

‘The Silhouette’

**An investigation into the development
of yacht building, with particular
reference to the small sailing cruiser
known as the Silhouette**

**Dissertation submitted in part-fulfilment of the
requirements for the B. Ed (Honours) degree of the
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North Wales. The reason for the little boat's success, some of which I have already hinted at, will be discussed in a later chapter.

In the succeeding chapters we will investigate the design and the construction methods, the materials and the modifications that went to make the Silhouette. Chapter One will look at the design and the modifications that changed the boat throughout its development, Chapter Two at the building methods and how the different materials called for different methods. Chapter Three will be about those most important people, without whom the Silhouette could never be a success, the customers - some 5000 of them. And finally a brief look at small boat cruising today and in the future.

The Silhouette Mark I's (SI), of which 'Blue Boy' was the first, were only built in small numbers. S1 No 2 'True Blue' was sailed for many years as a bilge keel boat but converted to a special fin keel by Mr Mike Benwell, of Poole, in 1973. 'True Blue' is probably the oldest Silhouette still in constant use and a winner of many races in home waters. These early boats were built mainly by amateurs from plans supplied by Robert Tucker. The highest sail number recorded (Silhouette Owner No 184 Aug 1976), seems to be No 29. These two boats S1 No 2 and S1 No 29 are the only two recorded by the Owners Association and as Mr Tucker puts it, "much is lost in time and work," regarding the details of these boats. (Tucker 1978)

Arguably the most successful of the class were the Silhouette Mark 2's (SII), the first being 'Susanne' in 1955. 'Susanne' set the pattern for all the Silhouettes that followed; 17 feet 3 inches long with a beam of 6 feet 8 inches, the 'Serpentine' sheer and, of course, the three keels. 'Susanne' was longer, by 9 inches, than 'Blue Boy' and she was aimed, unlike her predecessor, at the sailing public and particularly the Americans.

The early SII's are of plywood construction on a wooden frame. The frame consists of a stem post of laminated planks that merged into the hog, similarly laminated, that

runs the length of the boat to the transom frame, aft. Aft of the stern is the forward bulkhead with an opening allowing access from the cabin interior to a forward stowage area for anchor, chain and warp. Between the forward bulkhead and the main bulkhead, situated at the aft end of the cabin, there are six floor supports, spaced at 12 inch centres, fixed to the keel and extending outboard each side to a point where they meet the inside of the hull. These floor rests support the floor, add strength to the area which supports the bilge keels and generally strengthen the bottom of the hull. The aft two floor supports also become lateral engine bearers when an inboard engine is fitted. Either side of the floor, running from off-centre forward to equidistance of the centreline at the main bulkhead, there are the bunk fronts. On the starboard side the bunk, 6 feet 6 inches long, runs the full length of the cabin. The bunk front is straight ($9\frac{1}{2}$ inches high) but the outboard side of the bunk runs around the shape of the hull. To gain extra width this bunk can be fitted with a 'bunk extension.' This extension consists of a separate bunk top that slides out from under the cushion of the bunk until it comes up against the mast tube: adding some six inches to the width of the starboard bunk.

The mast tube, situated centrally, directly under the mast step, stands upon a special pad fitted to the keel hog.

The mast support, of galvanized iron tube with a flange at each end, gives assistance to the cabin top in taking the load exerted by the mast, sails and rigging.

The port bunk is known as a 'quarter berth'; that is, it runs through the main bulkhead aft to the aft bulkhead; underneath the cockpit port seat. The forward end of the bunk protrudes into the cabin by 2 feet 6 inches. Forward of the bunk is the galley area consisting of a recess for the stove and the 'Galley flat'; a flat area with a cupboard under for food and cooking pot storage. Higher up, just above the bunks are shelves. At the forward end of the starboard shelf is a locker. Above the stove area is another shelf, above the port bunk, at the cabin end, there is a fold-away chart table. At the aft end of the starboard bunk are lockers, one extending down to the bottom of the boat to facilitate the hanging of clothes. On the centre-line of the aft end of the cabin is the engine box. This box houses the inboard engine if one is fitted, it also acts as a step-down into the cabin from the cockpit. Another step is the 'toilet box.' This conceals a bucket whose contents are discreetly put overboard after use, and the bucket swilled out in seawater.

Cabin headroom is low, 3 feet 6 inches at west (aft) and less than 3 feet forward. The side decks are supported on

beams which extend inboard from the 'beam-shelf'; a 2 inch by 1 inch strip running inside of the side of the hull acting as a type of 'inner' gunwhale. The cabin sides and coach-roof members being taken from the carlin. The windows, one at each side and two at the front, although, these were not fitted to all boats, are of $\frac{1}{4}$ inch perspex.

The cockpit extends from the main bulkhead, aft to the after bulkhead. It has a seat either side, the port seat having the quarter berth running beneath it. The starboard seat has a hinged top leading to a storage locker beneath. Below the cockpit floor there is only room for the exhaust pipe and the shaft leading from the engine. If there is no inboard engine fitted the boat is powered by an outboard motor and the space beneath the cockpit floor becomes storage with access from the cabin.

In the aft compartment, behind the aft bulkhead, there is the rudder post, its upper and lower bearings being concealed in a rudder tube reaching from the bottom of the boat and coming up and through the aft deck. The rudder is of iron, some were of wood, with a mild steel shaft, or post. The lower end of the post rests upon a gudgeon fitted to the skeg. The wooden tiller being fitted to the upper end of the post.

The skin of the boat is of $\frac{3}{8}$ th inch marine ply as is the

deck, the bottom, the transom and the cabin sides. The top of the cabin is made up of two $\frac{1}{4}$ inch thickness of ply laminated to form the curve of the coach-roof. Entrance to the cabin is normally through the main hatch. This hatch has a sliding portion on the cabin roof and washboards down the main bulkhead. The other entrance to the cabin is through the hatch in the fore-deck. The hatch cover is hinged allowing such equipment as the anchor, or ropes or fenders to be passed up on deck.

The Deck.

The fore-deck is fitted with a pair of handed fairleads, either side of the stem post. On the centreline of the deck is a sternhead roller allowing anchor chain or warp to lay over the bow. Aft of the sternhead is the forestay fitting. Nine inches behind the forestay fitting is the protruding end of the kingpost with its cross member of brass rod to make it into a very effective cleating post. The kingpost runs up from a pad fitted to the inside of the stem, where it joins the hog. Foreward of this fitting and attached to the stem is a steel strap to release the fore-deck of the full tension placed on it by the forestay. Aft of the kingpost is the chain pipe. This is a galvanized iron fabrication consisting of a $1\frac{1}{2}$ inch pipe bent at right angles with a flange welded to it to enable fitting to the deck. The chain pipe is to allow anchor chain or warp to be fed through the deck to the chain locker below.

On top of the cabin, directly above the mast support is the mast tabernacle. A galvanized iron fabrication with two cheeks between which the mast is stepped, the tabernacle is the mounting point for the mast. Outboard of the tabernacle, along the gunwhales, are fitted the shroud-plates. These are bolted to the sides of the boat and are the anchor points for the shrouds coming down from the mast. Aft of the shroud plates, level with the main bulkhead are the foresheet rails. Along the rails run the lead blocks that take the foresheets from the sail into the cockpit. At the rear of the cockpit is fitted a set of mainsheet fittings. And on the transom the plates to take the backstays. Also on the aft deck is a pair of fairleads and a mooring point to take a line.

The Rig.

The SII's rig is very simple, standing on a solid spruce mast 19 feet 9 inches tall raked back by 6 inches. The spreaders are fitted 10 feet from the deck and help the mast to support the 65 sq ft mainsail and 50 sq ft foresail of the standard working rig. Robert Tucker plans issued in October 1961 show a genoa of 67 sq ft and one of 100 sq ft. Also shown on this sail plan is a spinnaker but without a specified area. (See Sheet 1 of the 1961 plans) The sales brochure of the early Hurley boats show a spinnaker of 115 sq ft.

The boom is also of spruce, 7 feet 9 inches long of a rectangular section with the sail running inside it. The mast is supported by a forestay, two capshrouds and backstays running to the mast-head and a pair of shrouds running to the point where the spreaders are attached, known as 'lower shrouds.' The mast-head fitting to which the mast supports are fitted also has a fitting for the foresail halliard, a sheave for the mainsail halliard and a place to fit a block to take the spinnaker. This fitting is a fabrication of stainless steel or, in the very early days, $\frac{3}{32}$ inch brass, and fixed to the masthead with wood screws.

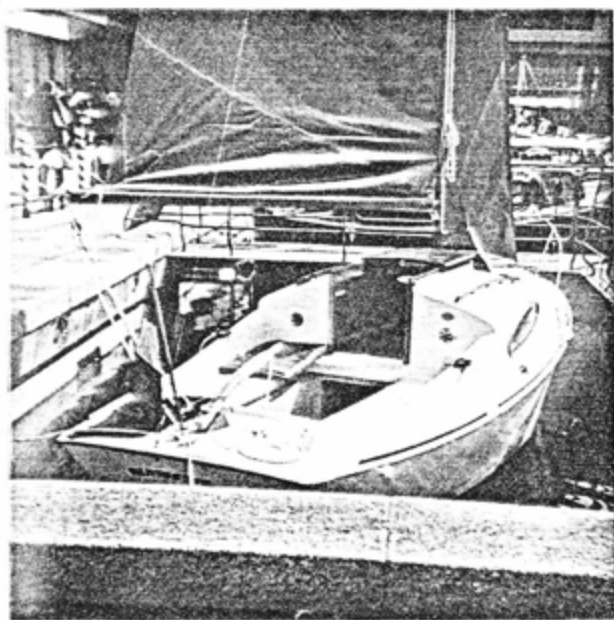
Construction.

To return to the woodwork of the hull, the frame is screwed and glued together while the outer plywood skin is also glued. But it is interesting to note that on the 1961 plan the use of glass fibre was beginning to creep into the Silhouette's construction. It was recommended by the designer that the end grain of the plywood, exposed on the chine, be covered with a 2 inch glass-fibre tape.

Glass fibre was the next step in the basic boat. The Silhouette Mark 2 turned into a 'fibre-glass boat, as can be seen by the Hurley brochures (document F & G, note the address and description on the brochures) and the change was final by the time the company moved to Valley Road.



No 1000 on Plymouth Hoe.



SILHOUETTE Mk. 2 GRP.
in the Milan Fair April 1964.

The glass-fibre SII was not very different from the wooden one except that the hull, deck and coachroof were now in GRP. The mould for the hull being taken directly from a wooden hull. The cockpit became self draining (the cockpit floor is above the waterline and pipes lead out to the bottom of the boat to take away spray or water that came aboard). The rig remained the same and the hatches and tiller remained in wood. A good example of this boat can be seen in the photograph taken in the Milan Fair in 1964, the wooden parts and the red sails adding warmth to the GRP boat.

During the development of the SII the spruce mast and boom were gradually replaced by aluminium. The galvanized steel fittings were replaced with stainless steel or brass castings, eg. the chain pipe became a casting. Nylon and tufnal fittings coming onto the market were incorporated and salesmen from all the yacht fitting manufacturers in the country came to Hurley, by now the biggest yacht manufacturer in Europe: if not in size certainly in numbers. Sails changed from cotton to terylene, rope from cotton and hemp to terylene and nylon. Many of these items had come before the GRP SII's. In the 1961 plans Robert Tucker brought together the modifications that had gradually been introduced, specifying such things as stainless steel rigging and terylene rope.

THE FAMOUS

SILHOUETTE MARK II

AND

(WOOD OR GLASS FIBRE)

FELICITY

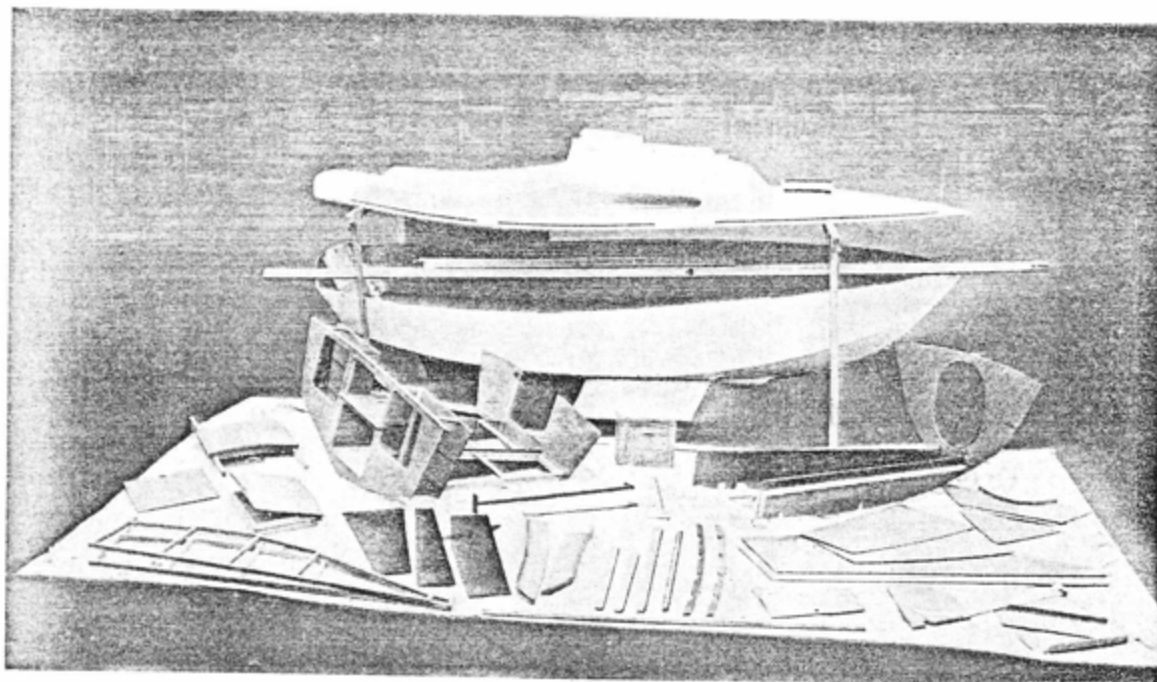
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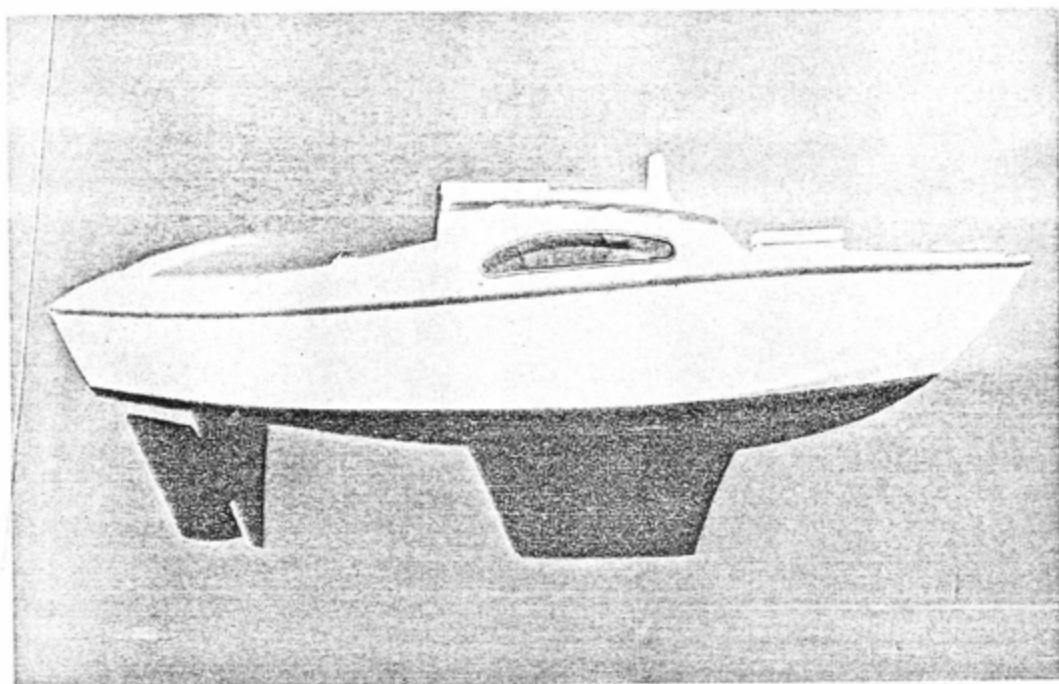
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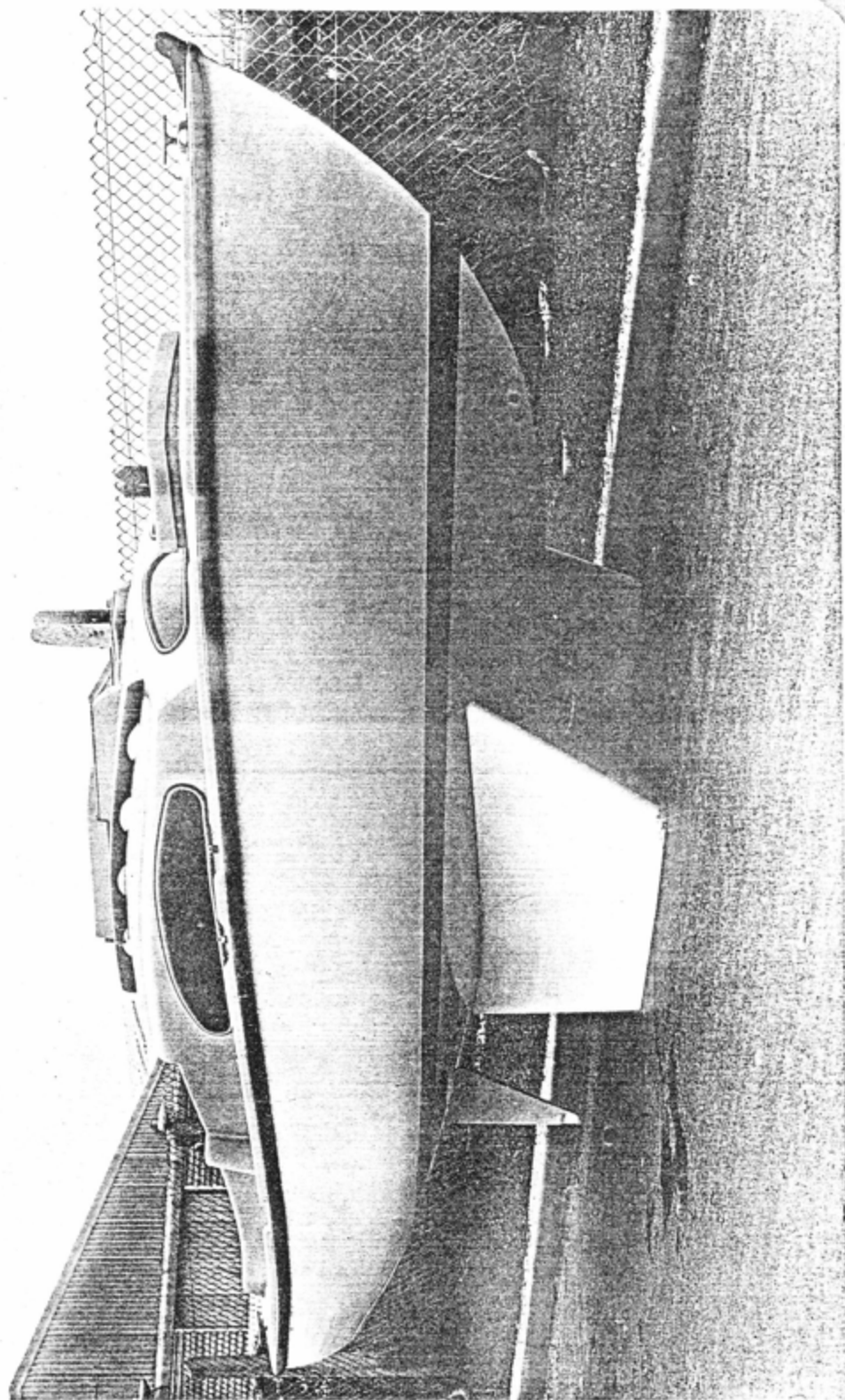
PLYMOUTH

In 1965 A. G. Hurley (Marine) Limited offered a fin keel version of the Silhouette. The 'Fin Keel Silhouette' had no radical change in the actual hull shape or had it changed in its interior. The great difference was the single keel replacing the usual three keel system or the more favoured twin keels version. Fin keels were not new to the Silhouette. Robert Tucker had produced drawings for alternative keel arrangements on the wooden boats, even a centre-plate version (see plans). The two types of fin keel he had proposed earlier were:

- (i) a $\frac{3}{8}$ th inch steel plate with 'ballast slabs' bolted along the lower portion of the keel, faired in to reduce drag and shaped in a triangular form.
- (ii) a wooden keel, 3 inches thick, with 280 lb of cast lead let into the lower half of the keel.

The fin keel offered in 1965, on the GRP version, was made up of a GRP skin with the weight internally set in with casting resin.

Another introduction in both wood and glass-fibre was the 'kit-boat' - this development is claimed as a first by George Hurley (see interview 3.4.78). In 1965 the SII glass fibre kit was offered at £425 and the wood version at £355. Boat building for the DIY man from kits was not new. Small Craft of Southampton had been offering such dinghies as the 'Enterprise' and the 'Wayfarer' for some time, what



MK. III BILGE KEEL SILHOUETTE (Rudder has not been fitted)

was new was the concept of a kit to make a cruising cabin boat. More will be said about kits later as they were directly derived from the production methods developed to build the boats.

Glass-fibre had taken hold of the yacht industry by the mid 60s and Hurley's was no exception. 1966 had seen the introduction of the Hurley 22 and Hurley 18 designed by Ian Anderson in GRP. By the time the company moved to Valley Road they were not only producing the Silhouette in GRP but also the 'Alacrity' designed by Peter Stephenson, the 'Signet' designed by an American, S. L. Kaye and three Anderson boats, Hurley 18, 20 and 22.

With the emphasis on GRP came the Silhouette Mark 3 (SIII). This boat was different to the Mark 2, its length was the same and so was the beam but the boat was a GRP boat through and through, it resembled the Mark 2 in outline, it had the same serpentine sheer and the line of the stem and stern were similar. From a distance the Mark 3 is as distinguishable as the Mark 2 and the inexperienced eye would have difficulty in recognising one from the other. But the boat is different, it was conceived as a GRP boat and the flexibility of design allowed by the material is used in the Mark 3. Corners are rounded on the deck moulding, winch pads are moulded in, hatches - made of wood in the Mk 2 GRP version, are moulded. The three keels

have gone and the bilge keel version has two keels, with a separate skeg for the rudder. The big difference is that the boat has lost its chine and has become a round bilge boat.

The layout inside the SIII - no romantic name introduced this version such as 'Blue Boy' or 'Susanne' - has two berths both inside the cabin. The galley area of the SII has gone and the bunks stretch the full length of each side of the cabin. The shelves over the starboard side forward moved to the port side. Inboard motors had practically disappeared and the area they had occupied became a 'sort' of galley. The toilet box was no longer fitted, the American versions however, having a sea toilet fitted in the forward end of the cabin between the berths.

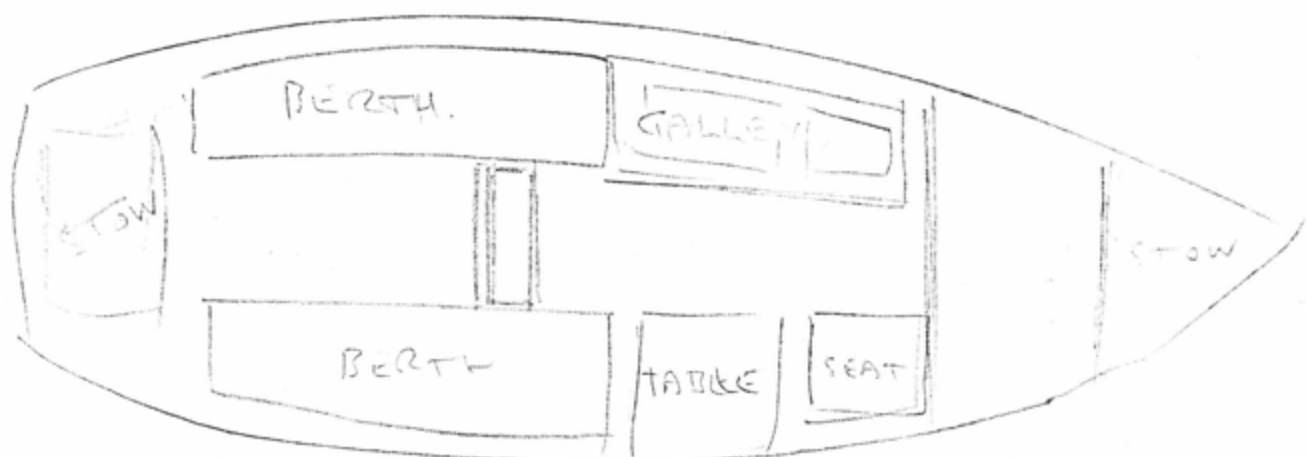
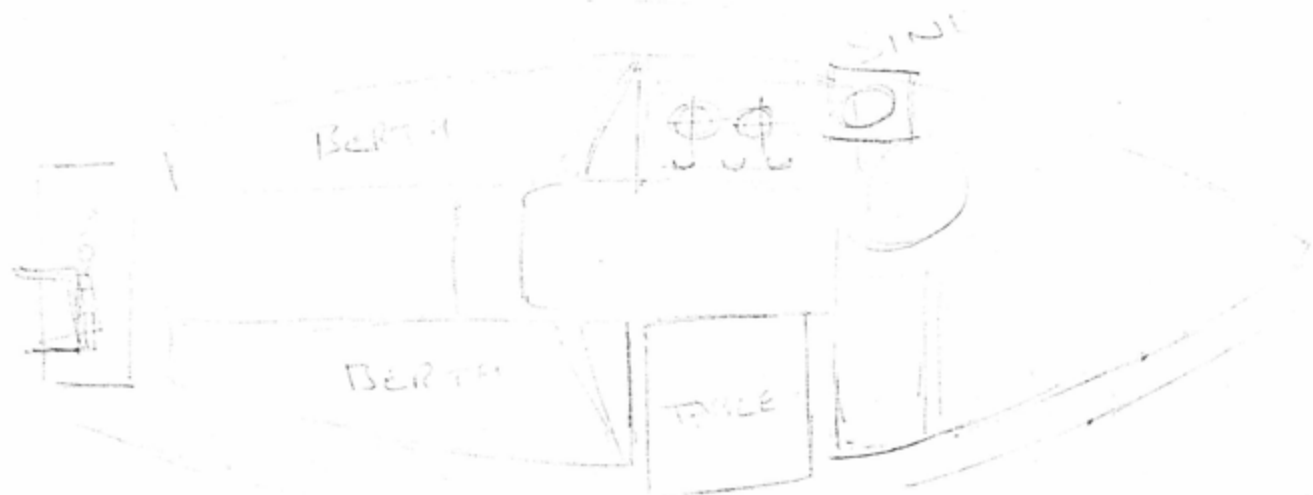
Propulsion, other than by sail, was now almost exclusively by outboard motor and a pad and mounting was moulded in the transom to accommodate these engines. The SIII had a hatch aft allowing access to the aft locker. To make this locker more useable and to make the moulding of the deck technically possible, the rudder post now came up vertically in front of the aft bulkhead. Also both of the cockpit seats had lockers beneath them, the starboard one having a hole cut through to the aft locker so as to make possible the stowage of a long shaft outboard engine.

The Mark 3 had a slight change in sail area, the main became 99 sq ft and the working jib 66 sq ft. The genoa was increased to 110 sq ft and the aluminium boom was with rollar-reefing replacing the old style reefing used on the earlier boats. The Silhouette Mark 3 is a very well designed boat developed through long experience of building over 2000 Mk 2's. But human nature as it is and the demands of the sailing public placing their needs at the door of Hurley Marine brought about the search for more accommodation.

The 'new boat' that emerged was the Mark 4 or 'Silhouette III/4', or '4 berth Silhouette 3', depending upon who you happened to ask about the boat. The story of the Sil IV is, as Robert Tucker called it 'somewhat cloudy' (Tucker 74 SIOA, Journal No 161) the cloudiness also prevailed at the factory. No-one seemed to be clear as to what went to make up a Mark IV except that it became a four berth boat, two quarter berths and two berths in the cabin. The designer proposed that the headroom in the cabin be increased by 4 inches, by revising the upstand on the shear, but this change was not made. He also proposed that the cabin be extended to the aft end of the bridge deck step, but this modification was never implemented. Twenty of these Mk IV's were made by Hurley Marine Limited all for J. G. Meakes Ltd of Southampton who became selling agents for the Mk IV. These boats were made between February

1973 and the time that the moulds were sold in 1974. The sail numbers ran between 102 and 120, the first Mk IV having a sail number of 361 (this information and other sail numbers and boat numbers used throughout this dissertation come from the old record books of the company which are held by the writer). Now there is the Mark 5 built by Russell Curnow of Penzance, but more about that in a later chapter.

The modification and changes that were carried out on the basic designs of the different marks of Silhouette were numerous. Probably the greater number being applied to the Mk 2's. As mentioned previously the modifications that were being implemented on the Mk 2's before 1961 were brought together by Robert Tucker in his set of plans issued in that year. From 1961 there came many modifications and variations for individual customers and individual markets. The American market, for instance, demanding sea toilets. Certain parts of the world brought their demands, Florida for instance where there are only light winds during the summer months needed bigger sail areas that in turn brought about the introduction of a bowsprit. The Silhouette Mk 1 had what was known as a 'three quarter rig', this rig was also used on the Mk 2's. Also on the Mk 2's was available a 'diamond stay rig' (see photographs of SII/104 and 178) and a 'stem-head rig'



Sketches made during the search for
the design of the Mark IV Silhouette.

1972.

the forestay being brought to the stem-head rather than the forestay fitting on the foredeck. All of these different rigs had their own sails.

Different motors were installed; the Stuart Turner water cooled $1\frac{1}{2}$ hp and the R3M, the Watermota 'Sea Urchine' and 'Shrimp.' Owners fitted their own inboard engines, a Villiers air cooled motor cycle engine for instance. Outboard motors were, of course, usually supplied by the owner after buying the boat but as British Seagull were quick to see, using the Silhouette in their advertisements, the outboard usually used was the Seagull. Outboard motors created a great number of innovations on the Silhouette; swinging brackets to lift the motor out of the water when sailing; up-and-over brackets to enable the crew to lift the motor. A bracket was once devised, on a Mk3 for a man who had a history of heart trouble and a back complaint, not only to lift the engine clear of the water but to lift the engine into the cockpit.

Another bracket device that was once considered was a pivot~~ing~~ing pulpit. This system was designed to allow the owner to lower his mast, sails and rigging, easily and quickly, to enable him to go under bridges ie. on the Norfolk Broads, it was, however, originally designed for use on the canals.