

A Few Long and Short Range Words about Water

Canada has three hundred thousand square miles of inland water including its share of the Great Lakes. Other lakes are great both by name and by definition—Great Bear and Great Slave — and one, Winnipeg,



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would be considered a great lake anyplace else in the world. Canada has two huge bodies of salt water — the Gulf of St. Lawrence and Hudson Bay — which, with the addition of a couple of land bridges, could properly be called inland seas. It has, in addition, its frozen reserve, the ice of the Arctic.

This large supply has caused some to conclude that neither Canada nor the world will ever suffer from a final lack of potable water. It has even been suggested that man's final problem may be one of surplus rather than shortage — 87.3 per cent of the earth's 8 million cubic miles of fresh water is frozen. There is a school of thought which believes that increasing industrialization could heat the atmosphere and melt the ice. If it melted, the sea level would rise two hundred feet and cover most of the world's great cities. The Northwest Territories, which have slight rainfall, would then become an arid waste. Their innumerable lakes are cradled in rock and permafrost; and if the permafrost melted, the water now frozen would drain deep into the earth. The immediate

concern, however, is not with dangerous variations in the water supply but with its pollution by man.

Water is polluted when something is added that interferes with its use or enjoyment. Even heat can

pollute — brook trout cannot live in water over 21.1°C (70°F). Chemicals and algae can give water a taste that makes it undrinkable; and bacteria, chemicals and minerals can make it a direct danger to health.

Canada's old Fisheries Act and more recent laws and amendments give the federal government power to prevent or minimize pollution. One result is the chlor-alkali industry's reduction of mercury discharges by 98 per cent, but much control work remains. The Canada Water Act provides for the control of phosphates in detergents, and the Canada Shipping Act limits the discharge of waste by vessels in Canadian waters.

The Environmental Contaminants Act is the broadest and most recent effort at control. Passed December 2, 1975, it is designed to prevent dangerous substances from entering the air and the soil as well as the waters. Companies importing, handling or using dangerous substances must report the toxicity of the substance, the amount involved and how much is dispersed in particular places. Persons or companies violating the act may be fined as much as \$100,000.

A Discouraging Report on a Great Lake

Lake Ontario contains at least forty long-lasting, toxic chemicals — including industrial wastes and pesticides which threaten humans, fish and birds. The Great Lakes Water Quality Board has also listed ten inorganic substances found in the lake, including nickel, copper, iron, chromium, arsenic, cadmium and mercury. The board recommended immediate and intensive studies to determine how dangerous each toxic substance is and how each can be controlled. One poisoned colony of herring gulls on Lake Ontario failed to produce a single chick in a recent spring because of birth abnormalities, infertile eggs and abnormal parental behaviour.

MERCURY In the past, pulp and paper mills used mercury to control the growth of slimes, but they stopped using it in 1969-1970. In the chlor-alkali industry, a mercury cell process was once used extensively to produce chlorine; but since 1970 the amounts of mercury in liquid effluents have been reduced from around 148,000 pounds to around 1,000 pounds per year. In 1972 Environment Canada set the maximum permitted discharge rate at .005 pound of mercury per ton of chlorine produced and required plants to report mercury purchases and discharges. Most recently some chlor-alkali plants have switched from mercury to permeable membrane cells. Unfortunately past mercury