

(1) That the principle of "active storage," as opposed to "passive storage," is accepted as sound.

(2) That it is possible to "pool" the existing stored water interests so as to remove the anomaly of using over-stored water for some districts and under-stored water for others.

(3) That the river water can be effectively and continuously circulated throughout the several storage reservoirs.

These assumptions being granted, and bearing in mind that the board's existing storage reservoirs are now capable (in the aggregate) of holding about forty times the average daily supply, it is considered that subject to one qualification, the present storage capacity (say, thirty days) is reasonably sufficient (on the present consumption of water) for purposes of safety. The qualification is that sometimes no river water can be used to replenish the storage reservoirs for the reason that the rivers are in high flood, and in too unsatisfactory a condition to permit these waters to be impounded, or because owing to drought there is too little water in the rivers to allow of its being abstracted for waterworks purposes. In these untoward circumstances the water in the storage reservoirs must needs sink lower and lower each day, with the result that when the conditions again admit of refilling them (possibly with water of inferior quality) a period inevitably follows during which the duration of storage of necessity falls short, it may be far short, of thirty days.

There are two ways of coping with this difficulty:—

(1) To consider thirty days as a minimum period of storage. This would entail the construction of huge reservoirs at an unremunerative cost, capable of holding far more than thirty days' supply of water, in order to cope with the emergency conditions just mentioned.

(2) To consider thirty days a maximum period of storage, but to adopt during times of stress and storm some such additional methods of purification, **antecedent** to storage, or **subsequent** to storage but **antecedent** to final sand filtration, as have been briefly outlined in the concluding paragraphs of sec. 4 of this report.

My final conclusion is that **raw** river water should be stored antecedent to filtration, preferably for thirty days. The question of whether the thirty days' storage should be fixed on a maximum or on a minimum basis must be left unanswered, but if the former alternative be chosen, the desirability of employing supplementary processes of water purification to tide over emergencies is worthy of consideration.

SANITATION ANCIENT, YET NEW.

Dr. Halbherv, the Director of the Italian Archaeological Mission to Crete, writes of the recent discoveries in the Nurean palaces as quite "al inglese" in the matter of hygienic appliances. Not the least interesting portion of the buildings is the elaborate system of drainage with lavatories and traps. The main drain of the palace at Knosos is 3 feet in height and is coated with cement, white terra-cotta pipes have been found running beneath the floor with small and large ends corresponding to the socket joints of the latest sanitary catalogues.

It is, indeed, difficult to realise that the engineers who produced these arrangements and appliances lived at a period so remote that the civilization to which they contributed only survived as a faint tradition at the time of Homer, and that these traps and lavatories were being specified and fixed before Moses had begun to promulgate the sanitary laws which we find written in the Book of Deuteronomy.

Compared with such antiquity, the great sewers, aqueducts and public baths of the Romans appear recent in the vista of these innumerable ages. Ages of advancing civilization must have preceded the work of these early engineers, and yet the very name of the race to which they belonged has apparently been lost forever. Such obliteration and oblivion never came to Rome, but the downfall of the Empire seemed to have brought an end to all sanitary progress, and the great

lessons to be gathered from her achievements were first neglected and then utterly forgotten.*

MISCELLANEOUS.

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ments and granolithic walks, at an estimated cost of \$97,000.

Alberta.

EDMONTON.—The Public School Board has decided to erect a new high school to cost over \$100,000. Tenders for construction will be advertised for shortly.

Saskatchewan.

PRINCE ALBERT.—The city council have decided to macadamize the business streets and to purchase the necessary road-making machinery. A number of streets will also be paved.

British Columbia.

FERNIE.—Tenders will be received up to 5th May for the purchase of 98,000 mining props, 17,000 mining ties, 5,000 cedar fence posts, 432 telegraph poles, two carloads piling, 500,000 ft. saw logs, besides tie loading flume, driving dams, tie chutes, logging camps, river and creek improvements, mill building, seven horses and harness, wagons, sleigh, tools and camp equipments, valued approximately at \$24,583. Percy Chapman, P.O. Drawer 4.

VANCOUVER.—The road overseer, at the last meeting of the Richmond council, recommended the construction of several bridges.

VANCOUVER.—Many improvements will be undertaken by the Board of Works this year, including the construction of forty miles of concrete sidewalks, pavements and sewer extensions at a probable cost of \$60,000 or \$70,000.

PERSONAL.

MR. H. C. GROUT has been appointed assistant superintendent for C.P.R. at West Toronto.

MR. V. A. HARSHAW has been appointed superintendent of No. 1 Division, C.P.R., Toronto.

MR. G. L. LAW, Ottawa, Ont., has been appointed Government Inspecting Engineer on G.T.P.R., Winnipeg, Man.

MR. CHARLES BRANDEIS, consulting engineer, Montreal, has changed his address from 63 Guardian Building to 4 Phillips Place.

MR. GEO. WRIGHT has been appointed assistant city engineer of London, Ont. Mr. Wright will take up his duties almost immediately.

MR. A. L. FORD, B.A.Sc., Government Inspecting Engineer G.T.P.R., Winnipeg, Man., has been transferred to Prince Rupert, B.C.

MR. GEO. E. HARRIS, formerly superintendent for the Nova Scotia Steel and Coal Co., has been appointed vice-president and general manager of the Harris Forge Co., Limited, New Glasgow, N.S.

MR. E. L. MILES, A.M. Can. Soc. C.E., Bala, Ont., has been appointed to take charge under Galt & Smith of the construction work in connection with water supply and sewage disposal for Wetaskiwin, Alta.

MR. RICHARD E. SPEAKMAN, M. Can. Soc. C.E., succeeds Mr. W. H. Shillinglaw, M. Can. Soc. C.E., as city engineer of Brandon, Man., at a salary of \$2,250. Originally, Mr. J. K. Heddle, assistant engineer at Hamilton, was appointed and accepted the position, but he finally decided to stay in Hamilton. Until recently Mr. Speakman was city engineer of Calgary.

MR. N. H. BRYDSON, of Pembroke, Ont., has been appointed City Engineer of Nanaimo, B.C., at a salary of \$125 per month, his duties to start forthwith. The engaging of an engineer permanently is a new departure brought about by the large amount of work in connection with the new waterworks, sewerage and other public improvements that will take place at Nanaimo for the next few years.

*Chadwick Lecturer (Scott-Moncrieff).