

To Harness Fundy's Tides



Giant Maine-New Brunswick Hydro-Electric Plan

By JOHN DICKINSON SHERMAN

IDES o' Fundy! 'Tis dollars to doughnuts they are an imperishable memory of the "joggerly" class in the "Little Red School House," an unforgettable object lesson to Young America of the restless might of the ocean. Long has the engineer dreamed of harnessing old ocean's tides for the industrial use of mankind. The recurrent coal strike urges him on. Electricity, edging everywhere into the factory, farm and home, quickens his quest. But ever to him the 50-foot bore that rushes up the Bay of Fundy to break in thunder against the shores of Chignecto has been a thing set apart by Nature. Still stands the forest primeval; but under the shade of its branches dwells another race, with other customs and language. Naught but tradition remains of the beautiful village of Grand-Pré.

So wrote Longfellow in "Evangeline." For this is the historic Acadia—Maine, New Brunswick and Nova Scotia—of 300 years ago. Here were staged the beginnings of the century-long struggle for possession between Frenchman and Englishman. Here was enacted the love-story of the faithful French maiden that thrills successive generations. And it is one of still another race—the American—who would harness Fundy's tides. So let's forget about dams and turbines and kilowatts for a moment and go back to the very beginning of the story.

In 1880 in the little town of Rushford, Minn., was born Dexter P. Cooper. He inherited a taste for engineering and ran away from home at seventeen to blow a forge. At nineteen he was bossing a gang of 400 men on the great Sao Paulo dam in Brazil. Next he is seen getting a technical education abroad. At thirty-one he is building the great power dam across the Mississippi at Keokuk. The World war makes him a member of the power section of the Council for National Defense and puts him at work on the famous Muscle Shoals plant, with his brother, Col. Hugh T. Cooper, U. S. A. Later still he is engaged in the Great Lakes-St. Lawrence waterway survey.

Mr. Cooper and his family have a summer home on Campobello Island, N. B., a few miles from Eastport, Maine. As early as 1912 he began watching the Fundy tides. In 1919, while recovering from appendicitis, he had nothing else to do for several months. By 1922 he had tentative drawings ready. Last year he devoted himself entirely to the work. And all this time he dodged publicity.

Last spring Mr. Cooper took his plan to the Maine capital at Augusta and got the incorporation measure through the legislature. But a referendum vote by the people was necessary, as Maine forbids the export of electrical power. June 12 Mr. Cooper

set out in an automobile on his campaign. He motored 6,000 miles, visited every county and talked to anybody and everybody who would listen.

Those who watched Mr. Cooper's single-handed three-months' campaign say he is no politician and no orator. They even tell the story that when he went to Augusta with his bill he had to inquire his way to the statehouse. When he began speaking he was unknown to the people of Maine. To be sure, he had no active opposition to overcome. But popular ignorance and indifference are mightier opponents than active opposition. How, then, did he succeed in selling his \$100,000,000 hydroelectric project to the hard-headed Yankees of Maine?

Well, they say that in the first place Cooper is a commanding figure—forty-five, six feet tall, broad-shouldered, with black hair and cropped mustache, mild eyes and a square jaw. Then they say that he explained his plan in terms that any intelligent man could understand, illustrating by drawings on a blackboard. If questions were asked, he answered them. Anyone who wished could have a private interview after the meeting.

September 14 the citizens of Maine cast a record vote—10 to 1—in favor of the Cooper project!

Take a look at the map and note the course of the international boundary line. Passamaquoddy bay lies both sides of the line, which also runs through one dam. One set of dams is in New Brunswick and another in Maine. The power houses are in Maine.

This means that before Mr. Cooper can begin work he will presumably have to have the permission of the United States government, of the Canadian government, of the provincial government of New Brunswick, of the International Joint commission and of the U. S. Federal Power commission. Oh, yes; and there is another thing necessary—Mr. Cooper must find a group of financiers willing and able to put somewhere between \$85,000,000 and \$100,000,000 into his scheme.

Now, the most remarkable thing about this remarkable story is that apparently nobody questions that somebody will take the chance that Maine offers. Apparently no voice is raised to question that the scheme is practical or that it will pay or that capital will be found.

Now for the outstanding engineering details of the project: Nature herself offers man the opportunity; it is said that at no other place in the world is there the same favorable combination of high tides and land configuration. Both Passamaquoddy and Cobscook bays are nearly landlocked. Three systems of dams will shut both off from the Bay of Fundy. The incoming tide is let into Passamaquoddy, the upper pool, containing 100 square miles of water. At ebb tide the water is let out of Cobscook, the lower pool,

containing 50 square miles. The sea water runs by gravity from upper pool to lower pool through turbines set in a fourth dam and is thus harnessed and transformed into electric power. It is planned to get a constant and regular flow of water through the turbines, with a fall of from 15 to 20 feet, according to the tides.

The dams, it is stated, present no engineering difficulties. The foundations are solid granite, the water between islands is shallow and most of the dam material is close at hand. They will not be of record size. Five thousand men, working in continuous shifts on all the dams at once, can complete them inside of four years. It is a feature of these dams that they impound so much water and furnish so much power with such comparatively small expenditure.

This development, according to Mr. Cooper's figures, will furnish a minimum of 500,000 horse power the year round. This makes the much-vaunted Muscle Shoals look rather small, with its promised horse power of 600,000 when the Tennessee river is in flood and 100,000 at low water.

Translating horse power into electrical energy is unsatisfactory for the nonprofessional, but the electric power is said to be seven times what Maine needs. This means a big surplus available within a radius of several hundred miles in both New Brunswick and New England. Figures seem to show that the power will be cheap enough to compete successfully with any electrical power now available in New England or eastern Canada. Enthusiasts see in it the basis of a great distributing system going southwest through New England and joining lines bringing power from Niagara.

Mr. Cooper is the last man to claim that he can "harness the tides," in the full meaning of the phrase. He points out that the Passamaquoddy project is feasible only because of the configuration of the land. And he is emphatic in pointing out that in his plan there is not a single new idea in the development of electricity. It is merely a fresh-water plan adapted to salt water.

Eastport is at the very northeast jumping-off place of the United States. Truth to tell, it is pretty remote nowadays. It takes something like fourteen hours of slow travel to reach it from Boston. It has four daily trains—two each way—made up of both freight and passenger cars. Now that the summer boarders have all departed, things are pretty quiet. But there's one thing that never sleeps or rests—the "Tides o' Fundy." Always they are at work—moving boats up to street level and dropping them again a story or so, covering and uncovering the shining beach, pushing in and pulling out. Some day, if Dexter P. Cooper has his way, Eastport may not be so quiet.

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