There is an immense amount of labor to be wrought in the successful launching of such an institution, but I have no fear of its issue if the determination of the engineer is turned to it in the same spirit that he tackles the problems of his district, overcoming many of nature's obstacles, and often harnessing them for the benefit of mankind.

PRO BONO PUBLICO. Winnipeg, July 21st, 1913.

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Concerning Toronto's Filtration Plant Extension.

Sir,—In view of the City Council's decision to spend \$1,000,000 for a filtration plant at the Island, in order to avoid an expenditure of perhaps \$2,000,000 for a new intake or tunnel which the placing of the addition on the mainland would entail, we would like an interesting proposal, which we have made, to appear in the columns of your journal.

It should be pointed out that it has only been made after two years' study of the existing conditions, and after a careful perusal of the various reports published, including that recently issued by Commissioner of Works Harris, Drs. Hastings and Nasmith, appearing on page 184 of July 17th issue of The Canadian Engineer. We would make reference particularly to several of the closing paragraphs of this report in which Garrison Common is mentioned as an ideal location for the installation of a mechanical filtration plant; but that the sum that has already been invested in the Island plant necessitated the retention of its use; also the reference to the formation of the Island being such as to render it an undesirable location for permanent construction of this nature, and the very extensive operations, which the Harbor Commissioners purpose undertaking, being liable to imperil the present or any future installation which might be established there. The continuity of a filtered water supply for 365 days per year is stated to be the dominant factor in the consideration of the proposition.

These sections of the report lead one to believe that, if the Island is undesirable for the present \$800,000 construction, it will be much more undesirable for a \$1,-800,000 investment, considering the sand formation and the indefiniteness of the Harbor Commissioners' future operations conflicting with it. Further, the ideal site for the filter plant being on the mainland, it appears to the writer that the present filtration plant might well be retained in connection with the city water supply for use as a basin to effect settlement of the water before filtration, thus removing the troublesome sand problem which must be contended with. The new filter plant could then be installed adjoining the main pumping station, and the raw water filtered after being drawn through the tunnel, thus eliminating a constant source of danger to the pure water supply, viz., the passage of water through the tunnel under the polluted waters of the Bay. Such a plant could be located on the vacant land owned by the city between the present pumping station and the railroad tracks to the north, convenient to the mechanical operators of the former, and in a position entailing a minimum of cost for the transportation of stores and supplies.

The proposal which was recently submitted by the Bell Filtration Company covers the installation of a filter plant of 65,000,000 gallons minimum, and 96,000,000 sallons maximum capacity upon the above-mentioned site, to be installed without delay and to be in operation in about fifteen months. Without going into details of equipment, etc., it might be stated that under the proposed method the water would be first settled by the Island basins, would flow by gravity to the main pumping station, and would then be pumped directly through the filters to the city mains.

The chief advantages attendant upon this scheme are those of insurance against interrupted operation, such as might be occasioned by alterations to the Island, and the safe-guarding of the supply against dangers of pollution by Bay water.

In the event of any change being desirable at any time, the whole of this plant can be removed practically without interruption, thus increasing the value of it as an asset to the city.

Toronto, July 23rd, 1913.

H. W. COWAN.

A REMARKABLE PAVEMENT TEST.

Bereft of its concrete base and of the roadway itself, something like 100 square yards of brick pavement on Dunham Road, near Cleveland, are projecting over the void with nothing to hold them in position but an excellent job of cement grouting between the bricks themselves.

This spectacular test of Cuyahoga County's road-building methods came to pass through the agency of a recent freshet in Tinker's Creek, a small stream skirting the road. Retaining wall 275 feet in length was swept away and the earth undermined for nearly 100 feet. The concrete base was next to go, leaving the brick bare for a distance of 80 feet. The greatest breadth of the brick overhang is seven feet.



Washout Under a 14-Foot Brick Road in Ohio.

So solid was the course of grouted brick that it was a job of no small difficulty to remove two bricks in order to erect posts for a warning fence. After the holes had been made, the engineer in charge did not hesitate to drive his auto upon the overhang and pose beneath it. At first it was planned to break the pavement down and rebuild it after the road had been filled, but the solidarity of the structure has brought about an alteration of plans and now county engineers actually contemplate building the road up to the pavement without disturbing the latter.

Cuyahoga County has over 400 miles of rural brick highway, counting the 50 miles to be installed during the current year. Macadam was long ago abandoned as unsuited to the heavy and growing automobile traffic. The construction of a heavy, solid base and utmost care in the application of a cement grout filler have been the keynotes of successful road construction in Cuyahoga County.