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difference in altitude and in atmospheric conditions. This question of evaporation is one of the many which must always be taken into consideration in calculating the amount of water available from the rainfall on a given area of watershed. As a general rule, the amount of evaporation on ponds and lakes will balance the total amount of precipitation of snow and rain on them. Take for example the case of Lake Superior. The average rain fall upon this lake is 22 inches. The evaporation would appear to be even greater than this, namely, 24 inches, so that more water is raised from than falls upon it. Its level is maintained only from the surplus which flows into it from streams, which drain its enormous watershed.

GENERAL COST.

While the questions of quantity and quality are always of first importance in the selection of a source of supply, the question of cost bulks very largely in the solution of a waterworks problem. With two or more sources at hand, equally suitable as to quantity and quality, the question as to which shall be adopted depends on the cost. Speaking generally, the first or initial cost plus the capitalized cost of maintenance and operation will determine the matter.

In supplying water to communities, there are only two systems, natural gravitation and pumping. Sometimes, however, a combination of these two systems is necessary to give not only the supply, but also the requisite pressure for purposes of domestic distribution and fire service. The simplest and most economical system is by far that by natural gravitation, especially where the source of supply is not far distant and is located at a sufficient elevation to give the desired capacity and pressure for all purposes.

The cost depends, of course, entirely on local conditions, but when it is considered that many of even the very small systems, in Canada for example, have been designed as gravitation works, bringing water from a distance of several miles for profitable distribution, proves conclusively the preference which should always be given to a gravitation system over a pumping system.

WATER METERING.

The question of installing meters on all the consumers' service connections is one which does not receive the attention and consideration which its importance deserves. In this respect Canadian practice is far behind that of Europe and even of the United States.

The first effect of metering is to materially lessen the useless and inordinate waste of water, and to confine the amount used to that required for legitimate uses only. The charging for all water used at a fixed rate per thousand gallons, that is, paying for what you get and getting what you pay for, would appear to be the proper policy, but, for one reason or another, it has not as yet made much headway in Canada.

There are many other advantages, both direct and indirect, which follow the metering of the water supplied : for example, in the case of a system which has to pump every drop of water used, the direct saving in machinery and cost of operating is very great, because ordinarily the amount requiring to be pumped is reduced by about onehalf.

The capacity of all mains and distribution pipes with regard to fire service is, when the limiting maximum is required, indirectly increased on account of the flow for domestic purposes being decreased. This latter advantage is not only the case in a pumping system, but also in the case of a gravitation system. It follows also that where there is a difficulty in obtaining a sufficient water supply, the installation of meters will put off the date at which steps must eventually be taken to spend more money to obtain a more bountiful supply so as to meet the demands of increased consumption.

There are perhaps some few cases and conditions in which the advantages of a meter system are not so apparent: for example, a system which has an abundant supply by gravitation and is designed on a fairly large scale for carrying and distributing capacity to meet the future possibilities of a large growth in population. In this case, the flat rate would be found quite suitable for some years to come, and thus to this extent be slightly more simple and economical in saving the cost of and trouble in maintaining meters.

For some reason there appears to be a natural aversion, on the part of consumers, to paying for water by measurement, but if the consumers would take the time to intelligently consider the question, a very different opinion would prevail, because it means not only cheaper water to the consumer, who should pay for the cost of operating, but also a saving to the taxpayer whose property is mortgaged for the debenture debt which covers the initial cost of the waterworks.

The new additions to the Dominion Gas Meter Work«, London, Ont., are now almost completed. These comprise a 20 x 24 ft. addition each to the testing department and the shipping department. They have also purchased three large lots adjoining, which gives them the entire block from Garfield Ave. to West Ave. It is their intention to build another addition to their works this spring.



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