

## MUNICIPAL DEPARTMENT

### CONSIDERATIONS FAVORING THE ESTABLISHMENT OF WATER-WORKS IN SMALL TOWNS.

The first obstacle that confronts those who endeavor to establish water-works in a small town is the opposition from the doubting Thomases who know nothing about engineering or finances of a water-works system and are rather suspicious of anyone who does, particularly an out-of-town engineer, says the Engineering Record. There may be something of value for engineers who have experienced difficulty in this matter in noticing the methods adopted by a committee of citizens in Birlerica, Mass., who engaged Mr. M. Blake, of Hyde Park, Mass., as their engineer. This committee selected 16 town in which water-works had recently been built under conditions similar to those prevailing in Billerica, and sent the authorities in these places a list of questions not such as would take any time or professional knowledge to answer, but such as any town clerk would be able to answer without inconvenience. An idea of the tenor of these questions may be obtained from the following selection from the more important ones: How did engineer's original estimate compare with actual original cost? Number of water takers one year after starting system and now? To what extent has putting in supply raised rate of taxation or reduced insurance rates? Rules for extending pipe lines beyond centers of population? Hydrant rates? To what extent has system been self supporting? Have opponents changed their minds since system was put in?

Eleven towns favored the committee with very full replies, and the information as to points which are of importance and interest may be briefly summarized as follows: Taxation slightly increased at first, but not materially after a few years. In some cases the towns eventually derived an income from the water rates over and above all expenses. As a rule, an appropriation was made by the town for water for public uses, and for hydrants in consideration of fire protection, and these amounts

were included in the income of the works. The actual cost of the systems did not materially exceed the original estimates of the engineers. The number of water takers very largely increased after the first year, and nearly all the inhabitants on the pipe lines eventually became takers. Pipe lines are extended on a guaranty of 6 per cent. on the cost of extension. As to the effect on insurance, the Committee finds that there would be a saving to the mills of 10 per cent. and to other property of 15 to 20 per cent. according to its character. An officer of the Middlesex Mutual, a company carrying a large amount of insurance in the town, informed the Committee that his company had been largely reducing the amounts carried because of the lack of fire protection, and, if none were provided, they should reduce their policies still more. Besides the saving through a reduction in rates on the introduction of a water supply, experience shows that less insurance is carried; the quick protection afforded by a hydrant near the premises making total or serious fire not likely to occur, and thus admitting, with safety, the lessening of the amount of the insurance. Whenever there was opposition to putting in the works, it disappeared after the benefits were experienced and the financial burdens were found to be light, and, as a rule, the most active opponents became firm advocates of the system.

It was proposed in Birlerica to have the water-works built by a district composed of the section supplied by the mains instead of by the whole town.

In regard to this district system, the committee states that at the end of 1895 there were in Massachusetts 123 town water supplies, only 11 of which were under district management. Five supplies, originally district, have been bought by the towns

in which they were located. It would seem from these facts that the district system is not often adopted, and there are the following good reasons for it:

1. It involves the organization of a town within a town so far as all matters relating to the water supply are concerned.
2. The bonds of a district do not sell at as good a premium as those of a town.
3. The residents outside a district do not entirely avoid taxation if the works do not become self-supporting, because the town, as a rule, pays the district a yearly amount in consideration of fire protection and for use of water for public purposes. It is just that the whole should do this, because the cost of water-works is greatly increased in providing for efficient hydrant service, and besides the protection afforded public buildings, the prevention of serious conflagrations preserves taxable property, and avoids for every taxpayer the increase of taxation which would follow a large loss.

### TRICYCLE STREET SWEEPER.

A Berlin inventor has, according to an exchange, constructed a new street-sweeping apparatus which combines the construction of a carpet-sweeper with that of a tricycle. It is worked by one man, who can cover as much ground with this machine as four men working with brooms and shovels. Compared to the street-sweepers propelled by horses, the cost of covering a given ground is smaller; moreover, the new machines are widely superior on hygienic grounds, since the dust and sweepings are not thrown into the air, but absorbed by the machine and dropped in bulk into boxes specially provided for the purpose, which are to be sunk in the ground at different points and covered until called for during the night when there is least traffic in the streets. The new sweepers are intended to travel through the best streets at a fair rate of speed several times a day, and the receptacle for the sweepings will hold about 40 pounds before it becomes necessary to empty it. Sidewalks and footpaths in the parks are to be swept by similar but somewhat smaller machines.

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