

SEWAGE DISPOSAL.

A report which speaks of the satisfactory working of percolating filters with granite chips as a medium was recently issued by the borough surveyor of Nuneaton, England. The quantity of sewage dealt with during the year was 425,590,000 gallons, which represents a daily average of 1,106,000 gallons, and is about 110,000,000 gallons in excess of the quantity treated in 1911.

The increase is mainly due to the heavy rainfall throughout the year, for many millions of gallons of sewage were pumped for treatment at Hartshill, which, under the old conditions, would have passed into the river direct from the sewers, and would have polluted the stream to this extent.

Of the 402,100,000 gallons treated at the Hartshill outfall works 340,751,000 gallons were dealt with by the filters, and the remaining 61,349,000 gallons by the primary contact beds and subsequent land irrigation. The effluent from the filters was at all times capable of supporting fish life in the outlet channels of the humus tanks, and was therefore discharged direct from the humus tanks into the river.

The seven primary contact beds were filled in the aggregate 7,708 times, equal to a daily average of three times each. The average liquid capacity was 45,900 gallons, as compared with an original capacity of 75,000 gallons, equal to a loss of 38.2 per cent. after eleven years' working. In the previous year the average liquid capacity of the primary beds worked out at 40,690 gallons, so that there has been an increase in capacity of 5,210 gallons per bed. The increase, in the opinion of the borough engineer, is probably due to the fact that the beds were worked more as balancing tanks for the percolating filters than as contact beds; consequently the period of quiescence was often materially less than the two hours generally allowed, and there was not the same opportunity for the deposit of suspended matter.

The last of the seven secondary beds converted into percolating filters was brought into use in May, thus completing the work of reconstruction commenced two years ago.

The continued satisfactory working of the percolating filters is the most gratifying feature of the works. Despite the fact that the medium in each filter consists of fine granite chippings with a 2-ft. 6-in. depth of $\frac{1}{2}$ -in. gauge at the surface, it has not needed cleansing in any way. The whole area of $1\frac{3}{4}$ acres is quite free from ponding. The clean condition of the medium is mainly due to the separating tanks with upward flow roughing filters, which were installed in connection with the recent extension of the works. The total area of the roughing filter in these tanks is only 54 sq. yds., but they have been thoroughly successful in the elimination of such suspended matter as has passed through the silt tanks.

Having regard to the success which has attended the conversion of the secondary contact beds into percolating filters, as well as to the continued increase in the flow of sewage, it has been decided that the primary beds shall be gradually dealt with in the same way. There is always a surplus of chippings produced at the quarry, and these will be utilized as they accumulate for this purpose. Very little expense will be incurred for ironwork until the filling of each bed is completed and it becomes necessary to fix the distributor, the cost of which will be about \$3,000. The expense will be almost entirely in respect of superseding old work, so that it will be properly a revenue charge, and will not be felt so much as in the case of work executed under more rigid conditions. Each filter so provided will be capable of dealing with about 150,000 gallons per day.

CANADA'S RAILWAY TRANSPORTATION.

Prof. S. J. McLean recently delivered an instructive lecture on "Transportation" before the Canadian Club at Pembroke. He stated that the first railroad in Canada was built about 1838, and had wooden rails, and the motive power was horses. In 1868 there were 2,200 miles of railway in Canada; in 1878 there were 5,200 miles. This year there are about thirty thousand miles, or about the same as in Great Britain and Ireland. Last year 2,300 miles were built, or as much as between the years of 1836 and 1867. There are 8,000 miles under construction now, and about three-quarters of this is west of the Great Lakes.

In 1912 the average construction was four miles a day. Of the actual money gone into railways in Canada, 25 per cent. comes from the various provincial governments and the Dominion government, and the land grants, etc., amount to 17 per cent. more. Besides this, large amounts of the railway bonds are guaranteed.

In proportion to its resources, no other country contributes so liberally. There are such great developments west of the Great Lakes that very often the railroads cannot keep up with the advance. Last year 13,000 people went through Edmonton to the Peace River district, where they must work along as best they may until the railroad reaches them, some of them carting in their grain sixty-five miles over bad roads.

The formation of a railway commission was first taken up in Canada in 1860, and in 1880 Dalton McCarthy brought the matter to the attention of Parliament. In 1886 a Royal Commission was formed to conduct an investigation re changes of the general policy of the Railways Act, and in 1888 it was recommended that the commission be given power to deal with matters concerning preference and discrimination.

In 1904 the present commission was organized. The three central matters for their consideration are safety, service and rates. It is composed of six members, three members forming a section empowered to act so that two sections may act at once in different places.

There are three general departments: engineering, operating and traffic. They have a staff of five engineers, who are constantly on the road investigating railway matters, and they also have a staff of men to look after every department of railroad workings. Every working day the commission has 238 tariffs to consider, both local and international. For every case dealt with formally, there are six or seven dealt with informally. The cases coming before the commission involve items of from 15 cents to hundreds of thousands of dollars.

Three-quarters of the decisions of the commission are oral, being given immediately after the hearings. There were 609 decisions for the year ending in April, 1912. The commission is a perambulative body, and tries to get as close as possible to the individual complaint. The business of the commission is sane regulation, not management.

CANADIAN NORTHERN BUSY.

Work is in full swing on the Lulu Island branch of the Canadian Northern Railway running from the west boundary of New Westminster to Steveston at the mouth of the Fraser. The contracts, sub-contracts and station contracts are now being let and the grade will be completed by the beginning of June.