

A Colin Archer Type

Double-Ender,

INGRID

INGRID is a big boat. She has all the characteristics usually associated with seagoing ability. She is the kind of boat that behaves in rough water. She can be depended upon to sail herself. She is ableness personified. And equal to any situation. Ingrid is the reply to ever so many requests for an enlargement of the double-end Thistle whose plans appeared several months ago. And for a ketch-rigged auxiliary.

There has been retained in Ingrid practically the same beam as that of Thistle. The draft, however, has been increased to 3 feet 6 inches. Ingrid, then, is 37 feet 6 inches in overall length; 30 feet on the water line; 11 feet 4 inches beam; and 5 feet 6 inches draft. Her displacement is 25,000 pounds. There is 9,000 pounds of iron on her keel with 3,000 pounds inside ballast. The sail area is 816 square feet and distributed as follows: jib 162 square feet; staysail 123 square feet; mainsail 346 square feet; and mizzen 185 square feet.

There is always a difference of opinion about the weight of sails. It seems to me (and it has been borne out by practical experience) that it is best to use extra fine quality cotton duck, keeping this light in weight; being sure that the sails are made in the best manner. Your well made fine quality sails will outlast heavier and less expertly made sails. Eight-ounce Wamsutta duck or its equivalent in quality is the proper thing to use. Now since sails are the power plant of a sailing yacht don't skimp this very important item.

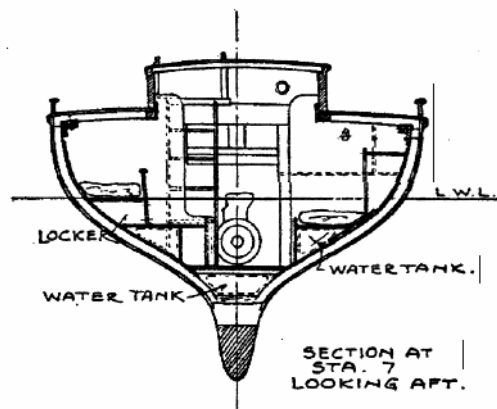
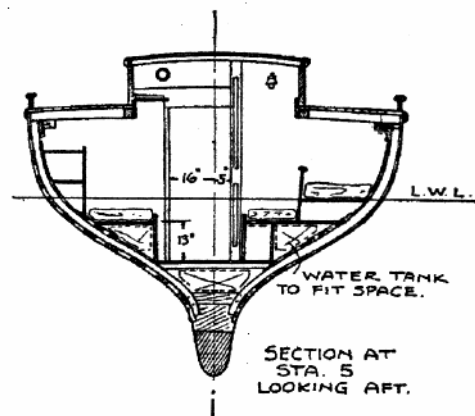
The Editor will be glad to recommend expert sail-makers~ qualified to do this work. The cloths should run across the sail. There should be two rows of reef points in the mainsail, one in the mizzen, none in the headsails. Have pockets for battens in main, mizzen and staysail.

The lines show a genuine redningsoite-life boat of the North Sea. As nearly perfect in form as any boat can be. It may be well to mention that man has never built any kind of vessel that will ride out any kind of sea. The sea is a tremendous thing. It smiles today; tomorrow scolds. All of which holds true of water anywhere lake, river, harbor, bay or pond. Men who find a lively.

The deck gives more than usual room for working the vessel; there is 12 feet 5 inches from the stem to the fore end of the deck house; somewhat over 3 feet each side the house; and 10 feet 10 inches from the house to the stem. The cockpit is 5 feet 9 inches long and 5 feet 8 inches wide. There is a bridge deck 1 foot 9 inches long. There is a gasoline tank under each of the cockpit seats. The tanks sit on the cockpit floor and any leakage or spillage simply flows overboard through the drain pipes. Each ~ tank has a capacity of 30 gallons. Seats are provided with hinged tops. Filling plates are under tops and conveniently reached. Fit the shut off cocks at the tanks above the cockpit floor and you will have the most perfect form of tank installation. There is a hatch in the forward deck, another in the deck house top, a third in the after deck. The companionway is placed on the starboard hand; this leaves room for the main sheet traveller and main sheet cleat. Somehow it is difficult to picture a better arrangement and at the same time have the thing simple and inexpensive to build.

The cabin is large. Your man of six-foot height can walk through upright, and this should please many. Personally I feel that headroom is the least important feature of a small yacht's design. However, we all do not think alike in this respect. In a boat of Ingrid's length heights do not have to be abnormal in order to get full headroom.

For living aboard it is as well to have the galley aft. Then drip from the companion way falls where it is lost objectionable, and easiest mopped up. The galley contains a coal range. Your genuine cruising yacht never sets sail without a coal range. Although the most primitive it is the most satisfactory. Fuel can be secured any place for a coal range, cheaply and without great bother. Even in warm climates your



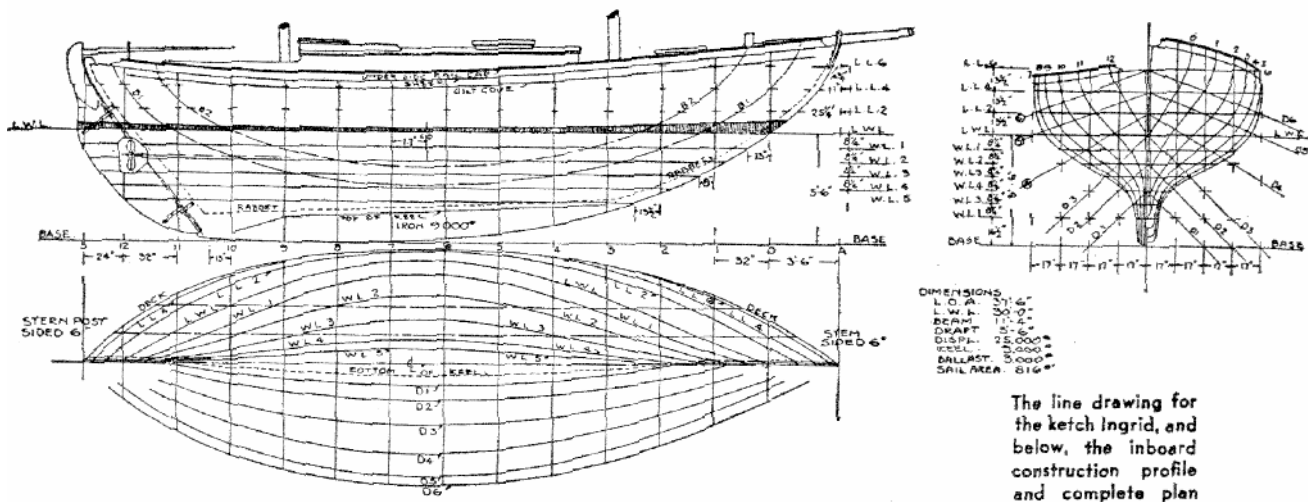
coal-burning range is a friendly shipmate. I would suggest also an oil or alcohol stove as well; one of these comes in handy for emergency cooking. There is a sink of generous dimensions. Because this is near the water line suitable means must be provided for its drain; it will not drain by gravity. Any husky brass pump will do for this purpose. There is a big ice box. Under the sink lockers are provided for storage of cooking utensils. Behind the sink and range there are dish lockers. These extend full length of the galley, a distance of 5 feet 10 inches. Opposite the galley there is a chart table having lockers and drawers built in beneath. There are three water tanks; one under the cabin floor, the other two under the berths in the main cabin.

The main cabin is fitted with one high berth which can be left made up during the day. There is a low berth opposite having a big locker up under the deck. A sofa ranges along in front of the high berth. Some idea of the size of the cabin can be had from the width between the sofa and

TABLE OF OFFSETS KETCH INGRID.

STATION	A	0	1	2	3	4	5	6	7	8	9	10	11	12	S
HEIGHTS															
L.W.L. TO RAIL CAP	4-5 1/4	4-1 1/4	3-10	3-6 1/2	3-5 1/2	3-1 1/2	3-0	2-10 1/2	2-9 1/2	2-10	2-11 1/2	3-1 1/2	3-5	3-4 1/2	3-4 1/2
- SHEER	4-6	4-1	3-5 1/2	3-6	3-3 1/2	3-0 1/2	2-9 1/2	2-7 1/2	2-6 1/2	2-6	2-6 1/2	2-7 1/2	2-9 1/2	3-1	3-4 1/2
- COVE	3-7 1/2	3-3 1/2	3-0 1/2	2-9 1/2	2-6 1/2	2-4 1/2	2-3	2-1 1/2	2-1 1/2	2-1 1/2	2-1 1/2	2-3 1/2	2-5 1/2		
DECK - HOUSE SIDE						1-1	STRAIGHT	1-4							
BASE - B 2		7-2 1/2	6-1	5-0 1/2	4-4	3-11 1/2	3-9 1/2	3-10	4-1 1/2	4-7 1/2	5-5 1/2	7-0 1/2			
- B 1	7-8 1/2	5-10 1/2	4-8 1/2	3-10 1/2	3-4 1/2	3-1	2-11 1/2	2-11 1/2	3-1	3-6 1/2	4-3	5-4 1/2	7-0 1/2		
- RABBIT	5-10	4-2 1/2	2-10 1/2	2-2	2-0 1/2	STRAIGHT	STRAIGHT				1-5 1/2	2-1 1/2	6-1		
- KEEL	5-6	3-5 1/2	2-5 1/2	1-6 1/2	0-10 1/2	0-5 1/2	0-2 1/2	0-0 1/2			0-1				
L.W.L. - SHAFT											1-3				
BASE - TOP OF IRON					1-1 1/2						1-3	0-5 1/2			
HALF BREADTHS															
DECK	0-0 1/2	2-2 1/2	3-5 1/2	4-4 1/2	4-11 1/2	5-4 1/2	5-7 1/2	5-8	5-7 1/2	5-5 1/2	5-1	4-5 1/2	3-5	1-5 1/2	0-1 1/2
L.L. 6		1-11 1/2	3-3 1/2	4-3 1/2	4-11 1/2										
L.L. 4		1-5	2-9 1/2	3-11 1/2	4-5 1/2	5-5 1/2	5-2 1/2	5-7 1/2	5-7 1/2	5-9 1/2	5-0 1/2	4-3 1/2	3-1 1/2	1-4 1/2	
L.L. 2		0-10	2-2 1/2	3-3 1/2	4-3 1/2	5-0	5-4 1/2	5-6 1/2	5-6 1/2	5-2 1/2	4-8 1/2	3-10 1/2	2-6 1/2	0-8 1/2	
L.W.L.		0-0 1/2	1-1 1/2	2-2 1/2	3-3 1/2	4-2 1/2	4-7 1/2	5-1 1/2	5-0 1/2	4-7 1/2	3-11	2-10 1/2	1-6 1/2	0-1 1/2	
W.L. 1			0-7	1-6 1/2	2-6 1/2	3-5 1/2	4-1	4-5	4-4 1/2	3-0 1/2	3-0 1/2	1-11 1/2	0-10 1/2		
- 2			0-2 1/2	0-10 1/2	1-8 1/2	2-5 1/2	3-0 1/2	3-4 1/2	3-4	2-11	2-2	1-3 1/2	0-5 1/2		
- 3			0-5	0-11 1/2	1-5 1/2	1-11	2-2 1/2	2-2	1-9 1/2	1-3	0-7 1/2	0-2 1/2			
- 4			0-1 1/2	0-8 1/2	0-9 1/2	1-0 1/2	1-2 1/2	1-2	1-0	0-8 1/2	0-4 1/2	0-1 1/2			
- 5			0-3	0-5 1/2	0-7 1/2	0-8 1/2	0-9	0-7 1/2	0-7 1/2	0-4 1/2	0-4 1/2	0-2 1/2			
- 6															
TOP OF IRON				0-2 1/2	0-5	0-6	0-7	0-7	0-7	0-4 1/2	0-3				
BOTTOM OF KEEL				0-2	0-3 1/2	0-4 1/2	0-5	0-5	0-5	0-3 1/2	0-2 1/2				
DIAGONALS															
D 1				0-2	0-6 1/2	0-9 1/2	0-11 1/2	1-0 1/2	1-0 1/2	0-11 1/2	0-9	0-3 1/2	0-1 1/2		
D 2			0-2 1/2	0-9	1-2	1-5 1/2	1-8 1/2	1-9 1/2	1-9 1/2	1-7 1/2	1-4 1/2	1-0	0-5 1/2		
D 3			0-10 1/2	1-7 1/2	2-2 1/2	2-7 1/2	2-10 1/2	3-0	3-0 1/2	2-10	2-6	1-11 1/2	1-1 1/2		
D 4		0-7 1/2	1-7 1/2	2-6	3-2 1/2	3-9 1/2	4-2 1/2	4-5	4-5	4-2	3-8	2-11	1-11 1/2	0-7	
D 5		1-2	2-4 1/2	3-5	4-5 1/2	4-11	5-4 1/2	5-7	5-6	5-2 1/2	4-8 1/2	3-11 1/2	2-10	1-2 1/2	
D 6		1-10	3-0 1/2	4-1	4-9 1/2	5-6	5-10 1/2	5-11 1/2	5-11	5-8 1/2	4-2 1/2	4-6	3-5	1-8 1/2	

DIMENSIONS TO OUTSIDE OF PLANKING IN FEET AND INCHES.



The line drawing for the ketch Ingrid, and below, the inboard construction profile and complete plan

the opposite berth; this measurement is 2 feet 10 inches, all straight flooring. There is nice room under the sofa for drawers.

The toilet room is large. It is 3 feet 2 inches by 3 feet square exclusive of the locker. And for those who must stand upright six-foot headroom under the cabin carlines. It is fitted with the usual water closet and a corner wash basin. It is always good practice to lead the drain from the basin into the water closet; thence it can be pumped overboard. A wholesome sized clothes locker stands opposite the toilet room. This rises 5 feet from the floor, thus providing a wide shelf in the corner of the cabin. The shelf, by the way, must be rimmed by a suitable low railing to keep objects from sliding off. The passageway between toilet room and locker is 23 inches wide.

The forward cabin has two built-in berths having lockers below. Then there are shelves forward as indicated on the plans. There is a locker for chain. This is divided in case two anchors and two cables are carried. They should be. The heaviest anchor for a yacht of this size should weigh 80 pounds and carry 300 feet of Y8-inch chain. The light anchor should weigh 40 pounds and carry 200 feet of 5/16-inch chain. Yachtsman type anchors are recommended.

Motor is installed under the bridge deck and cockpit floor. It is difficult to suggest any particular motor because most of those advertised will perform so well. A Gray Six-40 would be ideal for this particular design. The speed will be 7 1/2 miles an hour. Use standard two-blade propeller. There is not a great deal to be gained in using a feathering propeller with this outfit.

The keel will be made from 10- by 16-inch yellow pine or white oak. yellow pine does not last well in fresh water, so bear

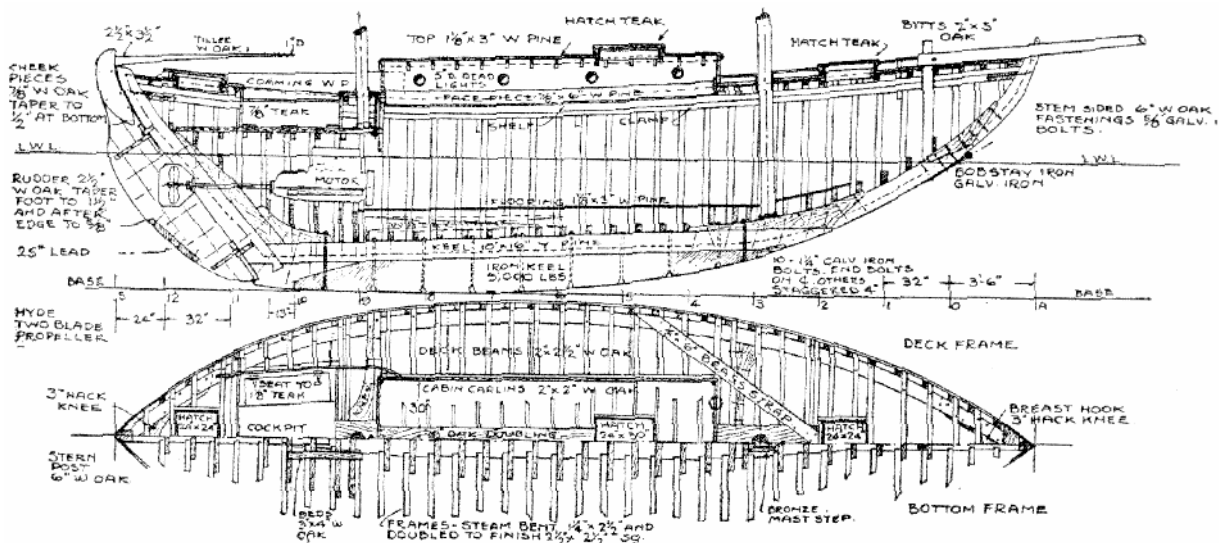
AN ABLE LITTLE VESSEL

PATTERNED AFTER THE

NORTH SEA LIFE BOAT.

THESE BOATS ARE AMONG

THE MOST SEAWORTHY KNOWN



this in mind if your sailing is to be on lake or river. White oak is perhaps the best material for use in the frame of any wooden boat. The keel must be shaped according to the dimensions on the plans, and from the lines as drawn full-size on the floor. After shaping, bolt on the iron keel. This is a casting and will have to be made at a

convenient foundry. The holes for the bolts are to be cast in the iron. Provide countersinks for the heads. Make the holes somewhat larger than the bolts; these will not slip through otherwise. There are 10 bolts; 1/4 inch diameter, of galvanized iron. Place washers under the bolts and take up very tightly. Paint well between iron and wooden keels.

The stem will be made from white oak sided 6 inches and moulded as shown. It will be built up from four pieces carefully fitted and through-bolted with 3/4-inch diameter galvanized iron bolts.

The stern post and deadwood will be made from 6-inch white oak. Fashion and fasten with galvanized bolts. The hole for the propeller shaft should be bored before the keel is set up. This will be 1 1/2-inch diameter for 1 1/4-inch shafting. The propeller shaft and motor set level.

The frames will be steam-bent from white oak. There is just one way of being sure that steam-bent frames will not break or bend unevenly. Pick first quality bending oak; split center of plank; then saw with the grain as split. In large frames it is best to double up. In this case the frames will be 1 1/4 by 2 1/2 inches; doubled, one inside the other to finish 2" by 2 inches. Do not fasten the two together until they have cooled and become set. The frames will be on 12-inch centers. Fasten heels into mortises in the keel and deadwood with 4-inch

galvanized boat nails; two to each frame.

The floor timbers will be made from M2- by 5-inch whit oak; one on the forward face of every set of frames. Fasten the floor timbers into the keel with 3/4-inch galvanized iron drift bolts, and into the frames with 1/4-inch diameter through bolts. Forward of station 4, and under the motor beds the floor timbers will be deeper than those under the deckhouse. They will be cement ballast laid even with the tops of the 5-inch floor timbers. For this reason do not paint sides, or top of keel or the floor timbers. Cement will not cause rot if laid directly on bare wood.

The clamps will be made from 1 3/4 by 6-inch fir or Yellow pine; these should be tapered at the ends to about 4 inches so as to facilitate bending into shape. Fasten to the frame with 1/2-inch diameter galvanized bolts. Do not put bolts in a single line; alternate top and bottom of clamp on every other frame. At the bow and stem there is a 3-inch thick hackmatack knee. **Bolt into stem and stem and into the clamps.**

The shelves will be made from 1 3/4- by 6-inch Yellow pine or fir. These will be in three pieces to each side and sawn to shape from the laying-down plan. Do not taper the ends. The shelf lays on the top side of the clamp and is to be fastened

with 4-inch boat nails into the clamp; but with through bolts through the heads of the frames.

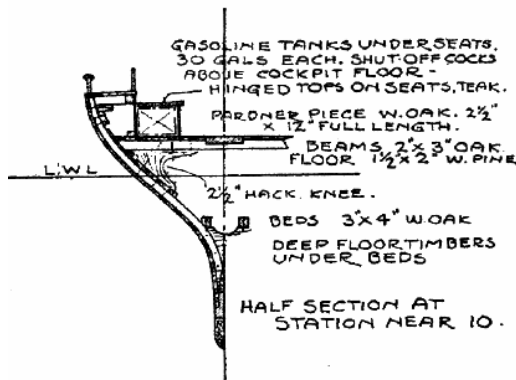
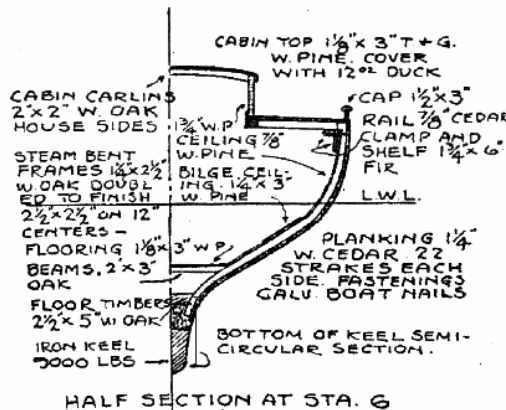
The deck beams will be made from 2- by 2 1/2-inch white oak and set on the same centers as the frames. Fasten ends to the shelves with 1/4-inch galvanized iron bolts. Notice there are headers around all hatchways and around the opening for

the cabin house. There are also doublings in the way of the mast, and the fittings for the main sheet. Doublings on the main deck should be 2-inch oak; on the house top A-inch oak. There is a brass strap needed as shown on deck frame plan. The purpose of this is to prevent the deck from wringing. This should be fastened to the beams with screws.

THE planking will be 1 1/4-inch

thick white cedar. Yellow pine can be used if cedar is not available. There will be 22 strakes each side. It is of little moment to use planking in single lengths. Well butted planks are just as good. Long strakes are likely to split at the ends because the grain here will run somewhat across the plank. Use galvanized nails for the plank fastenings. In heavy planking plug bore for the nail heads and cover with boat plugs. Butt blocks should be made from white oak 1 1/4 inches thick. These should be a nice fit between the frames and should overlap the plank width by at least half an inch each side. It will be necessary to concave the butts in the hollow sections and crown these in the round sections. A boat of this size should be caulked with cotton, have seams payed with red lead and then stopped with Ferdinand's or Kulirs seam putty.

There is a strip of bilge ceiling through the center of the bilge; this should be laid with 1 1/4- by 3-inch white pine or some other



Detailed sections at midship and stern giving data on material used

wood of equal lasting properties. Fasten with galvanized boat nails. Galvanized nails should never be so long as to protrude through frames and then bent over. Bending breaks the gal-ling and rust soon sets in then. The balance of the ceiling is laid with 1/2-inch white pine.

The deck will be laid with 1/2- by 2-inch white pine and with the seams parallel with the center line. Use boat nails for fastenings and let in heads same as for the planking. Fastenings will, of course, be plugged. Seams will be treated the same as for the sides. Drive in plenty of caulking if you expect a tight deck. Notice there are tie rods running from the **shelf to the header around the cabin. These prevent the deck** from spreading while being caulked.

There are top timbers to support the rail; these will be made from 1 1/4 - by 1 3/4-inch oak and spaced every four frames. Let the top timbers through the covering board and fasten to the inside face of the planking with screws driven from, the outside and in. **The rail will be made** from 1/4-inch white cedar.

Do not fail to cut out the clearing scupper* as shown on the sail plan. Fasten the rail to the deck with 1/2-inch drift rods, and to the top timbers with screws. The rail cap will be made from 1 1/2- by 3-inch teak. If too expensive use white oak.

THE cabin sides and ends will be made from 1 3/4-inch white pine or mahogany. Bolt to the deck with long threaded rod about 3/4-inch diameter. At least five each side and three at the ends. The cockpit floor will be laid same as the main deck. There is a 2-inch king plank here that extends into the forward end of the bridge deck. This is the support of the mizzen mast step. It will be tied to the deck with a 3/8-inch diameter bolt. Sides and ends of cockpit will be the same as for the cabin. Notice the cockpit runs full width of the boat, and straight to the stem.

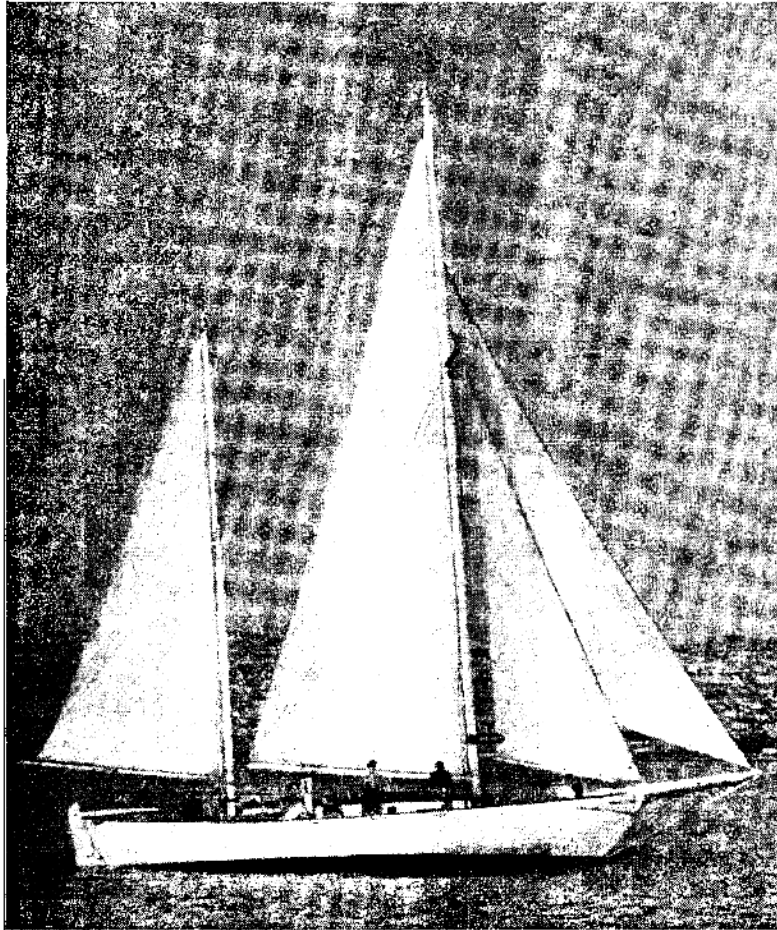
Cabin carlines will be made from 2- by 2-inch white oak and set on 12-inch centres. The house top will be laid with 1 1/4-inch tongue-and-groove white pine and covered with heavy canvas laid in Jeffery's liquid glue. The edges turn down over the aides and are to be covered with 1 1/4-inch half-round teak moulding.

The rudder will be made from 2 3/4-inch thick white oak; it tapers at the foot to 1 1/2-inches and is streamlined aft to 5/8 inch. Check pieces each side form a pocket for the tiller. Use bronze castings for the rudder hangings.

Cabin flooring will be made from 1 3/4-inch white pine 3 inches wide and finish in the same manner as the deck. The interior trim is a difficult thing to prescribe. Most people like painted interiors. They use some commercial grade of white pine which is reasonable in price and new to finish. If you like natural wood finish maple, oak, mahogany, hard pine, or teak will finish up beautifully; but are expensive. Any difference in the weight of interior fitting out can be compensated by a difference in the amount of inside ballast carried.

And so there we have the principal features of Ingrid, and if you will have her built or build her just as shown you will have a sterling vessel and one in which you can go anywhere anytime.

Motor Boating has published a lot of good boat den* These are listed in a circular that can be had for the asking. Write the Editor. Motor Boating, 572 Madison Avenue, New York 22. N. Y. for this. Blue print copies of the designer's drawings for Ingrid to a scale of one-half inch to the foot are also available. These will help greatly in the construction and can be had at moderate cost. Write the Editor for price on these,



Solveig, built. K. J. Rohfleisch. 4.341 Crestview Drive, La Mesu. Calif., from plans of Ingrid. The owner reports that she is roomy below, the ketch rig is a joy to handle in and she has acres of deck space is phenomenally dry, and generally holds her course with no hand at the tiller.

A sister ship won the Acapulco ocean race in 1956.