In a dry process kiln, enough waste heat passes off to dry 30 per cent. moisture in the feed. With careful work, some marls when mixed with dried pulverized clay, will give a slurry containing not over 40 per cent. moisture, which can be pumped into a kiln.

At its best, however, it can be seen that a marl cement plant takes 25 per cent. more kiln fuel and has only 62½ per cent. of the capacity per kiln of a cement plant using a dry mixture of limestone and shale. In a dry process kiln, the waste gases pass off at a temperature of 1,900 deg. F. One American plant passes such hot gases from two kilns into a waste heat boiler. In this boiler the gases generate 300-h.p., being reduced to 600 deg. F., thence passing through an economizer by induced draft, and heating feed-water to boilers. The boilers are supplemented by coal with hand firing.

These two kilns each turn out 250 barrels per diem, using 120 lbs. of coal per barrel.

As the motive power allowed for cement mills is usually 1-h.p. per diem for each barrel of output, equivalent to 70 lbs. of coal, it is evident that this method of saving waste allows cement to be made with 30 pounds of boiler coal and 120 lbs. kiln coal. The following table shows coal required for drying raw materials, for kilns, and for boilers, using different materials:

	Drying Fuel. Lbs.	Kiln Fuel. Lbs.	Boiler. Fuel. Lbs.	Total. Lbs.	Remarks.
Limestone and shale	5	120	70	195	Waste heat not recovered.
Limestone and shale	5	120	30	155	Waste heat recovered.
Limestone and clay..	10	120	70	200	Waste heat not recovered.
Limestone and clay..	10	120	30	160	Waste heat recovered.
Marl and clay slurry, 60% moisture	5	200	70	275	Waste heat not recovered.
Marl and clay slurry, 40% moisture	5	160	70	235	Waste heat recovered.

Equipment and Process of Canadian Cement Plants.

The cement industry in Canada originated with marl and clay as raw materials. Some of the plants installed drying plants for the marl. This, while it increased the capacity of the rotary kilns, led to a very high consumption of coal, as well as large outlay of machinery and labor for drying the marl.

Some of these Canadian marl plants also freight their marl from a deposit to a mill. Paying freight on the water in the marl is an expensive business. Also clay is hauled some distance to the mills. Clay cannot be excavated cheaply in small quantities; adding freight on 150 pounds per barrel of cement increases the cost. There being no coal in Canada between Nova Scotia and the Rockies, Ontario cement mills must import American coal, paying a tariff upon it. Many of the Ontario mills have been placed in rural districts, remote from their best market, and at the mercy of a single railroad line.

It can be said that most Canadian mills use too much coal, for which they pay much higher prices than their American competitors.

Their mills are too small to make cement economically, and are handicapped by long hauls to markets. It is unfortunate that the Canadian cement industry did not originate with large mills using limestone, instead of the present large number of small mills using marl. It is gratifying to note that one large mill using limestone has recently been built, also that blast furnace slag will be used for Portland cement manufacture in Nova Scotia. With proper management the latter cannot fail to be a success and a source of pride to Canadians.

NEW BOILER WORKS OF GOLDIE & McCULLOCH CO., Limited, GALT, ONT.

Among the old-established engineering firms of Canada, none have earned a better right to be laudably described as "enterprising" than the company who have recently built a fine new boiler-making plant near the banks of the River Grand, just outside the north-east boundary of the rising town of Galt, whose 9,000 inhabitants speak of it with pardonable pride, as "The Manchester of Ontario."

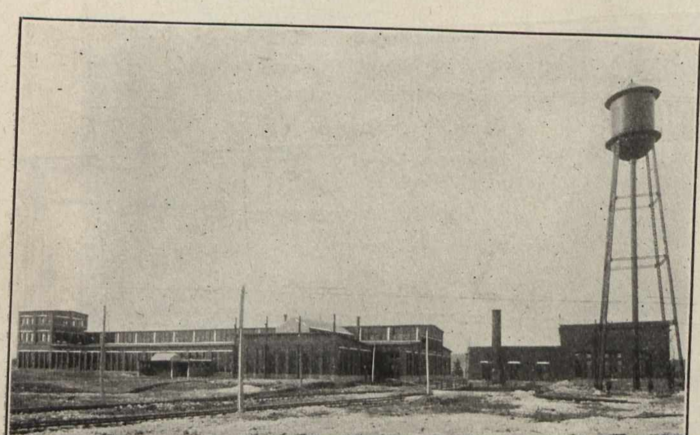

Fig. 1—General Side View of Plant.

After a personal visit to the new works, and close inspection of every department, we can say deliberately, that if their advertising fearlessness and business-seeking energy is equal to their wise policy of specialization and capacity for adapting means to ends, as manifested in the design and equipment of the well-planned shops we now have pleasure in describing and illustrating, then assuredly, a prosperous future is in store for them.

In keeping with the best modern practice, they have located, as far as possible, their tools and appliances under one roof, with a view of taking in rough material at one end, and discharging the finished article at the other. Everything is made and fitted in logical order.

Fig. 2—End View of Plant.

The main building is 308 feet long, consisting of a middle bay, 60 feet wide, and two wings 30 feet wide, making a total width of 120 ft., and which, along with the Power House, were erected by G. B. Loomis & Sons, Montreal. Standing in the 14-ft. doorway, we get a per-