

The History of the Manhattan
Water-works.

By S. J. Adams.

In studying the history of the manhattan water-works it is interesting to notice the arguments that were used to induce the people to vote bonds for the work. So far as I have been able to find, the first article on the subject of city waterworks which appeared in the "Nationalist", the principal paper of the City, was in the issue of December 31, 1886. This article was under the headlines, "Let's Have a Boom," and reads as follows:

We need a little boom in manhattan just now, and we ought to have it, why not? why not have water-works so that we might throw cold water onto any scheme we don't like? Let us do something to get more industries established here. Taxes are high it is too true, but we would like to have other people help us pay them, manhattan is not menaced by any other town, and is nicely situated.

for a large and flourishing city. We have business men enough with sufficient influence, to start a boom in a week."

In the "Nationalist" for February 11, 1887, there is an editorial encouraging the establishment of water-works for the sake of fire protection. Another article appears in the issue of February 25, 1887, which reads thus:

"The time is here when Manhattan should begin to shake off her lethargy and wake up to the boom which is now waiting to be touched off."

Then the article goes on to argue that such an enterprise as water-works would be a financial success.

It is very striking that in none of these articles is the improvement of sanitary conditions or the making of cleaner and better streets mentioned. One might almost suppose that these

editorials were burlesques; but as a matter of fact, they probably expressed the spirit of the day.

I have not examined later files of the Manhattan papers to see whether or not their editors have tried to keep the citizens informed as to what the water-works have cost, and the advantage that have come to the city and its inhabitants on account of the works, but judging from the general ignorance and lack of interest in the matter, the papers have failed to do their duty, or else it is hard to interest the citizens of Manhattan in such questions.

But to go on with the history. The mayor's proclamation, calling an election to vote bonds for the works, appeared in the "Nationalist" for February 25, 1887, and in the issue of March 25, the result of the election is recorded as 438

in favor and 25 against. The contract for a part of the work was let in the following may and part of the work was done by the City itself. As to whether it was best for the city to do the work itself or let it out to contractors, there seems to be a difference of opinion, even among those who might be supposed to be capable of judging.

The pumping station is situated on the bank of the Blue River, just above the city, and the water is pumped through driven wells which are sunk sixteen feet into the gravel bed of the river. The water, besides being taken from the stream high enough up to avoid all danger of contamination by sewage, has an ideal filter of sixteen feet of gravel. The reservoirs are two in number, each sixty feet square and twelve feet deep, dug into the top of Blue

mont, whose summit is more than one hundred feet above the highest building in the city, so there is always plenty of pressure in the mains.

The water is probably as pure and wholesome as that furnished to any other city in the state. It is generally thought that the malaria and typhoid fever, which caused so many deaths in the fall and winter of 1897 and 1898, would have been much worse had there been no water-works. One physician states that he is of the opinion that the water-works have saved the city more than their cost, just in the good health of the citizens.

In this connection, it is interesting to note that while physicians pronounce the city water pure and free from all disease germs about three fourths

of the population use well water which is generally conceded to be dangerous; and this when most of them could have all the city water that would be needed for a family for only six dollars a year. The water when metered only costs ^{*}\$1.25 per 1,000 cubic feet, or about $16\frac{2}{3}$ cents per 1,000 gallons. The minimum charge per meter being \$4.00 per year.

As has been already indicated, the mains are laid over the greater part of the city, so that most of the people who wish to use hydrant water can have it.

Passing now to the question as to whether the works have been a financial success or not, we can do no better than to note

* Until recently the rate has been 20¢ per 1,000 gallons.

the following table, which has been compiled from the figures given in the last annual report of the water works committee. It will be well to state, however, that owing to the imperfection of the books, it required a great deal of work for the committee to get the data upon which this table is based, and there may be slight errors; but there are probably no serious mistakes.

The \$70,487.42 at the head of the Construction Column is all that was put into the works down to January 1, 1889, minus all of the receipts down to that time.

The works were only in operation a part of the year of 1888 and the books were not kept in good order, so that it cannot be determined just what the operating expenses were. Therefore every thing that went into the works in

1888 have been charged to construction and then all the receipts from the works have been subtracted from the first amount, which gives approximately the cost of construction. On the first \$70,487.42 of construction, interest and depreciation has been reckoned for ten and one half years. For the other sums the interest and depreciation have been reckoned for nine and one-fourth years, eight and one-fourth years, seven and one-fourth years, and so on. This way of calculating doubtless makes the interest and depreciation too large, for it is not true that all of the construction was made at the beginning of the year, as this method of calculating indicates.

Cost of Construction, Operation, And Receipts

Date.	Operating Expenses	Receipts	Excess of Receipts	Construction	Interest at 6% of depreciation at
1888.				\$70,487.42	\$46,610.61
1889.	\$2,023.91	\$2,287.61	\$263.70	477.41	397.44
1890.	2,422.64	2,932.92	510.28	2,469.45	1,832.57
1891.	1,895.79	2,955.70	1,059.91	1,040.11	678.67
1892.	2,014.25	3,144.46	1,130.21	388.71	218.65
1893.	1,952.13	2,417.22	465.09	124.53	58.85
1894.	2,737.48	2,874.10	136.62	1,124.12	429.78
1895.	2,253.59	3,425.24	1,171.65	68.77	20.11
1896.	535.77	2,788.35	2,252.58	104.3	1.88
1st 3 mos. of 1897.	583.24	651.33	68.09		
Apr 1, '98					
Apr 1, '98	2,182.49	3,425.74	1,243.25	1,048.64	
Total	20,602.69	27,104.09	6,501.40	77,639.61	70,248.76
Excess of receipts over cost of operation					\$6,501.40
Excess of interest and depreciation over net cash receipts					\$43,747.36

It will be noted from the above table that the works have more than paid operating expenses from the first. But when we take into account the interest on the money invested and the depreciation, the city has paid

out \$63,747.34 more than it has received from water service. For this \$63,747.34 the City and its inhabitants have received a large number of benefits, some of which can be seen more clearly by noticing the following table.

Comparison of water Rates

name of City	Population	* Meter Rates per 1,000 gallon	+ Open Rates	Water Charge	Fire Hydrant Rates
Columbus	2,140	45¢	\$10.80	\$5.00	\$60.00
Council Bluffs	2,211	30¢	6.00	5.00	67.00
Eldorado	3,337	50¢	6.00		50.00
Frederick	1,515	25¢	6.00	5.00	38.44
Galena	2,494	\$1.00	8.00	3.00	50.00
Lawrence	9,997	35¢	6.00	5.00	34.13
Marysville	1,913	30¢	5.00		50.00
Oswego	2,574	30¢	6.00		40.00
Paola	2,943	50¢	8.00	5.00	73.37
Pittsburg	4,497	50¢	8.00	3.00	50.00
Parsons	4,734	50¢	8.00	3.00	55.00
Windfield	5,184	30¢	7.00	2.00	60.00
Average Rates		48 3/4¢	\$7.18 1/3	\$4.00	\$52.33
Manhattan		20¢	5.00	5.00	

* The meter rates are for such quantities as would be used for domestic purposes.

+ The open rates are for six room houses.

By noticing the above table, we see that the average meter rates for the twelve Kansas cities compared is $43\frac{3}{4}\%$ per thousand gallons, or 118.75 per cent more than the rates at Manhattan; also that the average open or flat rates for the twelve cities are for six room houses, $\$7.18\frac{1}{3}$ or $43\frac{2}{3}\%$ per cent more than the same kind of service in Manhattan. But the average rates for water closets in the cities compared is only $\$4.00$ or 20 per cent less than at Manhattan. By combining these three rates and assuming that each of them is equally important, we find that the citizens of the twelve cities compared have on average paid more than 47 per cent more for their water than the people of Manhattan. I think however that there can be no question but that the quantity of water used

for water closets is much less than that used either by families occupying six room houses or that which is paid for by the meter, and as a matter of fact the citizens of these twelve cities probably pay 60 or 75 percent more for their water than the people of Manhattan. Supposing that they only pay 50 percent more for their water than the latter, there has been a saving in water rates to the people of Manhattan of \$13,552.04. Manhattan has 45 fire hydrants which, figured on the average rates in these other cities for 10 1/2 years would amount to

\$23,675.93

The first issue of bonds was sold at a premium of \$1256. This and interest on this sum for 10 1/2 years would amount to

\$23,175.75

\$2,047.24

The water furnished free to churches for 10 1/2 years would amount to

\$1,050.00

The water furnished to the public schools free of charge would amount to \$242.50

The water furnished to the city park would amount to \$242.50

The water furnished to the three public watering places would amount to \$1,050.00

Making a grand total of \$41,700.21

which subtracted from \$63,747.36 leaves \$21,447.15

In arriving at this figure it will be remembered that interest and depreciation were estimated at 6 percent and 3 percent respectively, as a total of \$7,248.76

But the item of depreciation of \$23,414.25 included in this last sum is \$5,914.25 more than the amount claimed by Mr. Wm. Ulrich in his recent report as chairman of the water works committee of the city Council. So much as Mr. Ulrich's estimate was indorsed by the Professor of Engi-

seeing at the state agricultural
College, after careful consideration
and consultation with
the farmers it would
be entirely legitimate to deduct
this excess in my estimate
of depreciation, leaving only
\$15,730.90 for which as yet
we have not seen that the
people of Manhattan have had
any return. As above mentioned
however, a large amount of it
has in reality probably been
returned to them in the
way of low rates. For example if
we should take as a basis of
comparison for the water
rates, the price of metered water
and that used by families
occupying six room houses
the comparison would show
that there had been a saving
of 81.2 percent to the people of Man-
hattan, or \$8,566.48 more than
when we took as a basis
of comparison not only the

rates for metered water, and that used by families occupying six room houses but also the rates for water closets. This would bring the deficiency down to \$6,274.48, and I think that this comparison is undoubtedly the more nearly correct, for in Manhattan, at least, the water used for water closets is, comparatively speaking, insignificant, there not being more than ten such closets in the whole city.

But there is one other very important item which we must not forget to take into consideration, altho I have no definite data upon which to make the calculations, it is without doubt a matter of great importance. I have reference to unsatisfactory service, and law-suits which I am told

have afflicted nearly every city of the state where the water-works have been operated by private or corporate companies.

Then in addition to all of the above, owing to the fact that water has been cheap, many people have been able to grow trees, grass, and flowers in their yards making their homes pleasant and the city more beautiful than could have been possible had water rates been as high as they were in other cities. Some have found it to their advantage to use the water in the irrigation of small gardens. The city has had cheap water with which to sprinkle the streets and to use in the irrigation of the trees in the cemetery. All of these things, while they turn nothing into the city treasury, are at least, of real

value, and must be taken into account by every one that wishes to calculate aright the value of the water-works to the City.

The management of the works has by no means been ideal. To begin with, in the construction of the plant a blunder was made which caused unnecessary expense to the City, variously estimated at from \$10,000 to \$20,000. Then inexperienced men have at times been put in charge of the works and as one gentleman aptly put it, "Manhattan has paid dearly for her experience".

Then there has been a great waste of water because meters have not been required, e.g., in the report of the water works Superintendent for 1892, he states that while only 16%

of the water passed thru the meters 37 percent of the revenue came from the metered water. Then again we find that for the period from May 1, 1897 to December 31st 1897 four and one half times as much water was used without metering as passed thru the meters; yet the revenue from the water used with open rates was \$1,022.90, while the revenue from water used thru the meters was \$1,087.14.

While it is impossible from the data available to calculate exactly what advantage the water-works have been to the city, no one can deny the fact that they are a valuable possession. The plant as now constructed is capable of furnishing several times as much water as is required, and that with very

little additional expense; so that as the city increases in population the water-rates can be reduced, and still leave the works self sustaining.

To what degree the water-works are to be a success depends very largely upon the interest that the citizens take in the matter. If they demand that the works be managed in a business like manner, the waste and unnecessary expense that have occurred in the past may be avoided in the future, but if the people pay no attention to these matters, officials are not likely to exert themselves a great deal. In this connection it might be well to call attention to the fact that the law should be just as strict and

precise as regards the book-keeping and published reports of all such public enterprises, as it is in regard to those which are operated by private companies. Had detailed reports been printed during the past ten years, showing all receipts and expenditures, the works would have been managed more advantageously, and in a more businesslike manner than they have been.