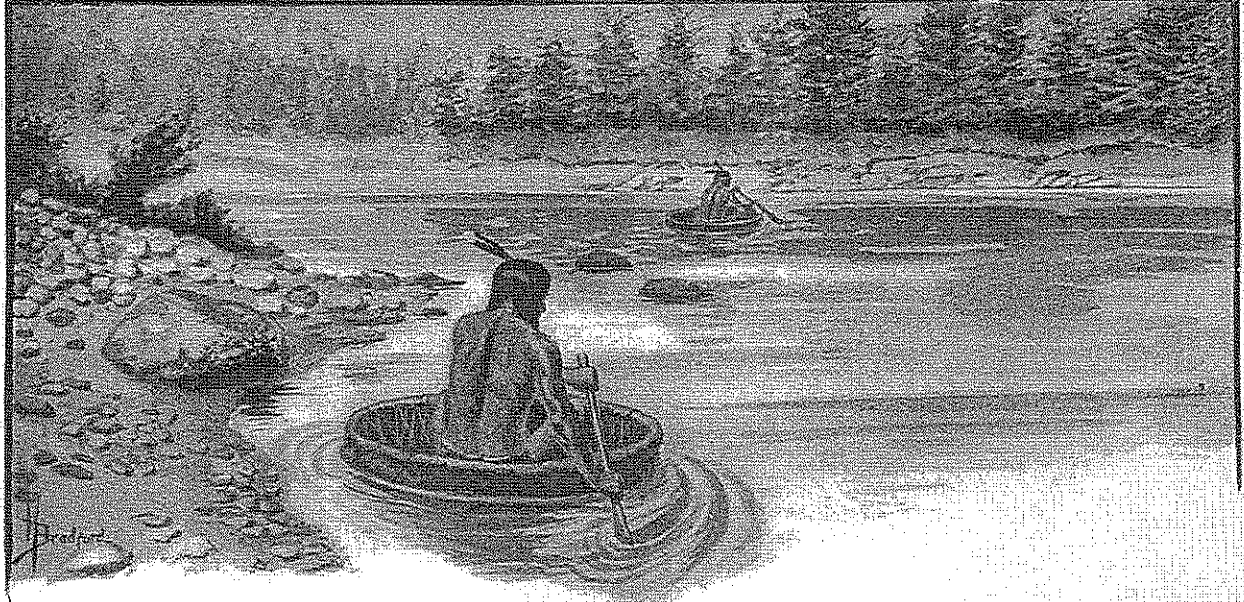


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NATURE AND SCIENCE *for Young Folks*

EDITED BY EDWARD F. BIGELOW



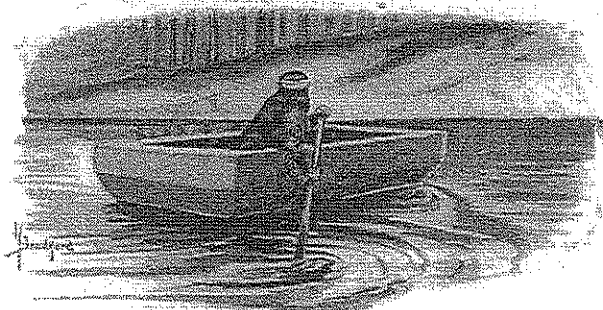
SIoux INDIANS OF MISSOURI CROSSING A STREAM IN THEIR "TUB-BOATS," OR "BULL-BOATS."
These boats were made from bull-buffalo hides drawn over a stout, roughly made frame of wood.

THE SMALL WATER CRAFT OF THE AMERICANS OF YESTERDAY AND TO-DAY

HOWEVER interesting it might prove to study the development of small water craft in the order in which they have come into use, the writer has found it impossible to do so because he has been unable to procure the necessary information. But we know that it was not always convenient, nor even comfortable, for the Sioux Indians of our Middle West to swim across a stream, nor was it

made a "tub-boat" by stretching one of the buffalo hides, plentiful in those days, over a stout frame of wood. There is nothing graceful about these rough-looking "boats," but they were light in weight and served their purpose, except that they were not easily made to go straight across a stream, and that they occasionally capsized. They were propelled mostly by single hand paddles, or a longer paddle which could be worked easily from side to side or—to give the most telling stroke—directly "a-stern." These skin tubs are from four to five feet in diameter, and not quite two feet deep. The hair was not well scraped from the hides, so the boats were dark ugly-looking things.

The Hupa Indians of northern California made a simple form of dugout—a tree trunk stripped of all bark, square at both ends—a good carrier but a poor craft for speed. The well-modeled dugout of the Louisiana Indians was made in a similar way, by burning the inside and chopping out the charred wood with a stone adz, but they produced a boat serviceable for fishing purposes, and for carrying a heavy load. The size of these dugouts was limited only by the size of the tree trunk which they could find near enough to the water to be easily launched.



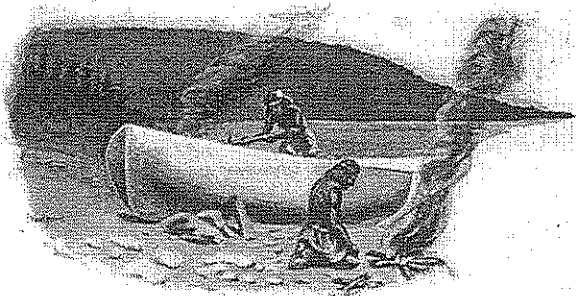
THE SIMPLEST FORM OF DUGOUT.

Used by the Hupa Indians of northern California for smooth, inland waters.

handy for him to paddle a heavy canoe to the opposite side of a smooth body of water. So he

In strong contrast with these plain dugouts, we have the curved and highly decorated fishing-canoe of the Haida Indians of the far north, off the Alaskan coast. This also is dug out from a log of great dimensions, a canoe in the National Museum being about fifty feet in length. The peculiar "eye" decoration on the "starboard" bow is painted in black and red, leaving the yellowish, natural color of the wood to take its place in the pleasing color scheme.

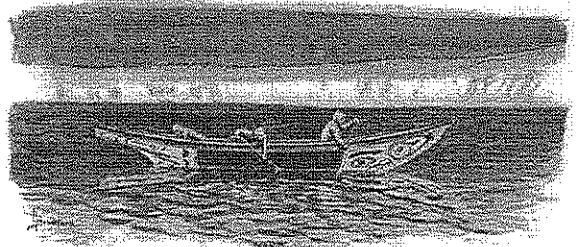
At a place where no large trees are available, and where seal and walrus are abundant, we find some interesting skin boats, like those from Kadiak Island. The construction of these is a marvel of Eskimo genius, and is excelled only by the storm-defying kayak of the Greenland Eskimo. A harpoon is tightly held under the cords



MAKING A LOUISIANA DUGOUT FISHING-CANOE.

This was dug out with a stone adz after being burned in places. It was well formed, outside and in, but the whole gunwale was in a horizontal plane; that is, it had no graceful curve at bow or stern, but was in one even plane along its upper edge or "gunwale."

which cross the deck, and, to protect the sailor from the waves, a thick, oil-soaked skirt is pulled up under his armpits, while his body stops up the manhole in the deck as a cork would stop a bottle. This "skirt" is not a part of his dress. It is the skirt of his boat, and is made fast to its rim about the manhole; it may be tucked down or pulled up as occasion may require.

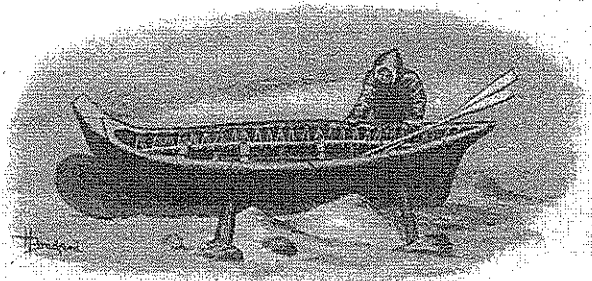


AN ELABORATELY DECORATED, BEAUTIFULLY MODELED, FISHING-CANOE.

This was used by the Haida Indians on the coast of Alaska.

Mr. E. W. Nelson, of the United States Biological Survey, has given probably the most com-

plete available report upon Eskimo boats and boat-building. He tells us that the umiak of the Greenlanders, an open, skin boat, was originally propelled by paddles, but slender blade-oars are



A FIFTEEN-FOOT SKIN BOAT OF THE ESKIMOS OF KADIAK ISLAND, ALASKA.

now used. The steering was done from the stern with a broad-bladed paddle. In ancient times, sails were sometimes used. These were made by sewing grass-mats together, and supporting them on two long sticks, stayed by guy-ropes of skin to the sides of the boat. We may still see deer-skin and sealskin sails used on these boats, and, occasionally, canvas, which has been procured from the traders. Some of the Bering Strait

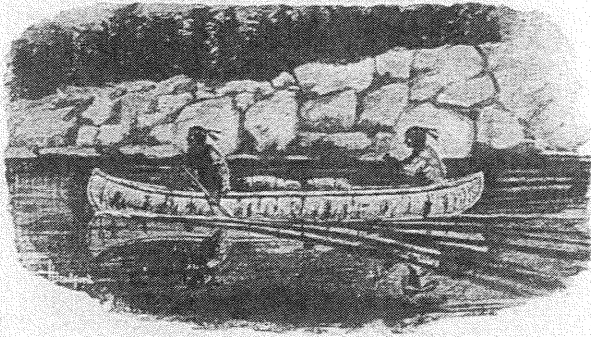


THE STORM-DEFYING, SKIN-COVERED KAYAK OF THE GREENLAND ESKIMO.

boats, having less "sheer" (side) than others, are provided with sealskin flaps, about two feet wide, which are attached along the side rails, to be raised and supported by stout sticks in rough weather, or folded down within the boat at other times.

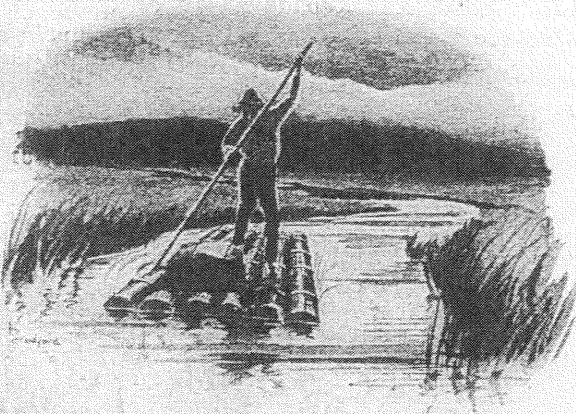
So far as I can ascertain, the North American Indian never made nor used a sail on any of his boats. He did, however, make the most graceful and picturesque canoe ever seen on this continent—the birch-bark canoe. These water travelers were made of the bark of the birch, which, whenever possible, was stripped off in one long piece. This strip of semi-cylindrical bark was wrapped about a frame of spruce and bound to the frame with deer thongs, and sewed up along the curve at bow and stern with the same material. There

were many shapes and sizes of these beautiful canoes.



THE GRACEFUL AND PICTURESQUE BIRCH-BARK WATER CRAFT OF THE PASSAMAQUODDY INDIANS OF MAINE.

At Pyramid Lake, in the treeless Nevada desert, we find the Ute Indians using boats made



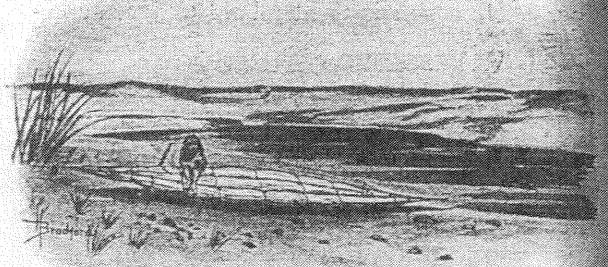
THE LOG RAFT USED BY SETTLERS, LUMBERMEN, AND RIVER DWELLERS.

A "carryall" for short distances in smooth waters.

from long reeds. I have been shown, by one who has traveled much in South America, pictures of

grass boats, with a sail, that are used by the natives on Lake Titicaca, Bolivia. These boats when thoroughly water-soaked, must be hauled up on the shore to dry for a week or so, when they are again ready for service. I conclude that the reed boats of Nevada must be treated in a similar way.

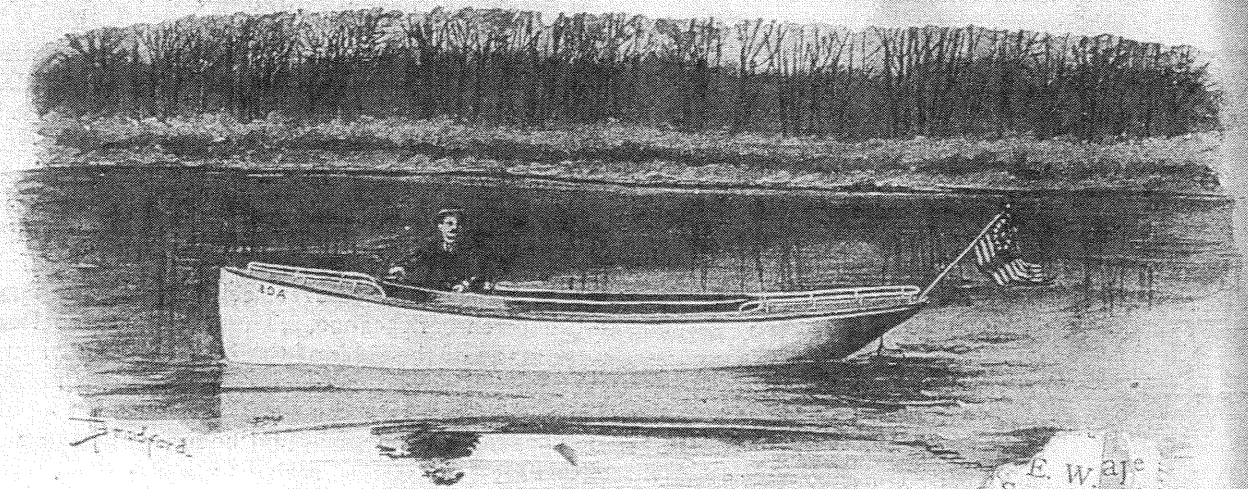
We might give a long list of boats and canoes made by the white man. The reader is familiar with the common rowboat, the racing "outrigger," the cedar canoe, the life-saving boat with double sides and water-tight compartments, and the clumsy yawl that forms a necessary part of the outfit for the sailing-vessel.



A TULE GRASS "BALSA."

Used by the Ute Indians of Pyramid Lake, Nevada.

One of the latest models in small-boat construction is the vapor launch, using gasolene in an engine of one or two horse-power that carries the craft along at a speed of more than six miles an hour. A gasolene engine runs only one way; that is, it does not "reverse," as a steam-engine does. To meet this difficulty, the boat has a reversing lever attached to the propeller, and by it the blades of the propeller are reversed, and the boat then moves backward.—HARRY B. BRADFORD.



A LATE MODEL OF A GASOLENE PLEASURE BOAT.

E. W. W. Survey, 1901