

logical Series. Illustrations and geological maps. Published by Department of Mines, Canada.

Tide Levels and Datum Planes in Eastern Canada.—By W. Bell Dawson, M.A., D.Sc., M.Inst.C.E., F.R.S.C., superintendent of Tidal Surveys, Canada. Published by the Department of the Naval Service, Ottawa, Canada.

Tides at the Head of the Bay of Fundy.—Study of tide levels, compiled by W. Bell Dawson, M.A., D.Sc., F.R.S.C., M.Inst.C.E., superintendent of tidal surveys. Published by the Department of the Naval Service, Ottawa, Canada.

Conservation of Trade.—By Hon. Frederic Nicholls, chairman, special committee of the Senate of Canada on conservation of Canadian trade. Reprints and extracts from the debates of the Senate. Deals with trade conditions after the war.

Tests of Oxyacetylene Welded Joints in Steel Plates.—By Herbert F. Moore. Results of experiments testing strength of welds under (a) static load in tension, (b) repeated load (bending), and (c) impact in tension. Published by Engineering Experiment Station, University of Illinois, Urbana, Ill.

Road Material Surveys in 1915.—Memoir 99, Geological Survey of Canada, No. 82, Geological Series. By L. Reinecke. Deals with deposits of stone and gravel along a proposed Ottawa-Prescott highway in Ontario and road material available for a Hull-Grenville highway in Quebec. Illustrations and geological maps. Published by Department of Mines.

Power-driven Air Compressors.—The Canadian Ingersoll-Rand Co., Limited, Montreal, has recently issued Bulletin K-301-A, describing two-stage, power-driven air compressors of the duplex type. This is a 16-page pamphlet, outlining notable features of construction such as the "Circo" leaf valves, Haight 100 per cent. belt wheel joint, bath lubrication system, dust-proof frames and casing, compactness of design, accessibility of parts, etc.

COST OF WATER WASTAGE

In a report which he has just completed, City Engineer Mercier, of Montreal, shows in a striking and emphatic manner how costly are the unnecessary water-tap leaks. Universal metering of the service would tend to remedy all such leaks, as it would then prove more costly to the householders to neglect them than to repair them.

"A tap from which water is leaking drop by drop," says Mr. Mercier in his timely report, "loses 12 gallons of water in a day, which amounts to 84 gallons in a week and 4,368 gallons in a year. It costs 29 cents to pump the yearly wastage on one tap. For 1,000 taps so leaking, eleven tons of coal would be required and \$290 in salaries.

"But the loss assumes graver proportions when the tap is one-thirty-second open. It spills 211 gallons a day, 1,178 a week, 76,876 a year. A thousand such taps require in a year 177 tons of coal to pump the water and \$5,380 in salaries. Putting this loss in concrete terms, it may be thus estimated:

"Five cars of coal; or the salary of five constables; or the salary of five firemen; or the cost of paving 2,000 square yards of street, which represents the piece of St. James Street between St. Lawrence Boulevard and Place d'Armes. Further, it represents the cost of planting trees 25 feet apart on both sides of 1.2 miles of street, say, on

Cote des Neiges Road from Sherbrooke Street to the entrance to the cemetery. It is as much as the city pays in a year to nine hospitals.

"It would buy 2,600 books for the civic library, and is equal in value to 10,760 gallons of milk, sufficient to feed 120 children.

The Serious Waste

"If the running tap is one-sixteenth open, the figures mount tremendously. Such a tap wastes 668 gallons a day, 4,676 gallons a week, or 243,152 gallons a year. A thousand such taps require for pumping 559 tons of coal and \$17,020 in salaries. The waste equals 14 cars of coal, the wages of 17 policemen or firemen, and would pave St. Catherine Street from Metcalf Street to Phillips Square. It would plant trees in the manner above mentioned for four miles. It is as much as the civic grant in a year to 17 hospitals. It would buy 8,500 books for the library. It is as much in value as 34,050 gallons of milk, food for 372 babies.

Then, If Open More—Read!

"If the tap is turned on one-eighth, the wastage of water becomes still more alarming. It reaches 2,330 gallons per day, 13,612 gallons per week, or 811,865 gallons per year. To pump this amount for 1,000 taps demands 1,868 tons of coal, and costs \$56,811 in salaries. The loss represents 47 tons of coal, the wages of 56 police or firemen, the paving of 18,000 square yards of street. It would plant with trees twelve miles of street. It would represent city grants to 17 hospitals, six dispensaries, nine homes for the aged or children, six refuges, and 34 miscellaneous institutions. It would buy 28,400 books for the library, or buy 113,622 gallons of milk, enough to feed 1,244 children for a year.

"Turned on one-quarter, that wasteful tap would lose 7,632 gallons per hour, 53,222 per week, 2,767,564 per year, a pumpage that would require 6,336 tons of coal, and cost \$193,729 in wages.

"If turned on full, the amount of water wasted would be 20,160 gallons per hour, 131,120 per week, and 7,338,240 gallons a year. This, estimated on the 1,000-tap basis, would consume 16,877 tons of coal in pumping, and cost \$573,677 in salaries."

TYPHOID IN TORONTO

Chlorination of the water supply and inspection of milk supplies are reducing the typhoid death rate more and more every year in the city of Toronto. "In 1917 there were only 95 cases in the city, with the extremely low death rate of 3.8 per 100,000 of population," says a recent bulletin issued by the Toronto Department of Public Health. "There are so few cases of this disease in the city hospitals that it is difficult for students in the medical faculty to obtain a sufficient number of cases for examination and study purposes.

"There is not one case of typhoid per annum for each four physicians in Toronto, so that many physicians never see a single example from one year's end to the other.

"When it is considered that we had 739 cases of typhoid fever reported in the year that the present health department organization began its labors, one can realize how much the general health of the city has improved, for the number of cases of typhoid fever is considered to be the best single criterion of the healthfulness of a city."