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, centreboard and rudder.

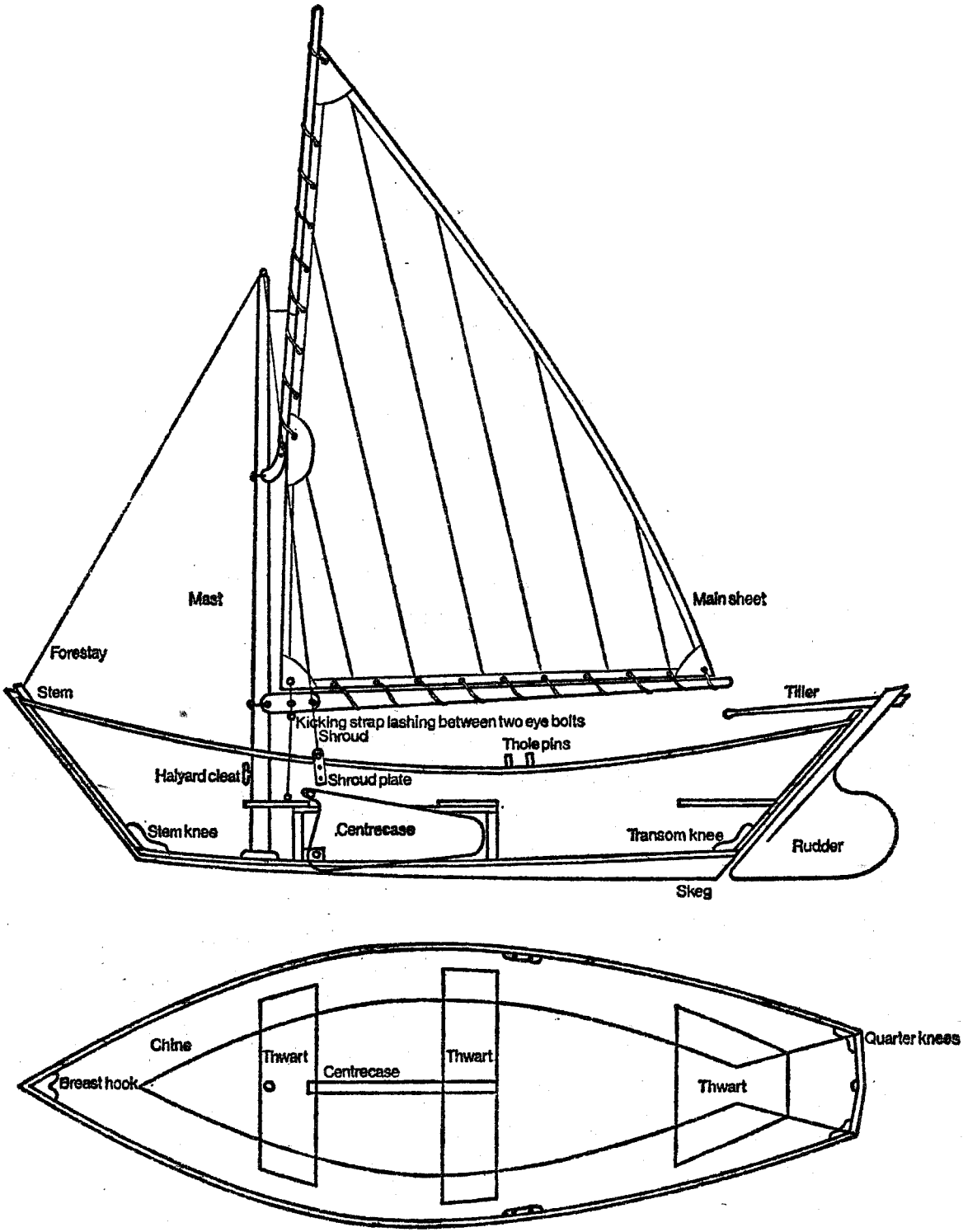
Materials

Timber:

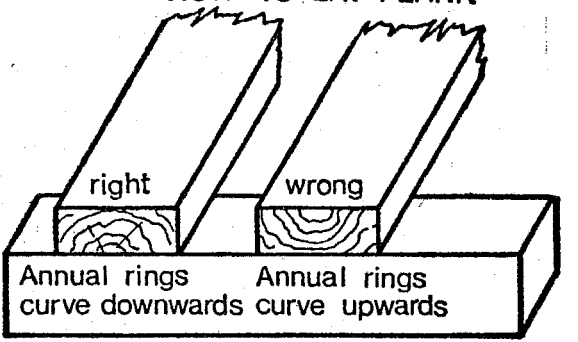
Bottom and sides: 9-mm marine plywood or 16-mm planking
Hog and keel: 100- × 25-mm oak, ash or pine
Chines: 31- × 31-mm oak, ash or pine
Sheer batten: 31- × 50-mm oak, ash or pine
Gunwale: 25- × 50-mm oak, ash or pine
Stem: 63- × 38-mm oak, ash or pine
Stem capping: 31- × 31-mm oak or mahogany
Skeg: 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:

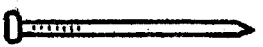
No 4 weight Egyptian or American cotton

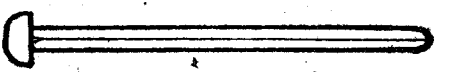

Mast
Main sheet
Forestay
Stem
Tiller
Kicking strap lashing between two eye bolts
Shroud
Thole pins
Halyard cleat
Shroud plate
Stem knee
Centrecase
Transom knee
Rudder
Skeg
Chine
Thwart
Centrecase
Thwart
Quarter knees
Breast hook
Thwart

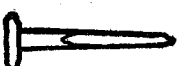
HOW TO LAY PLANK

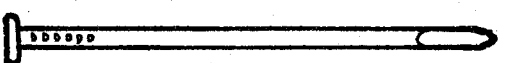


PLANK FASTENINGS

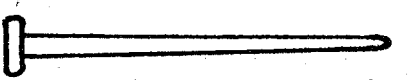

Brad


Galvanized boat blunt point


Copper tack


Galvanized wire or copper clench


Flat head screw

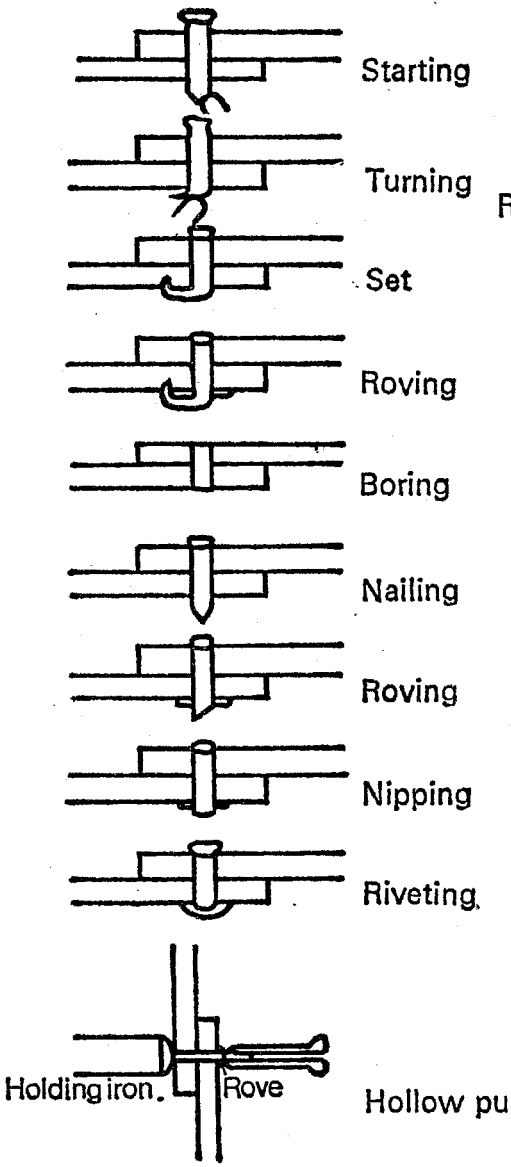

Galvanized or copper chisel point


Oval head screw


Galvanized wire or copper


Flat head stove bolt

Galvanized hatch nail



CLENCH NAILING AND RIVETING

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.

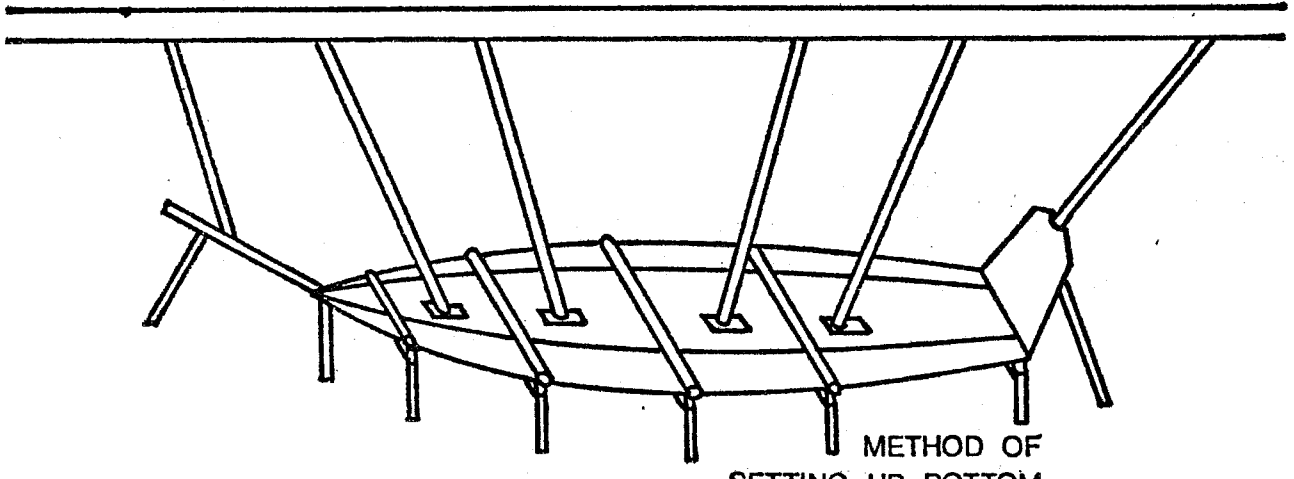
Throughout the boat all fastenings should be of non-ferrous metal, or should be heavily galvanized to prevent corrosion.

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.

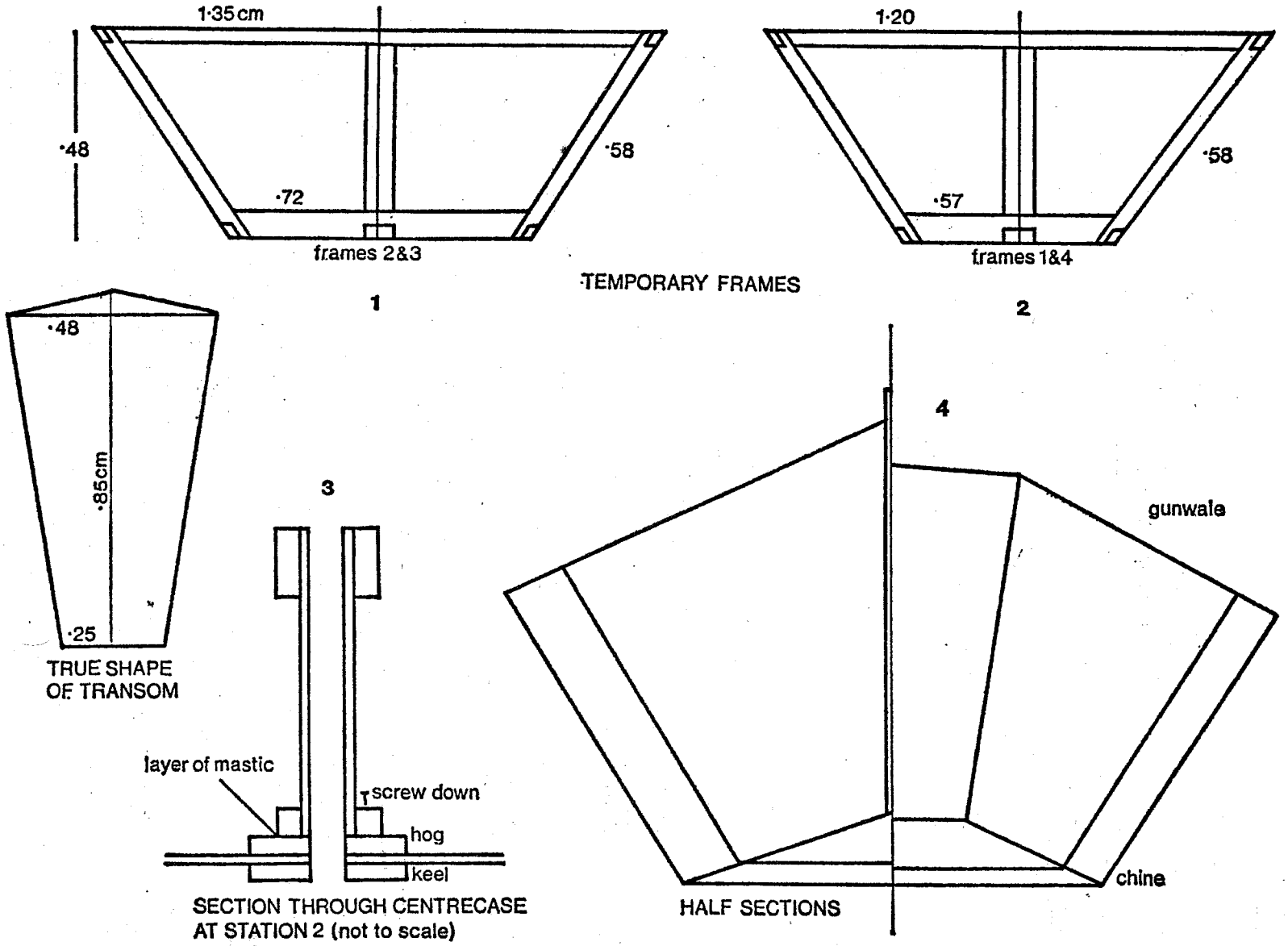
Screw and glue the hog on to the bottom, making sure none of the screws are in the way of the centreboard slot.

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.

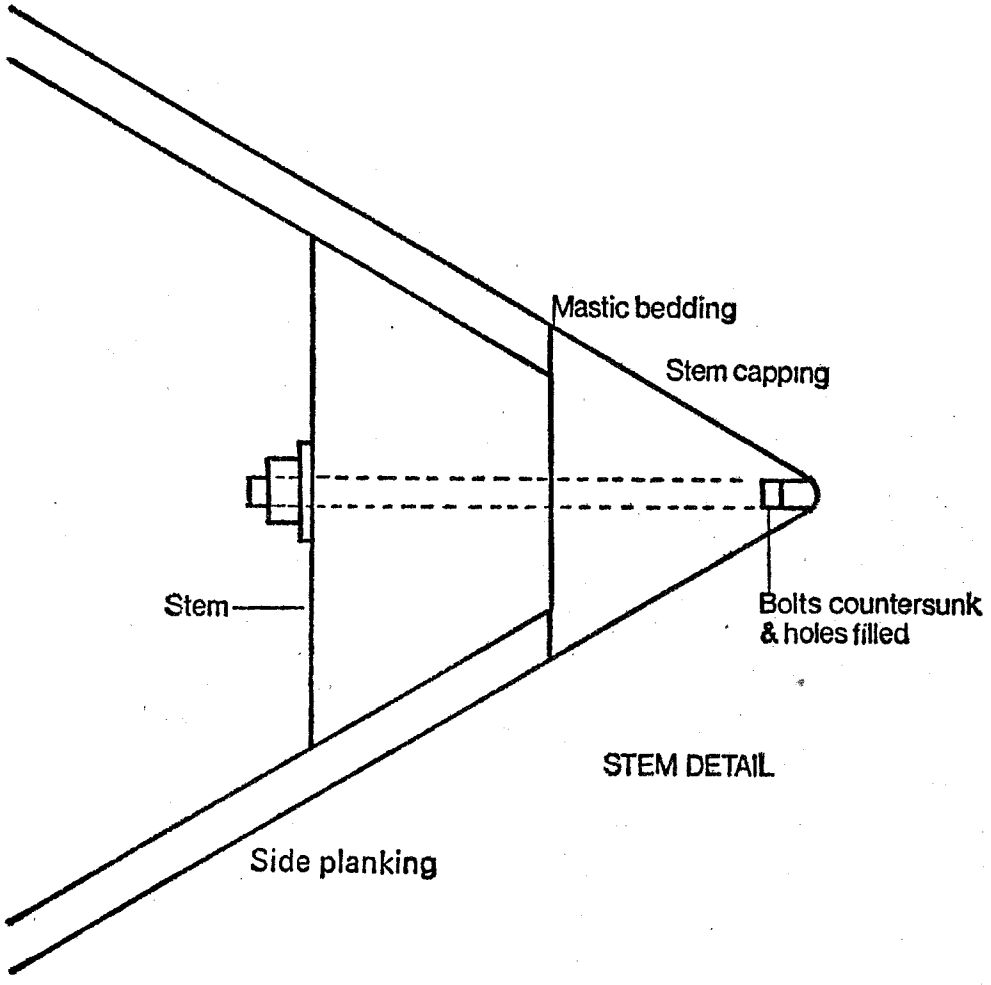
Build up the centrecase, making sure it is well screwed and glued together and that it fits the curve of the hog. Bed it in soft putty or

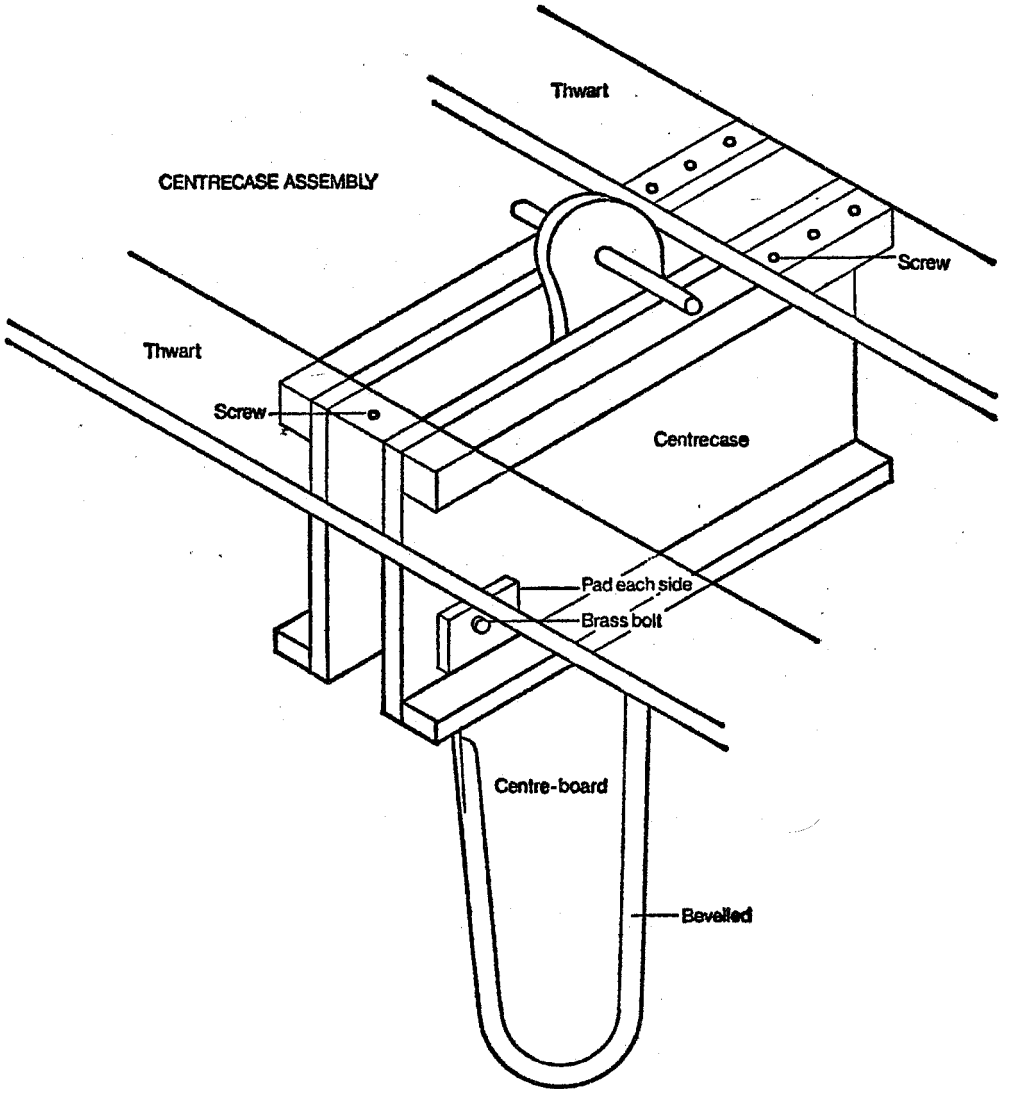


METHOD OF
SETTING UP BOTTOM



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.


Mastic bedding
Stem capping
Stem
Bolts countersunk
& holes filled
STEM DETAIL
Side planking


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.

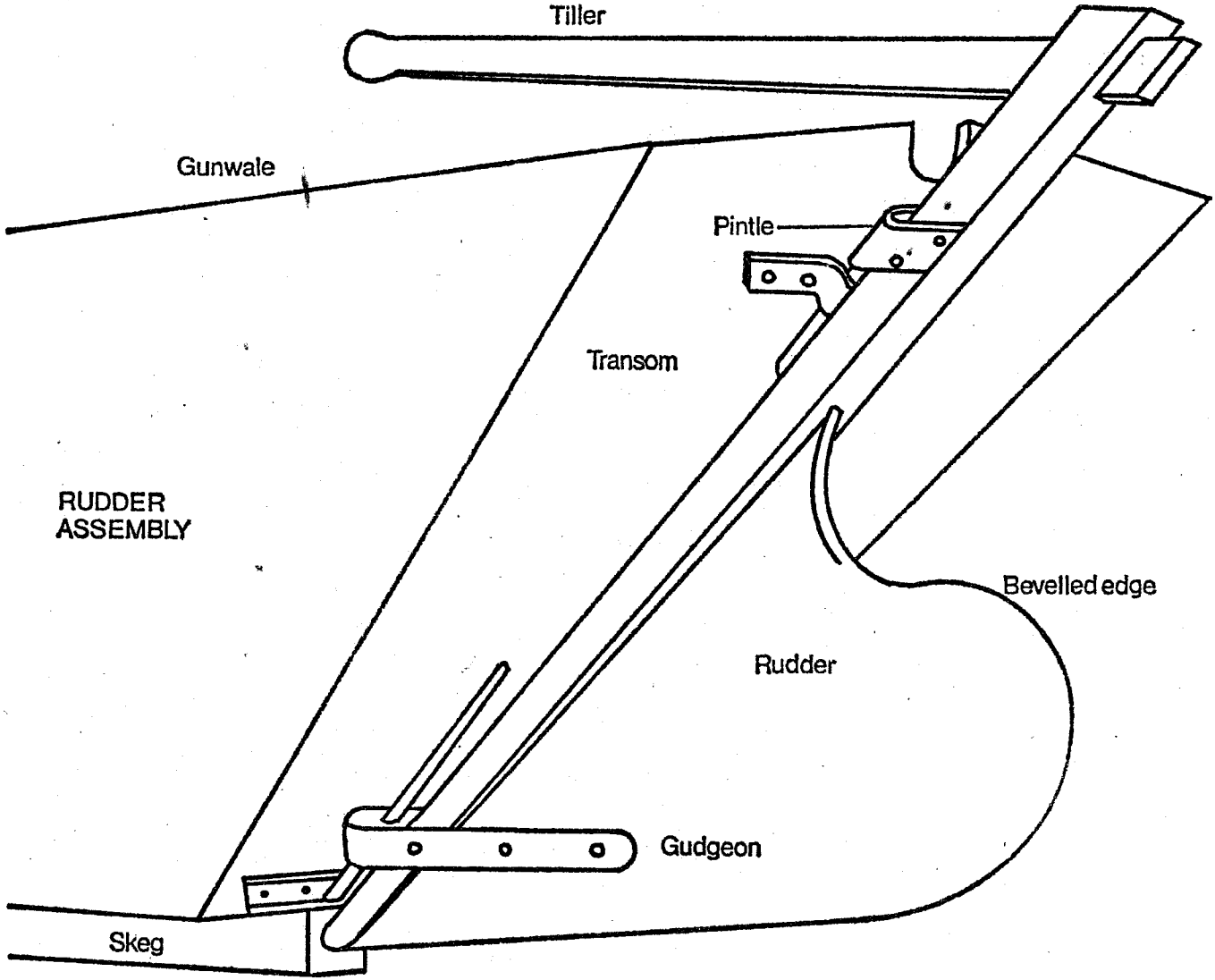
Plane the chines smooth and slightly rounded. Stop in any gaps and screw heads with marine stopping or a mixture of putty and red lead.

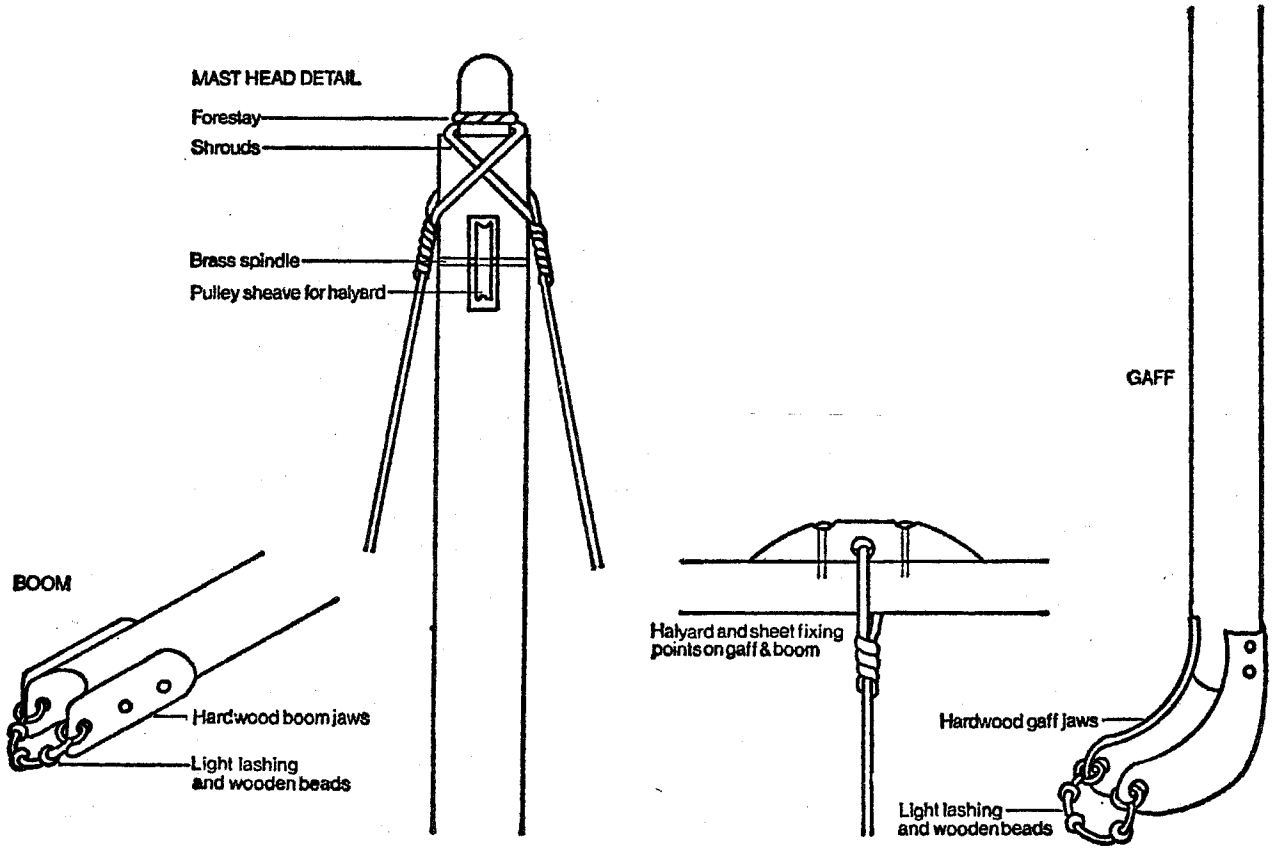
Make up and fit the false stem.

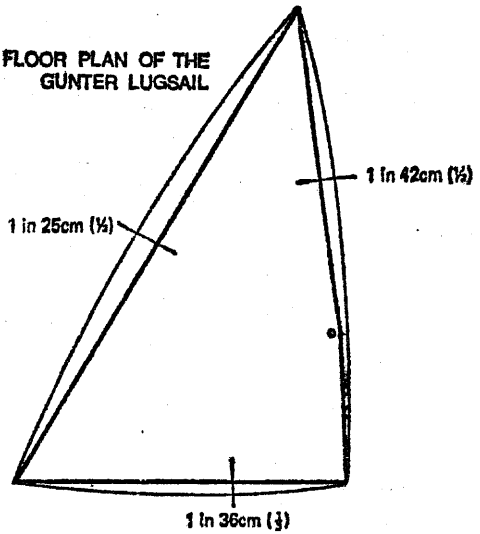
When the stopping is dry, rub down the outside of the boat with glasspaper and paint it.

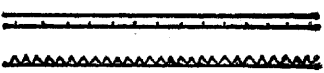
Make up the centreboard and hang it in the centrecase, using a brass bolt as a pivot. Stiffen the centrecase at this point with a 150-mm-square piece of 9-mm plywood on each side. The bolt must have rubber as well as metal washers to make the bolthole watertight.

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

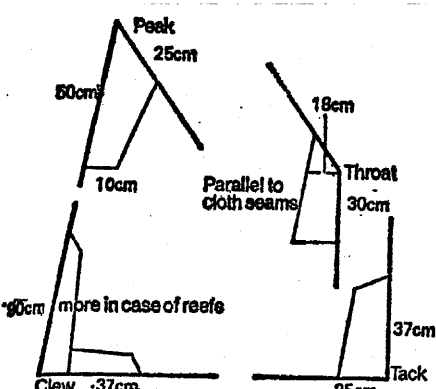

Tiller
Gunwale
Pintle
Transom
RUDDER
ASSEMBLY
Bevelled edge
Rudder
Gudgeon
Skeg


MAST HEAD DETAIL
Forestay
Shrouds
Brass spindle
Pulley sheave for halyard
BOOM
Hardwood boom jaws
Light lashing
and wooden beads
Halyard and sheet fixing
points on gaff & boom
GAFF
Hardwood gaff jaws
Light lashing
and wooden beads





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

mortiched 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.