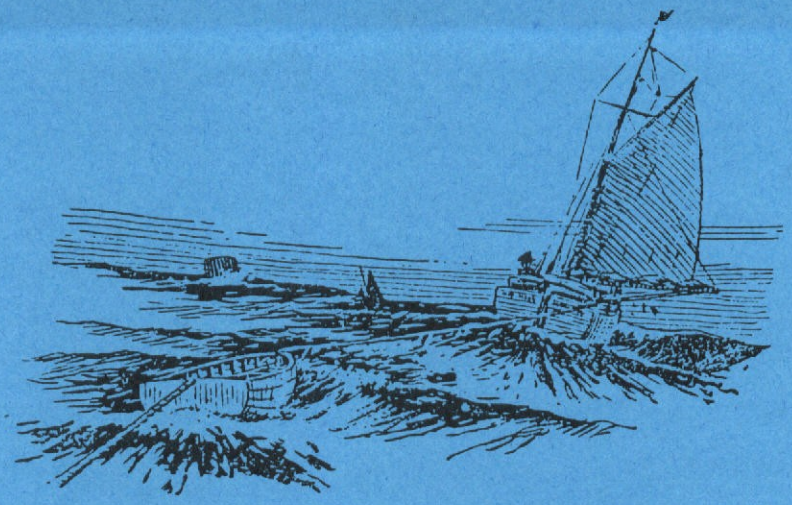
The Harrison Butler Association

Newsletter No: 45 Summer 1997



THE HARRISON-BUTLER ASSOCIATION NEWSLETTER

No. 45 JUNE 1997

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COVER PHOTOGRAPH - *'ZINGARA'* (ASKADIL DESIGN)
Shortly before her launch by EB at Moody's Yard,
Swanwick Shore, Southampton in 1936.

THE PRESIDENT'S LETTER

May 1997

2 The Chestnuts
Theale

Dear Members

The usual story: I'm late with my letter, keeping Paul waiting. I had fully intended writing when I was at The Crag but so many things happened that I have arrived back in Theale with mission not only unaccomplished but not even started. However, more news has accrued thereby. Quite a bit of my time was spent on HBA matters and also with "Crag" affairs involving plumbers and sundry other useful people. I'll return to the Crag theme later but I must deal first with the sad and the bad items.

The sad happening is the death, just after Christmas, of Charles Chatwin. This affects me most because he was able to come to but one meeting so was not known to many members whereas I had known him from childhood. Charles took over as our family solicitor after his father died and both had been sailing friends. He was the only HBA member, other than family, who knew THB. His son, Hugh (brother of the late Bruce Chatwin), gave me a copy of the Order of the Thanksgiving Service held for Charles, from which I learned many facets of his life and personality of which I had no knowledge. Our contacts had been infrequent since my marriage in 1938. He had spent a very interesting and philanthropic life.

Now I must dwell on the bad news and, as usual, it concerns finance and (of course) subscriptions: unpaid subscriptions. Please look at the Treasurer's Report and you will see that our expenditure was greater than our income. Luckily, we had some money on deposit which came to the rescue but our subscriptions, if paid, are adequate for our needs. Sadly, some appear not to have been paid. Please sort the matter out with Simon, in case there is a mistake, otherwise, you are in danger of this being your last newsletter. It would be a great pity if we had to increase the subscription and grossly unfair to those who pay regularly and, in effect, are subsidizing the "bilge-rats", (I quote!). I'm afraid this is a problem which is endemic in most small clubs - and, maybe large ones too. We try not to be ruthless but there comes a time....

Some of our members who cruise for long periods tend to pay their subscriptions, plus their arrears on their return to base, others just fade away without a word so that our membership is somewhat fluctuating and the List of Members may not be accurate at any given time. It has to catch up with events. However, the basic fact is the same - subscriptions must be paid. We budget for an expected income, particularly in regard to the Newsletters which we try to keep to a high standard. They are what you pay for. We may have to cut down the cost of this issue: the last one was to an extent experimental as different methods were being tried - with an excellent result, I'm sure you will agree - for which Paul deserves our congratulations. We have no overhead expenses and very few outgoings apart from the newsletters but we do need our regular income to keep the wheels rotating.

You will read (or, I hope you will) in the Minutes the report on the discussion which took place concerning the deficit and it became obvious that this must be yet another year when the long knives have to be unsheathed and defaulters dealt with.

The Minutes should be read anyway because they contain news as well as "business" and there is no point in duplicating it in my letter. I have some cheering news: there have been some very generous donations made to the Association. Donations are always kept anonymous. We are very grateful for them - but don't let it discourage you from sending your £10 cheques to Simon!

It was a great relief to me that the "new look" AGM arrangements worked satisfactorily. It would have been impossible for me to have prepared the lunch myself and it was quite time

anyway that we found an alternate venue. I just hope The Gathering will still have a room large enough for us next year. They plan to cut off part of the room we used to make a flat for the manager and threaten to be able to seat only thirty people. Maybe they could squeeze in a few more if we are close-packed.

We all assembled here for pre-lunch drinks and chat and returned after lunch for the meeting and tea which was ready for us after the business was over, made by dear, faithful Mrs Church who, although she hasn't worked for me for ages, always comes to do the AGM washing-up and enjoys meeting everyone. At the end of the meeting I was presented with an almost embarrassingly lovely basket arrangement of flowers which I enjoyed tremendously.

As always, it was good to see new faces among the well-known ones. You note I didn't say old ones! Some are and are proof of the longevity of the Association and the length of time we have known each other. We were all delighted at the reappearance of Ron and Mary Goodhand who had been absent for several years. Another very welcome addition to our number was Geoff Taylor, who came with two friends. He was making his debut after many years' membership. Usually, at that time of the year he is either en route to or already in the Caribbean. Even now, he can't keep away from the heat and has gone to Hong Kong to help to sail someone else's (large) yacht - a strategic withdrawal? I'm afraid the letter I wrote asking him to make inquiries at the Royal Hong Kong Y.C. about the HB boats which were built in 1910 or 1911 and sailed as a one-design class was too late to catch him before he left England. It would be remarkable if any had survived until now.

I should like to thank all you kind people who sent me Christmas cards and also for letters, some of which may still not have been answered. My apologies for this. Despite spending a phenomenal time writing letters and making telephone calls, I never catch up. I usually write quite long letters to new members, to explain all about the HBA and maybe about the history of their boats - as far as I know it; cheques have to be sent on to Simon and sets of plans to various people. The last couple of years I have been asked to write articles for yachting journals and this involves a lot of delving into books for reference purposes. I'm afraid far-flung members of my family get neglected in the process.

My October fall (how appropriate, October is the beginning of the Fall) hasn't helped as, although I am improving, everything takes longer than of yore.

While at the Crag I had a useful, enjoyable and sociable time but frustrating also because of all the things saying, "Help! Help!" in the garden. I bought a National Trust 'Walking Stool' which is a great help, both in the garden where I can sit to do low pruning etc., and I can sit in checkout queues. Caroline and Geoffrey (Holton) again helped me with my journeyings between Sidbury and St. Mawes. I saw Jeremy and Adrie Burnett, Adrie on several occasions, one being when she came over from Falmouth to act as tea-lady when thirty-two Reading Tree Club members came to see The Crag garden, and she stayed overnight which was a bonus for me; David B. also visited (on one of the lovely days), being, ostensibly, en route from Devon to Ludlow, where Excellent Press is now located.

It was a tremendous pleasure to have John and Dorothy Hartley (ex Amiri, ex Ardene - both built by John and both now sold) to stay plus a friend of theirs, Keith Pierce. After many years of correspondence and one or two photographs, it was good to meet at last. Desirée Campbell was able to join us for lunch and to renew, thereby, her acquaintance with John and Dorothy whom she and Boyd had met in Australia some years ago. Sadly, Dorothy is anti boats and has forbidden John to build any more but he hankers after Aella so, who knows??

I was sorry not to see more of our local members but I was still beset with "things going on" - mostly plumbing. Better luck next time, I hope.

I should have mentioned when writing about the AGM that Jochen Schreiber came over from Germany but sadly, without Anja, and he and Edward Burnett stayed here - and looked after

me rather than I them! I like having people staying here at AGM time, otherwise there is a terrible void when everyone has gone.

Ron Matthews brought some leaflets advertising Bradite Marine Paints which could be of interest to HB members as he wrote that they could purchase any of the Bradite products from Brewers decorators at very reasonable prices. Get in touch with him for more details.

I have received a leaflet from the President of the Vintage Wooden Boat Association, Mr Alan J. Dunn and he wrote saying, '...all HB vessels are now welcome, unless somebody has been unkind enough to build one of something unseemly.' I'm not sure if there are advantages over and above what the HBA provides. The subscriptions are higher rated than ours - and ours might be even more elusive than they are at present! I'm not sure that I like the idea of HB boats becoming a section of an organization but it is up to members to decide individually. If you join, do pay our subscription first! Should you be interested in the VWBA contact me for details.

A word of warning, which I have to introduce from time to time: remember, when answering an advertisement for an HB boat which is not on our List, there are several "bastard" HB's which come on the market from time to time. While in Cornwall I admonished yet another owner of Barbara of Polvarth and was told: 'She is listed in Lloyds.' Lloyds publish(ed) the details sent by owners and there are several non-HB's listed under THB's name. So. beware!

The next pleasure is the Laying-up Supper at the Bull Hotel, at Woodbridge, on September 20th, when and where I hope many of us will meet. Details are on the leaflet enclosed.

My very best wishes to you all and, good sailing!

As ever,

Joan.

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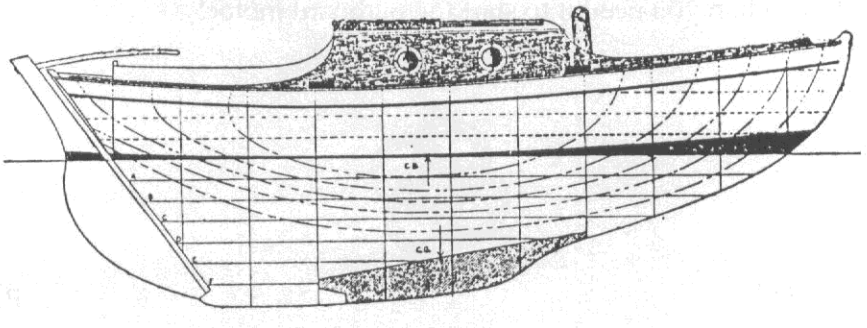
URGENT MESSAGE FROM THE TREASURER. PLEASE READ AND RESPOND.

Annual subscriptions (£10) were due on 1st January. By early June, 69 members had paid. If you have not already done do, please will you make out a cheque, to include arrears, made out to the Harrison Butler Association and send it to the Treasurer as soon as possible, at his new address. There is a disturbingly long list of defaulters for 1996 also so you may need to send a cheque for £20. Sort it out with Simon.

Simon Wagner, 27 Elleray Court, Ash Vale, Aldershot, Hampshire, GU12 5EH.



PAIDA.

T.M.
2½ tons.

EDITORIAL

How quickly the months fly by and unbelievably we are already in the middle of the sailing season. With such a mild Spring I know many prudent H.B. owners began fitting out well before Easter and subsequently were able to enjoy some pleasant early cruising.

Fitting out, those magic words which seem to mean anything from a quick repaint of topsides and brightwork to a total keel-up refurbishment. If by chance you fit into the latter category please feel free to put pen to paper and let us all read and possibly benefit from your experiences, who knows it may even encourage others to follow your example, which all helps to ensure the survival of H.B. designed yachts well into the next millennium.

Thank you to everyone who expressed appreciative comments about the first printed edition of the H.B. Association newsletter (No. 43) and for appointing me as Honorary Editor of the Association. I was disappointed not to have been able to attend the AGM but classic cars, like classic boats, are seldom trouble free and a leaking brake servo let me down the night before.

Friends of mine run a small printing works in Evesham, after some persuasive arm twisting and a considerable number of drinks I have been able to secure a very competitive printing rate for the Association. The intention is to produce two issues per annum, Summer and Winter, about mid December and mid June, the former giving notice of the AGM and the latter details of the laying-up-supper and a revised and updated copy of the members list. Contributions are always welcome, however short, copy deadline being 1st June and 1st December.

The number of traditional yacht rallies around the coast of Britain have increased considerably over the past few years. Having just returned from the most recent at the lovely setting of Beaulieu, I must congratulate Classic Boat Magazine for organizing such a splendid event. Amidst the most impressive and fine collection of yachts I was pleased to see amongst the array of masts several H.B. Association burgees, namely 'Minion' (Cyclone II) and 'Susanna' (Zyklon Z4). Thank you to June and Dennis for their kind hospitality aboard 'Minion' on Friday evening as they dried out after a boisterous wind against tide passage from the Hamble and to Alexia at the barbecue on Saturday.

As an avid collector of old sailing books I am subsequently drawn like a magnet to old book shops. During one recent visit to a local establishment called 'Bookworms' I was fortunate enough to be able to procure, for a very modest sum, a first edition of Cruising Yachts - Design & Performance. However I notice in my travels that the first, second and even third editions are increasingly changing hands at collectors prices which are often well in excess of the present cover price (£16.50) of the recent revised fourth edition which with its many fine photographs and an autobiography of T.H.B. represents excellent value for money.

Finally a word about Association ties and burgees, available through the Honorary Treasurer. Why not treat your H.B. to a new burgee and yourself or partner to a new tie, ideal for those numerous visits ashore or impromptu invitations aboard neighbouring yachts and who knows, there may be a time when you need it to start the outboard motor!

Happy Sailing.

Worcester. June 1997.

Paul Cowman

Harrison Butler states on page 21 of his book, Cruising Yachts, Design & Performance, that the midship section is the keystone of a design and refers readers to his article on the subject published in Yachting Monthly, Vol 63, May 1937.

We are reproducing that article here in full for the benefit of members who may not have access to copies of the original.

M.M.

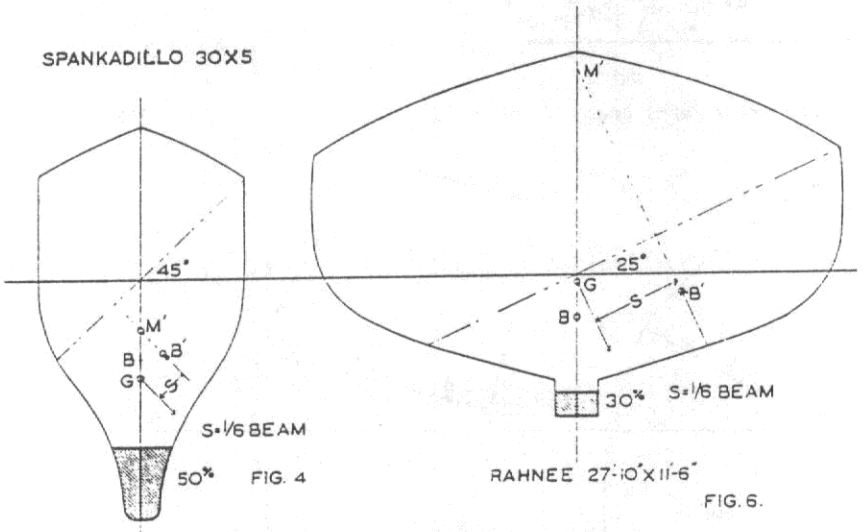
Midship Sections and Stability

Effect of "Body Form" on Behaviour

BY

T. HARRISON BUTLER

THE midship section is the most important element in the design of a yacht, or indeed of any vessel. We have seen excellent drawings, well-thought-out, balanced lines, carefully planned accommodation and good sail plan, completely ruined by an unwise choice of mid-section.



Two characteristic midship sections.

In the case of day-boats and large yachts the designer has a large choice of section, but with small cabin cruisers his scope is limited. The necessity for floor-space, headroom and stability virtually excludes a section that would give the best performance.

The stability of a yacht depends mainly upon the form of her mid-section, and therefore, before describing its varied fashions, we must explain the main principles of this vital function. We speak of *initial stability* and *range of stability*. Both co-exist in all ships, but their proportion varies. One may have great initial stability with poor range, while another has the reverse attributes. A third may combine the two in reasonable proportions.

A floating body displaces its own weight of water. It is maintained in equilibrium by two equal and opposite forces: the weight of the yacht acting downwards through the centre of gravity of the whole yacht, and the weight of the displaced water acting upwards through the centre of buoyancy. (This is often spoken of as the centre of gravity of the volume of displaced water, but it would be more correct to speak of it as the centre of gravity of the volume of the water had it not been displaced.)

In my articles upon Metacentric Analysis (January and February Y.M.), I explained the method for finding the upright and heeled centres of buoyancy. A vessel floating in a vertical position has only potential stability, but when she is heeled by any force a righting force comes into action in the following manner: the centre of gravity is raised, and

the centre of buoyancy moves out to leeward. The two opposing forces now no longer act in the same vertical line, their lines of action separate, and a *couple* is formed which opposes the heeling force and ultimately balances it, unless the form of the vessel is such that she loses all stability and capsizes.

In future we shall use the following symbols : MS = midsection; G = centre of gravity; B = upright centre of buoyancy; B′ = heeled centre of buoyancy; and M′ = heeled metacentre.

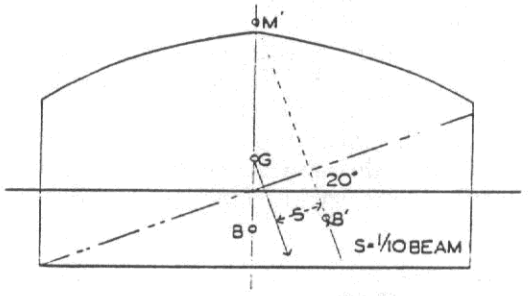


FIG. 7.

A barge yacht turns over.

If, on the other hand, the travel of B is slight, then the yacht has small initial stability and is said to be " tender." If this fault is extreme we call the ship " crank."

As a yacht heels, the leeward travel of B increases up to a point where it becomes stationary and begins to recede. Ultimately, in most yachts, a time

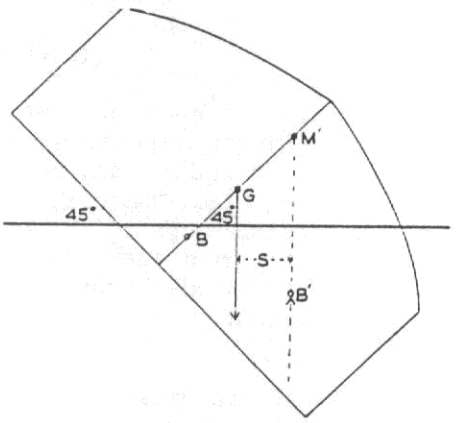


FIG. 8.

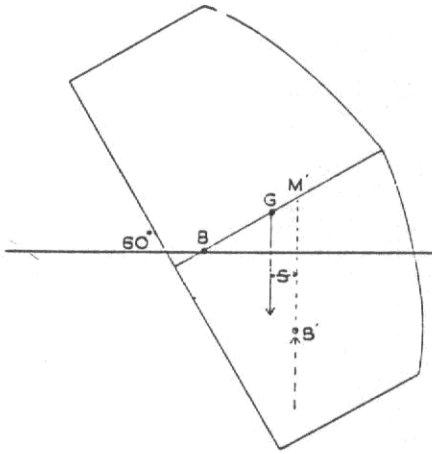
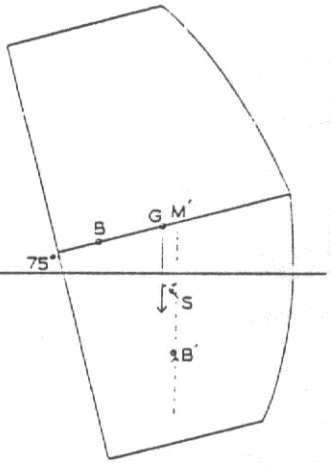
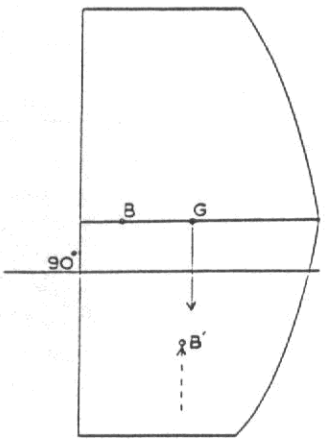


FIG. 9. GOING___!



GOING___! FIG. 10.



GONE____! FIG. 11.

Let us assume that our yacht is steadily heeled at a constant angle : she is now in equilibrium under the action of three forces. The heeling action of the wind on the sails is balanced by the couple already mentioned. If the force of MS is such that B travels rapidly to leeward the righting force increases quickly and the yacht is said to have great initial stability, or to be " stiff." will arrive when G is in line with, and above, B′. The yacht is now in unstable equilibrium, and the slightest force will capsize her. If G is below B, this point is never reached, the yacht has an infinite range of stability, and, even if placed upside down in the water, will return to her correct position. Fortunately the ordinary yacht has considerable righting power, even if laid flat by

a sudden violent squall, and can be capsized only if rolled over by a monstrous sea.

Racing yachts and models have G under B, and right themselves under all conditions. Fig. 1 represents the midsection of a 7-tonner. B is the calculated centre of buoyancy, and B′ the

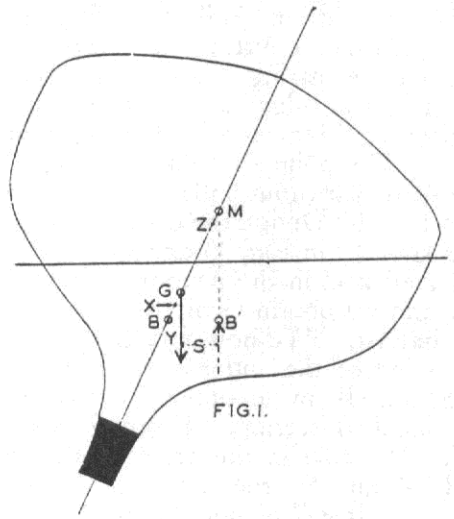


FIG. I.

actual centre of buoyancy when the yacht is heeled to 25°. G is the *assumed* centre of gravity. When the yacht inclined, G rose from its original position and B moved out to leeward to B′. The plain arrow shows the direction of the force, the weight of the yacht, acting downwards through G. The pecked arrow indicates the direction of the force due to the weight of the displaced water acting upwards through B′. The pecked line is prolonged upwards to cut the centre line at M′, a spot which may be taken to be the heeled metacentre. As this particular yacht is a metacentroid, I have labelled it M and not M′, for the two axes coincide.

The distance from M to G is known as the metacentric height, and is an index of initial stability. The distance S between the two perpendiculars is the righting lever. The actual force that maintains the yacht in equilibrium against the heeling force of the wind is the total weight of the yacht multiplied by this righting lever S. The weight of this particular yacht is 6 tons, and the length of S at 25° is 9 in.

6 tons × 0.75 ft. = 4.5 ft. tons

This is the actual force that the couple exerts at 25°, and also the force due to the action of the wind on the sails.

It is essential to grasp the fact that the stability of the yacht is the product of the *absolute* weight of the yacht, including spars, equipment, etc., multiplied by the length of a lever. If we double the linear dimensions of the yacht the lever will be 18 in. long, and the weight 48 *tons*. The righting force of this enlarged yacht at 25° will be 72 ft. tons. The righting force of the larger yacht is sixteen times that of the smaller, but the heeling force is only eight times as much.

These figures explain why a large yacht has so much more stability than a small one, a phenomena of vital importance in some hull forms, the barge being a striking example, as we shall see later.

We said that G was an *assumed* position. The actual position of G can be obtained in two ways, one after the yacht has been launched, the other in the drawing-office. We can carry out an inclining experiment upon the yacht floating in still water. A known weight of ballast is removed from an established position below the waterline and placed at the end of a plank lashed across the beam of the ship. The distance of the weight from the mid-line of the ship must be found, and the angle of heel produced by it measured with a clinometer. From these data the position of G upon the vertical central axis of the yacht can be calculated. The exact method can be found in Dixon Kemp's or Skene's *Elements of Yacht Design*.

The second plan is very laborious. The yacht is treated in sections: mast, sails and gear; deck-frame, deck and deck-structures; anchors and deck gear; planking; hull frame; ballast and hull contents. The weight and centre of gravity of the items in each section are calculated, and finally the common G is found. The whole procedure must now be repeated, to find the fore and aft position of G. An example of the calculation is found in Skene. The work is so tedious that it is rarely carried out for small cruisers, nor is it necessary; but in the case of racing yachts, which have to float to a definite waterline and carry all the ballast outside on the keel.

it is imperative to find the actual position of G. I would like to suggest that every designer calculates *at least* one design in detail for his guidance in other designs, and also to provide him with a necessary sense of proportion and magnitude.

Whereas the determination of G is so difficult that it is rarely done, I have devised a simple method that will, I hope, give *a general indication* of the stability of the yacht and enable the type of stability of one yacht to be compared with another. Probably there is no originality about my scheme, but I have not seen it described. I assume that the stability of the yacht is a function of the stability of the MS: it may be greater or less, but I think that it is sufficiently near for my plan to afford very useful information.

The B and G of the mid-section are both lower than that of the total yacht, but if their position varies, *pari passu*, the stability of the mid-section closely approximates to that of the yacht. In Fig. 1 the G and B of the MS are marked as *x* and *y*. It will be noted that B of both yacht and MS almost coincide. The G of the MS is well below the assumed G of the yacht, so any calculations are on the safe side, because the assumed G is probably high. In Fig. 2 the actual B of the yacht is marked β, and it is well above the B of the MS.

The technique is as follows: Fig. 2 is the mid-section of a very modern ocean

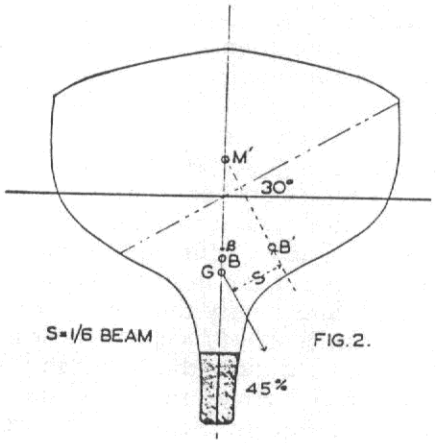


FIG. 2.

racer. I have included the bow-sheer in order to account for the sheer and the usual deck constructions. I assume that the centre of gravity of this section, taken to be homogeneous, is sufficiently close to that of the whole yacht to make my deductions of value. My impression is that it is not far out, and in any case near enough for any inference to be better than none at all, and that the G of the MS is likely to be as accurate as an assumed G.

This yacht carries 45 per cent of her total weight in ballast. First trace this section, omitting the lead keel; cut out the tracing and poise the section on a razor edge, as described in the article of Metacentrics (January number). The point of balance is the G of the section without ballast. It is seen at *z* in Fig. 1. Divide the distance between this spot (*z* in Fig. 1) and the centre of the lead keel in the proportion of 45 to 55, and we obtain G of the MS, including ballast. We now find B by poising a tracing of the underwater part of the MS; and B′ by employing a tracing of the inclined section. From B′ we get M′. We rule in the arrows as before, and obtain S, the righting lever or couple. It will be noted that G is below B, so this yacht has an infinite range of stability, and that S = $\frac{1}{6}$ of her beam. The ocean racer puts her deck in at 30°.

My system enables me to make a stability curve which, if not accurate in absolute unit value, is strictly comparable with the actual curve of stability of the yacht as calculated by the ordinary methods. But, as we have seen, it takes hours of soul-destroying labour to produce this curve, and costs a lot of money. My curve can be constructed in about an hour without any calculation whatsoever.

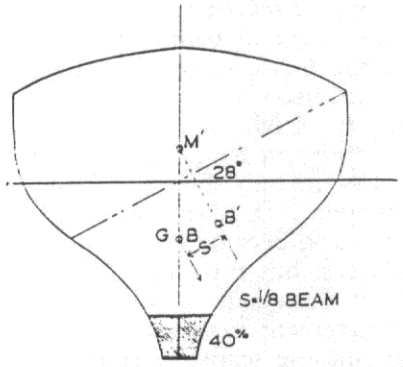
I assume, of course, that a planimeter is used. Even without this instrument the system is quite simple, but takes a little longer. The barge, with completely flat bottom, in Fig. 7, can be used as an illustration. She is shown in Figs. 7, 8, 9, 10 and 11 heeled at 20°, 45°, 60°, 75° and 90°.

She puts her deck in soon after 20°. At each angle the immersed area has been measured with the planimeter and the paper section trimmed till the area is the same as it was when the barge was upright. Each section is shown with the same displacement. If one has no

planimeter, then the paper sections can be weighed on an accurate balance.

It will be noted that S increases till an angle of 45° has been attained, and then it begins to diminish. At 85° G is directly above B′, the barge is in unstable equilibrium, and at 90° G has passed to windward of B′, and the couple which was a righting force is now a capsizing force. Fig. 12 is the curve of stability given by the barge. The value of S is plotted along the ordinates which represent the angles of inclination up to 90°.

We have seen that the stability of the barge increases rapidly up to 45°, then



12 TON CRUISER 29'X9'-3"
FIG.5.

falls even more rapidly, to disappear at 85°. I was surprised that a barge should have her maximum stability at 45°, and that with her G in the position shown she should have any stability at all at 85°. The position of G does not alter the character of the curve, but it will alter its implication in foot-tons.

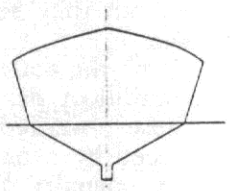
If the G is moved the base-line will have to be raised up or down to compensate for the change. If in the barge G rises, owing to the way that she is loaded or to other causes, the base-line will be raised, and in consequence stability will become negative at a smaller angle of heel.

Fig. 12 shows the stability curves of Spankadillo and of the 7 ton yacht (Fig. 1). These curves have no absolute value, for the drawings are not made to any definite scale; they are useful only to compare the character of the curve of the three vessels. The curve of Spankadillo, seen hove-down in Fig. 11, steadily rises to 90°, and will never fall to zero. The curve of the 7-tonner is intermediate in type between the two. It rises more rapidly at first than Spankadillo's, but not as quickly as the barge's curve. It has attained its maximum at 90°, and will not vanish till the yacht's mast is some considerable distance under water.

These graphs show us the type of stability possessed by three widely differing types of vessel. One has large initial stability, the curve rises sharply. It has a limited range: the curve attains its maximum at 45° and then falls rapidly. The intermediate curve has good initial stability and good range. It is the type of curve that is given by the average yacht with about 35 per cent of her ballast on her keel. The three curves are not comparable in the sense that they represent the actual righting power at any given angle of heel.

We have now sufficient semi-exact data to enable us to discuss mid-sections in a general sense. We can divide them into three classes: Those which have great initial stability and small range; sections which confer small initial stability but great range; and, finally, sections which combine both properties in varied proportions.

The Thames barge is a good example of the first class, vessels that gain their stability from their shape and not from ballast. Fig. 7 shows her section. The



PEGGY
18'X15'X7'-6" BEAM.
FIG.14

metacentric height is ample and the righting lever S is 1/9th of her beam. She has great initial stability, which is maintained to 45°, beyond which she rapidly becomes unstable.

Now, a loaded barge may weigh from 60 to 200 tons or more, and it is obvious that her stability, measured in foot-tons, is very great—so large that it is improbable that she will meet a strength of wind

that, acting upon her comparatively small sail area, can exert enough force to heel her to 45°. Her topmast would carry away, and probably the mast as well, before this could happen. Barges have turned trutle—one did so recently in the Thames, and another in the Barge Race at Southend some years ago—but such accidents are rare. We can assume that the Thames barge, especially if she has some heavy cargo, stowed low down, is a perfectly safe craft.

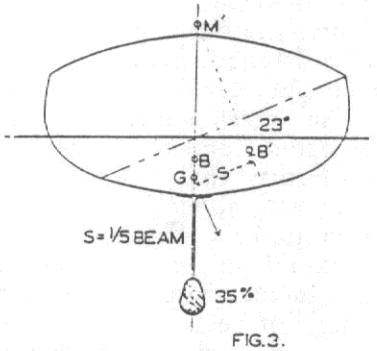


FIG.3.

A small barge yacht is not in this happy position. She has the same stability curve as her big sister, but her total weight is small, at most 10 tons or less in the smallest editions. Her S is short and her initial stability in foot-tons is low. She might easily meet a wind-force that, suddenly applied, might capsize her before sail could be reduced. Forty years ago these small barges of the Tredwen type, of which Venus was a small example, had considerable vogue on the East Coast, but they seem now to be out of fashion.

At the other end of the scale we find yachts of the Spankadillo type, now entirely extinct. These so-called "lead-mines" were produced by a bad rating rule that put a heavy penalty on beam. Some of the last developments, Spankadillo and Oona, had only six beams to their waterline length. One hears that they were good performers to windward, but they were wild off the wind, either griping or running wildly off the helm. They were very uncomfortable, sailing at a great angle of heel, and they were very wet. Their accommodation was confined to headroom.

We may take the MS shown in Fig. 3 as the prototype of the third class. Here we have a hull form that has a flat floor and hard bilges, both helping to confer exceptional initial stability; combined with ballast hung low on a metal fin, giving an infinite range. In fact this model combines the advantages of the barge and the lead-mine. It is obvious that this MS will be of no use for a small cabin yacht, for there is no living room; but it is the ideal section for a small racing yacht, and was the type produced by the length and sail area rule :

$$\frac{L \times SA}{6.000} = \text{rating.}$$

It is difficult to understand why a cheap type of hull, a strong one, and a form that gave the greatest speed per £1 ratio, was discarded for the modern, very expensive and comparatively slow yacht of the 6-Metre type. There can be no comparison between the old One-Rater and the 6-Metre. The One-Rater was in proportion to its LWL of about 20 ft., was faster, snappier, and very much cheaper. It is true that the rule ran to seed and became impossible in the larger classes, but this fault could have been easily remedied by fixing a minimum displacement for each class, and by adopting suitable scantling rules.

I know nothing about racing yachts, but I have always regretted the passing of Dixon Kemp's Rule, at any rate in the smaller classes. What present-day

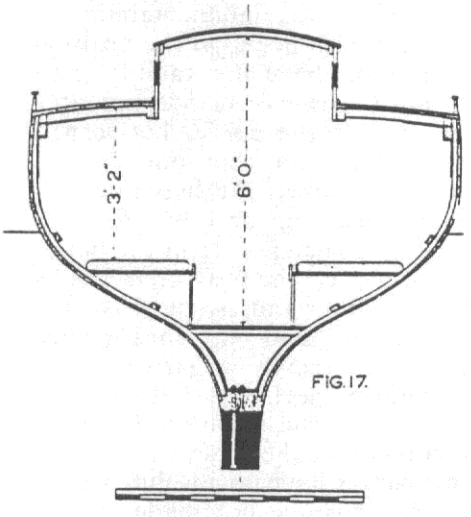


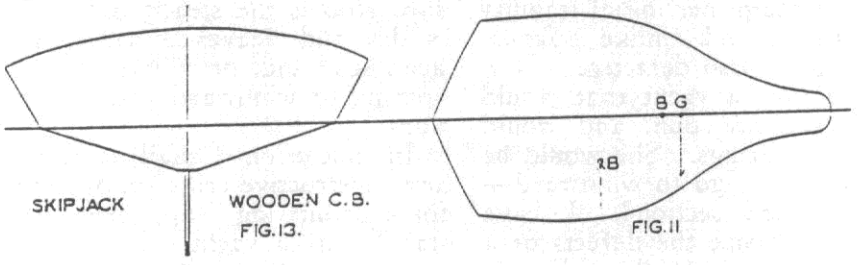
FIG.17.

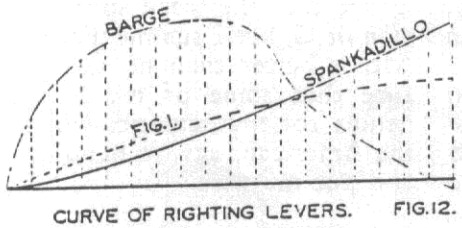
class has taken the place of the old half-raters, of which the fastest fin-keel boat was Wee Winn? Linton Hope's

Kismet and Sorceress, centreboard craft, were faster still. They were cheap, handy, very fast, and afforded wonderful sport.

It is obvious that Fig. 3 must form the basis of the MS for a small cruising yacht, a suitable combination of initial with range of stability. We need good initial stability for a yacht that lies on its side in a breeze is most uncomfortable and tiring to her crew. It is equally essential to have as much range as is necessary to make the yacht quite safe if she is knocked down by a sudden violent squall.

Finally, the section must be such that there is room for an adequate cabin. One must have good sitting room in a 4-tonner, and in the 7-tonner we expect to get 6 ft. headroom, and sitting room under the side decks, with consequent wide plankways. Fig. 1 is the MS of a 7-tonner, and Fig. 17 shows the accommodation that it affords. The yacht should carry 35 per cent of her weight in ballast, mostly on the keel: it has good initial stability and sufficient range to make her uncapsizable unless she should be unfortunate enough to be completely rolled over by a sea. We have already shown her curve of stability, which is as it should be, intermediate between that of the barge and the lead-mine.





If a shallow draught is essential we can adopt the type of section seen in Fig. 6, that of the sloop Rahnee. Of course, such a section needs a centreboard to hold the ship up to windward. The initial stability is greater than that of Fig. 1, but the range is less. Probably it is sufficient to bring her up if hove-down, assuming that the construction is not too heavy and that she can carry 30 per cent of her ballast on her keel or low down in the hull. The actual yacht was designed to do this.

In this type light construction, spars and gear are essential. Many yachtsmen seem to think that heavy construction is an element of safety. On the contrary, there is nothing that diminishes stability more than *weight* in the hull, spars and gear. Strength must be sought by good workmanship, sound engineering design and not by brute weight.

There are many intermediate forms of MS. The Skip-Jack (Fig. 13) is an improved barge, with better stability as regards range but less initial righting force. Peggy, an American design, is a nondescript little cabin yacht, 15 ft. on the LWL, with 7 ft. 6 in. beam. I cannot think of her as a smart sailer, and I feel sure that she would be better were her angular bilges rounded off.

I see no advantage in the angular bilge. The chine construction is not as strong, weight for weight, as the orthodox form, and, contrary to the usual opinion, I have been assured by a well-known builder of small yachts that it is more difficult, and more expensive.

The designer has a more or less free hand with the MS of larger yachts. The MS seen in Fig. 2 has much to

recommend it. We do not want all the room given by a MS like Fig. 1. As the yacht gets larger the comparative displacement must be reduced. We can gain more stability by form, both initial and range; in fact we obtain more speed, ease of handling and safety without any compensating disadvantage. Fig. 2 gives ample accommodation because of its actual dimensions. S is one-sixth of the beam, giving initial stability, and the topsides do not flare and cause a jerky, rising motion. G is probably close to B, and below it in the actual yacht as it is in the section, and so the range of stability is infinite.

We must conclude by considering what to avoid in a MS. Fig. 15 shows an exaggeration of what we may call the "barrel-shaped" section. With 35 per

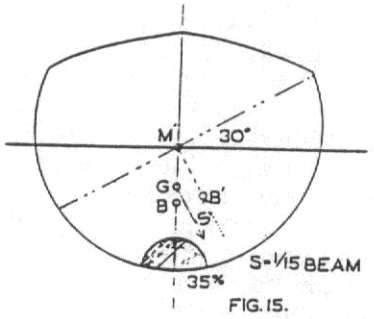


FIG. 15.

cent of ballast this MS has an S of only 1/15th of her beam, her initial stability is almost absent, and, unlike Spankadillo, her range is also defective. Such a MS would give a yacht that would heel to the slightest puff, and would never find her bearings. She would be slow and would not go to windward—a perfectly absurd section! I have drawn it to emphasize the defects of a weak section with a slack bilge. Fig. 5, the MS of a 12-ton cruiser, is an example of this fault.

Fig. 16 is another comic section, again to point a moral. In proportion to the extreme beam, which is at deck level, S is only 1/15th of the beam, the same as in the barrel section. Initial stability would be poor, but the range excellent. The section is included to show the disadvantages of flaring topsides. The wedge of immersion is almost double

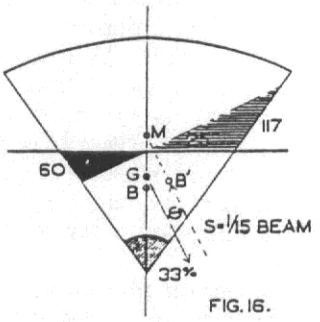


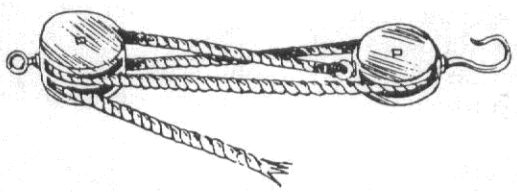
FIG. 16.

that of emersion, the exact figure being 117 : 60. As this MS heels the vessel rises bodily, and the resulting motion is most tiring and uncomfortable, and very likely to cause seasickness.

The MS of the Colin Archer type approaches to this MS, and I am told that his designs have a most uncomfortable motion at sea.

The barrel-section (Fig. 15) would be quite free from this lifting action; in fact it is a tendency towards the barrel MS that makes some fishing boats easy in a seaway, not only because of its freedom from any lifting action, but also because it makes for a slow ship, and a slow ship is the steady old church that is dry and heaves-to naturally in any head sea; and, of course, does little or nothing to windward under such conditions.

In conclusion, I shall be gratified for any constructive criticism of my method for estimating approximately the stability of a yacht. I am, of course, aware that the weak spot is the estimation of G, but I submit that the G of the MS is better than no G at all. I am sure that some of my friends with a genius for mathematics will be able, as the Americans say, to hand out the dope and put me wise.



To round off this topic we include a letter from YM.June,1937, published under the pseudonym 'UBIQUE' and HB's reply.

MIDSHIP SECTIONS

SIR,—I believe that some readers of Dr. Harrison Butler's article on "Midship Sections and Stability" in the May YACHTING MONTHLY, may misunderstand the author. They may come to the conclusion that a barge heeled over more and more by an increasing wind pressure will capsize when it reaches and passes 85° heel. The point at which the barge would capsize would, of course, be when 45° was reached. After this angle is passed the righting moment diminishes, and can therefore no longer balance the capsizing moment, and over goes the barge.

All types of vessel that gain their stability from their shape, or, as it is called, possess natural stability, are subject to a limited range of stability, and this range can be further reduced when sailing among waves. Dixon Kemp has some interesting information on this subject. If, for example, a barge yacht and Spankadillo, a plank-on-edge design, were mastless and adrift in a heavy sea, the former would roll violently and tend to keep her deck parallel to the changing waves surface, whereas Spankadillo would merely rise and fall with little roll. When a flat-bottomed type of vessel is sailing through waves, which are rolling up on the beam, the angle of heel of the vessel, due to the slope of the wave, must be added to or subtracted from the heel given to the vessel by the pressure of the wind, and thus a wind force, which would not heel the vessel dangerously in still water may bring her to a critical angle when among waves.

The fact that a vessel rises and falls among waves has also some effect on stability from the point of view that the acceleration varies in amount and in direction, upward or downward. This affects the force due to the weight of the vessel, which in still water is due to gravity, but among waves is due to gravity and the up or down acceleration due to wave motion. Is it possible that this has some effect on hull balance, as the two ends of the vessel may be subjected to different vertical accelerations? The virtual fore-and-aft position of the C.G. of the vessel might be considered to move owing to this cause.

"UBIQUE"

Liss, Hants.

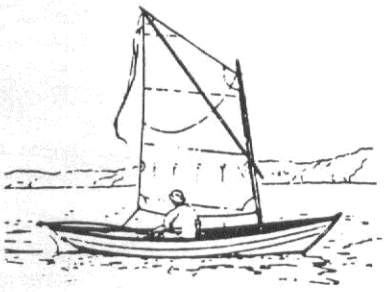
STABILITY

SIR,—Your correspondent "Ubique" is quite right when he says that a barge heeled over more and more *by an increasing wind pressure* would capsize at 45 degrees, but this is not what I intended to convey by my graph. The barge has some stability long after an angle of 45 has been reached, in fact if the graph is correct there is still a small righting force at 80. A wind pressure that was sufficient to heel her to 45, at which position her stability begins to diminish, would capsize her if the wind force remained constant. But were she heeled to 45 by a sudden squall to 45, she would right herself when the squall passed. At each angle of heel there is an equation in which the heeling force balances the righting force.

Virtually all cruising yachts begin to lose stability after a certain angle of heel has been reached, but they still have plenty of stability left when laid flat. At about 120 all stability vanishes, but it is obvious that at this angle the mast is well under water, and the heeling force has vanished.

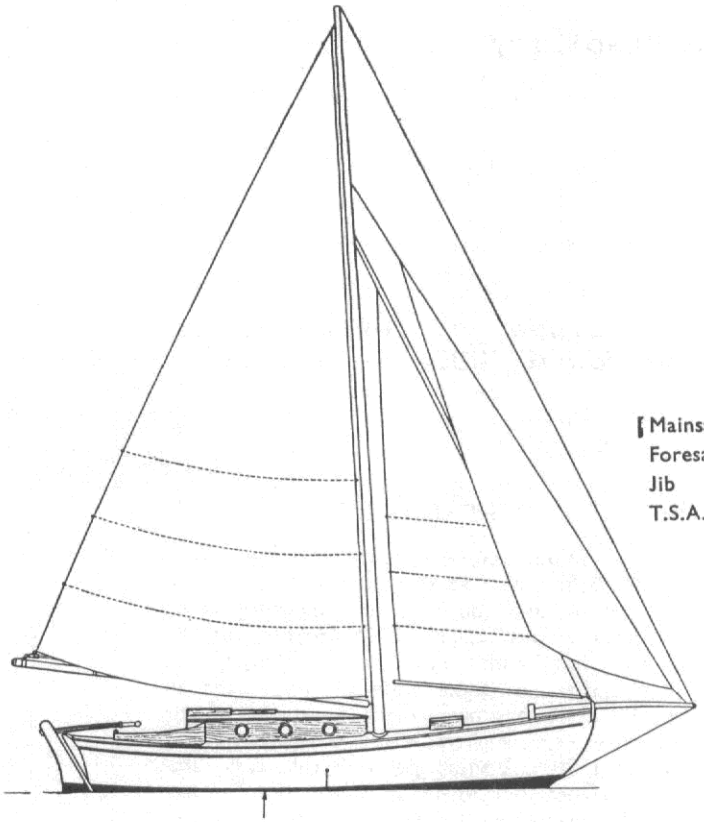
T. HARRISON BUTLER

Hampton-in-Arden.



The Askadils

MODIFICATIONS *and* IMPROVEMENTS *on an* EARLY DESIGN



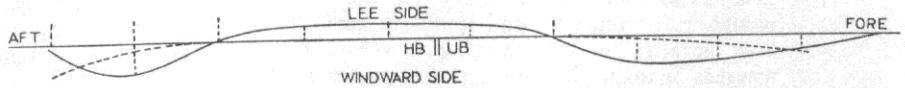
ASKADIL

Mainsail	-	328 sq. ft.
Foresail	-	106 sq. ft.
Jib -	-	80 sq. ft.
T.S.A.	-	514 sq. ft.

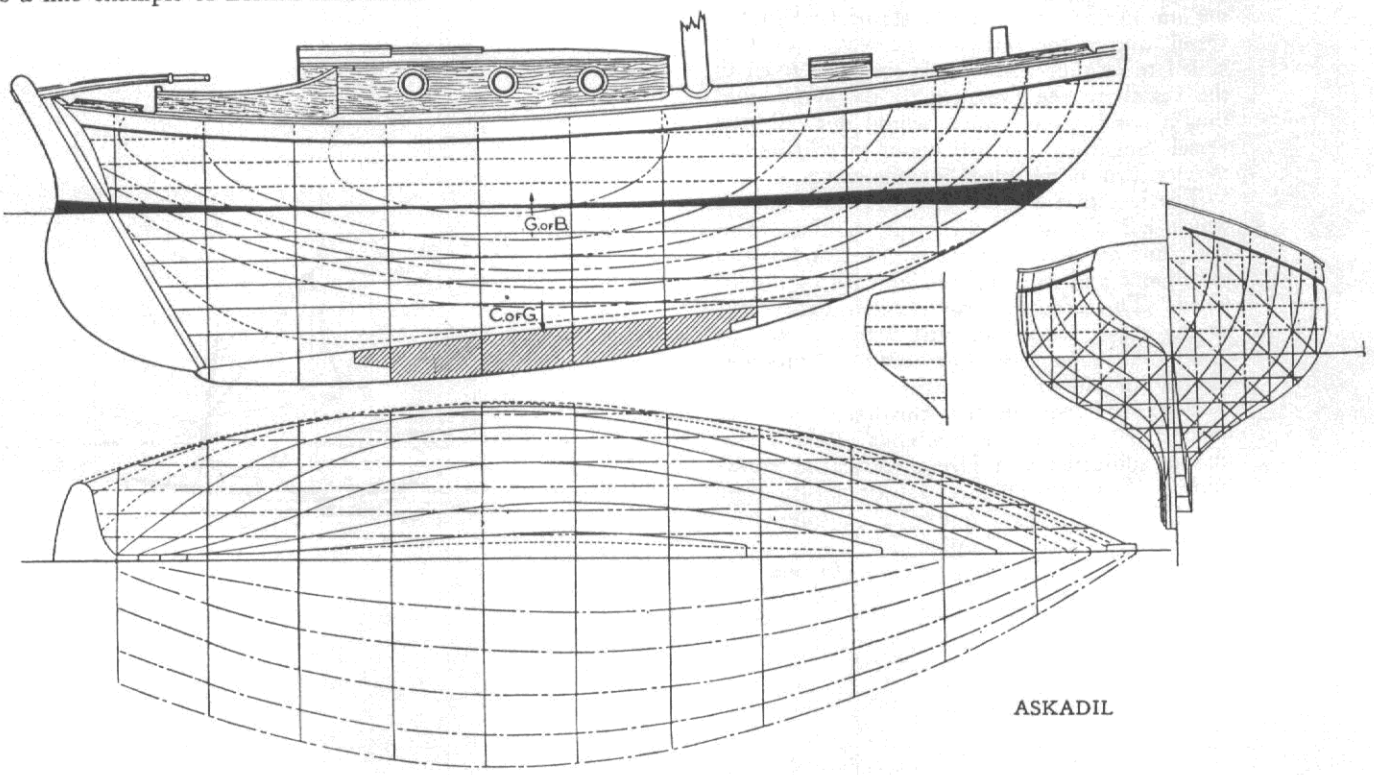
DIMENSIONS OF ASKADIL

L.O.A.	29ft. 6in.
L.W.L.	25ft.
Beam	8ft. 6in.
Draft	4ft. 9in.
Displacement	6.2 tons
T.M.	8 tons
Lead keel	2.3 tons

ASKADIL was designed eleven years ago. The first of her line to be built was Askadil herself, owned by Peter Temple and his partner. She was constructed at Rowhedge, and is a fine example of British craftsmanship. Her original rig was Bermudian cutter, but later Temple cut down the bowsprit to a mere horn, and fitted her with a single headsail. He told me that she went just as well, if not better, although the total sail area was less. I had the opportunity of sailing in her with a fine sailing breeze in the West Solent, and I was impressed with her good balance and comfortable motion. She did a large amount of cruising, and her owners, who are both very experienced yachtsmen, were very pleased with her performance. Another vessel was built to the same design on the north-east coast by an amateur, who was fortunate enough to have the use of a large wood-working plant with modern machinery. This yacht was caught out in a hard gale in the North Sea and ran for shelter to one of the north-east ports, I think it was Whitby, and her owner said that she ran perfectly and never gave him the slightest anxiety. The third Enver was built at Plymouth for Mr. Grassman. He had previously owned a 40-ton Nicholson design, and was greatly impressed by the fact that he did not seem to miss the spacious cabins of his previous yacht. She was built close seamed—a most beautiful job—and he too was very pleased with the behaviour of his new yacht. The fourth, Zingara, was constructed by Moody at Swanwick Shore, and was a splendidly built ship, planked and decked with teak. She was shipped to Canada, and I last heard of her at New York. She was fitted with an Electrolux refrigerator run by a paraffin lamp, which was very heavy



Above. The metacentric curve of Askadil is the same as that of Englyn



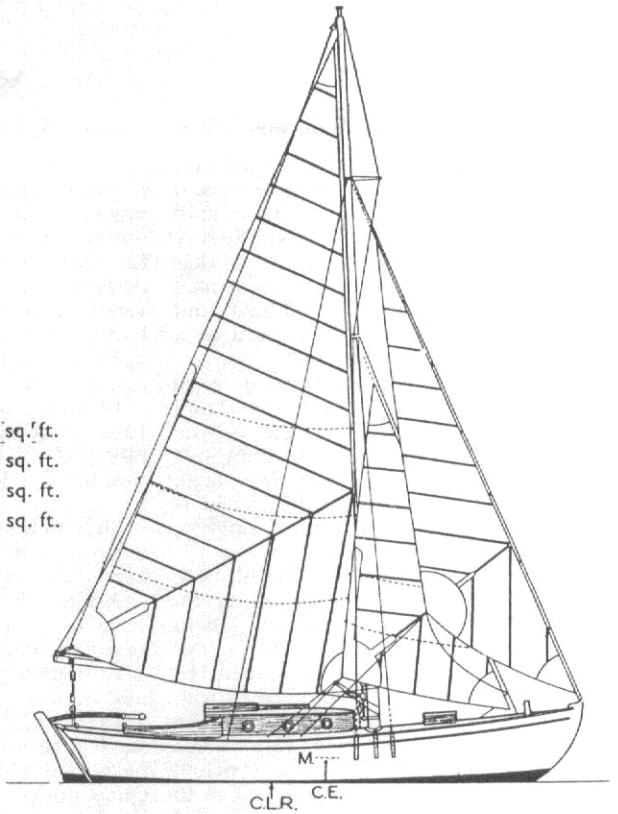
ASKADIL

and Irmiger

by T. HARRISON-BUTLER, A.I.N.A.

IRMIGER

Mainsail	-	300 sq. ft.
Foresail	-	80 sq. ft.
Jib -	-	80 sq. ft.
T.S.A.	-	460 sq. ft.



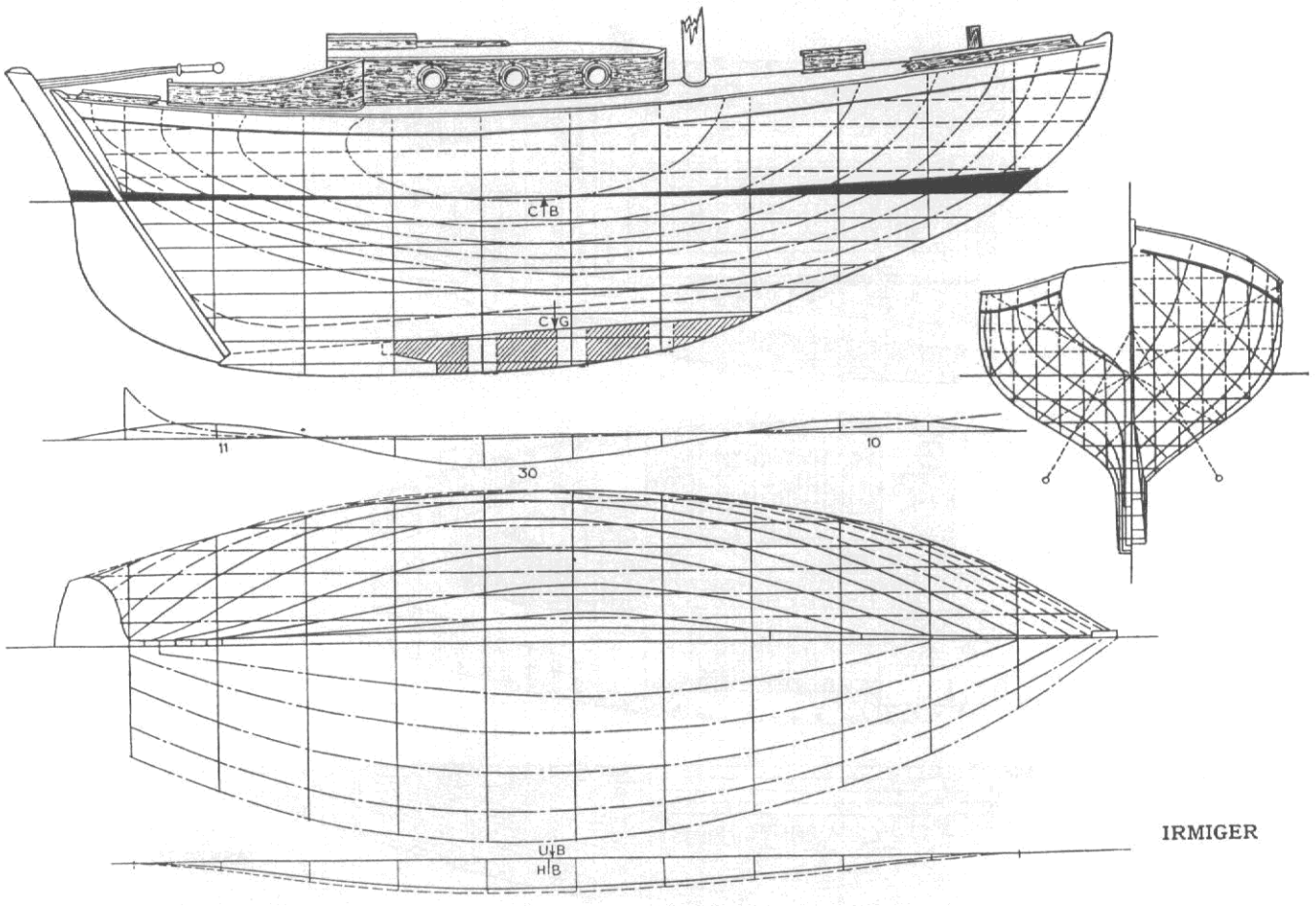
and took up a lot of room in the forecastle, putting her down somewhat by the head. Including a Handy Billy Thornycroft engine the weight of her complete hull was 6 tons, while her gear, including the dinghy, weighed 15 cwt. I went out with her on her trial trip, and thought she seemed to move well, but dense fog came on and we had to return to the Hamble.

The cabin plan, which was not adopted either in Askadil or in Enver, embodies my ideas of a suitable layout gained from experience in Vindilis and other small craft. There is comfortable sleeping accommodation for four, and a fifth can sleep on the cabin sole. In the steerage on the port side there is a hanging locker for oilskins, and a chart table, with lockers behind it and underneath, whilst to starboard there is ample space for the galley. Six feet headroom is provided in the cabin, with good sitting headroom under the wide planksways. I see no reason to modify this plan; it has in my hands stood the test of trial at sea and in harbour.

Zingara was fitted with a separate toilet room opening out of the saloon. This was supposed to supply some kind of privacy; why, I cannot imagine, for an entry from the saloon would be obvious, but one can go into the forecastle for any old purpose. With a separate compartment there would be no isolation for either ear or nose. The current of air in a small yacht is always

DIMENSIONS OF IRMIGER

L.O.A.	30ft.
L.W.L.	25ft.
Beam	8ft. 7in.
Draft	5ft.
Displacement	6.1 tons
Lead keel	2.2 tons
Turner's Stability Factor 20.	



IRMIGER

The Askadils and Irmiger

from aft for'ard, so a sanitary appliance in the forecastle is quite innocuous and as private as anything can be in a small yacht. No, a separate toilet room in any yacht under ten tons is wrong. It takes up the most useful space in the best part of the ship; it is cribbed, cabined, and confined, hard to keep clean, and in a seaway its use is almost impossible.

Although Askadil seemed to have been such a success, I have since tried to improve her, and Irmiger is the result. Irmiger means Gulf Stream, but I have forgotten in what language. The metacentric analysis of Askadil is merely an elongation of that of Englyn, the sections being spaced out 2.5ft. instead of 2.25ft., and is not at all bad, as may be seen from the diagram. Irmiger, including the rudder, has a perfect metacentric analysis, the curve "A" being equal in area to that of the curve "C." It is true that, as shown, $a+c$ does not $=b$, but this would be corrected by a very slight shift of the axis, a mere thickness of a heavy pencil line. I have altered the profile so as to get the lead ballast lower down, and allow her to take the ground more easily. The alterations in the actual lines are very small. The quarters have been fined down a little and the bow swelled out, but the displacement is practically the same, Askadil being 6.2 tons and Irmiger 6.1 tons, a difference of two hundredweight. The stability of Irmiger would be greater than that of Askadil. I have taken note of the fact that Temple found the absence of the bowsprit was not detrimental, so I have adopted the rig of a stemhead cutter. The foresail might be on a boom, but such a sail is not so effective as one with an overlap, for that increases the efficiency of the mainsail to a considerable extent. I would also have a spinnaker, a light balloon jib, and a heavier balloon foresail that could be carried when reaching in fairly strong winds.

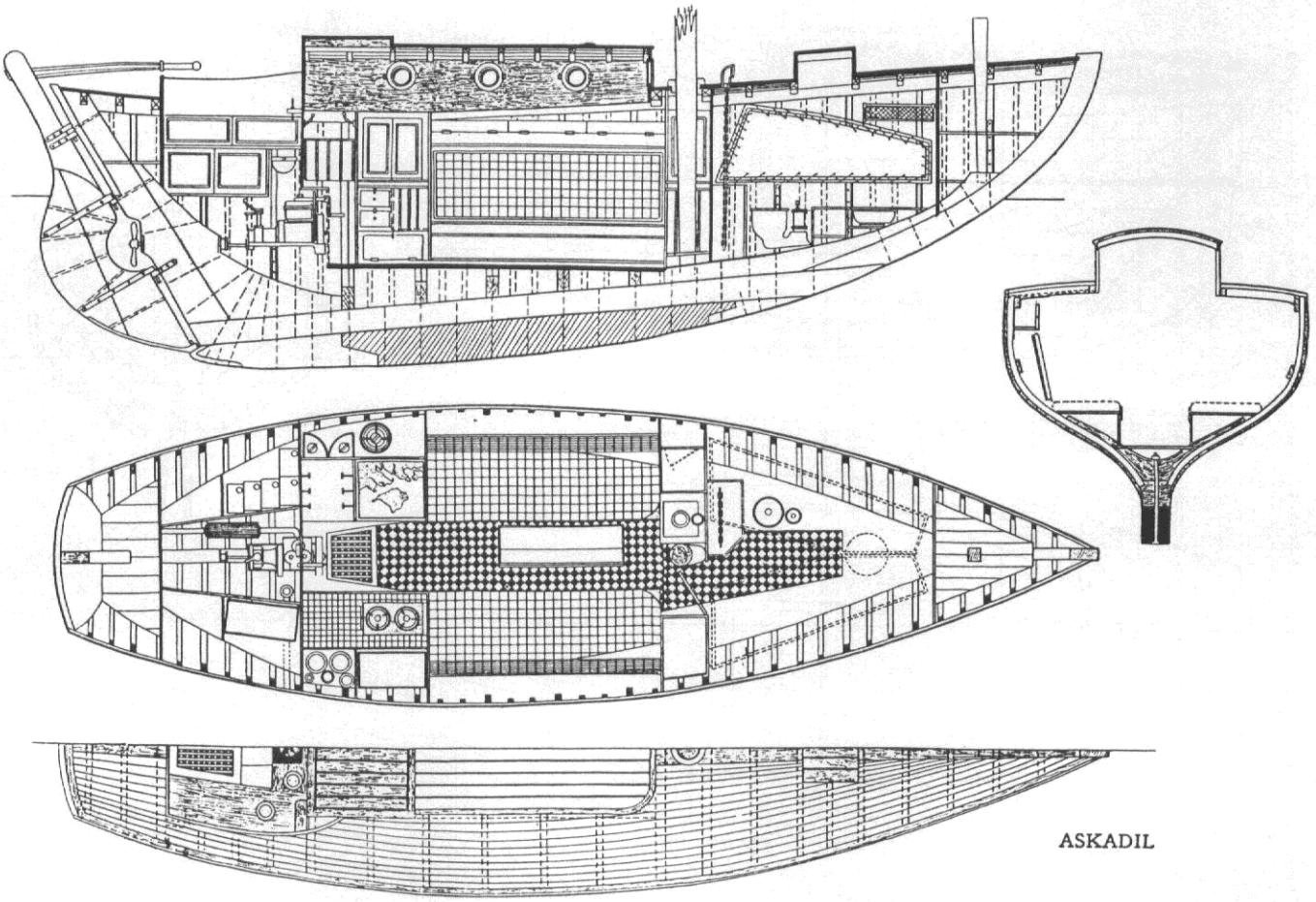
In the *Yachting World* for October, 1942, page 252, Mr. C. A. L. Amary talks of his dreamship Sandboy. I wonder how he would like Irmiger?

Mr. Peter Temple, *who has been serving in the R.N.V.R. for the greater part of the war, comments on Askadil.*

Askadil was built specifically for easy cruising, and the rig, layout, construction and finish were of the kind to give easy handling, comfort for three, tightness and cheapness in upkeep, rather than a dazzling performance. At the same time we wanted a boat that would be a real pleasure to sail. Except in Quay punts and other heavy boats one is always up against the problem of ballast—displacement ratio, but we hoped that as Askadil was an enlargement of a successful design she would have sufficient stability. Actually, with her heavy solid mast and the generous scantlings stipulated, not to mention the interior finish, which was of solid teak, and very beautiful, she needed nearly a ton of lead inside, and were I to build to this or a similar design I should ask the designer to give me six inches more draft and to include this extra weight as part of the lead keel.

Askadil's first season was experimental. She was a lovely little boat to cruise in, never leaked, and never gave us any anxiety—nor have I ever kept so dry. We played about with the sail plan and the ballast and thoroughly enjoyed ourselves, always kept a very good table and got where we wanted, except on the occasion when we left the Solent for Alderney and finished up at Bridport. After these thorough trials we came to the conclusion—and Dr. Butler will probably agree—that Askadil suffered slightly from the common feminine weakness of having small shoulders and a fat behind. So we took steps, reducing the length of her boom by about two feet and giving her a single headsail in place of the original two, on a short, very strong bowsprit. We grovelled once more in the bilge, moved the ballast aft, and had the chain locker brought back to the mast. We then drank several beers, hoisted the Genoa and disappeared in a cloud of spray to the astonishment of the pundits. After this we never reefed the mainsail, and the boat was better balanced and, I think, faster.

Yacht design has advanced since Dr. Butler designed Askadil—he will admit that—but notwithstanding, he provided us with several seasons of the greatest pleasure, sailing, modifying and improving on the original, and whoever has Askadil after the present disagreeable interlude should be well content.



ASKADIL

Askadil in 1997

By PENNY RICHARDSON

It was interesting, on re-reading Peter Temple's original 1934 article in Yachting Monthly, to find how little *'Askadil'* has changed over the past 63 years. We found her in 1976, and bought her just as a beautiful and seaworthy yacht, knowing little of her history or background. Gradually over the years, we discovered more and more about her, but find that it is those same qualities that her original owners praised, that we too appreciate and delight in. It is her seaworthiness and sea kindliness; the feeling of being on a much larger boat; of how beautifully balanced she is - allowing one to leave the helm to go and adjust a sail, or see to some other task; her easy motion; her ability to slip along in the lightest of airs, or to power on through a lop, not to mention her beautiful lines. We took her round the North Atlantic (or should I say, she took us), and wherever we went there was always someone wanting to come aboard and find out more about her. In fact she made us so many friends and contacts, that had we gone in a modern production boat, I'm sure we would never have had such a wonderful time.

***'Askadil'* in Maine, Summer 1981.**

When we bought *'Askadil'*, she had been laid-up in a shed in Ireland for six years. The fact that she was copper sheathed had stopped her drying out too much, and after piecing together the rig, and all the other gear, we brought her back to England. We soon realised that this was a boat in which we could really travel, and so after a couple of months we moved on board, and spent the next three years earning enough money for a cruising fund, and preparing her for the trip. We put in a Volvo MD6A 10 h.p. diesel, for she had no engine, just a lifeboat sweep. The rig had already been altered from the original, first by Peter Temple himself in 1937, to a sloop with a smaller bowsprit, and then eventually to the present Laurent Giles rig, with no bowsprit or bumpkin, and a shorter boom. Standing 42 foot off the deck, this gives her a large sail area, and that speed in light airs. She also has the optional cutter rig with the inner forestay on a Highfield lever, balanced by the runners, to shorten down to as the wind increases. She is fairly tender and usually needs a first reef in a force 4. She still has the original Haslar vane gear, fitted in 1964, which works impeccably in all conditions, and has steered her for many thousands of miles.

Across the Atlantic

Probably the biggest change made to her was by the previous owner, who having sailed her across the Atlantic decked over the cockpit. It must have been very small, as it was not built to the drawings with rounded sides but the coamings were a continuation of the cabin sides running straight aft. This was one of the many points about her that appealed to us. In bad weather, one can keep a watch standing on the engine hatch and still reach the tiller, the sheets, and the Haslar controls. It also has the added bonus of making her much bigger down below, with an after 'cabin' having a double bunk athwartships, removing the need to sleep in the saloon - a bonus when living aboard. She was so comfortable that she became our home for 9 years, with only the birth of our second child sending us ashore, when life really did get a little cramped!

'Askadil' & 'Zingara' in Oxford, Maryland 1981

Down below she still has a two burner Taylor paraffin cooker, and we are on the third Tor Gem stove in the saloon, which burns coal or wood. This kept us warm not only through many an English winter, but also a bitter American one, completely frozen into the ice on the Eastern Shore of Chesapeake Bay, when it was a treat for temperatures outside to rise above freezing. The copper sheathing came into its own here too, protecting the waterline. The galley has been changed a little from the original drawings, probably at the same time as the cockpit, and we have altered the foc'sle periodically to cope with the changing demands of growing children. With the smallest of the three now well over five foot a certain amount of ingenuity is called for in the slotting in of interleaving pipe cots.

Life on Board

Before leaving on our '79 cruise, we installed electric cabin and navigation lights, replaced keelbolts and stem fastenings, renewed wasted iron floors, replaced sails, standing and running rigging and just generally worked our way through the thousand and one other things necessary before leaving on a voyage. Life on board was basic, with just a Walker log, hand-bearing compass, Seafix RDF, sextant and leadline for navigation; a single hand pump for fresh water, two manual bilge pumps, and the trusty Baby Blake; but even in the early eighties, we did notice how much time we had for sailing instead of sitting in harbour fixing equipment.

Sistership 'Zingara'

We did a circuit of the Atlantic, starting via Spain, Madeira, and the Canaries, had a fast 21 day crossing to Barbados, spent the winter in the Caribbean, on up to Bermuda, and worked for the summer in Newport, Rhode Island. We wintered in the Chesapeake, where we were delighted to meet up with *'Askadil's* sistership *'Zingara'*, before heading back up (or rather 'down east') to New England, Maine and Nova Scotia. We then retraced our steps to the Chesapeake, and after fitting a depth sounder, took the Intracoastal Waterway down to Ft. Lauderdale, where we replenished the coffers to provide for the birth of our daughter. The following summer, when she was nearly one, we set off home via Bermuda, Flores and Horta. We then had another couple of years aboard before finally moving ashore in 1985.

By the late eighties, the deck leaks were getting the better of us, and we removed the very thin layer of teak, and the calico, and found that the pine beneath was still sound. This was covered with ply bedded in a non-hardening sealant, and then a swept teak deck was laid on top. It was wonderful no longer having to live out of plastic bags.

Bruce Ray aboard 'Zingara'

Over the past few years we have found that the demands of a small business, an elderly house, and a growing family with diverging interests have meant that we have sometimes not used *'Askadil'* as much as we would have liked.

However, the fact that we have kept her for 21 years is, I think, a tribute to her many wonderful qualities. She has indeed become part of the family, and whether crossing oceans or just crossing the Solent, she really has proved herself to be a perfect boat for us.

* *

MOON WEATHER SIGNS.

SIR,—When turning over some old papers I dropped across a table which appears to me so interesting that I venture to submit it to your notice in case you might think it worthy of laying before the readers of the *Yachting Monthly*. It shows what sort of weather may be expected to follow the entrance of the moon into any of her quarters.

In conjunction with this table it should be noted that the nearer the time of the Moon's change, first quarter, full, and last quarter to "midnight," the fairer will be the weather during the seven days following.

The nearer to "mid-day" these phases happen the more foul or wet the weather may be expected in the next seven days.

The phases happening from four to ten in the afternoon may be followed by fair weather, but this mostly depends upon the wind.

If a storm arises from the East on or immediately preceeding the time of the Spring Equinox, or from any point of the compass near a week after, then, in either of these cases, the succeeding summer is dry, four times out of five; but if a storm arises from the S.W., or W.S.W., on or just before the Spring Equinox then the summer following is wet five times out of six.

If New Moon—First Quarter—Full Moon or Last Quarter happens.

Time of Change.	In Summer.	In Winter.
Between midnight and 2 in the morning	Fair	Hard frost unless the wind be S. or W.
Between 2 and 4 ditto ...	Cold, with frequent showers	Snow and stormy.
,, 4 and 6 ditto ...	Rain	Rain.
,, 6 and 8 ditto ...	Rain and wind	Stormy.
,, 8 and 10 ditto	Changeable	Cold Rain, if the wind be W., snow if E.
,, 10 and 12 ditto	Frequent showers	Cold and high wind.
At 12 o'clock at noon and to 2 p.m.	Very rainy	Snow or rain.
Between 2 and 4 p.m. ...	Changeable	Fair and mild.
,, 4 to 6 p.m. ...	Fair	Fair.
,, 6 and 8 p.m. ...	Fair, if the wind N.W.	Fair and frosty if N. or N.E.
	Rainy, if S. or S.W. ...	Rain or snow if S. or S.W.
,, 8 and 10 p.m. ...	As from 6 to 8 p.m. ...	As from 6 to 8 p.m.
,, 10 and 12 midnight	Fair	Fair and frosty.

P. DAWSON-ECHLIN.

Claud Worth as a Yacht Designer

BY

T. HARRISON BUTLER

THE LATE CLAUD WORTH

It is now over thirty years since I first met the late Claud Worth at the Royal London Ophthalmic Hospital. He had completed his pioneer work on the treatment of squinting children which gave him an international reputation. I had returned from work in the East, where I had found his book of the greatest value, and I was naturally most interested to meet the author.

I had not associated him with yachting, but we and his sailing partner, Devereux Marshall, soon found that we had not only a common profession but identical interests. I was asked to sail on Maud, and any practical knowledge that I possess began with the lessons that I learnt from Worth and Marshall. No one could have better teachers, nor better friends. Devereux Marshall died in India during the war, but my friendship with Worth ended only with his death.

Worth's exhaustive knowledge about everything connected with yachting is well known. His books are on the shelves of every yachtsman; for years we have all turned to him for advice, and it was never refused and always valuable.

It is, however, not fully realized that he was a real authority on yacht form, and that he designed three first-class yachts. I think that few realize that his ideas were thoroughly up-to-date, and that he was not wedded to the old-fashioned type to the utter exclusion of the modern. Only a few months before his death I had a most interesting correspondence with him upon recent designs, and upon the effect of modern yachts upon seamanship. I put it definitely to him that the yachts of today had to be handled differently from that of yesterday.

I asked him specifically, thinking that my question would be to him the rankest heresy: "Do you not think that a modern fine-lined yacht, with a fully-balanced hull, should run before a gale, given, of course, sea-room, rather than be hove-to?" I cited the fact that Yankee, in her voyage across the Atlantic, had not only run before a 60-mile-an-hour gale, but had actually logged over 200 miles during the 24 hours, while at the same time the big schooner Atlantic had to heave-to and had her bulwarks carried away. I also mentioned that Mr. Crankshaw had told me that his Noreen ran with perfect ease and safety down Channel before a gale. A child, he said, could have steered her all the time.

To my utter astonishment, Worth agreed with me that probably such vessels could run with safety because their fine lines did not make eddies round the stern which disturbed the stability of following waves and caused them to break.

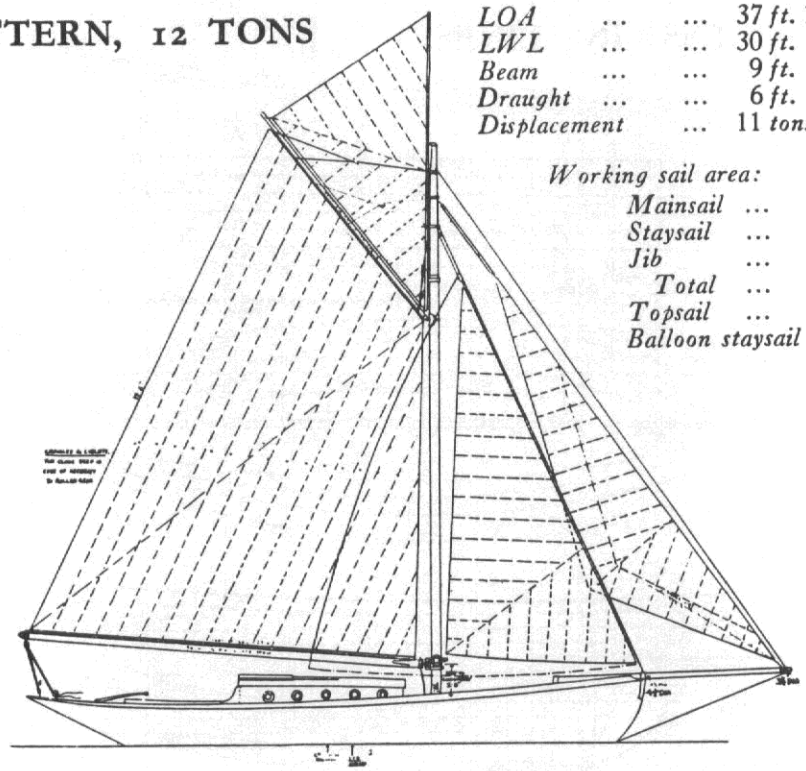
We had some correspondence about the yachts that won the prizes in the recent YACHTING MONTHLY Competition for an auxiliary 30 ft. on the LWL. Worth was of the opinion that any of these three yachts would make perfect cruisers for the ordinary business of going down Channel and putting into a port if possible every night. He thought that they would give more interesting sailing than one would get from the older type. But he added that he did not think that this class of yacht was suitable for cruising down the West Coast of France when a night or two might have to be spent at sea, because he said they would tire their crews. For this class of cruising he considered that other forms were more suitable.

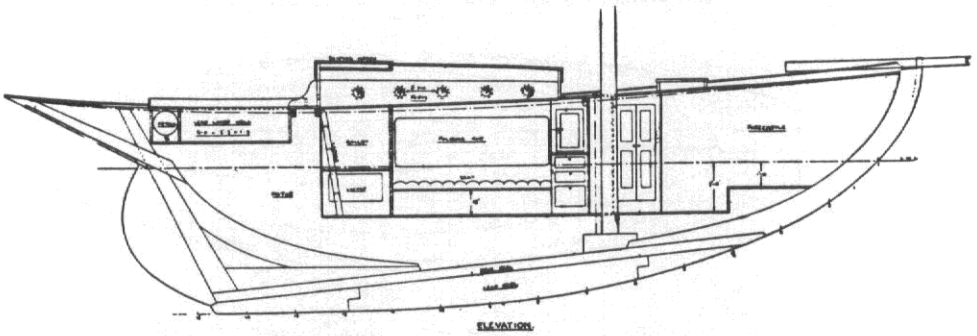
BITTERN, 12 TONS

LOA	... ...	37 *ft.* 11 *in.*
LWL	... ...	30 *ft.*
Beam	... ...	9 *ft.* 4 *in.*
Draught	... ...	6 *ft.*
Displacement	...	11 *tons*

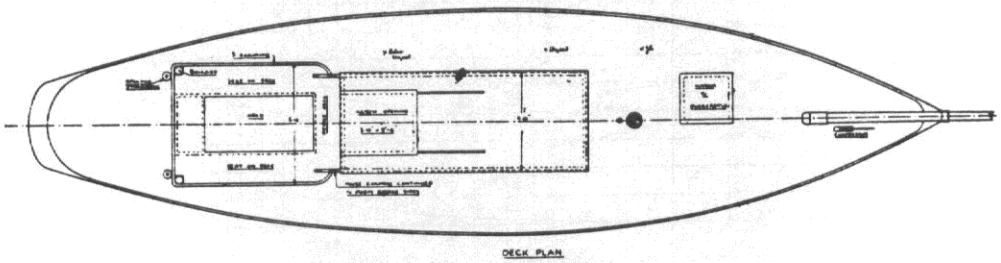
Working sail area:

Mainsail	...	464 *sq. ft.*
Staysail	...	128 *sq. ft.*
Jib	...	93 *sq. ft.*
Total	...	685 *sq. ft.*
Topsail	...	83 *sq. ft.*
Balloon staysail		240 *sq. ft.*

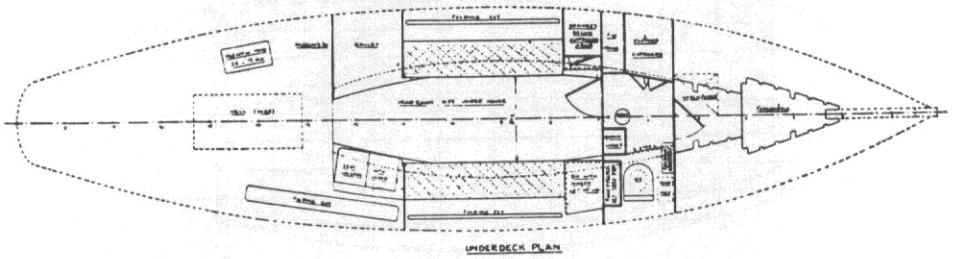




ELEVATION

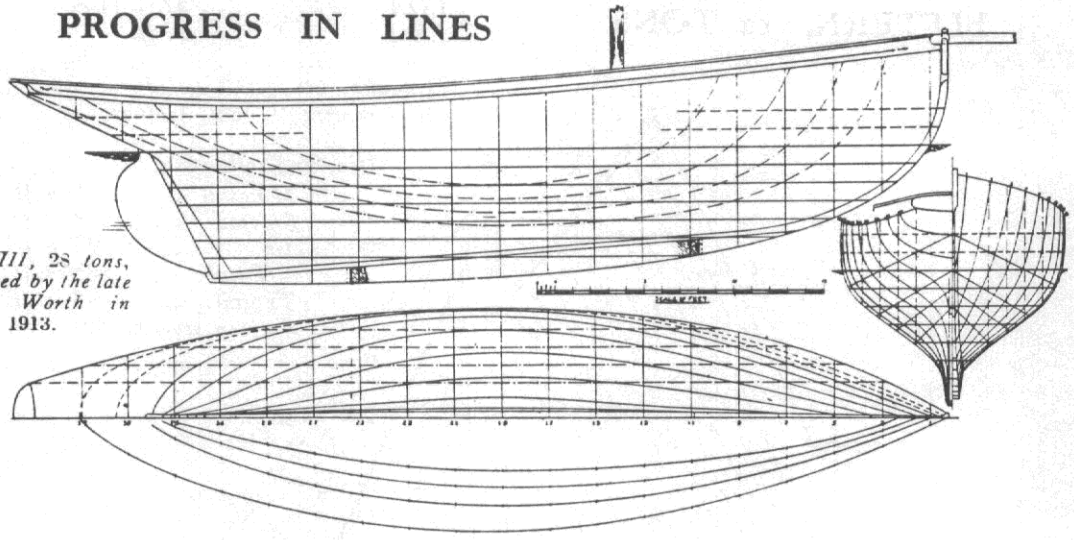


DECK PLAN

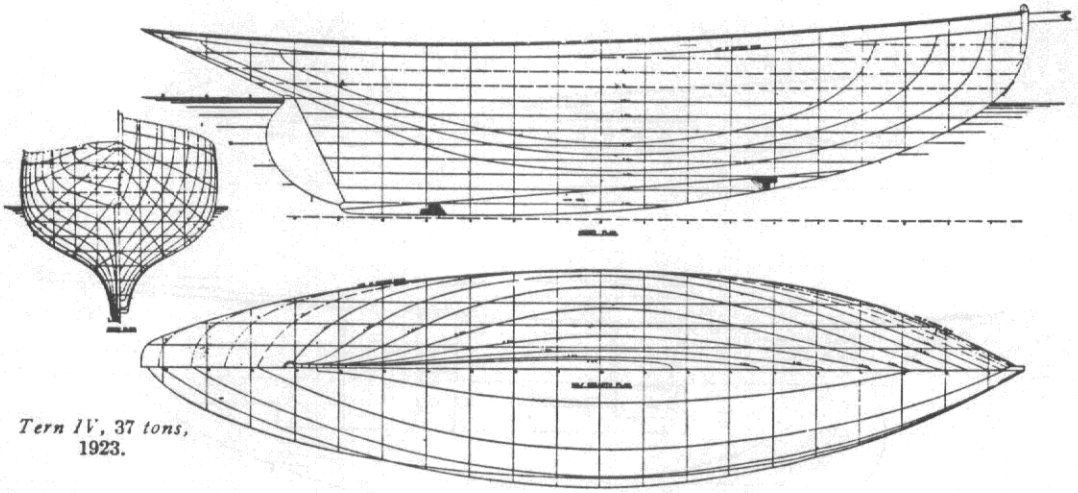


UNDERDECK PLAN

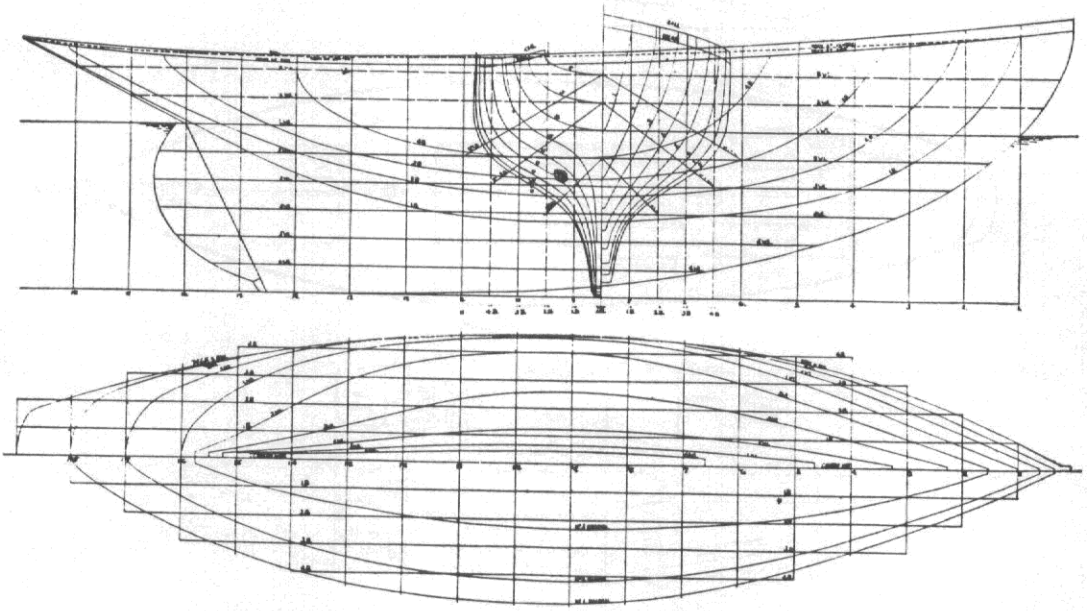
PROGRESS IN LINES



Tern III, 28 *tons*, *designed by the late Claud Worth in* 1913.



Tern IV, 37 *tons*, 1923.



Bittern, 12 *tons*, 1936, *Claud Worth's last design.*

I only wish that he could have sailed on a metacentroid yacht like Mystery (trials of which were described last month). I would have been most fascinating to know what his reactions would have been. Probably - nay, almost certainly - the tiring effect of the modern yacht is simply a factor of speed, and that if they are snugged down so that to windward they go as slowly in proportion to their size as the older type they would be just as comfortable.

During last summer Worth was forced to undergo a serious abdominal operation. During his convalescence, which, alas! was not complete, he finished a design for his nephew, Tom Hovenden Worth, a cruising yacht which one assumes represents the culmination of the experience of a life-time. The final details were worked out on a small drawing board entirely in bed.

Prize Winners

Bittern represents the work of the last year of Worth's life. I told him that to me she suggested Tern II brought up to date, but he said that the lines of Tern II had not been considered at all. The fact that the load waterline is 30 ft. is most interesting, for it enables a comparison to be made with the designs sent in for the 30 ft. LWL Competition and published in the March and April numbers.

As one of the judges, I may say at once that I am sure that both my colleague and myself would have thrown Bittern out at once, but this does not mean that she is not as good, and she may even be better than either of the prize-winners. It may be that, as Worth opined, she may be better for long cruises, whereas the prize-winners are better for coastal work.

One might look at the lines and say: "She is not well balanced, her afterbody is too full, her forebody too fine." This may be so, but it is a fact that there are some yachts of the modern racing type that pull like horses, and have no actual balance at all, and that there are many old fishing boats with fine bows and broad sterns that balance perfectly, at any rate under gaff sails. As a matter of fact Bittern has been direct from Helford to Corunna and back, and Mr. Tom Worth tells me that she is most comfortable, an able seaboat, and that she balances exceedingly well.

Scale Drawings

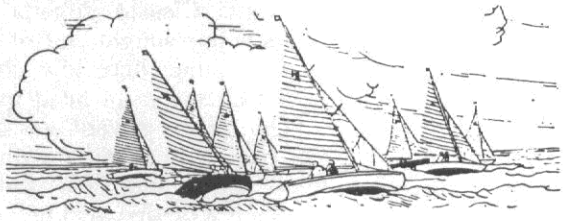
Fortunately I preserved a letter from Worth in which he described Bittern, and I propose to quote from It: "Bittern, 11 ton cutter, is being built by Mitchell (G.P.), of Port Mellon, Mevagissey, Cornwall. The man is an artist. Everything is being done like cabinet work, the type that is produced only by the best firms on the Solent. I have prepared scale drawings of every bit of metal work, so it has taken me a long time. Reefing gear is as in Tern II and IV, and is being made by Atkey, of Cowes. All other iron and bronze work is being made in Glasgow. Rudder stock in bronze, working in a brass trunk. Hanging knees, breast hooks and chain plates are in bronze. The cost is not much more than in galvanized iron. (In this connection I can give definite figures. Vindilis had iron floors. Her successor, Lindy II, had metal floors, at an extra cost of £8 10s.). The spars are being made by the Berthon Boat Co. A liberal mainsail area, but the roller gear works so smoothly that it is as easy to handle as a smaller area would be. Fixed gallows like the Terns had, 7 h.p. Kelvin, with folding propeller under the quarter, with clutch but no reverse. A gap in the rudder makes no appreciable difference in a vessel the size of Tern IV, but *it completely spoils the performance of a little boat,* as I found in my day-boat Swift. Reduction in a small boat is a mistake: better lose just a little in propeller efficiency than drag a double-sized propeller. There are certain errors in the drawings. I was not feeling well enough to do the tracings, and got an ordinary mechanical draughtsman to do them. He had never seen boat drawings but worked accurately without understanding the meaning of things."

Readers will be able to see the amazing amount of work that the drawings demanded; and when it is realized that they were made by a man virtually on his death-bed, they are beyond praise.

Perfect Masterpiece

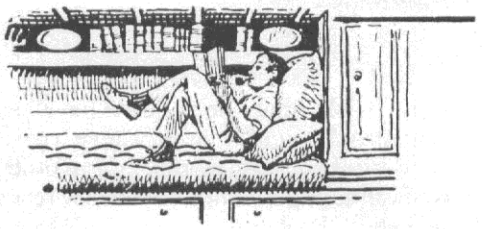
Some years ago, shortly before the war, I was staying with Worth, and he showed me his original drawings of Tern III. He said: "I am no draughtsman, and I shall get Strange to put them into shape for building." As a matter of fact any good loftsman could have laid the yacht out from Worth's rough drawings with little alteration. They needed only a little fairing up here and there. Tern IV was entirely Worth's own work, and she is probably one of the finest designs of her size ever built. Her midship section is a perfect masterpiece - exactly what it should be. Tern IV's behaviour at sea is sufficient proof of the perfection of her design and ballasting.

Both these yachts are well known and have been fully described in *Yacht Cruising* and in *Yacht Navigation and Voyaging.*



Extract from Yachting Monthly, October 1936.

More Thoughts of an Ex-Editor



There is a fine colour photograph of CORA A, built to the Englyn design, on the cover of the June issue of P.B.O. She is close hauled on the starboard tack, heeling towards the photographer who was abeam to leeward.

The first thing I noticed was the clear decks. No pulpit or guardrails. When I started cruising in the 40's these safety features were rare. Now they are inevitable but I sometimes wonder about some of their disadvantages. Some years ago in Weymouth a chartered example of a well known mass produced family cruiser came alongside us going too fast. In an attempt to protect our topsides I applied pressure to one of their stanchions. It bent and then it's socket parted company with the deck. What would have happened if a heavy yachtie had fallen on the guardrails at sea?

Another serious problem is that while guardrails are supposed to prevent people going overboard, and are usually effective, they can be a hindrance to recovering someone from the water. Even if there is an opening it may not be in the best position if you are using a tackle secured somewhere up the mast.

In the old days maybe the lack of guardrails made us hang on more carefully. Certainly changing a headsail at night when it was blowing a bit with only the forestay to hang on to was a character building experience.

The toerails on CORA A are unusual and no doubt if you drop a shackle pin it will roll straight overboard. On the other hand they would be more economical to fabricate and easier to maintain. I have always found it difficult to persuade varnish to stay firmly attached to the traditional toerail. Moisture seems to creep up from the deck no matter how carefully you prepare the surface. A possible solution, somewhat drastic, would be to take the rail up, chamfer a tiny radius on both sides of the edge mating with the deck, varnish 8 coats all over and refit well bedded in your favourite gunge.

Where is CORA A's anchor stowed? Maybe as she is competing in the Antigua Classic Regatta the owner has decided to keep the weight out of the bows and lodged the hook somewhere low down below decks. Does 35lbs on the stem head make that much difference? One of the advantages of a bowsprit is that a CQR can fit in a roller with its shank alongside the 'sprit and is always immediately available. Such a device also helps to keep the chain from grinding the topsides when the wind is against the tide.

If CORA A were mine I would be very tempted to cut a couple of feet off the end of the boom so as to be able to fit twin standing backstays to the quarters. It is unlikely that the small loss of area would affect her speed.

A very thought provoking picture.

The last few years has seen a considerable increase in the number of Universities and in the range of subjects in which degrees are awarded. For instance, according to an advertisement currently in the yachting press, it is now possible to study for a BA (Hons) in Maritime Leisure Management - whatever that may be - taught in English, in Alicante, Spain. The course is validated by Nottingham Trent University.

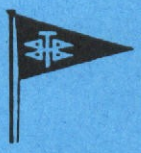
Possibly one of these recent seats of learning, while casting round for new, politically correct, subjects might consider awarding a BSc in Nautical Gophering. The syllabus would be modular and contain some practical work experience ranging from the easy 'go for six No.8 Brass Countersunk Woodscrews' to the more difficult 'describe how you would locate a new nipple for a Primus Pressure Lantern manufactured in 1936'.

Visiting lecturers could be found from among the owners of the various second-hand chandlery emporia and I would be happy to accept the position of Gopher Emeritus in Residence having recently located a brand new water cooled exhaust manifold for an engine that has been out of production for more than 25 years.

Many owners of wooden boats do their own repairs. One of the essentials for making a good job is to have sharp tools. For years chisels and plane blades were sharpened on Carborundum Stones. It was a long slow process. Now there are other alternatives, Diamond Sharpening Systems, Ceramic Stones and Japanese Waterstones. These latter are both reasonable in cost and very fast cutting in use. Their only disadvantage is that they can quickly develop a hollow. This can be removed by rubbing on a sheet of say 120 Wet & Dry stuck to a piece of plate glass at least a quarter of an inch thick.

For a really sharp tool I recommend using a 1000 grit stone to produce the edge and a 6000 grit to polish it. If your local DIY store does not have them in stock try Axminster Power Tool Centre, Chard Street, Axminster, Devon, EX13 5DZ. Their mail order catalogue is a feast of temptation and prices are attractive.

LOOSE ENDS



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21' 9" x 19' W.L. x 4' 4"
Pitch-pine on oak. 2 berths and 2 pipecots
Stuart Turner 8 h.p. aux. Richardson sails
Apply to owner.
Lying: Emsworth (01273 401076)

'KELANA' Z4 Tonner 1939
21' 7" x 19' W.L. x 4' 4"
Pitch-pine on oak. 2 berths. Brydon Heads
Taylors heater. Interior refitted
1990 Yanmar 9 h.p. aux. Five sails
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'DESTINA' Yonne design 1933
26' 4" x 22' W.L. x 8' 5" x 4' 5" 6.5 T.M.
Larch on oak, teak brightwork, teak laid decks
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EVENTS DIARY

19 - 20 July	20th THAMES TRADITIONAL BOAT RALLY
2 - 3 August	PLYMOUTH CLASSIC BOAT RALLY
2 - 9 August	COWES WEEK
6 - 7 August	FOWEY CLASSICS
9 - 10 August	FALMOUTH CLASSICS
13 - 17 August	Y.M. CLASSIC YACHT RALLY, COWES
28 - 30 August	DARTMOUTH REGATTA
29 - 31 August	SOLENT O.G.A. RALLY
17th September	H.B.A. LAYING-UP-SUPPER, WOODBRIDGE (separate notice enclosed)