

# The Canadian Engineer

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## METHODS OF PUMPING IN ONTARIO

ACCORDING to a private report recently made by an engineer who had investigated the water works and fire protection systems of practically all the municipalities of Ontario, three-quarters of the municipalities depend for their water pressure upon steam only, electric power only, gravity only or a combination of steam and electric power. No less than 43 municipalities out of a total of 171 (or 25%) last year had facilities for pumping by steam only; while 39 (or 22.8%) had both steam and electric pumping; and 27 (or 15.8%) pumped by electric power only; 18 and 27 (or 10.5%) having gravity systems. The following table indicates comparatively little change in the situation since 1916:—

NUMBER OF MUNICIPALITIES IN ONTARIO, IN YEARS 1916-8, HAVING WATER SUPPLY AND FIRE PROTECTION SYSTEMS, AND KIND OF POWER UPON WHICH THE

	PRESSURE DEPENDED		
	1918	1917	1916
Steam only .....	43	46	50
Water power only .....	6	7	8
Electric only .....	27	23	24
Gas* only .....	9	8	9
Gravity only .....	18	17	16
Steam and water power .....	5	5	4
Steam and electric .....	39	43	39
Steam and gas* .....	2	3	2
Steam, water power and electric .....	1	0	0
Steam, electric and gas* .....	1	0	0
Water power and electric .....	8	7	7
Water power and gas* .....	1	1	1
Electric and gas* .....	11	8	8
Total .....	171	168	168

\*Gas, gasoline or oil.

## STRAIT OF BELLE ISLE DAM

REFERENCE was made in a recent issue of *The Canadian Engineer* to a daily newspaper dispatch stating that "the climate of Newfoundland would be changed if a breakwater were built across the strait of Belle Isle, between the island and the mainland, and the cold Labrador current shunted out into the Atlantic Ocean.

"Such a dam is being seriously considered," continued the newspaper article. "It would cost an immense sum of money, but engineers say it presents few difficulties. The Labrador current, at present, is the chief factor in moulding the climate, not only of Newfoundland, but of the Maritime Provinces and New England. Coming down from the Arctic Ocean, it pours through the strait of Belle Isle, and, circulating around the gulf of St. Lawrence, washes with its cold flood the coasts of Newfoundland, Quebec, New Brunswick and Nova Scotia."

James White, deputy head of the Commission of Conservation, Ottawa, calls our attention to the fact that the strait of Belle Isle, at its narrowest point, is 11 miles wide, and that it has a maximum depth of 330 feet and an average depth of 215 feet.

Ignoring such "details," moreover, there is the further drawback that the Labrador current does not "pour through the strait" and does not wash with its cold flood the coasts of our Maritime Provinces. Several years ago Dr. W. Bell Dawson, superintendent of Tidal and Current Surveys, ascertained beyond doubt that such current as there is, ebbs and flows with the tide, and does not set through the strait, either from the east or from the west.

## PULVERIZED FUEL

THE Commission of Conservation has just issued a report on "Pulverized Fuel: Its Use and Possibilities," by W. J. Dick, which may be had on request by those interested in economy of fuel for power and large heating plants.

One of the pressing problems of industry in Canada is that of fuel supply. This is especially the case in manufacturing processes requiring heat. The rising costs of coal and the difficulty of transportation have proved handicaps of considerable importance, and are rapidly becoming accentuated. This situation demands that all the available heat contained in the coal be made use of. In the utilization of run-of-mine coal, a large proportion is lost in the form of cinders and clinkers. To overcome this waste, a process for using coal in pulverized form is now in successful use.

Under this process the coal is first dried to reduce the moisture content to approximately 1%. It must then be ground until 95% will pass through a 100-mesh screen and 85% through a 200-mesh screen. The coal is then transferred, usually by screw conveyors, to the furnace supply, whence it is blown into the fire-box by means of compressed air. Consumed in this way, the coal burns like a gas and the flame has the characteristics and appearance of a gas flame. Results of tests have shown that there is no formation of slag in the furnace or on the tubes, there is no shower of cinders or ashes emitted from the smokestack, and there is no damage done the boilers from heavy overload conditions.

Canada is particularly interested in the use of pulverized coal. At the pit-head and underground at the mines in Nova Scotia and British Columbia are great piles of unmarketable coal dust and slack, while in Alberta and Saskatchewan there are immense reserves of lignite which is high in moisture content. This lignite rapidly disintegrates on evaporation of the moisture, and, consequently, will not stand transportation. It is also unsuitable for locomotive fuel on account of its liability to start fires from excessive sparking. But these coals, by drying and pulverizing, make excellent fuels for either heating or power-development purposes. They are lower in price, less expensive to handle and give greater heating value. The Dominion Coal Co., at New Waterford, N.S.; the International Nickel Co., at Copper Cliff, Ont.; the