

dam 200 feet long, 14 feet thick at the bottom, 7 feet 6 inches thick at the top and 12 feet high, has been constructed at a point 9 miles from the lake and with crest at elevation 486. The elevation of the lake averages 488 and has never fallen below 486. The minimum and maximum rainfall for one year during the past 5 years amounted to 25.36 and 42.40 inches respectively. The minimum stream flow recorded in St. Charles River is about 40,000,000 gallons per day.

Intake House.—The intake house at Lorette consists of a solid stone and concrete building; roof, plank; metal covered, one storey and detached; separate tunnels direct from river to 18, 30 and 40-inch supply mains; provided with inside and outside double metal screens and intake gates to each for closing and opening as necessary; heated by stove and lighted by oil lamps. A caretaker is constantly in attendance in a house adjoining same, and has telephone on private line direct to the city.

The intake in connection with the 10-inch supply main, from the less important source of supply at Lake des Roch, is provided with gate and suitable metal screens and protected by cribwork; not covered.

tion from the dam on St. Charles River at Lorette, the 18 and 30-inch to the intersection of St. John and De Salaberry Streets, and the 40-inch to the intersection of Sherbrooke Street and St. Foy's Road, a distance of about 40,850 feet. The Riviere des Meres is crossed about 3 miles from the intake and St. Charles River just before entering the city. The mains are carried across the river in each case inside a rectangular steel bridge, 10 feet wide by 12 feet high by 162 feet long, originally designed for the 18 and 30-inch mains, but later reinforced for the carrying of the 40-inch main. At each crossing the 18-inch main is connected by an 18-inch by-pass laid through the bed of the river, and provided with valves at each side. Eleven scouring valves are placed on these mains, at Chateau D'Eau, near Lorette; Riviere des Meres, and the east and west side of the St. Charles River. Stop valves have been placed at a number of points, also air and relief valves at various necessary points.

Since inspection of Jul. 4th, 1914, there has been no trouble with the 18-inch main, but, according to department records, breaks have occurred in the 30 and 40-inch mains, as follows:—

DIAMETER OF MAIN.	DATE OF BREAK.	LOCATION OF BREAK.	TIME FOR REPAIRS.
30-inch.....	August 24th, 1915.....	Tozer's Farm.....	22 hours.
".....	April 25th, 1916.....	Aqueduct and Bagot Streets.....	30 "
".....	June 28th, 1920.....	Moore's Farm.....	25 "
40-inch.....	June 1st, 1918.....	Julien's Farm, near C.P.R. Line.....	27 "
".....	December 14th, 1919.....	Moore's Farm.....	48 "
".....	January 5th, 1920.....	Mongeau's Farm.....	52 "
".....	February 2nd, 1920.....	Moore's Farm.....	72 "
".....	June 5th, 1920.....	W. W. Bridge, South end (St. Charles River).....	30 "
".....	August 8th, 1920.....	Pepin's Farm.....	30 "

Supply Mains.—The supply mains from the principal source are 18, 30 and 40 inches diameter and of cast iron. The larger pipe line from the intake to a point situated at a distance of 3,000 feet is 44 inches, with a thickness of one inch. The remainder of this line is of a uniform diameter of 40 inches with a thickness varying from 1½ to 2 inches, according to the water pressure it has to withstand. The 18-inch main, manufactured by D. J. Stewart & Co., Glasgow, Scotland, was laid in 1853, the 30-inch main, manufactured by the same firm, was laid in 1883, and the 40-inch main, manufactured by Robt. McLaren & Co., Ltd., Glasgow, Scotland, was laid in 1912. All three mains are laid alongside in a south-easterly direc-

The breaks in each case above referred to consisted of a cracked length of pipe, the cause of which has not been definitely established, some minor troubles have also been experienced with defective joints.

Gauges attached to the 18-inch, 30 and 40-inch mains in the caretaker's house at St. Charles River Bridge indicate, respectively, a pressure of 142, 135 and 197 pounds per square inch. Caretakers are on duty day and night at the intake, Riviere des Meres, St. Charles River, Massue Street and at the intersection of St. John and De Salaberry Streets. There is a private telephone at each caretaker's station, the one to Lorette being over a private line; also in the dwelling of the Chief of Fire Brigade,