to its consumption, and must sign on the Water Works' book an application, setting forth the purposes for which water is desired, and should it subsequently be required for other purposes, notice must be given before the desired change is made. All permits, taps, boxes, and cost of inserting the same must be paid for at the time of application. Hereafter no permit will be granted for baths, wash-basins, fountains or street sprinklers, when water is not also taken for household or office purposes.

SEC. 3. All water rents are due and payable quarterly, at the office of the commissioners, on the first ten days of January, April, July and October respectively, at a discount of five per cent.; if not paid within the limited time a penalty of five per cent. will be added, and the water to be turned off if not paid within thirty days.

SEC. 4 Owners or occupants of premises having service pipes and connections will be held strictly responsible for all uses of water from such services by other parties, and for water rent for such extra and improper uses, in addition to other penalties as elsewhere expressed in these By-laws.

SEC. 5. No abatement of water rent will be allowed by reason of removal, disuse or diminished use of vacant premises, *unless notice thereof is left at the office of the Board* at the time when such change takes place. Claims of less use on account of using wells, cistern water, etc., will not be considered.

SEC. 6 All persons taking water, must keep their service pipes, stop-cocks, street boxes, and all fixtures connected therewith in good repair and protected from frost at their own risk and expense, and shall prevent all unnecessary waste of water. The Commissioners reserve to themselves the control of all

stop cocks on the mains, and also reserve the right when deemed proper, or whenever there is a violation of the rules and regulations of the department, to take charge of and control the stop cocks on service pipes.

SEC. 7. It is expressly stipulated by the Water Commissioners that no claim shall be made against them or the city by reason of the breaking of any service cock or pipe, or for damages caused from the shutting off water to repair mains, or by any accident to any portion of the works, nor for any stoppage for purpose of additions, or repairs for any purpose whatever.

SEC. 8. Wherever two or more parties or families *heretofore* supplied with water from the same service pipe, on the failure of any one of said parties to pay the water rent when due, or to comply with the published rules and regulations of the Commissioners, the Commissioners shall withhold all supply from such service pipe without liability in damages to either of the other parties.

SEC. 9. The Superintendent and such other persons as may be directed by the Water Commissioners shall be authorized to enter and have free access at all reasonable hours, into any house, building or vessel supplied with water from said Water Works, and upon grounds traversed by the water of said Works to examine bibbs, pipes, meters, cisterns, reservoirs, tanks or other apparatus, for the purpose of ascertaining the quantity of water consumed or supplied, or for placing or carrying away any meter, instrument, pipe fitting or other work belonging to the Works.

SEC. 10. In case of fraudulent misrepresentation of uses of the water not embraced in the application, or waste of water, or for violation of any of the rules or regulations of the Water Commissioners, n additioin to fines, will be the prompt stoppage of the supply of water, and it will not be restored except upon payment of one dollar for shutting it off and putting it on, and a satisfactory understanding with the party that no further cause for complaint shall arise.

SEC. 11. When water has been turned off for any cause, it is so recorded, and the charge ceases from that date, *and it shall not be turned on again by any one except the Superintendent.* If found to have been turned on at any time, it will be lawful for the Board to charge for the use of the water from the time it was recorded as being shut off in addition to whatever arrears may be standing against the property, and in default of immediate payment of the same, they may cause the water to be shut off on the main, and it shall not be turned on again until all back rents, fines and penalties are paid and $2 for again turning on the water.

SEC. 12. In all occupied premises where no meter is used, every faucet, water closet, bath tub, fountain, or any other fixture, will be assessed for each and every purpose available, and for each family or establishment within the enclosure, and will be subject to assessment and payment until a licensed plumber has reported to the Superintendent that it has been so capped, disconnected or detached as to prevent the use of the city water.

SEC. 13. All injuries to service pipes or street mains caused by careless undermining or by negligent repacking, or by filling up of excavations for

private drain sewers, or for other purposes, shall be chargeable to the person so causing such injury, and the expense of repairing the same may be recovered of such person by the Commissioners in an action of debt brought upon this section.

SEC. 14. Every tap or connection intended to supply a dwelling, double dwelling, or division of a building, to be occupied by two families, or two or more premises or tenements must be provided with a separate and distinct service pipe, for each side of said dwelling or tenement, direct from the main or from the curbstone. All inside connections from one house, or part of a house to another, and across lots, are strictly prohibited.

SEC. 15. Where leaks occur on service pipes at any point beyond the main pipes, they must be immediately repaired by the owner or occupant of the premises, and if not repaired within reasonable time after notice, the Superintendent shall cause the same to be shut off until repaired, and charge the expense against the premises, to be collected with the first bill for supply of water that shall become due against said premises.

SEC. 16. Water used for building purposes will in all cases be chargeable to the respective owners of the buildings. A full and true account must be given of the number of thousand brick, lath, and barrels of lime used, so an assessment can be made according to the number and the full amount to be paid for each separate building, determined thereby.

SEC. 17. That where it is desired to supply steam pumps, the owners or occupants of the property shall provide a tank in which the water shall be discharged before going to the pump, and no direct connection with the street mains will be allowed.

SEC. 18. *No person except the Superintendent* shall take water from any public or private hydrant, plug, street washer, draw cock, hose pipe or fountain (except for fire purposes, or for the use of the Fire Department in case of fire) nor shall in any way use or take any water for private use, supply or furnish any water, or consent to the taking of the same, which is furnished by the Water Works, unless such person shall *first pay* for the privilege and receive the usual permit from the Superintendent so to do.

SEC. 19 No person or persons *shall open any fire hydrant*, or obstruct the acccss to any fire hydrant, stop valve, or other fixture connected with the supply of water by the city, by placing thereon or within ten feet thereof, stone, brick, lumber, dirt, snow or any other material, or by hitching horses thereto under a penalty of ten dollars, and an additional sum of ten dollars for every five hours the same shall remain, after notice to remove such obstructions.

SEC. 20. It shall he unlawful to obstruct or remove any stop cock cover of any public or private stop cock, or any street washer or deposit any material in such stop cock boxes, or turn any public or private stop cock, or commit any act tending to obstruct the use thereof, or injure in any manner any building, machinery, pipe, apparatus, tools or fixtures of the Water Works, all such acts are declared misdemeanors under section 23 of the charter and are punishable by fine and imprisonment.

SEC. 21. No private hydrant will be permitted on the sidewalk, or in front area, or in a position accessible to parties who do not pay for water, and if standing in a yard or alley attached to any dwelling or building, and must be situated at least two feet from any wall, or any other building, and must not be left running when not in actual use, and if the drip or waste from such hydrant becomes a nuisance to the adjacent property, or overruns the sidewalk and by freezing becomes dangerous in winter, the supply will be shut off.

SEC. 22. Yard fountains, or jets in yards, hotels, private houses, or other buildings, must not be permitted to play more than five hours each day for five months in the year, without special permit and additional payment. The right is reserved to suspend the supply of water to all fountains, jets, and sprinklers, whenever in the opinion of the Board of Water Commissioners the public exigency may require it.

SEC. 23. Parties desiring water for cisterns, tanks and other intermittent supply will be charged regular rates, or furnish at their own expense a water meter to be approved by the Board.

SEC, 24. Hose shall not be used from bibbs, cellar, or faucets, unless a permit is granted for its use, and shall not be used without a nozzle, all outflows or nozzles shall not exceed one-fourth of an inch in inner diameter unless specially authorized

SEC. 25. Street, lawn and garden sprinklers shall not be used more than two hours per day, and not suffered to run to waste or leak. They shall not be converted into jets, (except where the hydrant or lawn sprinkler is portable) nor allowed to flood the streets, and be used in such manner as to become injurious to the health of, or cause annoyance to the public by keeping the streets in a muddy condition, nor allowed to be used as a plaything for children. In no case will the use of hose be allowed between the hours of 8 P. M and 5 A. M,, and their use *at any time while a fire is raging is positively forbidden* except in case of danger of the premises from fire.

SEC. 26. Any person or persons who have been permitted to introduce upon his, her or their premises, a fire hydrant, special pipe or fixtures, for the protection of their property from fire, shall not use or permit the same to be used for sprinkling or washing the yards or streets, filling wells, boilers or tanks, or for any purpose whatever, only for the extinguishment of fires. If it should be used except as herein stated the Water Commissioners may detach the connection of said fire hydrant or pipe from the main, notwithstanding the cost of the introduction of said fire hydrant or pipe was paid by the said parties. No pipe shall be attached or connected with any branch pipe leading to said hydrants or premises for any purpose whatever, and if at any time a test is desired of either hose or hydrant, application must first be made of the Superintendent.

SEC. 27. It shall be unlawful for any person to bathe, deposit or throw any fish, offal, or commit any nuisance, or put any filth, animal or vegetable matter, or any other substance or impurities into the water or stream from which the Water Works obtain their source of supply. Any person so offending shall be liable to a fine or imprisonment according to law.

SEC. 28. If any person or persons shall knowingly violate any of the foregoing rules or regulations, or any rule or regulation which may hereafter be made by the Commissioners, such person or persons so offending shall forfeit and pay to the Water Commissioners of the city of Rahway the sum of twenty five dollars for each offence, and the supply of water may also be cut off from the premises where the water is illegally taken or used, until such rules and regulations are complied with.

SEC. 29. The Clerk who shall also act as general Superintendent, shall be the general executive officer of the Water Works, and it shall his duty to see that the by-laws and resolutions of the Board of Water Commissioners are executed; that the conditions of all contracts by or with said Works are faithfully complied with, and to have a general supervision over all the operations and interests of said works. He shall also keep an accurate record of the proceedings of the Board, its rules and regulations and com plete books of account in all departments of the works. He shall seek to to discover abuses by consumers and others of their privileges of using water supplied by said Water Works. He shall purchase all necessary supplies for the maintainance of the Works subject to the approval of the Board of Water Commissioners.

SEC. 30. The Engineer of the Water Works shall before entering upon his duties enter into a bond with the Board of Water Commissioners with at least two good and sufficient sureties to be approved by said Board of Water Commissioners in the penal sum of one thousand dollars; conditioned that he will faithfully and honestly perform the duties of his office. It shall be his duty to have the care and supervision of the running of the engines and other machinery attached therewith, to be accountable for all tools and supplies belonging to the water works, which may be entrusted to him for the performance of his duties, and in May annually to submit an inventory of the same to the Board, and shall see that the employees of said *works*, faithfully and diligently discharge their respective duties.

RESPECTING PLUMBERS.

SEC. 31 Any plumber or pipe fitter wishing to do business or obtain permission to make attachments; enter hydrants, or do any plumbing in connection with the Rahway Water Works shall, before receiving a license to do so file in the office of the Commissioners his petition in writing, giving the name of the firm and place of business, and every petition must be accompanied by the certificate of two responsible citizens vouching for the business capacity of the applicant, asking to become a plumber in connection of said Water Works; stating his or their willingness and agreement to be governed by the rules and regulations of said Works as adopted and passed by the Board of Water Commissioners, and be subject to all rules, penalties and conditions heretofore, or may hereafter be passed by said Board of Water Commissioners.

SEC. 32. Before receiving a license the applicant shall execute and deposit in the office of the Board of Water Commsssioners a bond, with two or more sureties, to be approved by the Board in the sum of one thousand dollars,

conditioned that he or they will indemnify and save harmless, the Water Commissioners and the Mayor and Common Council of the City of Rahway of and from all accidents and damages consequent therefrom, for or by reason of any opening in any street, lane, or avenue made by him, his servants or agents, for the purpose of putting down any service pipe or pipes for the introduction of water, and that he will also replace and restore the street and sidewalk over such opening to as good state and condition as he found it, and keep and maintain the same in good order for a period of one year, subject to the approval of the Street Commissioner, and that he or they will pay all fines imposed upon him or them for the violation of any rule or regulation made by the Board. All licenses to be signed by the President of the Board and attested by the Clerk.

SEC. 33. Every plumber applying for license must be a citizen of the United States, residing and doing business in the city of Rahway, not less than twenty-one years of age, and must satisfy the Water Commissioners that he or they have been regularly educated to the business, that he is of good reputation, and in every way qualified to receive a license.

SEC. 34 No plumber shall allow his name to be used by any person, directly or indirectly, either for the purpose of obtaining permits or doing any other work under his license. Removal from the city or dissolution of copartnership will act as a forfeiture of his or their license. All licenses now in force shall expire on the 31st day of December next ensuing, and all licenses issued hereafter shall be for the term ending December 31st next following their issue.

SEC. 35. No person except the Superintendent or the tapper employed by the Board will be allowed under any circumstances to tap the distributing pipes, or insert stop cocks or ferrules therein, under penalty of fifty dollars for each offence.

SEC. 36. No street, alley or other place shall be opened for the purpose of laying down any service water pipe, or making any addition thereto, or alteration of any tap, pipe, cock or other fixture, which have been shut off or which are out of use, except by special permit being first obtained by a licensed plumber *previous to the commencement of the work.*

SEC. 37. The permits for tapping the distributing pipes will be authority only for such new work connected therewith, specified in the application, and should any additional use, alteration, extension of the arrangement be required at any time, an extension permit must be obtained. A special permit will be required from the Board for putting in service pipe larger than one inch in diameter.

SEC. 38 At least twenty-four hours notice must be given at the office of the Commissioners by the plumber who is to lay down service pipes, fixing the time when the trench will be open and ready for the tapper. The trench over and about the iron pipes for the accommodation of the tapper must be dug four feet square, and not less than six inches below the pipe also sufficiently large over cement pipes, and all of the pipe required in each case must be laid and the trench left open for the inspection of the tapper before the ferrule is inserted or tap is made.

SEC. 39. All service pipe must be of extra "A. A." lead pipe of full weight from the point of union with the main to the building line, and laid three and one half (3½) feet below the established grade of street, with a bend in the form of a "trap" near the main requiring at least eighteen inches of extra length in such a manner as to prevent rupture by settlement.

SEC. 40. The size of service pipes extending from the street main to the service stop, shall be one eighth of an inch larger in inner diameter than the internal diameter of the ferrule with which it is connected; ball and wiped joints must be made in all cases where lead pipe is used.

SEC. 41. Street sprinklers and stop cocks shall be placed six inches on the inner side of the curbstone in paved streets and at the same relative points in unpaved streets, an iron shut-off box, only of the description allowed by the Board to be used either in replacing old ones or for new work.

SEC. 42. Pipes and fixtures must be placed and arranged in such a manner as will render them least liable to freeze. Whenever it may become necessary to carry pipes along outer walls, beneath floors, through open spaces or places where they may be affected by drafts of air, they must be thoroughly boxed and packed or otherwise protected against cold weather. This protection must be made complete at the time the plumbing is done.

SEC. 43. All stop cocks for service pipes under ground to be provided with a Tee (T) handle, not less than $\frac{7}{8}$ of an inch in width, and not less than one inch in length, all to be side wasting.

SEC. 44. A stop and waste cock must be placed inside of the cellar or foundation wall, and at the lowest point in the service, easily accessible and fully protected from freezing, and equal in strength to the ferrule in the street main, if a pipe should not run through the cellar, a stop and waste to be placed in the ground where it turns to enter the building, a rod connected thereto and running up inside of building, to be accessible in shutting off the water on such service also. All pipes to be so *pitched* that the water can be drawn from them to prevent freezing.

SEC. 45. All plumbing work must be done in a thorough and workmanlike manner, both in regard to materials and labor as required by the Board. The Superintendent (or authorized agent) are to have at all times facilities for inspecting the plumbing, and the quality and patterns of all appurtenances shall be subject to his approval, *and no work under ground* shall be covered up until examined by him. And the privilege is also granted him of suspending the work, if found in any manner irregular, and at variance with the requirements of these By-laws, the water shall not be let on until all such irregularities are corrected.

SEC. 46. No person shall turn on water to any premises, whether an old or new supply, except a plumber, or allow any person in his or their employ, or authorize any person to do so (without the written permission of the Superintendent) only for the purpose of testing his work, when it must be immediately turned off again.

SEC. 47. It is to be understood by licensed parties that the restrictions in relation to obtaining permits are not to prevent them rendering assistance in case of accident to the service pipes occuring during the night or at hours

when the office is closed, the Board only requiring in such cases that the permit shall be taken out immediately after the opening of the office thereafter

SEC 48. In putting down and repairing service pipes the streets or alleys must be opened in the manner which will occasion the least obstruction to public travel, and the trench or excavation must not be left open at night, except in case of necessity, when a lighted lantern shall be placed over such trench from twilight until daylight, and the trench shall be properly railed in so as to prevent accident. A failure to comply with the above will subject the party offending to a fine of $10.00 for each offence, and a suspension of his license until the fine is paid.

SEC. 49. Whenever any repairs shall be done requiring an opening in the ground, and it shall be found that the attachment is not of the depth of 3½ feet, it shall be altered accordingly by the plumber doing the work, and shall not be covered up until examined the same as new work.

SEC. 50. No connections shall be made between the first days of December and the first day of March next ensuing, unless recommended by the Commissioners.

SEC. 51. No tile or drain shall be laid in any trench for service pipes, nor shall any such trench in any case be used as a drain in connection with any of the mains or distributing pipes of said Water Works under a penalty of not less than ten, nor more than fifty dollars for each and every offence at the discretion of the Commissioners and such drain shall be liable at any time to be removed or stopped up by direction of the Commissioners at the expense of the party making or using the same.

SEC. 52. Plumbers or pipe fitters shall make full *written returns* for each service upon blanks furnished by the department of the ordinary and special uses to which the water is to be applied, whether for new work, alterations, or additions, with a full description of all apparatus and arrangements for using the water giving the street number of the premises, the name of street on which said premises are located, and such other particulars as the case may require. The return shall be made within forty-eight hours at the office *by the plumber* after the completion of the work. The water will in no case be let on until such return is made.

SEC. 53. Any plumber who shall be guilty of a violation of any of the rules adopted by the Board of Water Commissioners will be immediately deprived of his license, or subject to a fine, or both, at the option of the Board, and such forfeiture of license shall extend to and includeany co partner in the same business or any person in his employ, nor will a license be granted under any circumstances to any person interested in the business of, or occupying the same premises with such plumber after such forfeiture.

SEC. 54 On and after the first day of April, eighteen hundred and eighty-six, the rates for the use of water per year shall be as follows, and all fixtures on the premises shall be charged for as long as they are connected with the Water Works.

Dwelling occupied by one family supplied by one faucet, wash tubs included.	$6 00

Each additional faucet (not hereinafter specially rated)		$2 00
Dwelling occupied by two families, and less than four and all supplied by one faucet for each family,		5 00
Dwelling occupied by four or more families, and all supplied by one faucet for each family,		4 00
Each family having separate fixtures in a house occupied by more than one family will be charged the same as if living in a separate house.		
One bath-tub private, (and one hand basin)		5 00
One bath-tub, private, (cold water only)		3 00
When used by more than one family, for each family		4 00
One bath-tub, public,		8 00
One water closet (of approved kind) one family,		3 00
Each additional water closet,		2 00
When used by more than one family, for each family,		2 50
One water closet (of approved kind) public,		5 00
Each water closet for factories,		5 00
Hand basins each,		2 00
Where two faucets are used, emptying into one vessel, one for hot and one for cold water, only one charge will be made for both.		
Boarding houses	$10 to	$15 00
Barber shops,	6 to	8 00
Billiard saloon		4 00
Blacksmith shop,		5 00
Bakeries, minimum rate		8 00
Bakeries, if 3 bbls. flour per day consumed		9 00
Bakeries, if 4 bbls. flour per day consumed		12 00
Dental offices		6 00
Drug, Grocery and Provision stores		8 00
Dry Goods, Fancy, Book and Hardware stores		6 00
Drinking Saloon		15 00
Eating Saloon or Restaurant		8 00
Engine Houses	16 00 to	24 00
Factories	6 00 to	25 00
Hotels (culinary use)	20 00 to	25 00
Ice Cream Saloons		6 00
Laundries	12 00 to	25 00
Meat shops		6 00
Markets	8 00 to	16 00
Offices of Professional men		4 00
Photograph Galleries	8 00 to	16 00
Printing Offices	8 00 to	25 00
Public Schools	10 00 to	30 00
Parlor Organ or Sewing Machine Motor (family use)		5 00
Slaughter Houses	12 00 to	20 00
Steam engines, one horse power, up to 12 horse power for 10 hours per day. Per horse power		2 00

Each additional horse power	$1 25
Steam Boilers for house warming or other heating purposes to be assessed.	
Green Houses, Nurseries and Market Gardens to be assessed.	
Bottling Establishments, Breweries and Malt houses to be assessed.	
Urinals to be assessed.	
Private stables, including washing of carriages, each horse up to two	2 00
Each additional horse	1 00
Each cow	1 00
Livery and other public stables, including washing carriages, each horse up to six	1 50
Each additional horse	1 00
Hand Hose	3 00
Sprinkling streets (only)	4 00
" lawns (only)	3 00
" gardens (only)	6 00
" street and lawn	8 00
" street, lawn and garden	
This charge to be made whether hose is used for the whole or fractional part of the season	
A permit to be applied for in all cases	
Fountains 10 hours per day and 5 months per year 1-16 opening	5 00
The same, 1 8 opening	10 00
Building purposes 10 cents per M for brick, 5 cents per perch for stone, and 1 cent per yard for plastering	
Water Motors, 15 cent estimated per 1000 gallons	

METER RATES.

For a daily average of less than 1000 gallons	30 cents
" " 1,000 to 2,000	25 "
" " 2,000 to 3,000	21 "
" " 3,000 to 4,000	20 "
" " 4,000 to 5,000	19 "
" " 5,000 to 6,000	18 "
" " 6,000 to 7,000	17 "
" " 7,000 to 8,000	16 "
" " 8,000 to 9,000	15 "
" " 9,000 to 10,000	14 "
" " 10,000 to 12,000	13 "
" " 12,000 to 14,000	12 "
" " 14,000 to 20,000	11 "

The year to be estimated at 300 days.

USE OF METERS

When a consumer shall prefer to pay the cost of such a meter as shall be approved by the Board, together with the cost of putting in and of maintenance, rather than to pay schedule rates, or for the quantity estimated, a meter will be put in.

The Board reserve the right to put in a meter at the cost of the city, in any case, and charge for measured water, instead of being governed by the above schedule.

If a meter gets of order and fails to register, the consumer will be charged at the average daily consumption, as shown by the meter when in order. Repairs of meters will be made by the Board at the expense of the owners, whenever the Board deem repairs necessary.

When water passes through a meter it may be used for any and all purposes. No service pipes, however, will be allowed to be laid across a street.

All water that passes through a meter will be charged for, whether used or wasted.

All meters will be set by an employee of the Board, and shall not be moved or disturbed without permission from the proper officer.

SEC. 55. All permits heretofore granted, and all contracts for the use of water heretofore made, will be subject to the foregoing rules, regulations and rates.

SEC. 56. These rates are subject to the provision that any person taking water for any purpose, however small, must pay at least $5 per annum.

The Board reserve the right to change the foregoing rules, regulations and rates for the use of water, from time to time, as experience may show to be necessary.

TO CONSUMERS

Information for the management of Fixtures.

As information is generally desired in regard to the best manner of laying service pipes, and how to manage where hot water boilers are in use, when water is shut off in case of accidents or repairs to the main pipes, it is thought best to prepare a few directions.

Service pipes should be laid in the best conceivable course and manner to prevent freezing; the best course being through the cellar, the windows, doors, etc., kept properly closed, as pipes will freeze affected with drafts of cold air in very cold weather, and all so situated should be well wrapped, boxed, and protected, and where it enters the foundation wall provided with a stop and waste to shut off and empty the pipe at any time, have the pipe so pitched that they may be fully drained at this point. If the pipe cannot be run through a cellar let it be laid under ground about four feet, and where it turns directly to the sink, let there also be a shut off and waste in the ground, and at this point dig a trench, fill with stone to the waste, that the water may filter away; have a key or rod connected and extended inside by sink to shut off the water, *and always open a faucet to admit air, otherwise water will not drain from a pipe.* If the soil at the waste is heavy clay, better have a perfect drain. Turn all shut offs occasionally so they will not become set or corroded.

If a family should leave a premises for any time, always shut off the water at the stop cock in the cellar, even in warm weather, in case a leak might occur, but especially at any time when cold weather might ensue in order to prevent freezing, or if thought best, have the water shut off at the curb also. *See that the shut off box at the curb is in good order at all times, and the top of the box in sight,* (only iron ones adopted by the Board to be used), to be accessible for instant use. Already pipes have bursted and no box could be found or its location known, making it necessary to dig before water could be shut off, resulting in much damage by this neglect.

When parties having hot water or kitchen boilers find that the water ceases to flow, *they should immediately open the hot water faucet at the bath-tub,* or, (if there is no bath-tub) at some other point, to allow the steam to escape from the boiler and prevent exploding, and do not get alarmed, for the water in a boiler will last at least two days or longer, if an excessive fire is not kept up constantly, and no damage result to the water back. If the water should be shut of for any longer period the fire should be withdrawn to prevent the water-back from burning out; their use though, if really necessary could be continued without water, by placing fire brick over them. If boilers are empty, always fill them before starting a fire, or if they contain very hot water when it is again turned on, let it run awhile, when frozen do not start a fire; always empty a boiler when leaving premises in cold weather after fire is not.