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Water for North America

The United States currently uses about 1.25×10^9 cubic meters (350×10^9 gallons) of water per day. Consumption is growing, and water shortages are becoming more serious in areal extent as well as severity. One answer is desalination of sea water (*Science*, 18 December). In large-scale projects, in which nuclear reactors were used, fresh water perhaps could be obtained at about 6 cents per cubic meter (22 cents per 1000 gallons) at sea level and at the plant. Distribution of this water to points distant from the sea would entail very large additional expense.

An alternative approach is that of effectively utilizing part of the continent's natural water supplies. For example, in the northwestern section of North America, more than 800×10^9 cubic meters of water flow almost unused to the sea each year. Use of the potential supplies would solve most of the continent's water problems for as long as 100 years.* Unit cost of the water, delivered inland, would be a small fraction of that of desalted water even at sea level. Through a series of dams, lifts, tunnels, and canals, water from Canada and the northwestern United States would be conducted to the Great Lakes and to the southwestern United States and Mexico. By this means, the level of the Great Lakes would be regulated and maintained, and the amount of power generated at Niagara Falls and related sites would be increased. The canal conducting the water to the Great Lakes would be navigable, and huge blocks of hydroelectric power would be generated en route.

In the West, large areas in Utah, Nevada, Arizona, New Mexico, and other states, as well as three states in Mexico, could be irrigated. In Mexico alone, eight times more area could be served than will be supplied in Egypt by the Aswan High Dam. The needs of southern California also would be met. In all, 33 states would obtain some form of benefits from the plan. Canada would receive the equivalent of about $2 billion a year. The cost of the development is estimated at $100 billion; 20 years would be required for construction, after authorization.

Much of the water would be drawn from the Peace and the Yukon rivers. One of the features of the plan is a large storage lake in the Rocky Mountain Trench, just west of the continental divide; the lake would extend 800 kilometers northwest into Canada from the vicinity of Libby, Montana. A large storage basin is crucial, since most of the river flow of the region occurs during spring and summer. This projected flooding of Canadian territory could prove to be a major point of friction, even though the region is sparsely settled. In any event, past experience suggests that there would be long delays before the necessary international agreements were formalized.

However, many of the benefits for the United States could be obtained in a way not mentioned in the report. A substantial fraction of the flow of the Columbia River could be intercepted, near Hanford, Washington, and at other points, and lifted and caused to flow eastward and also southward through tunnels and canals. Very cheap electric power furnished by huge nuclear reactors could be used. The present NAWAPA concept is grand and imaginative. It is to be hoped that the Canadians will join us in this great project, but alternatives should be studied.—PHILIP H. ABELSON

* A conceptual plan for accomplishing this objective, NAWAPA (North American Water and Power Alliance), has been prepared by the Ralph M. Parsons Company, a large engineering and construction firm. The scheme is presently under study by a Senate subcommittee headed by Senator Moss of Utah.