

# GLASS, WOOD

To a degree rare in any single design — even when it's a world-wide classic — the materials. As well as the traditional carvel-planked pitchpine, this legendary little cruiser the third and final part of our series on the *Vertue*, Fred Barter, Adrian Morgan and John



## 1: Glassfibre

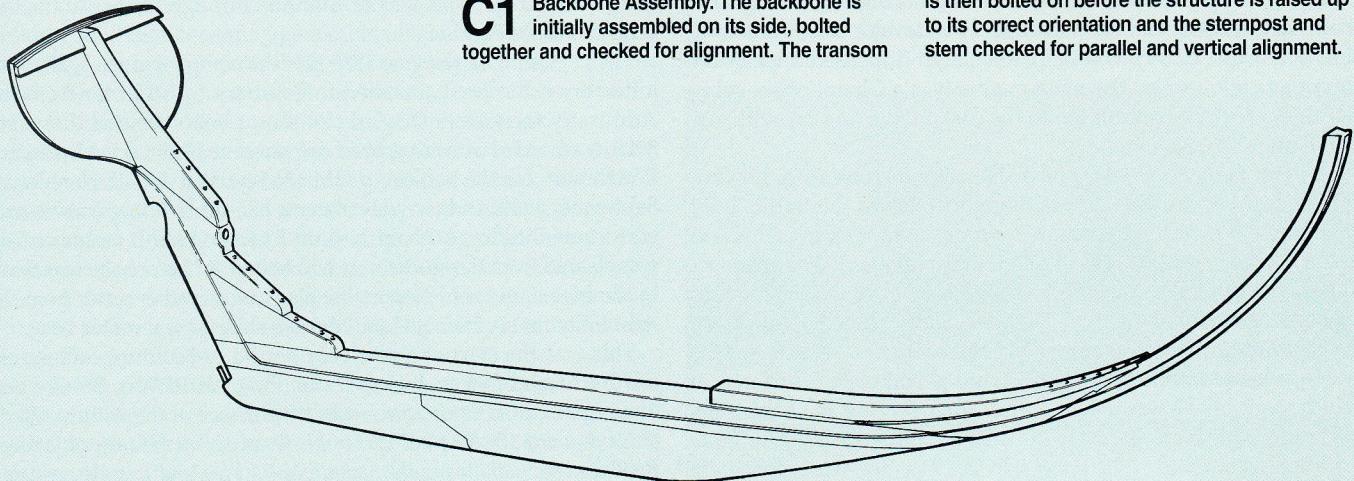
The world's 35th glassfibre *Vertue* was Fred Barter's *Merikala II*, completed last year. He visited the yard frequently during construction, had a hand in the interior design and worked closely with the builders — 'the advantage of a one-off build'. This is his annotated photographic record of the job.

## 2: Carvel-Planked Wood

Students at Lowestoft's International Boatbuilding Training College recently built a new *Vertue* the way Laurent Giles intended when he first drew Design No 15 in Lymington in 1935. Glen McCormack's deft draughtsmanship captured the process, with a commentary from the IBTC's John Elliot

**C1** Backbone Assembly. The backbone is initially assembled on its side, bolted together and checked for alignment. The transom

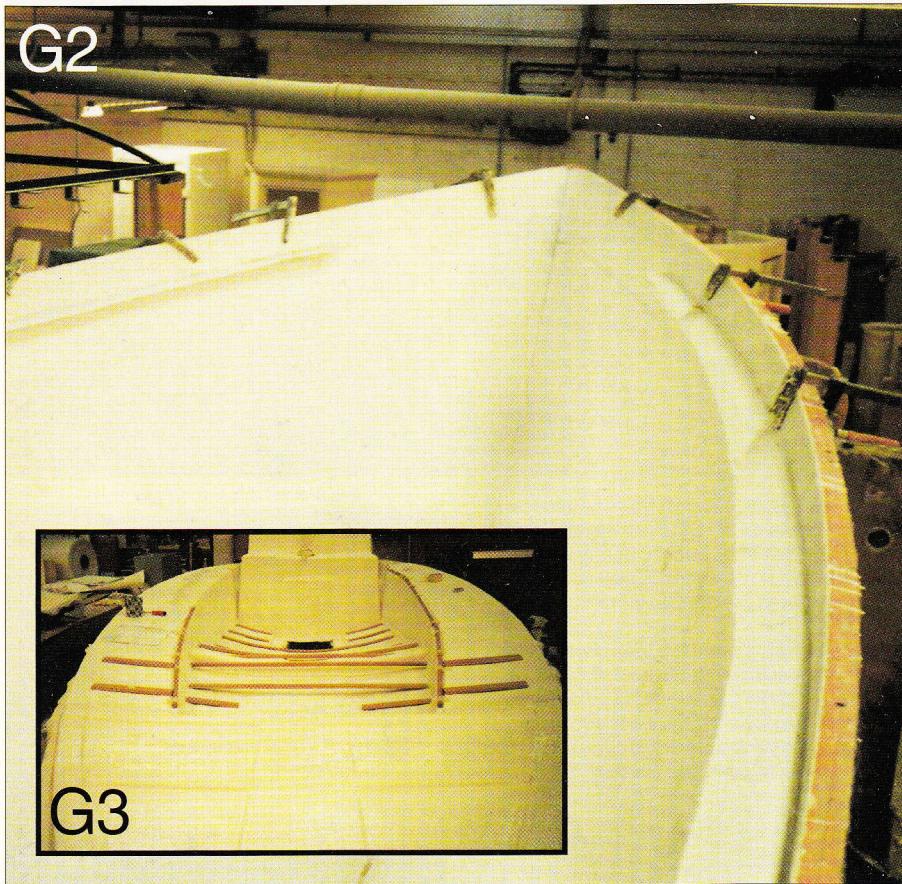
is then bolted on before the structure is raised up to its correct orientation and the sternpost and stem checked for parallel and vertical alignment.



# DAND GLUE

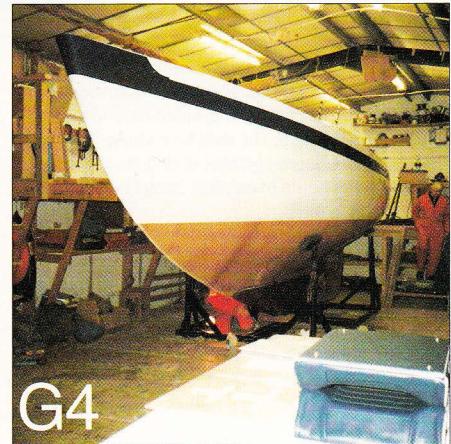
*sweet lines of Jack Laurent Giles's *Vertue* have been replicated in a multitude of*  
*has been shaped in both strip-planked and cold-moulded cedar, steel and glassfibre. In*  
*Elliot get technical about the three most popular construction methods...*

**G2**



**G3** There was a separate mould for the deck — here it is shown upside down, with the cockpit well projecting skyward. Impregnating the layers of glass with resin was done by hand, using a roller — a difficult job to do properly, requiring skill and experience. Timber slats were then laid in to form fixing points for fittings.

**G4** The bare hull after it had been transported to Bossom's of Oxford, who have fitted out most of the glassfibre *Vertues* built so far. Clear resin was used for the lower part — the hull's transparency makes it possible for a surveyor to check the quality of the lay-up.

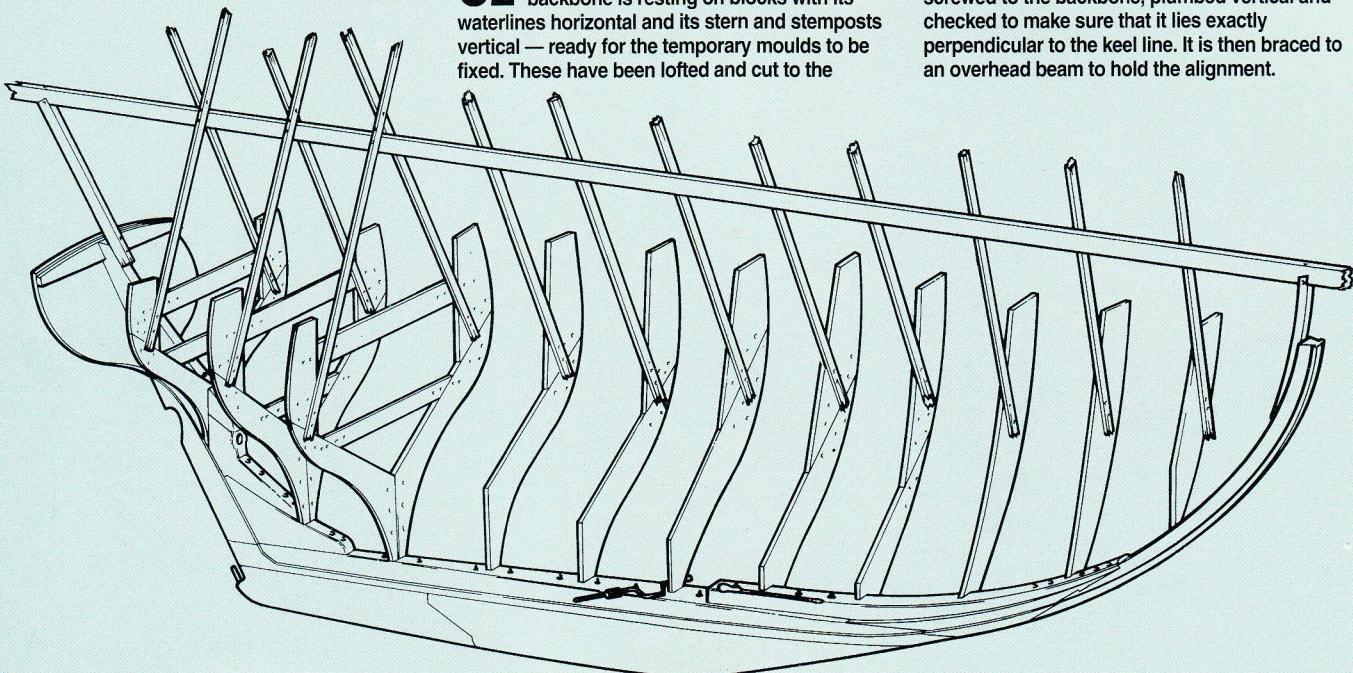


**G4**

**G3**

**C2** Mould fitting and alignment. The backbone is resting on blocks with its waterlines horizontal and its stern and stemposts vertical — ready for the temporary moulds to be fixed. These have been lofted and cut to the

inside-of-hull-planking. Each mould is temporarily screwed to the backbone, plumbed vertical and checked to make sure that it lies exactly perpendicular to the keel line. It is then braced to an overhead beam to hold the alignment.

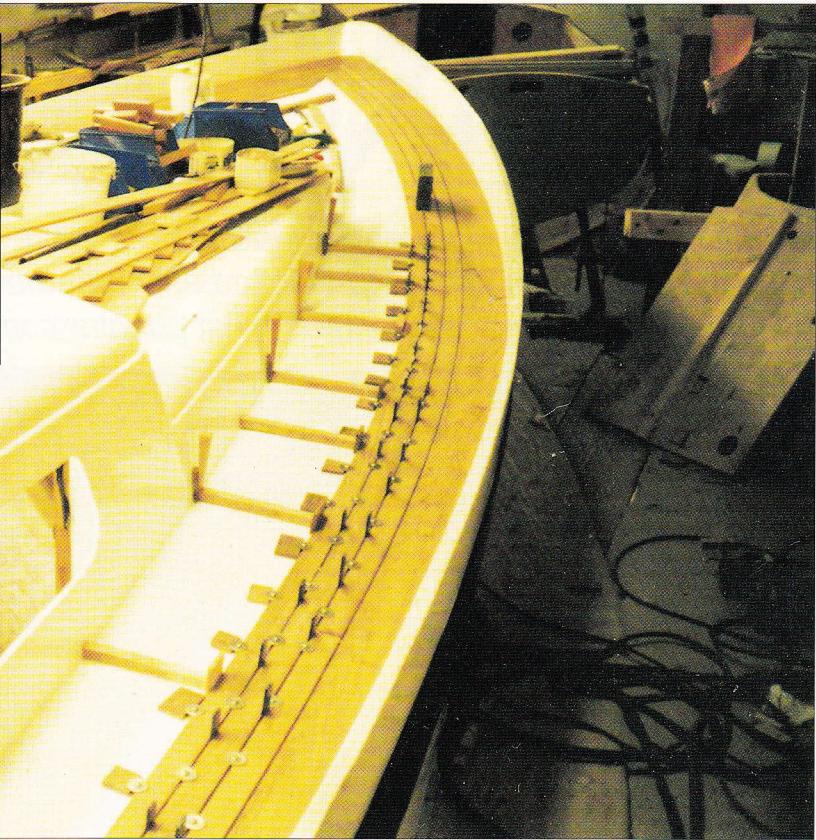


PHOTOGRAPHS BY FRED BARTER

ILLUSTRATIONS BY GLEN MCCORMACK



G5



G6

**G5** The moulded hull and deck incorporate the basic shapes of all the main elements of the boat. Coamings, cockpit and winch-mountings can clearly be seen here. The dark blue stripe line is formed with coloured gelcoat during the moulding stage, saving hours of painting later. The pigment is integral to the resin.

**G6** I decided on a teak deck for *Merikala*, on both safety and aesthetic grounds. This was glued directly to the glassfibre, avoiding the need for screw-holes but making the deck twice as thick as

normal. I was assured the join would be stronger than the glassfibre itself and that the extra weight would not unduly affect stability. Bossom's foreman Nigel Gray devised an ingenious method of wedges to ensure an even gap between the deck planks.

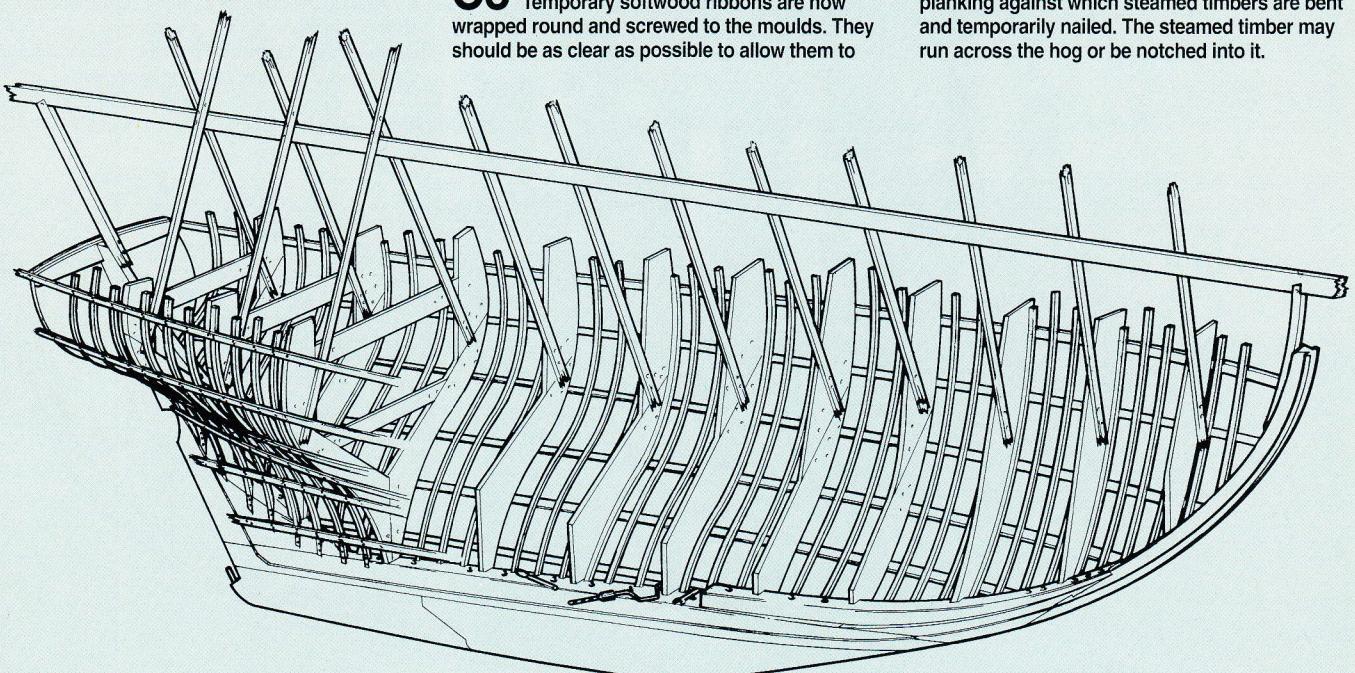
**G7** The teak gunwale has been steamed into place and the pushpit fitted. Despite steaming, an earlier gunwale had failed: while we were inspecting the stern, there was a sound like a gunshot — the plank had cracked clean across near the bow where the curve was greatest.

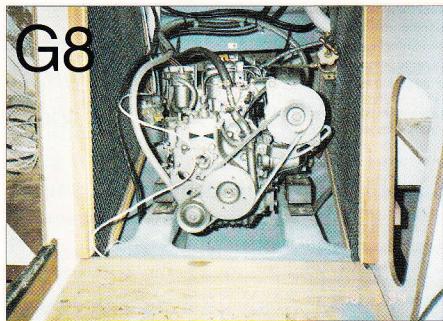


G7

**C3** Temporary ribbons and steamed timbers. Temporary softwood ribbons are now wrapped round and screwed to the moulds. They should be as clear as possible to allow them to

form a fair line. The ribbons form a temporary planking against which steamed timbers are bent and temporarily nailed. The steamed timber may run across the hog or be notched into it.





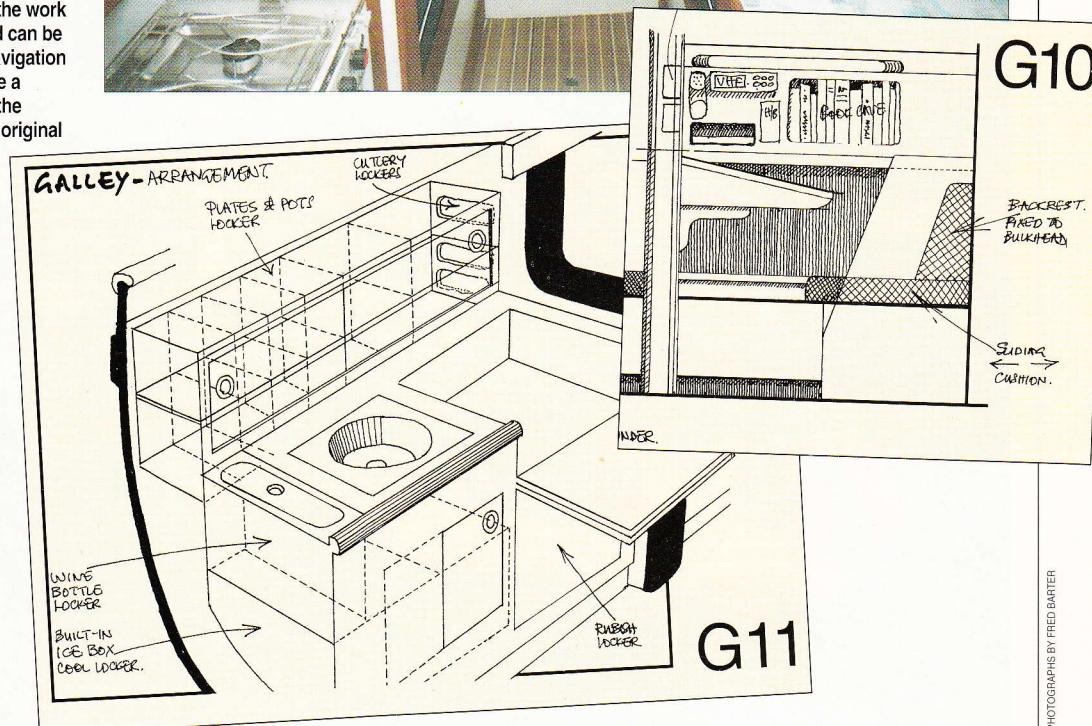
**G8** The 18hp Yanmar in place. I wanted an engine that could be started by hand and with easy access for servicing. The timber bearers were glassed into the hull and supplemented by steel plates — overall a much sturdier spec than most production boats would have.



**G9** The finished interior. The quality of the work on the capping for the half-bulkhead can be seen here. It not only houses much of the navigation instrumentation, it provides an excuse to use a beautiful piece of teak on a lavish scale. On the bulkhead are two Beken photographs of the original *Vertue XXXV*, taken in 1950.

**G10** I started planning the navigation area before anything else and it probably absorbed more of my time than any other part of the boat. It was real ergonomics (Ian Nicolson's *Boat Data Book* was invaluable for the dimensions of people, charts and books) and the finished product was rather like a fitted suit.

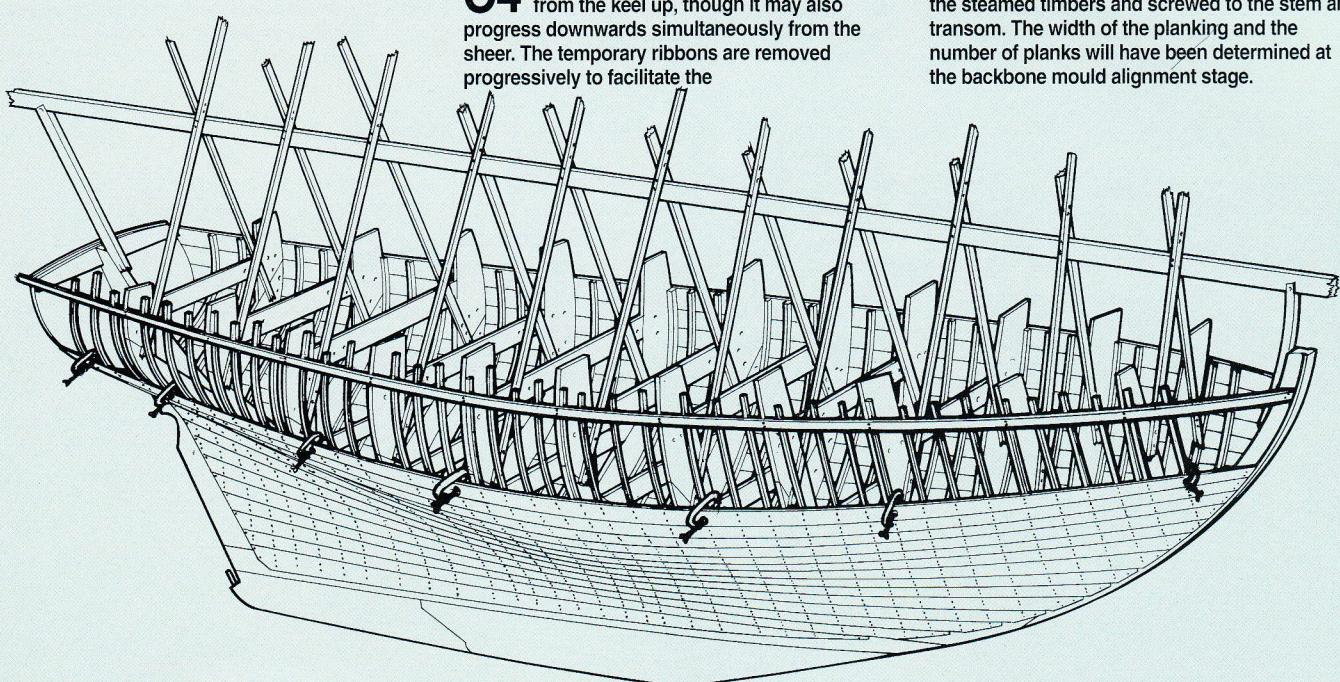
**G11** My original concept drawing for the galley arrangement. Bossmo's provided a set of 1:10 scale plans and a 1:10 scale model of the hull, on which I was able to try out many ideas for the interior layout and design — though in the end, I did not depart much from the inherited wisdom which governs the layout of most yachts. In the end, the choice of fittings was dictated mainly by what would fit.



PHOTOGRAPHS BY FRED BARTER

**C4** Planking the hull. Planking now starts from the keel up, though it may also progress downwards simultaneously from the sheer. The temporary ribbons are removed progressively to facilitate the

fitting of the next plank. The planks are roved to the steamed timbers and screwed to the stem and transom. The width of the planking and the number of planks will have been determined at the backbone mould alignment stage.



ILLUSTRATIONS BY GLEN MCCORMACK

### 3: Strip-Planked Cedar

Adrian Morgan has a traditionally-built wooden one, the lucky fella, but he still thinks a strip-planked *Vertue* combines the best of all possible worlds: strength, water-tightness, economy and the feel of wood...

Of the 26 wooden *Vertues* built since the *Vertue II* redesign in 1988, ten have been strip-planked, a method which is ideal for home building, is comparable in strength, and has the watertight integrity of the glass-fibre version, yet retains the feel of wood — and at a fraction of the price. Of the ten, two were professionally built in the UK — by

Consort and Victory Yachts in Kent — and one in Australia. Six more are either under construction or about to start as I write.

The method is essentially simple. Over temporary frames are laid 24mm (1in) strips of western red cedar, edge-glued. These are then covered in three layers of 1,200g E-glass impregnated with low-tem-

perature epoxy resin. Some builders use a sealing cloth inside, mainly for cosmetic purposes, others varnish or paint.

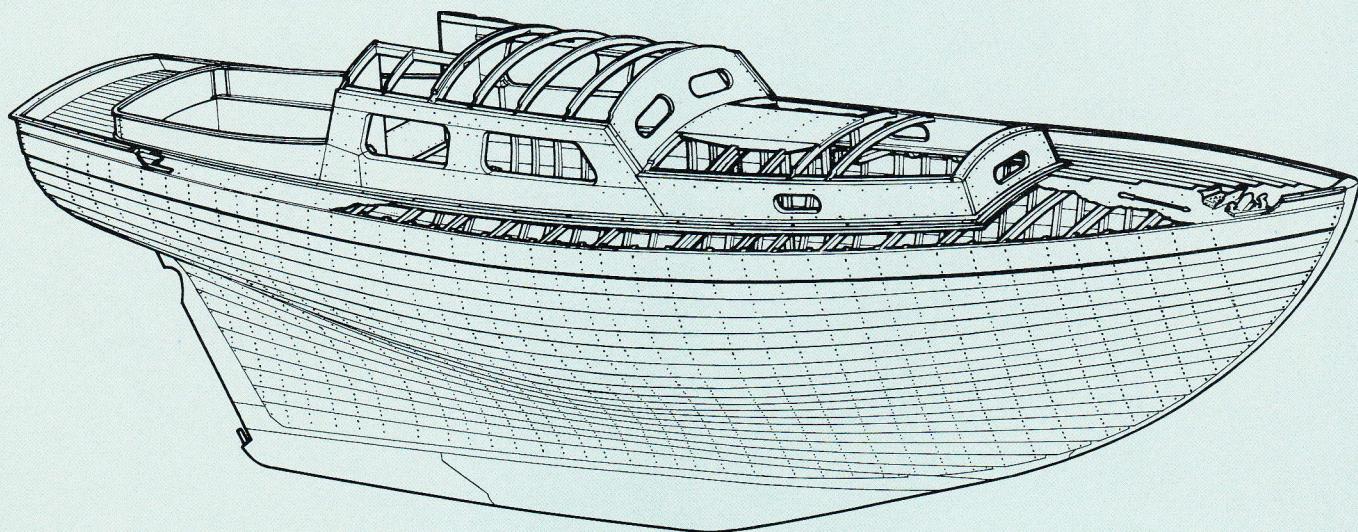
The transom is built up from two layers of 18mm (3/4in) ply. Hull strength derives from the strip planks alone, but 6in (150mm) plywood stringers at sole, seat and galley height — contiguous, but not



**C5** Decking. Once the planking is complete, the hull is braced and the internal moulds removed. The gunwale is then steamed and bent

to fit. The main deckbeams are cut in and the carlings and half-beams fitted. The upstands for the cabin sides are then screwed to the carlings

and the corner-post and cabin-sides fitted. The cabin beamshelf is fixed and the cabin top beams cut in. The deck is then laid.



necessarily continuous and not structurally necessary — serve the dual purpose of stiffening the hull further and carrying the furniture. The hull is essentially a monocoque.

Ring-frames and bulkheads take the place of traditional frames and timbers while the laminated floors carry the through-bolted iron or lead ballast keel. The weight is carried slightly farther forward to compensate for the modern trend in fitting anything between an 8 and 18hp diesel, weighing from 140 to 300lb (62-136kg). New Vertues are a little less 'nosey'.

Decks are constructed in a single layer of

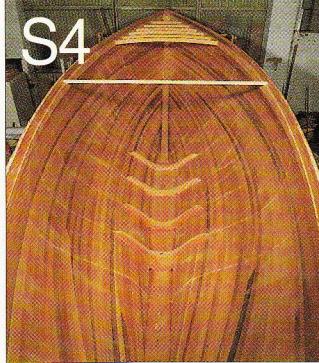
plywood, either teak-covered or with a largely cosmetic E-glass and epoxy layer with a non-slip deck paint.

The dimensions of the strip-planked Vertues are identical to the other Mk II glassfibre boats — slightly beamier than the Laurent Giles original, and a fraction lighter at a genuine 4.2 tonnes. The beam was increased so that the glassfibre version lifted more easily out of the mould.

Barry van Geffen decided against a lighter construction as the weight would simply have gone back in the keel and the sailing characteristics would have changed. Thus

two of the Vertue's primary virtues, bullet-proof construction and massive scantlings, are mirrored in the strip-planked version.

The original rig options are offered, slutter, masthead, bowsprit and even gaff. Nobel Masts in Bristol will build one of their eight-stave hollow wooden sticks for around £1,200 (without fittings). This compares favourably with aluminium in strength and cost yet is a claimed 10 per cent lighter. Noble or Carbospars on the Hamble will quote for a spruce-covered carbon rig, but take a deep breath before you ask. 



**S1** Setting up the moulds. The centre frame is laminated mahogany in four sections, with plastic sheeting to prevent it bonding to the moulds.

**S2** Laying the cedar strip. The ends are fastened to the transom with screws, and each plank is epoxy-glued to its neighbour.

**S3** Planked up and faired. The planking is laid from the sheer up and the keel down, with 'shutter strakes' in between.

**S4** The bare shell. The moulds are removed and four laminated floors bonded into place. Forward deck beams are notched in place.

**S5** The finished hull. The sheer strake is fastened and glued over the cedar, and the plywood superstructure is sealed with epoxy.

**C6** The finished boat. Although little appears to have changed between this and the previous drawing, it is between these two that the majority of time-consuming work is done. The

whole of the internal outfitting (joinery work, engineering, plumbing and electrics) has been carried out. Deck fittings (stanchions, winches, tabernacle, fairleads) and deck joinery (hatches,

handrails, dorade boxes and cockpit furniture) have been put in place. The hull cosmetics have also been addressed: fairing and caulking, paying the seams and painting.

