Cement

The 28-foot sailboat cut through the still waters of Bayou Petit Caillou on its way to the Gulf of Mexico. As if on cue, a crowd of curious onlookers joined in a chorus of "Red Sails in the Sunset." The sailboat, which attracted the stares, looked strangely out of place among the roaring oil crew boats, pleasure motorboats, and fishing craft that regularly travel the bayous of South Louisiana.

Above, Gerald Adams, a Houma barber and a professional musician, and his 7-year-old daughter, Gina, take a Sunday sail in the 2½-ton boat. At right, the boat itself.

Sailboat

The building of the Aquarius was first conceived when Adams read a magazine article on ferro-cement boat building. He was immediately interested and wrote to the author for his reference sources. When he received them, he began an extensive correspondence that stretched from California to England.

Story and Photos by Dianne Hester

What's so unusual about this craft? The answer's simple. It has a ferro-cement hull. Most people just don't associate cement—or concrete and mortar—with ship construction. However, craft of various shapes and sizes have been made of concrete for more than a century. (Ferro-cement, incidentally, is a composite material. It's made of portland cement mortar and wire mesh.)

However, Gerald Adams, a Houma barber and professional musician, connected cement and boat building. The result is his 5,000-pound sloop Aquarius. "The biggest obstacle to ferro-cement boat building is the idea itself," said Adams as he steered the sleek Aquarius toward the Gulf one Sunday afternoon. "Once people overcame the basic notion that cement won't float, this concept in boat building should really catch on."

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'THE whole process looked simple enough,' said Adams. "I needed a boat, and one of ferro-cement would be a first for this area.' Adams' experience with wooden boats indicated that he didn't want another, and glass fiber was too expensive. Ferro-cement seemed the answer, since its most attractive features are its low initial cost and little or no deterioration. Adams' first job was to familiarize himself with the entire process of ferro-cement boat building.

Ferro-cement is the resulting product of experiments by Pier Luigi Nervi, an Italian architect and structural engineer, during the early 1940s. Ferro-cementing consists of building a framework of pipes to which is attached a shell of small-diameter rods and many layers of wire netting all compacted together to form a thin steel network. This is plastered from the inside with rich cement mortar to fill and cover the steel network completely, then it is troweled smooth on the outside. It is then cured slowly.

It is this process that Adams had to master. Adams began his sailboat in a rented warehouse in April of 1968. Having found some differences of opinion as to the size and kind of materials to use, he decided to make his own test pieces with different kinds of wire mesh to see what was strongest.

"I finally decided on ½ inch 22 gauge galvanized chicken wire. I immediately ran into difficulties. Distributors of wire mesh told me this kind of wire was not available in the United States," he said. "I contacted the Japanese and Belgian consulates in New Orleans because these two countries produce the wire I wanted," he continued.

SOMEONE finally steered Adams to a warehouse in New Iberia where he found the size he wanted. It had been ordered by mistake and was not being used.

Adams next sent a sample of locally available sand to Portland House in London for grading. The sand was tested for size and shape of grains. Adams was informed that it was suitable for ferro-cement production.

"My next step was to teach myself how to weld so that I could build the pipe structure for my sailboat,'" Adams admitted that he made mistakes, but through persistence gained enough skill to do the job he wanted.

"Lacing the wire over the rod structure was the most time-consuming operation," Adams said. It required two people, one working from the inside and the other from the outside. I had to enlist the help of many friends to get this job done."

Six hundred fifty-five pounds of lead had to be melted for use in the keel. To supplement the lead he bought, Adams heated lead-coated cable and other lead-containing articles in a makeshift blast furnace. He and a friend attached a butane jet to a six-foot piece of round gutter and attached a vacuum cleaner blower to the end. With this blowing into the bottom of a drum, he achieved a fire hot enough to melt the lead, which then flowed into a large iron pot. Lead was ladled from the pot into forms to cool.

"The fire inside the drum created a tremendous amount of black smoke which began pouring through windows and through a large hole in the roof of the warehouse," Adams said remembering the intense heat he had to endure during this process.

Alarmed motorists began stopping to investigate.

"A fireman from the neighboring fire station saw the smoke and came to our building to check the cause. He told us that they were receiving calls at the station that the warehouse was on fire. In a short time a fire official shut down our operation because we weren't using an approved type of furnace."

Adams finally had to lead over a crab boiler—a back-breaking task that impeded his progress.

To add to his problems, Adams knew nothing of cement technology. Through more reading and confering
with persons engaged in the cement industry, he gained a basic knowledge of cement uses.

At last he was ready for plastering on Dec. 7. Each ingredient to be used in making his mortar had been pre-measured and put into large bags so there would be no guesswork on the big day.

For the first time since he began his sailboat, Adams was willing to admit doubt. He feared success would not be his, for conditions were not in his favor.

It was too cold. Adams needed a temperature of between 50 and 80 degrees. The temperature had dropped to 45 degrees during the night. He was afraid the mortar would not set up fast enough to give him a good surface.

Adams was also working shorthanded. Although several friends had come to help, he needed more.

The first batch of mortar balled up in the mixer. He was using a mixture of cement, sand, pozzolan (fly ash) and water. The mortar had to be of an exact consistency to be pushed through the wire mesh. More water was added to the next batch. Working from inside the wire-mesh frame, Adams and his helpers pushed the cement through the chicken wire to a thickness of about ¼-½ inches.

WORK went slowly. For best results the entire hull had to be plastered in one day. Would they finish? As time fled by, some of his helpers had to leave to meet obligations of their own. Adams feared he could not complete the job. Dogged determination drove him to his finale. Plastering was completed at 9 p.m.

With the most difficult job behind him, Adams could relax and tackle the rest of his tasks with ease.

Draping the entire hull with Navy surplus signal flags, Adams wetted it all down for the curing process. Three times a day for 28 days Adams went to the warehouse and hosed down the hull.

One morning during this period, Adams went to his warehouse and found ice inside his boat. Had this happened earlier the effect would have been disastrous.

By May 25, 1969, the wood cabin and deck had been built, glass fibered and painted.

Monday, May 26, was designated as launching day. Adams purposely chose a work-day to launch his prize because he did not want spectators. Although confident now that he had done his job well, this was a "just in case" measure.

"The launching was a tremendous success," Adams recalls. "When the crane boom lifted the boat it shifted over to the starboard side a little, and this worried me. The boat, however, showed no sign of strain. She floated right on the designated water line. There were no leaks."

A 14-month building process had ended. Adams felt relief and pride. It had been a monumental task for someone with so little experience in boat building.

I don't recall ever having any desire to be a sailor," said Adams. "I grew up in Mathews, and the only boats I ever rode were outboard motorboats.

"Actually I started out flying, and I ended up sailing," Adams referred to his short stint at flying lessons.

"I first became interested in sailing when I joined in a venture to restore the 78-foot schooner, Jesting II," said Adams. "When I first saw the Jesting, it was severely damaged. But even so it represented excitement."

Adams volunteered to help restore the schooner which was leased by several Houma businessmen. When one of the initial investors decided to sell his share in the Jesting, Adams bought in.

He spent six years working on most of his days off, but he only sailed on the schooner once.

"That one time was enough to hook me on sailing for good," Adams said.

His wife, the former Paye Coffman of Houma, and their 7-year-old daughter, Gina, are now a real sailing family and are hooked on their new-found interest.

Just as the French author, Anatole France, who in a flight of fantasy told of a saint who took a sensational voyage in a stone boat had a dream that became fact, Gerald Adams had a dream, and it is now a fact in the Aquarius.
Air Chair
By Betsy Petersen

The little girl marched up to the photographer, looked him square in the eye and shouted, "You've gotta lotta cameras!"

"Yeah," said DIXIE Roto staff photographer G. E. Arnold, "we always carry a lot of cameras when we go into a riot zone."

But beneath that rough, gruff exterior beats the heart of a man who loves dogs and little children; and so when he was given an assignment to photograph a group of nursery school types playing with an inflatable plastic chair, staff photographer G. E. Arnold marched fearlessly, even enthusiastically, into the fray.

The inflatable plastic chair was blue and big enough to hold an adult, and it came in a smallish cardboard (smaller than a bread box) container. Arnold and his sidekick, a mild-mannered reporter, took it to Valencia Nursery School, 1900 Valence St., and turned it over to Jay Malony, executive director of Valencia, who kindly offered to blow it up.

It took a long time. Occasionally, Malony would stop and say a few words to the assembled 2- and 3-year olds: "Once upon a time, Mr. Malony started to blow up a big balloon, and his face got bigger, and bigger, and bigger—"

"Keep blowing," said Arnold. "I'm resting," said Malony. "Hey, Jake," he said to one of the tots, "want to blow up the big balloon?"

"No," said Jake.

Finally, the chair was all puffed up, and Malony put it down with a sigh, and there was a moment when all action stopped: The chair rested like a big blue toad, and the children, poised on the balls of their feet, leaned slightly toward it.

And then they were on it, making inarticulate sounds of delight, punching, pummeling, rolling, burrowing, falling.

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Boats From The Bayous

By Lynn Franklin

A new industry is booming in the bayou country of Southwestern Louisiana. Boats which once produced wood-and-nail luggers for shrimping and offshore fishing now build welded aluminum-steel crew boats for oil exploration and maintenance.

These boats are the taxis of the state's super-profitable and fast-growing offshore petroleum industry.

"Back in the '30s," recalls a veteran oilman in Lafayette, La., "we hired what we could find: wooden shrimp boats and even old charcoal steel, steam-driven paddle-wheelers. We had to have'em to ferry men and supplies to offshore operations. Now we have boats built especially for our use."

Many of these highly specialized taxis (crew boats) are built in yards within a 50-mile radius of Lafayette—and they're built of a relatively new kind of material.

"A light, non-oxidizing marine aluminum alloy has been developed and it's causing a revolution in boatbuilding,"
said Thomas W. Elberson, 52-year-old part owner of a boatyard on the outskirts of Lafayette.

Elberson graduated in 1940 with a degree in engineering from Southwestern Louisiana Institute in Lafayette. Since then he's been building crew boats for offshore oil exploration.

"The demand," says Elberson, "is so great that more than 80 percent of all the aluminum-steel crew boat hulls in America are built right here in the bayou country."

Elberson said that his boatyard, and a dozen others nearby, have to be close to their customers' areas of operation so that qualities of performance of the new metal can be evaluated. The method of fastening the alloy, for example, has long been a problem to metallurgists.

"We use inert-gas-metal arc welding," he said. "If we had to rivet and bolt hulls together, we couldn't make a strong enough boat out of alloy."

Ten years ago, welding aluminum was so difficult it was rarely done. "This year alone, we've contracted to make 20 boats and we weld every seam," the boatbuilder declared.

Crew boats get worked day and night, many thousand hours a year. They get slammed against rigs and other boats. They get heavy waves and pipe dropped into them; and get shoved through rough weather at high speeds. "Oilers are not only tough on themselves; they're tough on their boats," Elberson pointed out.

"The new alloy has a number of advantages over conventional steel. A steel hull, after a long period of work, will look like a skinny dog," said Elberson. "The metal will bend in-between the ribs. Alloy hulls don't seem to do that—probably because we use a heavier gauge of alloy than we would of steel."

Neither do the alloy hulls need those all-too-frequent, time-consuming and expensive sandblasting and repainting jobs. Many crew boats shuttle between salt and freshwater, a transition fatal to marine organisms; the boats' bottoms need no paint.

Also, the new boats are faster than their steel counterparts. "They weigh one-third less," said Elberson, "consequently they can carry more cargo and more fuel."

He pointed out that if a steel boat can shuttle offshore twice a day, the faster and lighter alloy boat can shuttle three times a day—an important, money-saving advantage.

Although a steel 65-foot crew boat may cost $100,000 compared to $150,000 for the same boat in alloy, "the demand for alloy hulls is nine-to-one over steel—and there's no demand at all for wood, not as I see it," says Elberson.

Although he now makes aluminum boats only, he has made many of wood. "I've cut more wooden frames than I would care to count," he said. "That's how I learned my trade."

Fitted, reinforced and fastened carefully, aluminum hulls are expected to withstand rugged treatment at work in the offshore fields.