

THE SANITARY REVIEW

TORONTO: ITS WATER SUPPLY AND WASTE.

It is with satisfaction that we note that the city of Toronto is taking action to remedy the great waste of water which attends the system of distribution.

In our issue of November 26th last year we called attention to investigations made by Mr. Rust in 1899, which clearly showed as follows:—

"In 1899 the per capita consumption was 99.7 gallons per day.

In 1909 the per capita consumption was over 120 gallons per day.

In 1899 about 12,000,000 gallons per day of water were being pumped to waste.

In 1909 about 21,500,000 gallons per day of water were being pumped to waste."

We then took the occasion of formulating propositions as follows:—

"(a) The annual cost of pumping 21,500,000 gallons per day without benefit of any kind being derived from it.

(b) The probable cost of treating 21,500,000 gallons per day of waste water, represented as sewage.

(c) The probable annual cost of filtering at the Island 21,500,000 gallons per day of water which will never be used, but only filtered in order to pass it direct from the leaking water service to the sewers.

(d) When the annual cost of (a), (b) and (c) have been arrived at, then we would like these sums added together and capitalized at, say, $3\frac{1}{2}$ per cent., so that the available capital amount can be arrived at which might be spent in putting the Toronto water supply on a reasonable and efficient basis."

Since calling attention to the above important points the city Waterworks Department has spent about \$10,000 in chasing leaks in a district bounded by Yonge Street, College Street, Bathurst Street and Queen Street. This district represents an area of about a half square mile, and is mostly residential.

House services to the number of 4,862 have been examined, disclosing 635 leaks, of which 358 were in connection with water closet services, 123 at taps, 25 at garden hydrants, 26 at services under houses, 61 not located, and 42 in metered houses.

The number of leaks outside in connection with the mains and city portions of the services amounts to 41.

Thirteen per cent. of the houses tested proved to have leaking fittings and services, while only about 6 per cent. of the total leaks found were allocated to the city mains.

In 1899, when an area of the city bounded by Dundas Street on the west, Manning Avenue on the east, and College Street on the south to the city limits on the north, was put under a similar examination and test, the results were: 14 per cent. of the houses tested proved to have leaking fittings and services, while 19 per cent. of the leaks found were allocated to the city mains.

This year's test has shown a total number of leaks in the central portion of the city of 676, with a total daily waste of 1,576,800 gallons of water, or 2,300 gallons per day per each leak. The 1899 test showed a total number of leaks in a suburban portion of the city of 366, with a total daily waste of 85,426 gallons of water, or 234 gallons per day for each leak. Mr. Rust concluded in 1899 in connection with the results of the

test then made: "The time is not far distant, unless proper means are taken to prevent waste, when the rate-payers will be called upon to provide large sums for improvements to the system."

Just what Mr. Rust's conclusion is with reference to this 1910 test we do not as yet know. But we do know that about a square mile of the central part of the city is capable of producing a total daily waste of water amounting to about one and a half million gallons per day, or 575 million gallons per annum.

As all this extra waste water has to be pumped, sand-filtered and afterwards treated at the sewage works, it is evident that we have a civic utility which is remarkable for its high inefficiency, and which is capable of repair, supervision and general adjustment which must result in an enormous annual saving of money.

The annual value of water wasted in the half-mile area just tested is estimated at \$28,787, or \$959,600 if capitalized at 3 per cent.

The city of Toronto is face to face with the question of either metering domestic service, or creating an efficient method of administrative supervision.

In connection with the test of 1899, before repairs were made the consumption of water for the area under examination amounted to 234,163 gallons per day. After the repairs were made the consumption was reduced to 140,565 gallons per day, or a reduction consumption efficiency of 40 per cent.

If a 40 per cent. reduction was effected all over Toronto it would immediately result in a daily water consumption of 40,000,000 gallons being reduced to 24,000,000, and a daily per capita consumption of 120 gallons reduced to 72.

There is no reason why this 40 per cent. reduction may not be effected, as such a reduction would yet leave 20 per cent. margin for unavoidable waste as shown by recent sewer gaugings between 3 a.m. and 4 a.m., when the water consumption is at its lowest.

We would certainly regret to see Toronto's domestic water service under meter, and we think that efficiency can be obtained just as economically by greater and more continuous supervision of plumbing. Certainly in Great Britain, where domestic water supply is not generally metered, the average per capita supply is only 45 gallons per day, and we know this low consumption figure is not obtained by restricting the use, but only by efficient administration and drastic action in connection with users who neglect the necessary precautions as against leaks and imperfect water fittings.

SOME WATER PURIFICATION NOTES.

In taking a sample of water, rinse out the bottle first with the water to be examined.

Some analysts express results in grains per gallon, others in parts per 100,000, others in parts per 1,000,000.

Parts per 100,000 = grains per gallon $\times 10$

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Grains per gallon = parts per 100,000 $\times 0.7$.

Parts per 100,000 = grammes per 100,000 c.c.

Color is due to matter in solution; it has nothing to do with turbidity.