REPORT

OF THE

WATER COMMISSIONERS,

TO THE

Common Council of the City of Albany,

TRANSMITTING THE

REPORT

OF THE

SUPERINTENDENT OF THE WATER-WORKS.

ALBANY.
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1854.

WATER COMMISSIONERS' REPORT.

To the Hon. the Mayor and
Common Council of the City of Albany.

GENTLEMEN:

Pursuant to the directions of the undersigned, the Superintendent of the City Water-Works, George W. Carpenter, has prepared his annual report, presented herewith, which shows the present condition of the works, the improvements made therein during the past year, as well as those remaining to be performed.

The report also contains a general outline of the works, together with much valuable and interesting detail; and its perusal by our citizens generally cannot but produce beneficial results.

Respectfully submitted.

JOHN TOWNSEND,
JOHN TAYLOR,
ERASTUS CORNING,
R. E. TEMPLE,
V. TEN EYCK,
Water Commissioners.

WATER COMMISSIONERS' OFFICE,
Albany, January 16th, 1854.

SUPERINTENDENT'S REPORT.

To the Water Commissioners of the City of Albany.

GENTLEMEN:

Having received from you the nomination of Superintendent of the City Water-Works, I entered upon the discharge of its duties on the 7th of April 1853, and now respectfully submit this, my

ANNUAL REPORT:

No moneys having yet been collected for the special use of water for the current year, this subject immediately engaged my attention, and employed no little portion of my time. In the absence of a correct schedule of those liable to the extra tax, I directed a personal examination to be made of the whole city. For the manner in which this duty has been performed, I refer you to the tables of special rates collected, hereunto attached. (See table No. 1.)

As the works embrace the conduit and several reservoirs, separate and distinct, I have deemed it appropriate to submit a description of the work done, and the present condition of each, in detail.

RENSSELAER LAKE.

This is the main retentive reservoir, formed by an artificial dam of embankment. After the completion of the dam, it was found that very serious attritions took place on the inner slope, from the action of the waves. The embankment covering the

puddle, and consisting of yellow sand, caved off in large quantities into the lake, thereby diminishing its capacity, and endangering the stability of the dam. At one time, the injury from this cause proved very serious, the water having removed all the common embankment, and carried off portions of the puddle-wall.

After having resorted to various expedients to remedy this evil, it was finally determined by the late Superintendent to lay a protection wall, from the bottom of the slope to 2½ feet above high-water mark. This was commenced in the autumn of 1852; and the purpose of continuing it, during the year just closed, frustrated by the unusual quantity of rain, the water in the lake never falling more than 3 feet below high-water mark.

As the summer of 1852 had been one of extraordinary drought, requiring the greatest vigilance and care in order to furnish a sufficient supply for the city, and at the same time afford the necessary quantity for the mills still under leases, I was particularly and repeatedly cautioned by the late Superintendent not to *waste* the water to continue the stone work. As this advice was founded upon *experience*, it was a proper and necessary caution, and one that ordinary prudence dictated me to follow.

1310⅔ yards of stone have been purchased and piled upon the adjacent bank, and a contract made for the delivery of an additional 800 yards. I recommend that the work of laying them be commenced as early in the spring as circumstances will warrant; and that at least two thousand dollars be hereafter annually appropriated to this lake, until the dam, and such portions of the shore as require it, be lined with stone, the bottom and sides of the lake thoroughly grubbed, and the sand flats opposite the dam be excavated to a proper depth.

The east side of the dam, measuring eighty feet upon the slope, is covered with yellow sand, the only material in the vicinity, which being easily moved and carried into the lake by the wind, will annually require a large quantity of new material to restore the embankment to its original form: this has been supplied during the last season. To provide against this evil, I advise that the slope be covered with the muck excavated from the lake, and turfed or seeded with clover. This, while it will

effectually protect the bank, will add not a little to the general appearance of the premises.

Upon examination, the apron to the stone conduit, on the east side of the dam, was found materially injured and displaced by "slides" from the adjacent bank. This has been temporarily repaired. The whole may require removing next season, and portions of it more substantially constructed.

Conduit.

A careful inspection of the conduit, made under the direction of the late Superintendent, convinced him that it needed repairing throughout nearly its whole length, while a portion of it was unsafe, requiring supports of timber and plank to prevent its destruction. Accordingly, in his estimated expenses for the year 1853, he included $1887 for taking up and relaying 500 lineal feet, and $2500 for repairing other portions of the conduit.

On the 15th June, one superintendent, six masons and six laborers commenced the repairs of the conduit, at its egress from Rensselaer lake, and on the last of October completed the work to the first man-hole, east of the waste-gate in Washington-street, a distance of 14,800 feet; during which time they also removed and rebuilt 200 lineal feet. The remainder, extending to Bleecker reservoir, will undoubtedly require *some* repairs; which, however, will be recommended only after I have made a personal examination of the line.

From Mr. John B. Nelliger, the Superintendent of repairs, and who had been employed upon the original construction of the conduit, from its commencement to its completion, I required a written report, describing in detail its condition; and, that I might locate relatively the portions so described, I directed him to divide the conduit, commencing at Rensselaer lake, into sections of 500 feet in length, this being the distance between the man-holes.

The following are extracts from his report:

"Section No. 3.

"Three cracks in top and three in bottom, from 50 to 200 feet in length; bricks loose inside of the cracks; water running

out through the bottom. How this part of the conduit remained as long as it did, was a mystery to all the masons that repaired it."

"SECTION No. 4.

"Very heavy leaks in the bottom, letting in sand and water. * * * * * One leak, in this length, let in a barrel of sand and as much water in fifteen minutes."

"SECTION No. 14.

"This length is full of holes. The water leaks in from the top, the sides and the bottom, letting in great quantities of quicksand with water. Three hundred feet in the top, in the centre of the arch, the cement has all run out. The water and sand had cut the cement clean from the bricks, and let them down from the top, so that they hung loose."

"SECTION No. 20.

"Full of holes and very rough, with many heavy leaks in the top, sides, and in the bottom. Holes in the sides, 4½ inches in length by 3 inches in height, letting in a great deal of sand. This length, many joints washed out from between the bricks, three feet in length, and sand running through the same."

"SECTION No. 22.

"This length is the worst I have met with. It is full of holes, some of them extra large ones; the discharge from one of them was equal to a ¾ inch pipe. The water flew from one side of the conduit across to the other, the pressure from the outside being so great. About centre way between the man-holes, north side of conduit, from third course of brick in bottom, and about one foot in height, five courses of brick in width and 100 feet in length, all rotted and had to be taken out; the cement was soft as wet mud; done with bad cement, which never had set."

"SECTION No. 23.

"Full of holes in top and sides, with heavy leaks in sides, carrying in large quantities of quicksand. One leak in this length, run in through it, in one night, one square yard of sand. * * * * "

"SECTION No. 25.

"Cracked in the top, beginning fifteen feet from man-hole, and running to the next man-hole. In some places two cracks, in others one crack. Great numbers of brick were loose and hanging down. In the bottom, the conduit had spread and left openings, the same as the ones in the top, lengthways; in width from ½ inch to 2½ inches."

"SECTION No. 28.

"Cracked lengthways in top; in some places one, in others two bricks loose; had to be taken out and replaced. The bottom cracked and settled down. Took the bottom out and replaced it anew. On the left side of conduit, coming down line, I found that the water * * * * was running into the conduit * * * * through the whole side, similar to pouring water through a sieve. The joints between the bricks not well filled, with too much sand in the cement, making it as porous as a sieve; the water running in through it over the whole surface. I took out the centre of the top arch, four hundred feet in length, four courses of brick in width, and replaced the same with five courses of brick in width. The bottom I did in the same manner as the top."

The necessity of the repairs is manifest from the above extracts, which exhibit the general condition of the conduit, from Rensselaer lake, east, to the gate-house in Washington-street, with the exception of the first 500 feet.

In some sections were found cracks varying from 50 to 500 feet in length, and in all of them, with the exception noted above, openings, through which were poured into the conduit large quantities of water and sand. At the deflection of the conduit, immediately east of the Cunliff farm, the sides were

broken and removed from their original position, caused, undoubtedly, from the embankment on the sides having been carried up unequally, and by large collections of water on the north, which percolated through the sand and escaped under the conduit.

These repairs will improve the quality of the water; for at some places, that which passed through into the conduit necessarily injured its purity. The plan adopted for stopping the leaks is still an experiment, and will require time to test its efficiency. It is believed by some that *American* cement will not resist the action of quicksand, under a heavy pressure. In repairing the Boston conduit, such was found to be the result; and as a final resort, Roman cement, a much more expensive article, had to be used. Although the examinations made during the summer are not concluslve as to its permanency, still they confirm me in the opinion that the work just completed will be durable, thus answering the design contemplated.

At various locations along the line the drainage was very imperfect; at some points the surface and spring water was passing over the embankment on top of the conduit, while at others it had permeated through the sand into and beneath the conduit. Open drains have been made, and a proper water shed is now afforded, where practicable, for thorough drainage. Large sections of the embankment still require turfing; and as this is in accordance with the original plan, and is necessary for its protection, I recommend that it be continued during the coming season, selecting such portions as are most liable to injury from the action of the wind.

Bleecker Reservoir.

This is the distributing reservoir for that section of the city west of Pearl-street, and is made partly in excavation and partly in embankment. During the summer of 1852, the inner slopes were lined with brick, laid in cement, above which were placed flag stones about 3 feet wide, also laid in cement. The remainder of the slope is common earth, and, measuring from the top of the flagging to the graveled walk, is 8 feet in width. In winter it is designed to keep the surface of the water at a uniform height, cutting about one foot on to the flag stones.

During the last winter, the water fell several feet below the flagging, which was displaced, and the bank very materially injured. In some places the whole embankment had settled, and the inner slopes above the stone were furrowed out to a depth varying from a few inches to two feet.

As soon as the season would warrant, the stone was relaid and the brick work repaired. Satisfied from examination that the slope could be effectually protected only by covering it with turf, I proceeded immediately, with your approval, to have this done. It is scarcely necessary to add, that the general appearance of this beautiful reservoir is much improved; it will now compare favorably with any similar work in the country, while the slopes will in future require no outlay for repairs; but, on the contrary, will from year to year become more permanently fixed "in place."

As this reservoir is in the immediate vicinity of the city, the Commissioners directed a keeper's house to be erected within the inclosure, that a constant supervision of the premises might be insured, and at the same time every accommodation and facility afforded those wishing to examine the reservoir. A plain railing has also been placed along the inside of the walk, on top of the banks.

To protect the materials already belonging to the Commissioners, as well as to have always ready for immediate use whatever may be needed for repairs, a store house has been erected on the ground attached to this reservoir.

To further improve the appearance of the grounds, as well as to afford every reasonable convenience in approaching them, I recommend that the sidewalk along Patroon-street, and on the east, be graveled in the centre to a width of five feet; at present these cannot be used, except for a short period during mid-summer. There are several alterations that can be made west of the reservoir, and which will add to its beauty; but as these are of *minor* importance, and will not involve a heavy expenditure, they might be deemed irrelevant in an annual report; they will, therefore, form the subject of a future communication to your board.

Watervliet Lakes.

These lakes embrace two divisions of water, separated by a dam made of embankment. The upper or western lake receives the water immediately from the creek, and is properly a settling reservoir, only the surface water being drawn into the lower lake, which supplies, through a foot main, that portion of the city east of and including Pearl-street.

The south bank of the lower or distributing reservoir commenced sliding into the water last March, caused by a temporary ice house near its edge, and by the surface water of the adjacent ground, which flowed down the graveled bank.

As the roadway had been partly carried away, and thus rendered useless, it was again filled to its original level, remained permanent for a short time, when it again settled and moved towards the lake.

I now became satisfied that the bank, composed of yellow clay, was injured to its base, at which point it would be necessary to commence a retaining wall. The ice house not having been removed until July, the work was necessarily delayed. At the earliest favorable opportunity, the water in the lake was reduced twelve feet below its usual level, the clay removed, its place supplied with clean gravel, and the stone lining, based upon a substantial retaining wall, carried up to a plane two feet above high-water mark; all of which have remained permanent.

To more effectually protect the slope, a paved gutter has been laid to carry off the surface water from the excavated plane, and a catch-water drain made, at the base of the hills, to receive the drainage from the adjoining slopes. The expenditure for these improvements has been small, while by relieving the roadway and graveled slope from all surface drainage, no slides for the future need be apprehended.

Since the completion of the new Water-Works, those residing east of Pearl-street have been much annoyed by frequent stoppages at the connection of the supply pipes with the mains, which the company are obligated to remove. The injury caused by these interruptions to manufacturers, and the expense of excavating, &c., to the mains, induced the late Superintendent to embrace, in his schedule of expenditures for 1853, the cost of copper strainers at the Watervliet lake.

Accordingly, when the water was reduced to secure the south slope, these were placed at the gate-house; few stoppages have since taken place, and *these* arising, undoubtedly, from fish already in the mains.

The stone wall and facing immediately below the fall from the canal, connecting with the upper or settling reservoir, I also found in a damaged condition. These were laid in 1852, but from the vibratory motion given the banks by the great fall of water, and the immediate action of the current, they were in a very short time rendered useless.

Satisfied that the canal was endangered, I directed the wall rebuilt, and the slopes re-formed, and covered with a pavement of cobble stone; the wall rests upon a substantial foundation, so far below the bed of the stream as to insure its stability.

The entrance to the waste-weir from the lower lake was likewise injured so as to forbid its use. This was caused by reducing the water, during the extreme cold weather of last winter; it has been taken up, enlarged and rebuilt, and is now in good condition.

Maezlandt Kill.

The late Water-Works Company depended upon three sources of supply, viz:

1st. The Patroon's creek, immediately east of the stone dam. The supply from this point has been cut off.

2d. Maezlandt Kill, delivered through an 8 inch pipe.

3d. Middle creek, through a main of 6 inches in diameter for a portion of its length, and one of 4 inches in diameter for the remainder.

The Maezlandt Kill rises near the Mohawk plank road, and, after flowing through a deep ravine, is first collected into a small reservoir, made in embankment; thence it passes through a frame trunk 4 feet square, and a brick conduit 8 inches square, into the reservoir house, from which it flows directly into the main, and is conducted to the city.

During the agitation of the water project, the late company had but little encouragement to make any repairs, except such as were absolutely required for the immediate preservation of

their works, and only temporary in their character. The consequences might easily have been anticipated. The reservoir was reduced in its capacity, at least one-half, by deposits of sand; the covering plank of the trunk were decayed and unfit for use; the trunk itself filled with decomposed vegetable matter and earth to within two inches of its top, and which, after every rain, were scoured out and carried into the main; the brick conduit was obstructed by materials that had fallen into the partially covered trunk; the waste weirs were closed up and entirely useless; the principal building in a very dilapidated condition, and the whole of the works exposed to injury from cattle.

Upon submitting the above facts to your board, I received instructions to make such repairs as I deemed proper, having in view the *continuance* of a supply of pure and wholesome water from this source. Accordingly, fences have been built, the trunk and brick conduit thoroughly cleansed, the slopes of the side creek canal lined with a substantial stone wall, the wastes opened and made ready for use, and a contract entered into for raising and repairing the reservoir buildings. As the water from Maezlandt Kill is of an excellent quality, I recommend that in future a small appropriation be annually made to preserve and improve the present works.

Middle Creek.

This creek is distant 5698 feet from the Patroon's bridge, and rises between the Troy road and the Mohawk plank road. The water from this source is of a superior quality.

After the completion of the present works, it was supposed, as Watervliet distributing reservoir was 12 feet and six inches above Middle creek, that the supply from the former would by gravitation flow back and be discharged into Middle creek reservoir; the connection between them was therefore broken, by closing the stop-cock opposite the mansion of Gen. Van Rensselaer, and the citizens deprived of any water from this source. Thus, for 15 months, the supply from Middle creek flowed along its original channel to the river.

Early in the season, my attention was repeatedly called to a deficiency of supply upon the lower service, the head not being

sufficient to force the water into the upper stories of dwellings located upon Pearl-street. To determine the cause of this great and increasing inconvenience to the citizens, was not difficult; while, to afford relief, without a heavy expenditure, at first appeared impossible.

The lower service, embracing that portion of the city east of and including Pearl-street, derives its water from Watervliet lake, through a single main only twelve inches in diameter; this was supplying its *maximum* quantity, while the large draught upon the mains, increasing the velocity of the water flowing through them, diminished the pressure upon the service pipes, and precluded the possibility of elevating it to the upper stories of the dwellings. That this was the cause cannot be questioned, for both calculation and experiment prove that "the pressure which water in motion, in a pipe, exerts against every point of its sides is equal to the (effective) head on that point, minus the height due to the velocity in the pipe."

To diminish the rapid flow of the water in the mains, and thus increase the pressure upon the service pipes, it was necessary to secure a larger supply; and as this could not be afforded by Watervliet lake, my attention was directed to Middle creek.

Here I found the brick conduit partially closed by vegetable matter, a portion of the dam carried away, the main exposed, and the building which protects the entrance to the pipe without proper supports, and liable to fall by its own weight into the reservoir, if such a name can be appropriately given to a collection of wood, decayed vegetable matter and impure water.

After removing the obstructions from the brick conduit, repairing the building, cleaning the reservoir and reconstructing the dam, I directed the pipe north of the stop-cock that had been closed, flushed, until it discharged a stream of pure water, when a connection was again formed with the mains in the city. The result was immediately apparent and very satisfactory, as a supply commensurate with the *necessities* of the citizens was obtained. I find, however, that about one-third of the flow of this stream still runs waste; and, as this will undoubtedly be required, I recommend that the site of the dam be changed to a point about 230 feet west of its present location, which will increase the head upon the main about 10 feet.

If this be done, the expense of laying down an additional supply pipe from Watervliet lake may be postponed for a short period. Besides, by this removal of the dam, a small affluent, always turbid after a rain, will be cut off, and the purity of the water much improved.

Pipe Laid in 1853.

A four-inch pipe has been laid in Eagle-street, from Columbia-street, north to the centre of Spruce-street, and thence connecting with it a 3 inch pipe to the west line of Eagle-street.

A four-inch pipe has been laid in Chesnut-street, from Hawk to Swan streets.

A four-inch pipe (for blow-off) has been laid in Orange-street to the basin.

A three-inch pipe has been laid in Rensselaer-street, from Broadway to the river, to supply steamboats.

A four-inch pipe has been laid in Norton-street, from Green to Pearl streets.

A four-inch pipe has been laid in Green-street, from Nucella to Gansevoort streets.

By the original plan, the supply to the old logs in the several streets was to be cut off. This provision had been carried into effect, with the exception of 70 feet in Pearl-street, north of Clinton-square; Norton-street, (referred to above); Chapel-street, between Van Schaick and Patroon streets; and Chapel-street, between State and Columbia streets. These logs have all been removed during the past season, and replaced with iron mains. See Table No. 2.

Hydrants.

By the report of the late Superintendent, there were on the 1st of January, 1853, "one hundred and eighty-two new hydrants, exclusive of twelve formerly belonging to the old Water-Works Company;" since which time three additional ones have been erected: one upon the southeast corner of Swan and Chesnut streets, one upon the northwest corner of Gansevoort and Green streets, and one on the dock at the foot of Rensselaer-street.

During the past season, two permits to take water from the hydrants have been issued to citizens engaged in sprinkling the streets from tanks. While this is a source of revenue, the policy of allowing the hydrants to be used for such purposes may well be questioned. If injured, the permits provide that the party causing the damage shall pay for the repairs; but this will be considered a poor equivalent, should they prove useless during a fire. Besides, these general stipulations, if enforced, lead to litigation, when it would be difficult, if not impossible, to *prove* an injury by any *particular* individual.

The comfort of a large number of merchants upon the principal Avenues may be promoted, in having them thus sprinkled, but, at the same time, I am decidedly of the opinion that the filling of these tanks from the hydrants should be interdicted in future.

Neither do I believe that those most interested, when they examine the whole subject, will be unwilling to forego a convenience, the surrender of which is for the general benefit.*

All the hydrants have been carefully examined; those injured repaired, and the usual precautions taken to protect them against the severity of the climate.

Frequent complaints have been made of turbid water, by those obtaining a supply near the termination of mains that are capped. To remedy this, which is certainly a just cause of complaint, I recommend that, whenever the funds at the disposal of the Commissioners will warrant, hydrants be placed connecting with such mains; this will afford facilities for flushing the pipes and removing deposits, which must otherwise increase, and render the water unfit for use without filtration.

Stop-Cocks.

Mr. McAlpine's original estimate provided for 490 stop-cocks; this number, however, was subsequently reduced, together with the cost of other portions of his general plan, that the expendi-

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* This objection may be obviated by permitting those thus employed in sprinkling the streets to erect two or more hydrants at their own expense, to be used exclusively for filling their tanks.

ture of the whole work might be limited to the amount provided by the law.

By a reference to the report of the late Superintendent, it will be seen that, on the 1st day of January, 1853, there were only 76 stop-cocks placed in the mains; from the experience of the last season, I fully concur in his views on this subject, and recommend that the city be divided into small and convenient districts, by placing additional stop-cocks at proper points.

On the 7th of April last, that part of the city lying east of Pearl-street, and extending from Gansevoort-street to Watervliet, was divided into only four sections: one bounded by Gansevoort-street on the south, and Lydius-street on the north; one by Lydius-street on the south, and State-street on the north; one by State-street on the south, and Patroon and Quackenbush on the north; and one by Patroon and Quackenbush on the south, and Watervliet on the north. In order to make repairs in any of the pipes in the section east of Pearl-street, and between Lydius and State streets, the water from all the pipes from State to Gansevoort streets, east of Pearl-street, had to be wasted, and this large and important section, in the mean time, to remain without a supply.

By forming a connection between the upper and lower supplies, and placing stop-cocks in Arch and Lydius streets, immediately west of Pearl-street, I have made three separate and distinct sections south of State and east of Pearl-street, from either of which the water can now be drawn, without interrupting the supply in the remaining two.

In carrying out your instructions to extend the main in Eagle-street, north of Columbia-street, a distance of only 70 feet, I found that it was necessary to drain the water from all the pipes (excepting the 16 in. and 12 in. mains) from Eagle to Robin streets, north of State-street. Upon a careful examination of the connections, I learned that an additional stop-cock in Hawk-street line, north of Fayette-street, would make a subdivision at Hawk-street. To guard against like occurrences in future, a stop-cock was placed in the Hawk-street main, at the same time that the extension was made in Eagle-street.

But it is not only for the convenience and comfort of the citizens, and the protection of the manufacturers, that additional

stop-cocks are required; they are also needed in the event of fires. It is the part of wisdom to provide not only for probable, but also for *possible* occurrences. A fire *may* break out in the interior of one of these large sections, at a time when the water has necessarily been drawn from the mains, and the consequences be disastrous. With an abundant supply of water, every facility should be afforded to control it and make it available.

To repair a pipe or remove a defective hydrant in Grand or Broad, it is even now necessary to drain all the mains thence west to Lark-street, and lying between State and Elm streets, with the exception of a very small district, bounded on the north by State-street, south by Jay-street, east by Eagle-street, and west by Hawk.

Deeming this subject of great importance, I have devoted no little time to its investigation, that I might recommend *such* subdivisions as would most effectually guard against the evils already referred to, and best promote the interests of the citizens; and, as the result of such investigation, now submit the *following plan:*

1st. A division of the city south of Arch-street into two sections along Schuyler-street, which will require six 4-inch and one 6-inch stop-cocks.

2d. A division in the district east of Pearl-street, and between Arch and Lydius streets, into two sections along Westerlo-street, which will require five 4-inch and two 6-inch stop-cocks.

3d. A division of the district east of Pearl-street, and between State and Lydius-streets, into two sections along Green-street, which will require at present only three 4-inch stop-cocks.

4th. An addition of two 4-inch stop-cocks in the district bounded by Grand, Pearl, Lydius and Arch streets. Although the pipes in this section can now be drained, still, to effect this, the water from all the mains west of Pearl-street, and south of Arch-street, must be wasted; the additional stop-cocks recommended, removes this very serious objection to the present arrangement of the supply.

5th. A division of the district west of Grand, &c. streets and between State and Elm streets, into three subdivisions, which will require ten 4-inch and one 3-inch stop-cocks.

6th. A division of the district east of Pearl-street, and extending from State to Patroon and Quackenbush streets, into two sections along Columbia-street, which will require two 4-inch stop-cocks, and a change in location of two 4-inch stop-cocks..

7th. A division of the district east of Pearl-street, and lylying between Patroon and Quackenbush streets on the south, and Watervliet on the north, into two sections along Lumber-street, which will require three 4-inch and two 3-inch stop-cocks. The section north of Lumber can be subdivided along De Witt-street, by one additional 4-inch stop-cock to the above.

8th. A division of Arbor Hill into two sections along Swan street, which will require two 4-inch stop-cocks, and the change in location of one 6-inch and one 4-inch stop-cocks.

Although great care has been used in the arrangement of the above plan, some alteration may be found necessary in carrying it into effect.

For estimated expenditures, necessary to carry the above recommendations into effect, see Table No. 3.

Consumption and Waste of Water.

A knowledge of the daily consumption of water at different seasons of the year is important, especially as most of the large hotels and steam engines are upon the lower level. That no inconsiderable portion of the amount supplied is wasted, cannot be questioned; the quantity, however, cannot be determined, even approximately, in the absence of reliable data upon which to predicate an estimate. By closing the gates to the brick conduit, and guaging Bleecker reservoir on consecutive days, the quantity for such time can be determined. But even this cannot be applied in the winter, and at other seasons can be continued at Bleecker reservoir only for a short period, as the

maximum height is required in this reservoir, to accommodate the residents and maltsters west of Lark-street.

A needless and large waste is frequently permitted in hotels, livery stables, in the public buildings and in the use of hose; while in many private families, an uninterrupted stream from the faucet is continued during the winter, to prevent the pipes from being disrupted by the frost. Nor is this waste peculiar to Albany.

In a report made Nov. 23d, 1853, to the joint committee on water, the Cochituate Water Board, after recommending an increased rate for hotels and boarding houses, the prohibition of the use of hose in livery stables, and the adoption of regulations for determining the kind of fixtures for water closets, say: "The Water Board have, during the past year, caused water meters to be placed in some of the principal hotels and livery stables, for the purpose of measuring the quantity actually used, and the result is highly deserving the consideration of the committee. It is found that in one hotel the daily average was 25,539 wine gallons, and in another it was 17,441 gallons. The greater part of this large quantity must have been wasted; and the cause of the waste may be safely attributed, in a great degree, to there being in one of them fifteen water closets, and in the other twenty-three, all of them so constructed that the water could be kept running from them all the time. The water rate in the case where the greatest consumption took place was $213.50, and in the other $345.50."

"By a recent ordinance, the Water Board are authorized to fix the water rate according to the quantity which the meter indicated; had this been done, the water rate in one of the above cases would have been, according to the present tariff, $1532.24, and in the other $1046.46."

In regard to stables, they add: "In one stable where no hose was used, the daily consumption was at the rate of fifteen gallons for each horse; this was the smallest quantity ascertained, and it was the same in an omnibus stable. But in livery stables where the hose was used, the consumption was altogether excessive and unjustifiable, it having been in one case at the daily rate of 91 gallons for each horse."

To guard against this improvident and reckless waste in future, an ordinance has been submitted to the Common Council, providing

1st. That hotels, taverns and boarding houses (valued at less than $1000,00) be charged, for each bed for boarders and lodgers within the same, three dollars.

2d. That the proprietors or persons having charge of any such hotel, tavern or boarding house, may place, at their own expense, within their premises, a sufficient water meter, for the purpose of measuring the quantity of water by them respectively used, and pay a rate, to be established by the board, according to the said quantity.

One principal cause of the want of proper economy on the part of the *citizens of Albany*, is the very prevalent opinion that there is a superabundant supply, and that, just in proportion to the quantity of water drawn from the mains, will its quality be improved.

'Tis true, the flow of the Patroon's creek is amply sufficient to meet all legitimate uses, and at the same time furnish an abundance for the most improvident waste; but, as has already been stated, the main from the Watervliet lake is so small that proper economy is necessary to save the citizens from the heavy tax of laying down an additional one.

Besides, there are located upon the stream, below the Watervliet lake, a satinet factory, a bedstead factory, a flouring mill and a plaster mill, deriving their power from the surplus water, and yielding, at present, an annual revenue of $4160.00. If these can be kept regularly in operation, the citizens will be directly benefited in diminished water rates; on the contrary, if frequently delayed, or closed for want of driving power, the revenue now derived from this source will be materially diminished, and, in a short time, entirely cease. It is to be presumed, therefore, that from motives of pecuniary interest, if from no other consideration, due economy in the use of the water will, for the future, be observed.

Another source of great and unnecessary waste of water is the use of hose in sprinkling streets. By the regulations of the

commissioners, an annual tax of five dollars is levied for such use. The permit obtained undoubtedly contemplates a *reasonable* economy, while some *appear* to construe it into a license for the most *reckless* waste.

It is difficult, and perhaps not very important, to determine what should be deemed a *proper* quantity, and what, within the meaning of the law, should be considered a waste, and subject the individual to its penalties. There are flagrant cases, however, that have passed under my notice during the past season, in which the use of the hose, for the future, should be altogether prohibited; and, perhaps a refusal to grant a permit for a second year, will prove the most effective against those who carelessly or wilfully violate its provisions.

While the most liberal construction of the law should be given, the citizens should obey such regulations as have been adopted for their own protection. If one uses quadruple the quantity of water actually required, the special rate, so far at least as he is interested, is unequally laid. I am aware, that a few insist that there is no limit as to quantity in the permits, and that this depends altogether upon their own caprice or judgment, for which they are not amenable to any rules or regulations of the Commissioners.

If this doctrine should generally prevail, and be carried into practice, with the present means of supplying the lower level, a deficiency for ordinary uses and manufacturing purposes, would be the immediate result. As this is an evil which, if not now checked, will soon prove serious and detrimental to all the water-takers, I recommend in all cases in which a reasonably economical use of water in sprinkling streets is not observed, that the supply be cut off, the names of the parties registered, and no permits given them for a like purpose in future.

Special Rates.

The rates established by your board for the special use of water are reasonable, when compared with those collected for like purposes in other cities.

In New-York, the amount charged for supplying steam engines is a the rate of ten dollars for each horse power; in Boston, six dollars; while in Albany, it has been reduced to

three dollars, thus offering inducements for the establishment of factories using steam power.

So many escaped the payment of special rates for the year 1852, that little or no attention was given to the notices served upon them in April, requiring permits to be taken out within five days, under the penalty of having the supply cut off. Believing that the charge was illegal, and that the remedy provided neither would nor could be enforced, without subjecting the Commissioners to a prosecution for damages, I found it necessary to call upon many personally: this, although not prescribed by law, I deemed advisable. Those who had not been required to pay, heretofore, were excusable in considering the rule arbitrary. With but very few exceptions, however, when the schedule of special rates was explained, I found a willingness to pay, provided others using the water for similar purposes were also taxed.

As the time thus consumed might have been profitably employed in superintending the works, and as a necessity for these explanations, in future, does not exist, it is suggested that hereafter the penalty be enforced, in cases where no attention is given to the notice. This will relieve the Secretary of the board from unnecessary labor, and enable him to devote his time to duties strictly legitimate.

Quality of the Water.

Near the terminus of pipes that are capped, the water is necessarily turbid, and must remain so until relief be given by connecting them with the general mains, and thus affording a free circulation, or by erecting hydrants for flushing them. Upon the west range of Green-street, in Beaver and Hudson streets, the caps have been removed, and the pipes connected with the main in Green-street.

Prior to this, the residents were obliged to filter all the water used; but as the cause was entirely local, upon establishing a free circulation in the mains, the evil was removed.

In the month of October, it was found necessary to close the outlet gates of Rensselaer lake, to afford facilities for repairs in the conduit and at Watervliet lakes. The water immediately rose above its maximum height of the summer, although still

below high-water mark. By thus overflowing the vegetable matter upon its banks, a peculiar and offensive taste was imparted to the water. As soon as this was discovered, the lake was immediately reduced, and the complaints of the citizens, which were certainly well founded, removed.

With these exceptions, the water, during the past season, has been good—much purer than at any former period. This can be attributed partly to the large quantity that has been retained in Rensselaer lake, and partly to the cleaning of the conduit, the improvements made in the retaining banks of Bleecker reservoir, and to the means adopted in improving and protecting the works of Maezlandt kill.

Lands belonging to the Commissioners.

Watervliet Lakes.

The area of this property, including that covered by the lakes, is about seventy-one acres. The whole is inclosed by a board fence, requiring some repairs. The land is cleared, and the soil of a medium quality. Attached to the keeper's house is a small vegetable garden, in addition to which about one acre is under cultivation.

The approach to these lakes from the railroad is difficult, and over land owned by Stephen Van Rensselaer. This should be changed, and the grounds entered immediately north of the dwelling, where an easy grade can be obtained. First impressions are readily made, and with difficulty removed; and were there no other reasons for the change proposed, this, in my judgment, would be sufficient. Strangers, upon visiting these works, form an unfavorable opinion of them, from the steep and narrow roadway along which they are obliged to pass.

For similar reasons it is suggested that the earth, removed in opening the gravel bed, and which now lies in small spoil banks, in full view from the road, be properly leveled. This will both improve the appearance of the premises, and render the gravel bed more easy of access.

Bleecker Reservoir.

The ground attached to this reservoir, on the west, will in future be cultivated by the keeper. A portion of it being imperfectly drained has been covered with water, and unfit for tillage. This low land has been partially filled during the last season; to complete it, an additional quantity of earth will be required in the Spring. As the soil needed, however, is within the inclosure, the expense of removing it will be small.

Rensselaer Lake.

Rensselaer lake property, including that portion covered with water, embraces an area of 323 acres, 2 roods, 25 perches, and was purchased from Messrs Van Rensselaer, Van Aernam and McGuigan.

In that section west of the lake there are about 50 acres cleared, of which about 26 acres are broken up and tillable, and about 60 acres covered with pine of a thrifty growth. East of the lake there are three acres of pine and about six acres cultivated; the remainder of the farm consists of a sandy soil, unfit for cultivation.

The McGuigan purchase, lying north of the railroad, requires fencing; at present, the lake at this point is exposed. This, however, *can be deferred without injury.*

Holland Farm at Old Seven Mile House.

This farm was purchased by the Commissioners to obtain control of the source of the Patroon's creek, which rises upon it. It consists of 161 acres and 29 perches; about 70 acres are covered with a fine growth of pine, and about 30 acres are cleared, of which 20 acres are tillable. The balance of the farm is of a sandy soil, sparsely covered with small pine and scrub oak.

This property is bounded on the south by Lydius-street, where it is exposed to the depredations of those regularly engaged in pilfering wood. There are a large number who gain a livelihood by such business. During the last winter at least 50 loads of pine wood and a large quantity of bean poles were cut from this land. Having been so long engaged in this traffic,

and heretofore escaped punishment, they enter upon the premises and cut the timber with almost the assurance of owners, but not with the same foresight, as the best trees are always taken.

The soil of that part not cleared is principally sand, and for farming purposes comparatively worthless.

As the pine trees will yield, in a few years, a large amount of valuable timber, I respectfully suggest that the premises be protected by a substantial fence; in the mean time I have made arrangements to detect all trespassers.

At present this farm, together with a large dwelling and sheds, is leased for $50.00 per annum, a greater part of which will be expended in repairs. To restore the fertility of the soil, which through neglect and constant use has been exhausted, will require a large quantity of manure, and it cannot be expected that an occupant, hiring from year to year, will incur any expenses, the benefits of which he has no certainty of enjoying. Under the present arrangement, therefore, no encouragement is given the lessee to expend more labor, than is demanded for his immediate wants. I therefore advise, that the premises be fenced and placed under the care of some trusty person, who shall have the use of the farm free of rent, and who shall be obligated, during his possession, to keep them in good order and repair at his own expense.

By this arrangement, inducements will be given to improve and cultivate the cleared land, and to protect the remainder of the farm from depredations.

On Schenectady Turnpike.

To secure a site for an additional reservoir, in the event of the present one proving insufficient for the wants and uses of the citizens, the Commissioners purchased from Stephen Van Rensselaer a plat of 44 acres, 3 roods and $28\frac{8}{10}$ perches, situated on the Schenectady Turnpike, and intersected by Gates' creek, one of the affluents of Patroon's creek. This land is valuable *only* for a reservoir, the soil being of an inferior quality and the timber having been removed from it.

Mains and Blow-offs recommended for 1854.

The principal supply for that section of the city south of State-street and east of Pearl-street, is through an eight inch pipe, connecting with the main in State-street, and passing along Green-street, south to Lydius-street.

At particular hours in the day, it is with difficulty that the manufacturing establishments on Broadway, south of Ferry-street, procure a necessary supply. This evil is already the source of great inconvenience, and will increase with the number of water takers; it is advised, therefore, that an eight inch main be laid during the ensuing Summer in Pearl-street, from the twelve inch main in State-street, to connect with the six inch main at Lydius-street.

I also recommend that a four inch main be laid in Hudson-street, from Grand to Eagle streets, and a three inch main in Bleecker-street from Broadway to Quay-street. Additional streets, requiring mains, will undoubtedly be paved the coming season, but as these cannot be anticipated, no estimate of their cost can now be submitted.

Although the hydrants are employed for cleaning the pipes, and must be solely relied upon on the upper service, they are not so effective as blow-offs; by being placed upon the lowest level in the mains, these give a rapid current to the water, and remove the deposits; besides, they assist very materially in draining the pipes in the event of accidents. It is recommended, therefore, that four-inch mains be laid in Lumber, Quackenbush and Westerlo streets, with a stop-cock in each near the river, to be used as blow-offs. This will require about 257 feet of pipe in Lumber, 258 feet in Quackenbush, and 261 feet of four inch pipe in Westerlo-street. For an estimate of the expense of the above mains and blow-offs, see Table No. 4.

Table No. 1.

STATEMENT *of extra uses of Water and the amount received therefor*, 1853.

			Schedule referred to.
6	Breweries, small beer,	$49 50	A
4	Morocco factories,	231 75	B
14	Malting establishments,	1009 24	C
55	Steam engines,	1122 53	D
35	Bakeries,	127 96	E
7	Fish stands,	29 10	F
20	Hotels,	571 03	G
27	Builders,	431 20	H
5	Soap factories,	51 50	I
4	Private stables,	21 00	J
5	Public buildings,	400 00	K
20	Fountains, full season,	140 00	L
5	" part "	17 91	
18	Livery stables,	428 90	M
4	Canal stables,	74 83	N
5	Breweries,	569 84	O
12	Carmen, for cart-horses,	89 58	P
9	Boarding houses,	61 00	Q
6	Country taverns,	133 50	R
4	Rectifying establishments,	74 00	
2	Railroad companies,	363 33	
5	Garden hose,	15 00	
100	Street hose, full year,	500 00	
1	" " part "	4 00	
1	Public bathing establishment,	24 00	
2	Street sprinklers,	192 00	
29	Water closets,	36 00	
3	Refectories,	55 00	
2	Coloring and dying establishments,	36 00	
1	Soda water,	3 00	
1	Butcher's stall,	2 00	
1	Confectionery,	1 00	
	Amount carried over,	$6865 70	

Amount brought over,	$6865 70
11 Buildings (no pipe in street),	71 50
1 Watering cattle,	20 00
1 Gas works,	150 00
1 Filling cistern,	2 00
1 Bleaching establishment,	2 50
1 Glue factory,	50 00
1 Distillery,	300 00
7 Steamboats,	136 13
2 Baths,	6 00
1 Brick yard,	25 00
2 Pipe drains,	7 00
1 Fire brick,	4 00
3 Vinegar manufactories,	19 91
1 Marble works,	5 59
	$7665 33

A.

Small Beer.

1,	$12 00
1,	6 00
1,	10 00
1,	10 00
1,	2 50
1,	9 00
6,	$49 50

B.

Morocco Factories.

1,	$33 00
1,	50 00
1,	48 75
1,	100 00
4,	$231 75

C.

Malting.

1,	.....	$47 00
1,	.....	133 60
1,	.....	26 50
1,	.....	40 00
1,	.....	56 45
1,	.....	150 00
1,	.....	86 00
1,	.....	48 54
1,	.....	24 00
1,	.....	40 70
1,	.....	13 02
1,	.....	87 43
1,	.....	96 00
1,	.....	160 00
14,	.....	$1009 24

D.

Steam Engines.

1,	3 horse power,	.....	$9 00
1,	10 do	part year, ...	17 50
1,	5 do	.....	15 00
1,	2 do	and shop use, ...	11 00
1,	20 do	do	97 50
1,	10 do	do	50 66
1,	15 do	part year, ...	39 37
1,	10 do	and shop use, ...	79 87
1,	4 do		
1,	15 do	and shop use, ...	60 00
1,	3 do	.....	9 00
1,	1 do	and shop use, ...	4 50
1,	20 do	do	103 68
1,	4 do	part year, ...	9 00
1,	15 do	.....	45 00
Carried forward, ...			$551 08

	Brought forward,		$551 08
1,	1 horse power,		3 00
1,	10 do		50 00
1,	15 do	part year,	22 50
1,	1½ do		4 50
1,	1 do	and shop use,	5 00
1,	2 do	part year,	4 00
1,	1 do		3 00
1,	12 do		36 00
1,	10 do		30 00
1,	3 do		9 00
1,	4½ do		13 50
1,	2 do		6 00
1,	2 do		6 00
1,	3 do		9 00
1,	3 do	part year,	3 00
1,	3 do	and shop use,	11 33
1,	1 do	part year,	1 00
1,	4 do		12 00
1,	1 do		3 00
1,	10 do		30 00
1,	1 do		3 00
1,	1 do		3 00
1,	3½ do		10 50
1,	4 do	part year,	9 00
1,	8 do	and shop use,	27 37
1,	20 do		60 00
1,	1½ do	part year,	0 75
1,	2 do		6 00
1,	7 do		21 00
1,	5 do	part year,	14 50
1,	5 do		15 00
1,	Filling boiler,		5 00
1,	do		25 00
1,	do		25 00
1,	do		25 00
1,	do		3 00
1,	do		3 00
	Carried forward,		$1069 03

	Brought forward, ...	$1069 03
1,	2 horse power, part year, ...	1 00
1, 15	do	45 00
1,	.....	7 50
55,	.....	$1122 53

E.

Bakeries.

Bakers.		Amount paid.
1,	.....	$4 18
1,	.....	2 00
1,	.....	0 50
1,	.....	4 00
1,	.....	2 50
1,	.....	1 43
1,	.....	8 00
1,	.....	10 00
1,	.....	2 28
1, part year,	.....	8 00
1,	.....	5 00
1,	.....	6 00
1,	.....	4 00
1,	.....	3 00
1,	.....	11 00
1,	.....	4 00
1,	.....	2 00
1,	.....	2 00
1,	.....	2 00
1,	.....	5 00
1, part year,	.....	2 00
1,	.....	1 00
1,	.....	3 00
1, part year,	.....	1 75
1,	.....	1 00
1,	.....	1 33
Carried forward,	.....	$96 97

Bakers.

	Amount paid.
Brought forward,	$96 97
1,	12 00
1,	3 33
1,	2 00
1,	4 00
1, part year,	2 00
1,	1 00
1,	4 00
1,	2 00
1,	0 66
35,	$127 96

F.

Fish Stands.

1,	$2 10
1,	5 00
1,	5 00
1,	4 00
1,	3 00
1,	5 00
1,	5 00
7,	$29 10

G.

Hotels.

1,	$8 00
1,	46 53
1,	17 00
1,	20 00
1,	3 00
1,	10 00
1,	51 50
Carried forward,	$156 03

Brought forward,	$156 03
1,	34 50
1,	33 00
1,	7 00
1,	50 50
1,	6 00
1,	11 00
1,	2 00
1,	26 50
1,	56 50
1,	17 00
1,	11 00
1,	60 00
1,	100 00
20,	$571 03

H.

Building Purposes.

Builders.	Amount of Brick.	Amount paid.
1,	125,000	$12 50
1,	95,000	9 50
1,	150,000	15 00
1,	465,000	46 50
1,	490,000	49 00
1,	290,000	29 00
1,	40,000	4 00
1,	15,000	1 50
1,	440,000	44 00
1,	100,000	10 00
1,	45,000	4 50
1,	15,000	1 50
1,	40,000	4 00
1,	190,000	19 00
1,	95,000	9 50
1,	575,000	57 50
Carried forward,		$317 00

Builders.	Amount of Brick.	Amount paid.
Brought forward, ...		$317 00
1, ...	70,000	0 70
1, ...	28,000	2 80
1, ...	100,000	10 00
1, ...	186,000	18 60
1, ...	90,000	9 00
1, ...	182,000	18 20
1, ...	30,000	3 00
1, ...	35,000	3 50
1, ...	30,000	3 00
1, ...	300,000	30 00
1, ...	91,000	9 10
27, ...	4,312,000	$431 20

I.

Soap and Candle Factories.

1, ...	$22 50
1, ...	8 00
1, ...	8 00
1, ...	8 00
1, ...	5 00
5, ...	$51 50

J.

Private Stables.

1, ...	$6 00
1, ...	6 00
1, ...	3 00
1, ...	6 00
4, ...	$21 00

K.

Public Buildings.

1,	City Hall,	$50 00
1,	Alms House,	100 00
1,	State Hall,	100 00
1,	Capitol,	100 00
1,	Exchange,	50 00
1,	Penitentiary,	
6,		$400 00

L.

Fountains.

1,	part year,	$5 50
1,		7 00
1,		7 00
1,		7 00
1,		7 00
1,		7 00
1,		7 00
1,	part year,	2 33
1,	part year,	4 08
1,		7 00
1,		7 00
1,		7 00
1,		7 00
1,		7 00
1,		7 00
1,		7 00
1,	part year,	3 00
1,		7 00
1,		7 00
1,	part year,	3 00
1,		7 00
1,		7 00
1,		7 00
1,		7 00
1,		7 00
25,		$157 91

Q.

Boarding Houses.

1,	$10 00
1,	13 00
1,	10 00
1,	10 00
1,	3 00
1,	3 00
1,	5 00
1,	3 00
4,	4 00
9,	$61 00

R.

Country Taverns.

1,	$49 25
1,	6 00
1,	31 75
1,	30 75
1,	12 75
1,	3 00
6,	$133 50

Table No. 2.

Schedule of Pipe laid in 1853, *with the cost of labor, &c.*

Length of pipe in f't.	Diameter in inches	Location.	Paid for labor.	Paid for labor and materials other than pipe.
70	4	Eagle-street, from Columbia-st. to centre of Spruce-street, and thence west to west line of Spruce-street,		
32	3			
660	4	Chestnut-st., from Hawk to Swan sts. From Main in Chestnut-st. to Hydrant on the southeast corner of Chestnut and Swan streets,	$35 28	
19	3			
40	4	Orange-street, for blow-off at the Basin,	9 00	
249	3	Rensselaer-street, from Broadway to the Hydrant on the dock (to supply steamboats),		
400	4	Norton-street, from Green to Pearl sts.,	18 50	
404	4	Green-st., from Nucella to Gansevoort sts.; from Main in Green-st. to Hydrant upon the northwest corner of Gansevoort and Green streets,	18 50	
12	3			
240	3	Chapel-street from Van Schaick-street to Main in Patroon-street,	16 00	
160	4	Chapel-street, from Columbia-street to Main in State-street,	38 00	
711	3			
72	3	Pearl-street, north of Clinton-square, on branch pipe from Maezlandt kill, logs removed,	4 50	
3069				139 78
		In addition to expenditures for labor, there have been paid for teaming, lead, gasket, coal, &c.,	.....	243 51
				$383 29

In the expenditures for labor in the above work, I have included only that paid for extra laborers. Most of the work was performed by the regular employees of the Commissioners, who are paid monthly. It has been my purpose not to engage additional laborers, unless the exigency of the case demanded. This will explain the very small outlay, not only in laying the mains, but also in repairs at Middle creek, Maezlandt kill and Watervliet lakes.

TABLE No. 3,

Showing the cost of the Stop-cocks recommended, including labor and materials necessary therefor.

	REMARKS, LOCATION, &c.	Stop-cocks. 3″	4″	6″	COST.
1	To make a subdivision along Schuyler-street, from Broadway to Pearl-street,	...	6	1	$500 00
2	To make subdivision along Westerlo-street, east of Pearl-street,	...	5	2	550 00
3	To make a subdivision along Green-street, from Lydius to State streets,	...	3	...	220 00
4	To render above subdivisions more effective,	...	2	...	146 66
5	To make subdivisions of that part of the city east of Lark-street, south of State-street, and west of Grand-street,	1	10	...	795 00
6	To make a subdivision east of Pearl-street, along Patroon and Quackenbush streets,	...	2	...	146 66
7	To make a subdivision along Lumber-street, east of Pearl-street,	2	3	...	343 00
8	To make an additional section north of Lumber-street and east of Pearl-street,	...	1	...	73 33
9	To make a subdivision of Arbor Hill, along Swan-st.,	...	2	...	146 66
		3	34	3	$2921 31

Most of the labor in placing these stop-cocks will probably be performed by the regular employees of the Commissioners; but, as these *may* be engaged upon other portions of the work, I have deemed it sound policy, in submitting estimates, to provide for every contingency. There are also several stop-cocks in the original division, between the upper and lower service (since changed), at present useless. By removing these, capping the mains and placing them upon the new subdivision lines, the expenditure, as given above, will be considerably reduced.

TABLE No. 4.

Estimate of the Cost of the Work recommended for 1854.

Rensselaer Lake.

120 bbls. cement delivered, @ $1.56,		$187 20
800 yards stone delivered, @ $2.00,		1600 00
2000 yards stone laid, @ 75 cts.,		1500 00
11,000 y'ds excavation from flats, @ 10 cts.,		1100 00
Embanking, and forming dam, preparatory to facing,		2000 00
Covering east slope of dam with soil, and repairing waste, &c.,		150 00
Erecting store-house (contract already made),		225 00
		$6762 20

Conduit.

Sodding in part,	$800 00	
Cleaning conduit and repairs of waste,	250 00	
		1050 00

Bleecker Reservoir.

Grading and graveling side walks,	120 00	
Filling, west of reservoir,	50 00	
Amount due Jno. N. Parker for erecting dwelling and storehouse,	360 00	
Incidental expenses and new fence,	250 00	
		780 00

Watervliet Lakes.

Making new road and leveling spoil banks,	100 00	
Graveling banks and incidental expenses,	300 00	
		400 00

Maeztlandt Kill.

Repairs to house and incidental expenses,	200 00

Middle Creek.

Constructing new dam, laying pipe to same, building, &c.,	450 00

Holland Farm.

Fencing along Lydius-street, about 73 chains,	550 00
Carried forward,	$10,192 20

Brought forward,		$10,192 20
Stop-cocks for Subdivisions.		
Stop-cocks, including all labor and materials,	$2921 31	
New Pipe and Blow-offs.		
1500 feet of 8-inch pipe in Pearl-street, from State to Lydius streets, including labor and materials,	3940 00	
700 feet of 4-inch pipe in Hudson-street, from Grand to Eagle streets, including labor and materials,	820 00	
261 feet of 3-inch pipe in Bleecker-street, from Broadway to the river, including labor and materials,	229 00	
Three 4-inch stop-cocks for blow-offs, at the eastern termination of Lumber, Quackenbush and Westerlo streets, including labor and materials,	1100 00	
	$9010 31	
Deduct from above the following pipe, now in Eagle-street reservoir yard:		
4-inch pipe, cost, $1400 00		
8-inch pipe, cost, 272 00		
Stop-cocks, sleeves, &c., 537 00		
	$2209 00	
		6801 31
		$16,993 51

As the funds for 1854, applicable to these objects, may not be sufficient to meet this expenditure of $16,993.51, I have selected the following as those least required, and which may be postponed to a subsequent period, viz., the blow-off in Westerlo-street; the subdivision of sections by stop-cocks along Westerlo-street, east of Pearl-street; and the 8-inch main in Pearl-street, from State to Lydius streets, cost. 4578 00

$12.415 51

STATEMENT,

Showing the moneys paid for labor and materials, used during the year 1852, and not embraced in the last Annual Report, also exhibiting the expenditures of 1853.

	1852.	1853.	Total paid.
Bleecker reservoir,	$77 14	$2379 37	$2456 51
Conduit,	67 00	3788 76	3855 76
Watervliet lakes,	13 03	564 62	577 65
Rensselaer lake,	1850 45	2861 45	4711 90
Maezlandt kill,	.....	110 33	110 33
Middle creek,	.....	28 00	28 00
Laying pipe (including materials used), exclusive of pipe,	69 73	367 79	437 52
Hydrants (repairs),	28 65	5 73	34 38
Stop-cocks and boxes,	.....	801 49	801 49
Factories, repairs, &c.,	297 57	233 44	531 01
Pipe,	16 62	1236 26	1252 88
	$2420 19	$12,377 24	$14,797 43

Upon a refusal to pay the extra rates, or upon neglect to repair the service pipes when broken, the supply, under the rules and regulations of the Commissioners, is cut off by shutting the stop-cock at the connection with the main.

This labor is always performed by those in the regular employ of the company, and charged to the delinquents, who are obliged to meet the expense, before the connection is again formed. In addition to the moneys from this source, which are paid to the Secretary, the following sums for labor and materials have been collected by him, and paid to the Chamberlain :

Cash received from James McDonald for old furnace,	$15 00
" " from Peter L. Page for building stone,	29 00
" " for iron pipe,	18 28
" " from F. & T. Townsend, for old pipe,	336 37
" " from E. Corning, Jr., for iron pipe and labor,	3 51
" " for old cement barrels,	8 49
" " for brick,	4 50
Carried forward,	$415 15

Brought forward,	$415 15
Cash received from Wicks & Tillinghast, labor and materials,	144 77
Cash received from N. Y. Central R. R. Company, labor and materials,	163 49
Cash received from Rathbone & Kennedy, labor and materials,	108 98
Total amount for labor and materials,	$832 39
Cash received from sundry citizens for violations of the "rules and regulations," referred to above, also paid to the Chamberlain,	22 75
	$855 14

INVENTORY

Of Pipe on hand at the reservoir, fronting on Eagle-street.

No. of Pieces.	Description.	Diameter in inches	No. of Pieces.	Description.	Diameter in inches.
16	Pipes, single hub,	16	9	Hydrants,	
22	" " "	12	17	Stop-cock boxes,	
8	" " "	10	8	Hydrant boxes, lower,	
14	" " "	8	6	" " upper and complete,	
10	" " "	6	1	One way branch,	6 by 4
76	" " "	4	5	" "	4 by 4
52	" double hub,	4	6	" "	4 by 3
8	" without hub,	16	4	Sleeves,	16
11	" short & without hub,	12	3	"	12
8	" without hub,	10	2	"	10
80	" short & without hub,	6	7	"	8
158	" " " "	4	5	"	6
33	" " " "	3	28	"	4
1	Reducers,	16 to 12	18	"	3
6	"	12 to 10	1	Cap,	16
4	"	10 to 8	1	"	12
5	"	8 to 6	5	"	10
2	"	6 to 4	14	"	8
12	"	4 to 3	5	"	6
40	Hydrant bends,		30	"	4
7	Circular bends,		13	"	3
102	Hydrant nozzles,				
3	Two way branches,	12 by 12		*Old Water-Works Co.*	
2	" "	10 by 10			
1	" "	8 by 8	1	One way branch,	8 by 6
4	" "	8 by 6	13	" "	4 by 4
1	" "	6 by 4	28	Branches,	1¼
3	" "	4 by 4	44	Double hub pipe,	1¼
10	" "	4 by 3	13	Bends,	3
2	Stop-cocks,	8	20	Pipes,	2
3	"	4	1	Two way branch,	3 by 3

INVENTORY

Of stock and materials not embraced in preceding schedules, on hand at EAGLE-STREET RESERVOIR.

Description.	No. of pieces.
Derricks,	2
Proving machine,	1
Tool houses,	2
Charcoal furnaces,	8
Pots for melting lead,	8
Ladles,	6
Drilling machines,	2
Rammers,	8
Tap covers,	150
Hand saws,	4
Cross-cut saw,	1
Compass saw,	1
Lead, 775 lbs.	
Spirit levels,	2
Rosin, ½ bbl.	
Large wheel-barrows,	2
Small wheel-barrows,	1
Stop-cock wrenches,	4
Reel and cord,	1
Caulking hammers,	8
Sledges,	3
Cement, 12 bbls.	
Shovels,	2
Fairbank's platform scales,	1
Steelyards beam,	2
Screw wrenches,	4
Axes,	3
Pickaxes,	3
Cold chisels,	18
Caulking irons,	24
Crow-bars,	12
Water pails,	6
Fence wire.	
Old lead pipe, 100 lbs.	
Coils oakum,	2

12 ft. ladder,	1
Paving hammers,	3
Stone hammers,	12
Lath hammers,	8
Masons' trowels,	9
Thermometer,	1
$\frac{5}{8}$-inch taps,	385
1-inch taps,	34

INVENTORY

Of implements and materials at Watervliet lake.

Description.	No. of pieces.
Old chestnut posts,	400
Wheeling plank,	31
1¼-inch hemlock boards,	121
Pieces timber (small),	15
Pieces timber (large),	3
1-inch hemlock boards,	32
Wheel-barrows,	9
Rammer,	1
Crow-bar,	1
Pickaxe,	1
Handsaw,	1
Broad-axe,	1

INVENTORY

Of implements and materials in store house, at Bleecker reservoir.

Description.	No. of pieces.
Wheel-barrows,	66
2-inch hemlock plank,	60
Ladders for conduit,	2
Centres for conduit,	2
Iron rod and plug for 12-inch pipe,	1
Brick and sand for repairs.	
Bbls. cement,	29

INVENTORY

Of implements and materials on hand at Rensselaer lake.

Description.	No. of pieces.
Hemlock wheeling plank,	109
Wheeling plank, each 48 ft. long,	4
" " " 32 "	4
Plank, extra wide,	6
Hemlock 2½-inch plank (new),	7
Pieces of timber, each 36 feet long,	3
Hemlock boards,	133
Joists, 3×4,	21
" 6×4,	12
Piece of timber 21 ft. long,	1
Piece of timber 9 ft. long,	1
Pieces oak timber 10×10,	2
Pieces of timber 9 ft. in length, 7×8,	6
Rail, 17 ft. long,	1
Wheel-barrows,	6
Handsaw,	1
Pickaxes, old,	2
Axe,	1
Hoe,	1

INVENTORY

Of implements and materials at Maezlandt kill.

Description.	No. of pieces.
Wheel-barrrows,	6
Wheeling plank,	6

By the rates originally established, every tenement having a supply of water was liable to an additional tax of one-quarter the ordinary rate, for each and every family exceeding one. This was found to be very onerous, especially upon the poorer and medium classes of buildings, amounting, in some instances, to fifty dollars upon a single dwelling of ordinary dimensions; and, before any collections were made, a different scale of rates

was adopted, levying a tax of one dollar (over and above the ordinary rate) for each additional family.

Although this alteration reduced the water tax to within reasonable limits, still, by a further reduction, applicable to the current year, the extra charge for additional families has been entirely abolished. This last regulation operates favorably to those least able to meet the tax, and is received with very general satisfaction. The few that still complain, object to any tax upon buildings into which the water is not introduced, although admitting, at the same time, that the danger of loss from fire, is diminished at least fifty per cent.

It is a fact that cannot be controverted, that the present facilities for the extinguishment of fires, render any serious damage from this source very problematical. It is proper and just, therefore, that an equivalent should be paid for the protection thus afforded.

But in reply to this, it is said that the Insurance Companies have not materially reduced their rates, and, therefore, whatever pecuniary advantages may arise from the present abundant supply of water accrue only to them, and that *they* should be taxed accordingly.

This is a fallacy: the doctrine of probabilities regulates the premium charged for insurance; and if this be not reduced in the same proportion that the chances of fire diminish, then it is undoubtedly true that the companies reap pecuniary profits not warranted by the risks incurred. But then the remedy is with those who avail themselves of that security offered by Insurance Companies, and can easily be applied. If the chance of loss from fire is indeed reduced one-half, and who will question it, then, by insuring only fifty per cent of the ordinary amount, or on every alternate year, will one-half the premium formerly paid be saved, while the chances of loss will remain the same as they were before the water was introduced. The present means for the extinguishment of fires have, therefore, benefited all the owners of improved real estate lying upon streets intersected by the mains.

That the tax *appears* to be exorbitant, in a few isolated cases, must be admitted. Nor can this *apparent* inequality easily be remedied; any water tax, levied in a city where the interests to

be affected are so diversified as in Albany, will meet with opposition, not only from those who deem it unequally laid, but also from those who consider all taxation, that exceeds their own estimate, an infringement of their rights. The present rate, upon a very large proportion of the dwellings in this city, does not exceed eight dollars upon each tenement, and even this will in a few years be reduced, from the erection of buildings, and from the increase of the sinking fund applicable to the water debt.

In preparing the books of water rates, approved by your board in December last, great care was taken to insure accuracy; and, I am happy to add, from the very few objections registered with the Secretary, that my efforts, in this respect, have been successful. In the assessment rolls for ordinary taxes, notwithstanding the greatest vigilance, errors will occur; it cannot be expected, therefore, in levying the water tax, in which so many different rates are to be applied, and where the books have to be so often transcribed, that perfect accuracy can be secured.

GEORGE W. CARPENTER,
Superintendent.

ALBANY, *January 16th*, 1854.