

MUNICIPAL DEPARTMENT

A NEW CONCRETE DAM.

The construction of a concrete dam across the Thames River at Springbank, Ont., is described in a paper by Mr. J. A. Hearn, recently read before the Canadian Society of Civil Engineers. The dam furnishes power for the London water-works, and was built to replace a timber cribwork and pile structure which had been washed out. The latter was built in 1878 and needed constant attention to keep it safe and watertight. In the spring an ice jam usually occurs at a railroad bridge a few miles above the dam, and the failure of the old dam is ascribed to large cakes of ice coming down from this jam when the water was not sufficiently high to carry them clear of the dam. These cakes gradually loosened the planking of the cribwork and the filling then washed out, after which the piles were either broken or washed away.

The new dam is about 350 feet long and about 19 feet in height above the foundation, which is a clay hardpan, except in one place where a vein of loose gravel was consolidated by ramming dry concrete into it. The dam was built in sections about 50 feet long with joints of sheet iron covered with a coating of sand and pitch to allow for expansion and contraction. The first class concrete, which was used in the exposed part of the work, consisted of 1 part Portland cement, 3 parts sand, 4 parts screened gravel and 2 parts broken stone. Second-class concrete was of the proportions 1:3:5:3. In the second class concrete stones averaging 9 inches in diameter were set by hand as the work progressed. The outside faces of the concrete were carefully floated with steel trowels before permanent setting had taken place.

By means of flashboards the water can be raised to a height of 4 feet above the crest of the dam, and it is stated that these flashboards can be put in position with 9 inches of water going over the crest. The sluiceway, which is at the further end of the dam from the flume and wheelpit, is about 7 feet lower than the dam. The sluiceway is in two parts, each 24 feet wide and separated by a concrete pier 6 feet thick at the top. Stop logs 12 inches square are used to raise the crest of the spillway to any desired level. Below the dam a timber apron was constructed of round timber, green pine and elm being used for this purpose. The logs were framed, notched and ganged together, drift-bolted at all intersections and through-bolted at ends of timber, with $\frac{3}{4}$ inch bolts. Timbers running across stream were not less than 24 feet long, and were laid so as to break joint. The other timbers were in one length, and drift-bolts of $\frac{3}{4}$ inch square-iron were driven through three timbers on every course. The last row of sleepers or covering sills were flattened to grade lines to receive the two

thicknesses of 2-inch elm planking. Below the apron a filling of stone, hand-placed and bonded, was put in.

During the construction of the dam, although the season was favorable for operations on the Thames River, the contractor suffered considerable loss by repeated failures of his coffer-dams and temporary works. The main coffer-dam consisted of two thicknesses of 2-inch sheet piling resting against a framework of two rows of piles cross-braced together and further reinforced by long diagonal piles braced against the top of the sheet piling. In the deepest portions the two rows of piles were replaced with stone-filled cribwork. On the water side of the sheet piling were placed two rows of barrels filled with sand. The piles and sheet piling were nearly all driven by a heavy maul operated by hand. The inadequacy of this construction was frequently shown by a portion of the dam washing away.

The concrete arched flume carrying the water to the wheelpit is about 75 feet long. Nearly 250 feet of concrete retaining wall was built at the same time with the dam. It is estimated that 3,451 cubic yards of first-class concrete were laid at \$5.50 per yard, and 2,605 cubic yards of second-class concrete at \$5 per yard. The cost of the whole work was \$44,050. Mr. John M. Moore was the engineer in charge of construction, with Mr. John Kennedy as consulting engineer.

LEGAL DECISIONS AFFECTING MUNICIPALITIES.

THOMPSON v. TOWNSHIP OF YARMOUTH.—Judgment (H) in action brought at St. Thomas by plaintiff on behalf of himself and other ratepayers. The plaintiff alleges a contract, or quasi-contract, between himself and other ratepayers, and the corporation of the Township of Yarmouth, made on or about January 16, 1902, by which the defendant corporation agreed to maintain and repair Hughes street

bridge, to be used as an ingress to the exit from St. Thomas. The plaintiff seeks specific performance of this contract, and a declaration that the defendant corporation is liable to maintain and repair the approaches to Hughes street bridge, and a mandamus compelling the defendant corporation to repair and maintain same, or in the alternative the plaintiff claims the return of certain moneys which he paid to the defendants towards a fund to purchase an approach to the bridge. Held, that the plaintiff cannot maintain this action, because individually he has no interest in the matter, except as a ratepayer of the township. An indictment is probably the appropriate remedy. Held, further, that the defendant corporation cannot lawfully enter into the contract alleged by the plaintiff, and that the representations which the plaintiff claims were made to him, and the conversations in 1891 with the then reeve and deputy reeve, were not of such a character as to bind the defendant corporation. Action dismissed with costs.

Chief Justice Falconbridge has given out his decision in the case of Hogg vs. Brooke, in which the plaintiff sued for \$2,000 damages for injuries received owing to the non-repair of a highway in the Township of Brooke. Snow accumulated on the highway, and the plaintiff's sleigh became stuck in the snow, and in endeavoring to extricate it the plaintiff was injured. Held, that it was impossible to hold the defendant township liable, because of the unprecedented fall of snow at that particular season at which the accident occurred, it being practically impossible for the township to keep the eight miles of roadway within the township clear of snow. The action was dismissed with costs. The case was tried at Sarnia.

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MEM. CAN. SOC. C.E. AND C.E.A., ETC.

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