

## The Aluminum Canoe

### HOW IT ALL BEGAN

Here is the never-told-before story of how the aluminum canoe originated. Most folks know, of course, that Grumman pioneered the concept. But who first had the wit to see that lightweight, noncorrosive, durable aluminum could be formed into the lovely shape of our classic Indian canoe? And that it would be a better boat?

Prodded by queries from a curious sportsman Grumman searched its files to discover that the ideal came from William J. Hoffman, then an executive in aircraft engineering, who calls himself a "big boat, off-shore fisherman." For a change of pace however, he went up to Inlet, N.Y. to do a little trout fishing during Memorial Day weekend in 1944. that, you may recall, was the week before D-Day, when Allied Forces first stormed northern Europe.

Mr. Hoffman said, "my recollection is that we flew into Limekiln Lake from Fourth Lake and fished it for a day or two, using a battered and water-logged 13' wood-and-canvas canoe. Then we decided to fish in Squaw Lake, which is several miles away. As there were no boats there, we had to carry our water-logged, paint-loaded canvas canoe that must have weighed at least 100 pounds. For a fellow who was not accustomed to carrying a canoe, this was too much. I decided then and there that someone had to do something about that problem."

After studying the shape of the canoe for several days, Hoffman decided that it would be a comparatively simple drawing operation to form a canoe from two identical halves of aluminum and rivet them at the keel. He guessed that a 13-footer would weigh less than 50 pounds. Back in the office a few days later, Hoffman went right to the top: President Leroy Grumman and Executive Vice President Jake Swirbul. What did they think of investigating the idea of building an aluminum canoe as a postwar commercial product? They thought it was a great idea and gave the go-ahead to build a test canoe.

Hoffman admits that his total knowledge of canoe design was garnered when he was 13 and built one of barrel hoops and second-hand canvas. He needed a good look at a modern canoe, which was a very scarce commodity to find in the middle of a war. Finally, one was located at Macy's, and the worlds largest department store reluctantly loaned its sole canoe to Grumman.

It was a 13-foot wood-and-canvas advertised as a 50-pounder. Hoffman recollects that "as soon as we received it, we put in on the scales and it weighted 64 pounds! This, of course, encouraged me still more." Because the lines of that canoe had a reverse curve, which could not be stretched-formed, Hoffman and his assistants on the project came up with a die that was a major modification. "About all we kept was the length, as we wanted an accurate weight comparison," he says.

They made a cheap maple die on which to stretch this test boat. When Hoffman's team stretched the first aluminum canoe skin, they were pleasantly surprised. "because the skin formed even easier than I had expected. The weight was also lower than I had figured. This first canoe was made with .032 skin and weighed just over 38 pounds." Hoffman explains that the weight of the standard 13-footer had

increased somewhat over the years, because they found that the keel and gunwales extrusions were not quite rugged enough, and they have been beefed up in the interest of durability. Nowadays the standard weight 13-footer weighs ~~58~~ 55 pounds and the lightweight version is just 44 pounds.

During this development program, the Grumman people worked very closely with the Aluminum Company of America. It gave a lot of help in selecting alloys for skins, rivets and extrusions. Alcoa also provided longer sheets that it was producing commercially at the time.

There is an interesting footnote here: Alcoa's development department had a 17-foot canoe, hand made of eight pieces of sheet and riveted together. "Too unsightly and costly to be considered seriously as a quantity item," was the verdict of company officers.. But they saw the possibilities in Grumman's approach and gladly cooperated. So much so that Russell Bontecou, who designed the 17-footer for Alcoa, joined Grumman in Hoffman's aircraft manufacturing engineering department, with the understanding that he would handle canoe sales if Grumman went into production after the war.

Everyone agreed that Hoffman's 13-footer was a good canoe but too small to interest more than a small percentage of those interested in canoeing. "So we took Bontecou's 17-foot canoe and, with some modifications to make it possible to stretch in two pieces, we made a 17-foot canoe. Mr Bontecou remained in the manufacturing engineering department until the war ended, but I always suspected that he spent more more time thinking about canoes than ~~time~~ about manufacturing airplanes. As long as there were no complaints from the Navy, this was all right with me," Hoffman recalls.

As soon as the war ended, Grumman set up a 20,00-foot area to produce canoes under Hoffman's direction, and Bontecou did go to work as canoe sales manager. But after a few years it was decided that airplanes and canoes didn't mix, and the entire canoe operation was transferred to Marathon, N.Y. where it still is, turning out thousands of aluminum canoes every year.

As interest in canoeing grew in this country, so did Grumman's product line. there are now ten double-end models to choose from, made in both standard and lightweight aluminum; there are three shallow draft models for whitewater canoeist, three square-sterns and a Sportcanoe that is wider than the others, to accommodate anglers and hunters. And this year Grumman Boats began producing two small utility boats that meet the Coast Guard's new level flotation requirements. They are called simply the 3.8 and the 4.4, which is the length in meters. Those people at Grumman really do look ahead, don't they.

written by Dwight Rockwell Jr. 1977

Comments by Dave Hulett 1991

The earliest dated print is the assembly print of the 15 ft. canoe. It is dated 6-1-45. The following is a list of the assembly prints and dates when drawn. 13 ft., 7-30-45; 15 ft., 6-1-45; 17 ft., 9-5-45; 18 ft., 6-20-45; 19 Sq., 5-2-50; 20 ft., 4-26-50; Sportboat 6-11-51. There isn't an early print of the 17 Sq..

It is my opinion that the original canoe was the 13 ft. one. I disagree on there being a major redesign of the canoe however. The original line drawings have the pinched portion at the bow and stern that canvas canoes do. The 13 ft. stretch die was made with this dip put into the die. It caused problems in stretching the lightweight version until we filled it in, around 1971.

When Grumman Aerospace made a new stretch die for the 17 ft. canoe, in 1970, their engineers, working off the original lines drawings, discovered the pinched area and reported that they bridged it on the new die. Since this pinched area was only put on the 13 ft. die, I feel that this was the first one made and the original die builders discovered it before they made the other dies, and corrected the dies.

There were several boats developed at Bethpage and shipped to Marathon for production. Among them were an 8.5 Ft. dinghy in a sailing and rowing version, a 12 ft. cartopper, 13 ft. fisherman and a 14 ft. runabout.

The cartopper and dinghy were in the line when the move was made to Marathon. The Fisherman and Runabout were added shortly there after. The last aluminum boat developed at Bethpage, for Grumman Boats, was the G-19, a 19 ft. stretched hull with a beam of 8 ft.

The first boats developed at Marathon were the 13 ft. Nimrod, the Jon Sr. and Jon Jr..