

REPORT

OF THE

WATER COMMISSIONERS,

TO THE HON.

THE MAYOR AND COMMON COUNCIL
OF THE CITY OF ALBANY,

RELATIVE TO

SUPPLYING THE CITY WITH WATER.

ALBANY, SEPTEMBER 20th, 1850.

ALBANY:
JOEL MUNSELL, PRINTER,
1850.

REPORT.

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

The Water Commissioners, appointed by an act of the Legislature of the State of New York, passed April 9, 1850, entitled "An act for a supply of water in the city of Albany," in compliance with the 4th section of that act report, that on the 12th day of April last they entered on the duties of their office.

On the 1st of May thereafter, they appointed William J. McAlpine, Chief Engineer—a gentleman eminent in his profession, having had much experience as an Engineer on railroads and canals, and lately as Engineer in Chief at the Dry Dock in Brooklyn.

The Engineer was directed to make a thorough examination of the different lakes, fountains, and water courses in this vicinity, so as to enable him to ascertain the best source from which to obtain an abundant supply of pure and wholesome water, for the use of the city.

He was not restricted to any projects heretofore submitted to the Common Council, but was requested to present estimates for different plans, and to give his opinion as to which he thought the best, and most feasible. After having completed his investigations, the Engineer made his report, which is herewith submitted to your consideration. In all the plans

proposed in said report, the estimates of the cost exceed the sum of \$600,000, the limit contemplated by the act of the Legislature of the 9th of April last.

As it was not thought expedient to adopt any plan which would create an expenditure, exceeding the amount contemplated by the act above mentioned, the Engineer was requested so to modify his plans, as for the present to obtain a supply of from two to three millions of gallons daily.

In compliance with the above request, a supplementary report was made, which is herewith submitted.

Estimates of the comparative cost of obtaining a supply of two, three, and six millions of gallons daily from different sources, is given in the report and supplement; and the Patroon's creek is recommended by the Engineer, as the cheapest and best source from which to obtain an abundant supply of pure and wholesome water. Herewith is an abstract of the comparative cost of the different plans, for obtaining a supply of two, three, and six millions of gallons daily, not including damages for water.

	2 Millions.	3 Millions.	6 Millions.
Patroon's creek, natural flow,	\$470,560	\$629,845	\$758,565
Pumping from Watervliet			
Lake for upper service, -	490,983	574,953	698,541
Kaikout and Hungerkill, -	556,955	851,405	949,861
Hudson river, - - - -	594,209	873,893	1,205,280

For a supply of two millions, the cost from the Patroon's creek (natural flow), compared with the other plans, would be as follows:

	Pumping from Tivoli.	Kaikout.	Hudson river.
Two millions, - - - -	\$490,983	\$556,955	\$594,209
Patroon's creek, natural flow,	470,560	470,560	470,560
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Difference, - - - -	\$20,423	\$86,395	\$123,649

After having received this last report, a negotiation was opened with Stephen Van Rensselaer, for the purchase of the waters of the Patroon's creek, and an agreement was made with him for the purchase of the whole of the waters

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of that creek, together with two hundred acres of land; the leases for the water power, and an assignment of the contracts with the old water works company, for the sum of \$150,000.

Mr. Van Rensselaer, although indisposed to part with this valuable property, yielded to the consideration, that the water was wanted for public use, and met the propositions, of the commissioners, upon fair and liberal terms. By the terms of the agreement, the city is to supply the lessees of the factories with water, during the continuance of their leases.

The commissioners have been assured that there is sufficient water, both for that purpose, and for the use of the city.

If such should be the case, the city will derive a very considerable income from those leases for the next $6\frac{1}{2}$ years, and from the dividends of the old water works company for the current year. See schedule marked, A.

For the first year, the income will be about five per cent on the whole amount of the purchase money.

If it shall be found that after the leases have expired, there will be water sufficient to furnish an abundant supply for the use of the city and a surplus sufficient for the use of the factories, it is believed that a satisfactory arrangement can be made with Mr. Van Rensselaer for his use of the water, by which the city will continue to derive an income as long as there is a surplus of water. But at present, it is not deemed expedient to enter into any arrangement on the subject.

The Plan recommended by the engineer, and adopted by the Commissioners, is to construct a reservoir (Rensselaer lake) on the Patroon's creek, near the junction of the old and new railroad track, about four miles from the City Hall. The dam is to be 34 feet high, to overflow about 30 acres, and to contain about 160 millions of gallons of water.

To construct another reservoir (Bleecker reservoir), on the north side of Patroon street, near its intersection with Ontario street, to be 500 feet by 570 feet, and to contain about 20 millions of gallons.

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From Rensselaer lake, the water is to be conveyed to the Bleeker reservoir through a brick conduit, about 21,000 feet in length, 8 inches thick, 3 feet by 4 feet diameter in the clear, oval shape; capable of supplying six millions of gallons daily, with a fall of one foot to the mile, when the water is running $3\frac{1}{2}$ feet deep.

From Bleeker reservoir the water is to be distributed in iron pipes through the upper part of the city, and also conveyed in iron pipes to the present reservoir, corner of Eagle and Columbia streets, for distribution in the lower part of the city.

Immediately below Tivoli Falls another reservoir (Watervliet Lake) is to be constructed, the dam to be 25 feet high, to overflow 20 acres, and to contain about 30 millions of gallons.

From Watervliet Lake a 16 inch pipe is to connect with the 12 inch iron pipe, at the old water works reservoir, south of the rail road, and below the stone dam, to complete the supply for the city below Eagle street.

It is proposed to continue the use of the waters of the Maizelandt kill, from the old fountain head, for one or two years, until the new water works shall be fairly in operation.

By adopting the above plan the city will obtain a supply for the present of 2,225,000 gallons daily; which is sufficient for a population of 75,000 inhabitants, allowing 30 gallons for each person, which is the usual allowance.

The city of Albany at this time contains a population of a little over 50,000 inhabitants.

Whenever the commissioners, with the concurrence of the common council, shall think proper to abandon the waters from the old fountain head reservoir, there can be laid a line of pipes ten inches in diameter, from the Watervliet Lake to connect with the eight inch pipe in Broadway, where it crosses the Patroon's creek (which pipe terminates in the Eagle street reservoir), and also with the six inch pipe at the same place (which is continued through Broadway to near the south bounds of the city), which will give a supply

at least equal to that which is obtained at present from the old fountain head.

The iron pipes north of the Patroon's creek, when taken up, will nearly, if not quite, pay the expense of laying a ten inch pipe from the Watervliet Lake, to connect with the pipes now laid in Broadway.

When it shall become necessary hereafter, from an increase of population, to have a greater supply of water than is contemplated by the plan adopted, it can be obtained as follows:

1st. By making a dam on Gates's creek, and conveying the water in a brick conduit, or in iron pipes, to Rensselaer lake, by which means one million of gallons daily can be obtained for the upper service.

2d. By increasing the storage reservoirs, from seven to eight millions of gallons daily, can be furnished to the lower service, through additional lines of pipes from the Watervliet Lake.

When all the sources connected with the Patroon's creek project shall be brought into operation, there will be a supply of about ten millions of gallons daily, sufficient for a population of 300,000 inhabitants.

The estimates for the completion of the works, according to the plan adopted, is \$470,560 (which includes the payment to the old water works company), to which is to be added the sum of \$150,000 to be paid to Stephen Van Rensselaer for the waters of the Patroon's creek, &c. Total, \$620,560.

It is probable that the city will realize upwards of \$22,000 (see schedule marked A.) for rents during the continuance of the leases for the factories, after deducting the charges for taxes, insurance, &c. The city will also receive upwards of \$22,000 for the stock owned by them in the old water works company, which sums will reduce the amount of the bonds to be issued for the construction of the works, within the limit allowed by the act of the legislature of the 9th of April last.

The object of the engineer is to construct the work in such a manner as to make it part of the original enlarged plan, so that every part of it will be available in extending the works hereafter; and when fully completed it will cost very little more than it would have done if the whole plan had been executed at one time. The contracts that have already been made for the construction of the work, shew that the estimates of the Engineer have been fair and liberal, and he has no doubt but that the contracts to be made for the remainder of the work, will be as favorable as those already made.

The following conditional contracts, which require to be ratified by the Common Council to become valid, are presented for their consideration:

1st. An agreement with Stephen Van Rensselaer for the water of the Patroon's creek. Releases will be hereafter executed by Mr. Van Rensselaer, in accordance with the terms of the agreement, and submitted to the common council for their consideration, as soon as the Engineer shall be able accurately to designate and describe the land required by the terms of the agreement, for reservoirs, &c., which can not conveniently be done until some progress is made in the construction of the works.

2d. Land for Bleecker reservoir. A contract with James Edwards for lots Nos. 98, 99, and east half of lot No. 100, on the north side of Patroon street, for \$2,500.

3d, A contract with Lewis for west half of lot No. 100, on north side Patroon street, for \$500.

4th, A contract with Cornelius Van Rensselaer for lot No. 103, and east half of lot No. 101, on north side of Patroon street, for \$1,500.

5th, A contract with Richard H. Ogden, Trustee, for lot No. 102, and west half of lot No. 101, on north side of Patroon street, \$1,500.

Contracts for Construction.

1st, A contract with Andrew Bigham for constructing the retentive reservoir, and the gate houses and chambers for the retentive and receiving reservoirs and the waste weirs.

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2d, A contract with Robert Aspinwall and James W. Jackson for constructing the receiving reservoir.

3d, A contract with William J. Marlett for constructing section No. 1, of the conduit.

4th, A contract with A. G. Sage for constructing section No. 2 and 3, of the conduit.

5th, A contract with P. M. McCall for furnishing 200,000 brick.

6th, A contract with T. M. Niven for furnishing two millions of brick.

The annexed schedule of water rents (marked C), is submitted to the Common Council for their consideration, and if assented to by them, will be adopted by the commissioners.

There is also annexed a schedule (marked D), of the water rates for the use of the Croton water in New York; and also a schedule (marked E), of the present water rents of this city. By a comparison with which it will be perceived that the rates proposed for this city, are less than the present rates in New York, or Albany, particularly on buildings of one, and two stories.

In the city of Boston, the rates for the use of the Cochituate water, are based upon the value of the buildings, as assessed for the payment of taxes; the lowest charge is \$5.

The annexed schedule (marked F), contains an abstract of the number of buildings in this city, and the manner in which they are occupied, as reported by the city assessors, to which has been added an estimate of the probable amount of revenue to be derived from the water rents, when the pipes are laid in all the paved streets in the city.

In making the estimate above mentioned, the scale of water rents (marked C) has been adopted, in arriving at the above result; and if the same should be approved and sanctioned by the Common Council, it would probably produce a revenue of about \$50,000, which would be sufficient to pay the sum of \$5000 annually to the sinking fund, five per cent interest on the cost of the construction of the works, and the expenses of superintendence and repairs. The interest on

the purchase money for the Patroon's creek will be partly provided for the first year, from the rents to be received from the leases. In the probable purchase hereafter, from the old water works company, of their rights and privileges, the interest of the purchase money will also be partly provided for from the receipts from the water rents. The balance of interest, for the money to be expended in the construction of the works, will have to be provided for until the receipts from the water rents, after the completion of the works.

If the plan adopted by the commissioners, and the contracts submitted to the common council, shall be approved and ratified by them, the commissioners are prepared forthwith to proceed with the construction of the work, which they hope to have completed within one year from the time that they commence operations. All which is respectfully submitted,

JAS. STEVENSON,
ERASTUS CORNING,
JOHN TAYLOR,
JOHN TOWNSEND,
R. E. TEMPLE, } Commissioners.

Albany, September 20, 1850.

Memorandum
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Taxes,

On

SCHEDULE A.

Memorandum of leases, for use of water &c. of the Patroon's creek, from 1st Nov., 1850:

Root & Chapin,	2½ years, at \$2,500,-----	\$6,250
Tingley,	6½ " 1,500,-----	9,750
A. D. Shephard & Co.,	3½ " 1,500,-----	5,250
Their's stone mill,	1½ " 850,-----	2,125
Dwelling houses,	2½ " 1,133,-----	2,832
Water Works dividend, probably,	-----	1,000
		<hr/>
		\$27,207
Taxes, insurance, expenses, say \$750 a year,----		4,875
		<hr/>
		\$22,332

SCHEDULE C.

Scale of Annual Water Rents for the city of Albany.

On all private dwelling houses, occupied by one family only, which shall be situated on lots, adjoining streets or avenues, in which the distributing pipes are laid, viz:

	1 story. 2 stories. 3 stories. 4 stories. 5 stories.				
Less than 20 ft. wide in front,--	\$4	\$7	\$10	\$13	\$16
20 to 25 " " --	5	8	11	14	17
25 to 30 " " --	6	9	12	15	18
30 to 35 " " --	7	10	13	16	19
35 to 40 " " --	8	11	14	17	20
40 to 50 " " --	9	12	15	18	21

over 50 feet front, subject to special rates.

Buildings as above, not occupied as dwellings, but solely used as stores, shops, &c., to pay two-thirds of the above rates, but depending upon the quantity of water used, exposure to fire, &c.

Dwelling houses occupied by more than one family, and where the water is taken in, subject to special rates.

Extra annual rates, in addition to buildings:

Groceries, -----	\$5 to \$25
Furnaces, -----	25 to 135
Hotels and boarding houses, -----	15 to 100
Private stables, 2 stalls, -----	6
each additional stall, -----	2
Livery stables, each horse up to 20, -----	2
each additional horse, -----	1
Cartmens' horse, each -----	1
Slaughter houses, -----	10 to 25
Steam engines, each horse power, -----	5
Bathing tubs, private houses, each -----	3
public houses, each -----	5
Water closets, private houses, each -----	3
public houses, each -----	5
Street washers, side walk, -----	2
For building purposes, for each 1000 of brick laid,	10 cents.
Dyers, -----	\$15 to 25
Refectories, -----	special rates.
Printing offices, -----	"
Bakeries, -----	"
Workshops, -----	"
Brick yards, -----	"
Breweries, -----	"
Malt houses, -----	"
Soap and candle manufactories, -----	"
Fountains, -----	"
Public gardens, -----	"
Gas works, -----	"
School houses, -----	"

SCHEDULE D.

Table of Rates for the use of Croton Water, as Established by Ordinance of the Common Council, May 1st, 1850.

	1 story.	2 stories.	3 stories.	4 stories.	5 stories.
18 feet and under,-----	\$5	\$6	\$7	\$8	\$9
18 to 20 feet,-----	7	8	9	10	11
20 to 22½ " -----	8	9	10	11	12
22½ to 25 " -----	10	11	12	13	14
25 to 30 " -----	11	12	13	14	15
30 to 37½ " -----	13	14	15	16	17
37½ to 50 " -----	17	18	19	20	21

All buildings over 50 feet, to be the subjects of special contract.

MISCELLANEOUS OR EXTRA RATES.

Private stables, 2 stalls, \$8; each additional stall, \$2.

Livery " each horse up to 50, \$2; each additional, \$1.

Omnibus " " 50, \$1.50 cents; each additional, \$1.

Cartmens' horses, each horse, \$1.

Cow stables, each cow, 75 cents.

Slaughter houses, from \$10 to \$20.

Steam engines, each horse power up to and not exceeding 10, \$10; over 10, and not exceeding 15, \$7.50; each over 15, \$5.

Printing offices, subject to special rates.

Boarding schools, from \$15 to \$50 each.

School houses, from \$10 to \$20 each.

Hotels and boarding houses, the addition to the regular rates to be discretionary.

Porter houses, taverns and groceries, from \$3 to \$30 extra.

Refectories, rate to be fixed in each case by the board.

Bathing tubs, extra in private houses, \$3 each; public, \$5 each.

Water closets, over one, each \$2 per annum.

Street washers, on the sidewalk, each \$2 per annum.

Bakeries, average daily use, for each barrel, \$3 per annum.
 Workshops, warehouses and large stores, to be subjects of special agreements.
 Building purposes, for each 1000 brick laid, 10 cents per thousand.

The use of the water for all other purposes requiring a large supply, shall either be the subject of special contract, or a charge for the same shall be made per the hundred or thousand gallons per day.

SCHEDULE E.

Water Rates of Albany Water Works Company.

Stores, (not grocery stores,) use for drinking, &c.,		\$4
“ grocery, according to use, from -----		8 to 12
“ “ with privilege to supply customers,-----		20 to 30
Dwellings, 1½ story, cottages, -----		6
“ 2 “ single front parlor, and bed room deep,-----		8
“ 2 “ two rooms deep, with attic,-----		10
“ 3 “ in front, and 2½ in rear, single front,-----		11
“ 3 “ full ordinary size, -----		12
“ 3 “ with bath,-----		14
“ 3 “ extra size, like Mr. Pumpelly’s or Mr. Forsyth’s, -		16
“ 3 “ extra size, with baths and water closets,-----		18 to 20

Where there is more than one family in a house, it is charged \$3 for second family, and \$2 for the third. Steam Engines regularly employed, \$5 per horse power. Stables charged according to circumstances, generally about \$2 a stall.

Furnaces, from -----	25 to 125
Hotels,-----	20 to 100

Breweries, \$5
 cents a barrel
 first 1,000.
 Malt houses, -
 Dyes, -----
 Public baths at
 about \$2 a l



Breweries, \$50 for the first 1,000 barrels, and 3 cents a barrel for the amount brewed over the first 1,000. The quantity of water used is always much greater than the amount of beer brewed.

Malt houses, -----\$30 a kiln.

Dyers, ----- 30 a year.

Public baths according to circumstances, generally about \$2 a bath.

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SCHEDULE F. TABULAR STATISTICS, CLASSIFYING WATER RATES OF ALBANY.

Description of Buildings.	1st Ward.	2d Ward.	3d Ward.	4th Ward.	5th Ward.	6th Ward.	7th Ward.	8th Ward.	9th Ward.	10th Ward.	Total.	Aver. Rate.	Income.		
Buildings, 3 and 4 stories ,.....	73	118	226	354	315	156	47	52	332	126	1803	\$11	19,833		
do 2 and 2½ do	4 43	299	307	319	166	2 51	33 7	372	103	36 6	2963	8	23,704		
do 1 and 1½ do	68	4 8	33	37	12	33	82	142	124	138	417	5	2,005		
Porter Houses, included in above, extra,	...	...	...	...	...	...	...	...	...	...	.....	...		\$45,622
Groceries, do do do	76	69	40	31	4 8	36	62	2 8	66	50	506	5	2,530		
Livery Stables,..... do	1	6	4	2	10	2	18	...	3	5	51	20	1,02 0		
Private do	30	34	25	21	45	16	23	30	4 0	32	296	3	858		
Academies and Schools,..... do	3	3	2	1	2	...	1	...	2	1	15	10	1 50		
Malt Houses,..... do	...	2	1	...	...	...	4	2	7	1	17	100	1,700	Special rates.
Furnaces,..... do	3	2	2	1	...	...	2	...	2	1	1 3	20	260	
Breweries,..... do	..	1	1	...	1	...	3	1	...	...	7	200	1,400	Special rates.
Gas Works (2 gasometers),..... do	..	1	...	...	...	...	1	...	...	...	2	...	100	
Bakeries,..... do	5	4	7	3	4	3	4	5	6	4	4 5	5	225		
Soap and Candle Manufactories ,. do	...	3	2	...	...	3	...	2	1	1	12	20	240	
Hotels and Taverns ,..... do	1	...	10	5	14	2	...	...	12	...	44	10	440	
Brick Yards,..... do	3	2	...	...	...	...	2	...	...	2	9	30	27 0	
Steam Engines,..... do	2	3	10	8	3	...	5	1	4	4	40	40	1,600		
Printing Offices and Binderies ,. do	...	...	...	...	...	...	...	...	...	...	5	10	50	10,873
Manufactories,..... do															
Bathing Establishments ,..... do															
Fountains,..... do															
Public Gardens,..... do															
Dyeing Establishments ,..... do															
Machine Shops,..... do															
Slaughter Houses,..... do															
														about	500

Deduct for reduced rates on stores and shops ,being two-thirds of the rates adopted, say..... \$56,995
 7,000
 Probable income when the distributing pipes are laid in all the paved streets in the city,..... \$49,995