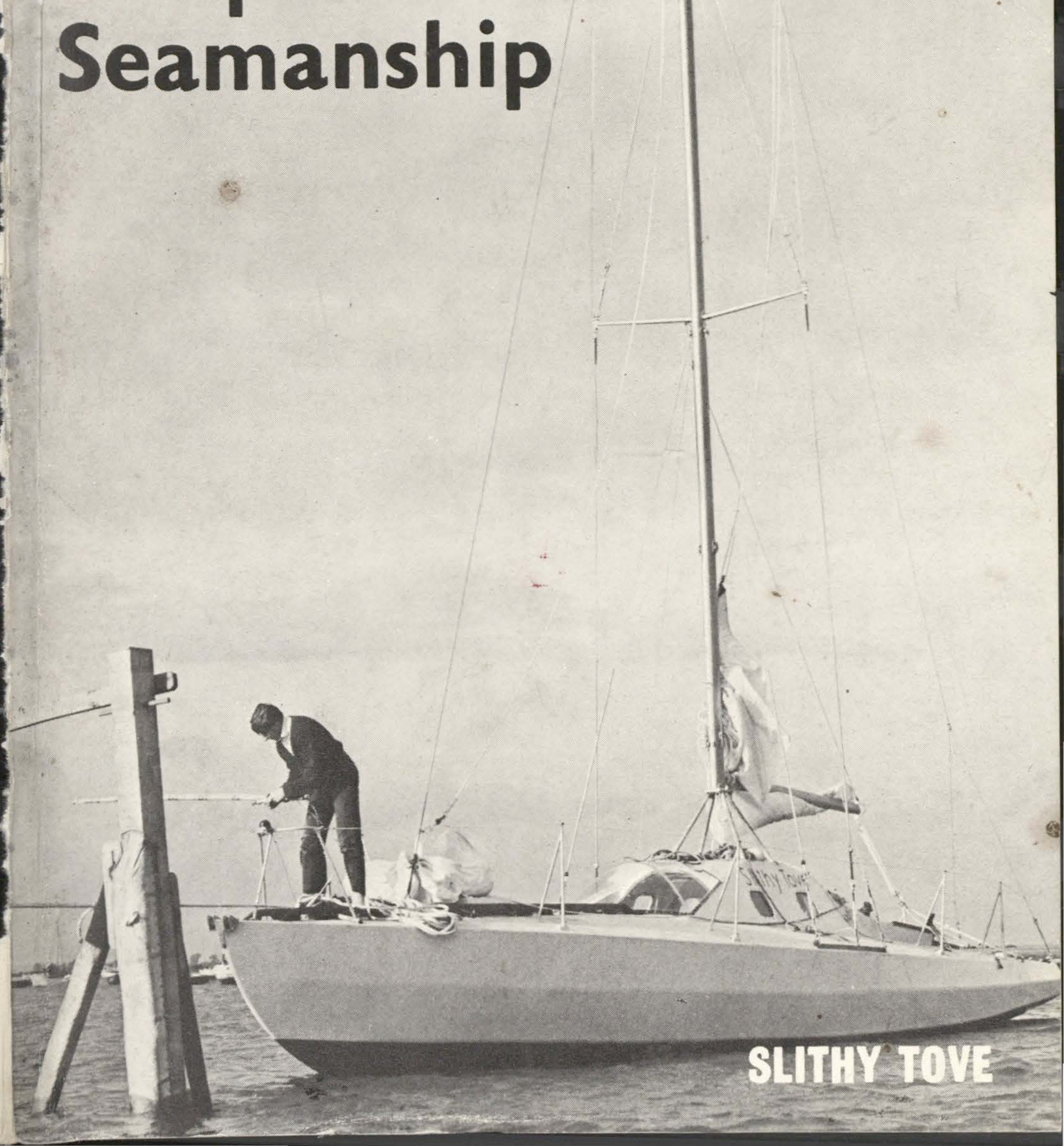
AYRS PUBLICATION No. 75

Deepwater Seamanship



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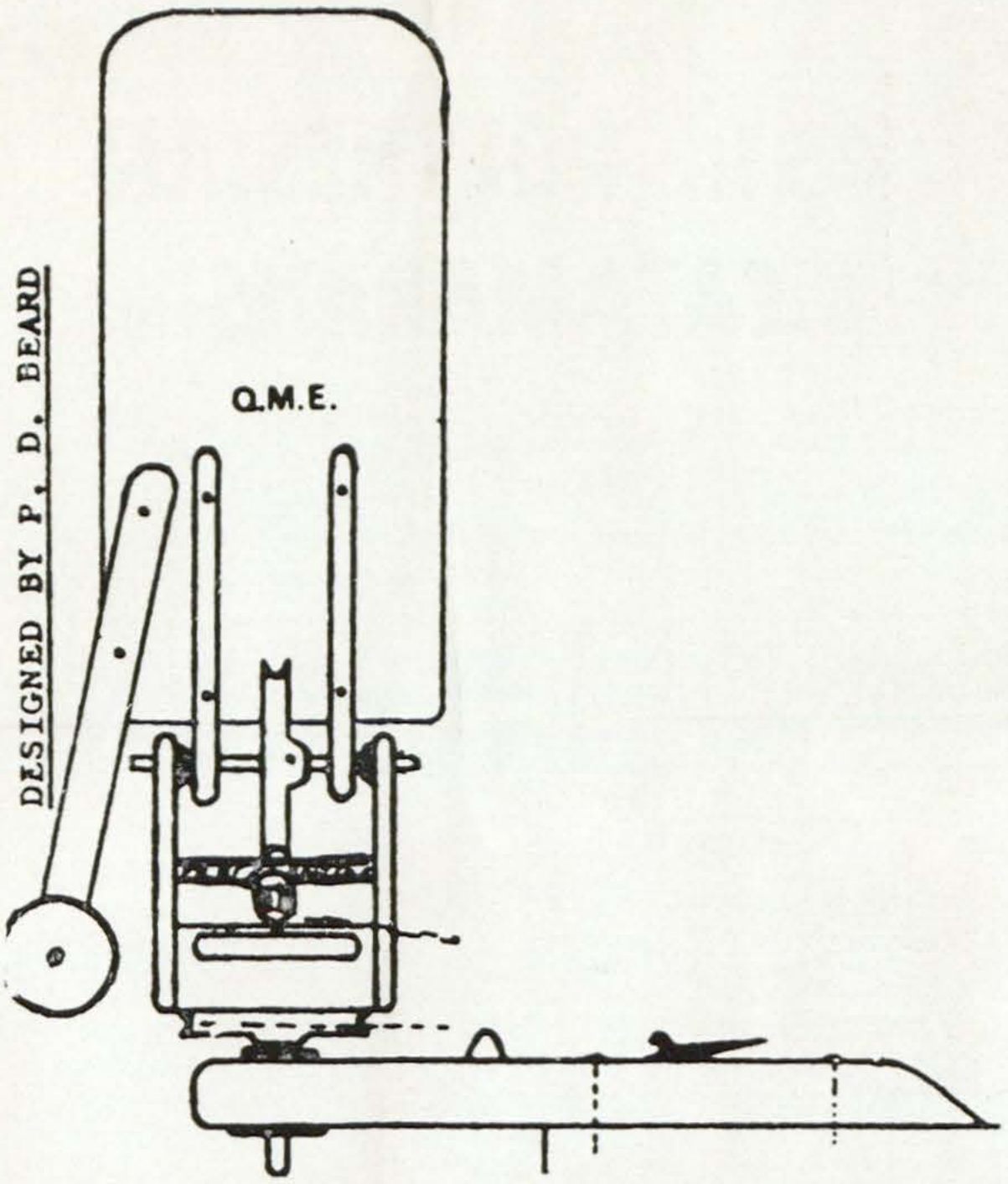

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CONTENTS

We have had some very sorrowful letters from people about the increase in subscription. We can assure you all that it is with the greatest regret that we decided to raise the subscription—after all, we also have to pay the increased charges. However, our costs rise continually, the publications get larger (Sailing Hydrofoils was 385 pages), postage goes up. But the greatest increase in cost derives from the fact that the AYRS has now grown to a size where it can no longer be run as a spare-time hobby by Hetty Tett and John Morwood. The Society has not had to pay for all their work for the last 15 years, nor has it had to pay their expenses for many of the things which have to be done to keep things running.

Neither Hetty nor John will give up working for the AYRS but they will only be doing what work they can do to help Michael Ellison and the Committee run the Society and bring out the publications. The AYRS routine work has now been successfully transferred to Michael Ellison and is running smoothly, though Mike tells us that he was surprised by the amount of work connected with the day to day running of the AYRS.

We can now hope that the Dollar subscription will stay constant for many years to come. One of the ways in which this can be assured is by increased membership and we once again exhort each member to get as many new members as he can. The present membership is some 2,400 and this allows us to have a print order in excess of 3,000. As the print order rises above 3,000, the individual cost of each falls and so from now on, each new member reduces the cost of each publication we print.

DEEPWATER SEAMANSHIP

Foreword by John Morwood

"Seamanship" cannot easily be defined. Perhaps the best way of thinking about it is to divide it into two parts and state the matter as follows:—

1. "Seamanship" is the human capacity to prepare a boat ready for sea in such a way that no part shall be liable to break as far as is humanly foreseeable. However, because many items have been shown to break from unforeseeable causes, replacements or means of repair for all such items including the hull itself should be carried. Furthermore, a full load of consumable stores of all kinds should be carried for the longest conceivable time for which the boat could be at sea in the event of a major disaster such as the loss of the mast or masts. Thirdly, no available item of equipment should be missing from the boat which contributes to safety or the objective of the voyage within reason. Nowadays, we would include under this heading things which contribute to the comfort of the crew (though how far this should be taken is open to question).

2. "Seamanship," as well as having a boat "found" as above, is the human ability accurately to navigate from one port to another, making the best possible use of the wind and water currents, never where humanly possible placing the boat in any danger from collision with another ship or the shore or carrying

an amount of sail which could cause damage. It comprises also the ability to carry out effective running repairs and maintenance to sails, rigging and hull at sea. Moreover, the crew must be maintained in a state of comfort and contentment throughout the voyage.

The ultimate aim of "seamanship" is to take a boat from one harbour to another without damage or risk of damage and with a happy and contented crew. If a breakage should occur through some unforeseeable factor, it should be quickly and skilfully repaired or replaced.

Essentially, the overall purpose of the AYRS series of publications is to produce seaworthy boats and seamanship in their crews. Some people, of course, say that no multihull is a seaworthy boat. What they mean, I believe, is that some multihulls need more seamanship than single-hulled boats. Others, such as the Wharram cats, need less seamanship. The "Foiler," when we get it developed, will need even less care in sail handling but will still need all the other items of seamanship, as given above.

Many of the AYRS series have been concerned with yacht design in various forms. This publication is concerned with true seamanship, mainly. For most of it, we have drawn from the experience of the yachts in the Round Britain Race of 1970. This race was devised to develop yachts and ocean seamanship and it has been most successful in doing so. The information which Mike Ellison has been able to get from his own experience and from that of the other competitors is a veritable gold mine of seamanship, in all its forms.

The publication was assembled and mostly written by Mike Ellison. He sent questionnaires to all the competitors and, from the replies and his personal knowledge of the boats because he took part in the Round Britain Race himself, the account is of exceptional interest to every yachtsman, whether or not he ever takes part in any race at all.

When we appointed Mike as "Director" of the AYRS, we knew him as a merchant seaman in cargo boats, a single-handed yachtsman (OSTAR of 1964) and a competent executive in his family firm of Agricultural Engineers. We now find that, not only does he know seamanship but he can put down the essential ingredients of seamanship in good clear English.

This publication was originally scheduled to be called "Round Britain 1970." However, it has turned out quite differently from a mere account of the race itself. Becuase it was the AYRS which sent the questionnaire, the replies were concerned with various aspects of seamanship and no attempt has been made to produce an account such as could have appeared in a newspaper. No exciting finishes have been worked up for any part of the race. There is no "journalese." It is simply a factual account of the boats, their equipment and how the sailors organized the voyage—in other words, just seamanship. We therefore felt that the best title was "Deepwater Seamanship."

After the title was selected and the first part of this "Foreword" had been written, Mike Ellison and I were discussing the material. We then realised that, in order to win a race, seamanship is often sacrificed. Three examples of this spring to mind:—

1 Many competitors held on to their spinnakers too long, bearing in mind the restriction of being only two persons aboard each boat.
2 Derek Kelsall sailed across the shoals at the entrance to Castle Bay in the 1966 Round Britain Race, a thing which no local fisherman would ever do.
3 Mike Butterfield's capsize, described in this book, was due to sailing too hard when tired and would never have happened when cruising.

We are happy to give you this account, edited by Mike Ellison of "Deepwater Seamanship." It is not a 'Manual' on the subject but rather an account of how practical yachtsmen applied seamanship in a 2,000 mile race.

THE LONDON BOAT SHOW 1971

by Michael Ellison

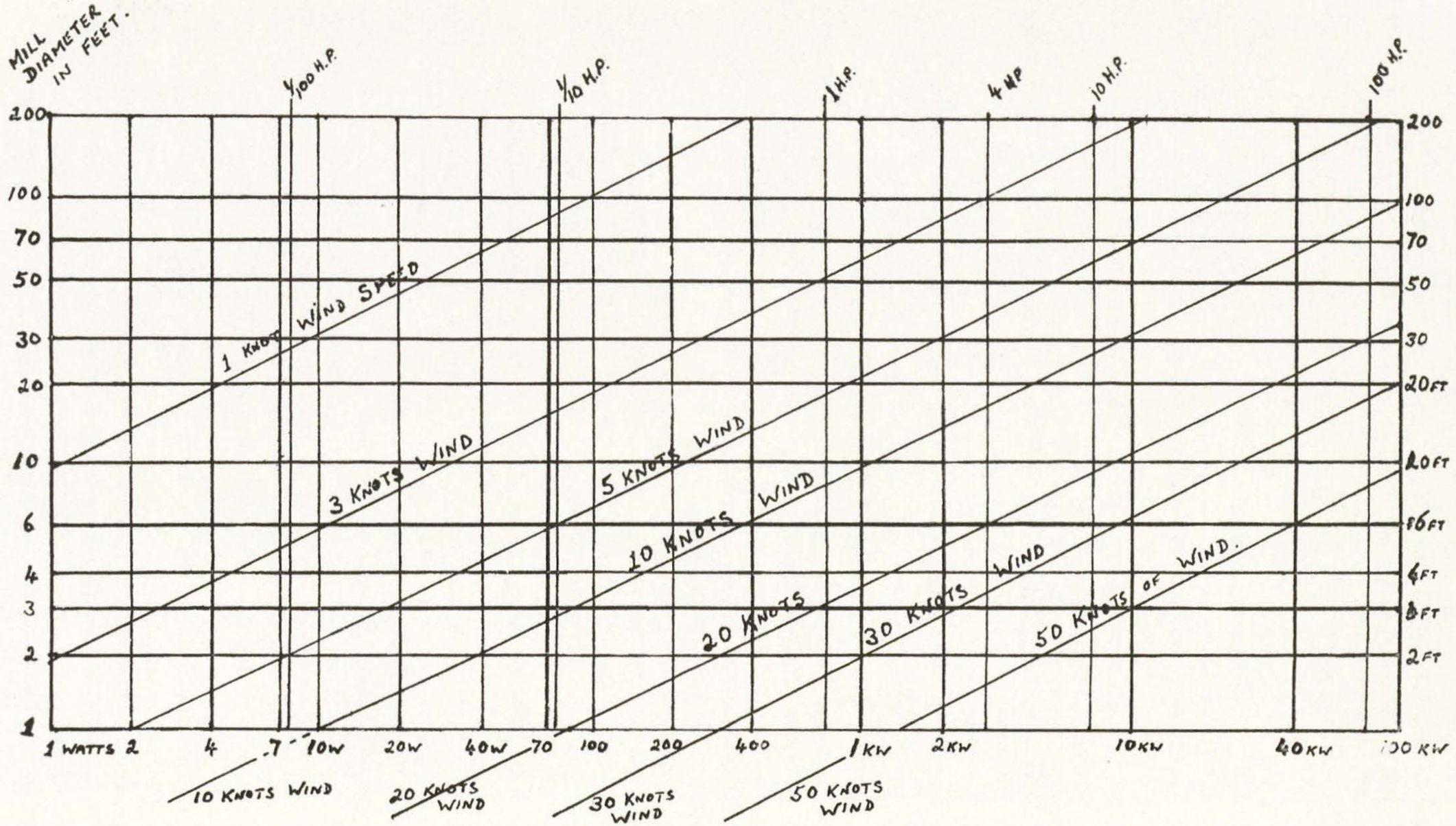
Once again the AYRS had a stand at Earls Court and we must record our gratitude to all those who helped to man the stand during the Show and those who lent items to be exhibited.

Starting from the left of the stand we had three model sailing hydrofoils all of which had sailed. Two were lent by Gerald Holtom and one by David Chinery.

Next on display was a prototype off-course alarm designed by Noel Bevan. Noel used one of these alarms on *MYTH OF MALHAM* during the 1968 Single-Handed Atlantic Race and again during the Round Britain event. So many yachtsmen asked for details or for one of his units that they are now being manufactured by Lynwood Scientific Developments Ltd, Hartley Witney, Hants. The price is expected to be £18·00. The unit has no moving parts, it is aligned with the earth's magnetic field and gives a loud tone when moved out of alignment by the yacht going off course. The unit operates from a standard transistor radio battery, the production model will have a control so that it can be set to give a silent sector between $\pm$ 5 degrees and $\pm$ 30 degrees to suit the sea conditions. This should be most useful when using any remote steering system to give warning of a wind change or failure of an automatic system. Other off course alarms are available, one was used by me during the 1964 Single Handed Atlantic race and various competitors had them in the 1968 race but the one designed by Noel uses a magnetometer and is simple to use. It is considerably cheaper than any other that we have heard of so far.

Two windmill-driven models were lent to us by K. R. May, the first is a simple Meccano model with four wheels, four wind driven blades drive the rear wheels—the only direction of travel is directly into the wind and the purpose of having it on the stand was to show to anyone who refused to believe that it is possible to drive directly to windward. The second model is driven by a windmill having six 12 in blades driving a propeller in the water having three 2 in blades. The upper and lower bearings are almost friction free having ball bearings. The propeller shaft is made from a piece of speedometer cable which can be disengaged as required. The model has three hulls made from expanded foam.

The windmill/boat model aroused a great deal of interest and comments were frequent. Among the suggestions were the possibility of using contra-rotating wind blades to cancel torque (the model had an offset vane to do this).



Windmill: Relation of H.P., windspeed and diameter: feet

A further suggestion for the same purpose was to make the water propeller drive in the opposite direction to the wind blades. A suggestion to improve downwind speed was to use the water flow via the propeller to drive the wind blades against the wind.

Undoubtedly the greatest interest was shown in the possibility of using the windmill to generate electricity for battery charging. A number of electric automatic steering gears were on show on other stands. The least expensive cost only £100 while another working from a wind vane about 9 in long cost £125. With a compass as well to give a choice of steering by the wind or by compass £185. These are reported to require between two and four amps from a 12 volt battery.

Now that car alternators are available at a reasonable cost a number of members are working on the problem of eliminating small charging plants. Towing a spinner through the water will undoubtedly produce the power at the expense of a noticeable drag. A windmill can't be felt to be causing a drag and can be left to work in a dock or marina, beware of the blades if returning after midnight! (At least Don Quixote had room to manoeuvre!).

We produce below the notice that accompanied the Windmill models.

K. R. May's Model Windmill Trimaran

This is an experimental windmill boat, fitted with self-steering which is intended to hold it on any course relative to the wind, including directly upwind.

Rocking and pitching produce severe gyroscopic effects on a windmill. To minimise these a trihull or wide beam bihull configuration seems essential. A monohull would need the complication of a fully balanced, universally pivoted mill, giving very awkward mounting problems.

Articles on Windmill models have appeared in the AYRS publications from time to time (i.e. Nos. 33, 41, 58, 61 and 70) and American members made a full-sized windmill catamaran which is claimed to have "sailed" its crew straight into the wind on numerous occasions.

The wheeled Meccano model is also useful for simple research into mill configurations. By timing its progress over a fixed distance into the air jet from a fixed vacuum cleaner blower nozzle, it was determined that (1) four blades were marginally better than eight; (2) two blades gave very inferior performance; (3) a very fine pitch setting to the blades with high rotational speed and low gearing gave the best upwind performance.

For a variety of practical reasons, windmill boats seem unlikely to be more than a novelty and their "velocity made good to windward" may never exceed that of a well-designed tacking conventional yacht. Also, they are useless in light winds, as a study of the accompanying chart of windmill power will reveal.

For the model maker and model engineer, however, windmill boats offer immense scope for experiment, ingenuity, skill and competition. Probably too, they are more amenable to mathematical study than the conventional yacht.

Beside the windmill models we had scale models of *SLITHY TOVE, SIDEWINDER, APACHE SUNDANCER* from the Round Britain fleet and a model Hirondelle catamaran. The model of *SLITHY TOVE* was made by Michael

Pipe before he made the full-sized yacht and she was shown without her plywood planking so that frames, stringers and construction details are clearly visible. Michael modestly said that he made the same mistakes when building the full size version as he did with the model. Both the *SIDEWINDER* and *APACHE* models were beautifully moulded in G.R.P. by professional model maker Ray Blick before the full size craft were built and as a result we understand that some minor alterations were made to the full size craft.

At the right of the stand we had self steering gears by Q.M.E. and M. F. Gunning with details of the other makes of self steering gears available and our book which sold well. With the Gunning gear was a mainsail sheet winch for a wire mainsheet as used on *MYTH OF MALHAM*. The winch can be wound in or out by the handle but will not run free. It has the same action as a winch used on U.S. "Liberator" aircraft during the war, I believe, for lifting bombs, one of which afterwards became very useful for hoisting a dinghy as there are no jerks when lowering as when using a brake.

Also on the right hand end of our stand we had an eight foot high sailing model wingsail which can be reefed. This was made by Cdr. George Chapman The full sized version will be described in our next issue.

Probably the questions most frequently asked at the stand, apart from questions about the Society and the exhibits, referred to construction in ferro-cement, the old Flettner Rotor ship and 'Planesail,' a model of which attracted attention on our 1969 Stand when Planesail was still one of our member's experimental ideas. See also our publication No. 73.

WEIR WOOD MEETING, 17th/18th OCTOBER, 1970

by Dennis Banham

Once again we were very lucky with the weather and, indeed, had two wonderful days. Saturday was very warm, with little wind, so everyone enjoyed themselves drifting around the reservoir, sunbathing and picnicking on the grassy banks. Boats were assembled in a leisurely manner, quite foreign to the usual hectic haste of previous years.

However, Sunday was very different with a strong wind, enough to bring joy to all boat owners and yet with the sun shining as strongly as ever. It was nearly perfect sailing weather, with both days finishing up with the most glorious sunsets seen for many years.

We were all sorry to hear from Kenneth May that he was unable to bring along his trimaran *KELEK* this year. Perhaps he will be able to come next year and show us the modifications he has made plus *KELEK's* increased performance with the new larger main sail.

Having had to decontaminate their boats in previous years, everyone was fully conversant with the procedure and the operation proceeded smoothly—all boats soon being launched and awaiting the first breath of wind.

The boats which turned up were as follows:

Trimarans

1 Rodney Garrett's	18 ft Mosquito *SULU* (with foils).
2 John Partington's	16 ft *CHEROKEE.*
3 Paul Dearling's	22 ft 6 in *MAPHEPHUKHA.*
4 Richard Hopkin's	16 ft *THISTLE.*

Catamarans

Dennis Banham's	14 ft 6 in *TUSKER* inflatable. Fred Benyon-Tinker design.

Hydrofoils

David Chinery's	16 ft *MANTIS MK.II.*

Single Outriggers

Don Rigg's	14 ft 9 in *GOONRAKER.*

Mono Hulls

1 Jack Banham's	Mirror dinghy *JAKLYN.*
2 Alan Banham's	*WAYFARER* dinghy.
3 John Long's	*TORPEDO MOTH.*

In addition, several members turned up with some of the most beautiful working models of trimarans, catamarans and monohulls that I have ever seen and which sailed with remarkable speed and efficiency.

Trimarans

Rodney Garrett and Derek Norfolk turned up with their lovely *SULU.* It seemed incredible to me that this beautiful craft had just completed a full season's sailing and racing, for she looked as though she had just left the proverbial bandbox. Two modifications on *SULU* were a short wire strop to stop the mast jumping out of its socket, and a very neat nylon rope block and tackle to the fore stay shroud plate, which is used to hold up the mast while the side shrouds are fixed. The tackle is then tightened up until the fore stay shackle can be fixed. By using this method, the "bottle screws" need not be altered and a rig, once tuned, need not be adjusted even though the mast has to be removed for trailing. One striking feature I noted when sailing in *SULU,* was the complete absence of noise (wave slap etc.) showing the value of a well designed and well made hull. I understand from Rodney that a boat builder has offered to produce half-a-dozen *SULUs* and is making a mould for a fibre glass hull.

Well, that means half-a-dozen potential very happy owners of what is to my mind undoubtedly one of the smoothest and most efficient craft for her size yet produced.

Rodney Garratt's *SULU* on the trailer

As usual, John Partington's trimaran *CHEROKEE* was beautifully painted, varnished and polished. John has enlarged the floats this year and his craft now looks far bigger than its actual size. Not only does *CHEROKEE* look bigger, but in Sunday's very strong winds, she behaved with the stability of a bigger craft and slipped through the water with an ease that must have given John considerable pleasure, after all his hard work. His boat not only looked right, but its performance was right, and many people commented favourably upon it. It was so nice to see *CHEROKEE* at the Weir Wood meeting again this year.

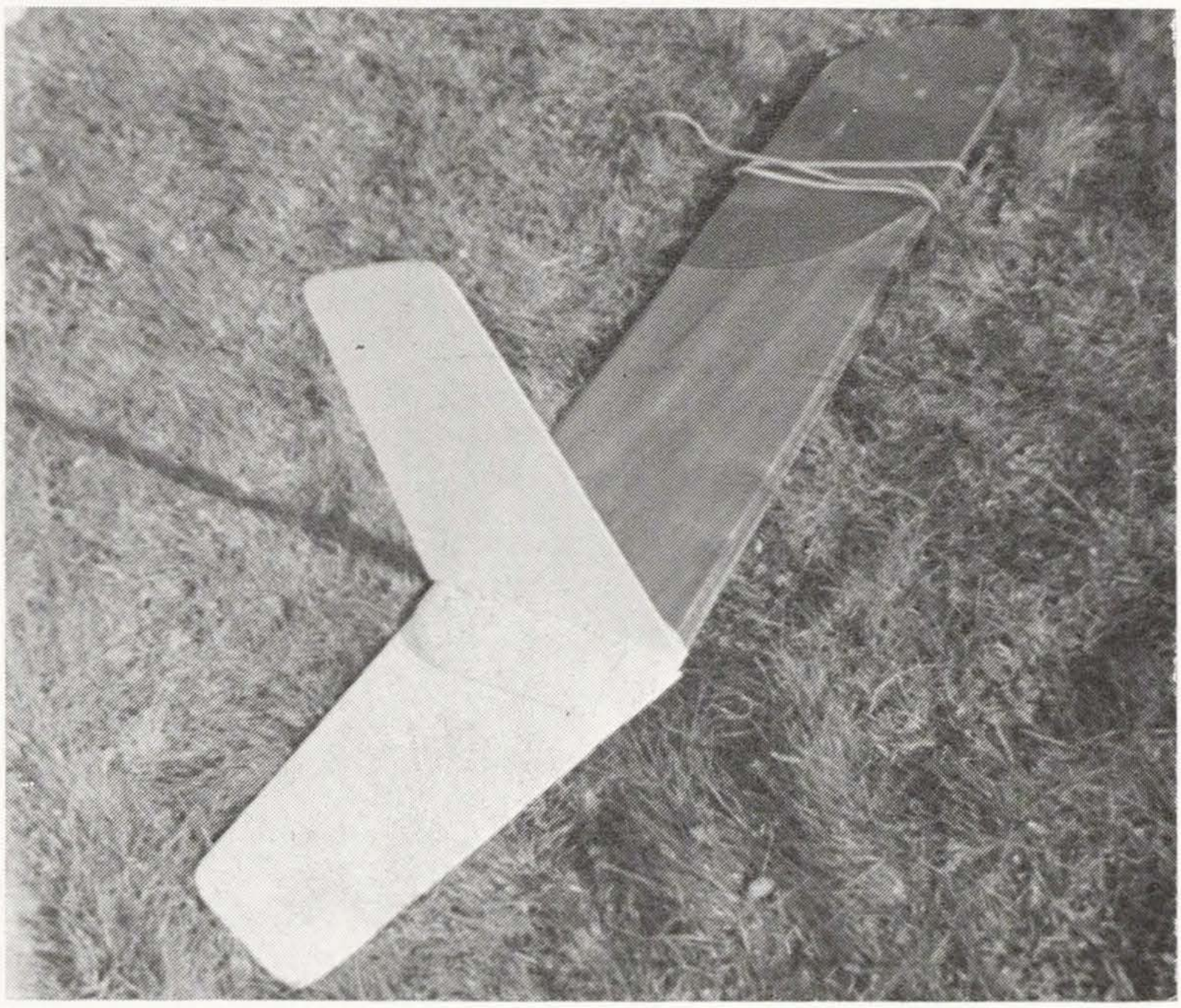
Once again, we saw Paul Dearling and Mike Sutton-Pratt's 22 ft 6 in *MAPHEPHUKHA* trimaran at our weekend and very welcome they were. A few year's ago, my own trimaran *SEA WRAITH* was nicknamed the "Isle of Wight" ferry as AYRS members were loaded on to her decks and taken for a sail round the reservoir. Now, her place has been taken by *MAPHEPHUKHA* for she rarely spent more than a few minutes at the water's edge before she was turned around and was away once more, loaded up with happy members. Thank you, Paul and Mike, for letting so many of us enjoy ourselves. I look forward to seeing your boat at Weir Wood again next year, with perhaps a huge spinnaker to make life even more interesting!

Richard Hopkins brought his interesting and pretty 16 ft trimaran *THISTLE* along, and very nice she looked with her green and white colour scheme. When first I saw her, I had the impression that something was wrong with my vision, then I realised that one of *THISTLE's* floats was almost as long as the main hull; while the other was the same short float sported by Richard's boat last year. It would appear that Richard is carrying out experiments with the performance of his craft, using varying lengths of floats. It is understood that, as a result of these trials, Richard will be replacing the remaining short float with a long one similar to the one now already in use. We all hope that *THISTLE* will be at Weir Wood next year, complete with two new enlarged floats and showing improved stability and performance on what is already an excellent craft.

It is regretted that, although she was all ready to come to Weir Wood, it was impossible to bring my son Bruce's trimaran *WIND CHEETAH* along, as he was away in North Devon and unable to bring her himself. However, by frantically working all hours, ignoring the garden and household chores, I was able to finish my new *TUSKER* catamaran by about 10.30 p.m. on Friday evening. Keeping my fingers crossed, she was loaded on my car and on Saturday morning assembled at the water's edge ready for her initial sailing trials. I purchased the inflatable tubes, mast, sails etc. from Fred Benyon-Tinker and, working to his design, was able to get *TUSKER* ready for the meeting. The all up weight is down to approximately 140 lbs while the increased sail area (from 90 sq ft, to 110 sq ft) has given this craft a very lively performance indeed. The heavy wooden bridge deck has been replaced by a centre 'spine' 10 ft long which contains the one centre-board and one rudder. This also forms the main structure upon which rest the mast and three aluminium cross members. The latter tubes are fixed to the main 'spine' by a very cunning and simple system of clamps designed by Fred and which, by eliminating the need for spanners etc., proved very quick and effective indeed. The craft takes approximately 20 minutes to assemble and less than 10 minutes to deflate and place into the car ready to drive away. For a 14 ft 6 in $\times$ 7 ft catamaran, this is pretty good going. It was in the construction that I made the error of using a centre-board of sycamore instead of the recommended mahogany and on Sunday afternoon, during a particularly strong gust of wind, it broke, and that was the end of sailing for my boat for that day. But I already have plans and material for a new centre-board which should prove equal to the stresses demanded. All things considered, I was very pleased with my new boat and would like to offer my congratulations and thanks to Fred Benyon-Tinker for designing yet another lovely-looking and efficient craft.

David Chinery brought his new Mk.II hydrofoil *MANTIS*. She was bigger, much better designed and constructed than the original one we saw last year. With the new enlarged floats, David was able to sail her as an ordinary trimaran when the wind was too light to attempt getting her up onto the foils. However, he is still not entirely satisfied with the boat's performance when using the foils, and is already modifying them ready for another all out effort to get *MANTIS* off the water and fully foil borne. If tenacity is anything to go by, then David will certainly succeed to his own and everyone else's satisfaction before very long. Good luck to your efforts, David. We all hope to see *MANTIS* skimming over the surface of Weir Wood in the not too distant future.

Assembling *TUSKER* before inflation



Dave Chinery's "Garratt" fore foil

Dennis Banham assembling his *TUSKER* inflatable cat. Note '10 ft Spine' with C.B. and rudder

Don Rigg and his charming wife turned up again—all the way from Carlisle—with their well tested and amazing craft *GOONRAKER*. Everyone admired her stability and performance and were delighted with the boat's saucy insignia. As for *GOONRAKER's* performance, I can assure you that when Don invited me out on her during Sunday afternoon, in a really stiff blow, I fully expected a very wet and dicy sail! In fact it was a far drier sail than the one I had a short time later in my son Alan's *WAYFARER* and *GOONRAKER's* stability was excellent. Don had no trouble controlling his craft, and she handled with superb grace and ease. No wonder he is loath to make another boat. I, for one, would be sorry not to see *GOONRAKER* at any forthcoming meetings.

Jack Banham brought his well maintained and carefully handled Mirror dinghy *JAKLYN* and many were the members who enjoyed sailing this handy little craft.

Alan Banham turned up with his *WAYFARER* and she was seldom allowed more than a few minutes at the water's edge before being taken out again with two or three happy people enjoying the performance of this well designed and sturdy boat.

John Long was able to complete the building of his new *TORPEDO MOTH* in time for the meeting, and it was nice to see how well she handled even in some of Sunday's strong gusts of wind. A nice boat John; you should have lots of fun in her.

Other members who attended the meeting included our old friends, May and Brian Gilmore, plus their three small children, all the way from Newbiggin, Northumberland. What a wonderful effort! Brian tells me he has completed the two hulls of his new 19 ft catamaran and hopes to bring it to next year's meeting. We look forward to that day with interest, Brian. The photographs you were showing me of the two hulls etc. certainly point to a very nice looking craft.

As usual, along came John and Pat Morwood who watched with interest all the members thoroughly enjoying themselves. How nice it was to see and chat to them again. John spent most of his time surrounded by enthusiastic members explaining and enlarging upon the merits of their various craft, both model and full size, whilst Pat reclined upon a deck chair and enjoyed the wonderful sunshine.

We were also very pleased to see Mike Ellison at our Weir Wood meeting, and to listen to his words of wisdom on the performance and design of the many craft he has handled during his deep sea sailing. He also very kindly presented me with a large steel claw hammer as a prize for the member breaking the most expensive piece of equipment (my centre board) during the weekend!

We all had a memorable weekend—the weather was perfect and the sailing superb! May we have as happy, enjoyable and well attended a meeting next October.

INTRODUCTION

by Michael Ellison

This publication includes, amongst other articles, details of the 1970 race Round Britain. A questionnaire was sent to all the competitors and the resulting information is included. One of the original objects of this race was and is to encourage the development of yachts and equipment suitable for sailing with a limited crew. The idea was that if a craft could be raced for 2,000 miles with a crew of two through some very difficult sailing waters then the same craft should be suitable for a competent family man to sail with his wife under less demanding conditions.

As with the Single Handed Transatlantic race something seems to have gone wrong and the race object has not been fully achieved. The winner of the Round Britain Race, in spite of claims made by other builders, was *OCEAN SPIRIT* a G.R.P. yacht 71 ft long. She proved to be a good seagoing craft but her crew were reported to be exhausted on arrival at most of the ports and it seems improbable that vast fleets of Ocean 71 class yachts will replace the present small cruisers being sailed around our waters.

In this publication there are a number of suggestions for possible research and ideas to make living on a small cruiser easier and longer passages safer. The biggest problems 'Solo Cruising' are still fatigue and seasickness, as described in our Publication 53.

THE WISHBOOM USED IN 'BLUEBIRD OF THORNE'

by Lord Riverdale Capital Steel Works, Sheffield

There is nothing new under the sun and early Bermudian rigs sometimes had a boom as in Fig. 1. I had also heard of a racing rig on shallow draught craft in the United States as in Fig. 2. Uffa Fox once experimented with a single straight boom like Fig. 1 in a sizeable cruiser/racer but the tack had to be dipped over the boom and laced when going about so that the curve of the sail was always free and to leeward of the boom. Whatever the sailing results this arduous exercise was not approved. No doubt there have been other variations on the same theme.

In the first *BLUEBIRD OF THORNE* (1939) I had a single curved wishboom for the mizzen. There were special reasons for this.

1 It permitted a fixed mast head backstay and an all inboard rig which would have been impossible with a normal boom.

2 It provided a flat setting and twist free mizzen which was advantageous and proved trouble free.

It was successful. Once correctly set it was found unnecessary to adjust the clew outhaul. There was little load on the sheet and the gybe was so soft that it could be neglected in normal weather.

When I designed the second *BLUEBIRD OF THORNE* I was tempted to apply the wishboom principle to the mainsail also. This was a much more serious proposition on a 50 ft yacht with mainsail 425 sq ft in area. It demanded a proper approach to the detail engineering.

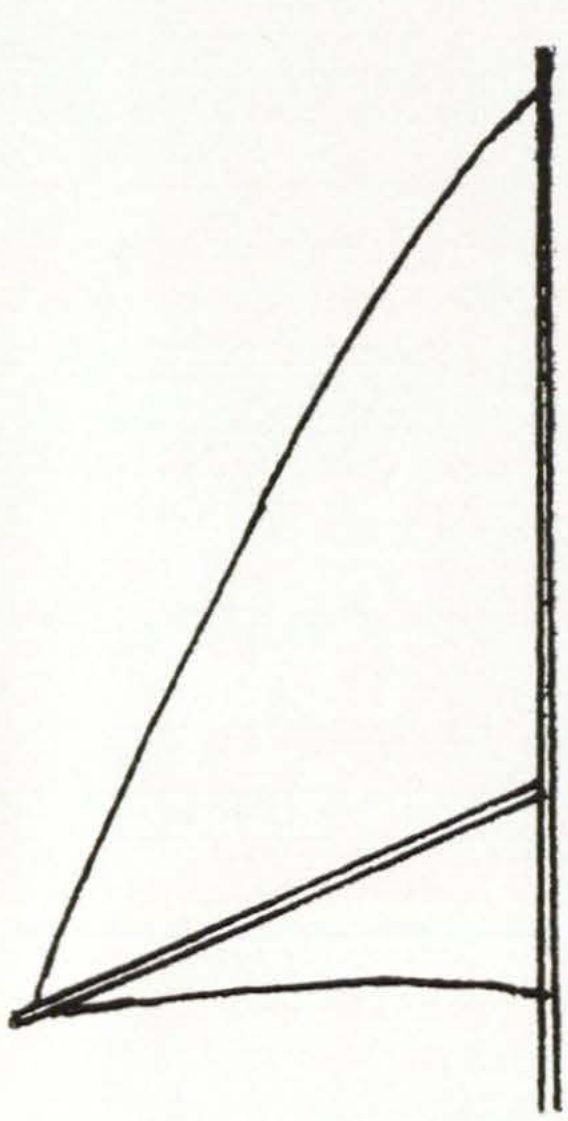


Fig. 1

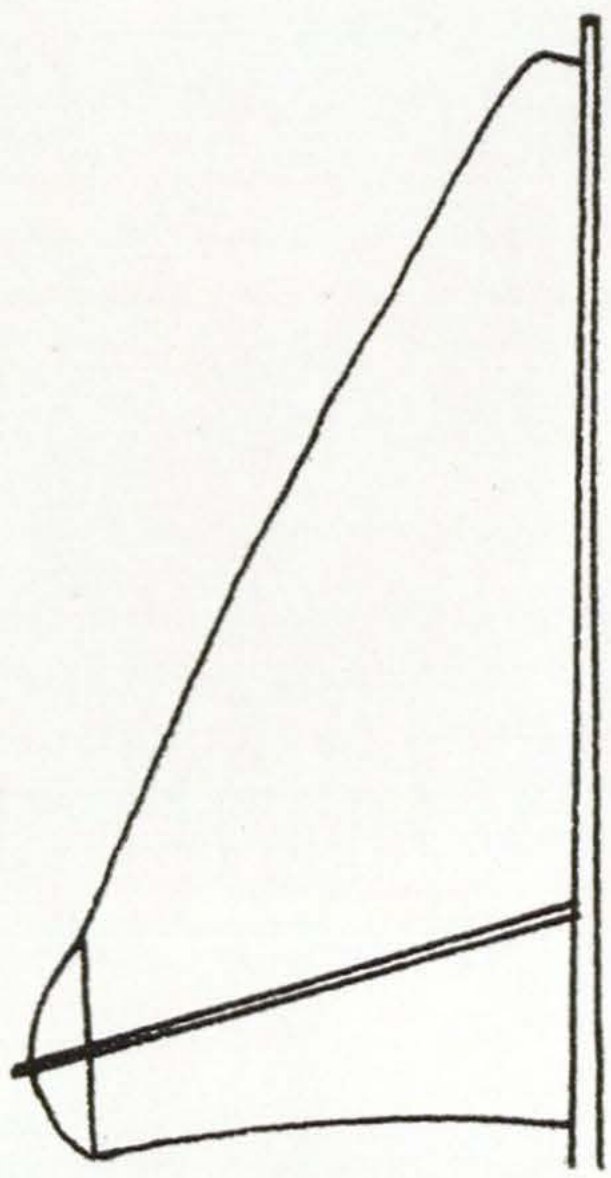


Fig. 2

The first decision was to halve the theoretical angle bisecting the clew on the basis that the weight of the boom and the pull of the sheet would approximate in effect the half angle. This decision was important as it reduced the length and weight of the booms. (It had been decided that for this area of sail they must be double). It brought the mast end of the boom within approachable height from the deck and lowered the weight. It also placed any forward thrust on the mast in a less damaging position.

It was obvious that the idea promised better returns with a high aspect ratio sail rather than a low aspect ratio, and in this case the A/R was $2\frac{3}{4}$ to 1.

We had now progressed from Fig. 3A to Fig. 3B. The thrust at the forward end of the boom could be considerably offset by the sheet angle shown. The curved booms were designed in laminated H section from wood. This was purely for ease of construction and to save cost in the initial experiment. These booms stood for six years, all exposed to the weather and mostly in tropical or sub-tropical climates. The glue began to fail and the weather to attack the joints. The spars thus weakened by delamination began to give trouble. They were replaced by booms of substantially similar dimensions with Resorcinal glued joints and for good measure G.R.P. covered for protection from the elements, (Fig. 4). A minor improvement was also made by placing reef cringles and fittings external to the section.

Twin booms must be maintained at the same distance apart at both ends with provision for almost 180° swing (Fig. 5).

It is obvious that the tension on the clew will tend to make the curved booms bend outward (and the greater stresses will be placed on the leeward boom if the sail bears against it). This difficulty was neatly offset by a cunning device. The clew must be adjustable and this was effected by a wire rigged as in Fig. 5B.

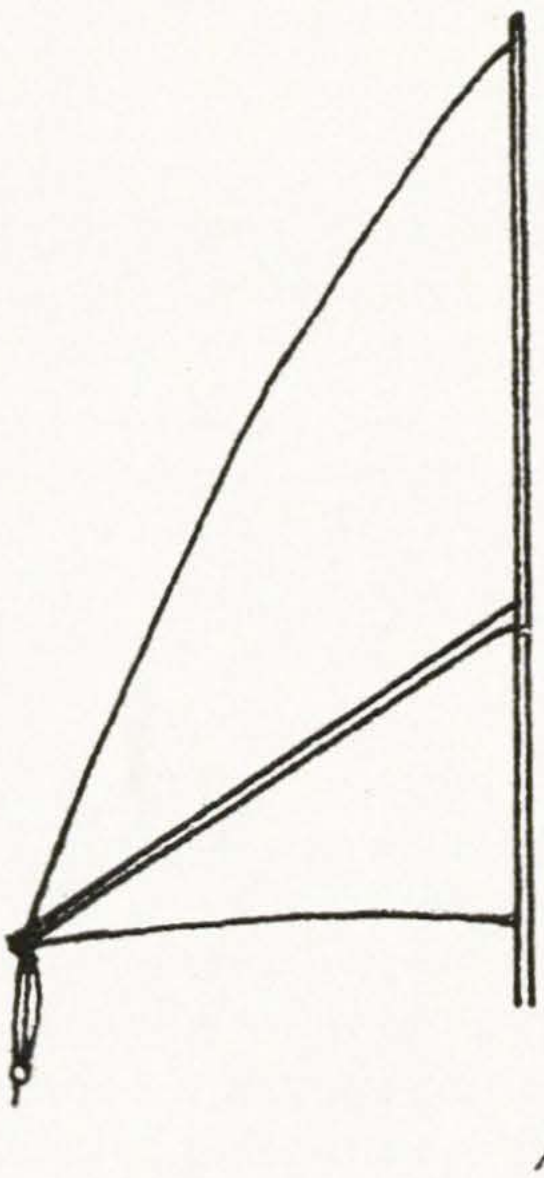


Fig. 3a

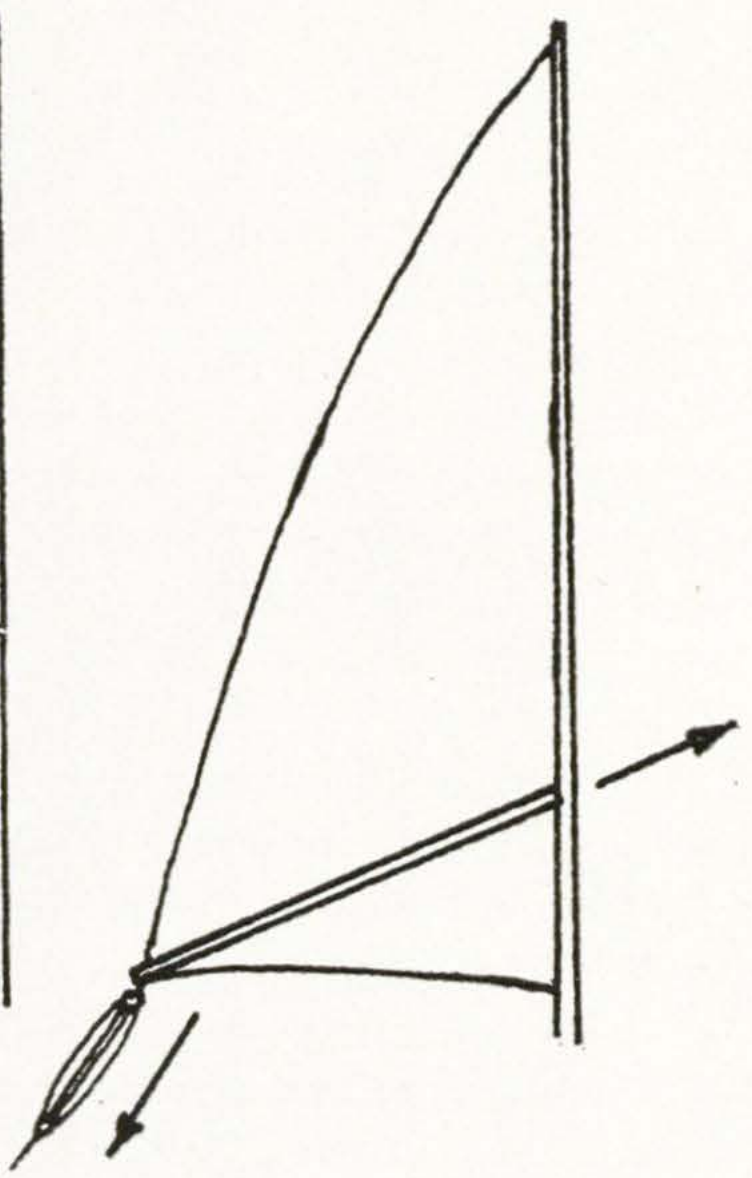


Fig. 3b

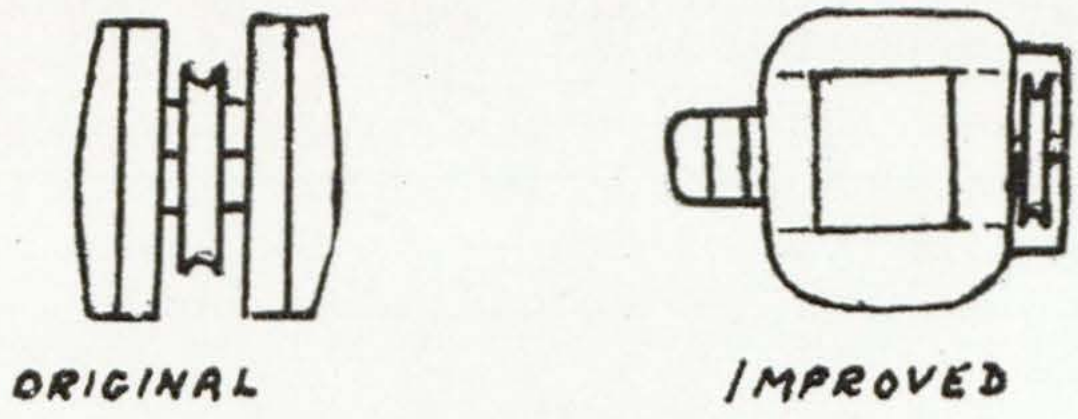


Fig. 4

The adjustment can be made by winding an accessible little worm winch at the mast end of the port boom. The greater the tension on the clew, the greater the load on the wire, which, passing through cleats on the outer curve of both booms, provides a compensating force in opposition to the load.

In a gale with a tremendous load on the clew this can be seen to work and the booms quiver gently in the squalls.

The metal work at the mast ends of the booms is quite simple. A pair of stainless plates rivetted to the metal mast (Fig. 6A) with reinforced brackets carry $\frac{5}{8}$ in stainless bolts. These have Nylatron bushes and washers (self lubricating molydenum disulphide impregnated nylon). The tapered metal boxes carrying the ends of the wooden booms have forged tongues with elongated holes. These were developed from a simple gooseneck of the same form that had proved impregnable for 25 years in the former "Bluebirds" and had become known as "The Balfour Gooseneck." The utter simplicity eliminates the usual destructive double knuckle twist, while providing sufficient play in the vertical sense.

At the aft ends, Fig. 5B, the problem is solved similarly. None of this has given any trouble in seven years and 50,000 miles.

The clew of the sail is maintained in relation to the booms by a light alloy rod with screw on Lignum Vitae end knobs, which is passed through the clew ear-ring and also the twin flanges from a special block. This rod may not be strictly necessary and demands a flexible terylene lashing but it is a safeguard and has twice prevented more serious trouble when a wire failed or the clew ear-ring pulled out. This is indicated in Fig. 5B.

Reefing

Must be effected in the old fashioned way. A roller system is not possible. I use detachable toggle and loop lines instead of reef points. The tack is a simple lashing and the clew is hauled down and lashed in a manner evolved and tested which is difficult to describe shortly. A single $\frac{5}{8}$ in dia. terylene rope is employed. It is advisable to add a single mainsheet block at the reefed position of the clew and to pass the hauling end of the mainsheet through this. The load is thus reduced with advantage in strong winds and this also counteracts the altered upward pull position of the booms.

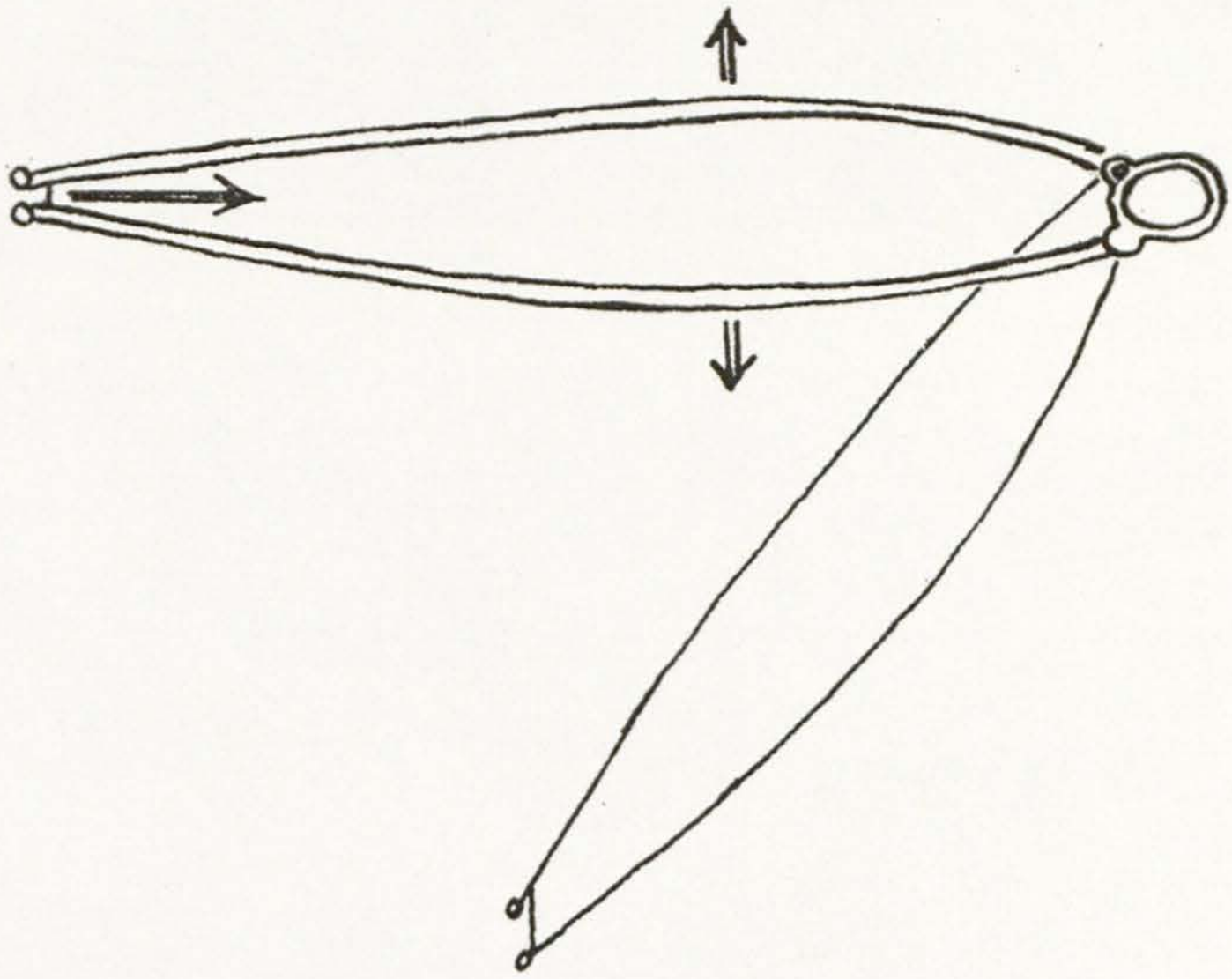


Fig. 5a

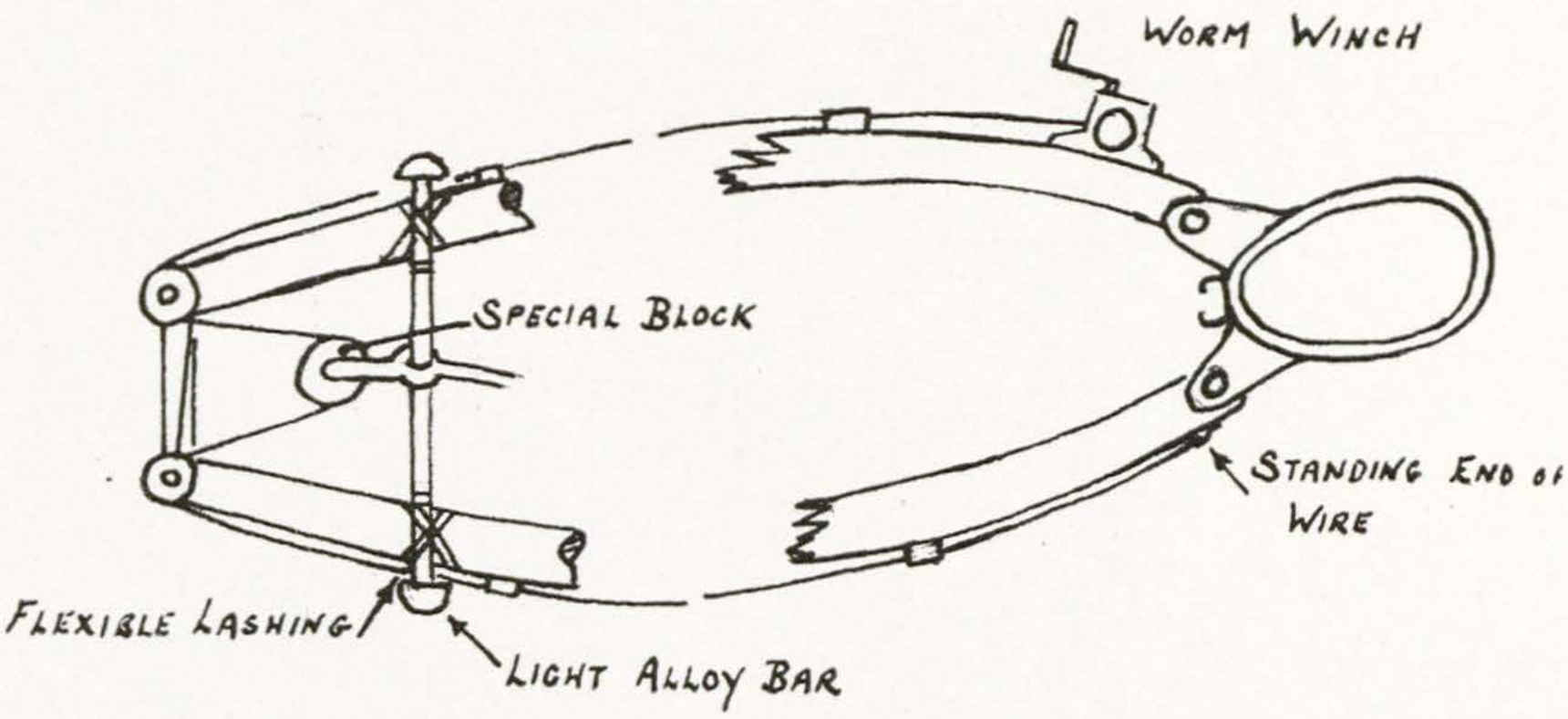


Fig. 5b

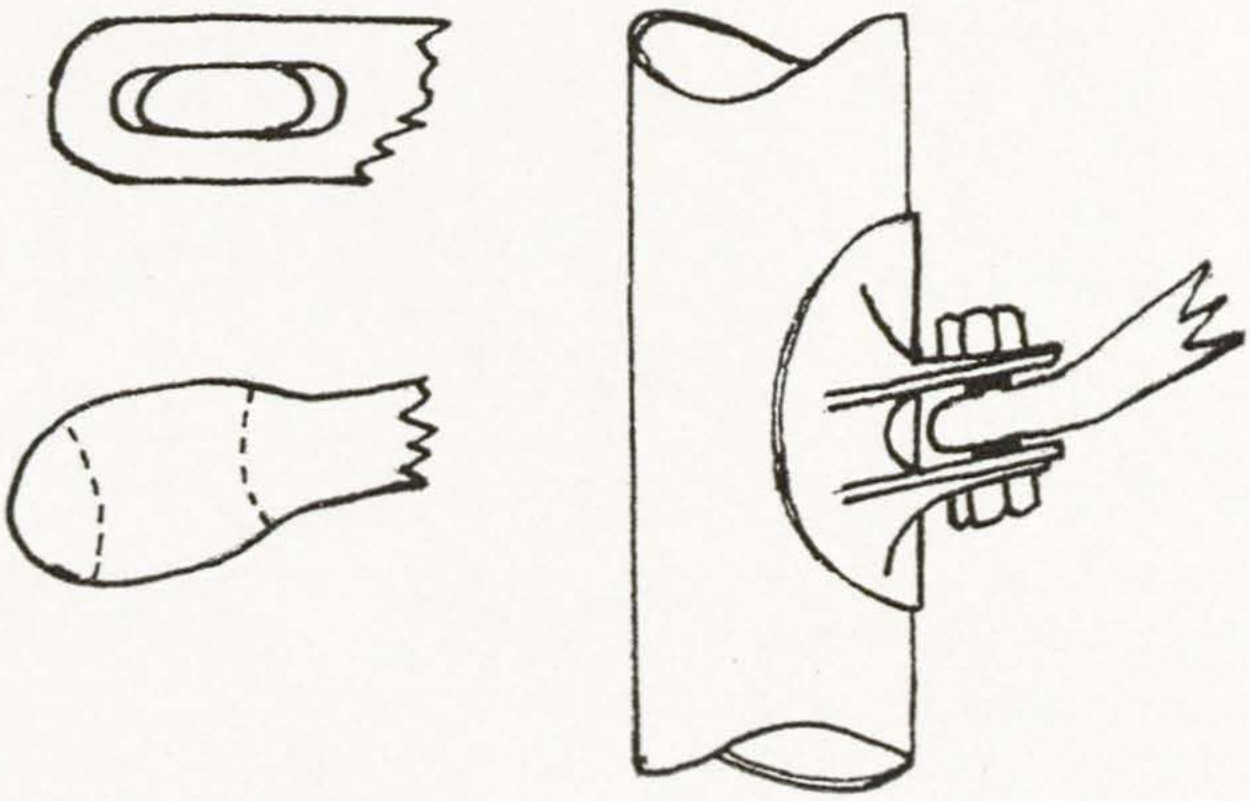


Fig. 6a

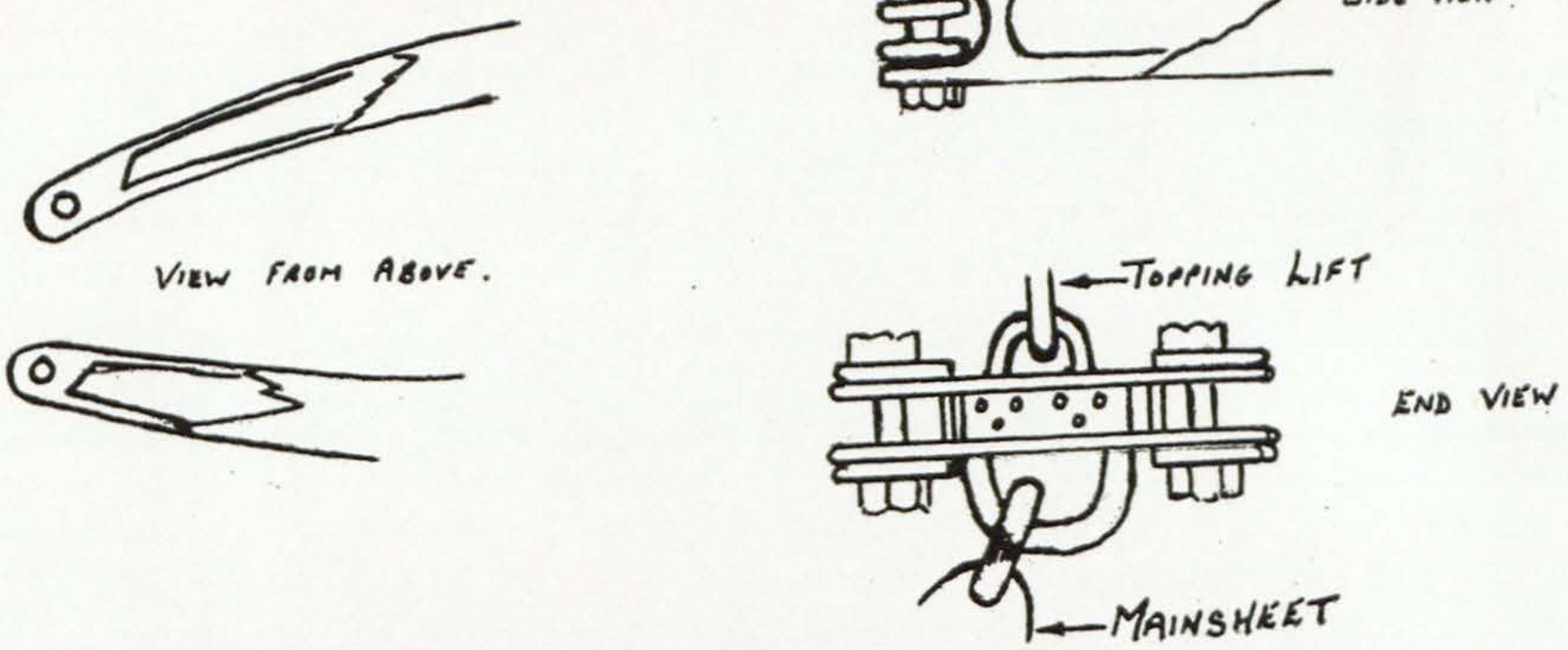


Fig. 6b

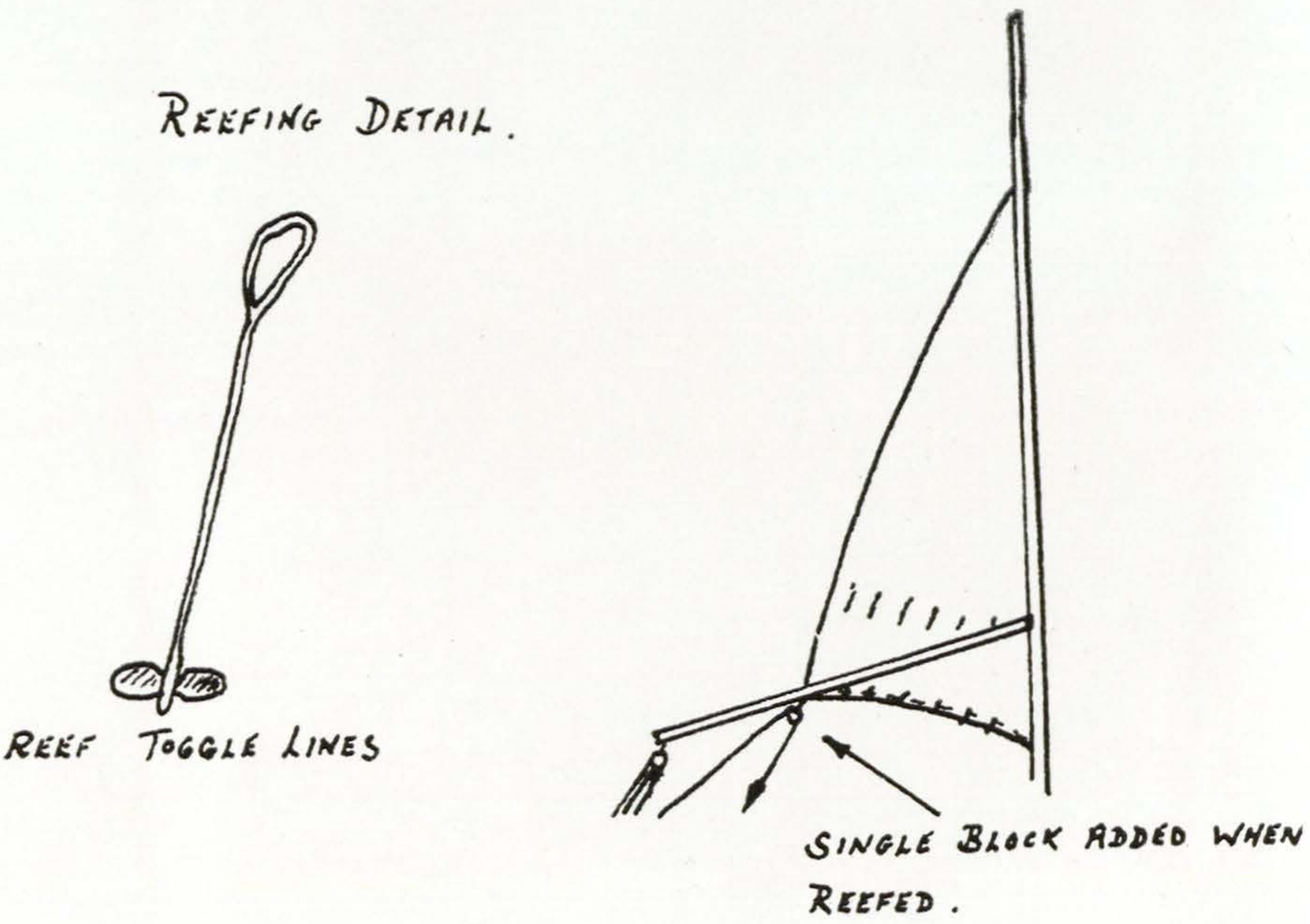


Fig. 7. The reefing system

Chafe

There is a chafing strip on the mainsail in way of the booms but no trouble has been encountered. A leather lacing at the throat of the booms is another precaution.

Hoisting, Lowering and Stowing Sail

The sail hoists and lowers freely in port or at sea and is stowed in terylene tape lazyjacks which, when cruising, are left in place at sea.

Lowering the sail in an emergency with a strong wind from aft is always a difficult manoeuvre. I do not know if it is more or less so with the wishbooms. On the one hand the sail has then to be manhandled at the throat and over the booms. On the other hand the sail is contained from blowing away to leeward and is not all over the deck and obscuring the view from the helm.

There are few operating hints. The clew tension, once suitably set, seldom requires adjustment. The height of the boom end is predetermined and is critical. In "Bluebird" it is normally about 4 in above the boom crutch on which the boom rests when sail is lowered and to which the boom may be secured while reefing.

Advantages and Disadvantages

Advantages

1 Less pull on mainsheet. A horse can be eliminated and a central attachment employed for the sheet block.
2 A softer gybe. The boom cannot sky.
3 Twist in the sail is almost eliminated. This lack of twist has important consequences.
   a The boom can be squared away to the correct angle for a beam wind without the upper part of the sail wrapping forward round the crosstrees.
   b It is believed that this gives about 10% more drive for the same sail area with perhaps 10% less heeling pressure.
   c Roll is reduced and there is less tendency to roll to windward.
4 When motor sailing the sail sleeps better with the sheet hard in as the boom does not jiggle up and down.
5 Sail stowing is child's play.
6 The sail when lowered or being lowered is not on deck or obscuring the view from the helm.
7 No kicking strap or similar gear is necessary (which I would not use anyway when cruising).

Ed. "Kicking Strap" = Boom Vang.

Disadvantages

1 Roller reefing is not possible. (There are varied opinions on this).
2 The booms may be a little heavier and their combined weight a little higher than a normal boom.
3 I have no measure of windward efficiency. It might be less than with a conventional boom.

4 It may be harder to hand sail in an emergency. (Not proven. Crew opinions differ).

5 There may be more chafe on the sail at the booms. (No trouble encountered and probably less chafe at crosstrees).

However one may balance the plus or the minus, the fact remains that this rig has done the job and done it quite well over seven years and about 50,000 miles, including gale and storm.

So there you are. "You pays your money and you takes your choice." But my own opinion as a final word runs thus:—

For racing, untested but probably No.

For cruising, it has merit.

I have retained it and for similar purposes I should do it again.

THE ROUND BRITAIN SAILING RACE, 1970

1970 was the year for the second sailing race round Britain. The course was substantially the same as for the first race which was sailed in 1966 and was once again organised by the Royal Western Yacht Club of England, Plymouth, Devon and it was jointly sponsored by the 'Daily Express' and the 'Observer' newspapers.

The only major changes made since the 1966 Race were:

a that crews were to sleep on board their yachts when in port.

b that yachts did not have to sail through the Sound of Pabbay in the Hebrides.

c that Lowestoft was used as a port instead of Harwich.

This last change made sailing considerably easier, allowed competitors a longer rest by reducing the distance to sail to and from the start and finish line at the fourth port. The in-port facilities for yachts could hardly have been better than those provided for the competitors at Lowestoft while Harwich is mainly a commercial port catering for Merchant Ships.

The 1966 Round Britain Race is described in AYRS Publication Number 57.

Awards for the 1970 Race were as follows:

First Home—Observer Trophy.

Handicap—The Daily Express Trophy.

First Monohull, first Multihull, first yacht under 35 ft in length and also an award for the fastest elapsed time on each leg of the course.

The Handicaps, once again decided by the Royal Western Yacht Club Race Committee after inspecting the yachts were not announced until after the Race had started and no reasons for the times were given. As usual, some competitors were very pleased and others equally disappointed with their Handicaps, which were given to them on arrival at Crosshaven and it was clear that it would be almost impossible for the large monohulls or a multihull to win the Handicap award. The craft are listed in order of length and their handicaps shown alongside.

For the 1968 Single-Handed Atlantic Race, the AYRS proposed to give an award on a cost/speed basis but after many hours of discussion it was decided it would be almost impossible to judge the cost without encouraging inferior construction or penalising safety equipment such as guard rails. Instead, two

awards were made: firstly, to the competitor making the greatest contribution to research (Winner, Tom Follett sailing *CHEERS*) and secondly, a Handicap award for the fastest non-sponsored entry (won by Lt. Gustav Enbom sailing *FIONE*). In spite of this, it is a very interesting exercise to compare the yachts in a race such as this on a cost/speed basis and try to decide who has the most for the least outlay. How could you rate a magnificent old yacht such as *MYTH OF MALHAM* (now up for sale) or *SLITHY TOVE* and *LEEN VALLEY VENTURER* or *TEHINI* which were all built by their owners at very low cost indeed when compared with some of the others?

RULES FOR THE ROUND BRITAIN SAILING RACE, 1970

The rules for the race are as follows:—

Name

The race is called "THE ROUND-BRITAIN SAILING RACE for *THE OBSERVER* and the *DAILY EXPRESS* Challenge Trophy."

Organisation and Sponsorship

The race will be organised by The Royal Western Yacht Club of England and sponsored jointly by *THE OBSERVER* and the *DAILY EXPRESS*.

Object

The race is a sporting event to encourage the development of suitable boats, gear, supplies and technique for efficient shorthanded cruising under sail.

Awards

i A Challenge Trophy and Replica will be given by the Sponsors to the owner of the Winning Yacht as defined in Rule 10 (ii).

ii A Trophy will be given by the Sponsors to the Owner of the Yacht with the best corrected time on Handicap (see Rule 11).

iii The Sponsors will present a Plaque to each Yacht finishing within thirty-six days from the start and a Token Award to each of her Crew.

Date

The Start will be from Plymouth on Saturday, 4th July, 1970.

Course

The Course will run from Plymouth in a clockwise direction round Great Britain and Ireland, excluding only the Channel Islands and Rockall, returning to finish at Plymouth.

The Course will be divided into a number of legs between Specified Ports: Crosshaven, Castlebay, Lerwick and Lowestoft. The legs will start from a line to be defined in the approaches to a Specified Port and finish at a similar line in the approaches to the next Specified Port. Full details will be given in the Sailing Directions.

No Yacht may start any leg of the Course (except the first) less than 48 hours from the time at which she finished the previous leg.

Entries

An Entry will consist of a Sailing Boat (hereafter called a Yacht) plus a named crew of two persons only. The Skipper must be aged over 21 years and the crew over 18 years (with written parental consent if under 21) at the time of submission of their entry. The Skipper must possess adequate qualifications, including both celestial and coastal navigation. The other must possess adequate qualifications and experience, including coastal navigation, to enable him or her to take complete charge of the Yacht in an emergency. The Yacht must be manned for the whole Race by the named crew and by nobody else, except when anchored or moored.

An Entry will be officially described by the name of the Yacht and the two names of its crew. If the Yacht is not owned by the Skipper, the Owner's name will appear in parenthesis after the name of the Yacht.

Intending Entrants should apply to the Sailing Secretary of the Royal Western Yacht Club of England, West Hoe, Plymouth, enclosing cheque, money order or cash (by registered post) for the Entrance Fee (see Rule 8). Cheques or money orders should be made payable to the Royal Western Yacht Club of England.

Entries will close on 1st June, 1970.

Entrance fee

The Entrance Fee will be £10 (ten pounds sterling) or the equivalent in other currencies.

Evidence of qualification

An Entrant must state at the time of his Entry his own previous experience as Skipper of a Yacht, either in cruising or ocean racing; also the experience of his crew, together with relevant supporting evidence for both. This must give at least the names of the Yachts, dates and distances sailed and the capacity in which he or she has taken part (e.g. as skipper, navigator, crew, etc.) in respect of both himself and his crew.

He will also be required to sign a certificate that he is competent in celestial and coastal navigation and that his crew is competent in coastal navigation.

In the case of non-British Entrants these qualifications must be supported by a letter of recommendation from the National Yacht Racing Authority.

The decision of the Race Committee as to the adequacy and validity of the qualifications submitted will be final.

If any Entrant be found to have made a statement that is false in any material matter, his Entry will be annulled and his fee forfeit.

Eligibility of yachts

i The Race is open to seaworthy cruising or racing Yachts of any size, type, or nationality provided that the overall length exceeds 24 ft (or metres 7·35). The Race Committee reserve the right to exclude any craft which they regard as an unseaworthy Yacht, but unorthodox and multi-hulled Yachts are admissible.

ii The Winner will be the first Yacht to cross the finishing line having fulfilled the Conditions of the Race. In the event of any dispute the decision of the Race Committee will be final.

Handicap

The Handicapping Committee will be responsible to the Sailing Committee of The Royal Western Yacht Club.

For the purpose of the Handicap Award only, each Yacht will be given a handicap by the Handicapping Committee who will use their judgement to allocate a time allowance expressed in days and hours. This time allowance will be deducted from the Yacht's total elapsed time (Plymouth to Plymouth) to obtain her corrected time.

The aim of the Handicapping Committee will be to give each Yacht an equal chance of winning the Handicap Award. The list of handicaps will be published shortly after the start of the Race.

Conduct of the race

The Yacht must be propelled for the whole of each leg of the Course by the wind alone, supplemented if and when desired by the muscle power of the crew. Powered hauling devices will be permitted for anchor work only. Powered self-steering devices may not be used.

When inside the defined limits of the Specified Ports, Yachts may propel themselves by auxiliary motor or they may accept a tow.

No physical contact, except for the passing of written messages, may be made with other vessels at sea and no stores may be received from any other ship during the Race. They may, however, be asked for advice or information and to report the Yacht's position and condition.

Yachts may enter other ports or anchorages at will for any desired period and may use their engine or be towed in the vicinity of such port or anchorage, provided that these aids can subsequently be proved not to have advanced the Yacht along the Course of the Race.

The Skipper and Crew must sleep on board during the race and may not make use of sleeping accommodation ashore at the Specified Ports.

Radio transmissions are not allowed except in emergencies and for matters unconnected with the race.

Inspection

Yachts must be assembled in the Inner Basin of Millbay Docks, Plymouth, for inspection by the Handicapping Committee at 0900 on Tuesday, 30th June, 1970. Failure to be there will render any Yacht liable to disqualification.

Safety equipment

Each Yacht must carry certain safety equipment, as listed below, throughout the Race and the Crew must maintain it in serviceable condition:

i Inflatable Life Raft
ii Radar Reflector
iii Foghorn
iv Daylight Distress Signals
v Flares and Pyrotechnic Distress Signals
vi Fire Extinguishers
vii First Aid Kit

viii 2 Safety Harnesses

ix 2 Lifebelts

x Adequate ground tackle including:

a 2 anchors

b 30 fathoms suitable chain

c 45 fathoms suitable warp

xi Bilge Pumps

xii Storm Sails

xiii Lifelines or suitable Jackstays

xiv Lifebuoy with automatic lighting

xv Spare Tiller

Accommodation and equipment

To ensure that the object of the Race as stated in Rule 3 is achieved, certain minimum accommodation and equipment will be required to be provided by each entry:

Minimum requirements for a Yacht of 24 ft L.O.A.:

a A dinghy, inflatable or otherwise, capable of carrying the crew ashore safely in all normal conditions. This may be the same as the inflatable life-raft in Rule 14 provided that it is self-inflating and capable of performing the two roles efficiently.

b Accommodation to consist of a cabin or cabins with at least two permanent berths and bedding.

c Minimum headroom of 4 ft 6 in of cabin length to be 4 ft.

d Equipment to include:

i Cooking stove and cooking equipment, kettles, saucepans, frying pan, cups, plates, knives and forks for crew.

ii Water storage of not less than 5 gallons.

iii W.C. or fitted bucket.

Larger Yachts will be required to have in addition inside accommodation and equipment appropriate to their size, having regard to the normal amenities provided in standard Yachts of comparable L.O.A.

Recognition

A distinguishing number must at all times be displayed on the Yacht's hull and sails. Yachts may use their existing sail numbers or alternatively may use the racing number which will be allocated to each Entry on acceptance. They may NOT display any other number.

Responsibility

Full responsibility for any mishap will rest with the Owner or Crew under ordinary processes of law. Neither Organisers nor Sponsors accept any responsibility in this respect towards Entrants, nor towards Third parties with whom Entrants may become involved.

Logs and declaration

i Immediately on arrival at each Specified Port and at the Finish, each Skipper will be required to hand in to the Organisers or to their Representative, and to them alone, a 'Basic Log' showing his progress, positions and certain other details relating to the previous leg of the Course. Standard printed forms will be supplied for this purpose.

These Basic Logs will be the copyright of the sponsoring newspapers, who will make available all such information as they consider reasonable on the progress of the Race.

ii Skippers and Crew will be required to sign the Basic Log as a Declaration on arrival at each Specified Port and at the Finish to certify that all the Rules of the Race have been complied with during the previous leg.

iii The Skipper of a competing yacht will have the right to inspect the file copy of any other competitor's log for the preceding leg of the course at the Race Office in any Specified Port. Any information gained in this way is not to be divulged to anyone outside the organisers and sponsors.

Finishers

In order to qualify as a Finisher, and hence to be eligible for any of the Awards (see Rule 4), a Yacht must finish not later than 8th August, 1970.

Authority

These Rules and Conditions, dated 1st August, 1967, are published by The Royal Western Yacht Club of England who reserve the right to amend or add to the Rules at any time up to the start of the Race. Any such amendments would immediately be made known to all Entrants who have been provisionally accepted.

Instructions additional to these Rules and Conditions will be issued in the Sailing Directions in accordance with usual practice.

Comments on the rules

All the safety equipment seems essential for every cruising yacht except the spare tiller. On some yachts this would be a useful spare to carry but it seems to have crept in here from some power boat regulations.

It seems that there will not be any sponsor for the 1974 Round Britain Sailing Race but the Royal Western Yacht Club of England have decided once again to organise this most interesting race.

YACHTS IN SIZE ORDER

Entries in Size Order	Position	Length O.A.	Length W.L.	Beam	Draft (Hull)	Max. Draft	Sail Area	Rig	Construction Material	Type of Yacht	Year Built	Time at Sea Racing	Handicap for R.B. Race	Approximate Cost
Ocean Spirit	1	71	56	17·1	9		2,500	Ketch	G.R.P.	Monohull	'70	12d 20h	0d 10h	£50,000
Tehini of Deganwy	—	52	40	21·5	2·7		1,013	Ketch	Plywood	Catamaran	'69	—	4d 14h	£
Sidewinder	—	51·6	40	20·0	1		610	Schooner	G.R.P./foam	Proa	'70	—	Scratch	£
Speedwell of Cremyll	14	49	35	12	6·9	10·3	1,200	Yawl		Monohull	—	19d 3h	5d 16h	£30,000
Slithy Tove	19	48	40	9	8		850	Sloop	Plywood	Monohull	'69	21d 19h	1d 18h	£5,000
Trumpeter	3	44	40	26	1·9	3·5	820	Sloop	G.R.P./foam	Catamaran	'70	14d 22h	16h	£11,500
Cymro	13	43·3	32	10·5	3	7·0	670	Cutter		Monohull	'66	18d 17h	5d 19h	£7,500
Golden Cockerel	5	43	36	17	1·9	—	860	Sloop	Wood	Catamaran	'67	16d 13h	1d 6h	£12,000
Leen Valley Venturer	6	42	39	26	1·9	3·5	650	Sloop	G.R.P./foam	Trimaran	'70	16d 15h	20h	£
Gancia Girl	8	42	40	26	2·6	3·2	550	Ketch	G.R.P./foam	Trimaran	'66	17d 13h	3d 1h	—
Warlord	—	40·7	36	19·5	2·5	7·0	1100	Sloop	G.R.P.	Catamaran	'70	—	1d 8h	£15,000
Apache Sundancer	—	40·7	36	19·5	2·5	7·0	1032	Cutter	G.R.P.	Catamaran	'70	—	1d 22h	£15,000
Myth of Malham	9	39·7	33	9·2	7·5		680	Cutter	Wood (teak)	Monohull	'47	17d 15h	4d 2h	£
Electron of Portsea	7	36	26·9	9·5	6		780	Sloop		Monohull	'60	17d 9h	8d 20h	£8,000
Snow Goose	2	36	34·2	15·2	1·0	4·9	834	Cutter	Cld. mould	Catamaran	'60	14d 9h	2d 1h	£4,000
Rinaldo	11	35	26·5	10·0	5·0		500	Sloop	G.R.P.	Monohull	'69	17d 22h	9d 14h	£10,000
Minnetaree	4	30	27	13·5	1·4	5·0	550	Sloop	G.R.P.	Catamaran	'70	15d 2h	3d 7h	£6,000
Renew	20	30	27	18·0	3·0			Sloop	Plywood	Trimaran	—	22d 19h	6d 9h	—
Trixia	—	28·5	24·5	23·2	1·1	5·4	440	One sail	Ply/G.R.P.	Trimaran	'70	—	3d 23h	—
Ishkoodah	12	28·2	22	8·4	4·4		290	Sloop	G.R.P.	Monohull	'69	18d 4h	9d 17h	£3,600
Hurrying Angel	17	27	—	—	5·0		280	Sloop	G.R.P.	Monohull	—	21d 5h	9d 17h	£3,000
Kerry Blue	18	27	21	8·3	2·8	4·4	320	Sloop	G.R.P.	Monohull	'70	21d 7h	11d 0h	£3,000
Three Fingered Jack	10	26·5	24	18·0	1·8	2·2	399	Sloop	Cld. mould	Trimaran	'70	17d 17h	3d 19h	£2,500
Blue Smoke	16	26	21	7·6	3·3		352	Sloop	G.R.P.	Monohull	'70	20d 5h	12d 3h	£3,300
Binkie	15	25·5	20	7·5	4·2			Sloop	G.R.P.	Monohull	'68	19d 15h	11d 17h	£2,700

YACHTS IN FINISHING ORDER

	Name	Handicap Position	Skipper	Type of Self Steering	Position at Crosshaven	Castle Bay	Lerwick	Lowestoft	Class of Yacht or Designer
1	*Ocean Spirit*	9	Lt. S. L. Williams	None	2	1	1	1	Ocean 71
2	*Snow Goose*	10	D. R. Robertson	Hasler	4	5	4	2	Prout
3	*Trumpeter*	16	Philip S. Weld	*Q.M.E.	1	4	3	4	Kelsall
4	*Minnetaree*	8	G. Boxall	None	7	6	5	5	Iroquois Mk.II
5	*Golden Cockerel*	17	Bill Howell	Hasler	11	10	8	7	C.S.K. type
6	*Leen Valley Venture*	18	J. M. Beswick	Tiller/n	3	7	6	6	Kelsall
7	*Electron of Portsea*	5	M. Wigston	Hasler	12	12	9	9	Belmore
8	*Gancia Girl*	15	D. Bircher	*Hasler	16	11	13	8	Kelsall
9	*Myth of Malham*	13	Mrs. M. Bevan	Gunning	8	8	7	11	Laurent Giles
10	*Three Fingered Jack*	14	A. N. Simpson	*Own des.	15	14	12	12	A. Simpson
11	*Rinaldo*	3	J. Lawson	Hasler	14	13	11	13	Warrior
12	*Ishkoodah*	4	M. Simmonds	Own des.	17	9	10	14	Trapper
13	*Cymro*	11	B. E. Evans	Hasler	19	15	15	15	A. Primrose
14	*Speedwell of Cremyll*	12	S. E. S. Tailyour	Hasler	21	16	14	10	A. Buchanan
15	*Binkie*	1	M. McMullen	Quarter	20	19	16	17	Contessa
16	*Blue Smoke*	2	M. J. Parry	Hasler	22	17	17	18	Kingfisher 26
17	*Hurrying Angel*	7	J. J. Fenwick	Hasler	24	18	18	19	Snapdragon 27
18	*Kerry Blue*	6	G. O'B. Kennedy	None	18	21	20	20	Kerry
19	*Slithy Tove*	20	M. Pipe	*Gunning	5	2	19	16	M. Pipe
20	*Renew*	19	J. E. C. Perry	Q.M.E.	25	20	21	21	Nimble
—	*Apache Sundancer*	—	C. M. Butterfield	Aries	6	3	2	3	Apache
—	*Sidewinder*	—	D. H. Kelsall	None	10	—	—	—	Kelsall
—	*Trixia*	—	W. Cherry	Own des.	12	—	—	—	J. Westall
—	*Warlord*	—	R. J. White	Aries	9	—	—	—	Apache
—	*Tehine of Deganwy*	—	J. Wharram	Q.M.E.	23	—	—	—	Tehine

*Of the types of wind operated self steering gears chosen Hasler (M. F. Gibb Ltd.) had 9, 4 yachts had none, 3 had Q.M.E., 3 were owners' own design, 2 Gunning, 2 Aries, 1 Tillerman and one Quartermaster. Those marked * were not used.

Notes on the yachts and the race

There follow some remarks and ideas about the race and sailing in general by a number of the competitors. All the yachts experienced winds from every direction at every strength from calm to at least force seven. Out of 26 starters 20 completed the course all within a creditable time and even the most experienced must have gained quite a lot of useful knowledge. Some are less willing than others to pass on information but we have tried to include as many ideas and problems as possible. The order in which they are placed is the finishing order at Plymouth.

First: OCEAN SPIRIT — Single Hull: 71 ft L.O.A.

OCEAN SPIRIT was the winner of the 1970 Round Britain race. In the official list of entries Lt. J. L. R. Williams and Lt R. Knox-Johnston were listed as "Co-Skippers" under the heading "Owner."

She is an Ocean 71 class G.R.P. yacht and the race to get her to the starting line before the rest of the fleet sailed was nearly lost. She was designed by Van der Stadt of Holland and built by the Tyler Boat Company of Kent, England.

As well as being the largest yacht in the race she was claimed to be the largest G.R.P. moulded yacht in the world. Her cost was reported at various figures between £50,000 and £70,000—probably enough to buy any two of the other competitors.

With some of the other Round Britain competitors *OCEAN SPIRIT* took part in the classic sailing race round the Isle of Wight the weekend before the start but unlike the others she was unable to reach Plymouth in time for the Inspection. This was required by Rule 13 which stated that "Yachts must be assembled in the inner Basin of Millbay Docks, Plymouth, for inspection by the Handicapping Committee at 0900 on Tuesday, 30th June, 1970. Failure to be there will render any yacht liable to disqualification." In fact it must be difficult to eliminate the favourite before the start when so many people have been working night and day to get her ready in time and so a small time penalty was given but *OCEAN SPIRIT* was allowed to start with the other yachts. In fact she received a further small penalty because she could not comply with the minimum requirements for "Accommodation and Equipment" under rule 15 and thus received a total of 12 hours penalty.

A number of the other competitors and writers in the press felt were strongly about this penalty. Some asked in advance for permission to delay arrival in Plymouth for important business reasons and were refused. Several others thought that she should have been delayed in Plymouth until her accommodation met the minimum requirements. With the numbers of workers on *OCEAN SPIRIT* up to the start, this requirement would have taken less time than the penalty to put right, while starting 12 hours behind the fleet would have made the race interesting for the others. As the race was announced and the rules published in 1966 after the first race one has to sympathise with a Committee member of the Royal Western Yacht Club who wanted to know why so many yachts failed to be ready and only just reached Plymouth in time. Anyone who has prepared a new yacht or vessel for a fixed date possibly

wonders how so many managed to be ready in time when such a lot of yachts used the race as a testing and proving ground, which, in fact, is the object of the race.

Far from being an advantage for her skippers the lack of normal fittings below deck must have been a considerable extra handicap. So many workers were swarming over her before the start that it was a wonder to many that they could find where anything was stowed. Even by the time she reached Lowestoft the galley sink had not been connected to drain overboard and she still had no fitted bunks on board.

From the questionnaire we note that no equipment failed during the race. Even allowing for the fact that all the equipment was new this says a tremendous amount for the builders and all those responsible for the installation—especially when it is recalled that work was done "round the clock" up to and including the night before the race. Anyone who has done a maiden voyage or even bought a new car will appreciate part of this achievement.

Her auxiliary is an 82 hp BMC diesel and cooking is by Calor Gas; there are 6 burners and an oven on the stove but this was the only means of heating the cabin.

As those who followed the race in the National Press will recall, *OCEAN SPIRIT* did experience a number of problems and these were naturally highly dramatised. They estimated that she was short of ballast and very tender. (Could this be the furniture and fittings she will carry when not 'stripped out' for racing?). To correct this they collected sand, 'guess-timated' at about 3 tons, which they stowed in the fresh water tanks. This was done at Castle Bay and during the operation she got fast on the rocks so that her departure was delayed. On passage to Lerwick one of their sails blew out—this was reported to be the mainsail. Being part of the Royal Navy they were perhaps fortunate in meeting up with R.N. ships whose crews were able to give some assistance during free time in ports, this however is quite within the rules. They also removed the propeller at Lerwick to gain some extra speed but they replaced it at sea before arriving at Lowestoft.

Second: SNOW GOOSE — Catamaran: 36 ft L.O.A.

Once again Don Robertson and D. Cooksey used their vast experience to sail *SNOW GOOSE* into second place. In the first race they were beaten by *TORIA* and this time by the 71 ft long *OCEAN SPIRIT*.

SNOW GOOSE was designed by Prout Brothers and Don Robertson and built by Prouts for a cost of about £4,000.

She carries normal cruising equipment; gas was chosen for cooking; no oven and no cabin heater. She carries a Johnson 18 hp outboard auxiliary and has been fitted with Hasler self steering gear which worked well under certain conditions.

During the race one of the rudders failed.

When he kindly answered our questions Don Robertson wrote regretting the capsize of the *APACHE SUNDANCER* and he mentioned that "My main impression now is that we must devote more thought to developing new rigs for

multihulls. In particular a method of varying sail area simply and quickly. This in my view is tied up with safety. Obviously a boat which must not heel must be able to vary its sail area."

These thoughts cannot be new for Don Robertson. He did some experiments with wing sails which were published in AYRS Publication 23 in 1958 and further experiments with a trimaran hull using a wing mast carrying a single jib rig (the same idea as *TRIXIA* in this race). A lateen rig with a "wishbone," a "biplane" rig with twin mainsails and a boomed foresail with luff spar were all described by Don Robertson for us in Publication 26 which was published in 1959.

These rigs were tested on a small trimaran and a catamaran before *SNOW GOOSE* was built and in each case the Bermudian rig proved more efficient for the amount of drive from a given sail area.

SNOW GOOSE was in 4th position at Lerwick but she sailed past the *APACHE SUNDANCER* during some light weather taking 3 days 14 hours for the passage against 4 days 3 hours by *APACHE*. As mentioned *TRUMPETER* returned to Lerwick to try and stop water entering the floats and this left *SNOW GOOSE* in second position to try and catch *OCEAN SPIRIT*.

The weather on the final leg produced gale force head winds so that *SNOW GOOSE* took shelter behind a headland rather than tack against a foul spring tide. Under these conditions she was unable to make the necessary time to catch *OCEAN SPIRIT*. This was still an excellent performance against a yacht of double her length O.A. and which cost about 12 times as much to build.

Don Robertson has now sold *SNOW GOOSE*.

Third: TRUMPETER — Trimaran: 44 ft L.O.A.

TRUMPETER was built just before the race by Derek Kelsall Ltd., at Sandwich for Phil Weld of the United States who sailed her under the Stars and Stripes and after the race she made a fast Atlantic crossing to the West Indies.

During the race *TRUMPETER* experienced some annoying and unfortunate problems. She led the fleet into Crosshaven but was promptly hauled out on the slipway. She looked very sleek and fast on the slipway but many of the more traditional yachtsmen could be heard observing that she was not strong enough. Luckily some very tough sailing through foul conditions proved them wrong except for minor faults such as the leaking float hatches which caused her return to Lerwick and perhaps cost her the first place in the race. Her time at sea from Lerwick to Lowestoft was a remarkable 2 days and 3 hours for the 540 miles but her official time had to count from 48 hours after her arrival at Lerwick and this included her return to repair the leaking floats. (*OCEAN SPIRIT* took 3 days and 21 hours).

The float leaks were not cured at Lerwick and further applications of fibreglass were made at Lowestoft.

TRUMPETER hauled out at Crosshaven

Phil Weld kindly returned our questionnaire, as did almost every other competitor and from this we note that the Q.M.E. self-steering gear was never used during the race. The mainsail area is 410 sq ft and the genoa 410 also. She carried a 20 hp Johnson outboard, used a two burner calor gas stove with a grill for cooking, electric navigation lights. The only equipment to fail was a rod furling jib stay, where it was swaged to the drum—this pulled out on the last leg. Phil was kind enough to state that this piece of equipment was American made.

The note with our questionnaire said, "I don't know just where to aim under the heading 'observations' other than to say it was a great sporting event, hugely enjoyed by Bob Harris and myself. How much better that it did blow hard much of the time so long as the combined performance of the whole fleet showed up so well."

Fourth: MINNETAREE — Catamaran: 30 ft L.O.A.

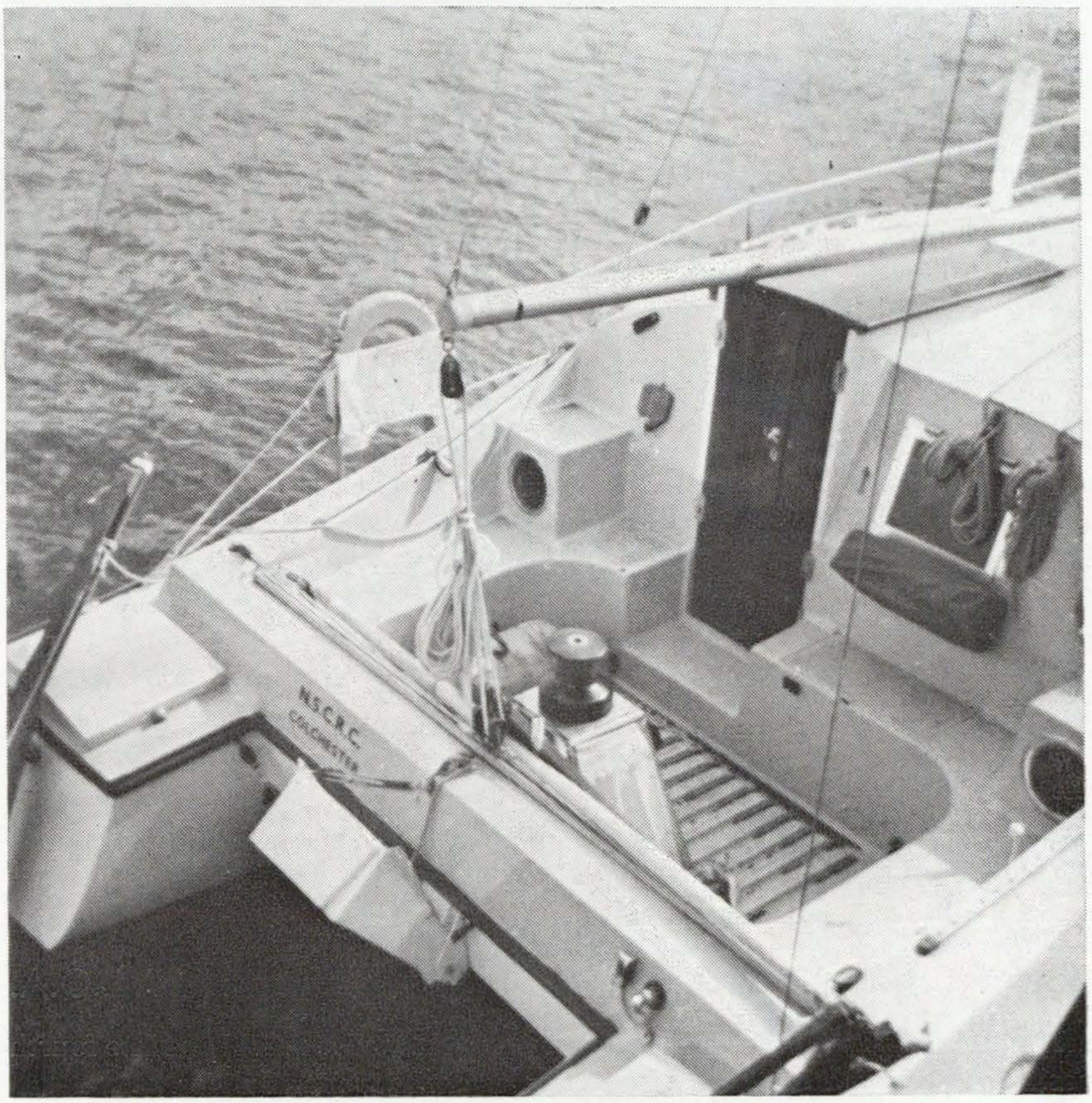
MINNETAREE was sailed by her owner Gerald Boxall and S. Nairn into fourth position to easily take the prize for the first yacht of 35 ft and under.

MINNETAREE is a standard Mark 2 Iroquois catamaran built by Sailcraft

of Brightlingsea and delivered to her owner in 1970. She was well tried and quite ready for sea at the start of the race.

The Mk. 2 Iroquois differs from the Mk. 1 by having a masthead rig, more buoyancy forward and more rocker to the hull to make her better able to carry the weights that cruising men like to carry around with them. Michael and Peter Ellison finished third in the first Round Britain race taking the handicap award with a Mk. 1 Iroquois. The scratch yacht then was *TORIA* and their handicap was 4¼ days, this time *MINNETAREE* had a handicap of 3 days 7 hours from *SIDEWINDER* and 2 days 21 hours from *OCEAN SPIRIT*. The amazing thing is that her actual time at sea was 23 days 1 hour 58 minutes against the winners 20 days 8 hours 10 minutes so that with the 12 hour penalty *OCEAN SPIRIT* was 9th on handicap against *MINNETAREE* with 8th position.

From our questionnaire we find that Calor Gas was chosen for cooking and they found the grill very useful. They did not have a cabin heater and did not need one even in the coldest weather. Lights are electric but these were not considered satisfactory as the current consumption and battery size meant



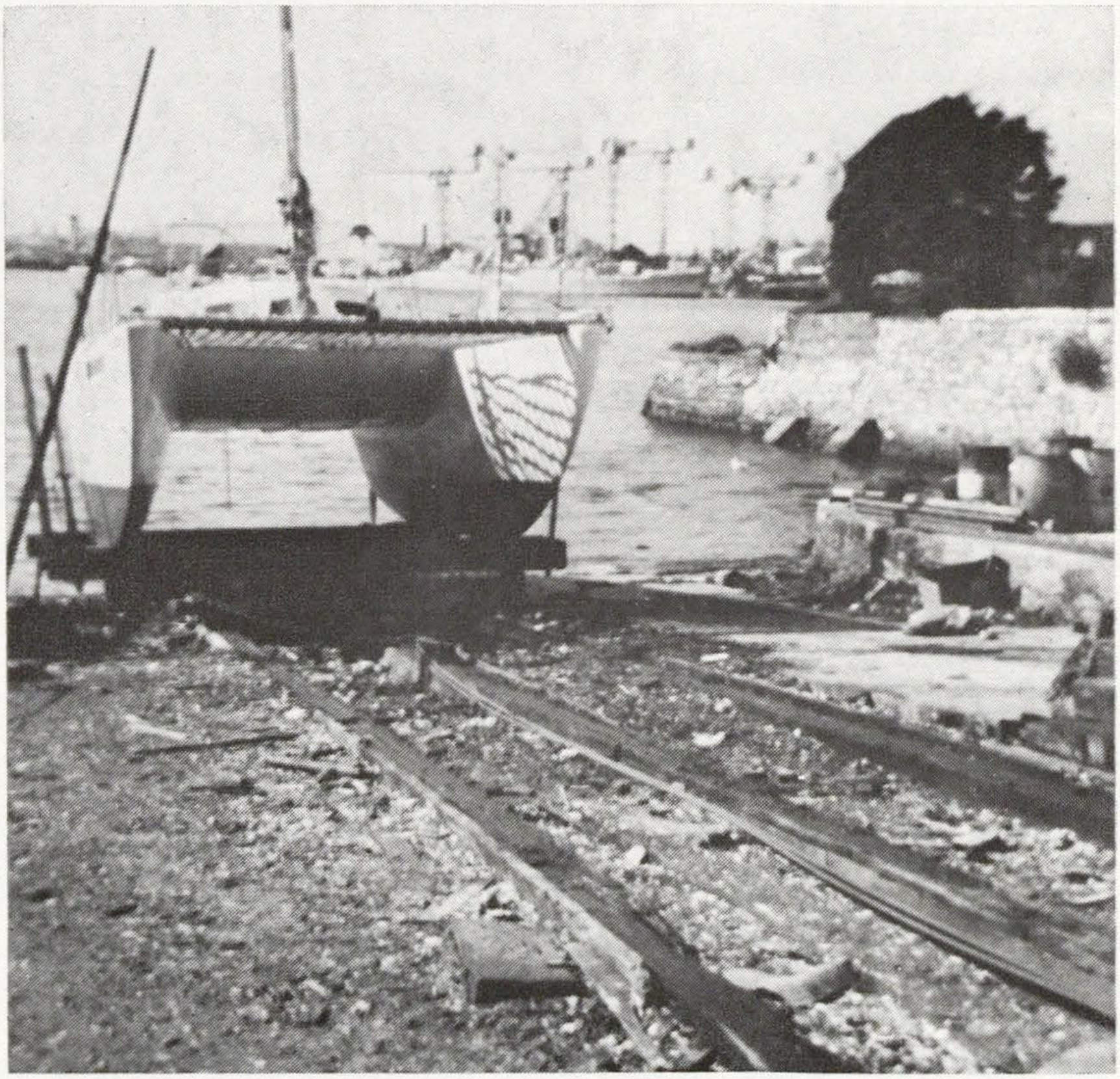
Cockpit of *MINNETAREE*

very frequent charging. Failures during the race were the wind vane of the Brooks and Gatehouse wind indicator which blew away on the last leg. Until then it had been very successful. Second failure was the Danforth compass light—a spare lead and light must be carried for this as it could not be taken to pieces. Honda Generator: The fuse holders fell out—spare fuse holders and fuses must be carried. Brooks and Gatehouse Impeller unit. One of the sealed coil assemblies failed but as one is fitted in each hull there was no problem. Recommend that in all cases two impellers be fitted as it is very useful when one 'weeds up' to switch to the other and deal with the weed when convenient.

No self steering gear was fitted and no auxiliary was carried although she normally carries a Johnson 33. Her new price including sails, Brooks and Gatehouse equipment etc. was just over £6,000.

Fifth: GOLDEN COCKEREL Catamaran: 43 ft L.O.A.

Designed by Rudy Choy *GOLDEN COCKEREL* was built by Contour Craft for Bill Howell in 1967 and she has taken part in many races including the 1968 Single Handed Atlantic Race. She was considerably altered after she capsized off the Isle of Wight after the start of an early Crystal Trophy race. Since her capsize (before the Atlantic race) she has been sailed with reasonable



GOLDEN COCKEREL, at Marshford's Yard, Cremgll near Plymouth

care and has proved completely seaworthy if not a fast yacht in our waters. Anyone who has watched her sailing offshore and seen her pitch must wonder if this is the reason. From the photo her fine ends can be seen and there is no flat run aft to dampen out movement.

In this race Murray Sayle, the Sunday Times Newspaper report, sailed as crew with Bill Howell. An accurate if rather dramatic report of the race progress appeared in the newspaper each Sunday in spite of the problems posed by writing and despatching messages from a sailing yacht without using a radio transmitter.

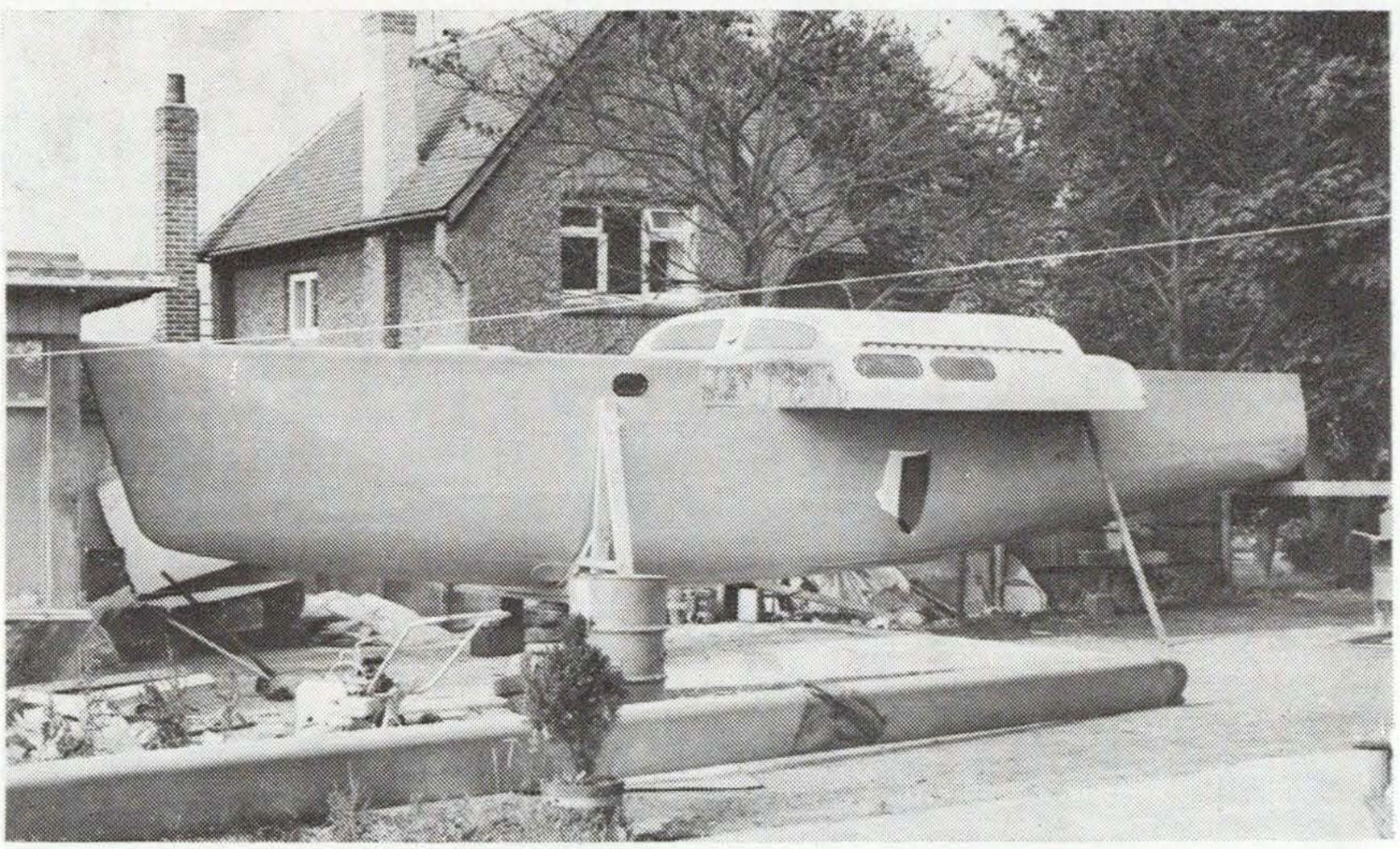
A Hasler self steering gear with automatic tilting is used and this works very well. Paraffin is used for cooking. Electric lights are used and there is no cabin heater. A Johnston 33 hp outboard is used as an auxiliary and automatic sheet release gear is used. I gathered that the sheets were sometimes released in a steep sea when there was no danger of capsize but the effort in re-sheeting the sails was considered well worthwhile. No equipment failed during the race but the hatches forward leaked.

GOLDEN COCKEREL remained in Castle Bay for some hours after she could have sailed while waiting for a Westerly gale to moderate, as did a number of others, and so it shows a good steady performance to have finished fifth at Plymouth.

Sixth: LEEN VALLEY VENTURER Trimaran: 42 ft L.O.A.

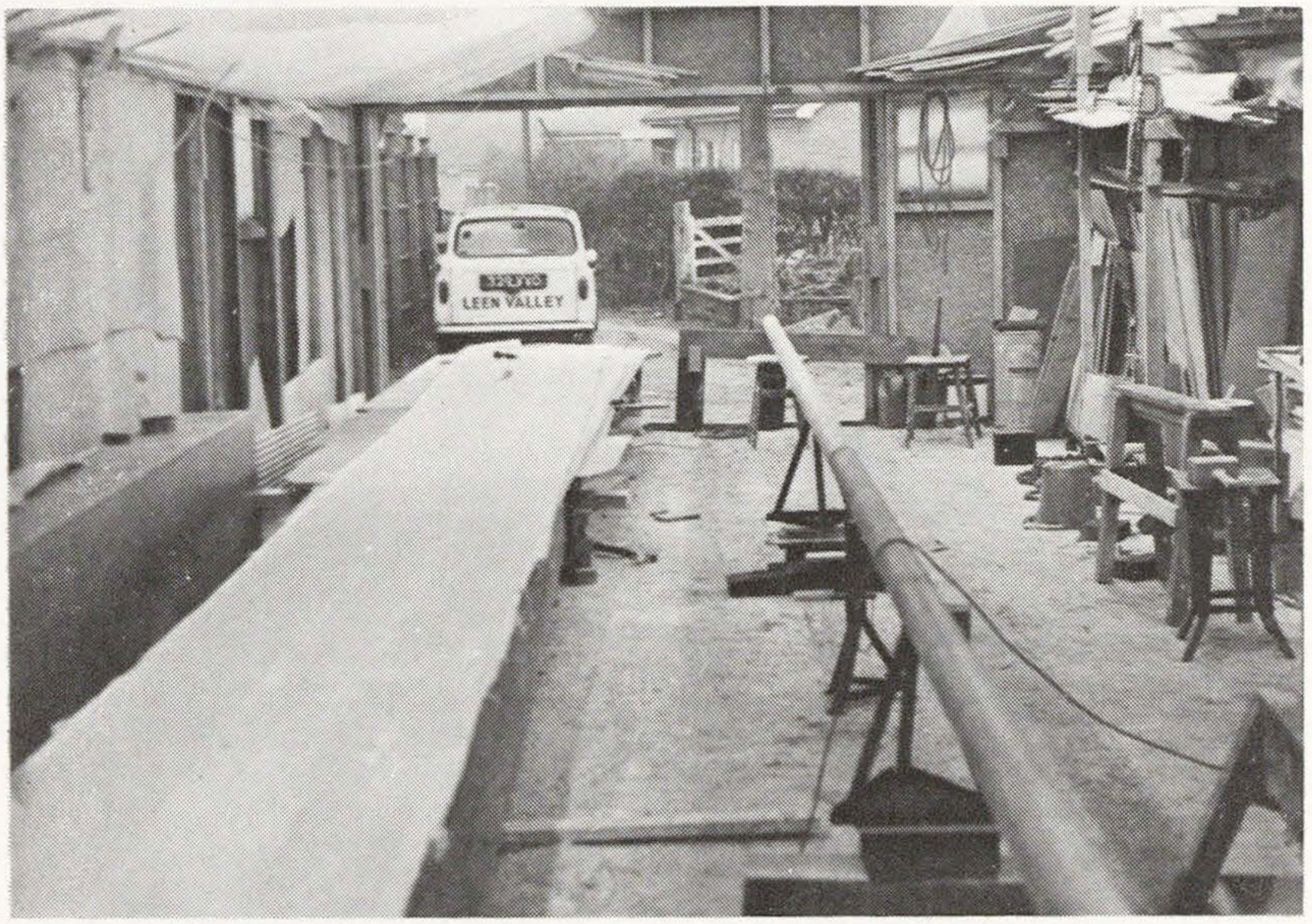
This 42 ft trimaran was built by her owner John M. Beswick in his garage in Nottingham to Derek Kelsall's design similar to *TORIA*. John used the now familiar foam-sandwich/G.R.P. construction and did not experience any major problems with the construction.

LEEN VALLEY VENTURER was completed in good time for trials and cruising before the race and did not experience any "teething" troubles. John Beswick is a keen AYRS member and recorded this on the transom.



LEEN VALLEY VENTURER—main hull and cabin

Being new, the crew were a little short of sailing practice with the yacht and they did have some problems in port. Like many others their anchors dragged at Castle Bay. When they came to depart, their anchor fouled at the critical moment as they got under way and they rammed *THREE FINGERED JACK* amidships at a fair speed. Very luckily they hit the end of the main beam and did no damage to either craft. They were not so lucky early on the morning of 23rd July when leaving Lowestoft. They hoisted sail while being towed out to the very narrow entrance. As a result, they overtook the towing launch and hit the harbour entrance and damaged the bows of one float and the main hull—she had to return for repairs. The damage was to the point of the stems well above the waterline. Mary Bevan of *MYTH OF MALHAM* was immediately helping by trying to beg or borrow fibreglass and cloth but they were not ready to sail again until after the shops opened later that morning. The wind was strong with rain at the time; the same wind that delayed the leaders on passage to Plymouth.



LEEN VALLEY VENTURER foam-sandwich wing mast

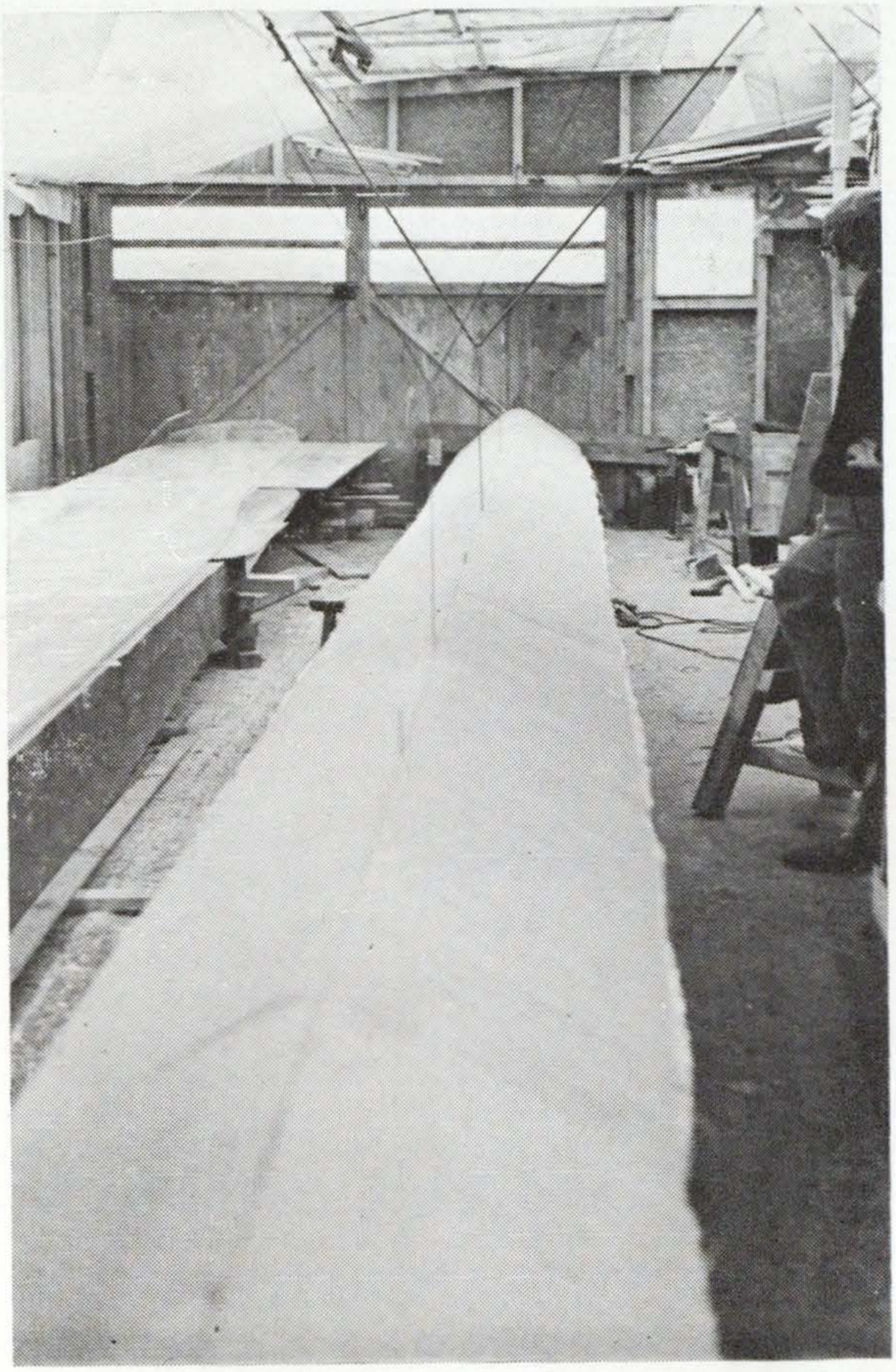
John Beswick chose calor gas for cooking on a two burner stove without an oven. He used 12 volt electric navigation lights, a 6 hp outboard motor provided auxiliary power. A Tilly paraffin pressure lamp provided heat and light in the cabin. She had a Tillerman self steering gear which was not satisfactory and a Honda generator which was most useful.*

The only failure, apart from two stems on contact with a solid breakwater at speed, was the rudder blade which broke off, off Aberdeen when sailing with the wind aft.

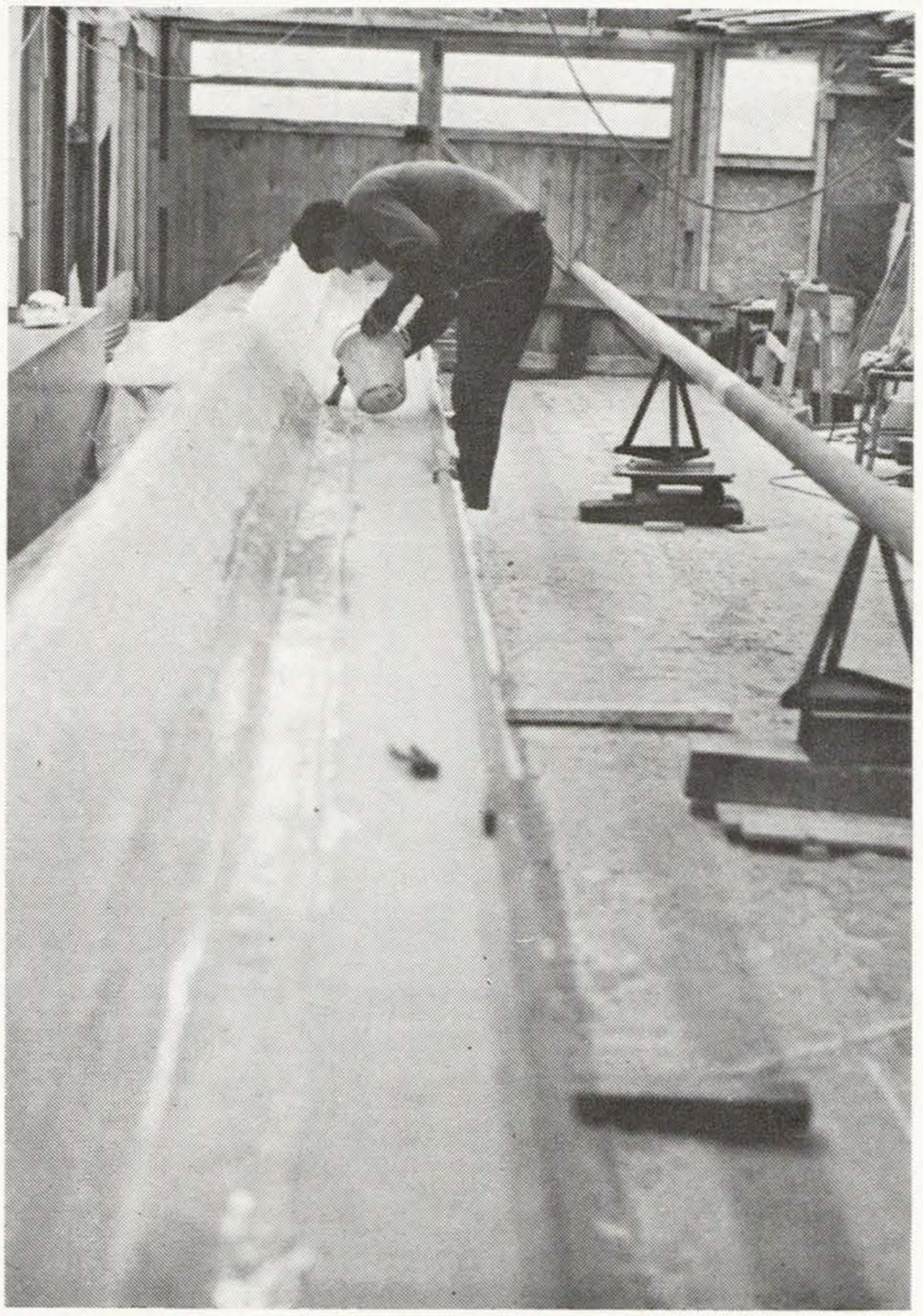
*Her sail areas are: Mainsail 370 sq ft, working jib 160 sq ft, genoa 280 sq ft.

Commenting on the race John Beswick wrote: "We found the Round Britain race exhausting but a great experience. *LEEN VALLEY VENTURER* has turned out all I wanted her to be. That is: a reliable family day-sailer, capable of being sailed long distances shorthanded under sail, in safety. Roger and I felt after the race she could have given a better performance in the race had we had more offshore experience. We are learning.

Unless someone buys *LEEN VALLEY VENTURER* enabling me to start building a larger Tri, I intend entering her in the 1972 Single-Handed, to learn some more about sailing."



LEEN VALLEY VENTURER'S 40 ft wing mast outside surface



LEEN VALLEY VENTURER'S mast inside surface

LEEN VALLEY VENTURER'S mast being completed

Seventh: ELECTRON OF PORTSEA

Single Hull: 36 ft L.O.A.

Sailed by Michael Wigston and W. H. A. Davies, *ELECTRON* was the second monohull to finish. She was designed by Illingworth and Primrose, 36 ft overall, 26 ft 11 in on the waterline. Builders were Burns of Bosham.

Having missed the favourable weather at the start of the race at Plymouth and arriving 12th at Crosshaven and Castle Bay she improved her position to arrive seventh overall at Plymouth.

We list Michael Wigston's comments. He also noted that the Hasler self steering gear worked particularly well. Lights were electric and calor gas, cooking on a gas stove using two burners, a grill and oven. She carries a 38 hp Parsons 'Sea Urchin' auxiliary and her new cost in 1960 including fitting out was £8,000.

Failures

1 *Self Steering Gear*. After a little more than 2,000 miles the ball socket unscrewed itself from the top of the servo blade.

2 *Sails*. Many man hours of work were put in, during the race, re-stitching the seams of our new sails. I took this up with the sailmakers who commented that this could have been an error in the thread tensioning—however!

3 *Hand Bearing Compass*. The card is illuminated by a beta source. Considered to be insufficient.

4 *Mast and Rigging*. We used *GREEN HIGHLANDER'S* tackle bought by us 1966/67. A number of points cropped up which could clearly be interpreted as "fair wear and tear."

a Main shroud and inner forestay stranded.

b All four spreader sockets cracked, one broke clear away.

c Both lower and middle shrouds plates are fastened to the mast by a $\frac{1}{2}$ in stud, nutted on each end. Nuts were contained by spoiling the threads!!! One nut let go. A new stud was made, and I had additional split pins fitted.

I'm afraid that I have no constructive comments to make. We were sailing a ten year old yacht, therefore my thoughts were more on how to make her more efficient, than to improve modern and up to date devices."

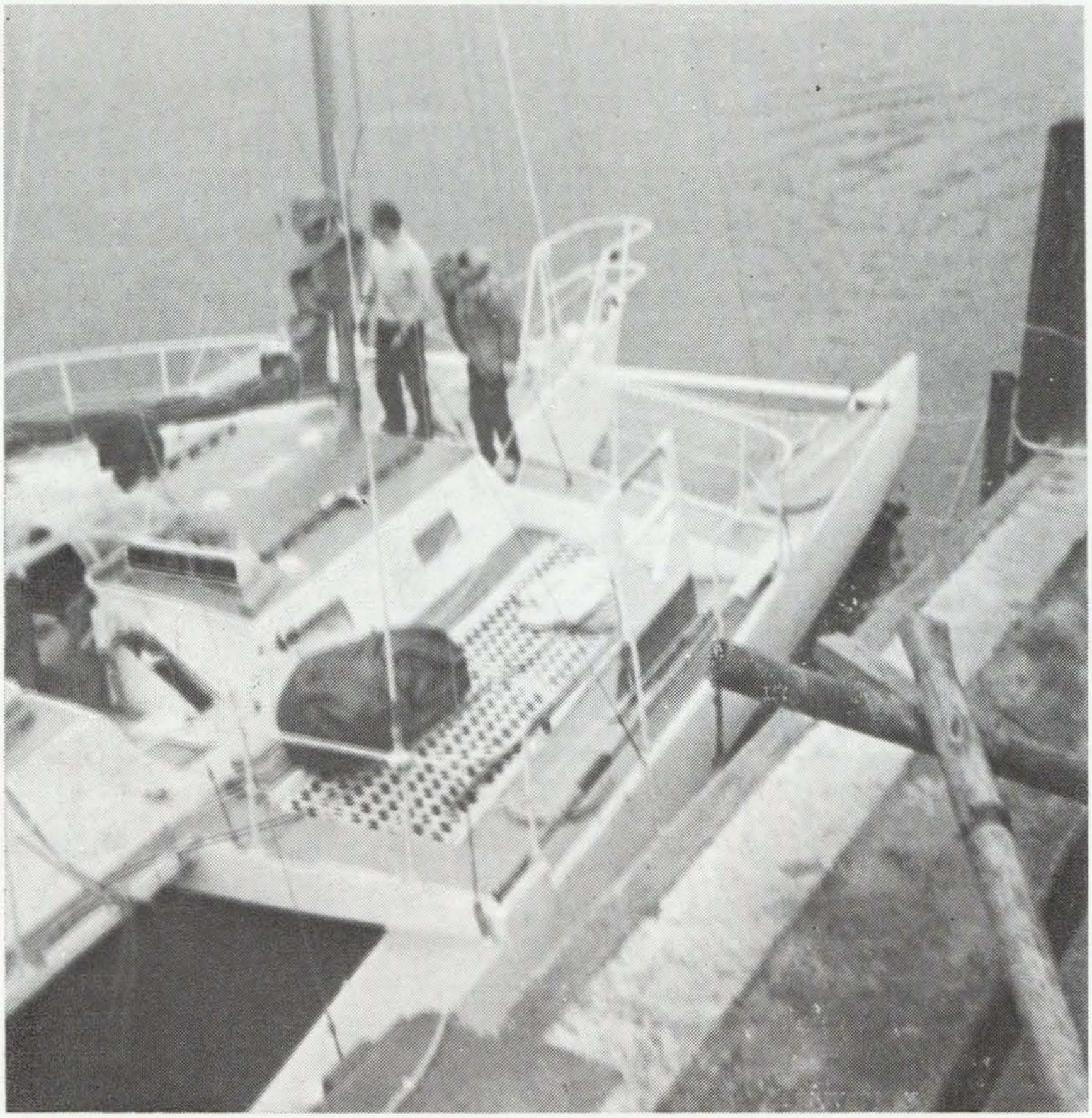
Eighth: GANCIA GIRL — Trimaran: 42 ft L.O.A.

GANCIA GIRL was built just before the 1966 Round Britain sailing race by Derek Kelsall at Wadebridge. She was then named *TORIA* and she won the race in a very fast time. She was described by Derek then as a cruising yacht and this leaves little alternative to now describing her as a "comfortable cruising yacht." She was renamed before the 1968 Single Handed Atlantic Race in which she finished 7th sailed by Capt. Minter-Kemp.

The change from *TORIA* to *GANCIA GIRL* included making the cabin much larger by building the sides out towards the floats (well clear of the waterline) and making the cockpit a well protected area with wheel steering and screens to shelter the helmsman. There is an astro-dome in the cabin top. Her usual equipment included a cabin heater but for some reason it was not carried on this race. Her "conversion" added about two tons to her displacement, and she is re-rigged as a ketch.

Her inventory includes a Hasler self steering gear which was not used during the race. Cooking is by calor gas using a two burner stove with grill and oven. Lights are electric. No auxiliary was carried during this race.

GANCIA GIRL was lent to C. P. O. Butcher, R.N. and Lt. M. A. Shuttleworth, R.N. for the race and therefore they had to take more care than an owner might have done. Equipment which failed could have been very embarrassing—the rudder pintles and the Morse steering cable. The rudder pintles were repaired with the use of skin divers and a crane at Castle Bay in the Outer Hebrides and parts were sent out by air. Not bad for a small village where virtually all repairs are normally done by the lifeboat mechanic.



GANCIA GIRL at Castle Bay

Ninth: MYTH OF MALHAM — Single Hull: 40 ft L.O.A

For this race *MYTH OF MALHAM* was skippered by Mary Bevan with her husband Noel as crew. This was done to help Mary to prepare for the 1972 Single Handed Atlantic Race if she decides to enter.

Having a lady as skipper did not seem to reduce the good performance we have come to expect from *MYTH* but sailing as crew enabled Noel to make a first class film record of the race and also to spend time with his numerous electrical pieces of equipment.

MYTH OF MALHAM is equipped with a two burner gas stove for cooking, a paraffin cabin heater and lights are electric. She has Gunning self steering which was used through the race at all times except inside harbours.

During the race one runner lever fitting failed and three sails required repairs, one Yankee, one staysail and a genoa staysail. *MYTH* has never had an engine fitted in all her years of racing and cruising.

Following are extracts from a letter from Noel Bevan. Details of his off-course alarm are given with the description of our Boat Show stand.

RENEW outside *MYTH OF MALHAM*—Mill Bay Docks

1. Self Steering Gear: Gunning Gear

No trouble experienced, mainly due to the fact that this gear has been used in *MYTH* for three years during which time small improvements have been made and its full capability thoroughly exploited —i.e. different sizes of vane to suit the weather and whether running or close hauled.

The boats using Quantock gear could never expect results unless going to windward in above force 5 without making the vane 3-4 times larger.

People who buy a self steering gear expect to fit it to the boat like a winch and for it to work faultlessly. The state of the art on self steering gears is nowhere near so advanced and finally a gear to suit all purposes and weather conditions would become mechanically expensive and complex.

Clearly it is not good to fit a gear just before the race, sail up and down an hour before the start and expect it to work perfectly.

In addition no existing gear can cope with a light displacement or multihull condition of speed change due to wind velocity and hence apparent wind seen by the vane unless fed with the boats speed as an additional input.

Given such an ideal S.S. gear however, we are still faced with a problem for the multihullers that a large change in apparent wind requires a large change in sheeting for a given course.

Various methods of providing a mechanical force proportional to speed, such as using a mechanical linkage differential between vane and servo blade, fed with deflection aft of the servo blade have been considered and discarded.

A simple solution of compromise is to trail a length of line hooked to the weather yoke of the servo blade. This method has been used in *MYTH* in conditions of variable strength and found effective in reducing course variations of over 15 degrees to less than 5 degrees, thus the boat sails with the self steering gear vane 'squinting' a few degrees. The length of line was determined by trial and error while returning from Newport after the Trans Atlantic race in 1968. In practice the line is shortened to past the most effective point and several knots added to bring it back. The drag is insignificant since the servo gain of the gear is used. (In the case of *MYTH* the measured line drag is equivalent to 5 foot pounds at 6 knots in force 4).

Changing tack means changing the side of the speed correction so the line is merely hooked onto the opposite yoke. For example, if the boat has a motor, one can measure the drag of given lengths of line at various speeds using a spring balance. If one sails with self steering and makes a few measurements of vane torque at various wind speeds, a compensating force can be arrived at to roughly cover changes of speed due to wind strength.

Finally, as to self steering gear, using a servo blade on light or medium displacement boats performance can be summarised as follows:

1 Boat hunts slowly over ± 25 degrees, period about 10-20 seconds = larger vane required.

2 Boat oscillates fast over ± 5 to 10 degrees, period 2-5 seconds with tiller snatching from side to side = smaller vane required.

2 The above is unlikely to occur in winds below force 2-3.

Finally a computer simulation of a well known gear showed that it would not work at all, and that the boat would probably weave 45 degrees.

This shows the necessity of trial and error.

2. We carried an experimental battery charger on board which converted roll and pitch to electrical output by using an eccentric weight geared up to an alternator. Results from this will be used to provide more than 1 amp @ 12 volts at most sea states.

3. The off Course Alarm.

I have at last got clearance from GEC/Marconi, my employers, to patent it privately and expect to have them on sale—hence I don't feel really able to publish details.

I feel it is essential to single-handers, and especially in cases of near the coast and snatching a sleep occurring at the same time. (See wreck of Raa, T 24 in 1968).

The unit, which is completely self contained, is about the size of a tin of beans.

It works from a 9 volt transistor battery giving about 6 months normal usage.

Tenth: Round Britain with THREE FINGERED JACK by Michael Ellison

THREE FINGERED JACK is a trimaran designed by Andy Simpson of Simpson Wild Marine Partnership. At 26 ft 6 in length Overall she is similar to *SHANGAAN* described in AYRS Publication 68, with improvements from the 30 ft *CALYPSO* described in No. 73.

She was built of diagonal wood strips and sheathed with G.R.P. (now known as cold moulded construction but previously known as 'double diagonal construction') by Border Marine Ltd., Berwick on Tweed. She was launched on the 16th or 17th of June, 1970 and as I drove North to Berwick with Andy on the night of the 18th June, we listened to the election results as they came in. I seem to remember that we found *THREE FINGERED JACK* floating comfortably in a corner of the harbour quite early on the morning of the 19th. Andy seemed very satisfied that she was floating to the correct waterline as calculated.

Among the design features to note is that the rudder is hung below the hull with a skeg and not on the transom. This is more efficient and avoids cavitation. The floats each have a displacement of just less than the weight of the yacht so that they would submerge rather than allow the main hull to capsize over the float. The gap between the hull and floats is covered by a net rather than a canvas to avoid lift by the wind. The construction of the floats was kept light, they have a number of watertight compartments and are partly filled with expanded foam for stiffening and reserve buoyancy. Each float has a reasonably large locker amidships with a wooden hatch.

Having transferred our equipment from car to yacht, bought petrol for the Seagull outboard, filled the fresh water containers, fitted one of the two intended canvas 'bunks' or 'hammocks' in the cabin (this slides out of the way on a length of mast track when not in use and proved very comfortable), fitted the compass (Grid type) covered by clear perspex under the 'bridge deck' or forward part of the watertight cockpit, bought some food and a fishing line and had done some of the other hundred and one jobs necessary on a brand new yacht, we motored out to sea on Sunday, 21st June. We had to arrive in Plymouth before 0900 on the 30th June or we could not sail in the race and this should have given us plenty of time for a break at Swanage for Andy to complete preparations for the race and for me to return to Hermitage and clear up some of the problems sent in by members and others to the AYRS.

As happens with so many plans the 650 odd miles to Plymouth took much longer than expected. The weather started almost calm with fog. Such fog that a coaster steamed over as if to ram us but at the last moment she stopped and asked us to confirm their position—which luckily we were able to do with confidence. When the wind came we got too much of it and from completely the wrong direction so that we had to tack down the coast against a wind of some 20 knots. We anchored close under the lee of Flamborough Head and again off the entrance to the Humber during adverse tides (Spring) and each time we had considerable trouble in recovering our anchor. We carried two 'Danforth' anchors and these dug in so far that it was quite impossible for two of us with only a small sheet winch to recover the anchor pulled in by the tide and

swell (off the Humber it was reasonably rough). In each case we had to sail the anchor out, bringing up all standing a number of times before it broke out. We started with 100 fathoms of nylon line in addition to chain for anchoring but later cut the line into more manageable lengths as somehow it got knitted into a 'cats cradle.' I made a wooden frame later and this kept the rope in order during the race.

The adverse weather was perhaps a good thing in a way. I had never previously sailed outside harbour on a trimaran and was not quite sure what to expect. Andy had not intended to invite me to crew for him during the race but another similar trimaran of his design was required by a customer in the Mediterranean and his partner undertook the delivery voyage from Berwick and could not return in time for the start of the race. We had previously sailed together on a merchant ship to Australia as we both had worked for the same company but only the AYRS had kept us in touch since then.

THREE FINGERED JACK gave me great confidence and I was impressed by the progress made to windward. I tended to compare her with the larger craft which I had sailed before including the 35 foot monohull which I owned for 10 years and she did seem very small at times. Naturally, also, a 26 foot trimaran is sensitive to weight and I was not allowed to carry some of the gear which I like to carry "in case it might be useful someday." After using a two burner stove with a grill and a sink with fresh and salt water pumps, having a single Camping Gaz burner screwed down beside the chart table took a little getting used to. Fresh water was kept in a one gallon container in the cabin and salt water was obtained by leaning over the side.

Once again the many advantages of using a fully battened mainsail were shown. These are advantages for cruising yachts when sailing with small crews and it can only be the racing rules which prevent their use by every yacht.

South of Harwich as we hammered our way towards Swanage it became clear that one of the floats had gained a considerable amount of weight. It was getting dark and the forecast was that the wind would move round so that it could continue to blow from ahead at force 7 to 8. An inspection showed the locker of the starboard float (lee side) quite full of water and this was baled out. After a short time it again seemed to fill and so I suggested a return to Harwich. Andy agreed to this but before we finally reached a sheltered anchorage we had to sail very hard indeed against some vicious squalls on a pitch black night with only a small scale chart into a port which I had only visited once four years before. Inspection of the float in daylight showed that there was no damage of any kind and the water had entered through the hatch. We bought some household foam draught excluder strip and stuck this round the hatch covers so that the lids bedded down onto this and cured the trouble almost completely in spite of occasionally sailing with the float almost awash. Later in the race we gave some of the strip to Bill Howell for *GOLDEN COCKEREL* and he reported that it greatly reduced the quantity of water entering through his forehatch.

As it turned out we would have been much safer and made better progress had we stayed at sea instead of entering port but we had struck various logs and debris on our passage down the North Sea and I had not accepted my skipper's assurances regarding the tremendous strength and resilience built

into the very light floats. Having arrived in Harwich we took the opportunity to dry out our clothes, catch up on some sleep and have a meal ashore. We arrived on the 24th (early) and it blew a gale all day and most of the night, we sailed at about 0600 on the 25th. Apart for an extended calm on the 26th the only memorable event was on Saturday 27th after passing St. Catherines point on the Isle of Wight when *SIDEWINDER* overtook us and at the same time about 400 sailing yachts competing in the 'Round the Island' race passed on the opposite course. Among these were *OCEAN SPIRIT* and *APACHE SUNDANCER*.

We anchored off Swanage in the afternoon and I returned home but there was no time to collect my car from Berwick and it had to remain there until after the race. We sailed again on Sunday evening and arrived in Plymouth just in time on Tuesday morning. The scrutineers passed the yacht and her equipment. Their only doubt concerned the navigation light which is electric and mounted on the masthead. The handicapper must have been very favourably impressed indeed as inspection of the list will show. For 'business reasons' we both returned home from Plymouth and did not have time to try the self steering gear which Andy made up in a rush. The gear consisted of a very small horizontal vane coupled by light line to an auxiliary rudder about 8 in wide mounted on the transom. The gear nearly worked but in fact the only course that it could steer as well as we could was "full and by" (wind about 50° on the bow) and our time on this course seemed to be about six hours only. We left the outboard motor and petrol in Plymouth and secured crutches (rowlocks) to the outside of the floats. I think we could maintain about two knots in calmish water by rowing and although we did a fair amount during the race we never found a comfortable position or method of rowing for extended periods.

Andy prefers to keep watches on the 3 hours on and 3 off at night with longer watches during the day if convenient and this system worked well for us. During the 1966 race with my brother Peter as crew we chose 4 hours on and 4 off because we found this convenient when cruising together and because the old sailing ships used it and even today on Merchant ships if it becomes necessary to 'double watches' these are the hours worked. We used the 'dog watches' to change each day and only on one "hairy" night I had to call Peter after 3 hours because I was getting tired. Mike Butterfield had Peter as crew on *APACHE SUNDANCER* and they used 4 hour watches throughout without trouble until their final disaster. Perhaps on very small craft three hours is better as due to the greater movement sleep is less resting. Another advantage for us was a habit we got into at night which meant that the person going off watch would add some boiling water to a mug containing a mixture of blackcurrant juice and rum. This was especially welcome off the Scottish coast where the daytime temperature was around 42°F.

The sails for *THREE FINGERED JACK* were: a mainsail of 174 sq ft, 150% Genoa 196 sq ft, foresail 103 sq ft, jib 38 sq ft, and a spinnaker with a 29 ft luff and 17 ft foot. These set on a mast about 31 ft high stepped on deck and supported by the normal stays including a standing backstay and twin forestays. Reefing the mainsail was done by moving the boom aft and rolling the sail round it. With such a small sail this is quite satisfactory. There is nothing to go

wrong. A point to note when using full battened mainsails is that the pockets can be cut to allow the battens to roll down parallel to the boom so that they do not have to be removed. A further point we discovered in 1966 is that if a slot is cut in the batten pocket half way along the sail it is very much easier to remove a full length batten at sea. The batten can be moved aft for half its length and then moved forward out of the sail. This avoids the need to swing about on the end of the main boom over the sea holding perhaps 15 ft of sail batten by its end and trying to insert this into a flogging sail. We did not break any battens. I think we learnt a lot about using a spinnaker with twin forestays. Personally I hate spinnakers and never previously used one if it could be avoided, especially at night and I have wondered for some time why they could not have pockets for flexible sail battens for use when not racing to the usual rules. I prefer to boom the genoa out to windward but the increase of speed when the spinnaker is set is most impressive, also the decrease in the amount of control of some yachts.

THREE FINGERED JACK has a low aspect keel under the main hull and a dagger board in a slot through each float. These slots were made large so that hydrofoils could be used if desired but shortage of time prevented any trials before the race. Symmetrical boards with very round leading edges were used so that they could be changed across in the event of damage to one.

Before the start we hoped to borrow a radio D.F. set but the yacht which had kindly offered to lend us one failed to reach the line in time and we sailed without one. We did carry a transistor set to listen to the radio forecasts and once again we would have been better not to listen to the shipping forecasts. They were quite wrong for the South West of the British Isles and for the North Sea each time we sailed there. They were correct for the North West of Scotland but rather naturally by then we were expecting the opposite to that forecast for wind changes.

After the start, we made the mistake of trying to sail direct from the Eddystone Lighthouse to the Lizard Head and were becalmed. This happened in 1964 and 1966 when I tried to do this, each time the yachts holding out to sea and those keeping inshore made better time to the Lizard. This time those who got caught and failed to catch the tide past the Lizard never broke the gap so that the race split into two parts. The leaders held a reasonable breeze past the Scilly Isles and then managed to finish at Crosshaven before a further calm and fog descended to increase the time gap. Here an hour of rowing could make as much as six hours time difference by just reaching the line before the tide turned and a number of competitors put in some hard work. This of course is the advantage of even a small auxiliary when cruising.

As we passed the Lizard, or in that vicinity as our exact position was 'doubtful' at the time, we were in close company with two other yachts and we passed very close astern of a large merchant ship which had stopped and was blowing her correct two blast fog signal. We wondered as we tacked close under her stern how a fleet of yachts appeared on her radar screen.

Due to the shortage of time and a dislike by Andy for holes in the skin of his yachts the echo sounder was not fitted in the normal way but was fitted with a stick so that the transducer could be held over the side while the other crewman read the dial. This was easier than using a hand lead but did not encourage the

use of soundings as a means of navigation except in times of considerable stress. On the first leg we made a good course and made an excellent landfall. We were briefly worried by a yacht far over to port but later another appeared equally far over to starboard. A yacht only three miles away appears quite distant, the difference in the course to steer for a distant point by two yachts three miles apart is very slight so that navigation by other vessels is never to be relied on. At each headland the competitors seem to scatter onto completely different courses and yet they all seem to arrive at the next mark at more or less the same time again. As we approached the Irish coast we observed some lights which we could not identify for some time. These turned out to be an oil drilling rig. The "Yachting and Boating Weekly" publish the positions of the oil rigs in the North Sea each week but neither of us had heard of this one and it had not been mentioned by the paper.

We crept through the fog to finish the first leg at 1339 on Tuesday 7th, *MYTH OF MALHAM* had arrived 8th at 1453 on the 6th, the last of the first group. *WARLORD* arrived with steering trouble at 2058 and then no more yachts finished until *SIDEWINDER* at 1229 on Tuesday. Between *SIDEWINDER* and *TEHINI* at 1601 12 other yachts arrived leaving only *HURRYING ANGEL* at 1921 and *RENEW* at 1925 on the 7th.

During our stay in Eire I was caught by a change in the race rules which I had helped to suggest in 1966—"12–The skipper and crew must sleep on board during the race and may not make use of sleeping accommodation ashore at the Specified Ports." The intention was to encourage comfortable cruising yachts with dry accommodation so that the crews would not need to rush ashore to a hotel as some competitors did in the 1966 race. My wife came to Crosshaven and *THREE FINGERED JACK* only had two very narrow bunks . . .! We drove to Cork but failed to find a D.F. radio at a fair price (probably due to their customs duty on such things) and decided to sail on without one and hope that the set from the delivery trip would arrive by airmail.

The passage from Crosshaven to Castle Bay was quite eventful and rather uncomfortable for me. We left to sail against a wind of about force five with a short sea causing lots of spray. Shortly, Andy remembered that he had to post some important information to a customer and we must find a means of doing this. As letter boxes are not too common off the coast we decided to sail inshore and pass the message to a fishing boat or failing this to put into Kinsale. As we approached the shore we sighted two sailing dinghies, one was proceeding down wind under her jib and the other, further astern, under bare poles with her two crew bailing vigorously with a bucket. Having asked if they were O.K. we came round and threw the letter to them with a 2/- coin and two shackles whose fins were lost overboard. Passing of written messages is specially allowed by rule 12. Having left the two men in their open boat with the prospect of an uncomfortable night at sea, when a slight wind shift to the South would leave them on a very nasty lee shore I think we both felt slightly less cold and miserable. We had both got rather wet due to the net between the hull and float. Being new, this net had stretched a bit. Being windy, we were both moving and heeling.

We now discovered that wearing oilskin trousers outside seaboots has an effect like a steam train taking on water at speed. Passing waves seemed to be

scooped up with such force that the water came upwards past the towels round our necks—this certainly is how it felt. Having changed once and got wet again, finding a split in the seat of my oilskin trousers and being unable to sleep in the forward bunk by being either weightless or double one's normal weight due to the pitching in the short sea and with the thought of the pleasant harbours close down wind, I would not have been too sorry to retire instead of spending a night getting even more uncomfortable. Andy had left his wife in Swanage but he was very disappointed by our handicap rating which we heard in Crosshaven. It was clearly almost impossible for us either to beat the leaders *TRUMPETER* and *OCEAN SPIRIT* to win outright or to beat the smaller monohulls by the time required to win the handicap award.

We passed Fastnet early in the morning with two other yachts in sight and the weather slowly improved with the dawn. By 1000 we were becalmed in company of several other yachts off the South West corner of Eire. We began to dry out and feel better. The wind came in from the South West and slowly increased in strength, for our run from the West of Eire to the Hebrides, some 200 miles of open water. The visibility was less than a mile and we averaged about 7 knots with a wind abaft the beam throughout at about force seven. We passed close to the rocks off the coast to establish our departure position and were overtaken by the Trimaran *GANCIA GIRL*. She seemed to be enjoying the heavy weather and we thought of her crew with their comforts and enclosed cockpit. We took some photographs and wondered if we could carry more sail to catch her, but decided against this.

With the heavy following sea the compass was swinging and we followed the course as carefully as possible and took care to estimate the course we thought we had steered. The visibility remained poor and we had no means of knowing our speed except to guess and average out the surges down the face of the waves which seemed to last for about a minute at a time if judged correctly. We both played at navigation, but Andy was the Skipper and Navigator and he had considerably more confidence than I did in our position so that as time wore on and we passed some Russian trawlers fishing near but not over a bank marked "good fishing ground" on our chart according to our estimation. I began to wish more and more for a D.F. set. An error of 5 degrees to port would have taken us to Iceland and 5 degrees to starboard would reach some rocks off Tiree. Underestimating our speed would take us among a mass of unlit rocks and islands in the sea of the Hebrides and into the Little Minch.

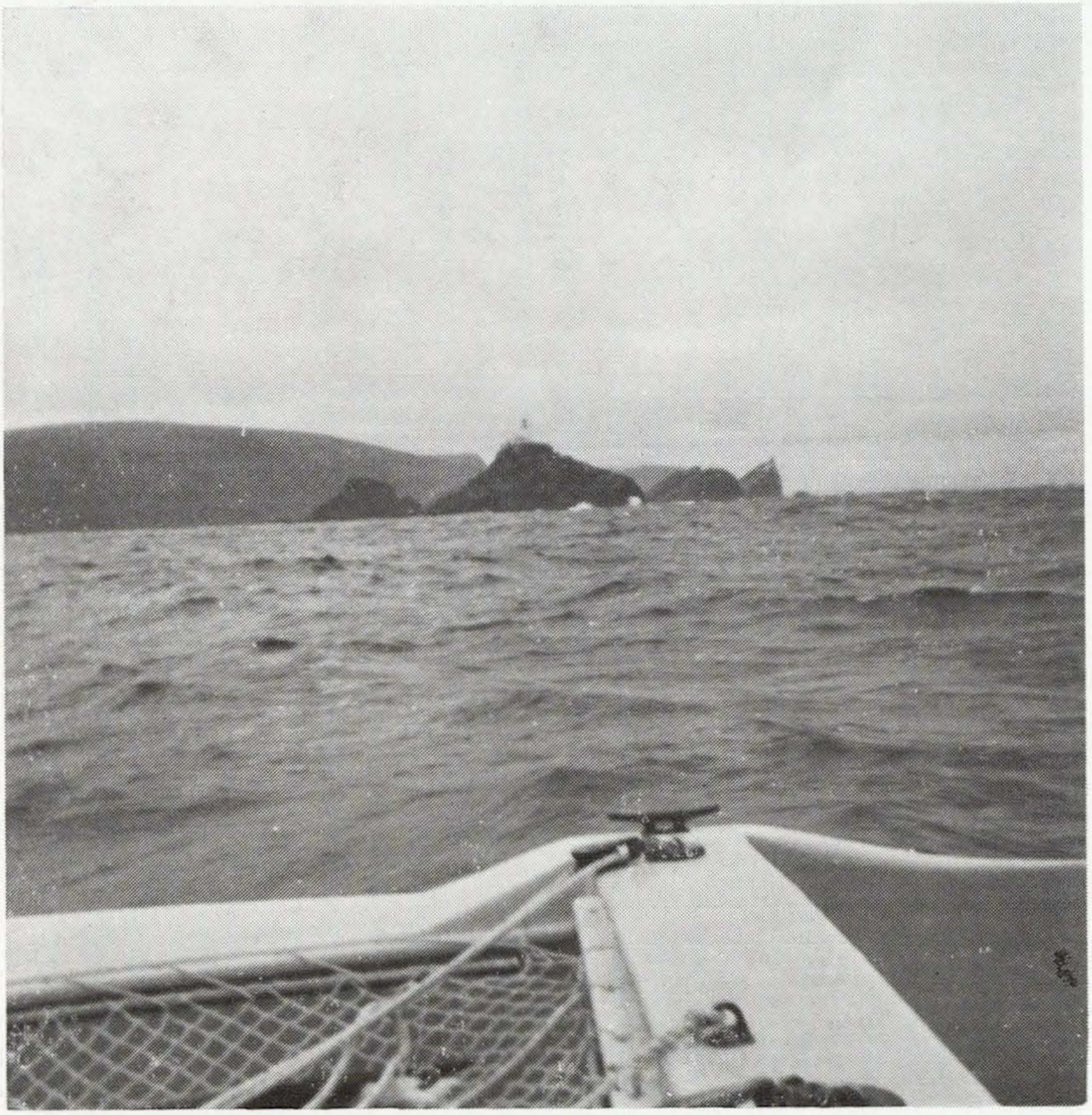
By 2100 on Sunday evening we decided to stop and take soundings and we hove to on the Port tack making about West at one knot, visibility half a mile or three wave tops as there was a very heavy swell running. We continued like this with regular soundings until about 2330 when a break in the cloud revealed the light on Barra Head about four miles ahead and high in the sky so that we were able to resume more or less our original course to Castle Bay. Having to tack in the final part against the tide delayed us to 0333 when we crossed the line both tired and very pleased that the rules no longer required us to enter through the "Sound of Pabby." Pabby is a narrow sound or gap between two unlit and uninhabited islands south of Castle Bay. In 1966 the rules required us to find this and sail through across the tidal stream from West to East having left the light on Barra Head to starboard.

Castle Bay with 1970 Round Britain Yachts

OCEAN SPIRIT sailed from Castle Bay 1 hour and 52 minutes before we arrived having gained 46 hours over us since Plymouth. We were happy to turn in and listen to the wind in the rigging when the local lifeboat mechanic dropped our anchor into a small area of weed free mud. When we dropped it, it got foul with weed and dragged. Most yachts visiting Castle Bay drag their anchors if it blows, this race being no exception. The rules require every yacht to have two anchors and at least 30 fathoms of suitable chain and still they drag . . .

Once again the hotel at Castle Bay did a great job of feeding, providing hot baths and drying clothes for the visitors. Having got warm and dry again and having put a doubtful patch on my oilskin trousers I was rather reluctant to leave the hospitality to drive this tiny trimaran dead to windward to St. Kilda against a wind blowing about force 7 but moderating. Our time to cross the start line was 0333 on 15th July but in company with others who could have sailed before us we remained in harbour. We weighed anchor at 1300 and crossed the line at 1320 having 'lost' 10 hours time but probably little distance. The wind had reduced to force 5 and was still North West. During the evening the wind decreased so that at midnight Barra Head light was 25 miles astern and the wind was blowing force three.

We found St. Kilda at 0710 in the morning. There was a force 3 Westerly breeze and thick fog and we sighted land at about one mile and closed to within three cables to identify Soa island and confirm that we had found the right rock before altering to a course of 057 magnetic and hoisting the spinnaker as the wind went to W.S.W. On the morning of 17th we passed through a vast fleet of fishing vessels, still in poor visibility. It became apparent that they were keeping clear of us as it never became necessary to alter course, this was rather lucky as the spinnaker had gone between the two forestays and then wound itself round and round. Later as we tried to clear it, it tied its halyard into a knot in the middle of the sail and set as two spinnakers one above and one below the knot. We tried to pull it down. We tried to climb the mast. We tried to climb the forestay and we tried to sail in a circle to unwind it—all without any success so we decided to leave it until daylight with the hope that, as it wound itself up, it might undo in the same way. During the night and morning it did get free so that we cleared it in an hour and a half without damage, and it was re-set again.



Muckle Flugga, the 'Top of the Hill," taken from *THREE FINGERED JACK*

About 20 hours later the wind was still from South West and it had increased above force five. As we expected to sight land, we changed from spinnaker to genoa. We duly sighted land at 0600 and rounded the famous Muckle Flugga at 1014. This certainlty is a milestone and from there it all seems downhill back to Plymouth.

Once round the corner, a South Westerly is no longer favourable and the force five breeze increased to seven but behind the land there was only a low swell and during my watch I was able to check the speed and submerging float theory. When the float had about two inches of freeboard left, a plume of water shot upwards out of the dagger board case about two feet into the air. Although it was fun, she seemed to sail faster in a more upright position with less sail.

We crossed the Lerwick finish line at 1937 on Saturday, 18th July. Once again the people did everything to make us welcome. Here they don't have a smart club house but members of the yacht club welcomed every yacht no matter what time of the day or night she arrived and all the crews were offered a

LEEN VALLEY VENTURER in foreground and *THREE FINGERED JACK* in Lerwick Harbour

hot bath in a private house and all the washing done and dry before they sailed. All this without machines in a place where if it is not raining at the moment then it's just about to rain! Here I was able to buy a pair of heavy waterproof trousers as worn by the fishermen with a high front and by securing the legs to prevent water travelling upwards I was able to remain dry for the remainder of the race.

While we were in Lerwick, *TRUMPETER* returned for further repairs and sailed again. We gathered that she had a lot of trouble with water entering the floats through the hatches. *TORIA* had the same problem and now as *GANCIA GIRL* after completing the 1968 Single Handed race the float hatches still leaked in this race. On *LEEN VALLEY VENTURER*, a trimaran to the same design, John Beswick altered the design of the hatches so that they bolted down with a composition which kept all the water out. Watertight hatches are not only a multihull problem as this is common to all yachts although some yachtsmen just seem to accept that the hatches are going to let water in. The only completely watertight and submersible hatch which I have sailed with on a yacht was so heavy that no craft intended for racing would carry it. In my experience every sliding hatch requires a box over its forward end extending aft to cover its forward edge when closed. A further problem with moulded craft is that almost invariably the aft cabin bulkhead slopes forward slightly. This looks pleasant but means that water dripping off the sliding hatch drips into the cabin if the entrance below is left open. The reason for this slope is to make it easy to remove the moulding from the mould on what Andy liked to describe as "Tupperware Boats." Builders can overcome the problem but this involves extra time and therefore expense.

In the Lerwick latitude full use was made of cabin heaters by those yachts with the foresight and cash to have them. All the heaters seemed to work well, the one essential feature is a chimney to remove the burnt gas and moist air from the cabin. Even a very small heater makes a welcome difference to the humidity in the cabin.

On *THREE FINGERED JACK* we did not have space for a heater but the forward bunk and our bedding remained dry all the time. The bunk in the cabin was dry but was not popular at sea because there was no provision for securing oneself into it when that side became the weather side. The most comfortable way that I have found to stay in a bunk with an 'open' side is to screw a stout canvas to the frame under the mattress and lash the other edge to the side of the yacht or deckhead using eyelets and suitable hooks. If given a choice I prefer a quarter berth providing that there are no leaks from the hatch or deck joints. It is surprising how many otherwise comfortable quarter berths are only suitable for stowing wet sails.

The D.F. radio arrived at Lerwick and probably as a result we had no further trouble with fog or poor visibility.

Our passage to Lowestoft started comfortably at 1950 on Monday, 20th July, the wind was Northerly force 4 and our course South. From having twilight bright enough to see clearly at 3 a.m. the nights got longer as we sailed on to arrive at Lowestoft at 1032 on Friday, 24th July. The voyage was mainly uneventful: wind from every direction but not stronger than force six. We sighted a number of yachts, passing some and then being overtaken as con-

ditions changed. We could not hold the larger yachts in winds of force four or over. *GANCIA GIRL* was sighted astern at 0900 on the 21st and was out of sight to the South East by 1500, the wind was Westerly force 5 and our speed was between 7 and 9 knots throughout the period. On the morning of the 22nd there were a number of yachts near us and *ELECTRON* remained close all day, wind West to South West force 4 and our speed about 5 knots. We sometimes turned our navigation light off at night if we thought it was helping others to steer a better course, this habit caused considerable discussion in Lowestoft as a number of people consider this to be rather unsporting.

The navigation light fitted to *THREE FINGERED JACK* was a "Seawife" and this consisted of a 12 in vertical fluorescent tube mounted on the mast truck. It had a coloured screen giving the usual red and green colours. The makers claim that this gives as much light as a 40 watt domestic light and certainly other yachts and ships seemed to see us in good time. One fault I thought from an inspection in the dock was the fairly large arc right ahead where the light was neither red or green. The second fault could have been very dangerous, the coloured screen came loose and revolved round the tube so that the red showed over the starboard quarter and green to port. We discovered this in the Straits of Dover and relied on our Aldis lamp and a torch for the remainder of the race. The makers of the lamp now use a completely different method of securing the coloured screen. In addition to the brightness of the light the advantage is the very small amount of current used—about one amp at 12 volts and the light remains bright even after a considerable period such as three nights use from a small battery when there must have been a considerable voltage drop. Our experience of the light's visibility is in complete disagreement with research done by the editor of the "Yachting World" who has published a thorough report on yacht navigation lights in the January 1971 edition. Their report seems to show that with a 12 volt battery at least a 24 watt bulb should be used in a combined lantern to be visible at the minimum regulation distance of one mile and that a bright point source of light is better than a spread source. It is interesting to note here that Ministry of Transport regulations require all electric light bulbs used for Merchant ship navigation lamps to have "a squirrel cage" form of filament in place of the more normal and brighter filament bulb. This could be because the wider and longer "squirrel cage" filament withstands vibration better but from experience I found the opposite to be the case. Like all other things connected with the sea, navigation lights—electric or oil—fail under the worst conditions and when they are most needed.

At Lowestoft the Royal Norfolk and Suffolk Yacht Club members looked after the race yachts, a launch met every yacht as she entered their harbour and those without engines were towed to a secure berth and towed out again at the end of their 48 hour stay in harbour.

Having made the passage without damage we were able to enjoy the social life at Lowestoft and visit the other yachts in the harbour. Also a fishing trawler was open for inspection and I found it interesting to visit her and see the conditions on board these craft and discuss their problems with a member of the crew.

We sailed for Plymouth at 1040, the breeze was moderate South Westerly.

As there was a strong adverse tide *ELECTRON,* which sailed over two hours before us, was still very near the harbour entrance having made little over the tide. Our passage to Plymouth started against a fresh headwind of force five. This moderated, but from noon on Monday to 2000 that evening the wind blew force 6 gusting 7 so that *ELECTRON* and *SPEEDWELL* who had both been reasonably close to the North of us were able to get ahead. The wind remained ahead right to the very end but slowly reduced in strength and swung from South West through West to North West force 1 to 2 at midnight on the 29th July and we crossed the finish line off Plymouth Hoe at 0327 with the wind recorded as variable force one—crew rowing! Even at this time we were met by Captain Shaw in the Royal Western Club launch. We were pleased to arrive before *SPEEDWELL.* We felt that this was due to the light winds at the finish and some careful navigation by Andy to take advantage of tide and wind changes.

Having sailed a trimaran for the first time my feeling now is that I would sail almost anywhere with confidence in a yacht of this type. The exception would be a crowded harbour where a number of heavy yachts would wish to moor alongside mine. Manoeuvring is no problem and a private berth in a marina would be fine but to be moored to a wall or between posts with perhaps eight heavy monohull yachts alongside would be asking a lot from the lightly built floats of the average trimaran and she would be better at anchor outside. If I fall overboard from a monohull in future it will be due to the habit of jumping out of the cockpit and walking along the net over the water. One gains some extra space and some extra speed, sails in a more upright condition with less movement than a monohull but otherwise *THREE FINGERED JACK* seemed to handle in the conventional manner.

Eleventh: RINALDO — Single Hull: 35 ft L.O.A.

RINALDO is a Warrior class G.R.P. yacht designed by Illingworth and Primrose and she is owned and sailed by John Lawson with Jeremy Yonge as crew. The yacht was new in November 1969 and cost about £10,000. She has a Perkins 4·107 diesel engine and a Hasler self steering gear. Calor gas is used for cooking and also for a gas convector heater which they found very welcome up North. She carried electric navigation lights which were satisfactory.

The failures that they found were: 1 spinnaker pole, through what Lawson describes as stupidity and tiredness. Steering wires failed, cause unknown, possibly poor wire and quite a lot of minor electrical trouble which he blames on poor installation.

With the questionnaire John Lawson sent a description of the race as he experienced it from *RINALDO* and we are pleased to include most of his letter. He spent about three months training and making minor adjustments, tuning and getting the best from the vane gear. John writes:—

Plymouth to Crosshaven

"After the start we cleared the Eddystone and chose the rhumb line course for the Lizard. Smaller boats caught up and larger ones drew away. We kedged for half an hour while the inshore yachts drew ahead.

"*MYTH OF MALHAM* who stood out was amongst the leaders and only *THREE FINGERED JACK* who was to become our rival, was in sight when the breeze came away from the South West at 1900.

"The first night proved a good beat to windward past the Lizard, wind force 4 and visibility varied from 1 mile to a few yards.

"Light conditions continued all the way to Crosshaven with the spinnaker as often up as down. It wasn't till dawn on the fourth day that other boats appeared round us—*TRIXIA, GANCIA GIRL, ELECTRON* and *THREE FINGERED JACK*. The latter paddled to within a few hundred yards of us but was held by some brisk sculling. A nice South Easterly breeze took us through yet another fog bank to finish just astern of *ELECTRON* and *TRIXIA*. We were 14th to finish.

"Not a good start to the Race, but not disgraceful and we were determined to try harder in future. At the end of this first leg the field was split by a twelve hour gap after the first nine, perhaps by the vagaries of the light conditions. Although some boats dropped back from this leading "half," none closed up and the race from here onwards was in two distinct halves with *MINNETAREE, TRUMPETER, SNOW GOOSE* and *OCEAN SPIRIT* staying clear of the rest of the field and often sailing in a different pattern.

Crosshaven—Barra

"The Crosshaven—Barra leg started well with a brisk beat in a force 3 growing to 5 with sunshine to add cheer. *ELECTRON*—always well sailed by her tough crew—appeared to relish this and drew ahead of us. *TRIXIA* suffered rigging trouble and withdrew. We kept *THREE FINGERED JACK* tucked under our lee. This breeze fell away during the night and we just crept close round the Fastnet as the stream turned foul in the early morning. Where else would the keeper come out and wave his shirt at you?

"By midnight the wind had strengthened as we reached the most Westerly point of Ireland at Inishteraght, a nasty corner with unmarked off-lying rocks, strong tidal streams and a beastly lumpy sea. The wind now started to back and strengthen from North West and we freed sheets for the long run North.

"For the next two days we had consecutive runs of 185 miles. It never fell below force 6 and was 8 for a lot of the time. The sea grew as we cleared Eagle Island and the North West corner of Ireland but was never vicious.

"At one time we were down to a small genoa only and a lot of the time under twin headsails. *RINALDO* behaved splendidly and gave every confidence, sliding down the front of the large Atlantic seas. The vane—brainless robot—was not at its best in these conditions, especially when overpressed and we steered for a lot of the time.

"As we approached Barra Head—the Southernmost point of the Hebrides—the visibility showed no sign of lifting above its usual 1 mile or so and, although knowing our Westing with some accuracy by radio fixes, we had doubts about how far North we were.

"As night fell we ran out our D.R. and still had not sighted the light. We hoisted the main rolled down to the numbers ready to round up and beat off the sheer cliffs on the South side of Berneray Island.

"Just as I was coming to the decision to ease out to the Eastward and continue

up the Minches, Jeremy sighted the light high above us and we shot round the island into smoother water.

"The eleven miles to Castle Bay were soon done in lifting visibility and we beat over the line three minutes astern of *ELECTRON* at 0145, passing *OCEAN SPIRIT* on her way out to the next leg.

"In the leading half of the fleet, *MINNETAREE'S* performance was outstanding, taking only two hours longer than the first boat. In the latter half *ISHKOODAH,* a Trapper, took 7 hours out of us and gained eight places. Most of the little ones did well with only *RENEW* and *KERRY BLUE* needing 4 days for the 470 miles. We had kept *THREE FINGERED JACK* astern but only because they hove to for a couple of hours in the thick visibility round Barra Head.

Barra to Lerwick

"It was blowing a good force 8 from the North West as we left, giving a reach to Barra Head followed by a 70 mile beat to St. Kilda. The forecast was not encouraging. Several boats who should have did not leave and we smugly started ticking off the hours we were gaining on them. Alas, virtue (or foolhardiness) did not triumph and all those who left after a leisurely breakfast not only made up time on us to Lerwick but in two cases passed us.

"Not knowing this, we gritted our teeth and started up towards St. Kilda, down to storm jib and the numbers. As the breeze fell off during the day we kept increasing sail and by the time we sighted St. Kilda at 2000 we had full sail. St. Kilda 20 miles away looked just like its picture in the Pilot.

"The breeze freed shortly after this and we rounded with the spinnaker up in the darkest part of what little night there was—a pity as I would have liked a photo for the log. For the next 48 hours we kept the spinnaker up, wind strength 0 to 4. In the light conditions the vane steered as well as we could, but we took over above force 3.

"Nine hours with little or no wind and bitter cold was good for the doing of odd jobs to keep warm but not to quiet a growing feeling that we were in a private calm.

"At last, in a strengthening breeze Esha Ness Light on Shetland was sighted and we gybed to lay Muckle Flugga. Tired and cold, this gybe provided a horrible snarl up with the spinnaker and we were lucky to get it and the genoa down undamaged after a long struggle.

"By now we could see *ELECTRON* and *ISHKOODAH* ahead and as we rounded Muckle Flugga and its outlying rocks, we felt compelled to put up the spinnaker again. A gust in the lee of the headland laid the boat flat and broke the spinnaker boom. After losing more time with this unseamanlike sail, we grappled it down and decided that it was not our day for spinnakers.

"We came hard on the wind in a gusty force 4 to 6 for the 50 miles down the lee of Unst and Yell. Try as we could, we made little impression on *ELECTRON* and *ISHKOODAH* and finished astern of them in the welcoming port of Lerwick at 1710 (18th July).

"How nice to get alongisde with a lot of good people saying "Give us your dirty clothes—would you like a bath—have you any repairs needed?" Willy Inkster, the harbourmaster and his charming wife took us under their wing.

The local yachtsmen did the same for most others and we were all looked after royally.

"At last, we found a competent engineer who sorted *RINALDO'S* electrics out. Sails were collected and stitched or patched.

"So many people helped or showed knowledgeable interest that it was stimulating to talk to them—even to the constant variety of faces on the jetty above the boat. The Shetlanders understood what we were doing and it was heart-warming to find this from people who know the sea.

Lerwick—Lowestoft

"We didn't get too much sleep or rest but felt well refreshed when we left Lerwick at 1715 with *ELECTRON* in close company. The previous leg had brought the small boats to the top of the Handicap table.

"*BINKIE* and *BLUE SMOKE* were now well placed on handicap. *MYTH* and ourselves fared badly. *SLITHY TOVE,* pushing the leaders hard in the heavy weather lost three days on repairs in Stornaway. *TRUMPETER* returned to Lerwick to repair a float.

A Shetland traditional sailing boat

"The long haul down the North Sea was a run followed by a close reach to the area of the Wash. We decided early on that speed was more important than westing. As a result we found ourselves well to the East of the rhumb line when the wind unfortunately veered to the West too late to make use of it and we had a dead beat for 24 hours in to the Haisborough. This undoubtedly cost us several places but we had only ourselves to blame for not reversing an earlier decision and make up to westward.

"As we came South the sea got greener, the sun appeared and we appreciated the warmth if not the longer hours of darkness. The fulmars, skuas and petrels that had been our constant companions in the north disappeared and only the occasional herring gull replaced them.

"In the latitude of Aberdeen a steering wire parted which left us on the vane for 350 miles which allowed us lots of sleep and saved any worry about whether the boat would go faster if we steered ourselves. The wind never exceeded Force 6 until a few miles short of Lowestoft although there was a couple of hours of brisk sail changing on the Dogger Bank as a front went through.

"It was a splendid beat South from Cromer in a rapidly increasing wind and fast weather-going tide. We shot through the entrance to the efficient and capable welcome of the Royal Norfolk and Suffolk Yacht Club who did everything to help and make us feel at home.

"Unfortunately *THREE FINGERED JACK* and *SPEEDWELL* had got past us and *ISHKOODAH* came in uncomfortably close astern. The conditions encountered on this long straight leg seemed to have varied from boat to boat although there was no very radical place-changing in the latter half of the fleet.

Lowestoft to Finish

"We left Lowestoft close hauled with a force 3 to 5 breeze to the Downs where after two hours of frustrating calms a nice Southwester came away. This grand force 5 held for 24 hours and to the Isle of Wight. We passed *SPEEDWELL* off the Owers shoal which raised my spirits considerably as I had hedged a bottle-of-gin bet with *THREE FINGERED JACK* on her just before leaving Lowestoft.

"Dusk on the 29th found us off Start Point where we went close inshore to get the first of the West going stream. The wind died and died. At 0245 we were by the Mewstone and willing the feeble cats-paws to keep up and get us through the entrance against the ever strengthening ebb. *THREE FINGERED JACK* just made it at 0300.

'With much sculling we crept past the breakwater at 0700 and an hour and a quarter later the finishing line. By then words had deserted us but it was wonderful to be met by wives and sweethearts.

"The calms continued and we waited in suspense for the result of the handicap prize. *BINKIE* richly deserved this, struggling with calms for the last few miles. *BLUE SMOKE,* a standard Kingfisher beat us to 3rd place. Of the two thousand odd miles we sailed, only four hundred had been to windward and of those only two hundred and fifty in winds over force 4. Some races may be won to windward —perhaps this one will be in 1974. I hope there will be others before then."

Twelfth: ISHKOODAH

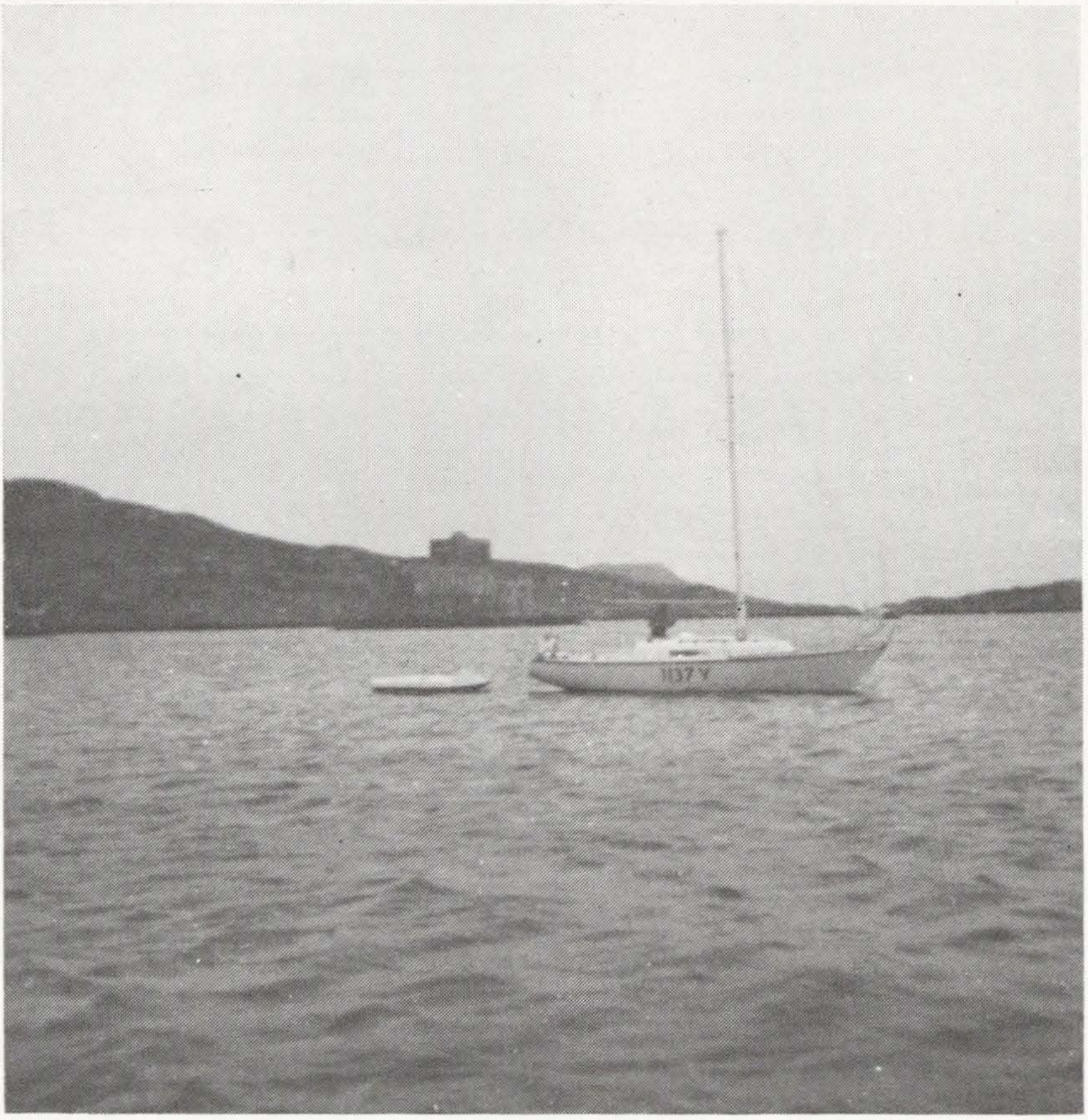
Single Hull: 28 ft L.O.A.

Letter from: Mark Simonds

Blackhall Barns, Sevenoaks, Kent.

Thank you for your letter and questionnaire. You might have asked what was the displacement, as this is a very important performance factor.

ISHKOODAH'S self steering gear has an auxiliary rudder actuated by a horizontal axis vane. The auxiliary rudder is a fixed surface with a 20% chord trailing edge flap. The auxiliary rudder is attached to the transom by three dinghy type gudgeons and pintles. The whole gear can be removed from the transom and stowed in the cockpit locker in a matter of minutes.



ISHKOODAH at Castle Bay. Trapper 28 Class

Due to the exigencies of my job, I made the S.S. gear rather later than I had intended. The construction and trials of the gear therefore took time which should have been spent on other forms of race preparation. The breakage of the original auxiliary rudder involved a lot of hand steering, and a lot of effort ashore in Castle Bay and Lerwick.

One other point about the oil side lights. These were a combined port and starboard lantern which was secured to the pulpit by a clamp employing

$\frac{3}{16}$ in BSW wing nuts. It was something of a fiddle to mount this lantern especially when going to windward in a breeze.

Both *ISHKOODAH* and *THREE FINGERED JACK* were somewhat reluctant to leave Castle Bay. *ISHKOODAH* sailed some 16 hours after her allowed starting time. Thereafter she made a very good passage to Lerwick.

In general the Trapper is a delightful boat and great fun to drive down wind provided one is not too tired to enjoy it.

MARK SIMONDS

The enclosed questionnaire informs us that *ISHKOODAH* is a standard Trapper 28 masthead Berm sloop built by Anstey Yachts Ltd and designed by Cuthertbertson and Cassian. Sail area 290 sq ft. New cost £3,600. Her displacement is $2\frac{1}{4}$ tons and she used a self steering gear of Mark Simonds' own design. There is a gas cooker using two burners and a grill, oil and electric lights.

Failures were the oil navigation light which blew out when the spinnaker was set, the spinnaker pole track came off the mast and some trouble that could have been serious at the mast joint of the starboard spreader.

Mark took his brother J. Simonds as crew and they sailed hard to finish 4th on handicap. Competition for the handicap was very keen between the small monohull yachts and any one of them could have claimed the award.

ISHKOODAH was involved in a collision with *TRIXIA* at the start of the race and had to return for some fibreglass repair. As a result of this she was allowed to sail from Crosshaven, the first port after only 44 instead of 48 hours in port. *TRIXIA* did not seem to suffer damage and was able to continue.

Thirteenth: CYMRO

Single Hull: 43 ft L.O.A.

CYMRO is a fine blue cutter owned and sailed by Barton E. Evans of Cardiff with Dr M. W. Eddings as crew.

She was built in 1966 to an Angus Primrose design by Emsworth Shipyard in Hampshire at a cost of about £7,500/£8,000 with all gear. She has a Duerr Minicoaster 8 hp diesel auxiliary. Self steering is by Hasler gear and this was used for about 90% of the time and it worked well. Cooking by calor gas including a grill and oven and also a gas cabin heater.

Her lights are electric and no equipment failed during the race. Sail areas include mainsail, 222 sq ft, big genoa 380 sq ft, yankee 190 sq ft, Genoa staysail 134 sq ft, spinnaker about 800 sq ft, seven other sails were carried-reachers, staysails and jibs.

CYMRO

Fourteenth: SPEEDWELL OF CREMYLL

Single Hull: 49 ft L.O.A.

Letter from: Captain S. E. S. Tailyour Royal Marines.

I reported that we had no trouble with our Self Steering gear, and this is true, but I am sure Colonel Hasler will not mind me telling you how we made it work. (It was an experimental gear which was made to fit *SPEEDWELL*). As you know *SPEEDWELL* is a yawl and the Mizzen Boom is proud of the stern by some feet. I did not wish to do away with the Mizzen completely as it is a most useful sail, especially when balancing a large yacht in a blow. Also she goes to windward extremely fast and close with the Mizzen and two small headsails in a gale. However, when hard on the wind we could set the Mizzen and the vane but because the vane was back winded by the sail it always required a hand on the wheel. Not as much as when steering completely manually. When on a broad reach with the Mizzen set it steered us well but with just a little more yawing than usual. This is, I think, because a large alteration of the apparent wind was necessary to overcome the back winding effect. Downhill with the Mizzen there was no problem. In fact we never really set the Mizzen when on the

wind as it is hardly a driving sail and so the gear worked perfectly with no yawing and in a yacht of our size it saved us a great deal of effort.

The other thing I thought you might be interested in is the problem of the Crew Relationship when short handed and there is no one else to back up one's ideas and thoughts except the other against whom one is arguing.

In *SPEEDWELL* we devised a watch keeping system that, we think, ensured that we each had as much sleep as possible, we ate together and had time on watch together. I think that a proper system that the crew is happy with is the most important way that a crew can remain a perfect team. Obviously good, regular food and sleep are important but the system must work all the time and not fall over just because there is a gale blowing. There will always be times when the watch below has to be called out and this must be accepted as part of Ocean Racing/Cruising and if one complained at this then one shouldn't be at sea in the first place! I only met my crew for the first time about six weeks before the race and so had no preconceived ideas about his habits or likes and dislikes. This may have been one of the reasons why we never had one argument. We joined *SPEEDWELL* for a month's work-up shortly after meeting and soon settled into a routine that was never altered until the end of the race.

Before the race we spoke to various people about their plans for watch-keeping and it was amazing to find many who said there was no need to have a set plan or simply stuck to the old Naval system of four on four off. This is fine if there are many in the crew but soon palls if there are only two. After all in your four hours off watch how many of them will be spent actually asleep by the time one is undressed, been to the heads, had a meal, washed up (assuming that the watch on deck has to stay up top). I won't mention their names, both very nice people and old friends but their troubles started soon after the start. They must have been very tired all the time and after all the race is meant to be enjoyed as well! One other yacht had no system at all but simply called up the other crew member when he was tired. Probably just before a sail change was necessary! And how grim to turn in not knowing for how long.

Yet a third yacht said to us that our system was too inflexible. This could be true but one knows exactly where one is. Anyway no system is inflexible providing both members agree to change the system because of some unforeseen eventuality. This yacht worked a system that was based on the fact that one of the crew was better at sleeping by day and the other by night. This is fine until the watches are muddled up by some event and the 'day sleeper' finds himself turning in at night and because he is not used to it he can't sleep. By our method the theory is that one will always be tired enough to sleep during one's watch below.

The first two yachts mentioned had crew problems, the second yacht's problems were very serious at times.

I don't know if the AYRS have done a study of the problem but I am convinced that it is as important a problem in the long distance short handed sailing as any others to do with design etc. (I don't pretend that it is perfect. Other yachts undoubtedly had other systems and no crew problems, but in our case it worked completely for just short of three months without one

breakdown. The fact that we were friends after a short time is irrelevant as friends are probably more prone to fierce arguments than strangers).

By the way we persuaded *BINKIE* (the Handicap winner) to adopt the method and they were very happy about it.

A & B 0700–0800.....Both on watch. Breakfast cooked, eaten and washed up. Morning sail changes etc.

A 0800–1300.....One person on watch for five hours. Because the meal has been dealt with when both the crew were on watch there is no delay in turning in and the full five hours kip can be obtained. The crew who sleeps now is the one who had the two night watches.

A & B 1300–1400.....Both on watch. Lunch cooked, eaten and washed up.

B 1400–1900.....One on watch for five hours. The watch below now is the one who will have the two night watches so he will be refreshed before the night.

A & B 1900–2200.....Both on watch. Large evening meal cooked, eaten and washed up. Important sail changes are made before the night. Three hours for sitting and talking and in our case, drinking. Very important to have time together to discuss the race. Otherwise one never sees and talks to one's opposite number. Here is the time to iron out problems over a drink without using up someone's valuable time turned in.

A 2200–0100.....One on watch. Three hours. Sun sets to break up the watch.

B 0100–0400.....One on watch. Three hours. Only real night watch.

A 0400–0700.....One on watch. Three hours. Sunrise.

Now, the advantages.

1 The watches change each day. Therefore no monotony.
2 The crew which has the two night watches has the long kip before and after.
3 Because of the dual watches at meals and at the evening the watch below does not waste valuable kipping time with chores.
4 The evening sail changes can be carried out when both are on watch and it does not delay the off going watch turning in.
5 The watch below has five full hours turned in and can therefore get some proper rest.
6 The three hours night watches are not too long and only the middle is in darkness. (In theory!).
7 Time is spent together and so that problems can be discussed and sorted out over a drink and food, without, again, stopping the off watch from getting below.
8 The midday change over takes place at roughly the time of the Sun's meridianal passage and if only one member is capable of taking a sight he will always be up (or nearly anyway).

The Disadvantages:

1 Is three hours too long at night?
2 Is five hours too long in bad conditions?

To be honest, we found that we had too much time for sleep! We also found that we could easily alter the system to three hours on and three hours off if things got really bad but if the steering gear was working well we did not become too tired. We had plenty of time to prepare good meals, especially in the evening. None of the hurried stews thrown together quickly because kipping time was being cut into!

Fifteenth: BINKIE the Handicap Winner

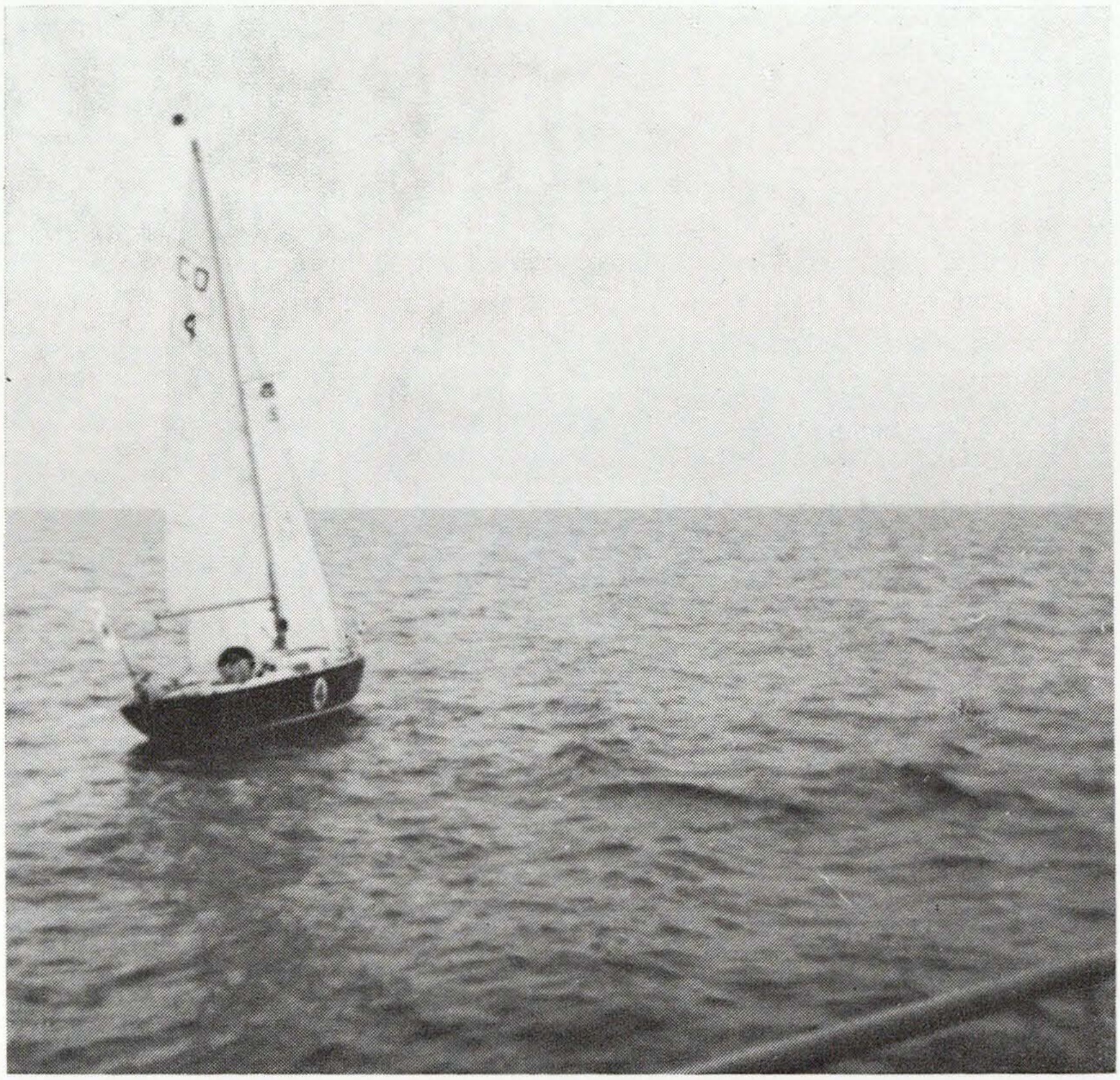
Single Hull: 26 ft L.O.A.

Letter from: Lt M. McMullen Royal Marines.

For what it is worth I am tabulating a few of the lessons I personally learnt (from the Round Britain Race) and though I am sure they are all appreciated by most yachtsmen there might be something of value for someone.

We both enjoyed the Race immensely and thought it was a splendid idea. Here are some of the things I learnt or which endorsed my knowledge.

1 Never go short handed sailing with someone you don't like or who is far less competent than yourself. Each person *must* be able to skipper the boat. We got on extremely well and are still friends but others had their fun ruined by disagreements.



BINKIE (No 4), Handicap winner at the start of the Round Britain Race

2 A sound watchkeeping system must be worked out and found agreeable to both crew members. We used Ewan Tailyour's (*SPEEDWELL*) and found it excellent. Many competitors had no system which I feel is a big mistake as it invites disharmony. There must be some initial basis to work from.
3 Many people blew out sails and damaged spars etc. early in the Race ruining their chances. This is only acceptable if you have sufficient spares and the temptation to over-canvas in the early stages should be watched.
4 The importance of keeping a good lookout in coastal waters 100% of the time cannot be too greatly stressed.
5 Allow for wind induced currents during or after a gale. On our leg from Crosshaven–Barra we experienced a set of approximately $\frac{1}{4}$ knot from S.W.-N.E. between Ireland and the Hebrides which we in fact allowed for.
6 Hot food and drink keep both morale and stamina up whatever the weather. They also help to combat tiredness.
7 Sufficient time prior to the Race should be allowed for preparation. Many boats 'lost out' because of unpreparedness.
8 It is a tremendous advantage to be physically fit.

As I say most of these points are well known and I hope I am not stating the obvious too much.

BINKIE

BINKIE is a Contessa class monohull and she won the Daily Express trophy for the yacht with the best corrected time on handicap. She was sailed, and in calms, propelled by her owner and his crew, Lt M. E. Read, R.M.

She was built by J. C. Rodgers of Lymington, Hants in 1968, and was the smallest yacht in the race at 25 ft 6 in, 20 ft waterline and 4 ft 2 in draft. The Contessa class were designed by David Salder and she cost £2,700 when built.

Her equipment included a Vire auxiliary, a Quartermaster self steering which was described as "excellent." Calor gas cooking and electric light. There were no equipment failures during the race.

Sixteenth: BLUE SMOKE — Single Hull: 26 ft L.O.A.

BLUE SMOKE is a standard Kingfisher 26 twin keel yacht designed and owned by R. A. G. Nierop, A.M.I.B.E. She was sailed in the race by M. J. Perry and Lt C. G. Hornett, R.N.

Built by Westfield Marine Ltd she is rigged as a masthead bermudian sloop with a sail area of 352 sq ft. She has a Hasler type 1 F.Q.H. steering gear which worked very well except when running and it could not be used with the spinnaker except when reaching with a steady wind.

She is fitted with a 5 hp Ailsa Craig Albin auxiliary, uses gas for cooking and has electric lights. Her only failure was the electronic log speed circuit. The distance was O.K. The units had been installed some two years before and had done about 2,000 miles before failure. *BLUE SMOKE* cost about £3,300.

At 26 ft overall, *BLUE SMOKE* had a keen race against *HURRYING ANGEL*, a production Snapdragon class yacht at 27 ft and against *KERRY BLUE*. These three yachts were, like several of the others, backed by their manufacturers and all three must be pleased with the result as they all proved very reliable cruisers able to stand heavy weather with a competent crew.

GOLDEN COCKEREL, BINKIE and *BLUE SMOKE* in Lowestoft Harbour

Seventeenth: HURRYING ANGEL

Single Hull: 27 ft L.O.A.

Sailed by J. J. Fenwick and L. A. D. Wakefield, *HURRYING ANGEL* is a standard 'Snapdragon 27' class fibreglass-yacht. At 27 ft overall, she is the same length as *KERRY BLUE*. After a slowish passage to Crosshaven she picked up to pass *BINKIE* and *KERRY BLUE* on the way to Castle Bay only to drop back behind *BINKIE* on the passage to Lerwick.

Racing between the production monohulls for the handicap award was very keen and exciting. In spite of this *HURRYING ANGEL* did not report any troubles during the race. She used a Hasler self steering gear and finished 2 hours before *KERRY BLUE* in 17th position which gave her a handicap position of 7th after *KERRY BLUE* in 6th place.

Eighteenth: KERRY BLUE

Single Hull: 27 ft L.O.A.

Letter from: G. O'Brien Kennedy, M.I.R.N.A.

Kennedy International Boats Ltd., Drumsna Station. Co. Leitrim, Eire.

I skippered *KERRY BLUE* in the 'Round Britain and Ireland' race, and we finished 6th on handicap.

It was a pretty tough race as we had a lot of bad weather, and did not have time to fit the steering gear. *KERRY* gave us no trouble at all, and is a great little boat in a seaway.

KERRY BLUE is the first of the Mark II *KERRY,* and is all G.R.P. She is quite a normal little boat of light displacement about 2·5-2·7 tons, and is remarkably fast and weatherly. Being virtually untried before the race, I did not drive her as hard as I might have done, and generally we erred on the side of caution.

Perhaps the only unusual features of the boat is her simulated clinker hull, for which I claim great strength for weight, a dry boat (spray guard effect), and considerable damping in pitch which reduces hobbyhorsing. I have some photos and drawings which we shall be pleased to supply.

G. O'Brien Kennedy, M.I.R.N.A., Technical Director.

From the questionnaire: Kerry Class masthead bermudian sloop 27 ft O.A., 21 ft waterline, 8 ft 3 in beam with a draft of 4·4 ft max displacing 2·5 tons. She has a sail area of 320 sq ft and cost £3,000. She was built by Kennedy International Boats and was designed by G. O'Brien Kennedy. She was owned by the builder and sailed by the designer with Ean McCarron-Miller as crew. They did not carry an engine but a range of power units, petrol or diesel could have been fitted. Calor gas was fitted for cooking and electric light from a battery. No self steering was used.

Mr Kennedy remarked: "About the race itself I have no adverse comment except in so far as the press coverage goes. This was centred and practically wholly devoted to the non-handicap side of the race. I think *BINKIE* and her crew got far too little credit, they sailed a magnificent race."

Nineteenth: SLITHY TOVE — Single Hull: 47½ ft L.O.A.

Designed and sailed by: Michael Pipe, 15 North Furzeham Road, Brixham.

Michael Pipe describes *SLITHY TOVE* as a family cruiser for weekends with enough bunks for two families. Certainly she is not designed to cheat any racing rules and Derek Kelsall described his *TORIA* in 1966 and *SIDEWINDER* in 1970 as cruisers.

Structural Study:	LWL	40 ft 0 in	12·19m
	Beam	9 ft 0 in	2·74m
	Draft	8 ft 0 in	2·44m
	Displacement:	4·5 tons	4570 Kg
	Sail area:	765 sq ft	71m²

Bottom 3 planks and cabin sides are of 12mm ply.

Other planks, bulkheads and deck 9mm ply.

Cockpit, two layers, each 5mm ply

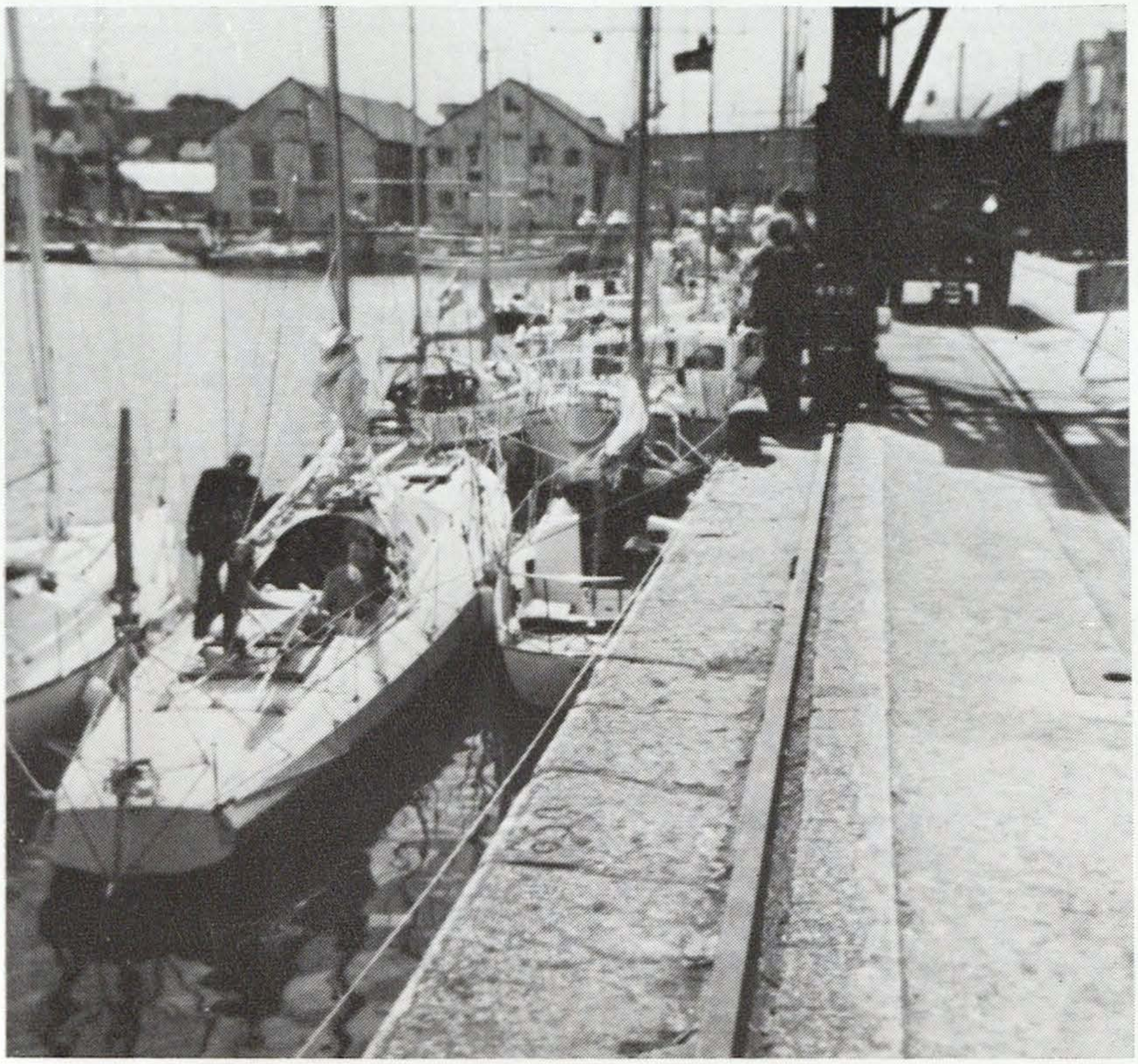
Stem—laminated Iroko.

Bottom chine stringers, Iroko each 5 in × 2 in, others spruce 3 in × 1½ in. Hollow fin and rudder of ⅛ in mild steel.

Designer's conclusions: "Strength weight ratio of multi-chine ply construction can exceed that of single-skin G.R.P. and the cost/speed ratio certainly exceeds that of any offshore cruising multihull."

A round-bilged version L.O.A. 50 ft 0 in (15·24m) is being developed for series production in cold-moulded ply or G.R.P. foam sandwich, to achieve substantially higher speeds at around £5,500-£6,000 cost and is conceived as a viable entry for the solo trans-Atlantic race on a moderate budget.

In a letter, Michael Pipe stated: "I am certainly interested in further enquiries for this type of boat, which I consider gives value for money. Incidentally, Murray Sale writing in the Sunday Times newspaper, said that a monohull to beat the multis would cost £40,000. I think he is pretty far wrong—I will have to try again next time round to prove it."



SLITHY TOVE in Mill Bay Docks before the race

The drawings of *SLITHY TOVE* are undergoing minor revision, which I hope will be an improvement—I am also commissioned to do a 60 ft version, with 10 ft beam and 8 ft draft again which I think will be quite exciting. A 35 ft version (4 berths, sitting headroom) and a 43 ft (8 ft beam, standing headroom) are also taking shape."

During the race *SLITHY TOVE* put up a truly remarkable performance over the first two stages; she was 5th to enter Crosshaven and 2nd into Castle Bay. She arrived off the Hebrides shortly after the *APACHE SUNDANCER* and was able to tack up to the finishing line against a foul tide and very strong wind which blew out one of the catamaran's headsails.

On the third leg, Castle Bay to Lerwick, *SLITHY TOVE* started a seam at the join between the 12mm and 9mm plywood planks forward where she was pounding. The joint which gave trouble was behind one of the forward bunks and not accessible and so she put into Stornaway to fix the trouble.

The times given for the first three yachts rounding St. Kilda island were *OCEAN SPIRIT* 1435, *SLITHY TOVE* 1850 and *APACHE SUNDANCER* 2145. The distance from the start at Plymouth was about 750 miles and the weather was such that an international fleet of over 60 trawlers were sheltering behind the island. Gusts of up to 80 mph were reported by an observer high up on the rock. Most of the other yachts had arrived or were arriving at Castle Bay for their 48 hour stay at this time. As the wind was Westerly, it was at least favourable for the later yachts of the fleet.

After repairs, *SLITHY TOVE* continued in the race and managed to move up a number of places. After leaving Lowestoft unfortunately the repairs done at Stornaway did not hold and the work had to be re-done at Dover.

In answer to a questionnaire sent to all entries for the race we learn that the cabin lamp of the pressure type never ran correctly and the mantles were liable to damage. Other damage included both the oil side lights which were mounted on top of the pulpit—these were smashed by the sea. Their roller reefing gave trouble and the lead to their 'Seafix' headphones tore out. They would have liked to have a small generator driven by a fan or water propeller and complain that all commercial equipment seems designed to run at engine revs.

Twentieth: RENEW Trimaran: 30 ft L.O.A.

RENEW is a Piver design Nimble class trimaran of 30 ft overall length built some time ago by Contour Craft. She was bought second hand by J. E. C. Perry who renamed her after the amount of work required to get her sailing.

She was sailed in the race by her owner with Bill Logie as crew. They made steady progress around the course and finished well within the time limit. They had their full share of the bad weather which was handed out and during the worst of this in the North Sea they hove-to for a number of hours.

The Nimble trimaran has a waterline length of 27 ft and draft of 3 ft. She carried a 9½ hp Johnson outboard, camping gas for cooking (3 burners). Lights were electric and oil, they found the "Seawife" especially good as a masthead navigation light. Self steering was by a Q.M.E. horizontal vane gear and the results obtained from this were described as "reasonable." A "Seafix" radio D.F. set was carried and this was described as "especially good."

The only equipment failure noted was that the rudder split and as they spent 22 days and 19 hours at sea this is a great credit to the preparation that was done before the start. There was no visible last minute rush to prepare *RENEW* at Plymouth.

Capsized: APACHE SUNDANCER (Designer: J. R. Macalpine Downie) Catamaran: 40 ft L.O.A. by Mike Butterfield

5 New Square, Lincoln's Inn, London, WC2A 3RJ.

Our boat was a very strongly built catamaran with the emphasis on comfort rather than speed. The principal dimensions were 40 ft overall 36 ft water line

19 ft 6 in beam overall and 4 ft 6 in hull beam. The sections were symmetrical and did not depart far from the semi-circle. With centre boards down she had a draught of 7 ft, with the boards up the rudders required just over 2 ft 6 in. In the hulls there were four large double cabins, the lavatory and the galley all of which had 7 ft headroom. Down each side of the bridge deck there was a passageway having 6 ft head room. At the after end of the saloon there was a full sized Admiralty chart table with drawers and cupboards under it and the oilskin locker to one side.

APACHE SUNDANCER and *MINNETAREE* at Crosshaven

Ten people could sit at the dining table. There were four single bunks forward of the table on the bridge deck. The boat also boasted a Paskal Atkey "Pansy" charcoal stove which is the only type of cabin heater which I have yet found which really can dry out clothes, as it makes no condensation itself. If you are a real devotee of comfort at sea I cannot over emphasise the importance of carrying a really efficient cabin heater.

The cockpit which was deep and well protected had a rather unusual layout. In the centre of the after bulkhead of the cockpit there was a pedestal carrying a single very powerful Barlow sheet winch, christened the trawler winch by the boatyard. Both of the genoa sheets led to this winch and one could stand well braced in the cockpit and really crank the sheet in. Once home the sheet was held in a plastics jamb cleat from which in all normal circumstances it could be instantly released with a quick flick. In addition to saving weight and money this single (extra large) winch system worked extremely well. The boat was cutter rigged, which had several advantages, but inevitably meant that the genoa sheets had to be extra long and one had to be very quick to haul in all the slack once the genoa had cleared the staysail if one was to get it in before the sail filled when it would necessitate a lot of winching. Short tacking in a crowded narrow river would certainly have been easier in a sloop rigged version, but in conditions when there was a strong enough breeze to use the smaller working sails this slight handicap was not apparent. Her working sail area was 800 foot.

The remainder of the winches were grouped around the forward bulkhead which also held the wheel. All the halliards and the main topping lift were led to this position with the result that when cruising or racing short handed the helmsman could operate all the halliards or handle the spinnaker sheets without leaving the wheel. When racing with a full complement there was still enough room for the helmsman when a crew was manning the halliard winches or spinnaker sheets.

Each side of the trawler winch there was a curved seat each of which accommodated four with ease, a further two could sit on the ready use locker top, situated behind the helmsman's seat in the middle of the cockpit. As there was also an after deck extending about five foot behind the cockpit and the full width between the hulls (10 foot +) it was rare to find the full ten man seating capacity of the cockpit in use. This after deck as well as being a good spot for sun worshipping could also swallow a fair sized dinghy. On the after side of this deck we carried an Aries self-steering gear which had been considerably modified for our particular requirements by my crew—Peter Ellison who had done so well in the 1966 Round Britain Race.

Despite constant endeavours to be ready and tried well in advance, owing to the usual many maddening delays we launched a bare four weeks before the start of the race and as she was the first of her class, we had not finished discovering the best sheeting positions and other minor modifications, which just give one the edge in all out racing, by the time the gun went. Indeed we had only swung the compass on the evening before the start!

In the event she proved herself every bit as good as we had hoped. Naturally, displacing five tons and having about five foot freeboard, she did not sparkle in the very light airs but once there was a breeze worthy of the name she really came alive, and in a strong breeze she felt a very powerful ship. Electric 12 volt navigation lights, a Honda generator, calor gas burners and oven were used.

Plymouth—Crosshaven

The first night of the race was trying. The breeze was very light and flukey and the visibility was often down to a boat's length. I was very disappointed to find

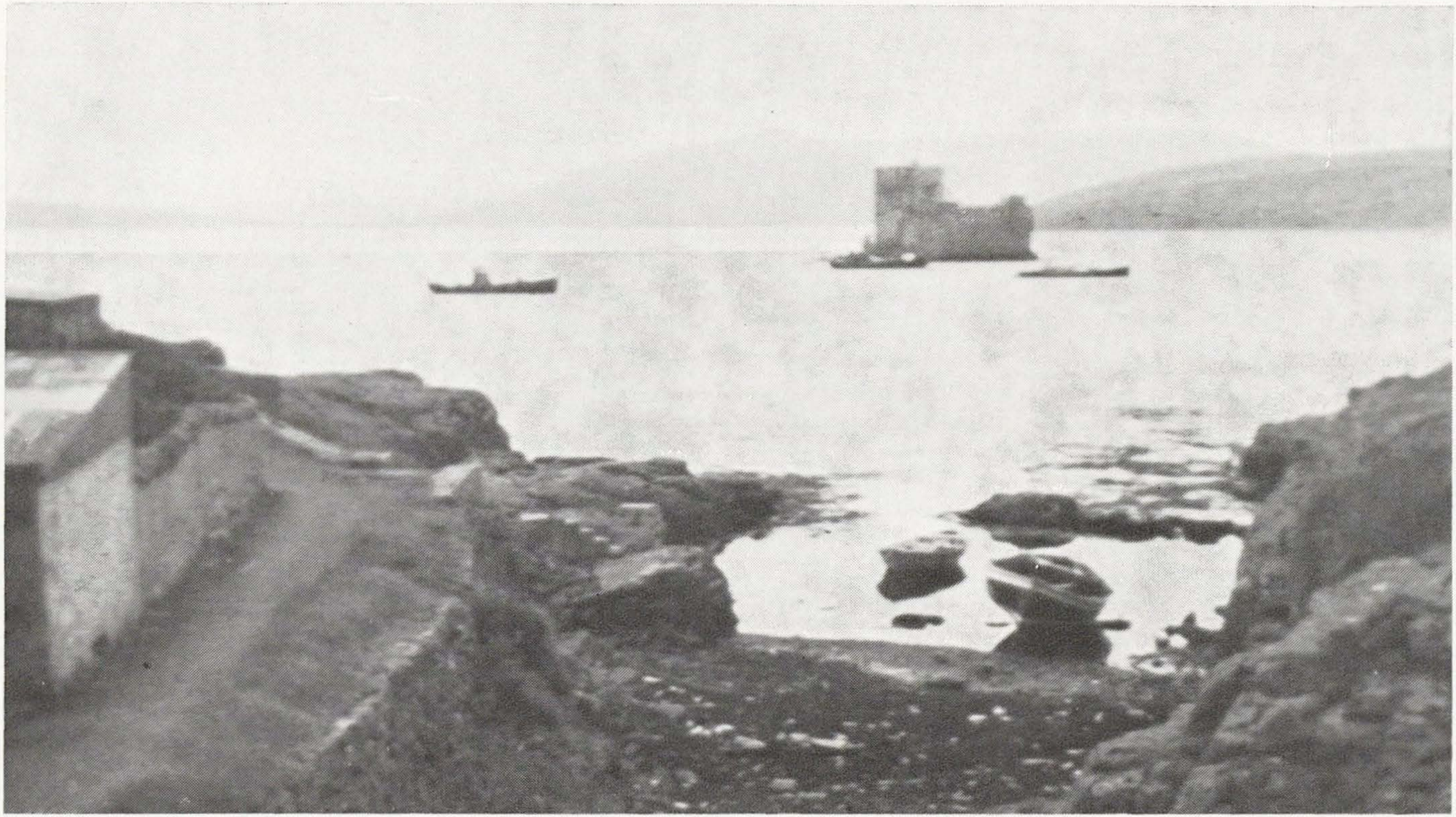
that we were in the midst of the smallest craft in the fleet but somewhat mollified about an hour later to pass ahead of *OCEAN SPIRIT* whom I thought to be already round the Bishop. Come the morning, we were not too badly placed and saw *SLITHY TOVE* round the rock. We cut it all rather closer than the prudent mariner ought but once clear we managed to hold the breeze. Then came one of the best moments of the course. Something for nothing as it were. The breeze had filled to a steady ten knots, the sun shone, the sea was calm and if we set our spinnaker very shy, the apparent wind was about four degrees ahead of the beam. Thus rigged we were constantly maintaining a *faster* speed than the true wind. This was the first time I had ever experienced such phenomena in a boat which could boast 12/14 bunks. Our slow start had however fixed us and we could manage no better than fifth place into Crosshaven.

Crosshaven—Barra

We thought that we had hoisted anchor in plenty of time for the start of the second leg but having no motor and the approach to the anchorage being sheltered by high cliffs and with a strong tide against us we wished that we had had a motor or a tow as we gave away a whole hour before we crossed the line. Again we experienced light headwinds and it seemed an eternity before we could lay the Fastnet and thereafter a further eternity creeping up the Western coast of Ireland!

At last we got a breeze and were away and tramped along finishing with about force seven off Barra Head. Once in the shelter of the islands we made our best time of the course, covering the fifteen miles to the entrance of Castle Bay in well under an hour. Up to this point we had suffered no damage whatsoever but knowing that a rival, who later proved to be *SLITHY TOVE,* was very close behind us I was too impetuous by half. There was less than a mile to the finishing line but I had failed to allow for the funnelling effect of the surrounding hills and islands. To set a sail smaller than the working jib meant dropping to the tiny storm jib and I was not too sure how she would care for such imbalance. Too late, when we were well up the funnel we encountered gusts of wind in excess of 55 knots. The strain was just too great in a boat which does not heel and the sail hanks were torn in quick fire succession from the long suffering working jib. Other sails were lashed to the trampoline and before we could hoist one the tack had torn out of the working sail and it was flogging from the mast head. This took some getting down, particularly as we were so close to wicked looking black rooks. We had the chastening experience of seeing the *TOVE* slip gracefully by and over the line. We were three quarters of an hour before we crossed.

Even when we did get in, our punishment was not over. We carried a 50 lb fisherman anchor and 30 fathoms of heavy chain, we also had a 45 lb Danforth patent anchor on a short chain and 20 fathoms of 2 in nylon rope. All of this was not enough to cope in such conditions, with the rotten vegetable bottom which is all that can be found in Castle Bay. We dragged so fast that we finished on the rocks on the very doorstep of McNeil's castle. I was glad then that I had insisted on such a strongly built boat as we suffered no apparent damage (to the boat, at any rate).



Castle Bay, Outer Hebrides, showing McLean's Castle

We were now in third place and the leading boat had not yet saved his twelve hour penalty (incurred for being late for scrutineering and for lacking the requisite internal accommodation). We also were now somewhat handicapped as we could not find a sewing machine in the island capable of tackling our sad and sorry working jib, even though we were able to sew up one for *SNOW GOOSE!* With great sportsmanship and the spirit of camaraderie found throughout the race, Gerry Boxall and Stewart Nairn in *MINNETAREE* immediately proffered a superb little yankee which they pretended was surplus to their requirements. As weight aboard that well found boat had been scrupulously kept to a minimum one can judge their generosity. Sadly the weight of sailcloth was not up to the task once we cleared the lee of the islands so that their sacrifice was in vain.

Barra—Lerwick

Even with the storm jib and staysail we went quite well and were just able to lay St. Kilda without a tack. Once again however we were closer than the seagulls found comfortable. The rock formations here were very interesting and I would like to land there sometime in Village Bay and give it closer study. The anemometer at the summit was alleged to be reading 72 knots at the time but down at sea level we did not get more than 45 knots and we were very comfortable if a bit slow. On the leg from here to Muckle Flugga we decided to keep up-wind of our rhumb line as we felt that we would lose a lot of time if we had to tack later on. We only sagged off enough to make sure of identifying all the Flannan Isles which in the comparatively poor visibility could not be picked out until fairly close.

Despite losing more time than we ought putting in and shaking out reefs during some force eight periods, we made good time to Muckle Flugga which we rounded at 1600 hours. Having achieved this, I threw away some more valuable time trying to set a spinnaker net prior to getting up the 'chute' in a stiffish breeze. I eventually abandoned the attempt with some frustration and found that such precaution had been unnecessary as the spinnaker set fine without it. The breeze was steadily dropping but with that sail set we were eating the miles. Much to our annoyance however, when we squared away at the Skerries the Lewmar snapshackle shook itself open without any justification and we once again had a little kite flying. By the time we had got it down the breeze had fallen right away and instead of covering the last six miles in a bit over half an hour as we had expected we took another seven hours! We were now second but those seven hours had taken all the sting from our challenge.

The people of Lerwick were superb. An amateur sailmaker, Johnny Johnston made a perfect repair to the working jib, worthy of the finest sail loft in the world, and Tommy Moncrieff showed how fine a master carpenter he was and how generous and helpful the Shetlanders invariably are.

Lerwick—Lowestoft

We would have liked to stay much longer than the two days set by the race.

The next leg down to Lowestoft was exasperating. All the forecasts and all the reports from coastal stations reported the expected wind pattern, averaging force 5/6 North West. Such a wind would have suited us a treat and might even

have allowed us to catch back some of those critical seven hours. We never got a sniff of it. The best we ever had was force 2 and most of the time it was coming from South West. Only twenty four hours after us, *TRUMPETER* got exactly the promised wind and made her fastest leg of the course. *SNOW GOOSE* managed to take over twelve hours out of us on this leg and made us feel very sick. But such is the fun of racing.

Back in third place again and with every danger of losing that, we asked all our friends to pray for strong conditions. Until we got to Dungeness this was not forthcoming but then alas our friends had over-reached their brief. We had ourselves a nasty channel gale with short steep seas and strong spring tides. Midnight found us in heavy rain off the Nab Tower making very slow progress against the tide with a force 9 wind right on the nose. We found that if we reefed to the extent of the prudent mariner we just sailed up and down in the same hole or even went backwards.

As the boat was very stable and we had a fully battened mainsail I decided, wrongly as it proved, to keep the full mainsail up but to haul the main boom out along its sheet track so that the mainsail was feathered and capable of very little drive during the strong wind but quickly able to be used during the lulls. I also kept the working jib up as both boat and sail seemed quite happy. For a short time an experienced alert helmsman can certainly cope with a boat under such rig; pinching up into the wind when in danger of driving too fast and paying off when in danger of coming into irons. It is however, a mistake to rely on such a procedure for too long. We had been doing this with great success for about six hours. But eventually when I was tired and my reactions were slow I encountered two exceptionally steep waves in quick succession which were out of phase with the rest of the sea. I headed up too high into the first and the second caught me "stalled out" only going at about one and a half knots. I dare not pay off too much with that sail arrangement and did not have enough drive to climb the wave. It was the steepest I have seen and it won. *APACHE SUNDANCER* capsized. Thus, ended our challenge, and to my shame we were not able to finish the course.

Contrary to the official report, *APACHE SUNDANCER* suffered no damage at all as a result of the capsize. The only reason why Peter and I did not stay with the boat was that we felt that there might have been a danger of exposure. The capsize occurred at 02·15 on a cold dark morning. A 48 knot wind was blowing and the sea was very confused. Having been asleep in his bunk when this occurred, Peter was not wearing much clothing. When one's clothing is soaked, one cannot stay exposed to the wind for long without danger. We inflated our Beaufort life raft but could not haul it aboard and had to leave it in the sea. Once inside it, there was no question of getting back aboard. Unfortunately after about half an hour the painter which attached the raft to the yacht chafed through and the yacht drifted away faster than the raft. We were most fortunate to be picked up by a superb seaman, a Dutch captain of a small Coaster called the REVI. As soon as we were put ashore we chartered a small power boat and set out to find the yacht. Unfortunately a 1,500 ton ship found

her first and in the events which happened the yacht was totally destroyed, but that is another story.

This goes to prove, I think, that however good ones boat and however often one has experienced certain seas, it is a monumental mistake to get over confident.

Retired: TEHINI OF DEGANWY

Designer: James Wharram — Catamaran: 51 ft L.O.A.

At 51 ft overall length, *TEHINI* was the second largest yacht in the race, 20 ft shorter than *OCEAN SPIRIT*. She seemed just about the opposite in every comparison and design objective.

Entered and sailed over the first leg of the course by James Wharram who built her with his team of helpers at Deganwy in North Wales, *TEHINI* was intended for safe steady ocean cruising and was, like James Wharram's other designs, constructed at minimum cost with much thought being given to ease of construction by amateurs without expensive equipment. James and his team had spent the previous winter living on board *TEHINI* so that every piece of equipment must have been very familiar to him and his crew, Margaret Oliver.

James Wharram used a traditional Junk rig and at the present time he is busy changing this. He wrote that a future rig to be tried will be a flexible Schooner rig similar to that used on *PEN DUICK III*.

For lights, *TEHINI* had an electric strip light over the chart table and electric navigation lights using a 12 volt battery. Tilly lamps were also used. Paraffin is used for cooking and there is an Aladdin paraffin heater in the cabin. No equipment failed and the paraffin is considered satisfactory. This could be because it is in constant use. Certainly a visit to *TEHINI* does not leave the visitor with a taste or smell of spilt paraffin which seems to be so strong on some wooden craft and spilt paraffin does seem to smell for months.

In his remarks James states that "The traditional Junk proved unsuitable, mounted on the very fast hull form of *TEHINI*, due to stalling problems when the craft went above 7 knots to windward." His rig used battened sails set on masts with stays and a large square sail could be set on a traditional yard if there was a following wind.

A further letter from James Wharram asks for information about pitching. When going to windward in strong wind with *TEHINI* lightly loaded she developed excessive pitching and lee helm. This had not been noticed before the race as she had always sailed heavily loaded, about $2\frac{1}{2}$ tons of gear was removed for the race. Why, asks James, is the Junk Ketch rig causing excessive pitching under lightly loaded conditions? Heavily laden, under the same weather conditions, *TEHINI* makes 8-9 knots to windward. Is the lack of weight inducing pitching? Is the fact that she is meeting the seas at a greater frequency inducing pitching, or is it that the natural pitch of the ship at the higher speeds increases turbulence on the junk rig, and the affect of stall/lift, stall/lift increases pitching. At 8-9 knots the mainsail is "asleep" but at 10-14 knots the luff flutters badly showing turbulence.

James is aware of the effect of moving weights from midships to the ends of a yacht to alter the natural period of pitch. The conditions off the Irish coast

when he sailed were a head wind of 20–30 knots (force 6-7) with a very short steep swell also from ahead. John Morwood suggested that perhaps the low centre of effort was increasing the pitching frequency.

At this time Clay W. Philbrick of Vashon, Washington, made a number of tests with large scale models of catamarans using different rigs and he sent in some details of the results obtained. Here are extracts from two of his letters to James dated September and October 1970. His model is a slightly modified *TEHINI.*

"I have just finished a successful trial beating to windward in windspeeds of 15-18 mph (i.e. 40-50 mph scaled) and the model made good 3-4 mph to windward. The windspeed was measured by a hand held "Divyer" meter, and the whitecaps were just beginning to form in the Sound, with about a 1 ft to 2 ft chop. The model was pointing 45 to 50 degrees off the wind, being driven to the maximum, and so was flying a hull for brief periods.

Three basic rigs were tried in my experiments: *TEHINI'S* Junk ketch, a Single junk sail of 1 200 sq ft on a 52 ft mast, and a cutter rig of 900 to 1,200 sq ft. The Junk Ketch gave the poorest windward performance, and the cutter rig of 900 sq ft the best. Pitching was very excessive with the single Junk sail (big, heavy mast), was almost acceptable with the Junk Ketch, and remarkably easy and smooth with the 900 sq ft cutter rig. (The mast for the cutter rig was 48 ft 8 in square solid fir, with a mainsail of 440 sq ft, boomed forestaysail of 180 sq ft and a jib of 300 sq ft).

I used rudders and self-steering gear for the Single Junk Sail, rudders for the Junk Ketch Rig, and no rudders for the cutter rig. The Cutter rig is the only rig which I could sail well to windward with no rudders. The two headsails and main balanced beautifully by proper sheet trim and when the wind got into the 20's (mph full size scale), the big jib is merely dropped and again the rig balances quite well with proper sheet trim, as I find the centre of area of sails must fall aft as the windspeed rises. So under full main and boomed forestaysail, you have a self-tending rig that really goes to windward in a blow.

I finally gave up the Junk Ketch Rig for two primary reasons:

1 I just could not make it go well to windward except in moderate wave and wind conditions. I also found that double reefing the mainsail put the boat into a reach. If I tried to make it point, it would either pitch itself dead, or go slow and make a lot of leeway. I also found the centre of effort of the Junk Ketch to be too far forward when *on the wind only*. I think perhaps the jib pulls or drags more for its area than the rest of the rig.
2 The excessive pitching of all three Junk sail combinations, (2 single masted junks, and one Junk Ketch), when *on the wind.* Off the wind, the rigs seemed to quieten down and pull smoothly.

After experiments with loading the models, I would never now go to sea in the *TEHINI* sized boats with less than 12,000-13,000 lb displacement (6-6½ tons). If they are loaded lighter, they don't behave themselves in a seaway with plenty of wind. I would go further and say that they are dangerous if not kept up in displacement. Your own *TEHINI* will go to windward better and have an easier motion with this displacement."

October. "Since I last wrote to you I have been working a little with another man who is also trying to design a 50 ft cat, to beat the Choy 50 ft *ANTIGONE*

and *GLASS SLIPPER*. We had some very interesting testing. He made up some very accurate 50 in hulls to scale of the Choy boat. He also made some 50 in symmetrical hulls to run against the Choy hulls. Here's what happened:

A The Choy hulls, his hulls, and my 42 ft WLL slightly modified *TEHINI* hulls were run in a series of simple drag tests.

B All hulls had very nearly the same WL lengths at a test displacement of 12,800 lb—all hulls being weighted on a scale and loaded with lead until of equal displacement.

C We rigged a boom across the bow of a speed boat. The models were connected by an endless piece of nylon leader through eyes on the ends of the poles and to the two models being tested. Thus by simply observing which hull pulled the other a qualitative judgement on drag was made. This also allowed simultaneous viewing and comparisons of wakes generated.

The results:

1 The symmetrical round bilge form (which would have required daggerboards), was the biggest 'dragger' and the biggest wake producer.

2 The Choy 50 ft boat was lower than boat No. 1 in both wave production and drag.

3 The modified *TEHINI* hull was definitely superior in both low drag (it was always pulled ahead at all speeds up to a scale speed of 30 knots), and a fantastically small amount of wake generated. The *TEHINI* hull was pulled on both sides of the power boat and against both other models.

4 We then went to a river and again drag tested the models as before, except the speed was constant (8 knot scale). Same results as above.

5 Models were then bridled so that they pulled crosswise to the stream flow to measure amount of side thrust generated by hull forms. From this:

a Round bilge boat very poor (actually a 'sewer' section, not a true round bilge hull).

b Both Choy 50 ft boat and Wharram 50 ft boat had the same side thrust—however *TEHINI* did appear to be slightly better but not what I would call significantly so.

One more thing—after the last "binge" of rig testing I developed a few more opinions (subject to change, however) concerning sails. I was unimpressed by the power of the high clewed jib and in subsequent rig drawings I have steered clear of it. I am also beginning to wonder at the overall usefulness of aspect ratios of above 3 : 1 in either main or jib. I am happier with the way lower aspect ratio sails (2·5 to 2·7 : 1) seem to be able to "snake" the airflow around. This airflow is observed in my smoke tests on the rig to see which sails are doing a job of altering the direction of the airflow and which are not. The little 200 ft boomed jib was a real workhorse and the high clewed jib was a failure. Both had aspect ratios of 3 : 1 (luff of sail to greatest width measured perpendicularly to luff).

Clay Philbrick is an AYRS member and his address is P.O. Box 83, Vashon, Washington 98070, USA.

Note: A lot has been published about aspect ratios in past AYRS publications and in general these findings agree. John Morwood suggested a semi-elliptical plan form of sail with an aspect ratio of 3 : 1. Several members including

Arthur Piver have described the advantages of the boomed foresail but it seems important also to have full battens as explained by R. A. Schroeders in January 1959, Publication 26.

Retired: WARLORD — Catamaran: 40 ft L.O.A.

WARLORD is an Apache class 40 ft fibreglass catamaran built by Sailcraft of Brightlingsea and she came from the same mould as the unfortunate *APACHE SUNDANCER.*

Owned and sailed by John White (not Reg White the builder and 'C' class expert), with her designer as crew, she was only just completed in time for the race and there was no time to fit some of the usual cruising luxuries carried by such yachts. This state of unreadiness has come to be described as "stripped out for racing" by our press and perhaps this had something to do with a 9 hour penalty which she was given. This seemed to many competitors to compare most unfavourably with *OCEAN SPIRIT* as *WARLORD* could sleep at least eight in comfort, while there was not a single berth in the *SPIRIT,* and *WARLORD* was at Plymouth by the disqualification deadline of 0900 on the Tuesday before the race while *OCEAN SPIRIT* was not.

WARLORD was lighter than the *APACHE SUNDANCER* and yet she took some 12 hours longer to reach Crosshaven. The weather conditions were light on the first leg and the slow progress was blamed on the absence of feel in the helm.

During her stay in Crosshaven, alterations were made to the steering to make this better but after sailing on the second leg in a fresh breeze, she returned to port and it was reported that she was almost impossible to steer at speeds of over 14 knots and rather than continue at slower speeds it was decided that due to lack of time for proper trials she should retire from the race.

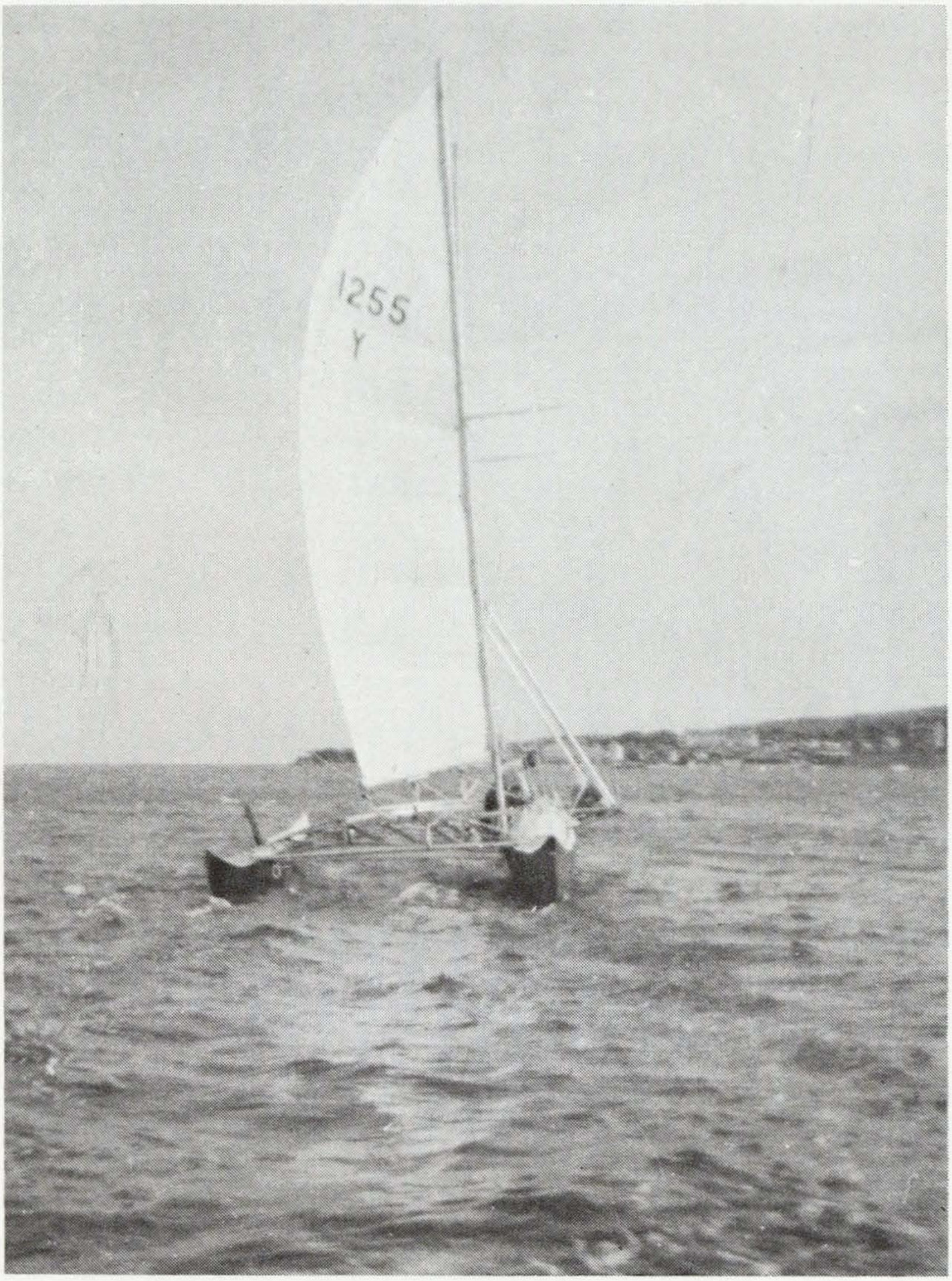
WARLORD was fitted with an Aries self steering gear, as was the *SUNDANCER* and she carried an outboard as an auxiliary.

It is perhaps sad that the four yachts which retired at Crosshaven were all being sailed by their designers or with their designers as crew. Many designers do not seem to get enough heavy weather experience and it is an excellent thing that seven at least intended to try their ideas on this race which was held to improve yachts in general. Three who completed the course were Andy Simpson (*THREE FINGERED JACK*), G. O'Brien Kennedy (*KERRY BLUE*) and Michael Pipe (*SLITHY TOVE*).

Retired: SIDEWINDER — Proa: 51½ ft L.O.A.

Designed and sailed by Derek Kelsall and built by Derek Kelsall Ltd, *SIDEWINDER* is a proa whose vital statistics are 51 ft 6 in O.A., 40 ft LWL, 20 ft beam, hull draft 10 in, sail area 610 sq ft. She is described as Schooner rigged with twin mainsails and sailed as a Proa with the outrigger to lee.

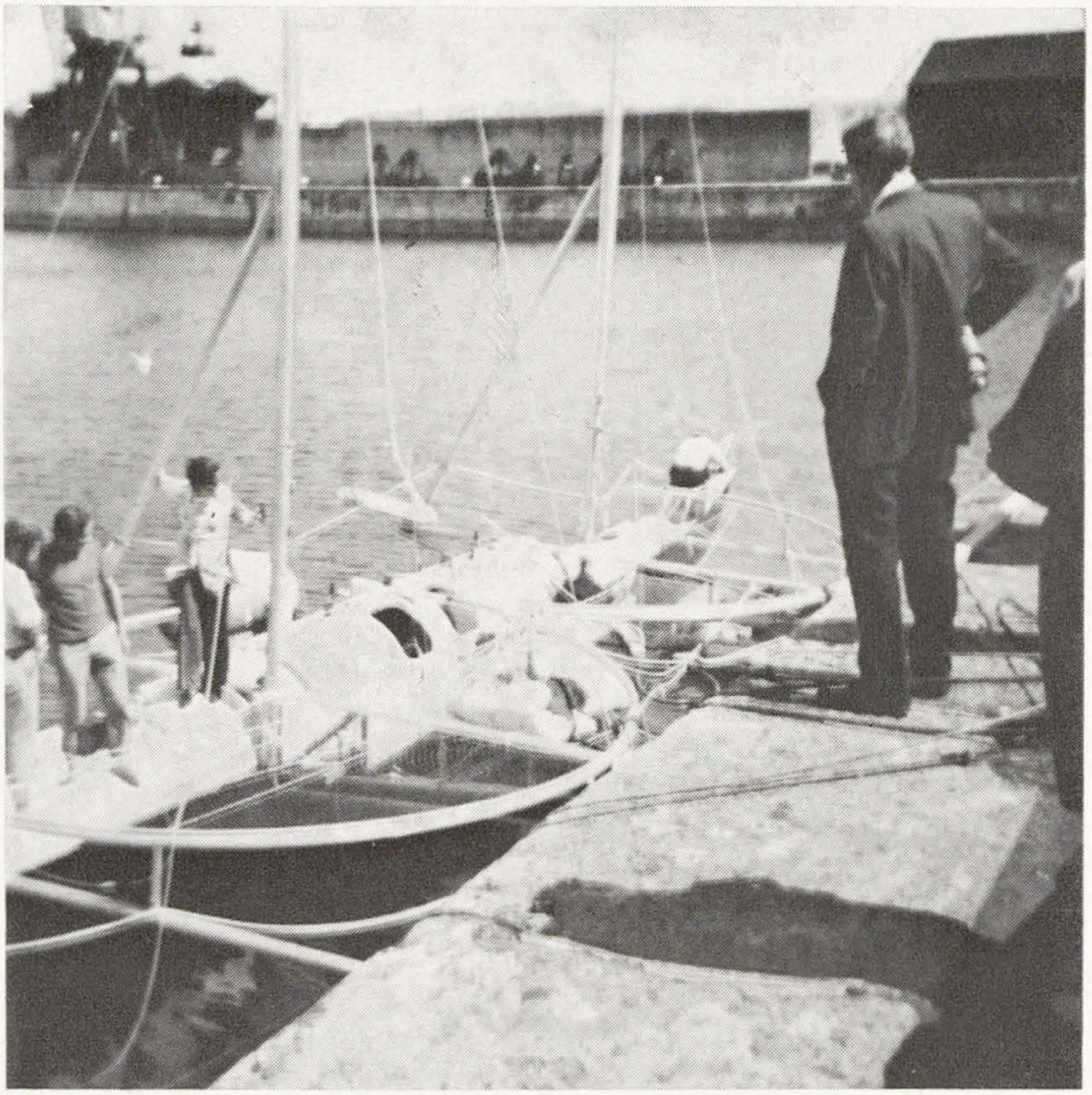
The handicap committee before the race were so impressed by the speed potential of the Proa that they made her the scratch boat giving 10 hours time to the mighty 71 ft *OCEAN SPIRIT.* Those competitors who did not like their handicaps felt that too much account was taken of the speed made in the 1966 race by Derek and also the Proa *CHEERS* in the 1968 Solo Atlantic race.



Derek Kelsall's *SIDEWINDER*

Certainly there was a lot of sympathy for Derek in Crosshaven when the handicap times were announced and he arrived 10th as a leader of the 'second fleet' as those yachts became known which were becalmed after rounding the Eddystone lighthouse at the start of the race and failed to catch the evening tide past the Lizard. Just as before in the 1966 race the leading yachts arrived in Crosshaven and 'switched off' the wind leaving the others becalmed on the wrong side of the line, this time Derek was with 'the others.'

One of the reasons why *SIDEWINDER* was so new and untried was the volume of work being done by Derek Kelsall Ltd who specialise in construction



SIDEWINDER in the Mill Bay Docks, Plymouth

of yachts using the G.R.P./foam sandwich method. Like *TORIA* in 1966, *SIDEWINDER* was built by this method. Nothing failed on the yacht, she put up some very fast speeds indeed when reaching in light winds but it seemed to watchers that her close hauled performance was poor. Derek intends to move his two dagger boards from the outrigger to the lee side of the main hull.

Unlike *CHEERS* the outrigger of *SIDEWINDER* is slightly shorter than the main hull. The two dagger boards are fitted close to the ends of the two main cross beams through slots in the outrigger and inclined at an angle towards the main hull (to windward). These boards seemed to be slightly more than $\frac{1}{3}$ in from the ends of the float and it is interesting to learn that having either both down together or pulling either one board up does not seem to make any noticeable difference to the trim or course sailed.

The two fully battened mainsails are sheeted to semi-circular tracks round each mast and a headsail was set at whichever end happened to be the bow at the time. *SIDEWINDER* had no auxiliary engine or self steering gear for the race. Cooking by gas. Electric navigation lights powered by a battery. There was no cabin heater.

Derek Kelsall's address is: Sandwich Marina, Sandwich, Kent.

Retired: TRIXIA — Trimaran: 28 ft L.O.A.
Designed by: John Westell

TRIXIA was an experimental craft built by W. Cherry who skippered her in the race and John Westall who designed her. She was used to try a number of ideas for Honnor Marine and it was made clear before the start that she might not complete the course.

TRIXIA is 28 ft overall, 24 ft 6 in waterline, beam 23 ft 3 in with a displacement of about 2 tons. She is built of plywood with a thick G.R.P. sheath. Her floats are very thin and dart like and they are supported by two thin cross beams, one aft and one about 1/3 aft from the bow of the main hull. The thin cross beams were held fore and aft by wires and supported by a strut coming upwards and outwards from the waterline. The main supporting beam appeared to be connected at about the centre of buoyancy of the float and this was provided with a pivot. At the after end, the float to beam connection was such that the float end could move through a distance of about 12 in up and down so that the float could partly remain level with the surface of the water. Construction of the beams and floats used a curved surface which would be almost impossible to stand or work on at sea. Even in harbour it was best to remain sober until safely on board the main hull.

The rig consisted of a single vertical mast stepped midships. It had masthead stays and shrouds with a single spreader from which an inner forestay and second backstay were taken. 'Normal' sail, in fact only one sail, was set from the forestay to the masthead but storm canvas could be set from the inner forestay if required. The area of the largest genoa was 440 sq ft.

Other details are her draft of 1 ft 1 in or, with the plate down, 5 ft 4 in. She used a horizontally pivoted wind vane self steering connected direct to the balanced rudder. This was about 80% satisfactory. She uses a 10 hp outboard auxiliary but this was not carried for the race. Cooking was done on a two burner gas stove. Oil navigation lights and electric internal lights are used.

John Westall's remarks after the question about failures read: "Starboard outer backstay parted leading to failure of spreader. *TRIXIA* was not built for the race but as an experimental test bed for ideas. Racing was the ultimate test and failure was not a great surprise."

Before the Round Britain race and her retirement at Crosshaven *TRIXIA* sailed in the Crystal Trophy Race, a classic multihull offshore event sailed in June and she finished 2nd on corrected time to Gen Farrant's trimaran *TRIFLE* in a fleet of 19 multihulls.

THOUGHTS ABOUT SAFETY
by Michael Ellison

One of the greatest dangers to a yacht of any type is collision at sea. Just as no motorist will hit a pedestrian standing on the road if the pedestrian is seen in time so no ship at sea will hit a yacht *if she is seen in time*.

From my own experience of nearly running down a yacht with a cargo ship of some 11,000 tons and also of nearly being run down when sailing a yacht by a cargo ship considerably larger than this, and also from many discussions with ships officers I find a lack of understanding of other peoples problems and conditions by every other water user including fishermen and warships.

From the yachtsman's position he should always remember that *only* ferry type passenger and cargo liners follow set routes except in compulsory lanes in congested coastal waters. This leaves 'tramp' cargo ships and coasters, tankers, fishermen and warships travelling between any two ports in the world. In general they will follow the shortest safe route considering the weather. Fishermen are a very special case as when fishing they have right of way over all other ships. They do not follow any course or track, and try to follow shoals of fish or, when trawling, either they prefer to trawl up a bank or against a stream, subject always to altering course to avoid wrecks or obstructions.

All ships may alter course for a number of unexpected reasons and because a ship alters course it does not always mean that she has sighted you. Yachtsmen are not the only people who stir their tea while even electronic helmsmen grow tired sometimes.

When sailing, I always try to avoid a possible collision situation by keeping clear. If I make an alteration it is a very large one so that it is obvious to the other watchkeeper that I am not maintaining my course. A point to remember here is that a merchant ship in a collision situation will only alter speed as a very last resort and then it is almost certain to be a reduction as, in normal circumstances, most ships are steaming at full speed anyway.Even large tankers which can take 10 miles to stop and would normally start to reduce speed about 24 hours before reaching port can turn through 180 degrees in a reasonably short distance. Just as your yacht will avoid an obstruction ahead by turning through 90 degrees rather than reversing the engines from full speed so will all larger ships. The effect with larger ships is greater as their power weight ratio is much less.

In general when sailing I try to keep a more careful lookout during daylight than at night and this seems the opposite to the practice of some yachtsmen. The reason for this is that well run ships have a man on lookout duty at night but not during the day. During the day the duty officer has a lot of jobs to do in addition to navigation. This is especially so approaching harbour, when all his requisition lists, cargo papers, log books and letters home must be written up ready for landing without delay. There will be too much cargo work and docking duties to attend to these things in port. Perhaps he will get a few days leave when he has handed over his duties. All this means that when keeping a lookout in clear weather, the lookout tends to concentrate on a regular look round the horizon—this is enough to spot other ships but if your yacht is missed at this point you may never be seen at all and the bump of a collision with a ship of 10,000 tons or more in anything more than a very low swell would probably not be felt. It might never be known.

In clear weather it is probable that very few ships use radar—do you run your television when there is no programme? This is particularly so in open water. Not all ships have a radar set which works—have you ever heard of a faulty TV set? Radar is entirely electric and on a ship it has to run in a salt atmosphere often under driving spray and sometimes in tropic conditions. To me it is a marvel how often they *do* work. (I did a course and obtained a 'radar observers ticket' which taught me that I don't know how to use it properly).

When I sail single handed at night I leave my 'Tilly' pressure paraffin lamp

outside in addition to the navigation lights. This means that everyone will see the yacht but will not see my navigation lights due to the brightness of the white light. This would not be a safe practice in coastal waters or at speeds of more than about five knots because other ships will probably assume that they have seen a stern light or fishing craft and the action taken to cope with either of these might not always avoid a yacht crossing or approaching at speed. In the 1968 Single Handed Atlantic race *PEN DUICK IV* hit a vessel which was either at anchor or fishing. This caused her retirement due to rigging damage. As she had sailed at over 15 knots, a head on collision would have been very uncomfortable.

The yacht which I nearly hit was sailing from the region of Gibraltar into the wide Atlantic. We were not in a shipping lane but bound via Cape Town to Australia. The yacht's only visible light from a distance of about 100 feet was illuminating her compass and whoever was on board owe their lives to a bright moon, a wide awake lookout (about 0315 local time) and the fact that the ship was very manouverable, having been designed to use the Suez canal so that she answered her helm at once. The yacht sailed into the moonlit area just in time and I still wonder if anyone woke up, or got up when they heard us pass.

Multihulls

As a result of a capsize near Dover off the English coast, when a mother was tragically drowned trying to rescue her children who were trapped inside an inverted catamaran and also Michael Butterfield and my brother Peter's experience with the *APACHE SUNDANCER* the Multihull Offshore Cruising and Racing Association have produced some recommendations which I hope most multihull owners will consider.

MOCRA is the association which looks after the interests of British multihull sailors. It was established with encouragement from the RYA in 1969 and is supported by owners and crews interested in multihulls.

The recommendations are that every catamaran or trimaran which can be capsized should have:

1 A locker containing safety equipment which is accessible with the yacht upright or capsized. This locker to contain at least a torch, flares, a light buoyant line, coit or ball, a knife and an axe.

2 New craft should have an emergency means of access to the accommodation, such as a hatch which can be opened using the axe if necessary.

3 Catamarans should have masthead buoyancy to prevent total capsize.

4 The underside of the deck or decks should be painted high visibility orange.

These recommendations were carefully considered and it was decided that it should be possible to include the emergency hatch on new craft and it should not be too expensive to fit the locker to existing yachts. The equipment should already be on board and only the stowage need be changed. A radar reflector can easily be incorporated into the masthead float.

HEAT AND LIGHT

by Michael Ellison

Ed.: The word "paraffin" is used in England, "Kerosene" in the U.S.A.

A study of the details of the Round Britain race yachts, which seems a fair cross section of well equipped and seaworthy cruising yachts has been very interesting for me.

The first point is the tremendous popularity of gas for cooking. We hear a great deal about the dangers of carrying gas but there is no doubt that it is by far the most popular fuel for cooking. There are probably a number of reasons for this but the main one must be convenience. It is very easy to strike a match and turn on a tap. A wife or girl friend will find cooking little different to cooking ashore.

The yacht *ILALA* on which I lived for 6 months in 1964 was equipped for a world cruise and her galley cooker consisted of a single gas ring mounted in gymballs. The ring and gymballs were so built that a primus stove using paraffin could be lifted into the gymballs if all the gas was used or was unobtainable. After a short trial I changed this for a two burner stove with a grill but kept the primus so that it could easily be replaced if required. On a passage from the USA to Eire via the Azores with a crew of three we did not start our spare gas cylinder. *ILALA* has electric cabin and navigation lights run from four heavy duty batteries (not lead/acid type). For my own 35 ft sloop I chose a similar cooker but used gas lights in the cabin as well. She was an old (but sound) wood craft; I was quite unable to keep anything electric in working order for longer than a week. In both these yachts the gas cylinder was stowed low down in the cabin, handy to the galley so that it is easy to turn the gas on or off at the cylinder. In my opinion it is very unlikely for the valve on the gas bottle itself to leak and therefore having the bottle on deck is unlikely to help prevent gas entering the yacht, especially if it is left turned on by mistake or to run a fridge. In the case of fire the gas bottle can explode but the fire will have a good hold by the time this happens. The most likely places for gas leaks are in the flexible pipe connections to a gimballed stove and perhaps the taps on the stove. The taps on the stove which I used turned to "full on" first and as you continue to turn, the flame reduces so that the 'simmer' position is with the tap hard over and the flame can't blow out accidentally through turning the tap too low. In my opinion this should be standard on every stove ashore and afloat.

Gas lights in the cabin are bright and easy to use but, like the Tilly and other pressure lamps the mantels are very fragile and must be used with care. I have never met any gas navigation light. I gather the problem of ventilation and heat from the mantle could not be coupled with a watertight fitting. Electric lights seem reliable on fibreglass craft which are dry and now that fluorescent tube 12 volt lights are available this seems an excellent means of lighting the cabin at least but I still like to see a small oil light "just in case." I find it very pleasant to leave an oil lamp burning with a low flame in the cabin while sailing at night.

Those yachtsmen who use paraffin usually swear by it and will tell you that it is the cheapest fuel available. (If you cruise to some places it is just not available). Speaking to some paraffin users I usually find that they cook a lot and regularly, and that one person looks after the equipment. I also find that those who are successful with pressure cookers and lamps are usually very very

careful to keep their fuel completely clean. James Wharram has always used paraffin and has never had any trouble. He uses a very fine filter every time he pours or transfers fuel and never uses an old tin for storage. Never spill paraffin onto a 'Tackmark' or even a fibreglass deck—the result is like an ice surface. Another point which gives me as much worry as gas, is filling a paraffin appliance with petrol by mistake. Most filling stations will only put petrol into a red tin marked 'petrol' but it is sometimes possible to persuade them to fill an old oil can.

My own navigation lights, like those on *SLITHY TOVE* used paraffin, and the lantern with red and green glass was fixed to the pulpit. The catamaran *MISTY MILLER* uses the same system. The lantern has to be large to have a large wick burning. The one on *MISTY* was very large but even then it was very difficult to light in windy weather. I was surprised how well my own lamp would remain alight when driven through the waves. Progress to windward was usually on the 'over one—under one' basis. *SLITHY TOVE* had her lamp smashed and an electric light might have stood the test.

For cooking, alcohol stoves seem to be very satisfactory but rather expensive to run. As my wife does not like paraffin, Michael Butterfield bought two alcohol stoves in the USA before we sailed back to England with him in 1966. These two single burner units worked very well and were quite satisfactory for four persons but an oven and grill would have been useful. Methylated Spirits seem unknown in Rhode Island and alcohol is very expensive. We learnt from local yachtsmen that they use cellulose paint thinners and this we bought in one gallon cans—enough to thin a lot of paint—but as I mentioned it worked well in those burners. The two great advantages for alcohol are that if spilt it evaporates without leaving a smell or mess and if it catches fire it can be extinguished with water.

On larger yachts solid fuel domestic type stoves seem quite satisfactory and Perkins Boilers Ltd of Mansfield Road, Derby again showed some interesting ranges and heaters at the London Boat Show. These work from the same fuel as the diesel engine and can provide cooking, hot water and central heating. I have sailed on a large motor yacht which had a solid fuel "Aga" cooker which provided hot water and did not seem to mind the roughest weather. These cookers are heavy and probably take up too much space in yachts under about 36 ft in length depending on the design and purpose for which they are used.

For small yachts, for weekend use or for use by a number of people, I would choose gas as the fuel for cooking but I have still to find an infallible method of persuading every user to turn it off at the bottle after use and to light the gas lighter or strike the match before turning on the tap. This must be most important on a G.R.P. yacht where the bilge pump is never used—a few strokes of the pump after pumping out water ought to remove any gas from the bilge. Without this it might just somehow be possible to build up enough gas for an explosion in calm weather.

Finally, as a possibility for further progress with illumination a member is using "Beta" luminous type lights round his chart table and also sewn onto the edges of his spinnaker so that it can be seen at night. These are normally used in compasses where I have found them excellent at night but not always bright

enough for my eyes at dusk and dawn if I have to steer at a distance from the compass.

As a general rule fittings for motor vehicles are not designed and are not suitable for use at sea but there are exceptions. Good quality or well-equipped cars have a resistance to control the brilliance of the instrument lights on the dash board. Well-fitted ships have a similar control for the light over the chart table and for the compass light.

These dimmers, rheostats, do not 'wear out' in normal use and a second hand one from a scrap car should give satisfactory service provided the voltage is the same for car and boat. Care must be taken to mount the unit on a piece of asbestos as it can get hot and could fail if it got wet—don't set the boat on fire. A further caution is obvious—don't fit it near the compass or the deviation may vary as the brightness of the light.

Among the cars to look out for with a rheostat is the Skoda, possibly the cheapest. Most pre-1940 cars seemed to have them as standard.

This fitting might be useful on a stern light for use when racing. In the 1966 Round Britain race we were being followed by a number of yachts and we turned down the wick of our oil stern light a little every 15 minutes or so. We never found out the effect on our competitors but it was very good for our morale!

Letter from: Stanford Smith 29th November, 1970
Australia.

To AYRS

Gentlemen,

I would like to enquire if you still have the book available on Self Steering, and also booklet No. 11 on Wishbone rigs. I received your book on self-steering about three years ago but loaned it out to so many people that it eventually went astray, so I would like to get another one. I am enquiring about the wishbone rig for a friend of mine who is finishing up a 48 ft version of Harry Scott's *NEW SILVER GULL* and he wants as much information on the wishbone rig as he can get. We are both building Ferro Cement yachts. I built a 38 ft Woollacott N.Z. design and sold it some months ago, and am now starting on a 42 footer. Do you think that the AYRS will come out with a book on Ferro? It would be good if you did. There is a Ferro Cement Marine Association in Auckland which I belong to, and they collect and send out a lot of very useful info on the subject, but it does need to be put out in book form. The present books on the subjects are wholly inadequate, and I have them all. Hartley's book seems to be about the best in many ways, but it mostly revolves around his sets of plans. An architect named Brian Donavan, who is also the vice president of the Ferro Association, has come up with some really terrific designs in ferro, and is also actively engaged in building.

Please let me know what the price are for the book and booklet and I'll send the money off soon as I hear from you.

Sincerely,
Stanford Smith.

2nd Letter from: Stanford Smith 21st December, 1970.

29 Heath Street, Mona Vale, N.S.W. 2103, Australia.

Regarding the Ferro-Cement, I could likely come up with a lot of useful information on this building method but will give you a couple of addresses and names that I am sure will be of help.

The N.Z. Yachting magazine runs a monthly column on ferro and they compile data etc. for members of the N.Z. Ferro Cement Association. Also they send out a monthly news letter that is a great help to Amateur builders. I am a member and this allows me to write in and ask questions that need solving. Richard Hartley who puts out a booklet on his plans in ferro and plywood is on the committee—but most important Mr. Brian Donavan, a prominent N.Z. Naval architect who specialises in ferro is the Association's Vice President—he comments on members questions and problems. I would like to think that he would co-operate with you and if so you would have a most valuable source of information on ferro. There have been some quite good boats built here in Aussi, but the best looking ones, by far are from N.Z. Around here there is too much of everyone going their own way—which can be somewhat disastrous —I have built one 38 ft ferro boat and am starting on a 42 ft—Practically everyone has gotten away from the pipe frame method and have gone to the solid rod gusseted frames, or have done as I did — use regular timber moulds with ribbands and lay-up everything outside of this. Also using a ply or massive subdeck and vibrating cement through. If you are a bit clever, the lower sections of moulds and ribbands can be removed so as to put in your floors and tanks (ferro). Integral floors, and to a lesser degree tanks, are an absolute necessity. Some people advocate square mesh only but if an adequate amount of horizontal and transverse wires are used—chicken wire is completely satisfactory. A local structural engineer interested in ferro, conducted tests with both wires and found square mesh somewhat stronger on impact, but quite prone to delamination, allowing more breaking up of cement—an important factor following collision. Anyone thinking of using timber moulds and ribbands should be sure to paint all the wood work, as unpainted timber will absorb moisture from fresh cement thereby weakening it and also timber will expand—possibly causing cracks. I have helped to plaster six boats and some of the locals have done twice that, but with each boat you are better able to organise you own when the day comes—I owned and built boats in wood and steel before but would never go back to them.

Best regards,

Stanford Smith.

New Zealand Ferro Cement Marine Association,
P.O. Box 7174,
Ponsonby, Auckland, New Zealand.

Brian Donovan,
1 Takaruhga Road,
Drouportm, Auckland, N.Z.

Letter from: Bill Lange to AYRS Ronnebygatan 8, 21438 Malmo, Sweden.

I guess OSTAR shows that the simplest rules are best. Them that can't race, beats 'em with rules. Same in most fields. Competition should be to learn something.

Just exchanging ideas is a simple and direct method to spur development. Beats anything I can think of. Only lack of money keeps me from playing around. I think there is tremendous room left for developing really fast boats that are cheap.

Efficient rigid and rotating sails, coupled with Hydrofoils. What's in between shouldn't be too important. Wind boats are really awfully inefficient. Direction: don't go to windward too well generally, don't go downwind very fast. Speed: don't go at all of course in no wind. Don't go at all if too much wind, or go wrong way.

Seems like a lot of room for development.

Bill Lange.

AYRS MEETING—2nd December, 1969
Cruising and Research

The Meeting was opened by our Chairman, Sir Perry Henniker Heaton, who introduced Michael Ellison as the new AYRS Director and explained why it has become necessary to have a full-time employee.

There were 48 members in the audience and the speakers were changed at the last hour to allow Alan Forest, who was once sailing master of a winning yacht in the Sydney-Hobart race, to speak and answer questions on conditions in East Australian waters.

The evening started with a film taken by Derek Kelsall and his wife, Claire. The film began with a voyage on a Cox Marine Loadstar trimaran called *TIGLON* from Falmouth to Las Palmas via Vigo, Madeira and Tenerife. There were some shots of heavy weather following a force 8 gale experienced after leaving Vigo, during which they ran down wind under jib alone. Derek explained that their worst experience was when the Loadstar drove down the face of a wave and buried her bows into the wave ahead. *TIGLON* did not have a centreboard or fin keels and because of this was not controllable at slow speeds but handled well going fast.

After some interesting shots of the numerous yachts waiting in Las Palmas for the end of the hurricane season, we saw them setting out for a trade wind crossing and the film continued with Derek and Claire sailing as crew on a large Baltic trading ketch converted for charter work. Their trade-wind crossing seemed most uncomfortable due to excessive rolling. The only sails which they were able to set were a large square sail which was high but not very wide and the mizzen sail. Their engine failed soon after they left Las Palmas and they sailed to Barbados, making about 110 miles a day with the more-or-less constant 15 to 20 knot wind.

When answering questions afterwards, Derek said that he did not take any action to prevent the trimaran from diving into the wave ahead except to keep a more careful watch on the seas astern and to steer clear of the very steep ones. He much preferred to have an open deck to allow water to drain through rather than a solid one. This makes no difference to the bows diving into a wave but allows the water to clear much more rapidly when they do.

Following Derek Kelsall, Michael Ellison stated that the subject for the evening was 'Cruising and Research.' Most research has been done by cruising men and a lot of useful information has been discovered by people making long distance voyages who often do not pass it on. He mentioned a book called "The Cruise of the Kate" in which E. E. Middleton sailed round Britain in 1869 single handed.

After a break for liquid refreshment, Alan Forest described the main differences between sailing off Sydney and the English Channel as the water temperature—theirs, is much warmer. The tides that we have are replaced by a North and South current which flow up and down their coast at the same time at different but variable distances off the coast. From his remarks it is clear that the Australians take their racing very seriously. Alan believes very much in removing every ounce of unnecessary weight and the weight which must be carried is stowed in the most advantageous position. This weight seems to consist mainly of beer, but fuel and drinking water were also moved. It appeared from questions afterwards that some of the racing rules regarding moveable weights may be bent a little and are not being observed in the spirit that was intended when they were written. When close-hauled all the weight is moved forward and when running it is moved aft. His crew are the exception to this rule as those off watch sleep aft in the most comfortable position except in light conditions.

It seems from further questions that steel hulls are popular out there and that any average yacht from our waters would be safe and perform well in their conditions. Their conditions include a very heavy swell especially near the coast and Alan thinks this is the reason that multihulls are not popular and have had a number of accidents. Michael Ellison suggested that some of these accidents might have been caused by the beer and condition of the crew, rather than the weather, but this was not agreed.

From further questions it seemed that seaweed and marine growth is a serious problem and even within Sydney harbour different anti-foulings are most effective in different areas.

Derek Kelsall was asked if he saw much future for the flying proa. Derek replied that a flying proa is one with the float to windward and the craft is kept upright by moving weights, usually the crew, out on to the float which should be kept just clear of the water. This is not a very safe craft. The *CHEERS* type of proa he regards as a trimaran with only one float and thinks that this may well prove popular in some particular cases where it is not necessary to manouvre regularly in restricted space.

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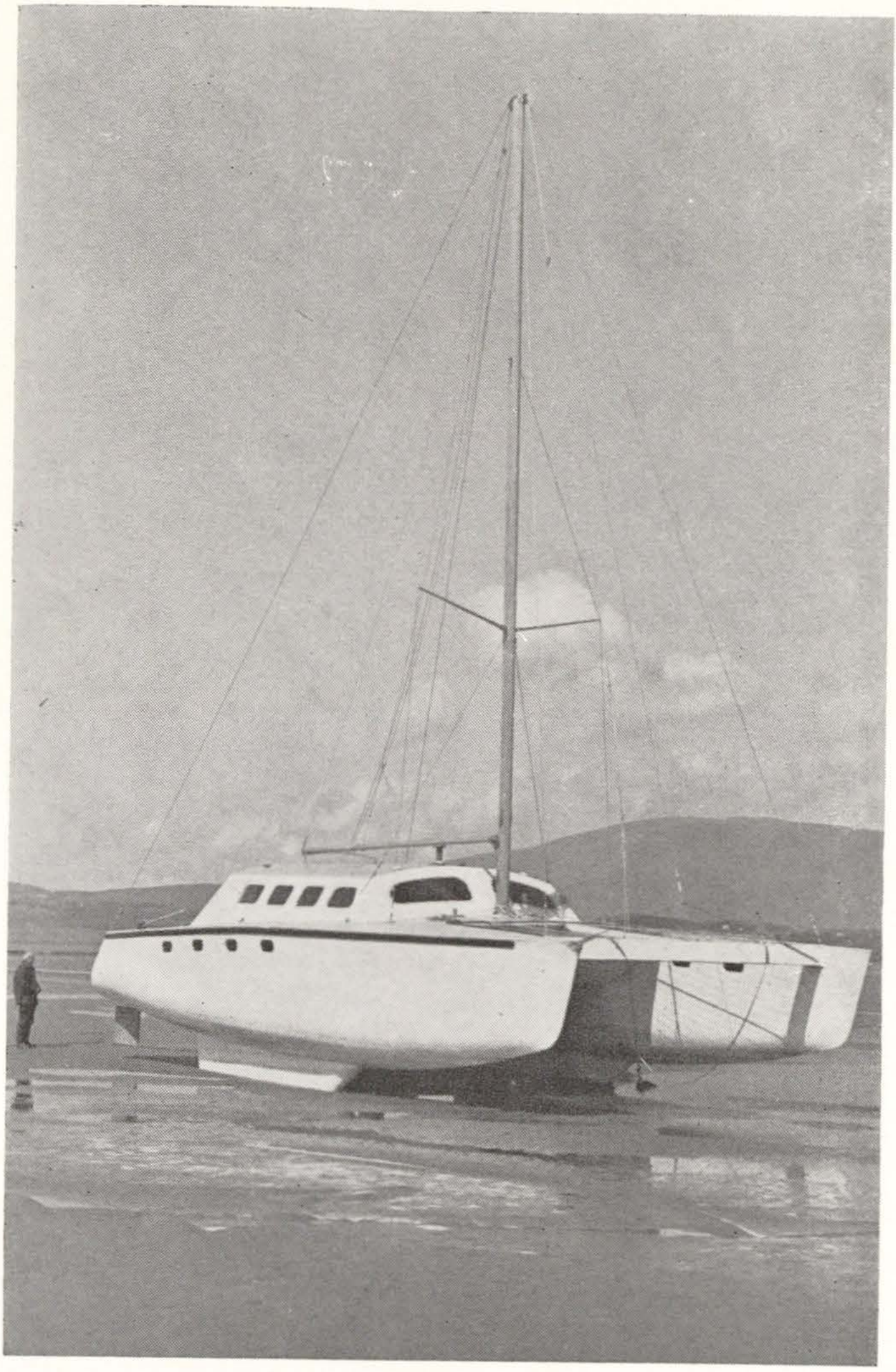

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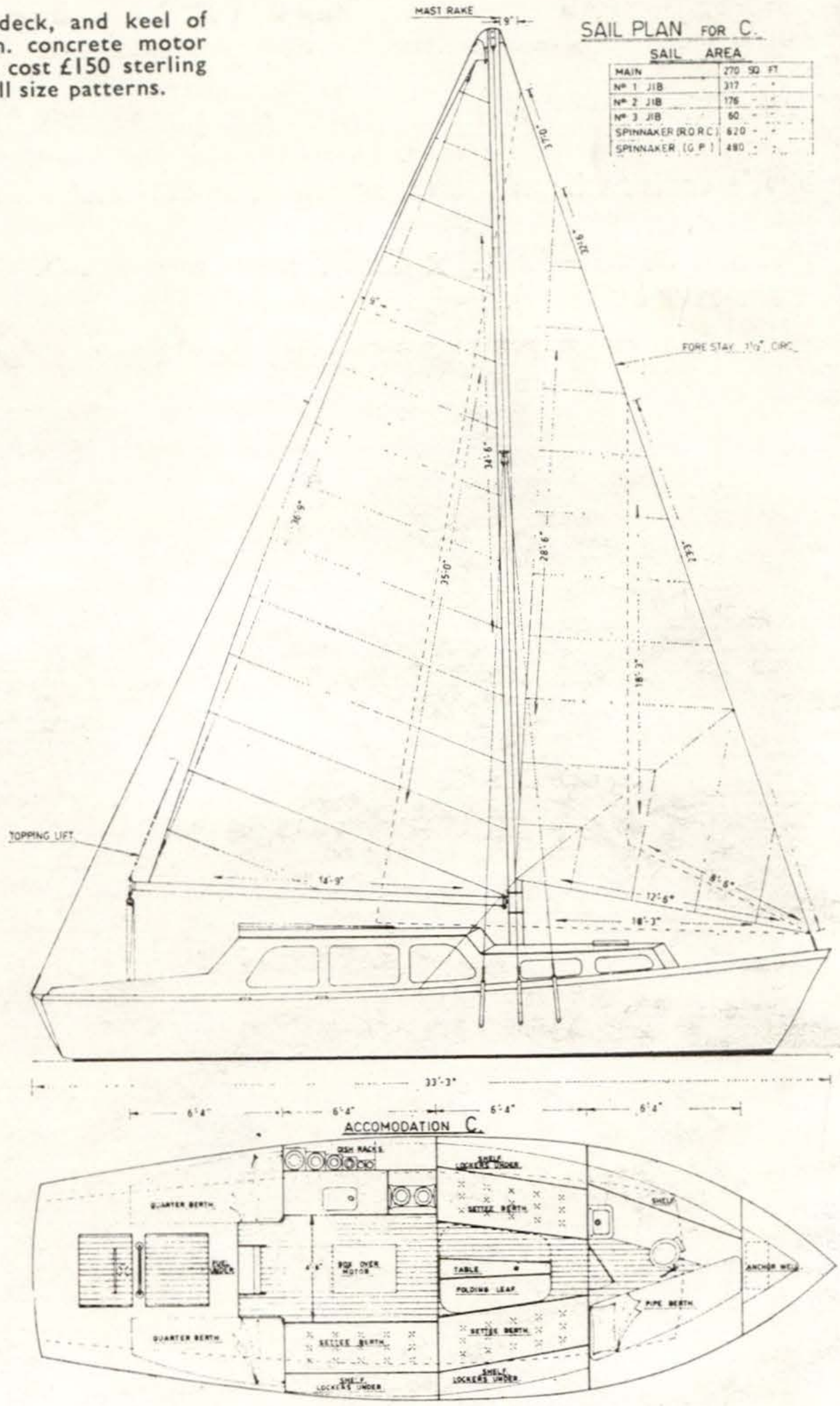

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