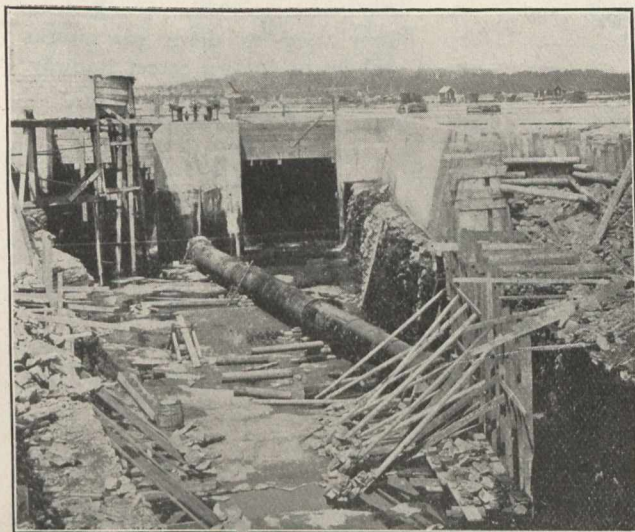


Collection and Disposal of Refuse.

A site for an incinerator has just been purchased and an incinerator will shortly be installed for the destruction of city refuse and garbage. The city scavenging system has been in operation for the past four years, the refuse and garbage being collected separately. The refuse has been used to fill up low lying lands and the garbage has been disposed of to contractors who remove it outside the city limits.

Special Works.

Plans and estimates have recently engaged the attention of the Department for the proposed steel and concrete grand



Waterworks Aqueduct, Ottawa, showing construction of concrete retaining wall and 42-in. steel clear-water pipe.

stand at the Exhibition Grounds, capable of seating 10,000 people. One section of the building is to be used for fire and police station. The estimated cost is \$90,000.

Plans and estimates are also being prepared for a special high pressure fire protection system, giving 120 pounds pressure at the hydrants throughout the central portion of the city where insurance risk is heaviest, buildings highest and pressure the lowest, due to the physical conditions.

Chaudiere Dam.

A work, which is not in any way under the control of the city, but which has proved of great benefit to the Waterworks Department, is the new Chaudiere Dam recently built. The effect of this dam has been to raise the level of water in Nepean Bay, Ottawa River, from 8 to 10 feet, thereby giving the power plants, including the waterworks, that much more effective working head. The dam is constructed of reinforced concrete with 22-ft. openings for stoplogs, there being 15 feet of water on the sills.

In addition to the asphalt plant, the city maintains two storage yards, a blacksmith and carpenter shop, and press house, where repairs, building snowplows, and other work necessitated by the carrying on of these large undertakings, is carried out.

MISSING NUMBERS.

Copies of the Canadian Engineer for June 5th, 1908, and February 5th, 1909, are required. For copies of these issues we will extend your subscription one month. Circulation Department, Canadian Engineer, Toronto.

THE GREAT CHAUDIERE DAM, OTTAWA, ONTARIO.

Douglas L. McLean, B.Sc.

The Great Chaudiere Dam, situated just above the crest of the Great Chaudiere Falls, Ottawa, Ont., was built in 1908-09 by the power owners of the Ontario and Quebec sides of the Ottawa River. The engineers, well-known in hydraulic power development work, were William Kennedy, jr., Montreal, and J. B. McRae, Ottawa. The contractors were Quinlan & Robertson, Montreal. The dam is of steel and concrete construction and is of the pier-and-sluice type. The sluice openings are closed by massive fir stop-logs, which are moved by a powerful electric winch operated on the bridge floor of the structure.

Before going into details of design or construction an outline of the conditions at the Chaudiere leading up to the building of the dam will be given.

The Ottawa River on which the Chaudiere Falls are situated, has a drainage basin of 34,623 square miles above the City of Ottawa, and a length of over 450 miles with a drop from head waters to the level below the falls of some 1,100 feet. Mean yearly precipitation (average for 38 years) was 31.6 inches. The run-off (average for 38 years) was 53 per cent. of the precipitation. The maximum discharge at the Chaudiere Falls was 193,000 cubic feet per second in 1876. A very good idea of this tremendous rush of water may be obtained from photograph "Dam in Spring Flood of May 1909." The minimum discharge at the Chaudiere Falls was 11,000 cubic feet per second in 1906. See photograph "Dam in Low Water of Fall of 1908," and compare this condition with that in photograph mentioned above.

The yearly mean run-off for year of average discharge (1860) was 46,000 cubic feet per second.

The available storage above Ottawa was 14,500 square mile feet.

This storage would increase the minimum flow to 28,000 cubic feet per second.



Construction, December 1st, 1908.

From these figures it will be seen that the Ottawa River is capable of developing enormous quantities of hydraulic power, which, with the proposed government improvements, will be made steady and reliable during all seasons. The largest single power is located at the Chaudiere Falls in the Cities of Ottawa and Hull. Leases for power here were taken out about 1851 and were, for the most part, Crown leases, issued by the Government of Upper Canada. The condition of the different powers at the Chaudiere may be summarized as follows:—