

Cost of pumping station, shop, stable and storehouse, in- cluding land,	\$29,743.35	
pumping machinery,	20,706.72	
engineering and superintend- ence,	14,913.12	
incidentals,	6,875.97	
		<hr/>
Cost of works, January 1, 1922,	\$1,135,889.11	
Less amount received for lumber, land and buildings sold,		7,919.11
		<hr/>
		\$1,127,970.00

Bonds of the city have been issued to pay a part of said cost, of which the following are still outstanding:

When due.	Rate.	Amount.
Jan. 1, 1922,	4,	\$284,000.00
Jan. 1, 1922,	3½,	8,000.00
April 1, 1922,	3½,	25,000.00
Jan. 1, 1923,	3½,	3,000.00
Jan. 1, 1924,	3½,	15,000.00
		<hr/>
		\$335,000.00

CITY OF CONCORD WATER-WORKS INCOME.
INVESTMENT ACCOUNT.

Amount of capital, January 1, 1922,	\$34,000.00
Invested in	
City of Concord, N. H., 4% sewer refunding bonds,	\$1,000.00
U.S. First Liberty Loan, converted 4 $\frac{1}{4}$ % bonds,	10,000.00
U. S. Third Liberty Loan, 4 $\frac{1}{4}$ % bonds,	10,000.00
U. S. Fourth Liberty Loan, 4 $\frac{1}{4}$ % bonds,	10,000.00
U. S. Victory Loan, 4 $\frac{3}{4}$ % notes,	3,000.00
	\$34,000.00

Proceeds from \$4,000 matured 4% sewer refunding bonds, and redemption of \$846 War Savings Stamps, deposited in General Account by direction of the Board of Water Commissioners, to be used in the reduction of the bonded indebtedness of the water system.

CITY OF CONCORD WATER-WORKS PROFIT.

INCOME ACCOUNT.

Balance of income, 1920,	\$4,261.67	
Income received, 1921,	2,059.56	
	<hr/>	\$6,321.23
Transferred to General Account Water Department by order of the Board of Water Commissioners, to be used in the reduction of the bonded indebtedness of the water system,		\$6,321.23

**REPORT OF THE BOARD OF WATER
COMMISSIONERS.**

To the Board of Mayor and Aldermen:

We herewith submit the annual report of the Superintendent of the water system.

Very little comment in addition thereto is required,—his report being full and comprehensive.

The water system of the city is in the best of condition. The outstanding water bonds April 1, 1922, are \$288,000, of which \$270,000 bearing interest at 4 1-2 per cent per annum were refunded. The \$270,000 bonds were sold for \$1,007.80 for each \$1,000.00 bond, showing the high standing of the city financially. These bonds are dated January 1, 1922, payment being arranged yearly, so that the income from the water rates will pay both interest and principal in fifteen years.

Respectfully submitted,

NATHANIEL E. MARTIN,
HARRY H. DUDLEY,
CHARLES R. WALKER,
JOHN B. ABBOTT,
FRANK P. QUIMBY,
BURNS P. HODGMAN,
OLIVER J. PELREN,
GEORGE T. KENNEY,
HENRY E. CHAMBERLIN, *ex-officio*,

Board of Water Commissioners.

REPORT OF THE SUPERINTENDENT.

To the Board of Water Commissioners:

I herewith present to you the fiftieth annual report of the operations of this department, showing the receipts, expenditures and abatements, together with a statement of the extensions and improvements made during the year ending December 31, 1921.

RECEIPTS.

For water from consumers by fixed rates,	\$10,683.89
For water from consumers by meter rates,	65,576.49
From delinquents,	87.86
For water for building purposes,	71.15
From wood and farm lands,	207.25
For labor and materials furnished on private fire lines,	246.57
For pipe and stock sold and labor,	252.58
For turning on water shut off for non-payment,	2.00
From Penacook and Boscawen Water Precinct,	221.29
From telephone refund,	.35
	<hr/>
	\$77,349.43
Deduct abatements,	25.65
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Net receipts for 1921,	\$77,323.78

There has also been furnished the city free of charge the following use of water:

Public buildings,	\$179.50
Parks and playgrounds,	60.00
Cemeteries,	108.00
Street department,	774.00

Drinking fountains and watering troughs,	\$280.00	
Sewer flush tanks,	45.00	
469 fire hydrants at \$25,	11,725.00	
		————— \$13,721.50

EXPENDITURES.

MAINTENANCE ACCOUNT.

General care and maintenance :

Salaries and labor,	\$8,686.91	
Team account,	144.21	
Automobile account,	1,351.55	
Miscellaneous supplies,	641.48	
Tools,	376.41	
Repairs of buildings,	40.56	
Telephones and lighting,	90.11	
Insurance,	780.97	
Incidentals,	94.13	
		————— \$12,206.33

Office expenses :

Salary and clerical work,	\$1,275.13	
Postage and printing,	459.68	
Miscellaneous supplies,	147.53	
Repairs,	159.28	
Telephone,	33.96	
		————— 2,075.58

Care and repair of hydrants :

Stock,	\$223.58	
Labor,	462.84	
		————— 686.42

Care and repair of meters:

Stock,	\$196.08	
Labor,	1,081.61	
	<u> </u>	\$1,277.69

Relaying service pipes:

Stock,	\$195.00	
Labor,	522.72	
	<u> </u>	717.72

Repairing leaks:

Stock,	\$31.78	
Labor,	410.41	
	<u> </u>	442.19

Work at lake,	418.55
Care of wood-lots,	35.75
Penacook Park,	257.58
Taxes, town of Webster,	100.00
Expense of bond issue,	575.00

Pumping station:

Salaries and labor,	\$1,948.56
General supplies and repairs,	39.14
Telephone and lighting,	61.86

Steam pump:

Supplies and repairs,	80.35
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Electric pump:

Power,	\$1,730.80
Supplies and repairs,	96.13
	<u> </u>
	1,826.93

3,956.84

Total maintenance account,	<u> </u>	\$22,749.65
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EXTENSIONS AND IMPROVEMENTS.

Distribution pipes laid in 1921 :

South Street, from Bow Street to Bushey's Farm, 1,350 feet of 10-inch cast iron pipe, replacing cement-lined.

Passway between Phenix Block and Phenix Hotel, high service line, 180 feet of 10-inch pipe.

Alleyway east of North Main Street, from said passway to rear of Eagle Hotel, high service line, 596 feet of 10-inch pipe.

Pleasant Street at St. Paul's School, extended west from New Upper School, 118 feet of 10-inch pipe.

Noyes Street, from Harvard to Yale Street, 1,016 feet of 8-inch pipe; 392 feet of 1-inch pipe discontinued.

Hall Street, extended south from Rumford Field, 1,500 feet of 6-inch pipe.

Stevens Avenue, north from Pleasant Street, 385 feet of 6-inch pipe.

Kent Street, east from Stevens Avenue, 165 feet of 6-inch pipe.

Wiggin Street, east from Donovan Street, 322 feet of 6-inch pipe.

Dunklee Street, south from Pillsbury Street, 260 feet of 6-inch pipe, replacing 1-inch pipe.

Harvard, Princeton and Dartmouth Streets, on connections at Noyes Street, 44 feet of 6-inch pipe.

Hammond Street, extended east at Water Street, 37 feet of 4-inch pipe.

Bridge Street, extended east from Stickney Field, 295 feet of 2-inch pipe; 223 feet of 1-inch pipe discontinued.

Water Street, extended north from Hammond Street, 293 feet of 2-inch pipe.

Church Lane, north from Park Street, 124 feet of 2-inch pipe; 114 feet of 3-4 inch pipe discontinued.

Also 717 feet of 1-inch pipe; 222 feet discontinued.

On hydrant branches, 81 feet of 8-inch and 87 feet of 6-inch pipe; 14 feet of 6-inch cement-lined pipe discontinued.

Total length of main and distribution pipes now in use, 382,075 feet or 72.36 miles.

Fourteen gates were added during the year; 3 were discontinued.

Total number of gates now in use, 1,067.

Nine new hydrants have been set as follows:

On alleyway east of North Main Street.

East side, near Eagle Garage.

East side, rear Robinson's store.

East side, rear of Phenix Block.

On Noyes Street,

Northwest corner of Harvard Street.

Northwest corner of Yale Street.

On Hall Street,

West side, near Nysten's.

West side, near Thompson's.

West side, at Gilman's.

On Kent Street, north side, at Stevens Avenue.

Two have been discontinued; total number now in use, 469.

Thirty-nine services have been laid, consisting of 792 feet of 3-4 inch, 37 feet of 1-inch and 40 feet of 2-inch cement-lined pipe, and 17 feet of 8-inch cast-iron pipe. One 6-inch high service connection and one 6-inch low service connection have been made for Rumford Printing Co., hydrant and sprinkler service.

Nine services have been discontinued.

Total number in use, 3,924.

Total length of service pipes, 92,863 feet or 17.58 miles.

Forty-one services have been relaid and curb valves placed on 49 old services.

Sixty-six new meters have been set and 3 meters have been removed, making total now in use, 2,710.

The height and temperature of the water in Penacook Lake are shown by the following tables:

HEIGHT.

January	1,	185.00	July	1,	184.35
February	1,	184.70	August	1,	184.25
March	1,	184.60	September	1,	183.00
April	1,	185.00	October	1,	182.60
May	1,	185.20	November	1,	182.00
June	1,	185.15	December	1,	182.60

The lowest point in the height of the water was 182.00 on November 1, the highest was 185.50 on March 10, mean height for the year was 183.96 which was .32 foot lower than the mean height for 1920.

TEMPERATURE.

January	1,	41	August	2,	78
	12,	42		9,	80
	31,	43		30,	78
February	2,	42	September	4,	76
	28,	43		7,	74
March	2,	42		19,	72
	23,	43		30,	68
April	4,	44	October	5,	66
	9,	46		10,	62
	26,	47		29,	58
May	5,	48	November	4,	54
	17,	52		5,	52
June	3,	56		9,	50
	22,	60		16,	48
July	1,	66		22,	44
	16,	68	December	2,	42
	31,	72		31,	42

One of the most important pieces of construction work for this year was the extension of a 10-inch main for high service fire protection and the installation of three 8-inch four-way independent nozzle valve hydrants in the alleyway east of North Main Street. This extension has already

shown its value in two fires that might have assumed serious proportions but for its use.

An 8-inch pipe has been laid on Noyes Street from Harvard to Yale Streets with the intent of furnishing an ample supply to the section west of South Street and south of Clinton Street. This pipe was not connected to the South Street main on account of the condition of the street between South and Harvard Streets, the grade being about four feet lower. When this part of Noyes Street is filled, the line should be connected through to South Street.

The 6-inch cement-lined main on South Street from Bow Street to Bushey's Farm, laid in 1882, was relaid with 10-inch cast iron pipe. There had been several bad leaks on this pipe in the last few years and its condition as shown when uncovered in the work of relaying made it evident that it was time to discontinue it.

The residents on the lower end of Hall Street have been given a supply of water for both fire protection and domestic use, by the extension of the 6-inch main.

The location of all new hydrants which have been set in connection with these extensions, has been determined by the Hydrant Board comprising the City Engineer, the Chief of the Fire Department and the Superintendent of the Water Works.

At West Concord, north of Hutchins Street near the dam and gate houses, there has long been an unsightly and unsanitary condition caused by the flowing back of Forge Pond over a swampy area which also received more or less drainage from a set of buildings near by.

This has now been remedied by the construction of a rubble wall laid in concrete on the south side of the highway which prevents the water from the Pond from flowing back over this swamp, and a twelve-inch pipe was laid in back of the wall to carry water from the swamp and drainage to the overflow. The highway is greatly improved by this wall and the purity of the drinking water further safeguarded by it.

There have not been many new services laid this year as we have had few new buildings in the city. Meters have been set on most of the new services and on many old ones. It is planned to continue placing meters on all supplies whenever the schedule rate for fixtures installed shall equal or exceed the minimum meter rate.

All hydrants have been regularly tested and inspected during the winter and kept in good working condition.

The quality of our supply continues to hold its high standard as shown by the tests of the State Chemist. The shores have been policed and the rules regarding boating enforced.

I would recommend the relaying of the following streets in 1922:

Martin Street from Albin to Walker Streets with 280 feet of 6-inch pipe.

Bradley Street north from Perkins to Penacook Streets, 400 feet of 6-inch pipe.

Washington Street from Rumford to Essex Streets, 375 feet of 6-inch replacing 6-inch cement-lined.

Giles Street from Warren to School Streets, 772 feet of 6-inch pipe replacing 4-inch cement-lined.

Hammond Street east from Hall Street, 500 feet of 6-inch iron pipe replacing 4-inch iron.

I wish in closing this report to thank the members of the Board for their advice and support during the year.

Respectfully submitted,

PERCY R. SANDERS,
Superintendent.

**REPORT OF THE ENGINEER AT PUMPING
STATION.**

PUMPING STATION, CONCORD WATER WORKS.

P. R. Sanders, Superintendent,

SIR: I would report that the pumping machinery at the pumping station, including boilers is in good working condition.

Both steam pumps have been turned over every two weeks by high service pressure to see that they were in good working order.

RECORD OF MOTOR DRIVEN CENTRIFUGAL PUMPS.

MONTHS.	Total days pumping.		Total hours pumping.		Average hours pumping.		K. W. H. monthly.	Daily average K. W. H.	K. W. H. per 1,000,000 gallons.	Total gallons pumped Venturi meter.	Pints of oil.	Pounds of packing.	Pounds of waste.	Pounds of coal heating.
			H. M.	H. M.										
January	31	140:20	4:31	11,380	367	494	22,850,000	3	2	5	6,019			
February	28	140:55	5:2	11,490	410	499	23,075,000	3	4	4	4,420			
March	31	140:40	4:30	11,660	376	498	23,407,000	3	2	6	4,673			
April	30	128:25	4:8	10,500	350	500	20,968,000	3	4	4	4,405			
May	31	140:5	4:31	11,480	370	520	22,838,000	2	2	4	3,423			
June	30	198:30	6:37	15,880	526	496	32,268,000	4	4	6	.....		
July	31	174:10	5:37	13,990	451	499	28,299,000	5	2	6	.....		
August	31	214:45	6:58	17,140	552	504	34,705,000	6	4	5	.....		
September	30	147:50	4:55	11,710	390	509	23,296,000	19	4	10	.....		
October	31	149:50	4:50	11,900	383	495	24,067,000	12	4	9	1,198			
November	9	43:15	4:48	3,450	383	497	6,935,000	7	3	3	1,162			
December	9	43:25	4:37	3,580	397	500	7,150,000	5	2	3	640			
Total	322	1,662:10	.....	134,160	.....	.....	269,858,000	72	37	65	25,946
Daily average .....	.....	.....	5:9	.....	416	497	838,068	.....	.....	.....	123

RECORD OF STEAM PUMPS.

MONTHS.	No. days pumping			Total hours pump- ing.	Average time pump- ing.	Total gallons pumped.	Daily average pumped.	Total coal con- sumed.	Daily average con- sumed.	Total pounds of wood consumed.	Gallons pumped to pound of coal.
	engine No. 1.	engine No. 2.	Total days pumping.								
January.....	1	2	3	H. M. 16:	H. M. 5:20	1,185,865	395,288	2,127	709	608	557
February.....											
March.....											
April.....	1	1	2	14:30	7:15	1,312,873	656,436	2,722	1,361	612	200
May.....											
June.....											
July.....											
August.....											
September.....											
October.....											
November.....	11	16	17	185:50	10:59	15,735,190	925,599	33,771	1,986	864	214
December.....	6	20	21	203:	9:40	18,724,701	891,652	36,632	1,744	770	195
Total.....	19	39	43	419:20	.....	36,958,629	.....	75,252	.....	2,854	203
Daily average	.....	.....	.....	.....	9:45	859,503	.....	1,775	.....	.....	.....

Coal consumed for the year, 16.49 tons.

Pounds of wood consumed ÷ 3=equivalent amount of coal 2854 pounds.

Total equivalent coal consumed for the year includes that used for pumping, starting fires, banking fires and heating building, 17.76 tons.

Amount of equivalent coal consumed per thousand gallons pumped, 2.06.

Respectfully submitted,

HENRY A. ROWELL, *Engineer.*

APPENDIX.

RECEIPTS FOR EACH YEAR SINCE THE CONSTRUCTION OF THE
WORKS.

For the year ending January 31, 1874,	\$4,431.10
For fifteen months ending April 1, 1875,	17,535.00
For the year ending April 1, 1876,	16,921.24
“ “ “ 1877,	19,001.07
“ “ “ 1878,	20,763.03
“ “ “ 1879,	21,869.86
“ “ “ 1880,	22,451.53
“ “ “ 1881,	26,744.58
For nine months ending December 31, 1881,	25,534.01
For the year ending December 31, 1882,	27,243.06
“ “ “ 1883,	28,255.48
“ “ “ 1884,	28,915.65
“ “ “ 1885,	30,222.54
“ “ “ 1886,	30,862.64
“ “ “ 1887,	34,047.52
“ “ “ 1888,	38,441.32
“ “ “ 1889,	40,237.53
“ “ “ 1890,	42,133.41
“ “ “ 1891,	46,075.16
“ “ “ 1892,	48,351.52
“ “ “ 1893,	52,299.66
“ “ “ 1894,	53,230.10
“ “ “ 1895,	55,343.19
“ “ “ 1896,	56,557.81
“ “ “ 1897,	55,156.42
“ “ “ 1898,	59,147.54
“ “ “ 1899,	*53,953.13
“ “ “ 1900,	*57,003.71
“ “ “ 1901,	62,253.61
“ “ “ 1902,	63,430.85

* No hydrant rental this year.

WATER DEPARTMENT.

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For the year ending December 31, 1903,	\$65,088.45
“ “ “ 1904,	68,570.48
“ “ “ 1905,	71,076.44
“ “ “ 1906,	73,063.45
“ “ “ 1907,	73,782.64
“ “ “ 1908,	71,362.67
“ “ “ 1909,	*67,307.84
“ “ “ 1910,	68,673.71
“ “ “ 1911,	71,881.34
“ “ “ 1912,	76,145.13
“ “ “ 1913,	76,154.45
“ “ “ 1914,	74,422.15
“ “ “ 1915,	78,940.06
“ “ “ 1916,	75,052.72
“ “ “ 1917,	77,092.10
“ “ “ 1918,	78,077.15
“ “ “ 1919,	73,671.71
“ “ “ 1920,	78,589.63
“ “ “ 1921,	77,323.78
<hr/>	
Total receipts for 49 years,	\$2,534,689.17

MEAN HEIGHT OF WATER EACH YEAR.

1873,	175.86	1882,	179.15
1874,	179.50	1883,	176.40
1875,	180.00	1884,	178.18
1876,	180.28	1885,	176.80
1877,	176.46	1886,	178.10
1878,	179.50	1887,	179.04
1879,	179.74	1888,	181.96
1880,	175.30	1889,	180.91
1881,	174.70	1890,	181.90

*No hydrant rental after 1908.

1891,	180.00	1907,	183.59
1892,	174.32	1908,	183.41
1893,	173.38	1909,	181.40
1894,	172.81	1910,	180.22
1895,	171.15	1911,	177.60
1896,	178.96	1912,	178.86
1897,	183.33	1913,	179.20
1898,	184.31	1914,	179.55
1899,	183.49	1915,	180.00
1900,	183.09	1916,	184.15
1901,	183.86	1917,	183.81
1902,	184.98	1918,	181.84
1903,	184.75	1919,	183.32
1904,	184.40	1920,	184.28
1905,	183.37	1921,	183.96
1906,	183.94		

HYDRANTS.

H, HIGH SERVICE ; L, LOW SERVICE.

STREETS.	LOCATIONS.	Service.	Number.	
North Main...	Southwest corner of Penacook.....	L	28	
	East side, near J. B. Walker's.....	L		
	Junction of Fiske.....	L		
	East side, near Larkin's store.....	H		
	Northwest corner of Franklin.....	H		
	East side, opposite Pearl.....	H		
	Northwest corner of Washington.....	L		
	West side, at West Garden.....	H		
	East side, opposite Chapel.....	L		
	Northwest corner of Court.....	L		
	Northwest corner of Pitman.....	H		
	Northwest corner of Montgomery.....	H		
	East side, opposite Montgomery.....	L		
	Northwest corner of Centre.....	H		
	Southeast corner of Bridge.....	L		
	Southwest corner of Park.....	L		
	East side, opposite Park.....	H		
	Northwest corner of Capitol.....	H		
	Northwest corner of School.....	L		
	West side, at Centennial Block.....	H		
	East side, opposite Centennial Block.....	L		
	East side, near Eagle Garage.....	H		
	East side, in rear Robinson's Store. ...	H		
	East side, in rear Phenix Block.....	H		
	Northwest corner of Warren.....	L		
	West side, at Central Block.....	H		
	Northwest corner of Depot.....	L		
	South Main....	Northwest corner of Pleasant.....		L
		Southeast corner of Pleasant.....		H
		Northeast corner of Freight.....		L
East side, opposite Fayette.....		H		
East side, opposite Thompson.....		L		
Southeast corner of Chandler.....		H		
Northwest corner of Wentworth Avenue...		H		
Northwest corner of Thorndike.....		L		
East side, opposite St. John's Church.....		H		
Northwest corner of Perley.....		L		
West side, near Abbot & Downing Co.'s...	H			
East side, opposite Abbot & Downing Co.'s..	L			
East side, near West.....	H			
Northeast corner of Gas.....	L			
West side, opposite Holt Bros. Mfg. Co.....	H			

HYDRANTS.—Continued.

STREETS.	LOCATIONS.	Service.	Number.	
South Main....	Southwest corner of South State.....	H	21	
	Northwest corner of Pillsbury.....	L		
	East side, opposite Pillsbury.....	H		
	West side, opposite entrance to R. R. shops..	H		
	West side, 110 feet north of McKinley.....	L		
Water.....	West side, between McKinley and Rockingham	L	1	
	West side, below Wiggin.....	L		
	West side, below Bridge.....	L		
	Hall.....	West side, opp. Rolfe and Rumford Asylum.		L
		West side, below No. 18.....		L
		West side, at No. 32.....		L
		West side, opposite Hammond.....		L
		West side, opposite Home Avenue.....		L
		East side, at No. 85.....		L
		East side, near Rumford Field.....		L
Hammond.....	West side, near Nylen's.....	L	10	
	West side, near Thompson's.....	L		
	West side, at Gilman's.....	L		
Railroad.....	North side, near Bridge.....	L	1	
Fiske.....	East side, opposite Ford & Kimball's.....	L	1	
	West side, near North State.....	H		
Summer.....	West side, south line of Walker School.....	H	2	
Durgin.....	Northeast corner of Pitman.....	L	1	
North State...	East side, opposite Toof's laundry.....	L	1	
	Southwest corner of Penacook.....	H		
		Northwest corner of Walker.....		H
		Northwest corner of Church.....		L
		Northeast corner of Franklin.....		L
		Northwest corner of Tremont.....		L
		Northeast corner of Washington.....		L
		West side, opposite Court.....		L
		Southwest corner of Maple.....		L
		Southeast corner of Centre.....		L
		Southeast corner of Park.....		L
		Southwest corner of School.....		L
		Southeast corner of Warren.....		L
		Northwest corner of Warren.....		H
South State...	Northwest corner of Pleasant.....	L	14	
	Southeast corner of Pleasant.....	H		
		East side, opposite Wall.....		L
		Southeast corner of Fayette.....		L
		Northwest corner of Thompson.....		L
		Southwest corner of Monroe.....		L
		East side, opposite Laurel.....		L
		Northeast corner of Downing.....		L
		Northeast corner of West.....		L
		Southwest corner of Harrison.....		L

HYDRANTS.—Continued.

STREETS.	LOCATIONS.	Service.	Number.
Mills....	West side, at No. 22.....	L	
	Northwest corner of Allison.....	L	2
Dakin.....	West side, 220 feet north of Allison.....	L	1
Glen.....	West side, at No. 10.....	L	1
Dunklee.....	West side, 150 feet south of West.....	L	
	Northwest corner of Allison.....	L	
	Northwest corner of Pillsbury.....	L	3
Broadway.....	West side, 80 feet north of Humphrey.....	L	
	Northwest corner of Allison.....	L	
	Northwest corner of Carter.....	L	
	Northwest corner of Stone.....	L	
	West side, at Rollins Park.....	L	
	West side, opposite McKinley.....	L	
	West side, between McKinley and Rockingham	L	7
Donovan.....	Northeast corner of Wiggin.....	L	1
Green.....	Northwest corner of Prince.....	H	
	East side, opposite Prince.....	L	
	Northwest corner of Warren.....	L	3
South.....	West side, opposite Wall.....	L	
	Northwest corner of Fayette.....	L	
	Northwest corner of Thompson.....	L	
	West side, opposite Monroe.....	L	
	West side, opposite Laurel.....	L	
	West side, below N. H. Memorial Hospital..	L	
	West side, opposite Downing.....	L	
	West side, opposite Allison.....	L	
	West side, opposite Pillsbury.....	L	
	West side, near Paige's.....	L	
	West side, opposite I. W. Bushey's.....	L	
	Northwest corner of Iron Works Road.....	L	
	East side, at Quint's.....	L	
	West side, near Bow line.....	L	14
Bradley.....	Southwest corner of Penacook.....	H	
	Northwest corner of Walker.....	L	
	East side, opposite Highland.....	L	
	Northwest corner of Franklin.....	L	4
Union.....	Northwest corner of Maple.....	L	1
Jackson.....	Northeast corner of Church.....	H	1
Lyndon.....	Southwest corner of Tremont.....	H	
	East side, opposite Abbott.....	H	2
North Spring..	Northeast corner of Maple.....	L	
	Southwest corner of Centre.....	H	
	West side, at High School.....	H	
	East side, opposite High School.....	L	
	Southwest corner of School.....	H	5

HYDRANTS.—Continued.

STREETS.	LOCATIONS.	Service.	Number.
South Spring..	Southwest corner of Oak.....	L	4
	West side, opposite Thompson.....	L	
	West side, opposite Concord.....	L	
Academy.....	West side, near Memorial Hospital.....	L	1
	East side, at No. 10.....	H	
Hanover.....	West side, at No. 10.....	L	1
Rumford.....	West side, south of cemetery gate.....	H	2
	West side, opposite Perkins.....	L	
	Southeast corner of Walker.....	L	
	Northeast corner of Albin.....	L	
	Northeast corner of Franklin.....	L	
	Northwest corner of Beacon.....	H	
	Northeast corner of Abbott.....	L	
	Northeast corner of Cambridge.....	L	
	Northwest corner of Centre.....	H	
	Northeast corner of School.....	L	
Huntington....	West side, at Morrill School.....	L	11
	West side, at head of Short.....	H	
Tahanto.....	Northwest corner of School.....	H	1
Pine.....	Southwest corner of Centre.....	H	2
	Southwest corner of Warren.....	H	
Holt.....	East side, at No. 10.....	H	1
High.....	Northwest corner of Auburn.....	H	4
	Northwest corner of Valley.....	H	
	East side, opposite Forest.....	H	
	Southwest corner of Franklin.....	H	
Gladstone....	West side, at No. 13.....	H	1
Valley.....	Northeast corner of Forest.....	H	1
Auburn.....	Northeast corner of Chestnut.....	H	3
	Northeast corner of Forest.....	H	
Ridge Road....	North side, between Centre and Forest.....	H	1
Westbourne Rd.	North side, 135 feet north of Centre.....	H	1
Dartmouth.....	Southwest corner of Clinton.....	L	2
	Northwest corner of Noyes.....	L	
Princeton.....	Southwest corner of Clinton.....	L	2
	Northwest corner of Noyes.....	L	
Fruit.....	Northeast corner of Woodman.....	H	4
	West side, 700 feet south of Pleasant.....	L	
	East side, opposite No. 70.....	L	
	East side, opposite No. 114.....	L	
Minot.....	West side, north of Odd Fellows' Home.....	H	3
	West side, south of Odd Fellows' Home.....	H	
Kensington Rd.	Northwest corner of Pleasant.....	H	1
	Northwest corner of Pleasant.....	II	
Stevens Ave...	Northeast corner of Pleasant.....	II	1

HYDRANTS.—Continued.

STREETS.	LOCATIONS.	Service.	Number.
Penacook.....	South side, near Concord Lumber Co.....	H	8
	South side, east of P. B. Co.'s storehouse...	L	
	South side, near P. B. Co.'s.....	H	
	South side, near P. B. Co.'s office.....	H	
	Southeast corner of North Main.....	H	
	Southwest corner of Rumford.....	H	
	North side, opposite No. 69.....	H	
	Southeast corner of Columbus Avenue.....	H	
Walker.....	Southwest corner of Martin.....	L	2
	South side, 500 feet west from Rumford...	L	
Albin.....	North side, 160 feet west of Bradley.....	L	1
Highland.....	North side, at No. 22.....	L	2
	Northeast corner of Rumford.....	L	
Church.....	South side, east of Bradley.....	L	3
	North side, opposite Lyndon.....	H	
Franklin.....	Northeast corner of Rumford.....	H	6
	Northwest corner of Jackson.....	H	
	Northeast corner of Lyndon.....	H	
	Southwest corner of Rumford.....	H	
	South side, opposite No. 64.....	H	
	North side, between High and Auburn.....	H	
Chestnut.....	Northeast corner of Auburn.....	H	1
Tremont.....	Northwest corner of High.....	H	2
	North side, east of Harrod.....	L	
Pearl.....	Southwest corner of Jackson.....	H	1
Beacon.....	North side, at No. 14.....	L	5
	North side, opp. Merrimack Apartments	H	
	Northwest corner of Jackson.....	H	
	Southwest corner of Lyndon.....	H	
	North side, opposite White.....	H	
Rowell.....	South side, opposite Charles.....	H	1
	Northeast corner of White.....	H	
Blanchard.....	Northwest corner of Essex.....	H	1
	North side, opposite Ford's foundry.....	H	
Ferry.....	North side, near N. E. Granite Works.....	H	4
	North side, east of C. & M. R. R.....	L	
	Northwest corner of Huntoon Avenue.....	H	
	North side, opposite Rollins.....	L	
Washington....	North side, opposite Alert Hose House....	L	7
	Southwest corner of Union.....	L	
	Northeast corner of Lyndon.....	H	
	Northwest corner of Rumford.....	H	
	Northwest corner of North Essex.....	H	
Chapel.....	North side, opposite Perry Avenue.....	H	7
	South side, near Methodist Church.....	L	

HYDRANTS.—*Continued.*

STREETS.	LOCATIONS.	Service.	Number.
Montgomery...	South side, opposite No. 18.....	L	1
Centre.....	Northeast corner of North State.....	H	
	Southwest corner of Green.....	L	
	Northwest corner of Union.....	H	
	Northwest corner of North Spring.....	L	
Centre.....	South side, opposite Essex.....	H	
	Southwest corner of Summit Avenue.....	H	
	South side, on east line of Dewey School lot	H	
Bridge.....	Northeast corner of Ridge Road.....	H	8
	South side, near easterly barn.....	L	
	North side, opposite Concord Coal Co.'s....	H	
	North side, opposite Concord Shoe Factory.	H	3
Park.....	North side, at St. Paul's Church.....	L	1
Capitol.....	North side, at south gate of State House yard	H	
	Northeast corner of North State.....	H	2
Garden.....	Northeast corner of Huntington.....	H	1
School.....	South side, west of Durgin.....	H	
	Northwest corner of North State.....	H	
	Northeast corner of Green.....	H	
	Northwest corner of Green.....	L	
	Northwest corner of North Spring.....	L	
	Northwest corner of Rumford.....	H	
	Northwest corner of Merrimack.....	H	
	Northwest corner of Pine.....	H	
	Northeast corner of Liberty.....	H	
	North side, at No. 106.....	H	
	Southeast corner of Giles.....	H	11
Warren.....	Southeast corner of Odd Fellows Avenue....	H	
	Southeast corner of Fremont.....	L	
	Northwest corner of North Spring.....	L	
	Northwest corner of Rumford.....	H	
	Southwest corner of Merrimack.....	H	
	Northwest corner of Tahanto.....	H	
	Northeast corner of Liberty.....	H	
	Northeast corner of Giles.....	H	
	Junction of Pleasant, near Fruit.....	H	9
Depot.....	South side, at north end of train shed.....	H	
	Northwest corner of Railroad Square.....	L	2
Blake.....	South side, opposite Nos. 8-10.....	L	1
Orchard.....	South side, opposite No. 8.....	H	1
Pleasant.....	Southwest corner of Railroad Square.....	H	
	Northwest corner of Railroad Square.....	L	
	South side, at South Congregational Church.	L	
	Southeast corner of South.....	L	
	Northeast corner of Fremont.....	L	

HYDRANTS.—Continued.

STREETS.	LOCATIONS.	Service.	Number.
Pleasant.....	Southwest corner of Spring.....	H	13
	South side, opposite Rumford.....	H	
	South side, opposite Merrimack.....	H	
	South side, opposite Pine.....	H	
	South side, opposite Liberty.....	H	
	North side, near city stable.....	H	
	South side, near Gale.....	H	
Kent.....	South side, opposite No. 220.....	H	1
	North side, at Stevens Ave.....	H	
Pleasant.....	South side, near Mrs. Eddy's cottage.....	H	11
	South side, at Lavery's.....	H	
	South side, opposite No. 270.....	H	
	North side, near E. B. Chesley's.....	H	
	North side, opposite No. 291.....	H	
	North side, near J. McC. Hammond's.....	H	
	South side, opposite Fiske Road.....	H	
	Southwest corner of School Avenue.....	H	
	North side, at chapel.....	H	
	South side, opposite Lower School.....	H	
Fiske Road....	South side, near new Upper School.....	H	1
	East side, at Trask's.....	H	
Hopkinton Rd..	South side, near new infirmary.....	H	1
Mill Road,			
St. P. School...	East side, near laboratory.....	H	3
	North side, at Orphans' Home.....	H	
	South side, at tenement No. 7.....	H	
Old Hopkinton			
Road.....	Junction of Hopkinton road.....	H	1
Wall.....	Northeast corner of Elm.....	L	1
Marshall.....	North side, opposite Fuller.....	L	1
Freight.....	No. side, at southwest corner pass. station..	H	1
Hill's Avenue..	Southwest corner of Railroad Square.....	L	2
	Northeast corner of South Main.....	L	
Fayette.....	Northwest corner of Elm.....	L	1
Thompson.....	North side, opposite Jefferson.....	L	1
Chandler.....	South side, opposite Railroad.....	L	1
Concord.....	Southwest corner of South State.....	L	3
	Northwest corner of Jefferson.....	L	
	Northeast corner of South.....	L	
Monroe.....	North side, opposite Grove.....	L	2
	South side, at Rumford School.....	L	
Thorndike.....	North side, between So. Main and So. State	L	5
	Southwest corner of South State.....	L	
	Northeast corner of Grove.....	L	
	North side, opposite Pierce.....	L	
	Northeast corner of South Spring.....	L	

HYDRANTS.—Continued.

STREETS.	LOCATIONS.	Service.	Number.
Laurel.....	Northwest corner of Grove.....	L	
	Northwest corner of Pierce.....	L	2
Perley.....	Southwest corner of South State.....	L	
	Northwest corner of Grove.....	L	
	Northeast corner of Pierce.....	L	
	South side, at No. 75.....	L	4
Downing.....	South side, opposite Grove.....	L	
	Southeast corner of Mills.....	L	
	Southwest corner of Redwood Avenue.....	L	3
Clinton.....	North side, opposite Harvard.....	L	
	North side, opposite Avon.....	L	
	Northeast corner of Fruit.....	L	
	North side, near No. 108.....	L	
	North side, at State Fair grounds.....	L	5
West.....	North side, near South Main.....	L	
	North side, near Badger.....	L	
	Northeast corner of Mills.....	L	
	North side, opposite Dakin.....	L	
	Northwest corner of Broadway.....	L	5
Avon.....	Northwest corner of South.....	L	1
Noyes.....	Northwest corner of Harvard.....	L	
	Northwest corner of Yale.....	L	2
Harrison.....	Northwest corner of Morton.....	L	1
Humphrey.....	North side, near Kimball.....	L	1
Allison.....	Northeast corner of Badger.....	L	1
Pillsbury.....	North side, opposite Foster Ward.....	L	
	Northeast corner of Broadway.....	L	
	Northwest corner of Kimball.....	L	3
Carter.....	Northeast corner of Eastman.....	L	1
Stone.....	North side, 300 feet from Bow.....	L	1
Holly.....	North side, west of South Main.....	L	1
McKinley.....	North side, at Dunklee St. proposed exten'n.	L	1
Rockingham....	Northeast corner of Broadway.....	L	
	North side, at Donovan.....	L	2
Iron Works Rd.	South side, at Brown's.....	L	1
Prospect.....	Northwest corner of Granite Avenue.....	L	
	East side, north of Granite Avenue.....	L	2
Curtice Ave...	North side, 230 feet east of North State....	L	1
North State...	West side, at Water-Works storehouse.....	L	
	Northeast corner of Foster.....	L	
	East side, at Tahanto School.....	L	
	Northeast corner of Curtice Avenue.....	L	
	East side, near north entrance Blossom Hill Cemetery.....	H	
	West side, near Calvary Cemetery.....	L	

HYDRANTS.—Continued.

STREETS.	LOCATIONS.	Service.	Number.
North State..	East side, near No. 226.....	H	13
	East side, near No. 252.....	H	
	East side, near No. 262.....	L	
	East side, near No. 272.....	H	
	West side, at south line of prison wall.....	L	
	West side, at north line of prison wall.....	L	
	East side, near No. 296.....	L	
Palm.....	North side, west of Fairbanks.....	H	1
North State...	Northwest corner of Palm.....	H	9
	West side, near Concord Woodworking Co...	L	
	East side, near No. 312.....	L	
	East side, near No. 324.....	H	
	East side, near No. 330.....	L	
	East side, opposite Dolan.....	L	
	East side, opposite No. 362.....	H	
	West side, opposite No. 382.....	L	
	East side, at No. 382.....	H	
	WEST CONCORD.		
North State...	Southeast corner of K.....	H	10
	Northeast corner of Peabody.....	L	
	East side, at No. 426.....	H	
	East side, near engine house.....	H	
	East side, at No. 464.....	H	
	West side, near Crescent Mfg. Co.....	H	
	East side, at No. 498.....	H	
	East side, at No. 516.....	H	
	East side, opposite No. 533.....	H	
	East side, near Sewall's Falls Road.....	H	
Fisher.....	Southwest corner of Engel.....	L	1
View.....	Northeast corner of K.....	L	1
Electric.....	Northeast corner of North State.....	L	2
	North side, near power station.....	L	
Clarke.....	Northeast corner of Fisher.....	L	1
Lake.....	East side, near S. W. Kellom's.....	L	5
	West side, at No. 13.....	H	
	West side, near Wilson's.....	H	
	East side, at No. 33.....	L	
	South side, near Quaker.....	H	
Knight.....	South side, opposite railroad station.....	H	2
	South side, at Quaker.....	L	
Hutchins.....	North side, near No. 22.....	H	3
	North side, near C. & C. Railroad.....	H	
	North side, at No. 40.....	H	

HYDRANTS.—Continued.

STREETS.	LOCATIONS.	Service.	Number.
First.....	North side, near A. H. Knight's.....	H	1
Sewall's Falls Road.....	East side, at north line of cemetery.....	H	1
Penacook Rd...	West side, opposite Frost's.....	H	
	West side, opposite Blanchard's.....	H	
	West side, near Warner Road.....	H	3
PENACOOK.			
South Main....	West side, at Harriman's.....	H	
	West side, at Annis's.....	H	
	West side, at Garvin's.....	H	
	West side, south of Willow Hollow.....	H	
	West side, north of Willow Hollow.....	H	
	West side, at south end of Woodlawn Cem'y	H	
	West side, at north end of Woodlawn Cem'y	H	
	West side, opposite Stark.....	H	
	West side, near Hoyt's garage.....	H	
	West side, near No. 88.....	H	
	Southwest corner of Union.....	H	
	Washington Square, opp. Exchange Block..	H	
	Northwest corner of Charles.....	H	
	North side, opposite East Canal.....	H	
	North side, near iron bridge.....	H	15
West Main....	West side, opposite cemetery.....	H	
	West side, at Pine.....	H	2
High.....	Northwest corner of Stark.....	H	
	East side, opposite Summit.....	H	
	Northwest corner of Maple.....	H	
	Northwest corner of Spring.....	H	4
Washington....	South side, near South Main.....	H	
	Southeast corner of Union.....	H	
	South side, at No. 41.....	H	
	South side, opposite Charles.....	H	
	South side, near Contoocook bridge.....	H	
	North side, at Rolfe's sawmill.....	H	6
Fowler.....	West side, at Charles Holmes'.....	H	
	East side, near Elliott's.....	H	2
Electric Ave...	South side, junction of Washington.....	H	1
Elliott.....	Northeast corner of Electric Avenue.....	H	1
Charles.....	Southwest corner of Warren.....	H	
	South side, at schoolhouse.....	H	
	North side, near No. 36.....	H	3
West Canal....	Southeast corner of Warren.....	H	1

HYDRANTS.—Continued.

STREETS.	LOCATIONS.	Service.	Number.
East Canal....	North side, near Contoocook Mfg. Co.....	H	2
	North side, near Crescent.....	H	
Crescent.....	West side, north of Canal.....	H	1
Walnut.....	North side, at Bye.....	H	1
Merrimack.....	South side, opposite Merrimack Avenue.....	H	8
	North side, opposite Nos. 36-38-40.....	H	
	North side, opposite Cross.....	H	
	South side, opposite Bye.....	H	
	North side, opposite D. W. Fox's.....	H	
	South side, opposite Rolfe's shop.....	H	
	South side, opposite Symonds' factory.....	H	
	North side, near road to Island.....	H	
	Northwest corner of Penacook.....	H	
	North side, opposite High.....	H	
Summer.....	Northeast corner of Centre.....	H	3
	North side, opposite Church.....	H	
Spring.....	Northeast corner of Church.....	H	1
Maple.....	Northeast corner of Pleasant.....	H	1
Summit.....	Southeast corner of Pleasant.....	H	1
Winter.....	North side, near Pleasant.....	H	1
Centre.....	Northwest corner of Spring.....	H	2
	West side, opposite No. 47.....	H	
Cross.....	Northwest corner of Spring.....	H	2
	Southwest corner of Summer.....	H	
Rolfe.....	North side, near angle of street.....	H	3
	South side, at No. 38.....	H	
	Northwest corner of Penacook.....	H	
Penacook.....	West side, opposite A. W. Rolfe's.....	H	3
	West side, at No. 35.....	H	
	East side, at No. 41.....	H	
Whole number public hydrants.....			469
PRIVATE HYDRANTS.			
	Abbot & Downing Co.....	H	6
	Boston & Maine Railroad, upper yard.....	L	4
	Boston & Maine Railroad, shops.....	H	15
	Boston & Maine Railroad, new round house	H	6
	Boston & Maine Railroad, power house, West Concord	H	1
	Standish Worsted Co.....	H	3
	Concord Gas Co.....	L	1
	Concord Shoe Factory.....	H	1

HYDRANTS.—*Concluded.*

STREETS.	LOCATIONS.	Service.	Number.
	Concord Worsted Mills.....	H	2
	Wm. B. Durgin Co.....	H	1
	Wm. B. Durgin Co.....	L	1
	Rumford Printing Co.....	H	1
	Rumford Printing Co.....	L	1
	N. E. Box Co.....	H	3
	N. H. Spinning Mill.....	H	6
	N. H. State Hospital.....	H	16
	N. H. State Prison.....	H	4
	N. H. State Prison.....	L	2
	Page Belting Co.....	H	9
	Page Belting Co.....	L	1
	St. Paul's School.....	H	14
	John Swenson Granite Co.....	H	2
	Water-works pumping station.....	H	1
	Whole number private hydrants.....		101

SCHEDULE OF IRON AND CEMENT-LINED PIPES AND GATES.

STREETS.	BRICK CON- DUIT.	LENGTH AND SIZE OF IRON PIPE IN FEET.										Number of gates.			
		30- in.	24- in.	20- in.	18- in.	16- in.	14- in.	12- in.	10- in.	8- in.	6- in.		4- in.		
Conduit	2220														
Reserve main		282													
Low service main			331	1905	75										7
Pump main			13598	58	75	147									6
Gate-houses and layout															29
Force main		240	2962		42	20									5
Pumping station and layout															8
Abbott											23	349			2
Academy											458				1
Albin								785							1
Alleyways								776			450	505			2
Allison											2492				4
Auburn						2182									1
Avon											724				2
Badger											5	689			1
Beacon											2145				3
Blake											265	250			2
Blanchard											475				1
Blossom Hill											1781				1
Bow											590				1
Bowery Avenue												245			1
Bradley								1577							3
Bridge								327			1123				1
Broadway							2278	2052							3
Cambridge											6	154			1
Capitol									508		763				5
Carter											1077				2
Centre								3529	2690						14
Chandler											306				1
Chapel											585	56			2
Charles												516			1
Chestnut											265				1
Church										21	1600	547			7
Clarke											196				1
Clinton									1942	180	1663				3
Columbus Avenue						2100									1
Concord											1593	286			5
Court											670				2
Curtice Avenue											422				2
Dakin											19	836			2
Dartmouth											590				2
Depot											387	242			2
Donovan											456				1
Downing											1977	92			4
Dunklee											1455				4
Durgin											265				1
Eastman											400	400			1
Electric											550				1
Elm											270	607			4
Engel											388				1
Essex											587				2
Essex, North											262				1
Fairbanks											165				1
Fayette											1187				3
Ferry									1000			1066			4

SCHEDULE OF IRON AND CEMENT-LINED PIPE AND GATES.—Continued.

STREETS.	BRICK CON- DUIT.	LENGTH AND SIZE OF IRON PIPE IN FEET.										Number of gates.				
		30- in.	24- in.	20- in.	18- in.	16- in.	14- in.	12- in.	10- in.	8- in.	6- in.		4- in.			
Valley															1	
View												256				
Walker								705				648	639		4	
Wall												754			2	
Warren								454	42.8			514			12	
Washington								1404	1118			1244			9	
Water								310								
Waverly														272	1	
West							1836	661				266			4	
Westbourne Road												300			1	
Wiggin												725			1	
Winter												23	202		1	
Woodman												366			1	
Wyman												220			1	
Hydrant branches								177	239			5198	137		359	
Blow-offs								132				83	145		70	
PENACOOK.																
Penacook, high ser- vice main						10584										8
Canal, East								225	8							2
Canal, West																1
Centre								247				467				4
Charles																3
Church																1
Crescent								635				58				3
Cross																2
Electric Avenue												653				
Elliott												476				
Fowler												1300				
High												252				4
Linden												285				1
Main												150				4
Main, West												1678				2
Maple												327				1
Merrimack								70	37							5
Penacook												1923				2
Pine												364				
Rolfe												1846				1
Spring																1
Stark																1
Summer								54								4
Summit												423				1
Union													261			1
Walnut and Bye												884				1
Washington										150		2205				4
Winter												450				1
Hydrant branches										27		542				68
Blow-offs															10	12
Totals	2220	522	28795	1963	2788	19788	24759	49022	23933	120049	31282	1067				

SCHEDULE OF IRON AND CEMENT-LINED PIPES
AND GATES.— *Concluded.*

STREETS.	LENGTH AND SIZE OF CEMENT-LINED PIPE IN FEET.						
	18 in.	14-in.	12-in.	10-in.	8-in.	6-in.	4-in.
Old cement-lined main		2230					
Low service main	11391						
Chestnut						373	
Franklin						120	
Giles							772
High						1218	
Perkins							34
Rumford			5952	1203			
State, North			1764				
Valley						879	
Warren						11	
Washington						501	
Hydrant branches						298	88
Blow-offs							44
PENACOOK.							
Penacook, high service main		13110	1221				
Canal, East					628		
Canal, West					422		
Centre					479	245	
Charles						1777	
Church						482	
Cross					734		
High						2100	
Main			2573				
Merrimack			57		1181	2023	
Spring					652		
Stark				529			
Summer					1149		276
Washington					1193		
Hydrant branches						689	
Blow-offs							55
Totals	11391	15340	11567	1732	6438	10716	1269

SUMMARY OF STATISTICS.

FOR THE YEAR ENDING DECEMBER 31, 1921.

CONCORD WATER-WORKS.

CITY OF CONCORD, COUNTY OF MERRIMACK, STATE OF NEW
HAMPSHIRE.

GENERAL STATISTICS.

Population by census of 1920—22,167.

Date of construction—1872.

By whom owned—City of Concord.

Source of supply—Penacook Lake.

Mode of supply—Gravity, also pumping to reservoir for
high service and fire protection.

PUMPING.

Builders of pumping machinery—Worthington Pump and
Machinery Corporation.

1 triple expansion horizontal engine, capacity, 2,000,000
gallons per 24 hours, 1893.

1 triple expansion horizontal engine, capacity, 2,000,000
gallons per 24 hours, 1904.

1 Worthington 8", type "BS", slow speed, horizontal
split casing, volute, centrifugal pump, capacity
3,500,000 gallons per 24 hours, 1919.

Motor, G. E., 100 H. P., A. C.

ELECTRIC PUMP.

1. Description of power :
 - a. Alternating, 3 phase, 60 cycles, 2,200 volts, 1,800 R. P. M.
 - b. Price per K. W. H., \$0.01 1/3, 8 p. m. to 6 a. m.; maximum, \$1,800 per year, 300,000,000 gallons; \$6.00 per 1,000,000 gallons, over 300,000,000.
2. K. W. H. used for year, 134,160.
3. Total pumpage, by Venturi meter, 269,858,000 gallons.
4. Average static head against which pump works, 90 feet.
5. Average dynamic head against which pump works, 120 feet.
6. Gallons pumped per K. W. H., 2,011+.
7. K. W. H. used per 1,000,000 gallons pumped, 497.
8. Efficiency of pump,

$$\frac{269,858,000 \text{ (gallons pumped)} \times 8.34 \text{ (lbs.)} \times 120 \text{ (dynamic head)}}{134,160 \text{ (K. W. H.)} \times 33,000 \times 60 \times 1.34 \times 88.2 \text{ (efficiency motor and switch board)}} = 86.3 \%$$
9. Total pumping for year, steam and electric pumps, 306,816,629 gallons.
10. Cost of total pumping figured on pumping station expenses—\$3,956.84.
11. Per million gallons pumped—\$12.896.
12. Per million gallons raised one foot (dynamic)—\$0.107.

DISTRIBUTION.

MAINS.

1. Kind of pipe—cast iron and cement-lined.
2. Sizes—from two-inch to twenty-four-inch.
3. Extended—5,801 feet during year.
4. Relaid—2,769 feet during year.
5. Discontinued—837 feet during year.
6. Total now in use—72.36 miles.

7. Number of leaks per mile for year—
8. Length of pipes two inches and less diameter—3.44 miles.
9. Number of hydrants added during year—public, 7.
10. Number of hydrants now in use—public, 469; private, 95.
11. Number of stop gates added during year—11.
12. Number of stop gates now in use—1,067.
13. Number of stop gates smaller than four-inch—
14. Number of blow-off gates—81.
15. Range of pressure on mains at center of city—88 pounds high service and 48 pounds low service.

SERVICES.

16. Kind of pipe—cement-lined.
17. Sizes—three-fourths-inch to ten-inch.
18. Extended—886 feet.
19. Discontinued—153 feet.
20. Total now in use—92,863 feet.
21. Number of service taps added during year—30.
22. Number now in use—3,924.
23. Average length of service—23.66.
24. Average cost of service for the year—
25. Number of meters added during year—63.
26. Number now in use—2,710.
27. Percentage of services metered—69.06.
28. Percentage of receipts from metered water—85.88.
29. Number of elevators added—none.
30. Number now in use—9.
31. Number of standpipes for street watering—44.

FINANCIAL.

WATER DEPARTMENT.

RECEIPTS.	EXPENDITURES.
Balance brought forward:	
(a) From ordinary (maintenance) receipts, \$18,445.88	
(b) From extraordinary receipts (bonds, etc.),	\$22,174.65
Total,	.....
From Water Rates.	\$22,174.65
A. Fixture rates, \$10,227.02	13,806.60
B. Meter rates, 65,692.72	18,827.50
C. Total from consumers, 75,919.74	.....
D. For hydrants,	
E. For fountains,	
F. For street watering,	
G. For public buildings:	
School, \$474.00	
All others,	
H. For miscellaneous uses,	
I. General appropriation,	
J. Total from municipal departments, 474.00	
K. From tax levy,	
L. From bond issue,	
M. From other sources, 930.04	
N. Total,	\$95,769.61

Water-Works Maintenance:	
AA. Operation (management and repairs), \$22,174.65	
BB. Special,	
CC. Total maintenance, \$22,174.65	
DD. Interest on bonds, 13,806.60	
(CC+DD, \$35,981.25)	
EE. Payment of bonds, 18,827.50	
FF. Investment of net income,	
Water-Works Construction:	
GG. Extension of mains, \$13,141.49	
HH. Extension of services, 1,827.64	
II. Extension of meters, 2,426.02	
JJ. Special, 3,721.69	
KK. Total construction, 21,116.84	
LL. Unclassified expenses, 575.00	
MM. Balance:	
(aa) Ordinary, \$19,269.02	
(bb) Extraordinary,	
Total balance,	19,269.02
	\$95,769.61

O. Net cost of works to date, \$1,127,970.00.

P. Bonded debt at date, \$335,000.

Q. Average rate of interest, 3.92 per cent.

R. Value of investment of net income, \$45,167.23.

INVENTORY

OF THE PROPERTY OF THE WATER DEPARTMENT, INCLUDING
THE PLANT AND WATER RIGHTS, AND ALL THE REAL
ESTATE AND PERSONAL PROPERTY IN THEIR POSSESSION,
JANUARY 1, 1922.

Water rights—land, etc.,	\$1,127,070.00
Water office—furniture, etc.,	1,156.00
Pumping station—furniture, supplies, etc.,	2,000.00
Shop:	
Machinery, tools, meters, service pipe, etc.,	4,535.89
Trucks, roadster, horse, wagons and supplies,	3,200.00
Storehouse—hydrants, water gates, special castings, etc.,	4,825.30
Pipe yard—cast-iron pipe,	6,592.40
Shop at West Concord—pipe, etc.,	50.00
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	\$1,149,429.59

FIRE DEPARTMENT.

REPORT OF CHIEF ENGINEER.

To the Board of Aldermen:

In accordance with the requirements of the city ordinance, I herewith submit for your consideration the report of the Fire Department for the year 1921.

The department responded to 62 bell alarms and 302 still alarms.

In addition, two fires occurred, entailing loss, for which no alarms were given, making a total of 366 for the year.

	Bell	Still	No alarm	Total
Precinct,	38	228	1	267
Penacook,	13	51	1	65
East Concord,	9	7		16
West Concord,	2	16		18
	62	302	2	366

This report will be found to contain statements in detail embracing the amount of expenditures, a complete roll of the department with residence and occupation of each member, a record of all fires and alarms which have occurred during the year and the causes thereof as nearly as could be ascertained, with the names of the owners or occupants and the value, loss, insurance, and insurance recovered in each case.

The number of alarms responded to by the department during the year exceeded all previous records and the monetary loss was far heavier than usual. Extensive repairs were made on Combinations 1 and 3,—the wheels

of the latter being cut down and cord tires provided. The condition of the stable flooring made thorough repairs imperative. The apparatus in the main is in good condition, but Combination 2 (Alert) and Engine 3 car (Penacook) are sadly lacking in power and remedial steps should be taken. The ladder truck should be motorized. 1000 feet of hose should be purchased and 1000 feet re-lined. The precinct fire alarm system, as regards construction, is in good condition, but vastly overloaded, abnormal areas being without protection in case of open circuit. One alarm box was purchased late in the year but not installed. Approximately 10 miles of new wire was used in replacing the same amount of old wire.

The fire alarm system at Penacook is in good condition. It will be necessary, however, to renew the battery plates during the coming year. The installation of an alarm box has been requested at West Main and Pine Streets.

East and West Concord were provided with electric siren fire alarm horns which are working satisfactorily. The duties incumbent on the undersigned in the line of inspection of wires and buildings have been performed.

In March, a monthly system of inspection of buildings in the business section was inaugurated and has proved beneficial.

During the month of October I had the pleasure of attending the Convention of the International Association of Fire Engineers held at Atlanta, Georgia, a report of which I rendered at that time.

I wish again to take occasion to thank your honorable body for the opportunity afforded me to attend.

Respectfully submitted,

W. C. GREEN,
Chief Engineer.

IN MEMORIAM.

CHARLES H. SANDERS
Engineer, Eagle Co. No. 1
Died March 30th, 1921

HOSEA, M. BATCHELDER
Substitute, Good Will No. 3
Died May 14th, 1921

CHARLES H. ROWELL
Alert Co. No. 2
Died August 19th, 1921

HOWARD E. KENDALL
Spare man, permanent force
Died December 25th, 1921

APPROPRIATIONS AND DISBURSEMENTS.

APPROPRIATIONS.

Appropriation,	\$52,004.00
Resolution, outstanding claims,	1,782.59
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	\$53,786.59

DISBURSEMENTS.

Permanent men,	\$27,900.00
Vacations,	973.06
Call men,	10,245.00
House man,	100.00
Rent, Veterans' Association,	210.00
Forage,	957.17
Fuel,	3,231.85
Lights,	727.10
Incidentals,	5,808.46
Horse shoeing,	155.75
Horse hire,	574.75
Fire alarm,	1,789.24
Penacook fire alarm,	125.85
Supplies, auto combinations,	304.41
Hose,	600.00
Laundry,	83.95
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	\$53,786.59

1921

ALARMS.

PRECINCT.

STILL. January 6, 12.42 p. m. Chimney fire in residence of E. M. Reister, Grant Street, Plains District. Extinguished by Combination 1. No loss.

STILL. January 7, 7.46 p. m. Chimney fire in residence of Fred B. Powell, 19 1-2 Merrimack Street. Extinguished by Combination 1. No loss.

STILL. January 9, 9.12 p. m. Chimney fire in residence of Harold Gay, 17 Green Street. Extinguished by Combination 1. No loss.

STILL. January 11, 10.43 a. m. Chimney fire in residence of Thomas McWaters, 12 Clinton Street. Extinguished by Combination 1. No loss.

STILL. January 13, 9.20 a. m. Chimney fire in residence of Frank Chandler, 68 High Street. Extinguished by Combination 1. No loss.

Box 56. January 13, 12.17 p. m. Fire in building owned and occupied by St. Paul's School as a dormitory. Probably caught from fire-place. One thousand eight hundred feet of city hose and 500 feet of school hose wet. Recall 2.19 p. m.

	Value.	Loss.	Ins.	Ins. Paid.
Building,	\$20,000.00	\$6,451.66	\$18,000.00	\$6,451.66
Contents,	5,000.00	729.78	Blanket	729.78

STILL. January 13, 12.57 p. m. Chimney fire in residence of Mrs. Addie Kelley, 25 Union Street. Extinguished by Engine 2. No loss.

STILL. January 15, 1.25 p. m. Chimney fire in residence owned and occupied by Mary S. Morrill on the Hopkinton Road. Extinguished by Combination 1.

	Value.	Loss.	Ins.	Ins. Paid.
Building,	\$2,000.00	\$60.00	\$1,000.00	\$60.00
Contents,	1,000.00	20.00	300.00	20.00

STILL. January 16, 10.40 a. m. Chimney fire in residence of Mrs. Charles Langley, 40 Bridge Street. Extinguished by Combination 1. No loss.

STILL. January 16, 2.12 p. m. A call for assistance from Bow. Acetylene gas explosion in residence owned and occupied by Arthur Curtis practically demolished the building, killing three people and seriously injuring three others. Fire immediately followed the explosion destroying what was left of the house, together with barn and shed. Combination 1 responded but could do but little outside of helping care for the injured. See Bow report.

STILL. January 17, 10.25 a. m. Chimney fire in residence of George Bruton, Loudon Road. Extinguished by Combination 1. No loss.

STILL. January 17, 11.55 a. m. Chimney fire in residence of W. L. Marden, 34 West Street. Extinguished by Engine 2. No loss.

STILL. January 17, 3.08 p. m. Small shack in rear of 173 Rumford Street used by boys as a club house destroyed. Caused by overheated stove. Combination 1 extinguished fire in debris. Loss trifling.

STILL. January 17, 7.12 p. m. Chimney fire in residence of Thomas Fagan, 52 Franklin Street Extinguished by Combination 1. No loss.

STILL. January 18, 9.10 a. m. Chimney fire in residence of A. C. Reed, 19 Union Street. Extinguished by Combination 1. No loss.

STILL. January 18, 1.40 p. m. Fire in residence, 15 Noyes Street, owned and occupied by Isaac Cohen. Caused by overheated stove. Combination 1 responded but the fire had gained such headway that a bell alarm was sent in.

Box 47. January 18, 1.46 p. m. Box pulled for preceding fire. One thousand six hundred and fifty feet of hose wet. Recall 3.01 p. m.

	Value.	Loss.	Ins.	Ins. Paid.
Building,	\$3,000.00	\$1,950.00	\$2,000.00	\$1,950.00
Contents,	3,000.00	900.00	2,000.00	900.00

STILL. January 18, 4.57 p. m. Chimney fire in residence of Joseph Provencel, Grant Street, Plains District. Extinguished by Combination 1. No loss.

STILL. January 18, 7.34 p. m. Chimney fire in residence of Peter Paveglio, 14 Albin Street. Extinguished by Combination 1. No loss.

STILL. January 19, 6.44 a. m. Chimney fire in residence of W. R. Peaslee, 23 1-2 Pine Street. Extinguished by Combination 1. No loss.

STILL. January 19, 12.58 p. m. Chimney fire in residence of A. L. Maher, 106 South State Street. Extinguished by Combination 1. No loss.

STILL. January 19, 1.25 p. m. Chimney fire in residence of B. C. Marden, 3 Broadway. Combination 1 responded but no assistance was required. No loss.

STILL. January 22, 4.22 p. m. Chimney fire in residence of George McBain, 11 Bowery Avenue. Extinguished by Combination 1. No loss.

No ALARM. January 23, 4.30 p. m. Fire in residence, 10 Pine Street, owned and occupied by Mrs. J. C. Derby, caused by head of match flying into basket of clothing. Extinguished by occupants.

	Value.	Loss.	Ins.	Ins. Paid.
Building,	\$10,000.00	\$200.00	\$5,000.00	\$200.00
Contents,	10,000.00	348.00	5,000.00	348.00

STILL. January 24, 5.24 a. m. Chimney fire in residence of John Coleman, 27 Perley Street. Extinguished by Combination 1. No loss.

STILL. January 25, 6.56 a. m. Chimney fire in residence of Michael Bedik, 11 Center Street. Extinguished by Combination 1, Engine 2 car. No loss.

STILL. January 25, 8.55 a. m. Chimney fire in residence of Wallace Dunn, 87 Rumford Street. Extinguished by Combination 1, Engine 2 car. No loss.

STILL. January 25, 9.54 a. m. Chimney fire in residence of Charles Drake, 49 Thorndike Street. Extinguished by Combination 1, Engine 2 car. No loss.

STILL. January 25, 12.50 p. m. Chimney fire in residence of Frank W. Marsha, 90 Broadway. Extinguished by Combination 1, Engine 2 car. No loss.

STILL. January 26, 10.55 a. m. Alarm occasioned by blowing up of stove in residence of Silas Bernard, 45 Concord Street. Combination 1 responded but no assistance was required. Frozen water front. No fire. Run made with Engine 2 car. No. 1 laid up for repairs.

STILL. February 1, 5.20 p. m. Reported chimney fire in residence of G. G. Shaw, 23 Pine Street. Combination 1 responded but no assistance was required. No fire.

STILL. February 1, 10.15 p. m. A call to investigate cause of smoke in Phenix Hall. Combination 1 responded but found no cause for alarm. No fire.

STILL. February 2, 7.45 a. m. Chimney fire in residence of J. A. Pillsbury, 28 Washington Street. Extinguished by Combination 2. No loss.

STILL. February 7, 12.59 p. m. Slight awning fire at 18 Pleasant Street. Combination 1 responded but no assistance was required. Extinguished by occupants of building. Loss trifling. First run of Combination 1 car since being repaired.

STILL. February 8, 1.21 p. m. Chimney fire in residence of W. L. Marden, 34 West Street. Combination 1 responded but no assistance was required. No loss.

STILL. February 9, 4.56 p. m. Chimney fire in residence of E. H. Leary, 21 Fayette Street. Combination 1 responded but no assistance was required. No loss.

Box 51. February 10, 1.11 p. m. Fire in freight car shop of B. & M. R. R. plant, South Main Street. Caused by oil heater. Two thousand eight hundred and fifty feet of hose wet in addition to that used by the local brigade. Recall 2.24 p. m.

	Value.	Loss.	Ins.	Ins. Paid.
Building,	\$116,000.00	\$26,247.88	\$42,000.00	\$26,247.88
Contents, Mach. and Tools,				
	17,004.40	2,748.88	8,800.00	2,748.88
Roll. Stock,	40,000.00	6,037.85	20,400.00	6,037.85