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Ohio State Engineer

Title: Building a Cabin Cruiser

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Issue Date: Nov-1931

Publisher: Ohio State University, College of Engineering

Citation: Ohio State Engineer, vol. 15, no. 2 (November, 1931), 5, 19-20.

URI: <http://hdl.handle.net/1811/34843>

Appears in Collections: [Ohio State Engineer: Volume 15, no. 2 \(November, 1931\)](#)

BUILDING A CABIN CRUISER

By CLARENCE M. BARBER, '34

BOATS have been used ever since the first man launched his ungainly and cumbersome raft made of tree trunks lashed together.

By the time the Egyptian civilization had reached its height, boats were commercially important because they were used as cargo carriers on the Nile River. The Egyptians harnessed the wind for their power, while the more primitive peoples used wooden paddles. At the present time we use engines which not only save a great amount of manual labor and produce high speed, but which are completely under man's control.

The first water craft was not built with the idea of luxury in mind. The raft was a creation which provided a way for man to cross water. Soon, however, someone conceived the idea of using a boat for pleasure. Egyptian history tells us of Cleopatra's barge, on which she entertained her guests.

Sailboats are no longer used commercially, and the slow-moving vessel powered by three tiers of oars has long since vanished from the seas. But sailing and rowing are still with us in the form of sports and luxuries. There are few people who cannot get a thrill by riding in a fast-moving speedboat as it cuts its way through a choppy stretch of open water, and the pleasure of handling a sailboat is unsurpassable. Each offers its own peculiar type of luxury.

The cabin cruiser is a combination of the best features of the sail boat and the speedboat. The cruiser has its own power plant, as does the speedboat, and at the same time it offers the luxury and comfort of a cabin as found in the sailboat. If the owner of a cabin cruiser does not desire a crew to handle it for him, he should not possess a boat more than forty feet in length. The thirty-six foot cruiser is, to my mind, the ideal boat.

A boat of the type to be described may have either a raised-deck cabin or a trunk cabin. The cruiser of the raised-deck type provides no way for one to get to the bow from the cockpit other than by walking across the roof of the cabin. In rough weather it is extremely hard to maintain a sure footing on the deck of a rolling and tossing boat. The trunk cabin, on the other hand, provides a footing all the way from the cockpit to the bow and a handrail as well. The raised-deck cabin receives its light and ventilation through small portholes, while the trunk cabin has large windows which admit a maximum of light and fresh air. For the sake of the streamline appearance that the raised deck adds to a boat many yachtsmen prefer it, but others would rather have the comfort that the trunk cabin offers and sacrifice a little of the beauty which a raised deck affords.

The first step in the construction of any boat is to lay the keel. For a boat of this type the keel is made of the best well-seasoned oak obtainable. Oak is used because it is a heavy wood that can stand the strain under which

it is put—that of providing a solid foundation for the upper part of the boat. One other reason for using oak is that it does not warp once it has been set.

If the keel is not absolutely straight it is trued by bending it to a straight line and fastening it along the floor. The keel is always attached by unheaded spikes and wooden clamps to the floor of the shed wherein the craft is to be constructed. After it has been shaped and finished the ribs are affixed.

There are usually eighteen ribs in a boat of this size. The ribs are cut from cypress wood, which is light and very strong. The keel holds the ribs at the bottom, and crosspieces nailed midway up the ribs and at the top of the ribs keep them rigid. Square holes cut opposite each other in the keel receive the bottoms of the ribs. The ribs are bolted to the keel with half-inch bolts. When the ribs have all been set, the structure is ready for the next step, planking.

The wood used in planking the boat is usually cedar, because it is easy to work with, it is strong, and it withstands the action of water better than any other wood. The planks are steamed and bent until they correspond to the general contour of the ribs. While the planks are still damp, they are fastened to the ribs with copper rivets which are made solely for this work. Planking is begun at the stern of the keel. When a distance of approximately two feet from the bow of the keel is reached, the planking is temporarily stopped. It is now necessary to erect the piece to which the planks are fastened at the bow.

The prow or cutwater, as this piece is called, is made of oak. Oak is used for the same reason it is used for the keel. It is strong; it is hard enough to stand the strain of a moderately severe collision without cracking or getting out of alignment. The cutwater is shaped so that it fits perfectly into the keel to which it stands perpendicular. The cutwater tapers from a width of two inches in the front, to six inches in the rear. It is about five feet in height. When the prow has been placed, the remaining planks are nailed to the ribs. The last planks fasten to the prow.

To fully enclose the hull a piece of teakwood an inch thick is cut to fit the shape of the boat at the stern. This wood is nailed to the planks at the stern and is the finishing touch in completing the hull.

After the hull has been completed, the engine-bed is placed in it. The engine-bed must not warp or move a fraction of an inch from its place once it has been installed. Oak beams that measure four inches by four inches are used. The length of the engine-bed is governed by the size of the engine that is to be employed. A four-cylinder motor requires a bed which is fifty-four inches in length and thirty-six inches in width. The

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joints of the cradle for the engine are bolted together, and the complete bed is rigidly attached to the floor of the hull. In a boat of this size the engine-bed is placed twenty feet from the bow in the exact center of the ship.

The rudder is set in line with the propeller shaft about twelve inches behind the propeller. The rudder is made from sheet iron three-eighths of an inch in thickness. This iron plate is riveted to a piece of pipe which extends from the interior of the hull to the level of the shaft. At the top of the rudder shaft there is a T-head. To this T-head two small steel cables are attached which wind around a drum connected with the steering gear.

After the engine has been bolted on the cradle, a shaft for the propeller is attached to the clutch of the engine. This shaft runs from the clutch-housing to a stuffing-box and then out of the boat through the stern of the keel. A strut is provided to take the play out of the propeller end of the shaft. Bronze shafts are most generally used because salt water has less ill effect on this metal than on any other. Steel shafts are more expensive than those made of bronze, but bronze serves the purpose quite as well as steel.

The builder next puts the fuel tank in the boat. A tank of fifty gallons capacity is large enough to provide gasoline for a fairly long trip, and at the same time it does not require a particularly great amount of space. The tank is placed in the bow at a higher level than that of the engine. This is done so that the gasoline may flow into the carburetor of the engine by gravity. Gravity feed makes a vacuum tank unnecessary.

When the engine and its accessories have been installed, the four final steps in the construction of the boat are taken. The remaining work consists of building the cabin, laying the decks, caulking the hull, and applying the various coats of paint and varnish.

The construction of the cabin is too complicated an operation to explain in detail. It is sufficient to say that the main beams and supports are made of some strong, inexpensive wood such as white pine. To add beauty to the boat, the cabin should be finished in mahogany. Two permanent berths are built in the cabin, but there is room in the cabin for two cots. The berths may be fitted with waterproof mattresses. Space must be left in the forward part of the cabin for a wash room and lavatory. The space under the berths is utilized by partitioning it off into lockers. A sink, dish closet, ice box, stove, and food cupboard are usually part of the equipment of the cabin. These things may be omitted, but they add greatly to the comfort of the owner and his guests.

The decks are three in number, the first is the floor of the cabin, the second is the floor of the cockpit, and the third is the deck around the outside of the boat. The floor of the cabin is laid at a distance of six inches from the bilge. Any wood that will not warp in damp weather may be used. The cockpit deck may be made of the same

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kind of wood that is used in the first deck. The surface of the second deck may be improved by spreading a thick layer of waterproof glue on it and covering the whole thing with heavy canvas. Three coats of varnish will preserve the canvas. The third deck should be made of the same kind of wood that is used in finishing the cabin.

Caulking is done by men who devote their lives to this one profession. The caulker uses a substance called "oakum" and plenty of putty. His tools consist of a putty knife, a caulking knife, and a wooden mallet. The oakum is tapped into the seams between the planks by means of the caulking knife and the wooden mallet. The remaining space is filled with putty applied with the putty knife.

After this operation the hull is painted up to the water line with three coats of bronze paint. The bronze paint protects the wood from the decaying action of water, and also tends to keep the bottom of the hull free from barnacles and other parasitic marine growths.

The finished cruiser is now ready for launching.
