

Sand" filtration and "Mechanical" filtration. In the former type, the water filters through beds of sand and gravel at varying rates of from two to five million gallons per acre every twenty-four hours, according to the character of the water. In mechanical filtration, a precipitate is first added to the water, which is then passed through a medium of sand under pressure, the rate of filtration being many times more than in the slow sand filters.

The type of filter best suited for any particular water must be carefully considered before adoption by a municipality, and this can only be done by a competent sanitary engineer. When either system can be used, it resolves itself into a question of primary cost and annual maintenance. The slow sand filters cost, approximately, \$30,000 per million gallons of the daily consumption and about ten per cent. of this per annum for operating; while a mechanical filter costs about one-fourth, and, if carefully operated, a high degree of efficiency as regards purification can be obtained. This is well exemplified at Chatham, Ontario, where for some years filters of this latter class have been in operation, the water treated being that of the river Thames.

The attention of the public, as well as health and municipal authorities, has been directed during the past few months to the purification of water by means of the addition of small, very small quantities of hypochlorite of calcium, otherwise known as chloride of lime. We have been led to believe the process is a very simple one; indeed so simple that a child might almost direct the treatment. It is true that in case of emergency, municipal and health authorities may, under the direction of a sanitary engineer, improvise the means for the application of the hypochlorite and thus prevent outbreaks of typhoid fever when the water is sewage polluted; but for the proper and scientific installation, as well as for the oversight and management, expert services give the best results, and where a municipality will pay for the services of an expert, the expenditure is more than compensated for by the results obtained. These facts are clearly shown by the work and operation of what is known as the Bubbly Creek Water Purification Plant of the Union Stock Yard and Transit Co. at Chicago, which has been in operation for nearly two years.

The following information, descriptive of it, is taken from the report of C. A. Jennings, chief chemist and superintendent of filtration: