

Canadian Contractors, Limited, Montreal; \$3,000,000. E. L. Sawyer, of Toronto, and others.

The Ontario Traction Co., Walkerville, Ont.; \$40,000. C. M. Walker and others.

The Grimsthorpe Mining Co., Toronto; \$150,000. G. G. S. Lindsey and others.

The Valley Seating Co., of Dundas, Ont., \$75,000. J. D. Pennington and others.

The Wilcox Manufacturing Co., of Ontario, Limited, London, Ont.; \$40,000. C. E. Santo, of London, Ont., and others.

The Continuous Rail Joint Co., Montreal; \$49,000. W. W. Near, of Guelph, Ont., and others.

The Steamship Senlac Co., Rothesay, N.B.; \$80,000. Robert Thompson, of St. John, N.B., and others.

The King Edward Oil Co., Limited, St. John, N.B.; \$40,000. W. T. Clark, of St. John, N.B., and others.

Maritime Engineering Co., Limited, Moncton, N.B.; \$30,000. J. P. Weir, of Moncton, N.B., and others.

The Imperial Coal and Coke Co., Montreal; \$4,500,000. F. Thompson and others.

The Toronto Iron and Steel Co.; \$40,000. R. E. Mills, of Guelph, Ont., and others.

The Roche-Persee Mining Co., Winnipeg, Man.; \$100,000. H. Sutherland and others.

The A. R. Williams Machinery Co., of Winnipeg, Man.; \$60,000. A. R. Williams, of Toronto, and others.

The Threshers' Supply Co., Winnipeg, Man.; \$90,000. J. R. Morris and others.

The Idaho-Alamo Consolidated Mines, Limited, Alamo, B.C.; \$650,000.

The Princess Royal Gold Mines, Limited, Rothesay, B.C.; \$1,250,000.

The Perry Creek Gold Mining Co., Perry Creek, B.C.; \$500,000.

The Great Northern Mines, Limited, Trout Lake, B.C.; \$1,500,000.

The Britannia Power Co., Victoria, B.C.; \$250,000.

The Pacific Pile Preserving Co., Victoria, B.C.; \$20,000.

The Light Traffic Co., Victoria, B.C.; \$150,000.

The "Stanley Dollar" (Steamship) Co., Victoria, B.C.; \$50,000.

\*\*\*

### MR. HALSEY ON THE METRIC SYSTEM.

Editor, Canadian Engineer:

Sir,—Does the writer of the letter in your last issue on the metric system wish us to believe that because some people in Europe still speak of the old weights and measures, therefore the metric system is not in use. On such an assumption Mr. Halsey might publish a violent declaration that dollars and cents have not been introduced here because he can assert truly that the Constitution of the Commonwealth of Massachusetts, as published in the latest revision of our laws, contains the following provision:

"In all cases where sums of money are mentioned in this Constitution, the value thereof shall be computed in silver at six shillings and eight pence per ounce," etc.

A few years ago a newsboy on a railroad train who had difficulty in making a few cents change with one of my fellow passengers came to me, asking if I had any "pennies." I am willing that Mr. Halsey should argue from one end of the United States to the other that this proves that the United States has been unable to abandon pounds, shillings and pence, and has not been able to introduce a decimal monetary system. A number of years ago I was informed that the price of a dinner was "two and threepence." Mr. Halsey is welcome to make the most of this.

ENGINEER.

Boston, Mass., 15th Dec., 1903.

\*\*\*

W. Moore & Sons, Meaford, Ont., are developing a 600 horse-power water power. The dam will be 710 feet long, and the race 1,600 feet. The work will be completed next summer, when power will be sold to other factories desiring to utilize electric energy.

### PUMPING BY ELECTRICITY.\*

BY F. H. FITCHER, C.E., CHIEF ENGINEER, MONTREAL WATER AND POWER CO.

Our large cities in the East, like Montreal, Toronto, Hamilton, Ottawa, Quebec, etc., are more favorably situated, perhaps, for obtaining cheap electric power than corresponding cities in the New England States and others along the Atlantic seaboard. This is on account of their proximity to large water powers, capable of commercial development. None of these cities is, everything considered, in a better position in this respect than Montreal. Its population, manufacturing and kindred industries offer a ready market for a large amount of power, while its proximity to the developed and undeveloped powers on the Richelieu, St. Lawrence, Ottawa, and Shawinigan rivers makes it possible to supply the demand on a commercial basis.

The following are the principal developed water powers delivering under normal conditions of operation power to Montreal, approximately, as follows:

At Chambly, Que., 21 miles from city ..... 20,000-h.p.

At Lachine Rapids, Que., five miles from city .... 14,000-h.p.

At Shawinigan Falls, Que., 80 miles from city .... 6,000-h.p.

The latter is a 30,000-h.p. development. The remainder of the power is being absorbed now by the industries at Shawinigan Falls, or will, in all probability, shortly be taken up by this city as well as by other towns and cities along the line. All of these powers are capable of expansion, and are even now being extended, so that there is little doubt that twice the present amount of electric power from water powers will be available in Montreal in the near future. The principal undeveloped powers near the city are:

Back River, six miles from city ..... 50,000-h.p.

Soulanges Canal, thirty miles from city, .. 25,000-h.p.

Another important available water power of 50,000-h.p. has been developed at Massena, N.Y., approximately sixty-five miles away.

It is, therefore, not unnatural that electricity should form an important factor in the motive power of Montreal. As a matter of fact, for factory and machine shops drives, elevators, street railway power, pumping, etc., electricity from adjacent water powers is largely used at present in Montreal, and by proper management there is every reason to believe that its use in the near future will so increase that present local steam plants will be retained mainly as auxiliaries and reserves. Under normal conditions all public street lighting and practically all indoor lighting in this city is at present furnished by water powers.

The water-works system making the greatest use of electric pumps in Canada, if not in America, is that owned and operated by the Montreal Water and Power Company. The source of supply is the St. Lawrence river, above Montreal, the 36-inch intake pipe of the old Ste. Cunegonde water-works being utilized. The water is taken at a point 1,650 feet (approximately) from the shore and is pumped directly into the mains. The municipalities supplied are the towns of Cote St. Paul, Verdun, St. Henri, Ste. Cunegonde, Westmount, Outremont, St. Louis de Mile End, De Lorimier, Maisonneuve, with St. Denis' ward of the city of Montreal. An altitude of 600 feet above the river is reached in one of the municipalities.

From the nature of things three lifts were found necessary, one of 200 feet from the river forming the main supply. This supply is pumped through force mains approximately 6,500 feet long, and then distributed through the gridirons of the towns in front of the mountain lying "below the hill." and at only a slight elevation above the average river level. The population receiving its supply from this lift is approximately one-half of the present total population supplied. In order to supply most of Westmount, and a large part of the territory behind the mountain, a second lift of 270 feet was established. The pumps at the 200-foot level take their water from a catch-basin of relatively small capacity, which receives the surplus water of the low-level system. These again pump directly into a reservoir of 8,000,000 Imperial gallons' capacity (approximately), at an elevation of 470 ft.,