

Boats

Clinker-built boats, of overlapping boards, are difficult to make. This design is based on the flat-bottomed dory, similar to those used by the old-time fishermen of the Grand Banks off the east coast of America. Launched from a mother ship, usually a schooner, these little boats were used for long-lining for cod anything up to a hundred miles from land – and in winter! They have proved their seaworthiness. Since then they have been built and used all over the world.

Dories are suitable for fishing and other activities both in sheltered waters and at sea. If you intend to work only in sheltered waters, such as rivers and small lakes, then you may omit the mast, sail, centre-board and rudder.

Materials

Timber:

Bottom and sides: 9-mm marine plywood or 16-mm planking

Hog and keel: 100-×25-mm oak, ash or pine

Chines: 31-×31-mm oak, ash or pine

Sheer batten: 31-×50-mm oak, ash or pine

Gunwale: 25-×50-mm oak, ash or pine

Stem: 63-×38-mm oak, ash or pine

Stem capping: 31-×31-mm oak or mahogany

Skeg: 75-×38-mm oak or mahogany

Rudder stock: 50-×38-mm oak or mahogany

Rudder blade: 12-mm marine plywood or 19-mm thick planking

Centreboard case: 12-mm marine plywood or 16-mm planks

Centreboard: 12-mm marine plywood or 19-mm planks

Thwarts: 31-×225-mm oak or mahogany

Knees: 38-mm thick oak or mahogany

Mast: 63-mm-square spruce, 3 m long

Gaff: 44-mm-square spruce, 2.5 m long

Boom: 44-mm-square spruce, 2.3 m long

Transom: 9-mm marine plywood with 25-×50-mm oak, ash or pine framing around edges, or 19-mm oak or mahogany, in one piece if possible

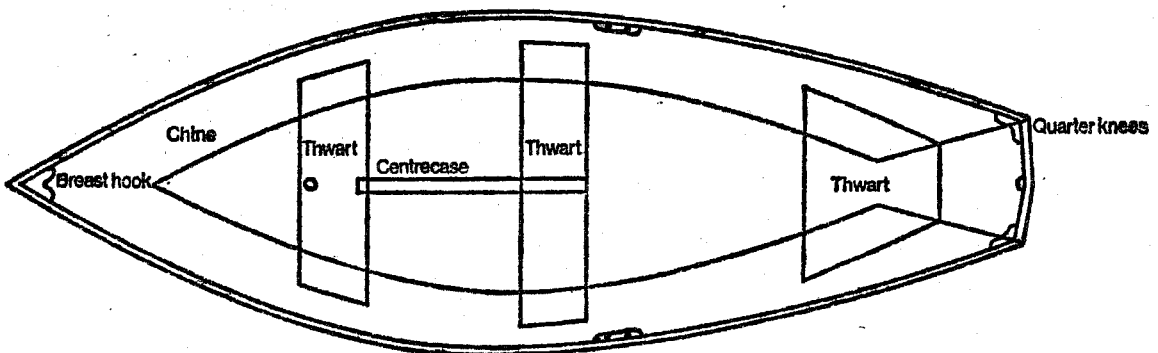
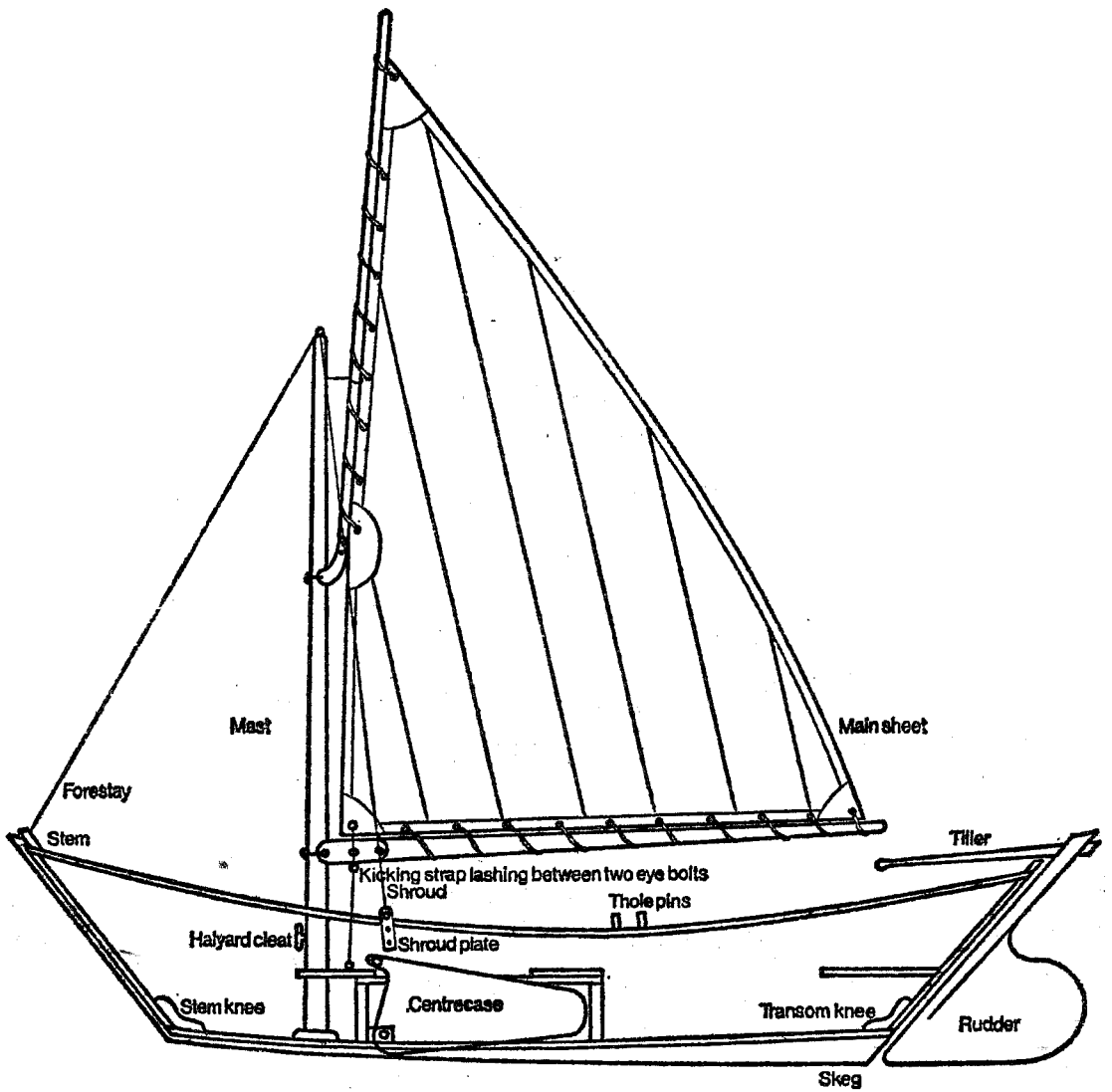
Tiller: 31-×31-mm ash, 0.85 m long

Oars: 50-mm-square spruce, 2 m long (maximum)

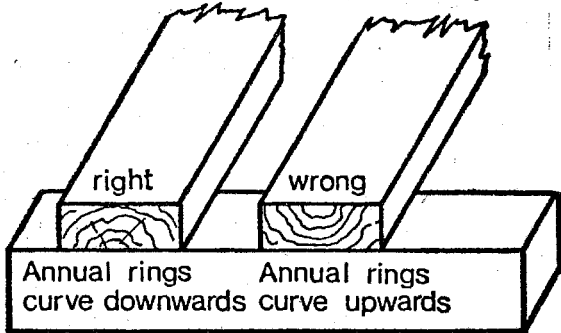
Oar blades: 75-×19-mm spruce, 0.45 m long

Sailcloth:

No 4 weight Egyptian or American cotton



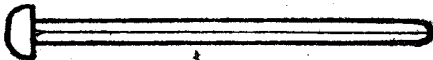
HOW TO LAY PLANK



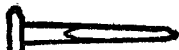
PLANK FASTENINGS



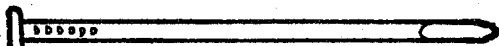
Brad



Galvanized boat blunt point



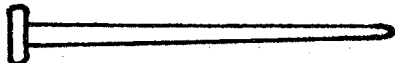
Copper tack



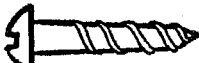
Galvanized wire or copper clencher



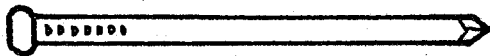
Flat head screw



Galvanized or copper chisel point



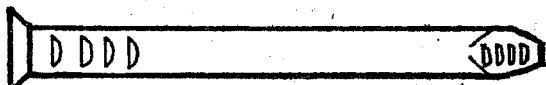
Oval head screw



Galvanized wire or copper

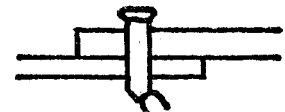


Flat head stove bolt



Galvanized hatch nail

**CLENCH
NAILING
AND
RIVETING**



Starting



Turning



Set



Roving



Boring



Nailing



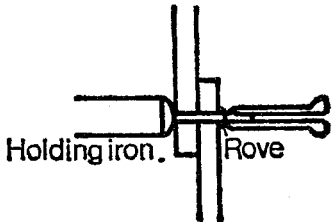
Roving



Nipping



Riveting



Holding iron.

Rove

Hollow punch

By far the easiest material to use for the bottom and sides is 9-mm marine or exterior grade plywood. If this is unobtainable, however, the boat can be planked with any good-quality larch, pine, oak, elm or mahogany. If the boat is to be planked, some extra framing, in place of the temporary building frames, will be required, and thin battens, either bedded in a paint-putty mix or glued, should be fastened lengthwise over the seams inside the boat. These avoid the need to caulk the joints from the outside – a rather difficult job, especially for a boat this size.

The stem, hog, chines and keel can be made from oak, ash, larch or pine, bearing in mind that the more hardwood is used, the stronger – but the heavier – the boat will be. This could be an important factor if the boat has to be manhandled or transported any distance. Using marine ply and a good-quality softwood like pine, the boat will have the best strength:weight ratio.

As with other designs in this book, the dimensions, types of material and so forth can be varied within reason, to suit cost, availability and suitability for your purposes. For example, if the only plywood available were 6-mm, you could use it, perhaps with a little more framing inside; but you might find the boat limited to sheltered waters only. Survival is based on the ability to adapt, and that, in turn, is based on imagination!

Method

Scarfe-joint together enough plywood to make the bottom of the boat. Draw on the centreline, with the stations at right angles; mark the outline and cut out.

Turn it over and glue (using marine or good waterproof glue) and screw on the keel and skeg.

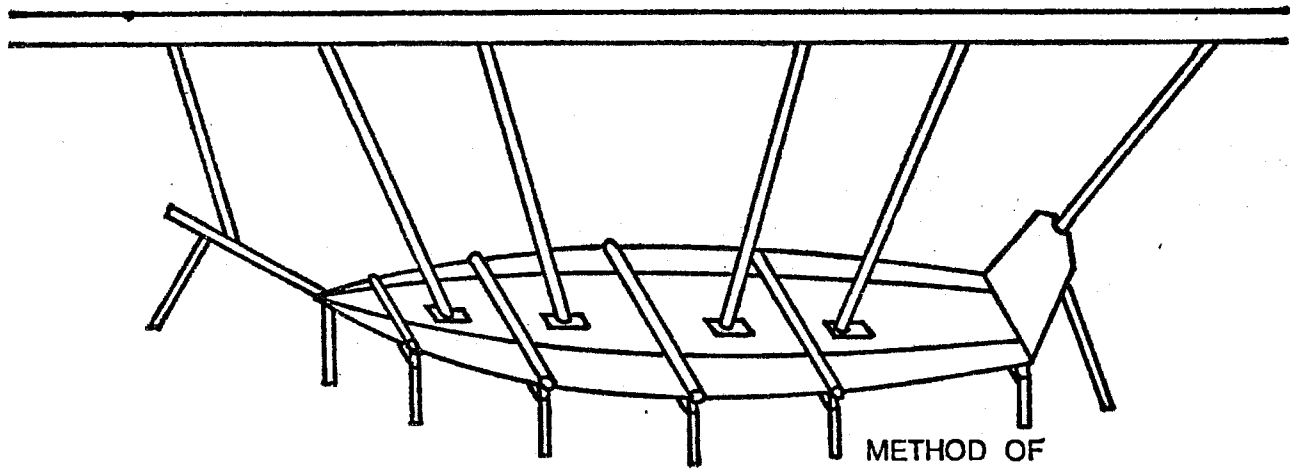
Throughout the boat all fastenings should be of non-ferrous metal, or should be heavily galvanized to prevent corrosion.

Set up the bottom, with the required curve, on trestles as shown. Use a spirit level and brace it well so that it cannot move.

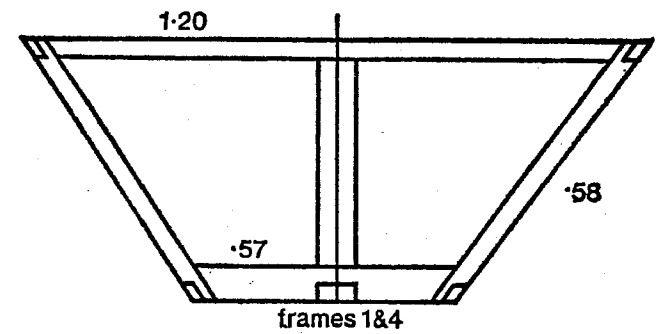
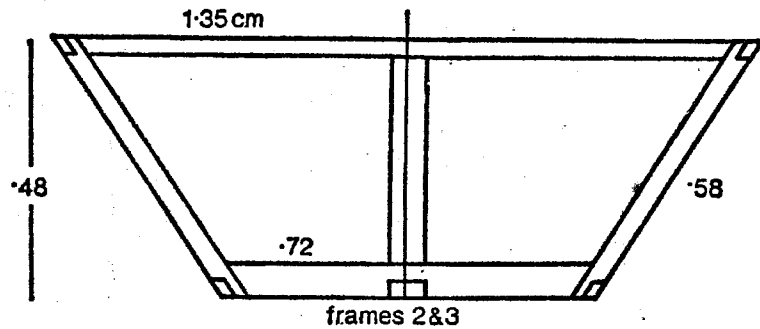
Screw and glue the hog on to the bottom, making sure none of the screws are in the way of the centreboard slot.

Saw out the centreboard slot by drilling a 25-mm hole at each end and sawing out the middle with a padsaw (keyhole saw). Bevel the two chines and glue them in place.

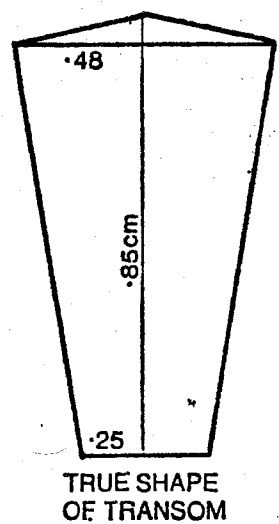
Build up the centrecase, making sure it is well screwed and glued together and that it fits the curve of the hog. Bed it in soft putty or



METHOD OF
SETTING UP BOTTOM



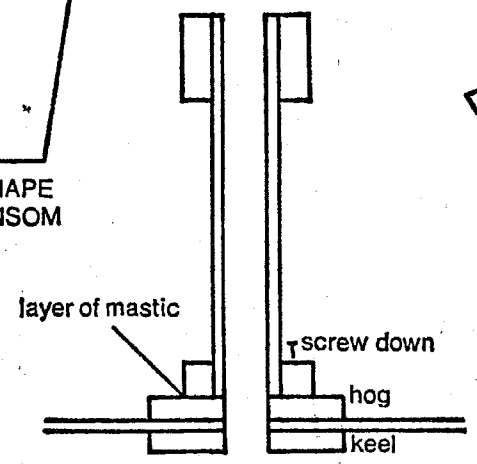
TEMPORARY FRAMES



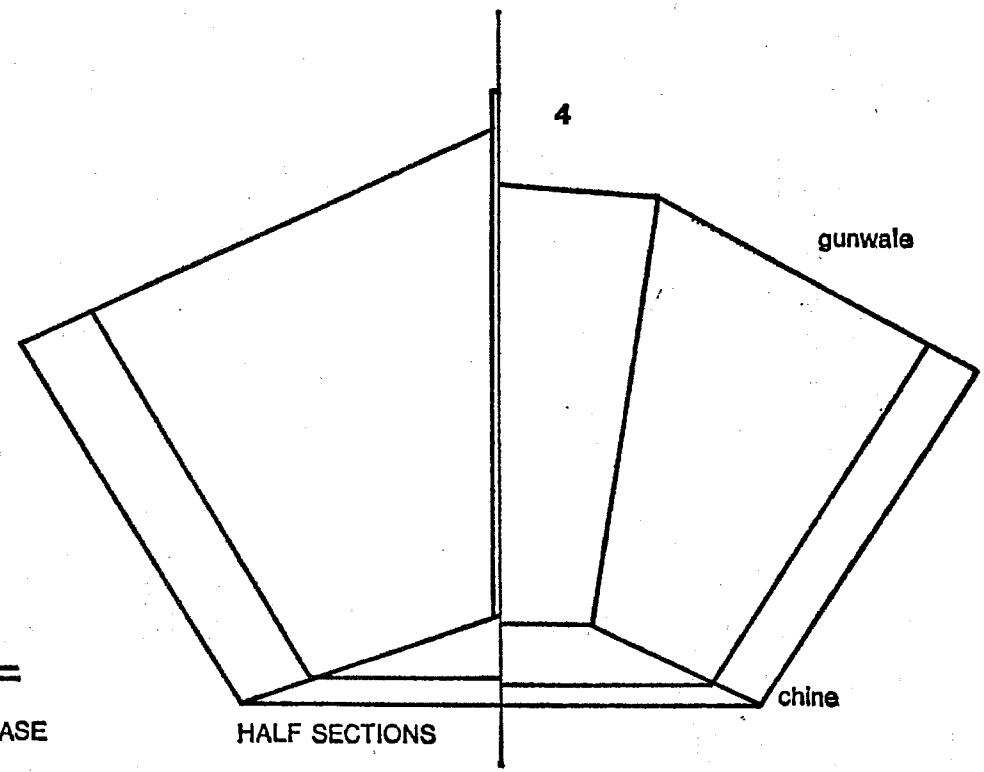
1

2

3

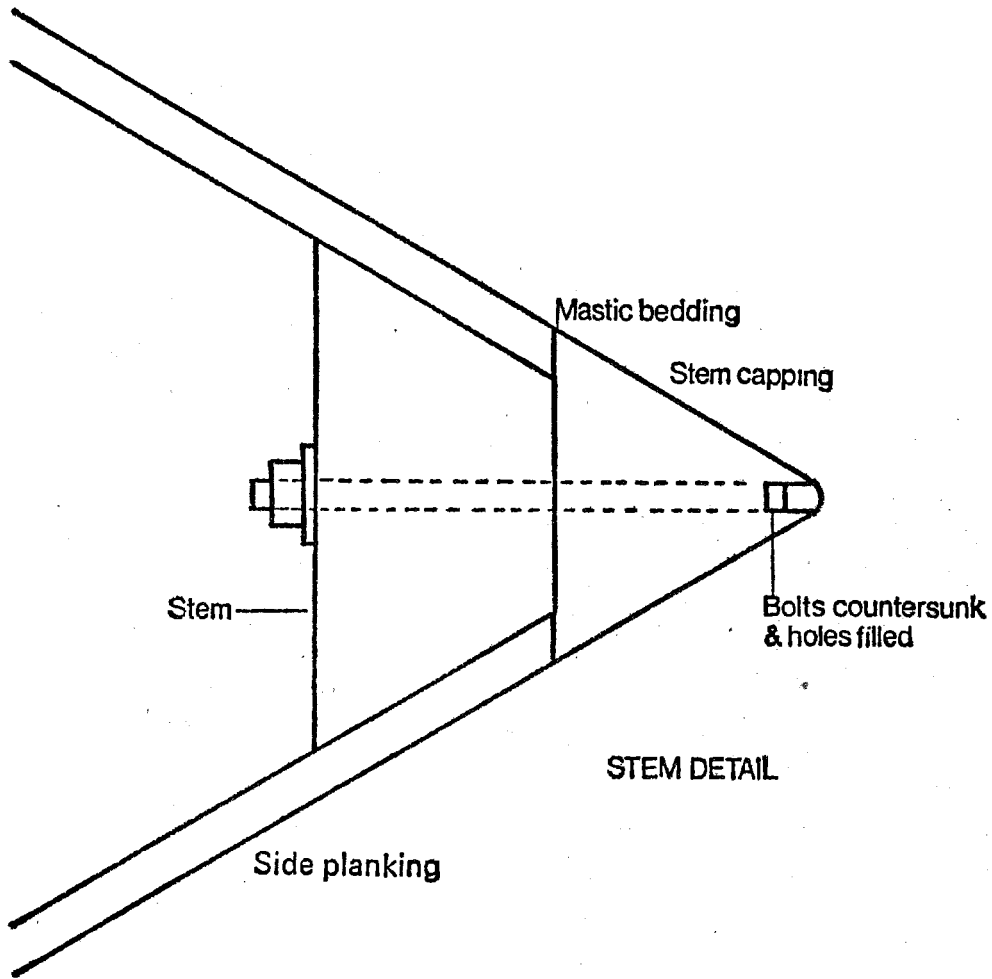


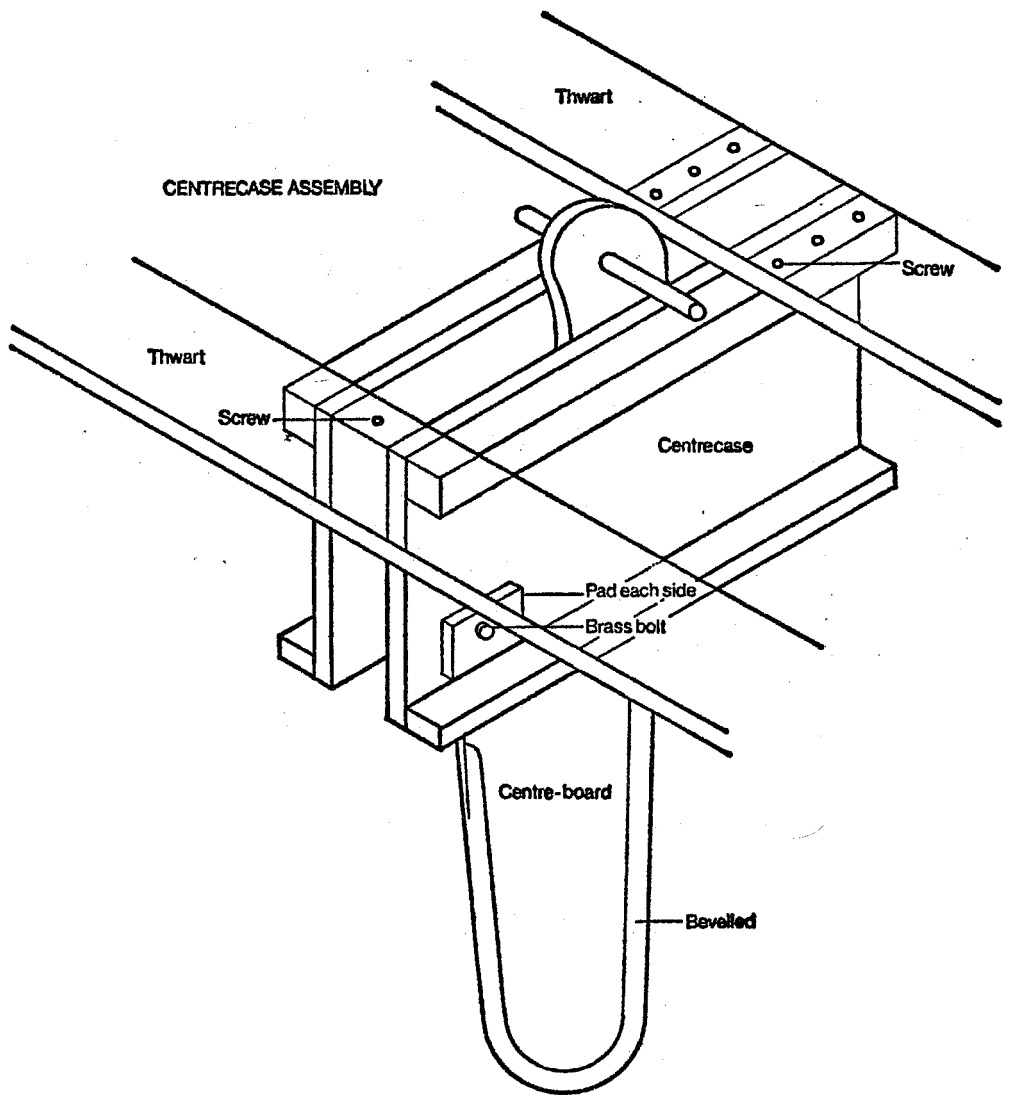
SECTION THROUGH CENTRECASE AT STATION 2 (not to scale)



HALF SECTIONS

Top right: 1 & 2: The timber frames inside which the hull is built. Frames 1 & 4 go fore and aft, 2 & 3 between them. 3: The centrecase held in position (cross-section) as seen at station 2. The centreboard will fit inside the case. 4: Half sections, at two stations, to show how sides and gunwale fit to bevelled chine.





CENTRECASE ASSEMBLY

Thwart

Screw

Thwart

Screw

Centrecase

Pad each side

Brass bolt

Centre-board

Bevelled

mastic and screw it into place on the hog, over the slot.

The stem can now be roughly bevelled and fixed, as can the transom and the two knees. Both the stem and the transom will need to be well braced with temporary struts to their top edges.

Using a taut line from the centre of the transom to the stem, set up the four building frames on their stations, temporarily screwing them to the bottom.

Fix the sheer battens firmly to the stem and transom, and lightly to the frames.

Check the chine bevels with a straight piece of wood and shape the bevels on the stem and transom accurately.

Scarfe together enough plywood for the sides and offer it up to the boat, holding it in place with G cramps. The top edge should be straight, and should fit the sheer batten without shaping, but the bottom edge at the chine can be marked from underneath, as also can the stem and transom.

Remove the sides and cut them to shape, but slightly oversize. Then screw and glue them into place, making sure there is a good fit at the stem.

When the sides are firmly in place, fit the gunwale, breast hook quarter-knees and tholepin blocks, and plane smooth the top edge of the gunwale and sheer batten.

Fit the thwart battens and thwarts, fixing them firmly to the sides and centrecase where applicable.

Make up the mast step block from a piece of scrap timber and fix it to the hog.

When the thwarts are in place, remove the building frames, clean up the inside of the boat and give it a coat of paint or varnish.

Free the boat from the remaining supports and turn it over.

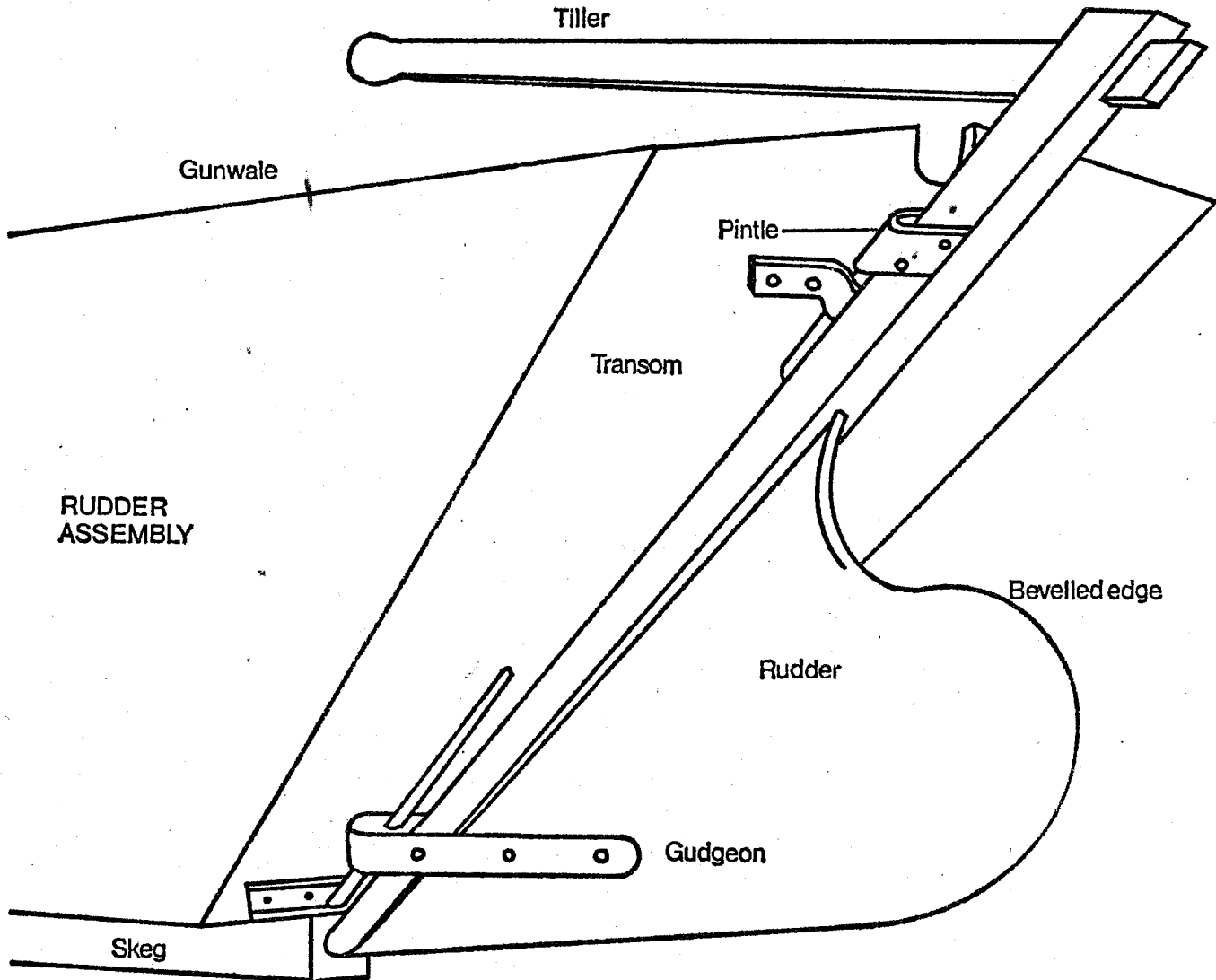
Plane the chines smooth and slightly rounded. Stop in any gaps and screw heads with marine stopping or a mixture of putty and red lead.

Make up and fit the false stem.

When the stopping is dry, rub down the outside of the boat with glasspaper and paint it.

Make up the centreboard and hang it in the centrecase, using a brass bolt as a pivot. Stiffen the centrecase at this point with a 150-mm-square piece of 9-mm plywood on each side. The bolt must have rubber as well as metal washers to make the bolthole watertight.

Construct the rudder assembly. The tiller, which is made of ash, is



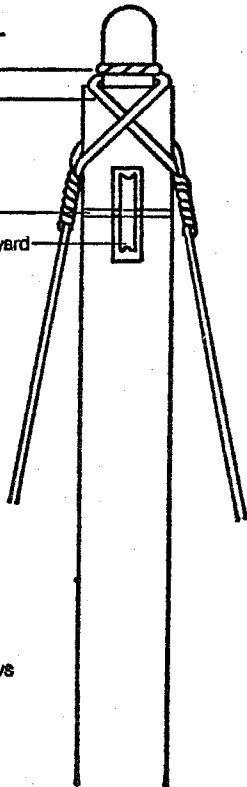
MAST HEAD DETAIL

Forestay

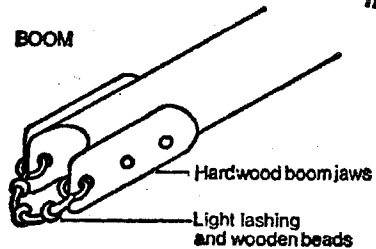
Shrouds

Brass spindle

Pulley sheave for halyard



BOOM



Hardwood boom jaws

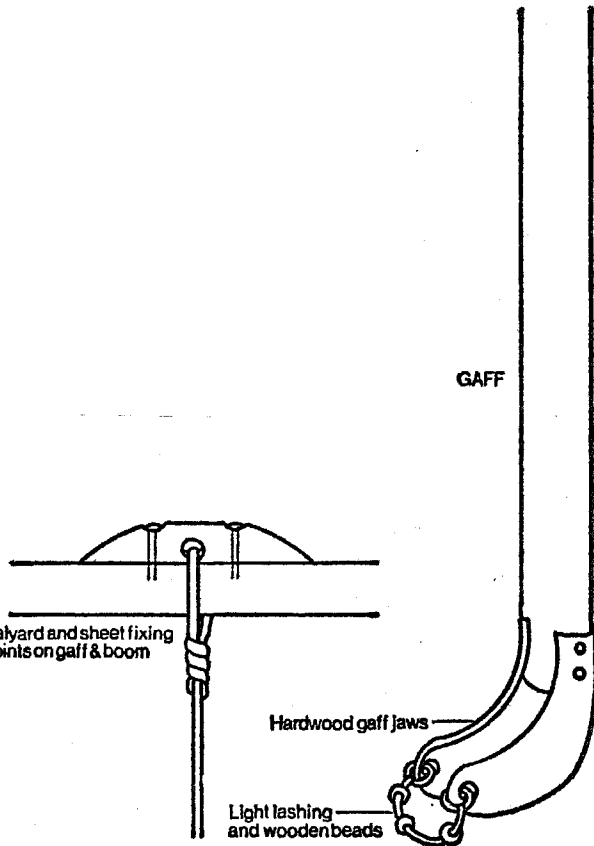
Light lashing
and wooden beads

GAFF

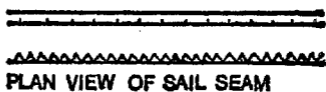
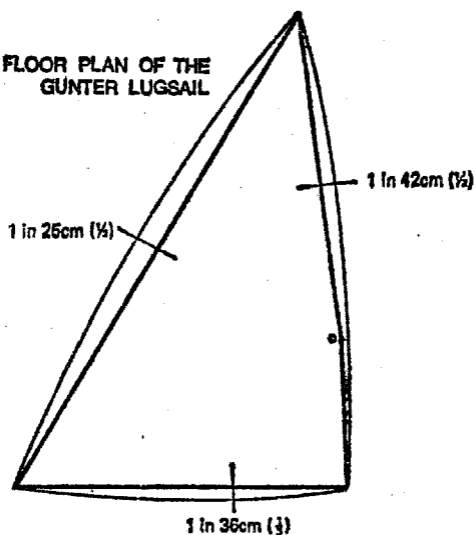
Halyard and sheet fixing
points on gaff & boom

Hardwood gaff jaws

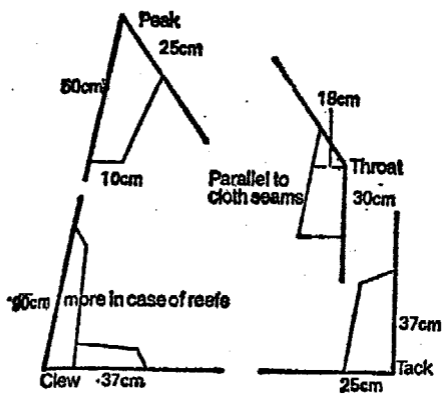
Light lashing
and wooden beads



FLOOR PLAN OF THE GUNTER LUGSAIL



PLAN VIEW OF SAIL SEAM



PATCHES OF THE GAFF MAINSAIL

Ropes etc:

19-mm-circumference hemp rope

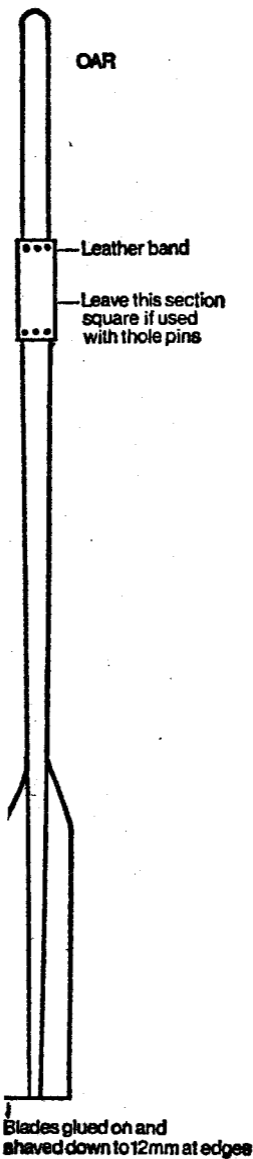
38-mm-diameter soft cotton rope

25-mm-circumference rope

Eyelets

Rowlocks

Thole-pins



OAR

Leather band

Leave this section square if used with thole pins

↓ Blades glued on and shaved down to 12mm at edges

morticed into the head of the rudder stock. The mortice should be tapered and the tiller wedged in. The rudder can be hung on bought fittings, or they can be made up from mild steel and galvanized. It should be possible to lift the rudder off its hangings, but it may be necessary to fit a retaining nut for rough-water use.

Another modification for rough-water use is to box in the space under the thwart, and to put in a small foredeck and box in under that, too, making two watertight compartments. These will be useful for keeping gear dry at sea, and if you do not overfill them they will act as buoyancy chambers.

Mast, spars and sail

The mast, gaff and boom, which should be of clean spruce, must be rounded up from squared timber with a plane. The gaff and boom jaws are made up from hardwood and fitted.

Make a mortice at the top of the mast and fit a pulley sheave to take the halyard.

It is not absolutely necessary to fit standing rigging, provided the mast is held firmly on the hog and through the forward thwart. If you plan to do much sailing in strong winds or rough conditions, however, it should be fitted.

The sail can be purchased ready-made, or it can be sewn from no 4 weight Egyptian or American cotton. It should be false-seamed vertically at 300-mm intervals. Cut out the outline as shown and seam the edges. For extra strength, you can sew a 19-mm-circumference hemp rope on to the luff and foot of the sail.

Provide eyelets at 200-mm intervals for lashing to the gaff and boom. This lashing can be of light cord.

Fix a soft cotton rope of about 38-mm diameter to the boom for the sheet, and a longer piece of hemp rope, of about 25-mm circumference, to the gaff for the halyard.

Make up the oars from some 50-mm-square spruce, which can be mounted in bought rowlocks and thole-pins, as shown.