

THE MONTREAL WATERWORKS.

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At the beginning of the present century, Montreal was a town of only about 9,000 inhabitants, who lived mainly within the old fortifications, or in other words, within the area bounded by the sites of McGill street, Fortification lane, Berri street, and the St. Lawrence. St. Paul street was then considered well up-town, and Notre Dame street and vicinity were called Upper Town. The only means provided by the municipality for the supply of water consisted of public pumps at the Place d'Armes, the Market Place (now Place Royale), Notre Dame street near the Court House, St. Jean Baptiste at near St. Paul st., and possibly a few other points. For the rest, the citizens supplied themselves with water from private wells and cisterns, and by water carts from the St. Lawrence and the creeks, the principal of which was the Petite Riviere which ran where Craig street now is. The need of waterworks was, however, already recognized, and on April 8th, 1801, an Act was passed incorporating Joseph Frobisher (one of the founders of the North West Trading Co., and builder of Beaver Hall) and his associates, under the title of "the Company of Proprietors of the Montreal Waterworks," with a capital of £8,000, and power to increase it to £12,000 or \$48,000 in all, with exclusive rights for fifty years. A gravitation system was determined upon and construction commenced at once. Water was obtained from the pond in the rear of the present Cote des Neiges College, at Cote des Neiges Village, and was brought to the city through wooden pipes laid round the southern slope of the Mountain *via* Monklands (now Ville Marie), and the Cote St. Antoine road, to two reservoirs which were placed, one on the corner of Guy and Dorchester streets, and the other on Notre Dame street just west of Dalhousie square. Some of the old wooden pipes were found in digging in Notre Dame street in 1869, and others in Cote St. Antoine road in 1892. The supply of water proved so scanty, from deficiency of the springs, and so precarious from frequent burstings of the pipes, that both the works and the enterprise became failures.

In 1816 the works and unexpired franchise of 35 years were offered for sale, and in 1819 they were purchased by a new company under the management of Mr. Thomas Porteous for £5,000 (\$20,000). The inadequacy of the works before this change, as also of all other provision for extinguishing fires, is shown by an instance of a large fire in January, 1819, in Eager's pork storehouse, near the present Custom house, which was put out by snowballs, because no water could be had either from the works or through the shoved ice on the river.

The new company abandoned the gravitation supply from the mountain springs and substituted a steam pumping system, with supply from the St. Lawrence. Four-inch iron pipes were substituted for the wooden ones, and wooden cisterns were placed on Notre Dame street east of Bonsecours street. The wooden cisterns failed, and were replaced in 1827 by others which were lined with lead. They were of 240,000-gallon capacity, and had an elevation of 97 feet above the river. The pumping engine was placed on the west corner of Water and Friponne streets, and the water was drawn from the riverside opposite. The amount expended by Mr. Porteous was about £40,000, or \$160,000. The four-inch pipes proved insufficient, and in consequence of this and the death of Mr. Porteous, whose enterprise had sustained the undertaking, it again fell into disrepute.

After being advertised for sale for two years, the works were purchased in 1832 for £15,000 (\$60,000) by Mr. M. J. Hayes, who formed a third company. This company laid some pipes of ten inches diameter, renewed the pumping engine and added others. In 1843 there were two pumping engines; one, rated at 40,000 gallons capacity per hour, was used both for pumping and grinding, a grist mill being attached to the works; another, rated at 53,000 gallons per hour, was used for pumping only. This would give a combined capacity of two and a quarter million gallons per 24 hours, but ten years later, and after a third engine had been added, or possibly substituted for one of them, the whole reliable capacity was stated at only one million gallons. Adjoining the engine house was a work shop containing a lead pipe-making machine, driven by steam. By Feb. 1st, 1843, the company had laid 14 miles of pipe; had established three public water taps for the sale of water to water carters, and had 16 fire hydrants of their own, as distinguished from other hydrants owned by the city. The expenditure by Mr. Hayes' company was about £10,000 (\$40,000).

In January, 1843, the propriety of the city becoming owner of the waterworks was first mooted in the city council. After treating for two years the city bought out the company in April, 1845,

for £50,000 (\$200,000). In the ensuing summer the city corporation, in order to obtain purer water, extended the intake pipes of the pumps to the outer end of the Victoria pier, the first part of which was then being built. In 1847 the corporation offered a premium for the best plan of pumping water from the St. Lawrence to reservoirs on the Mountain, by means of water power from the newly enlarged Lachine Canal, but, instead of anything being accomplished in carrying out that scheme, the steam pumping works were strengthened by the addition of another engine. The waterworks were otherwise enlarged about the same time. In 1849 a reservoir was built in Cote a'Barron, where St. Louis Square now is, with a capacity of about 3,000,000 imperial gallons, at 130 feet elevation above the river. In June, 1850, a great fire occurred in Griffintown, destroying 207 houses. Two months later another occurred in the vicinity of St. Lawrence and Craig streets, destroying over 150 houses. The great scarcity of water at these fires, and the inflammability of the wooden buildings then so common, led to improvements in the waterworks, and to the enacting of laws prescribing the kind of building which might be erected, with a view to the prevention of conflagrations. Water pipes were soon afterward laid in Griffintown and other parts of the city not hitherto supplied, and the number of fire hydrants in the city was increased to 100. The waterworks were, however, still quite inadequate to the wants of the city; and, worse still, the water supplied was unwholesome. The pumping capacity was only about one million gallons per day;* the reservoir was too low, the pipes too small, and the hydrants too few to prevent great fires. The taking of water from the works for domestic use was by no means general. Nearly all poor families, and many of the middle class, were supplied by water carters who bought at public plugs supplied from the city pipes, or who took water directly from the river, while both the waterworks and the bulk of the carters drew their supply from below the great sewer, which to this day discharges at the Custom House. It was felt that this could not be allowed to continue, and a radical change was determined upon. On May 12th, 1852, on motion of Ald. Atwater and Ald. Valois, the city council voted £250 (\$1,000) for a survey, plans and estimate for introducing water from Lower Lachine or elsewhere. Mr. Thos. C. Keefer, C.E., was commissioned by the water committee to prepare plans and estimates for the supply of 5,000,000 gallons per day, to be taken from Lower Lachine.

Fires are great promoters of waterworks, and their help was not lacking in this case. On June 7th, two days after plans for the new scheme were ordered, a fire started on St. Peter street, at St. Sacrament, swept through the blocks between that and St. Frs. Xavier, and thence along St. Paul to the Hotel Dieu at St. Jean Baptiste street. A month later, on the 9th and 10th of July, the great fire of 1852 occurred. It commenced on St. Lawrence street below Mignonne (now Joly street), swept away nearly all the buildings up to Mignonne, thence along Mignonne to St. Dominique, where it widened southward to Dorchester, and kept on across St. Constant to St. Denis and southward to Craig, from whence it continued through by Dalhousie Square, making a clean sweep of everything between Lagauchetiere street and the river, until it died out near the gaol. About 1,100 houses were burned, and property in all to the value of \$800,000 was destroyed. On the 25th of October following, Mr. Keefer submitted an able report, discussing various feasible schemes for the new waterworks, and recommending the one which was afterwards constructed, namely, the water power pumping system, in which the water for the city is taken from the St. Lawrence above the Lachine Rapids and pumped to the city under the pressure of the McTavish reservoir, by power obtained through utilizing the fall of the rapids. The estimated cost was £150,000, or \$600,000. This was looked upon as a large sum, for in those days the city did not lightly borrow and spend millions. Public opinion was, however, strongly in favor of an abundant supply of pure water, and that with the least possible delay, and the project was adopted. Mr. Keefer was forthwith instructed to prepare plans for the vigorous construction of the works, and legislative authority was obtained for borrowing the necessary money. On the 20th of May, 1853, ground was broken for the construction of the aqueduct; contracts for the pumping machinery and pipes were made soon after in Britain, and by the end of the year great progress had been made in the construction of all the heavier parts of the works.

In June following, the great cholera of 1854 broke out, and its ravages amongst the immigrant laborers on the aqueduct were especially severe. Many a stalwart fellow worked through the forenoon and was dead by evening. Medical aid was rarely procurable, for the doctors were literally being worked to death in the

* The Imperial gallon and the day of 24 hours are always used hereafter.