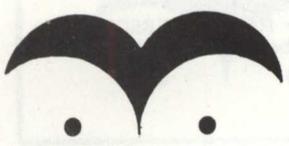
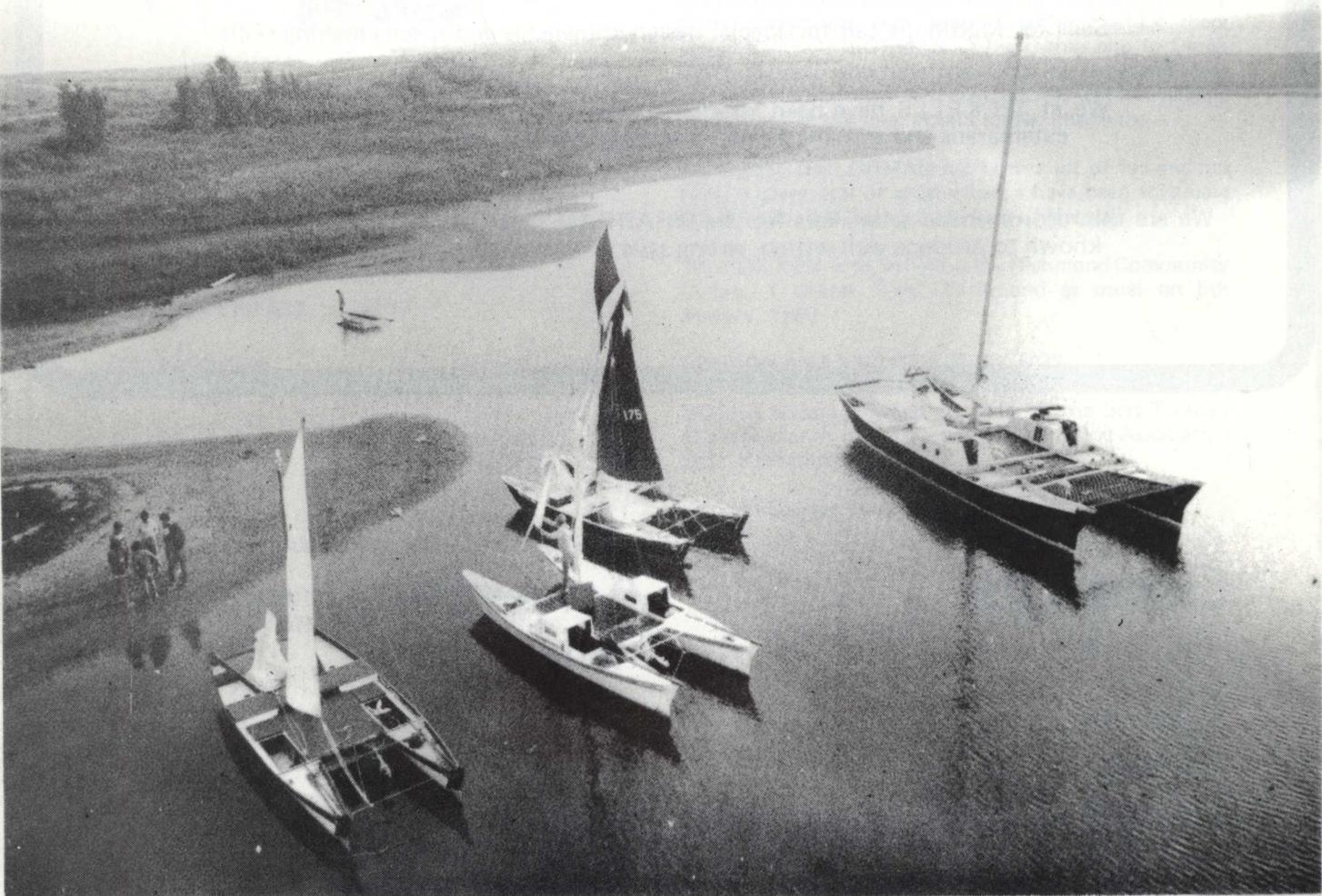


THE

SAILORMAN



DECEMBER 1979

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Contents

A Word In Your Ear	3
Jim's Column	4
Dolphin Survey Project	5
Association News	6
Over Which Horizon Did You Sail	8
Woodworking Methods	10
The Boat Yard	12
Polycats In Canals	15
Self Steering	16
Sheathing a Plywood Hull	18

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COVER PHOTO: LAKE ONTARIO SAIL-IN 18-19 August, 1979. Taken from PYXIS' main mast by ROLY HUEBSCH. Left to Right: Hina CARIAD Ernie Heard : Hinemoa MANIRIKI Alf Hickson : Hina HUAHEINE Roly Huebsch : Raka LANAO Harry Ellis.

THE SAILORMAN



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A word in your ear

Although this is the last time I shall be editing the SAILORMAN, I hope that it won't be the last time I shall be writing in this magazine. When I started as Editor I couldn't type a word, consequently it took me a week to complete one page of the SAILORMAN! You are lucky you ever got a magazine! The SAILORMAN in its present format was produced in an effort to push it to the forefront of Association journals. In this, I hope we have succeeded. When I say we, I mean the PCA — the members who write the material. To you I must say many thanks for your support without which there would be no SAILORMAN. A big thanks also to Derek Smith Printers who have translated my copy and ideas into a fine production. Whether finances will be available to continue in this line, I don't know. I hope so.

Editing the SAILORMAN has been a lot of fun and has given a great deal of satisfaction. I have been fortunate in having the full support and help of Maggie.

The PCA AGM is to be held at the Richmond Community Centre, 4 Sheen Road, Richmond as usual on 5th January, 1980.

LONDON AREA WINTER MEETINGS

PCA members are invited to attend the PCA/AYRS/MOCRA meetings which are held on the first Tuesday of every month in the winter in the Cruising Association at St. Katherine's Dock.

Fair winds — see you on the briny.

Richard Bumpus

**STOP
PRESS**

Multihull Symposium

30 MAY — 1 JUNE

The venue for this is likely to be at the School of Maritime Studies, Plymouth, Devon, and will be held in conjunction with the Continental Hotel.

The previous weekend sees the finish of the Crystal Trophy Race at Plymouth.

The following weekend, 7 June, sees the start of the Observer Single Handed Transatlantic Race from Plymouth.

It is to be hoped anyone who is anyone in multihulls will be in Plymouth around this time. For details, watch the Yachting press. This symposium is being organised by the Multihull Offshore Cruising and Racing Association.



The journal of

THE POLYNESIAN CATAMARAN ASSOCIATION





It is good to be writing for The Sailorman again, and to hell with the problems of organising our land base!

The news, the really exciting news, is that the P.C.A., and the magazine, "The Sailorman", is doing more than supporting our multihulls; (and other multihulls, with its support of the A.Y.R.S. and M.O.C.R.A.); it is providing impetus to new ways of thinking, progress and development, in this changing world we live in today.

Wade Doak, the gifted New Zealand interspecies dolphin/man communicator, has received, as a result of his article in the last Sailorman, a world-wide response from Polynesian Catamaran owners. A particularly fortunate one is another RAKA owner, Terry Johnson, of Florida, and it will be interesting to see if the dolphins of Florida area make a quick response to someone communicating from a "RAKA", (the same design as Wade Doak's), implying that Inter-Ocean dolphin communications do exist.

Certainly in New Zealand waters, it appears that as a result of Wade and Jan Doak's work, Wharram catamarans are getting special, enthusiastic response/greetings from dolphins.

After struggling with his own resources, Wade and Jan Doak are now getting a certain amount of government backing. Essentially the whole idea behind the project is, in Wade's words:

"Scientists have to quit working with captive cetaceans in an objective and arrogant mode and start approaching them on respectful terms. Project Interlock should be able to demonstrate how rewarding this can be."

After all, how would you, the reader, feel if the dolphins captured you, killing several of your family in the process, stuck you in a cage and prodded you to explore your responses.

We are also in correspondence with Dr. Horace Dobbs, author of "Follow a Wild Dolphin", and Founder of "International Dolphin Watch"; a programme to increase knowledge and understanding of dolphins — address: International Dolphin Watch, North Ferriby, Humberside HU14 3ET. (He is also in contact with Wade and Jan Doak).

Wade Doak and Horace Dobbs both report that dolphins seem to communicate better with females and young people.

Here is a fascinating worthwhile project for all our members, whether weekend sailing, holiday cruising, or ocean cruising.

In November 1977, the beautiful American yacht magazine, "Wooden Boat", opened an unusual design competition, which they introduced in the following way:

"We have entered an era of change. One of the greatest challenges of our time is to predict in what ways and to what degree the future will be different, and to plan our lives accordingly. There are some central themes, all of which will dominate our day-to-day decision making for many years to come. Rapid population growth, the depletion of our fossil fuel resources coupled with rising demands for energy, an increasingly threatened environment, and the resulting massive increases in the cost of living all effect us profoundly, and surely effect our attitudes toward our boats."

"It is an exciting time to live. Through our creative energy we can help shape the changes which must occur. If we are thoughtful and imaginative, we can take advantage of the pressures on our culture by helping it to evolve into something more beautiful and fulfilling, rather than just more harsh and demanding. The experts tell us that without taking actions which promise eventual environmental disaster, we must expect our standard of living, as measured by traditional means, to decline gradually throughout our lives, and the lives of our children. Clearly, if we are to build a bright and lasting future, we must re-evaluate our standards and decide again what really constitutes a Good Life."

"There is a way of life to be found with the sea. For many of us it is just too precious to be sacrificed along with some of the other luxuries we must learn to do without. To find and keep this Good Life with its many profound rewards, we have to come up with a different kind of yacht. We are looking for three very different sorts of designs, which we hope will meet and merge with our Dream of a new relationship between people, ships, and the sea. The three categories of the competition are:

Category I : Minimum Cruiser for One Person;
Category II : Liveboard Cruiser for One Family;
Category III : Waterborne Intentional Community."

Based on our designs, the type of personalities that successfully sail our boats, and the knowledge of what Polynesian Catamaran owners are doing in various parts of the world, I entered a 60 ft. design in Category III, and to our surprise, received not just a mentioned, but actually won the competition!

I would like members of the P.C.A. to think it was not J.W.A. who have won the competition, but "we" the P.C.A. For "WE" have done more pioneering along sea self-sufficiency lines than any other equivalent group of yachtsmen in the world. Judging from the response coming from "Wooden Boat" readers, it seems that "WE" will go on doing so.

In running an organisation like the P.C.A., and J.W.A.'s design office, there is a great deal of slog, boring paperwork, and routine bottom-thickening committee work to do. It is the knowledge of the activities of the "Wade Doak's", the "Self Sufficiency people", the happy voyages made, both short and long, that make it all bearable.

There is an analogy. It is like building your boat; the committee work/office work is the dull slog, while communication with dolphins/trying to create new lifestyles, is like the pleasure of sailing the finished boat.

Living in Ireland, or living ashore, for the last 3 years, has been, after living on catamarans for 27 years, a traumatic experience. I use the word in its full sense. It's not been helped by receiving letters from people happily and successfully sailing our boats in all parts of the world — the temptation to throw everything up and take to the flowing sea road has been over-whelming! If moving onto the land has been so hard for ourselves, I wonder if some people have equal difficulties in moving on to a boat and out to the seas? We are planning to use this Irish Base so we can help people who are moving off the land on to boat living; and they can help us to get back to the seas.



Robin Fautley has been keen, and rightly so, on getting professionally built fibreglass hulls, part finished for quicker builder completion. We must confess, after more than one unpleasant experience of people who failed to live up to their promises of being professional builders, we have dragged our feet over this.

Fortunately, this year, we had a successful experience. Steve Turner, an ORO builder, (who has done other boat building work), gathered a group of self-employed people around him, and successfully built a NARAI MK. IV. for a Dutch owner. It can be done, suitably hedged with legal guarantees and goodwill with all concerned.

Finally, it is with sadness that I note Richard and Maggie Bumpus, are giving up "The Sailorman", after 5 hard, but very successful, years. There are various compliments that landsmen hand around at times like this; I will conclude by saying that having known Richard during this time, I would be happy to sail with him as his crew anywhere in the world, or have Richard sail as one of my crew with me anywhere in the world!



Dolphin Survey Project

International Dolphin Watch is a broad-based programme to increase our knowledge of dolphins. The Dolphin Survey Project is part of that programme.

There is evidence that the number of dolphins and porpoises in the seas of the world are declining. But it is impossible to prove this is happening because we know so little about their populations and movements. The Dolphin Survey Project has been set-up to provide a base-line of information against which changes can be measured and will provide vital information on the effectiveness of any conservation measures that are taken.

We propose to gather the information from as many sources as possible, in much the same way that the migratory habits of birds have been elucidated from the collective observations of bird watchers throughout the world. Our task is much more difficult. As a first step we have prepared this broadsheet which portrays most of the members of the dolphin family likely to be encountered around the British Isles.

At present positive, reliable information on dolphins in the wild is so scarce that we cannot even sketch their basic patterns of movement and distribution. Data on dolphins around the British Isles is particularly lacking.

We appreciate that it is usually impossible to be absolutely sure of the precise species of a dolphin when it is spotted at sea unless it has the very characteristic size and features such as those of the killer whale. So we do not expect exact identification, unless the observer is very lucky. The most important information we need at this stage is when and where dolphins and porpoises occur, together with an indication of the approximate size and an estimate of the numbers seen.

Other details such as notes on whether there were juveniles present and if the dolphins appeared to travel in family units, the direction in which they were heading, the apparent formation of patterns within the group, whether they were playing and jumping or associating with boats etc. will obviously add to the value of the sighting if such information can be provided.

CAN YOU HELP?

If you can help then please send concise details of your observations, as soon as possible after the sighting to:-

Mr. D.A. McBrearty, M.A.,
Dolphin Survey Project,
Department of Anatomy,
University of Cambridge,
Downing Street,
Cambridge, CB2 3DY.

Please indicate your name and address, or vessel. If possible please also include a telephone number via which you can be contacted.

The carcasses of dead dolphins are urgently required for identification and research. So if you encounter a dead dolphin or porpoise please immediately telephone Mr. McBrearty on Cambridge (code 0223) 68665 during the day, or Cambridge (code 0223) 68398 at night.

R.J. Harrison
D.A. McBrearty
H.E. Dobbs

Professor R.J. Harrison, M.D., D.Sc., F.R.C., who is Professor of Anatomy at the University of Cambridge has received world-wide acclaim for his studies on dolphins. In addition to many scientific papers he is the co-author of a book entitled: "Marine Mammals" published by Hutchinson University Library.

Mr. D.A. McBrearty, M.A., assists Professor Harrison with his studies of marine mammals in the Department of Anatomy at the University of Cambridge.

Dr. H.E. Dobbs, B.Sc., Ph.D. had a successful career in medical and veterinary research until a chance meeting with a wild dolphin in the sea caused him to change his life style. The story is told in his book "Follow a Wild Dolphin" published by Souvenir Press. He is now a freelance writer, broadcaster and film-maker. He spends much of his time studying dolphins.

"Dolphin Spotters Handbook", available from International Dolphin Watch, Parklands, North Ferriby, Humberside HU14 3ET, UK for £1.75, inc. p. & p. or USA \$3.50.

Association News

The Whitsun meeting on the east coast (UK) was a non-event as a gale was in full force at the time. The idea was to sail from various home ports to the River Blackwater.

The Editor received a post card from George and Joyce Payne after arriving in the Azores, having won the Azores race on handicap. RAKA drifted across the finish line backwards!

From Roly Huebsch

Ginny, Jonathan and I were recently in Barbados on holiday and while there I met PCA member Ian Reid who lives on the Island. He told me that every year, during the fall and winter, between 80 and 100 transatlantic yachts call at the island, of these, between 5 and 10 are usually Polycats, which gives you a good idea of how many unsung voyages are going on in these children of the ocean.

The 1979 Lake Ontario Polycat Sail-In did not get off to a good start.

The morning of Saturday 18th of August brought a cold drizzle, no wind and less than 100 metres visibility in thick fog. Nevertheless a number of hardy enthusiasts showed up and our trusty Hina "Huaheine" set off to grope her way across the two kilometers of open water to ferry people to the area where the larger Polycats were moored. Imagine the surprise of all when, half way across in our own little world of fog, a strange Polycat loomed up out of the fog on a reciprocal course. It was Mac Brown who had sailed his yellow Tane "Chiquita" 130 miles from Picton to be at the sail-in. With "Chiquita's" help, "Huaheine" ferried everyone to where the larger Polycats had been rafted together and people were able to scurry from boat to boat, inspecting and exploring.

In the evening we assembled at the Polycat Boatworks for a party. The Boatworks is in fact an old warehouse that a number of builders have rented together. Over the winter there will be five boats in various stages of construction although at the time of the sail-in there was only David & Neila's Narai Mk. IV. Everyone got into the spirit of the party. Becky Ellis barbequed hundreds of hamburgers and shish-kebabs and a great many other people helped with other food. Everyone talked boats, slides were shown and a great deal of beer (and stronger stuff) was drunk until late in the night.

Sunday made up for the previous day by being sunny and warm, though the winds were light. Everyone got out sailing and then beached for a picnic (Becky at work again). At one point we had seven Polycats together, a new record for the Lake Ontario Sail-In. In order of size they were: Doug Gies' Maui "Nanea", Ernie Heard's Hina "Cariad", "Huaheine", Alf Hickson's Hinemoa "Manuriki", "Chiquita", Harry Ellis' Raka "Lanao" and John Bellenger's Oro "Pyxis".

In each of the three years of the sail-in we have seen an increase in the number of boats, and next year promises to be even better. Now if only we could get the weather to co-operate for two days in a row . . .

All the best,

Roly Huebsch

Dave Martin of Mossman, North Queensland, Australia, wrote earlier in the year to tell us of the launching of his Tangaroa WIND WRAITH. He says . . .

"Polycats are becoming very popular here in North Queensland. Mine is only one of half a dozen I've seen in recent months. A Narai with an apparently successful bipole mast rig was sold in Cairns around the beginning of '79. I took 3 years to build my cat. A crane was used for the final 'drop'. Cyclone Kerry had caused a lot of floods, and it was necessary to hide the cat up a creek and lay out heavy anchors."

NEWS FROM QUEBEC CITY by Harry Ellis
(from POLYCATS - Canadian PCA Newsletter).

On a recent trip to Quebec City with the family, I was able to spend some time with the Hembroffs, Don and Tom, also Don's wife, Marianne. They were preparing their Ariki, "PIGGY" for sea again after having arrived in Quebec last fall after a four year circumnavigation from their home port of Vancouver. Having just arrived from the west coast, they were busy replacing all the connecting beams on the boat as the old ones began to sag after five years. The second and third beams that support the fore and aft mast beam were increased in depth to help prevent the sagging under the vertical forces from the mast. All beams were epoxy coated. The next major task was the replacement of all the bulwarks, as the old ones had taken quite a beating over the years. These new bulwarks were being fibreglassed with polyester resin, as was the whole craft and they added that they never had experienced any problem with this form of sheathing.

As they were busy fibreglassing, they graciously allowed me to inspect the boat and gave me full access into the hulls. Both fore and aft bulkheads had been cut out to allow through ventilating throughout the boat and the hull seemed to go on forever. The bunk cabins were very light with four windows in each and the berths were very low in the bilge giving good head room and a nice snug bunk. The cabins were also very functional with the chart table hinged to the outboard side of the port hull. It was plexiglas covered with a map of the world underneath, on which was outlined the route they had taken around the world. The interior looked and smelled very "deep sea" as there is a very distinct odour from a wooden boat that has been continuously exposed to the salt air of the world's oceans.

On deck there was an obvious lack of things. She almost looked like a 46' day-sailer which impressed me greatly as one who spends a lot of time explaining why I have six winches on my boat, this sure illustrates that there are alternatives. But then again, that's what Polycats are all about - do it your own way!

The boat has no engine of any kind as they dispensed with the outboard motor after the first leg to Hawaii, but they do have a good compliment of sails including a large spinnaker for down wind as they say it's nice to keep moving even in light airs. The self steering was accomplished by the jib sheet to tiller system and the cutter rig balanced very well on all points of sail. I asked them their impressions of the boat and its capabilities.

The Sailorman

PCA

They said leeway was sometimes a little excessive but they could live with that. They also felt that after 4½ years and many experiences with various sea, wind and storm conditions at no time did they feel at all near capsizing or pitch-poling. You know, asking them a question like that is like asking a world class boxer if he has ever been close to being K.O.'d You feel somewhat foolish.

In closing, I found both Tom and Don delightful and very straight ahead guys and their boat reflected this type of quality. I think we who are building boats and plan someday to voyage somewhere have in us just a little bit of the romantic and standing on the deck of PIGGY, knowing her recent history, which included the South Seas. New Zealand, Australia and the Great Barrier Reef, Bali, Indonesia, Indian Ocean, South Africa, Brazil, Carribean and home, it really illustrates that two or three people, whether it be a family, brothers or just good companions can do given the resources.



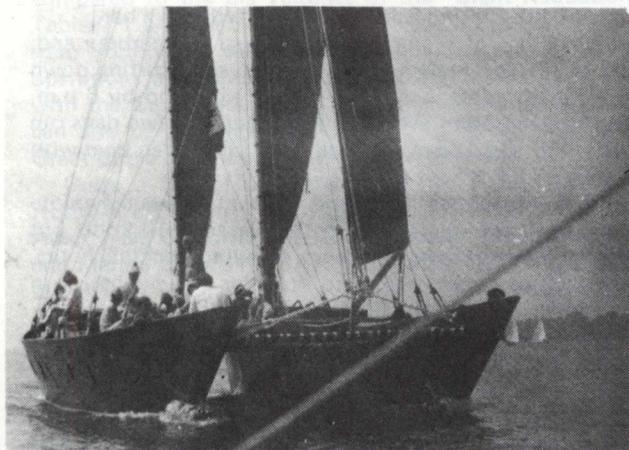
Lake Ontario Sail-In 1979.
'CHIQUITA' TANE Mac Brown. 'LANAO' RAKA Harry Ellis.



Lake Ontario Sail-In 1979.
Clockwise around Polycat Island:

- | | | |
|---------------|---------|----------------|
| 1. 'CHIQUITA' | TANE | Mac Brown |
| 2. 'LANAO' | RAKA | Harry Ellis |
| 3. 'HUAHEINE' | HINA | Roly Huebsch |
| 4. 'MANURIKI' | HINEMOA | Alf Hickson |
| 5. 'CARIAD' | HINA | Ernie Heard |
| 6. 'PYXIS' | ORO | John Bellenger |
| 7. 'NANEA' | MAUI | Doug Gies |

The Monohull alongside 'PYXIS' belongs to Hal Glover, the original builder of 'CHIQUITA'.

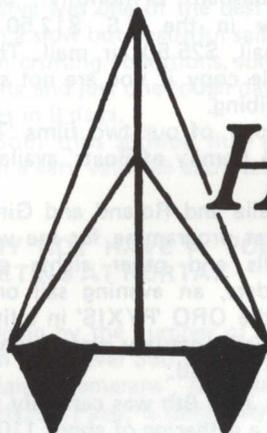


Lake Ontario Sail-In 1979.
'PYXIS' ORO John Bellenger.



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St. Antony,
Church Road,
Llanstadwell,
Nr. Milford Haven, Dyfed.



The Sailorman

Over which horizon did you sail?



RUTH WHARRAM, our First Lady of Polynesian Catamarans, has been on her travels again, with a visit to North America and then a transatlantic voyage in a TaneNui.

When I had accepted Tom and Carol Jones's invitation to sail with them on their new 28 ft. TANE NUI 'VIREO' on the first stage of their trip around the Atlantic from Philadelphia to the Azores for 'Seaweek' and to welcome the competitors of the Azores Race, I took out the atlas to see what visits I could combine with this trip.

David and Neila and the centre of the Canadian 'Polycats' in Toronto became a MUST, even though it involved two 14 hour bus rides to get there and back, as there are no cheap flights to Toronto. With the choice of flying either to Boston, New York or Philadelphia, I chose Boston to visit the 'Multihulls' magazine. To meet the editors, Charles Chiodi and Ava Burgess, talk about multihulls and see the magazine being created, would have been worth a visit at any time.

With the Irish postal strike then lasting already 4 months I was starved of news and found the 'Multihulls' office a wealth of information.

It was just like 'James Wharram Associates' before the strike with a constant flow of interesting letters, yacht magazines and newsletters of multihull clubs, etc. coming in. The 4 days I spent there were scarcely enough to catch up with all the news, browse through those magazines and discuss the forthcoming Newport to Bermuda Multihull Race.

If anyone has not yet heard about the 'Multihulls' magazine, a magazine worthwhile subscribing to, here is their address and subscription rate:

'Multihulls', 421 Hancock Street, North Quincy, Mass. 02171 U.S.A. published bi-monthly. Subscriptions \$10.50 per year in the U.S. \$12.50 in foreign countries surface mail, \$25.50 air mail. They may even send you a sample copy if you are not sure whether it is worth subscribing.

'Multihulls' also has a copy of our two films 'The Building of TEHINI' and 'A Family of Boats' available to yacht clubs.

In Canada, David and Neila and Roland and Ginny Huebsch had laid on a great programme for me with visits to the Niagara Falls and other sights plus invitations to Polycat builders, an evening sail on a HINA and a night out on the ORO 'PYXIS' in a little lagoon created by artificial bird sanctuary islands, where several of our catamarans are moored.

However, the meeting on June 9th was certainly the focal point of my visit with a gathering of about 110 to 120 people. In the afternoon, Harry Ellis on his RAKA 'LANAO', Roly Huebsch on his HINA 'HUAHEINE', Ernie Heard on HINA 'CARIAD' and a HINEMOA gave many newcomers and builders a chance to sail a 'Polynesian Catamaran' even though in very light winds it was not very exciting. At least it was warm and did not rain.

As the sails of the ORO 'PYXIS' had not been returned from the sailmaker, John Bellenger came to the quay under motor showing a fine example of a boat beautifully finished of varnished wood with interesting details of the cabin-layout.

Many questions were asked about the new PAHI range and interest shown in the TANE NUI plans being now available also for plywood construction. The NARAI seems to be the most favoured design. At least

10 of the people present were either building or sailing one. Of particular interest was the photoalbum of Len Taylor and Lili Wagner who had sailed their NARAI 'KAHON' from Ottawa to the Azores, Madeira, Canaries, West Africa, Barbados and back to Ottawa and are now preparing for another voyage South.

In the evening I showed our 2 films and slides as far back as the first TANGAROA and RONGO as it was a memorable year being exactly 25 years ago that we started sailing our catamarans and 20 years when we made the first North Atlantic crossing.

It was wonderful to meet so many of our builders, even some friends who had helped us with the launching of RONGO in Trinidad, and find so much interest.

After another 14 hours bus ride — this time during the day and through beautiful countryside, I reached Philadelphia to drive down to Cape May the following morning to visit the boatyard at Tuckahoe where Tom has been building boats professionally and 'VIREO' awaited us.

Though with quite a few modifications, 'VIREO' is a TANE NUI, strongly and beautifully built in Phillipine mahogany ply and a very comfortable boat to live in, with the beams set in the hulls like the Mk. IV designs and only 2 bunk cabins instead of 4. The extra drifter of 225 sq. ft. was used one third of our trip to the Azores giving us very good daily runs.

The decks are kept completely free apart from the big oar which Tom uses instead of an outboard. Sitting in the forward hatch he rowed us out of several marinas and harbours.

Before we left, another meeting with slide show had been arranged for me at the 'CCMA' (Chesapeake Cruising Multihull Association) in Annapolis, one of the largest multihull associations on the East coast of America. Though it was summer, there was a good turnout of appr. 50 members, only 3 of them being Polynesian Catamaran builders. As our films had been shown at a previous meeting, Polynesian Catamarans were not new to them, but again great interest was shown in the new PAHI designs. It was a wonderful evening and I wished there would have been more of those clubs en route.

As Carole and Tom will be away for a year there were plenty of farewell parties and dinners but the response of the invitation to builders was disappointing as not more than 10 or 12 apart from us gathered at the marina together with family and friends to bid us farewell.

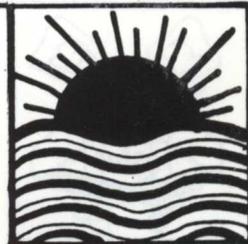
After a peaceful sail down the Delaware river to Cape May we stocked up with fresh provisions and had a delicious farewell lobster dinner at the restaurant of a Great Bank Fishing Schooner converted into a bar.

Next day, at 9 a.m. we shot out of the harbour and, under jib and reefed main, we were soon surfing down the waves before a force 4-5 NW wind and by 6 p.m. had covered 66m, averaging 7 kn. Our first two days were 135 and 133 m, not bad for a fully laden boat with a LWL of 23' 8".

This did not last long, and the next 4 days the enjoyment was not roaring down the waves at 10 knots but sitting in deckchairs on deck, enjoying cocktail hours, listening to music, watching dolphins and swimming in the warm water of the Gulfstream.

My enthusiastic and romantic entry into the log the following day: "Beautiful luminescence framing behind the rudders as we are creaming along. The wind must be increasing but is scarcely felt as it is so warm and the sea very smooth." heralded our first gale, as a few hours later Carol was soaked by a breaking crest. The following morning we were under trysail and reefed storm jib with the boat self-steering and the wind just forward of the beam, blowing a steady force 8. With Tom and Carol in

The Sailorman



one hull and I in the other (now and again trying to take photographs without being soaked) we settled down and waited.

By 8 p.m. Tom and Carol must have been asleep when it started pouring down, the rain flattening the seas and the wind falling to nothing. I was convinced that were at the centre of the Low and waited for the wind to spring up from the opposite direction, hoping that the seas would have gone down considerably before the next onslaught. As there was no change by 11 p.m. I, too, went to sleep.

When I woke up in the morning the wind had veered to a fresh SWesterly, and soon we were running down the still heavy swell under drifter alone. I wonder what had happened to my 'forecasting'. 'VIREO' had shown up to be safe and very comfortable boat heading into a force 8 gale self-steering under trysail and reefed storm jib.

After a week of unsettled weather with the wind all around the clock, a calm and beautifully strange sunset was followed by a squall, thunder, lightening and a terrific downpour and an 8 hour SSE wind of force 7-8. We decided to run before it taking the waves on the quarter. Under the reefed storm jib sheeted in tight from both sides the tillers were again lashed and VIREO was left to look after herself.

In gales on previous voyages when we had 'run before it' we always steered the boat. Tom's experience, even in the hurricane, were different. He believed in lashing the tiller and going below, so I was pleased to be able to see how it worked. It certainly did, though this time it wasn't a full gale but instead of the force 8-9 on earlier trips perhaps 7-8 this time, but the way VIREO took the waves I can well believe she would have been alright in stronger winds.

After 20 days we dropped anchor in Corvo, the smallest and most northerly island of the Azores, averaging just over 100 nm a day within 6 days between 120 m and 150 m, - 4 of those over 133 m - a good record for this small catamaran.

After a visit to Flores we had yet another thrilling sail to Horta, Faial, covering the 132 m in exactly 24 hours.

An analysis of our voyage revealed that we had 8 days (40%) of westerly winds, 17 hours (4%) of calms, and all strong to gale force winds came from the South. One third (37%) of the trip we sailed with the drifter, 27% under working rig and 32% reefed, 12% of which under trysail and storm jib. This meant a lot of sail changes especially compared with the trip that followed on RAKA from San Miguel to the Algarve, Portugal, when for one week we scarcely touched the sails.

For navigation, Tom uses the HO 211 Ageton "Dead Reckoning Altitude and Azimuth Tables", a tiny book compared to the big volumes of the "Sight Reduction Tables" I was used to - not difficult to use once you have your work sheet laid out, but at least ten more operations are necessary to get your position line than with the 'Sight Reduction Tables'. However, the HO 211 can also be and was used daily by us to work out the Great Circle distance and next course to steer.

Quite a few of our catamarans had passed through Horta already, but, unfortunately, I missed them all. Apart from our own TEHINI, there was Ronald de Boer and Marjke Boon's NARAI 'TORTUGA' which they had sailed from Holland to the Azores & back; there was the Dutch Tangaroa 'LUCKY' who had sailed to the West Indies and called at Horta on her way back to Holland and Dick Clayton and Jenny Willis' TANE 'KAOHA' who had sailed 10,000 miles in 16 months which, I think, was on her way back to Britain.

We waited for the MOCRA Plymouth to Horta race 'fleet' to arrive. This year this race was even more disappointing than the previous one two years. While the single handed AZAB (Azores and Back) race to Punta Delgada, Sao Miguel had attracted over 100 participants,

there were only 6 starters at the MOCRA race. With Bill Howell on his VAL 'RFD' and the French 40 ft. hydrofoil trimaran 'TRIMAMA' with a mast on each hull retiring early on in the race when they were encountering strong to gale force headwinds and one monohull retiring and switching her motor on during the calms and light winds at the end, only 3 boats finished. Nick Keig arrived first on his new 52' trimaran 'THREE LEGS OF MANN III' but George Payne on RAKA won the race on handicap. He had a new Main and Jib but still lacked any lightweight canvas, which made him all the more pleased with the result.

While Tom and Carol Jones are continuing their 'round trip' via Lisbon, South Portugal, now heading for Gibraltar, North Africa, Madeira, Canaries, West Indies, Mexico and Florida back to Philadelphia, I joined George and Joyce Payne and the new owner of RAKA, Yoav Ktalan, on the first stage of their voyage to Greece, up to the Algarve in Portugal. Here I visited our Portuguese agent, Charles Livingston who welcomes any Polynesian Catamaran builders and can arrange a good anchorage at Portimao. His address is: Casa Anita, Carvoeiro, Lagoa, Algarve, Portugal Tel: 082-57141.

During my stay the ORO 'PHAO' (Roger and Lena?) arrived in Portimao, and their friends, Kathy and Alan Richardson on their ORO 'ILLA MANU' have already been in Lagos for a year (taking 10 days from Falmouth). They were trying to get a permit to charter the boat as there seems to be a great demand from hotelguests, but so far they were unsuccessful. This difficulty seems to apply all over Portugal and Spain. Perhaps after their entry into the EEC it may become easier to charter in these countries.

As mentioned earlier the trip from Horta to the Algarve was one of the best and easiest ones I ever had, with a slow but beautiful sail along Sao Miguel. 7 days of ideal cruising conditions, sunshine and beautiful moonlit nights and just one rough day and night to cover the 800 miles in 9 days.

Both trips showed that a drifter was or would have been a very valuable addition to the working rig.

'WHY NOT HAVE A 'POLYNESIAN CATAMARAN' MEETING AT HORTA?'

Judging by the number of yachts passing through Horta each year, over 350 this year alone, and 6 of them 'Polynesian Catamarans', it might well be worth considering it. Horta, Faial, is definitely the best suited island in the Azores with a sheltered harbour, plenty of visitor's moorings and a very hospitable yacht club, though a visit to the islands like Corvo, Flores and Sao Miguel before or after is well worth while.

A meeting in Horta can be combined with so many cruising plans:

from Northern Europe: just there and back - or on the way to the Mediterranean - to the Madeiras, Canaries and West Indies

from America: to the Mediterranean, - or round the Atlantic (like VIRGEO) - to Northern Europe

from the Med. or South Portugal; back to Northern Europe

from the West Indies or Bermuda: to Northern Europe or the Mediterranean

from South Africa: to Northern Europe or the Med.

The Sailorman



The Canaries are a one-way stopping place, the Azores are the cross roads of the North Atlantic from and to many places.

If anyone is interested in this project, please, write to: Ruth Wharram, Killowen, New Ross, Co. Wexford, Eire.

POST SCRIPT from Tom Jones, written in Gibraltar.

Tom says that he will write up the second half of the voyage from the West Indies, as Ruth has already written up the first leg.

He writes . . . "Ruth is supremely at home on the sea, more so than on land. She is more relaxed, concentrated and effective. Where many of us behave competently on land and muddle through on the water, Ruth is at her best here. This is a rare quality and not

easily developed. She has an uncanny ability to dead reckon. At any moment, her estimate of the speed was within a quarter knot of the instrument. Her guess at the days run was seldom five miles out.

Among other things she taught us: were when reefing sails, roll them up, do not bunch them. It looks neater, cheats the wind better and won't flog loose so readily.

When going ashore in the inflatable, wear the least possible clothes and not in shoes. Take your shore clothes in a bag over your shoulder to keep them dry. When going on watch organise yourself before hand to take extra clothing, candy, cigarettes, all in a small bag. Try and write letters in your off watch hours when awake.

A word about passages . . . Polycats are fast over large stretches of ocean. For example, we entered Vireo (our modified Tanenui) in a 10 miles round the buoys race in Horta. Among the boats that soundly thrashed us was an Arpege 31. This same boat with the same skipper left New York one after we left Cape May. He took 28 days to Horta, whereas we took less than 20 days to Corvo. The Polycats speed I believe, is that the hulls just slice through a seaway. They can be driven hard, and they should be. There is enough boredom on an ocean passage without adding to it by "lollygagging".

WOODWORKING METHODS

JIGSAW

When cutting plywood with a jigsaw, the following points need to be taken into consideration:

1. Blades: use fine or medium wood cutting blades and always check that they are screwed into the jigsaw tightly.
2. Support the work well. Vibration during cutting can break the blade.
3. Check that there are no supporting beams under the cutting line.

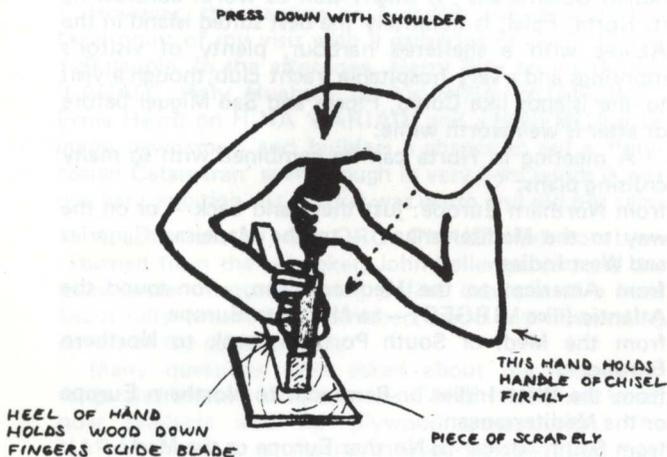
Having done this preparation

4. Put the jigsaw on the work before starting the motor and line up the blade with the cutting line.
5. While cutting, always exert a good *downward* pressure, but *do not* force the machine forward. With a sharp blade, the jigsaw should slide forward naturally.

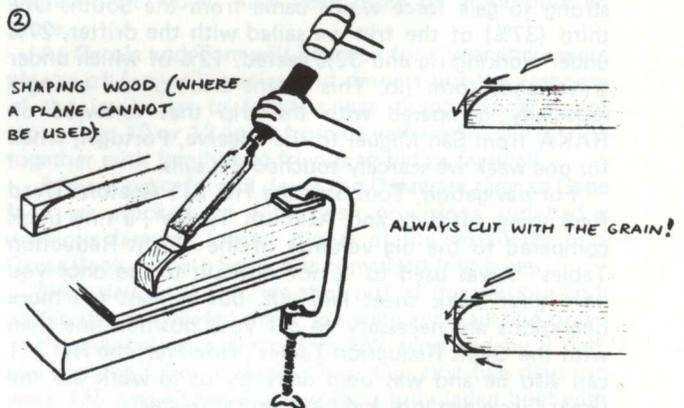
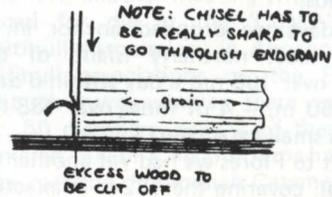
NOTE: if the jigsaw starts to judder during use, you are either not pressing down enough or you are forcing it round too sharp a corner. A jigsaw can go round a corner with a minimum radius of 1/2" or 12 mm. Take the corners slowly, let the blade make room for itself.

CHISEL

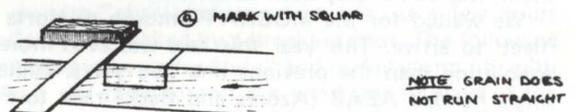
1. Shortening a piece of wood that has been cut a fraction too long.



for use with James Wharram Building Plans
— illustrated by Hanneke Boon

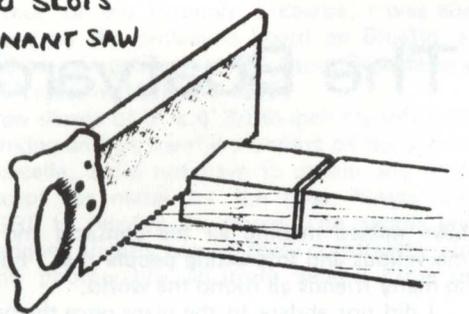


③ CUTTING NOTCHES

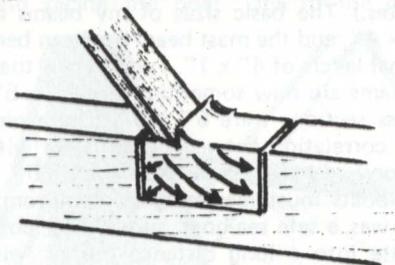


The Sailorman

- ⑥ CUT TWO SLOTS WITH TENANT SAW

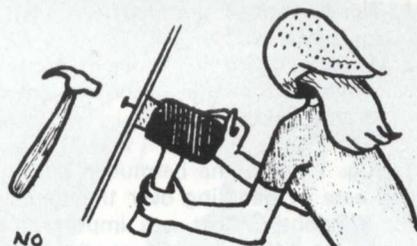


- ⑦ WORK WITH CHISEL IN THE DIRECTION OF THE ARROWS, WOOD WILL THEN SPLIT UPWARDS ALONG THE GRAIN.



HAMMER / NAILS / PUNCH

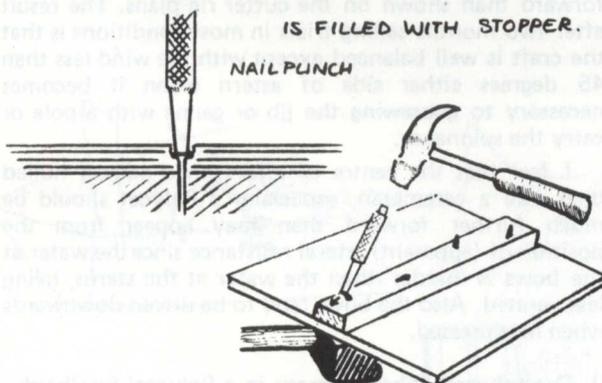
- ALWAYS SUPPORT WORK WELL WHEN HAMMERING NAILS IN, THE MORE SOLID THE SUPPORT THE BETTER



WHERE THERE IS NO SUPPORT HOLD HEAVY WEIGHT 'DOLLY' BEHIND WORK TO ACT AS 'MASS' SUPPORT

'DOLLY GIRL'

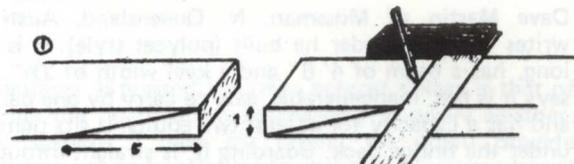
- PUNCH NAILS HOME I.E. HEADS BELOW THE SURFACE, HOLE IS FILLED WITH STOPPER.



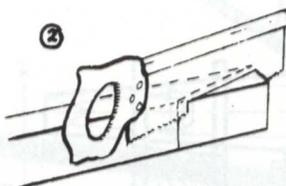
- IF POINTS OF NAILS COME THROUGH THE OTHER SIDE, THE POINTS HAVE TO BE CLENCHED OVER:
TURN WORK OVER, LAY HAMMER HEAD OR OTHER PIECE OF IRON UNDER HEAD OF NAIL, THEN KNOCK POINTS OVER WITH HAMMER & PUNCH IN THE DIRECTION OF THE GRAIN.



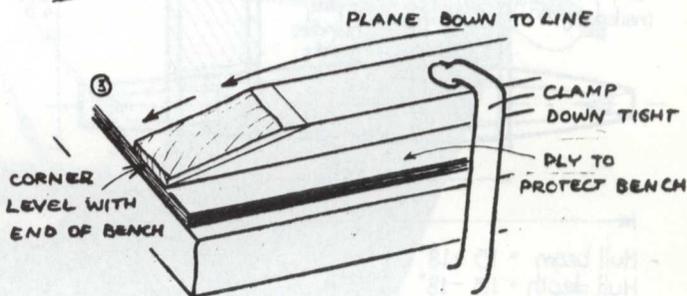
MAKING SCARFES



MARK SCARFES ON WOOD CAREFULLY, LENGTH OF SCARF IS 5 TIMES THE THICKNESS OF THE WOOD



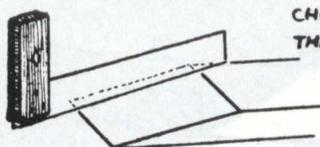
CUT OFF WITH SAW; STAY WELL OUTSIDE MARKING LINE.



PLANE DOWN TO LINE

CORNER LEVEL WITH END OF BENCH

CLAMP DOWN TIGHT
PLY TO PROTECT BENCH



CHECK WITH STRAIGHT EDGE THAT SURFACE IS FLAT

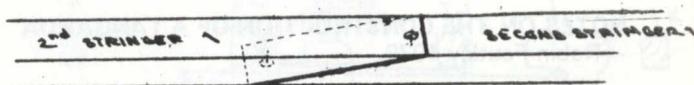
PUT BOTH PARTS OF SCARF TOGETHER TO SEE THAT THEY FIT

GLUEING SCARF:

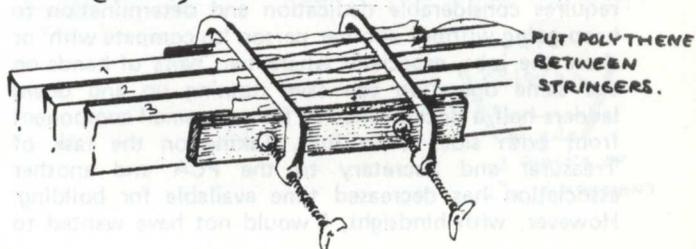
SCRATCH SURFACE WITH POINT OF CHISEL



APPLY GLUE

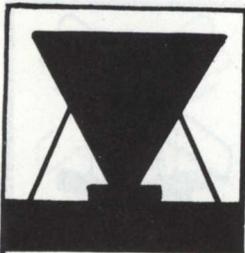


PUT SURFACES TOGETHER AND PUT A DRAWING PIN THROUGH THE THIN END ON EACH SIDE TO STOP JOINT SLIDING. YOU CAN PREPARE SEVERAL STRINGERS AT THE SAME TIME (3 or 4) AND THEN CLAMP THEM TOGETHER



PUT POLYTHENE BETWEEN STRINGERS.

The Boatyard



Dave Martin of Mossman, N. Queensland, Australia writes about a tender he built (polycat style). It is 10' long, has a beam of 4' 6" and a keel width of 2½". He says it is fast, manoeuvrable, easy to carry by one person and has a capacity for at least two adults. It sits tight up under the bridge deck. Boarding it, is straight through a trap door in the centre of the bridge deck which is very convenient. In rough seas or on an extended cruise, it is pulled up on deck. The tender rows, sails and paddles very well. A larger version has been built to carry more. (A keel width of 4-6" would do better than 2½")

have missed making all the contacts and meeting the marvellous and interesting people that I have, or having so many friends all round the world.

I did not adhere to the plans once the basic hulls and interiors were built although the beam connections have not been altered except to make them stronger than the original design. (My plans were bought in July 1974. Since that time, design improvement sheets and modification data has been issued by James Wharram Associates.) The basic sizes of my beams cross-section are 9" x 4", and the mast beam has been beefed up by 3 additional layers of 4" x 1". I understand that Tangaroas' cross beams are now something like 8½ x 5". Originally the cross sections were 6" x 3". There seems to be a distinct correlation between beam sizes with Jims age! I look forward to seeing the sizes for 1990!

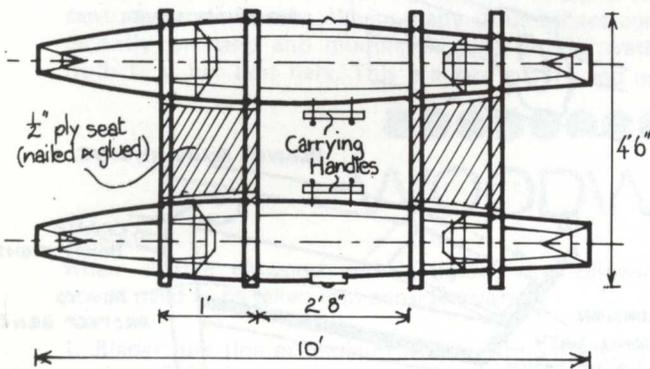
All boats must inevitably be compromises. What I wanted was a safe sea-boat, suitable for converting at a later date into a long distance cruiser, with adequate comfort and space for two persons. In the short term, I required a fast easily handled craft that could be sailed singlehanded and provided a stable platform for fishing and diving. At the same time, I was not prepared to 'sink' much money into the basic boat. I believe that I now have and a craft but in order to do so, I have made a number of modifications of which the following three may be of interest to other builders:

1. Tall bermudan sloop/cutter rig with ample provision for light airs.
2. A centreboard for more efficient windward sailing.
3. Provision for large outboard that can be used under adverse conditions.

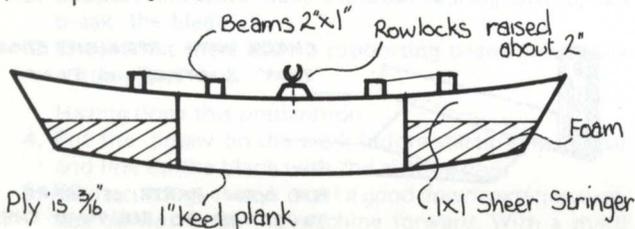
1. Rig. I chose the bermudan cutter for its simplicity and ease of handling over the standard ketch, not just for efficiently. Cost was important since two smaller masts are often more expensive than a large tall one when all the extra rigging and gear is costed. I was also concerned over the excessive weather helm reported on some ketch rigged Polycats. Many owners had trimmed their cats down by the stern to reduce weather helm. I therefore increased the size of the skegs and rudders 2" all round and moved the mast slightly further forward than shown on the cutter rig plans. The result after two months sailing trials in most conditions is that the craft is well balanced except with the wind less than 45 degrees either side of astern when it becomes necessary to goosewing the jib or genna with a pole or carry the spinnaker.

I feel that the centre of effort on a narrow hulled boat like a catamaran, especially a Polycat should be much further forward than may appear from the position of (apparent) lateral resistance since the water at the bows is 'harder' than the water at the sterns, being less aerated. Also the bows tend to be driven downwards when hardpressed.

2. Centreboard. What a heresy in a Polycat! Foolhardy, stupid and dangerous I can hear many of you say, and some who have not seen it in operation have already made those comments to me. At least I do not claim to be the first. Graham Rates used one with 'Mehitabel' and there was a photograph of the arrangement used by Dolf Kruger (see Sailorman of June 1979). Both of these arrangements involved placing the board between the hulls rather than through the hulls as with the dagger-



Hull beam = 15-18"
Hull depth = 15-18"



All seams are taped with epoxy/dynel. The tops of the stem and stern posts are also covered thus to prevent splitting.

Of WIND WRAITH, Dave says that the ply sheathing on the main beams delaminated - maybe a poor quality ply. The rest of the cat has been covered in epoxy dynel which is very good stuff, though expensive.

NOTES ON THE CONSTRUCTION OF A TANGAROA - Robin Fautley 1979.

At last, after many promises that I was going to launch 'some time next year' I finally launched in July this year. It has been a hard and long struggle not because of any technical difficulty but that the building of a craft as large as a Tangaroa, singlehanded, in spare time requires considerable dedication and determination to keep going without another person 'to compete with' or share the jobs, especially where two pairs of hands on the same operation can save running up and down ladders half a dozen times to fix some small component from both sides of a hull. Taking on the task of Treasurer and Secretary to the PCA and another association has decreased time available for building. However, with hindsight, I would not have wanted to

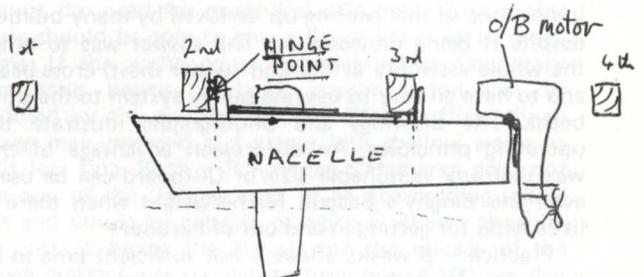
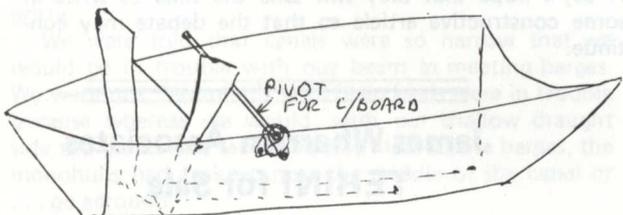
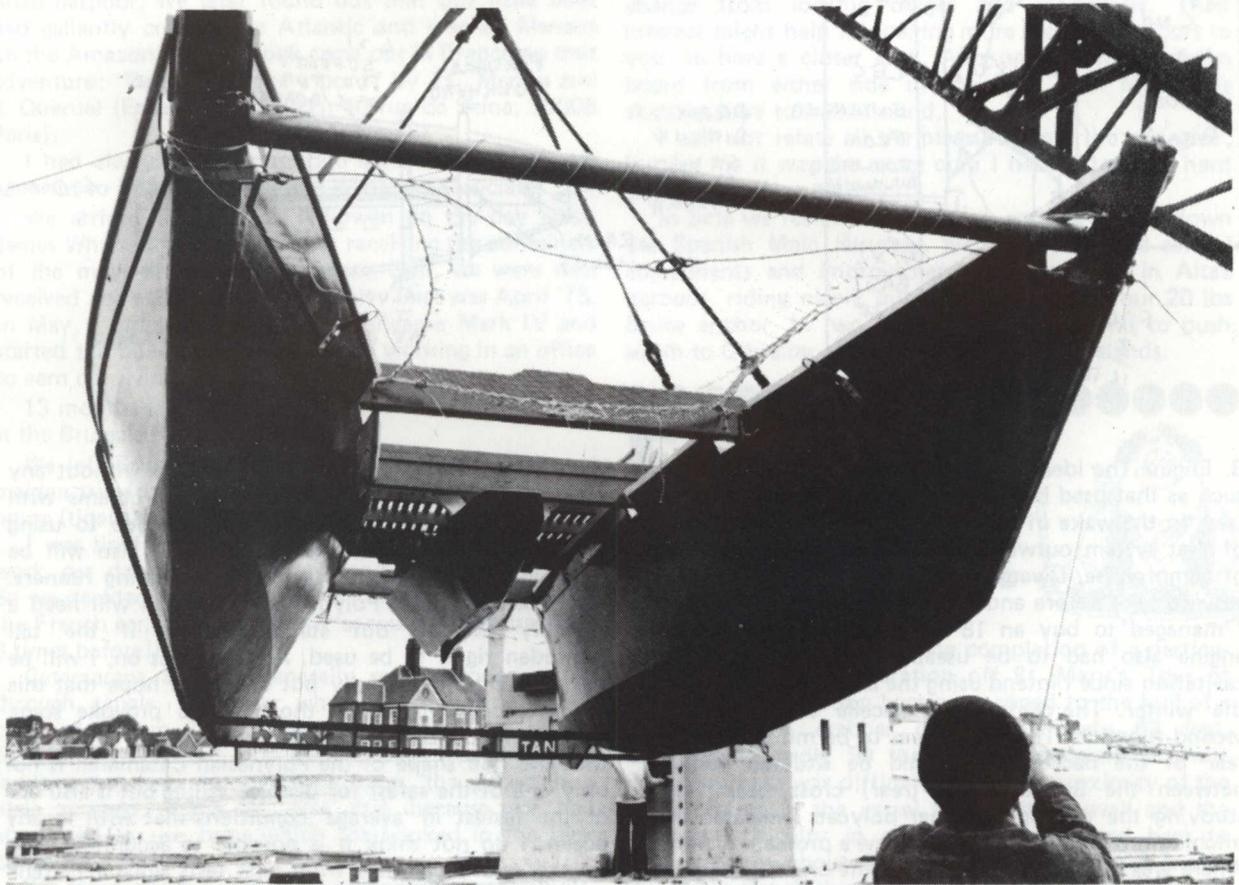
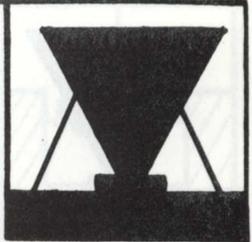
The Sailorman

board of Areoi, or the Iroquois. Likewise, I was also very impressed by the centreline board on Bluefin, as were the other competitors at Brighton Regatta and other MOCRA races in 1978 and 1979.

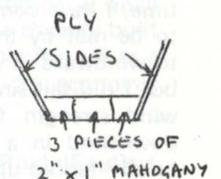
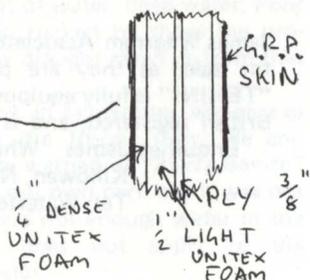
I had a few sheets of 8' x 4' 3/8th inch ply left from the hull planking and by careful planning of the size of the centre-nacelle, I did not have to obtain any more material except for metal for the large 'hinges' and foam and GRP to aerofoil the board. The nacelle was therefore designed slightly around these constraints. The diagrams and photographs illustrate what I came up with.

The improvement in windward ability when the board is down appears to reduce leeway to about half that with the board up. Combined with the efficient rig, my initial Portsmouth Yardstick No. is 104. I expect that this will reduce quite rapidly as I get used to handling and racing the boat. One of the main dis-

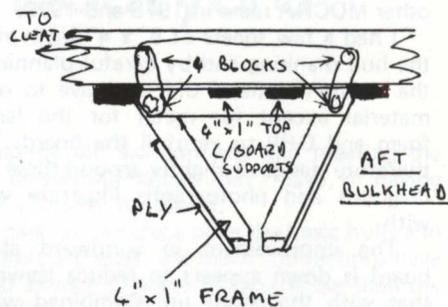
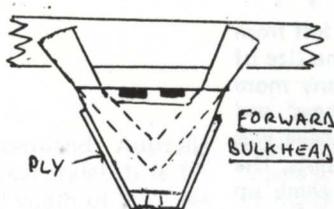
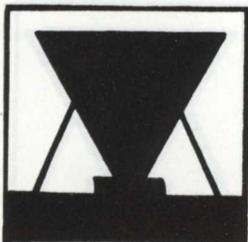
advantages expressed by other polycat sailors is that of leaving the board down accidentally in severe weather. The systems I have for raising the board provide immense power to raise a very light and buoyant board and I can raise it even under full sideways loading. I feel that I have the best of both worlds. I do not use the board other than for beating or close-hauled sailing.



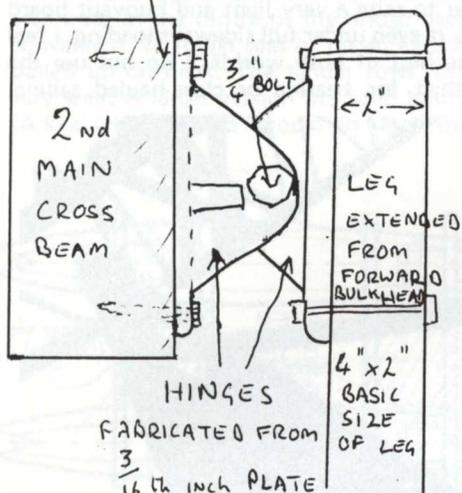
Cross section of centreboard



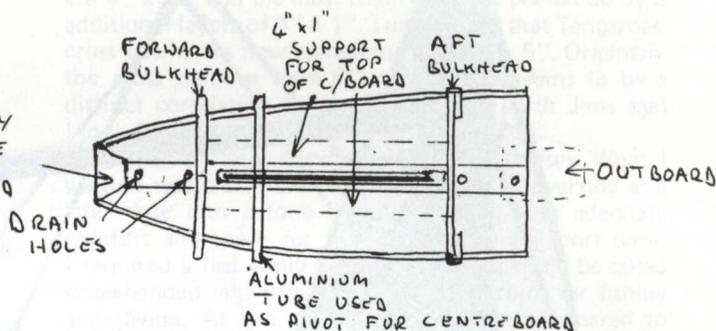
The Sailorman



2 1/2" LAG SCREWS



RAM DINGHY
STYLE
STEM
BOARD



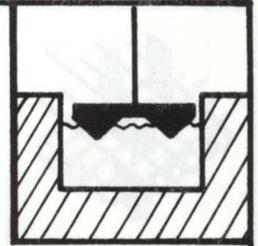
3. Engine. The idea of a good diesel and long prop-shaft such as that used by 'Nick Of Time' Just did not appeal. (see 'In the wake of The Sailorman'). The disadvantages of that system outweighed the advantages for my type of compromise. I wanted something light, powerful and easy to take ashore and store. This meant an outboard. I managed to buy an 18 hp Evinrude long-shaft. The engine also had to be useable in a big sea without cavitation since I intend using the boat for fishing during the winter. The centreboard nacelle therefore had a second function. The engine was to be mounted on the rear of the nacelle and would be situated half-way between the 3rd and 4th (rear) cross beam, since studying the motion on other polycats indicated least pitching moment at this point. Now a problem did arise. Where was the waterline? Some of the original brochures indicated a draft of 18" but on the plans 21". Reference to James Wharram and Hanneke Boon could not completely solve the problem since they needed to know the density of the timber used in the construction, also indications of the 'beefing-up' so loved by many builders despite it being unnecessary. The answer was to hinge the whole assembly at the 2nd (under mast) cross-beam and to have an easy to operate pulley system to the third beam. The drawings and photographs illustrate the operating principles. An unforeseen advantage of this was that any reasonable size of Outboard can be used, even the dinghy's Seagull featherweight when there is little wind for getting in and out of harbour.

Practice - 8 weeks afloat is not sufficient time to be dogmatic about these alterations. However, during that time, I have come across most conditions that are likely to be met by the prudent yachtsman. I have not sailed to windward in unprotected water in a force 8 or higher but I did sail singlehanded one day at Brighton with the wind strength force 6 on a triangular course, sailed downwind in a force 8 into Chichester harbour then briefly tacked upwind in that harbour in a force 7 with

Mike Briggs, and she proved to sail well without any noticeable handling faults. I have had problems with breakages from jumper struts. This was due to using wood for the struts instead of metal. I also will be increasing the staying of the mast by adding runners. The flexibility of a Polynesian Catamaran will need a carefully thought out staying system if the tall bermudan rig is to be used. As time goes on, I will be able to report more fully but at least, I hope that this will give some food for thought and provoke some discussion in multihull circles. I am firmly convinced that the hull shape of the Polynesian Catamaran is not only one of the safest for deepsea sailing but is also one of the fastest in 'average' conditions met with in any ocean. I do not think it is possible to accurately scale up the results obtained from tank tests since a 1" tank produced wave cannot scale up to a full size wave without scaling up the surface tension of water. However, perhaps the more knowledgeable readers will disagree. If so, I hope that they will take the time to write in some constructive article so that the debate may continue.

James Wharram Associates TEHINI for Sale

James Wharram Associates much loved "TEHINI" is up for sale, as they are planning to start a PAHI 42. "TEHINI" is fully equipped for ocean cruising/chartering, British registered, and is lying South coast of England. Enquiries: James Wharram Associates Int. Ltd., Killowen, New Ross, Co. Wexford, Ireland. Tel: Waterford 88237.



Canals or No Canals for Polycats

Jacques & Liliane Recht Anabla – Atanabla

My wife and I have been sailing for 20 years mainly on our own boats or ocean racing RORC races. So we know pretty well the waters from Ostend to Athens. Our last boat, a beautiful 46' Morgan Giles ketch proved, in the stormy Gulf of Lion, to be oversized for us both and we sold it.

Neither my wife nor myself would ever have considered buying a multihull, and for years I must admit that my only reactions to catamarans was just "scorn". That was until the day we saw a Tane in the roads of Ibiza harbour. We later found out that this little boat had gallantly crossed the Atlantic and reached Manaus up the Amazon river. A book came out in France on that adventure: "Pas de panique a bord" by J.C. Marcus and J. Queruel (Edt. Chiron Sports, 40 rue de Seine, 75006 Paris).

I had always wanted to build myself a boat. So, off we went to Ireland to meet Jim Wharram Associates.

We arrived untimely at Killowen on the day when James Wharram Associates were receiving the containers of the move from Milford Haven. Still, we were well received and attended to very nicely. That was April '78. In May, I ordered the plans of Tangaroa Mark IV and started the building alone, my wife working in an office to earn our living.

13 months later, ANABLA-ATANABLA was floating at the Brussels Royal Yacht Club.

We left Brussels at the end of August and made our maiden trip from the Schelde to Dunkirk: 70 miles in 8 hours (tidal stream helping us, I must admit).

I was tired after those 13 months of 12 to 15 hours work per day alone, Saturdays and Sundays included. So we decided to go down to the Mediterranean Sea by the French canals (Biscay-Gibra'ar route we had practised 3 times before!).

Catamarans are not generally recommended to go through canals. I wonder why? Our Tangaroa was a beam of 5,08 m. The smallest locks are 5,20 m. broad. So although we did not have enough space to put fenders, we came to very little harm, the gunwhale a little scraped, that's all, and that because we had attempted to use tyres which got hooked in the lock doors.

We fared much better than conventional monohulls, which are thrown all over the place by the rising bubbling water. Instead, the Tangaroa wedged in nicely. The walls of the lock are slimy and grassy but not gritty.

We were told that canals were so narrow that we would be in trouble with our beam in meeting barges. We were not. Monohulls with deep keels were in trouble because whereas we would, with our shallow draught side the banks and leave the way clear to the barges, the monohulls had to keep near the middle of the canal or ... go aground.

A laden barge moves a lot of water, deep water. Poor monohulls, pushed and then sucked by those big propellers ... again our shallow draught saved us from that problem.

At the end of the summer, in September, we were in Lyon, ready to sail down the Rhone river. We and several other monohulls were warned at "Pierre Benite" lock that we could go on at our own peril but it was not recommended, since there was not enough water in the Rhone: "of course, this does not apply to the catamaran" said the lock-master.

There is however one draw-back to catamarans: it is the side-wind mistral when we have to tackle the big Rhone locks. But we did manage, although we had only two Sea-Gulls to power us. Another alternative would have been to wait the end of the mistral gale as we did in Avignon, which is not unpleasant.

Another advantage of polycats in canals is the keen interest of the lock-keepers in our boat. They welcome a change from locking barges and monohulls. Their interest might help in opening more readily the doors to you, to have a closer look. Also one can step back on board from either side of the lock wall. Monohulls skippers have to walk around.

I will not relate all the pleasure canal life can give, but for me it was the exact cure I needed to those hard working building months.

In Sete we resteped the masts and have sailed down the Spanish Main leisurely. We also completed several adjustments and improvements. We are now in Altea harbour, riding nicely out a force 9 gale on our 20 lbs Bruce anchor. In two weeks or so, we intend to push south to Gibraltar and later to the Canaries islands.

Food for Thought



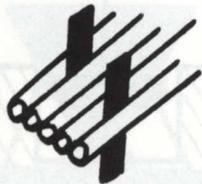
I write this after watching the completion of a particularly tricky salvage operation off St. Mary's, Isles of Scilly. Large floatation bags were roped to the hull of a sunken French crabber of approximately 63 feet, weighing reputedly 50 tons. The attachment of these floatation bags was difficult due to the proximity of the rocks on which the vessel hit, a bit of swell and the inherent difficulty in placing the uninflated bags to various points about the hull. I am certain that one of the larger Polynesian Catamarans could have done the same job with far greater precision. Two smaller ones, say, Tangaroas could also have been used.

Even better, a Polycat modified as a diving vessel, without the need for masts and sails, relying on engine power should be able to give a direct lift from its cross-beams. If the width could be extended by temporary extra long beams, a large sunken vessel can be straddled by the one Polycat and lifted sufficiently so salvage may proceed and a tow into shallow water to await low tide. Such a Polynesian Catamaran need not have any of the 'refinements' of an ocean going sailing craft and should be capable of being built very cheaply. The cost of hiring the airbags for the salvage of the French crabber was reputed to have been £100 per day for 10 days. Add on the cost of chartering a small salvage boat at £150 per day, the use of a cheaply built Polycat, or an older one no longer suitable for use as a long distance sailing cruiser, must be an economic proposition.

Robin Fautley,
Isles of Scilly 23.9.79.

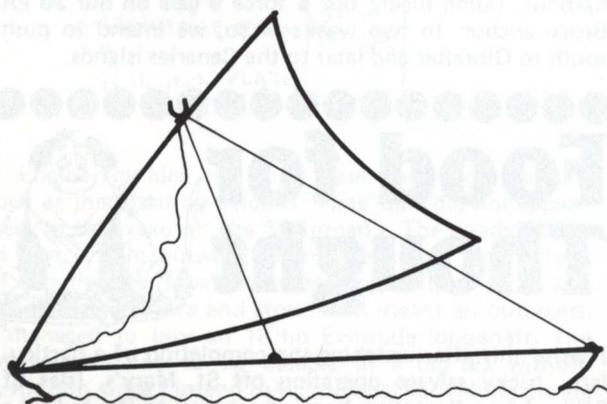
Sails, Tuning and Self Steering

By Tom Herbert

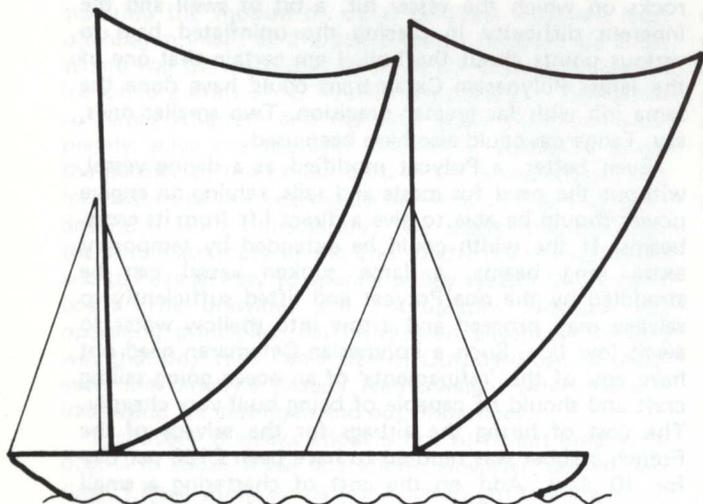


In previous articles I have used the balsa log sailing raft to illustrate how leeway forces can be manipulated by using moveable daggerboards. The single outrigger canoe with its widespread hull and float shows how drag forces can be used for boat control.

The third major force acting on a sailing boat is the power developed by its sails. Let us see if the canoes of Oceania can give an insight into the use and control of a multihulls' sails. The archetype ocean going sail of the mobile people of the Pacific is the "oceanic lateen" used on the single outrigger craft that once formed the main transport of migratory groups of islanders. This sail is rigged "fore and aft" because the survival of these people depended on the ability of their boats to sail effectively to windward in turbulent air and surfy water. To sail to windward a sail has to generate power by deflecting a large volume of fast moving air through a small angle. The Oceanic lateen does this, and it also provides the necessary control and imbalances needed to manoeuvre the canoe.



SINGLE OUTRIGGER
Oceanic Lateen



DOUBLE CANOE

The outrigger canoe is primarily a personnel carrier and requires a relatively large crew to sail it effectively at sea. When heavy loads need to be carried it is common practice to couple two canoes together to make a "catamaran". The outrigger beams of the two canoes are interleaved and the outrigger floats lashed across the double canoe so that the canoe masts can be supported between the hulls on the centreline. Because the double canoe is much more ponderous than the single outrigger it has to tack through the wind like western boats. The two canoe sails are rigged as "spritsails" to facilitate tacking. On islands with plenty of wood, and where there is a need for "custom built" double canoes, the hulls are built with more beam to increase load carrying ability, and are given symmetrical sections (not bent like the single outrigger).

The canoes of Oceania are shoal draft boats. Shallow lagoons and hard coral inhibit the use of underwater control surfaces such as rudders or daggerboards. These craft are controlled by manipulating the sails, a technique that is difficult to exploit on the heavy wester monohull with its large sail areas.

Shoal draft monohulls have similar boat control problems when manoeuvring in shallow water. Hard chine hulls improve lateral resistance, and broad adjustable sails provide the imbalances needed to give good boat control. Sprit, gaff, and lugsails are typical shoal draft rigs. Historically shoal draft boats have evolved sail plans that permit considerable movement of sail forces to aid manoeuvrability in shoal water.

The prime function of a fore and after sail is to drive a boat to windward. An important secondary function is to provide firm, controllable imbalances to supplement other boat control techniques. The shoal draft boat particularly the multihull, has to compromise these factors more carefully than a deep draft boat with large underwater control surfaces.

Whether a boat is deep or shallow draft, the seaman-ship game is all about sailing to windward. The objectives of tuning a boat to sail to windward are:

1. achieving maximum sail drive at the closest possible angle to the wind.
2. achieving maximum resistance to leeway.
3. reducing forward drag to a minimum.
4. achieving a balance of the drag, leeway, and sail forces when sailing as close to the wind as is practical.
5. inducing a little directional stability so that the boat is helping the helmsman steer to windward.

Let us expand these objectives a little:

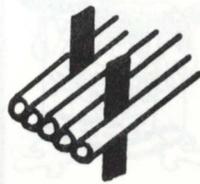
Sail drive The longer the luff or leading edge of the sail, the larger the volume of air that can be deflected and the amount of energy transferred to the boat. A sloping leading edge has its advantages. The faster moving air that holds most energy is well above the deck. Deflect as much of this as possible. Multihull sails should be capable of being precisely controlled.

Resistance to leeway. A long sloping leading edge to the boats bottom or keel will create the necessary pressure difference between the lee and weather sides of the hull, particularly in surfy turbulent water.

Air drag A major source of drag on the multihull. A clean uncluttered topsides with the minimum of flying rope and wire is the objective.

Water drag A smooth shape with no abrupt changes in

The Sailorman



section. A sharp edge at the keel line helps to prevent water flowing from the high to the low pressure sides of the hull.

Displacement drag. The heavier the boat, the greater the loss in energy in pushing the water aside as the boat moves. This loss increases rapidly with speed. Heavy boats have to heave themselves over waves that are travelling towards the boat when it is sailing to windward. As the speed of encounter increases so does the energy loss.

The overall drag of a boat limits its windward ability. If drag can be reduced, then the boat can sail closer to the wind because it needs less energy to drive it. The sails can be sheeted in tighter and still produce enough power to overcome drag.

Balance If the forces acting on the boat balance out when sailing as close to the wind as practical, then we are driving along at maximum efficiency and we can then make the last important adjustment:

Directional stability It is very difficult for a helmsman to concentrate for any length of time on his main task of steering the boat effectively to windward. Perhaps the most rewarding part of the tuning process is to be able to induce the boat to sail itself to windward. The boat is then helping the helmsman steer, and his lapses in concentration are hardly noticeable. Such a boat will outperform a lighter, potentially better boat that is not in proper tune.

The monohull yacht can be induced to steer itself to windward quite easily, because it heels over as wind pressure in its sails increases. The mast and the sail force is used by the skilled tuner to create the small amount of directional stability needed to help the helmsman steer.

This leeward movement of the sail force is not present to a useful degree on the multihull because it is designed to sail upright. The multihull sailor has to find an alternative way to achieve directional stability. The only obvious way of encouraging a useful movement of the sail force with variations in the boats heading, is to encourage fore and after movement of the sail forces as the sails alter their angle of attack to the wind. The Thames barge, a shoal draft monohull, is also designed to sail upright. It is not an easy boat to sail to windward, unless full advantage is taken of its shoal draft rig to get a sensitive movement of its sail forces that can be used to give a little directional stability. I am not advocating removing the gear off the few remaining barges, just put your motive power where it does the most good. A little directional stability to windward can compensate for a lot of draft or reduced sail area. It is not unusual to find a well tuned heavy monohull outsail a much lighter multihull of comparable length on a long slog to windward. A significant part of this difficulty with a multihulls performance to windward can be often attributed to its lack of adequate directional stability.

Which brings us back to self steering, the art of achieving sufficient directional stability to allow the helmsman to concentrate completely on other things. When a boat is in good tune then a self steering mechanism can be very simple or dispensed with altogether, particularly when sailing to windward.

As a boat changes course off wind onto a reach and a run, the forces acting on the boat change also. As the sheets are freed a larger proportion of the sail force is propelling the boat forward. Leeway forces reduce, and so does drag. A new balance of forces is needed for each course sailed. A fore and aft rigged boat becomes more unbalanced as it sails downwind. On a reach there is sufficient leeway to rebalance the boat with moveable dagger boards. Downwind when leeway is minimal, a rudder or steering paddle can be used for normal

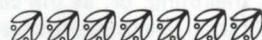
sailing. To self steer downwind it requires the sail plan to be rebalanced to ensure safe self steering. Techniques for downwind self steering are discussed in the A.Y.R.S. book "Self Steering", and in most of the books on long distance cruising.



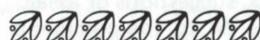
AUDITORS RECOMMENDATIONS

As a result of auditing the P.C.A. accounts for 1978, I would like to make a couple of suggestions, the first of which is already being enacted by the Treasurer.

These are that a) Receipts are issued on payment of subscriptions, and b) Members retain records of payment of their subscription in order to reduce the number of queries received by the Secretary and Treasurer.

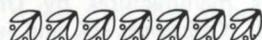


It seems that a number of members are expressing dissatisfaction about area activities (or inactivities.) The advertising of some area meetings is a little short but this has been due to the lack of details received from the area organisers in some instances. Both the editor and the committee have requested many times to members please write to let us know what is planned for meetings. It is not easy to plan meetings a long time in advance but the main Sailorman issues do have to be prepared about 9 weeks before publication.



RGF

The cost of the 'glossy' style of printing is fairly high by comparison with the cheaper offset litho system for the small numbers involved — 1000. The number of unpaid subscriptions by June 1979 meant that there was little margin for postage. Please do let us have your subscriptions as early after publication of the Mini-Sailorman as possible. Otherwise the tendency is to forget, mislay subscription notices or not even realise that your money is needed to send you your magazine. It may sound obvious but it is an essential requirement for membership to the PCA.



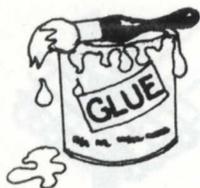
RGF

When I look at the material I have produced over the past four years for the Sailorman, I know that it could have been better written and that there are many others whose literary style and knowledge are far greater than my own. When talking with most PCA members, it is very rare that something does not crop up that would be usefully printed in the Sailorman. Likewise, there are many useful projects and/or collations of information that never get off the ground due to a lack of volunteers. The old saying 'You never get out more than you put in' is highly applicable to PCA activities. Does your Area Secretary have any assistance — if you have an area secretary, for instance? I hope that at the 1980 AGM, the great ideas which was always being raised from the floor will be supported not just by a show of hands in favour but by the lending of hands in carrying out projects.

RGF

Sheathing a Plywood Hull

Compiled by Richard Bumpus



Why sheath a plywood hull; Protection is the answer. Protection from impact, abrasion and marine borers. It should give a first class waterproofing coat and may extend the life of the craft. Sheathing will not add strength. The sheathing envelope may prevent you sinking after a collision.

I've heard of a Tane that was in collision with a coaster in the English Channel. The singlehanded sailor leapt overboard just before the smash. After the coaster had sailed on by without realising what had happened, the singlehander climbed back aboard to find the bulwarks, stringers and plywood planking in splinters. The cat was sheathed with nylon and resorcinol glue. This envelope was still intact because it was tough and flexible — that it mattered. The cat was able to get home for repairs. This story was related to me by two fellow Polycat sailors.

I sent out just over fifty questionnaires to PCA members worldwide to get some idea of their practical experiences about sheathing, or, as the case may be not sheathing their polycats. The questions were:

- 1) Have you sheathed your boat?
- 2) Why have you sheathed your boat?
- 3) Did you sheath it to the waterline, or the whole hull?
- 4) What method did you use?
- 5) Why did you use this system?
- 6) What do you think of it?
- 7) Would you use it again?
- 8) Would you recommend it to someone else?
- 9) How well has it stood the test of time and wear?
- 10) Was cost a factor in considering your method?
- 11) What type of cat do you have?
- 12) Other comments, suggestions or ideas.

Before we move on to the comments received from the Questionnaire, let us briefly consider the more commonly known methods available for sheathing (not listed in any special priority)

- 1) Multican X109
- 2) polyester resin and glassfibre
- 3) epoxy resin and (a) glassfibre, (b) polypropylene, (c) dyneel
- 4) nylon and resorcinol glue
- 5) wood Epoxy Saturation Technique — WEST system
- 6) Epoxy paint
- 7) I would like to hear of any others

Multican X109 is manufactured by Unitex Ltd. of Knaresborough, N. Yorkshire, UK and is a compound that can be brushed or trowelled onto a wooden boat. The plywood first needs a thorough rubbing down before being primed with an appropriate Unitex primer and the X109 is then applied. Using a brush, about four coats would be required to give a thickness of not less than 1/32". Intervals between coats should not exceed 2 hours otherwise adhesion coats should be used. A final glosscoat or lacquer is a good idea as X109 will become dull in sunlight. The best gloss system offered gives good colour retention and is supposed to have a low coefficient of friction in water. Very important too, is the fact that X109 is reputed to have a very high resistance to erosion and abrasion. It is also flexible and stretchy, so it will expand and flex with wood, depending on moisture content. X109 can be used to finish off wood, steel, alloy, concrete or GRP boats. Apparently most of the materials used in this sheathing system combine chemically with moisture in the air. The literature says that X109 is used on the bottom of GRP boats that are

dragged up the beach such as ski boats and inshore rescue craft. The Navy also use X109 extensively. Cost is about £0.50 per sq. ft. (Sept. 1979). I have not yet met anyone who has used this system.

Polyester resin is usually bought with what is known as an accelerator in it. This speeds up the curing reaction once the catalyst or hardener has been added to start the reaction. The catalyst, methyl ethyl ketone peroxide (MEKP), is a hazardous chemical — so a word of warning. Tony Meakin drew attention to an article published in the Queensland Multihull Yacht Club's Newsletter, where it stated that an eye specialist at a safety conference has said that a drop of MEKP in the eye would eventually destroy the tissue and cause blindness. The damage is progressive and once started is irreversible. If the affected eye(s) is washed immediately the contamination has taken place, injury can be prevented. If eyes do get contaminated with MEKP, it suggests sloppy workmanship. The remedy is careful working and safety classes.

When resin cures, it produces heat and heat speeds up chemical reactions, so the more the resin mass, the quicker the curing. This is seen especially in the mixing pot. Low working temperatures will slow down the reaction a lot. Keeping resin on ice on a hot day will prolong its working life. Sunlight acts further as a catalyst in the curing process as it also produces heat.

Polyester resin gives a good mechanical bond with wood i.e. it sticks very well to wood which is rough or course sanded especially soft woods such as open grained Douglas Fir. Polyester though is not a glue. It will not stick to smooth surfaces (see Bob Evans article about Good Glueing with reference to Sanding in Sailorman Dec. 1978 p. 11). Polyester resin will not stick to damp or wet wood, nor will it stick to epoxy surfaces.

If poor preparation is carried out, a good mechanical bond to the wood will not take place. This and any moisture in the wood will lead to delamination.

When laminating layers of glass and resin, the minimum amount of resin should be used for a strong bond otherwise excess resin will cause a weak bond. Hardened polyester on its own or with little reinforcing, will become brittle, will not flex and will crack easily. Sunlight will destroy polyester resin unless it is painted and/or pigment is added.

To improve the bonding of polyester to wood, Bondaglass-Voss Ltd. of 158-164 Ravenscroft Road, Beckenham, Kent. U.K. have produced a resin G4 marine. This resin cures solely by the presence of moisture. The resin is painted onto the prepared wood surface and left for about half an hour. A coat of polyester resin can then be applied and glass as necessary with any necessary filler, resin and pigment and finally a coat of G4 to finish. It seems the bond is very good. G4 is advertised as giving good adhesion, and also high impact resistance. It can be painted onto wood as a varnish and a waterproof seal. Let the first coat sink into the wood, then apply the second coat ½ to 4 hours later to give a tough surface coat. This cannot be done with polyester resin. Arthur Johns has used G4 in the building of his Hinemoa Simbalmyne (Sailorman June 1978 p.10). G4 marine can also be used for sealing concrete floors and damp cellar walls.

Epoxy resin Unlike polyester resins, where a small amount of catalyst or hardener is not too crucial to start the curing reaction of the resin, epoxy resins have two components which must be mixed together thoroughly and in the exact quantity specified. Instructions should be read carefully.

The Sailorman



Epoxydes make good glues (e.g. araldite). Epoxy resin bonds to wood chemically. It will penetrate dry wood very well, possibly so much so that several coats will have to be applied before resin will lie on the surface. A wood/epoxy composition is very strong. Some other properties include: (so I understand but of which I have no experience).

1. better adhesion to teak and oak, metals and ferroce-ment than polyester.
2. epoxy will bond to properly cleaned and cured polyester, but polyester will not bond to epoxy.
3. epoxy resin is flexible and waterproof and tough.
4. epoxy shrinks less than polyesters. Shrinkage will cause stress with loss of adhesion.
5. certain epoxyes are manufactured to cure at low temperatures e.g. Coldcure as advertised in Multihulls Magazine, and others to cure under water.
6. epoxy is attacked by sunlight like polyester unless protected by paint or pigment.
7. epoxy paints are very good. They adhere well and wear a long time unlike ordinary paint.
8. epoxy resin often costs more than polyester (but this depends on where you get it from!).
9. epoxy resins are used in many industrial applications.

Ciba-Geigy's plastics division at Duxford, Cambridge CB2 4QA, U.K. produce an epoxy resin for laminating and also one for surface coatings — available Pz 820 with it hardener is used in tanks, pipework in chemical plant, on industrial scale steel, concrete and timber structures (including marine use) and as a finish for flooring. The coating give hardness, good flexibility and resistance to chemical attack. Whether clear or pigmented, the coatings give a high gloss appearance.

The WEST SYSTEM is a method whereby you can build a boat using an epoxy resin that can be made into three different states. Sumarised by Graham Begley they are:-

- (a) *Thin* used for saturating all timber to produce a composite resin/wood material;
- (b) *Medium* used as an adhesive compatible with the composite material. Requiring only light pressure and contact, facilitating effective multiple joints;
- (c) *Thick* used as a filler, an effective if expensive means of compensating for inadequate joinery. As strong as, and compatible with the surfaces being bridged.

But we are concerned with sheathing, not building the boat. So we would be concerned with the thin epoxy resin.

For the West System, information can be obtained from West System Epoxy, York Street, Cowes, Isle of Wight PO31 7BS England or Gougeon Bros. Inc. 706B Martin Street, Bay City, Michigan 48706, U.S.A. Practical Boat Owner featured an article on the West System. I have been told indirectly from the horses mouth that for the greatest success with West epoxy wood must have no more than 12% moisture content. In the West System booklet, it mentions the use of the epoxy resin and polypropylene for abrasion and impact resistance. The thin resin can also be painted in and outside the plywood to make a waterproof barrier. Colloidal Silica could be included in the resin on the outside. This will give good abrasion resistance. If the silica loadings are high, the resin can be extremely difficult to sand. Roly Huebsch has mentioned the fact that he has seen boats coated with epoxy saturation like the West System. He says it stops the plywood from "checking", but cracks can appear at joints in the plywood panels where stress occurs if the panels move. This of course happens with any paint-only job, (depending upon construction). So overall sheathing is better.

Chem Tech is another epoxy from the U.S.A. advertised as good for sheathing with polypropylene (versetex), but Roly Huebsch's experience is that it is thick and syrupy and that *West-epoxy* is easier to use as it is thinner.

Coldcure epoxy system is advertised in MULTIHULLS magazine as curing down to 5° C, and also under water. One product is used as a glue, a laminating resin, sealer and a putty using a thickener. It is also supposed to bond to wet wood.

Nylon and resorcinol glue. Many builders have bought nylon that is used for industrial purposes. The glue of course is excellent and the nylon is very tough i.e. it has very good impact and abrasion qualities. If the nylon is torn in a mishap, water will not penetrate anywhere else beneath the skin because of the glue, apart from the exposed wood.

Cascover System. This is a nylon sheathing system that is marketed by a company specially for sheathing boats.

Reinforcing materials for use with resins

Wooden Boat published an article on sheathing materials in which the author came to the conclusion that polypropylene with epoxy resin was the best system to use for sheathing a boat as it offered the greatest benefits of adhesion, resistance to impact, tear strength and flexibility. Polyester resin could be used, but lacks the necessary qualities to make full use of the polypropylenes and characteristics.

Roly Huebsch has sheathed his Narai Mk IV using this method (see p8 June 1978 Sailorman). The cloth weighs 4 oz/sq. yd. and looks like 10 oz/sq. yd. glass cloth. No material is a wonder-thing. Polypropylene has a low density and will float in resin (and water!). Roly describes how he overcame this. This material creases very easily and must be kept on a roll. Once a crease has been made it is there permanently. Sanding should be kept to a minimum as the polypropylene tends to fuzz (unless fine grade paper is used) while the resin is ground away.

Unlike polypropylene and glass cloth (except CSM) which are made of continuous lengths of fibres in bundles in which all strands lie parallel to each other, Dynel is made of short lengths of spun and twisted yard which has a fuzzy appearance. Dynel weighs about half that of fibreglass. It has much less tensile strength than glass, but much greater flexibility and abrasion resistance. The flexibility is less than that of polypropylene while its abrasion resistance is the highest of any material, so sanding it is very difficult. Dynel is soft and easily wet with resin, with little tendency for air to get trapped in it. When Dynel is soaked in resin, apparently it doubles in thickness. Its strength is low so it will not cover up bad workmanship or places where a plankworks i.e. moves. Dynel doesn't like local stress. Polyester resin can be used but epoxy might give better results.

Fibreglass — this seems the most commonly used sheathing material, possibly because it is best known because of GRP boat building.

Fibreglass is a stiffer fibre than the others that have been mentioned, so in a primary structure where stiffness is required, this material works very well such as is seen in a GRP hull, or where a "stitch and glue" hull is made. The glass and resin that joins the plywood panels is built up until it equals the strength of the plywood.

Now let us see what our members response to the questionnaire is like

The Sailorman



POLYESTER RESIN AND FIBREGLASS

Alan Knightsbridge of Southampton had a Hina, now sold, which was sheathed to the waterline with Strandglass resin and a single layer of cloth. This system was used as it appeared to be the only method which anyone had experience of at that time (1967). Alan does not think much of it, would not use it again and would not recommend it to anyone else. With time and wear, the sheathing required more work each year to restick the areas where the water had got underneath. Cost was not considered a factor. His final comments are that if you want to build in wood, do not sheath it, if you want a glass exterior build in GRP or foam sandwich. If you are renovating an existing wooden hull by sheathing, take it up to *and behind* the rubbing strake to ensure a permanently watertight edge. Do not screw through the sheath to fix a false keel, reinforce it with many layers of CSM which can be repaired easily.

Bill Hather of Lincoln had a Tane, now sold, which was launched in 1972 — it was sheathed to deck level with glass woven rovings and resin to give strength and longer life. The system was used because of availability of materials and his opinion of it was good. Only slight wear had occurred on the skegs and where the anchor chain had chafed. Mr. Hather would use the system again but would recommend it only if the right conditions of temperature and dryness could be ensured. The glass woven roving has worn very well and cost was not considered a factor. His final comments are that if he sheathed the boat again he would use one of the new lightweight fillers to achieve a high finish rather than repeated coats of gel coat and sanding. The finish on the Tane when he sold her was still first class after approximately 7000 miles cruising and racing over a 7 year period. The hulls did not leak at any time.

Jan Jutting from Holland sheathed the whole hulls of his Tane (now sold) in fibreglass and polyester resin in order to give the boat more resistance to impact damage. This system was used because it was thought to be the best of that time (1968). He does not like the system, would not use it again or recommend it to anyone else. Time and wear showed that unless the job was done properly it had to be redone. He goes on to say that fibreglass sheathing did not stick sufficiently to the wood though he took special care in preparation by scratching the surface of the wood, the sheath is vulnerable in the sense that if there is the slightest hole in it water penetrates it and starts to delaminate the wood in the sheath — you don't notice what had happened until the damage has been done. Frost is a wrecker. His next boat will be coated all over with epoxy tar, there will be no fibreglass or nylon anywhere. As for fibreglass and resin he dislikes the smell, the stickiness, the risk of fire from acetone and the difficulty of sanding.

John Agnew of Chelmsford built a Tangaroa which he sheathed with CSM and resin. The whole hull was sheathed for strength (impact and abrasion resistance) reduced maintenance and a better water barrier. This sheathing system was used because it was the only one known at the time. John says it is a messy operation to do. A good bond was obtained at first but separation was apt to occur later. This system would be used again unless convinced by someone else of a better way to do the job. Time has shown it to be fairly good except

for one leak near the skeg which swelled the keel timber and split the sheathing delaminating the surrounding sheathing. Cost was not a factor. He then goes on to say . . .

Would have been better if we'd covered the GRP with fine CSM at time of laying up to obtain smooth finish. Were totally unable to grind it down with mechanical sanders — heat build-up melted the resin, clogging the discs. Now it has a rough exterior (very strong) which must increase water friction.

N.B. Slammed into concrete wharf knuckle (broad-side on) in Holland during gale, smashing ply skin *inside* GRP skin, but only scratched the exterior. Interior ply replaced with ease.

Would never lay up (again) during hot summer days — resin cures too quickly. It seems to be an advantage laying up on timber kept outside under clear polythene cover which seems to extract all the moisture from the timber and make adhesion easier.

Total coverage in GRP meant we did not have to build in strength points in way of beam connections to reinforce or prevent racking.

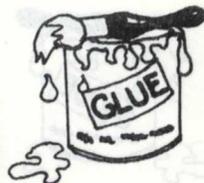
Ken Lawson of Pymble, New South Wales owned both a Hina and a Narai which were sheathed overall in fibreglass and resin to keep the worms out of the wood. This system was used because none other was known in 1972 — he reckons it is good and would use it again. Time has shown two patches on the Narai had lifted underwater by 1977 when the boat was sold and passed survey for charter work. Cost was not a factor. If he were to build again he would use the WEST system. His further comment is that if cost was a factor, the hull would be fibreglassed to the waterline only with paving paint on the deck — this lasted two Australian summers on the Hina. To make the paving paint non-skid a handful of sand was added. Expensive yacht varnish on the other hand did not last one summer.

Bev Underwood from Merseyside said that he sheathed his Hina with glass and polyester resin to the waterline. Gradually water got under the sheathing, so it was all ripped off three seasons ago. An extra hardwood keel of 3" x 2" of about two thirds the keel length was screwed on to act as a skid to protect the soft wood keels. Bev has since started a Tangaroa mk. IV. It is being built in marine plywood and maybe possibly be covered in some type of epoxy finish.

Chris Giecco of Minster, Kent has sheathed the hulls of his Tangaroa in polyester and glass. The plywood was coarsely sanded and then the grain of the wood made to stand out by wetting with water. Allow time for the wood to dry off (wood absorbs water vapour much more than solid water. In a dry shed the water will dry off quickly). If the wood is really dry the resin is soaked up. Further resin is then applied until it lies on the surface. Then glassfibre is applied. Using this method on a test strip Chris tried to tear the fibre glass off, but only succeeded in destroying the plywood.

Mr. K. L. Stanley of Liverpool bought a plywood Tangaroa which was sheathed to one foot above the waterline in woven matt and resin. The boat is now 10 years old and on most of the hull the sheathing is still perfect, on the skeg and keel bottom it has been eroded away and has partly been stripped of the side of the skegs, on the stems it is wearing at the waterline. Along the stem and the stern posts it has cracked where the plywood planking joins the timber posts due to differential movement caused by the strains on the outer posts and also because of freezing of water in the inner/outer post interface. He goes on to say that keel and skeg bottoms should be metal shod and that stem posts should be fitted with a protective wrap round metal plate or the sheathing beefed up for a 9" depth on the waterline for protection against minor impact. He would

The Sailorman



suggest that it should ensure that the outer stem and stern post internal joints and the joint to the inner posts and hull skin should be completely glue flooded although it should be noted that the weathering on his only appeared after about 8 years in the U.K. mainly at Barrow-in-Furness on mooring buoys and never sheltered in winter. He later built a Hina which he did not sheath.

Brian Milne of Caernarvon, W. Australia built a Raka which was sheathed in 8 ounce fibreglass cloth to deck level and cabin tops, and 10 ounce CSM on deck. Polyester resin was used with this. The boat was sheathed to protect against borers and provide a hardwearing and long lasting surface especially in a tropical climate. On a previous Tane that he had the boat was sheathed to the waterline only so the top sides needed continual re-painting. As a result the whole Raka hull has been sheathed. In using this system all the plywood surfaces were thoroughly roughened before the first coat of resin, a second coat of resin was then applied followed by the glass. This avoids dry areas. This system was used because it was the cheapest but also effective if done carefully. Brian says his Tane has been afloat 10 years and the fibreglass is still good. He thinks this system is excellent, would use it again and recommend it to others. Time and wear has shown it to be excellent but some delamination has occurred around hatch combings where he used a timber which was naturally oily — the solution to this is to grind it back and use twopat epoxy primer paint and polyurethane twopat gloss paint. This system is the best in its hardwearing and longevity. Cost was a factor in sheathing these two boats hence the use of the polyester resin and fibreglass. He goes on to say that if he had plenty of money he would use epoxy resin on the hulls as it adheres much better to timber and is flexible. The fibreglass sheath on the bottom of the boat keel needs protecting from abrasion e.g. groundings. He screwed and glued a piece of 5 x 1½" hardwood on top of the glass, then he screwed a piece of 5 x 1" on top of this again. This last piece can be replaced if damaged. The Tane he built and launched in 1969 is still going strong and winning local races she is aground on every tide. The secret he believes for successful fibreglass sheathing of plywood and timber is complete dryness and the surfaces must be completely roughened by hand using fortgrit paper or an angular grinder with 16 or 24 grit discs. He adopted this system when gluing any timber joint. He is a partner in a fibreglass boat and product manufacturing business so he is using fibreglass everyday on all types of surfaces as they do all kinds of repair work. The secret definitely is in surface preparation prior to glassing. NEVER fibreglass or glue plywood without first removing that machined surface. On his decks he sprinkled beach sand in the final pigmented coat. His Raka was built 3 years ago and is still going strong. For applying the resin to the hulls he used a 9" paint roller.

Bob Holroyd of Minster, Kent is rebuilding Jim Wharram's old trimaran TIKI ROA into a catamaran. Bob's construction is second to none. He has some very good ideas for cabin construction. He has sheathed the whole hull, deck and cabin for protection and extra strength. The method used is fibreglass and polyester resin, because it suited his purposes best. He reckons he has a very good bond, and would use this system again, and would recommend it if it is done properly. The boat has yet to be launched. Cost was not a factor when compared to other methods. His final comments are that many GRP sheathed boats appear to delaminate quickly but thinks this is always because the job is not done properly. All corners must be radiused as glass will not bend around them. The wood must be completely dry and clean and then sanded with course sandpaper to break up the surface as you would do with glue joints.

The wood must then be primed with the resin which must be allowed to soak in and almost cure. The glass and resin can then be laid up. Bob uses two layers of 2 oz. CSM all over the boat with five layers on the keel, stem and stern posts with one layer of 13 oz. roving as well. This may seem rather a lot of glass but he feels that unless something like this is used, eventually the ply seams will move and make cracks in the glass. The keels will get worn through. As the timber in the stem and stern posts can vary from the plywood in moisture content, any expansion or contraction will cause the glass to split unless sheathed thickly.

After the glass has been layed up, the hull is faired using filler. Initially this was trowelled on very thickly (to stop it falling off or cracking), but it was found that better results could be obtained by mixing resin and Blanchards Whiting, then thinning this with acetone and applying it with a brush. This was sanded down when cured and a final coat of resin was then applied. This was later rubbed down and painted over with two coats of epoxy enamel. The Blanchards Whiting and resin filler, Bob thinks, is easier to rub down than Fuller's Earth which Strand Glass supply, although it sags more easily if applied thickly.

Gus Wisoky of Hobart Tasmania dreams of a Tane, but has an ATTUNGA class cat-an Australian design, 20' x 10'. It has fibreglass tape along the seams and where the deck joins the hull. The boat is sixteen years old and everything is still in good condition.

One or two of the leading fibreglass firms in the U.K. suggest, so I understand, that you apply accelerator to the prepared plywood. When nearly dry lay up glass cloth or CSM and apply resin. Our illustrious Designer did this on the cross beams of his proa — a test strip only destroyed the plywood, when he tried to tear off the glass.

Roly Huebsch of Toronto sheathed his Hina with polyester and fibreglass. The boat is now eight or nine years old. Where damage has occurred, separation has occurred rapidly between wood and sheath. Failures too have occurred around the junction of stem and shear and around the rudder fittings on the skeg — caused by rudder forces causing flexing of the ½" thick skeg causing cracking on unelastic sheathing.

NYLON AND RESIN

Tom Jones of Philadelphia (whose Hinemoa survived a hurricane and is since sold) sheathed the whole hull because everyone else was doing it, using nylon (because it was flexible) and polyester resin (because it was cheap). His experience of it was bad — it blistered. Polyester is not a glue. Nylon swells in the resin and requires more coats to fill it, which makes more weight, cost and sticky work. Tom would not recommend sheathing anywhere under any circumstances. Time and wear showed the boat to be watertight but after 3 years repair to a skeg showed blackened wood — the first sign of rot. Cost was a factor i.e. polyester was cheap but epoxy would have been far better. Tom has since built a modified Tanenui which he has not sheathed but has instead 3 coats of epoxy paint though it is too early to say how good this is. (Although at the time of compiling this Sailorman, Tom has completed one Atlantic crossing and may now have further comments). He also reckons that sheathing is an attempt to make a boat eternal (like our souls) and to protect ones investment. It does not work. It cracks, because wood and plastic expand at

The Sailorman



different rates. water enters the cracks and the sheathing prevents the sun from drying it out. There are always blisters, voids in the hollows and at sharp turns. These are worse than voids in the plywood for collecting condensation and starting delamination and rot.

Roly Hurbsch writes from Toronto . . . Jack Dundas of Welland is using a combination of nylon and epoxy resin on his Narai Mk. IV. The nylon was obtained from a local mill that manufactures fabric for braking chutes for jet fighters. They inadvertently wove a bolt 2" too narrow and sold it to Jack for half price. (it's bright yellow!) He reports that it is very easy to apply but as his boat is not yet finished he has no service report. Tom Jones, when he was here, said he once used a nylon/epoxy combination and found that the nylon swelled considerably in the epoxy, absorbing more resin than expected and resulting in a thicker and heavier sheath than anticipated. Jack has not experienced this problem.

PAINT WITH NO SHEATHING MATERIAL

Nico Boon of the Dutch Catamaran and Trimaran Club of the Netherlands built a Hina some years ago which was not sheathed. (If he was to recommend anything at all he says it would be epoxy and polypropylene and draws attention to 'The Gougeon Brothers on Boat Construction' and the WEST system.)

Mr. L. Hill of Manchester had a Hina (which sadly was broken and burnt by vandals) which was not sheathed in fibreglass or any other material due to the different co-efficients of expansion and contraction between the sheathing material and the wood.

Sam Nelson of Troon, Scotland built and sailed his Hinemoa long distances singlehanded and has now completed a Tangaroa Mk. IV. Neither boat has been sheathed, because Sam says that delamination problems are far too common. The quote for the Cascover system for the Tangaroa was more expensive than the plywood! He goes on to say:

"I used International epoxide paint on the hulls and decks of the Hinemoa. This was not entirely successful as after several years, blistering occurred along joins and at screw heads. I contacted the technical department of International who sent a representative to inspect the boat. It was decided that blistering was caused by over catalysed Aerolite 306 glue. Excess unused catalyst (formic acid) leached through to the surface slowly, ruining the epoxide paint and Interpad filler. So this very good system is NOT RECOMMENDED if AEROLITE 306 glue is used. (The glue was always satisfactory and the Hinemoa, when resold recently passed a full survey with flying colours).

The system used on the Tangaroa exterior and interiors to the first stringer above the waterline is:

1. Resorcinol glue used (CIBA is half the price of BORDENS).
2. Paint scheme is six coats (with filling in between) of Epoxide using slightly different colours in alternate coats, with 2 top coats of PERFECTION 709 above the waterline (as an untraviolet screen) and two coats of extra hard racing antifouling below. Paint cost at trade for a Tangaroa was £520!!

EPOXIDE PAINT WITH SHEATHING MATERIAL

Tommy Thomas of Shrewsbury has a Tane which he has sheathed with International epoxy paint and glass cloth. The whole hull was sheathed for strength and waterproofing. The system was recommended from an article

in Practical Boat Owner and he reckons that it is quite good if the money is available as it is an expensive system. Since the boat has only recently been launched there is no time and wear report. He goes on to say that one must not skimp with the first and second coats on the wood as this will give the cloth a good surface to adhere to. One must also be liberal with the paint when laying up the cloth.

Patience is a must, and air must be removed from under the cloth. This is very tedious. If you fail to remove all the air you will have a nasty job when dry trying to remove the air bubbles — they are rock hard and cannot be pricked or flattened. When the hull, decks and cabins have been covered in this paint and cloth (two layers) you have a very strong bond. He has tried hammering a globule of this epoxy paint and it has taken several hard blows to crush it, so you can imagine how hard it can be impregnated into a strong glass cloth.

Vic Felgate of Cleveland has a Tane which he sheathed with two pot marine epoxy paint and finishing tissue. The whole hull was sheathed to increase the life of the marine ply hulls and to protect them from borers. This system was highly recommended in an early Practical Boat Owner article. Other systems, using heavy glass matt and polyester resin are very messy, give a poor finish and add weight. Marine paint and finishing tissue is the perfect sheathing system and is recommended to others. The hulls were sheathed seven years ago and are as good as new. The Cascover system was considered but thought too expensive. He goes on to say:

"The method I used is very easy. I applied it whilst hulls were right way up. This is almost impossible with heavy mat and resin. Very little waste, as paint does not 'go off' quickly (unlike polyester resin) — you can work with one mix all day. If you can afford it, once having stuck tissue down (one layer or two) you can go on applying epoxy paint (no longer than 24 hours between coats) until you build up a really perfect finish. I used one priming coat on sanded ply hull, next day one coat to stick and penetrate glass tissue, next day one coat of epoxy primer (conventional paints not suitable on epoxy gloss) next day conventional undercoat followed by coat of Woolworth's best gloss yes! we paint every year and have found that 'Woollies' gloss lasts as well as expensive marine paints. I compare this system with that of glazing an earthenware pot. You require a good protection for the material. 'The vessel' is made from and a good finish. Please advise members who are building and propose to sheath hulls that they must make a good job of building. The hulls must be soundly built and watertight before sheathing. I've heard of hulls being built where the workmanship was poor because they thought the sheathing would put everything right. A cheap method I used on a previous boat was to sheath with terylene net curtain (plain not patterned) using Aerolite 306. This was taken up to the waterline only as finish not too good. This boat is now ten years old and none of the sheathing has lifted. After I sold the boat it was neglected and remained afloat for 3 years with no attention. I reckon that without the sheathing she would not have lasted very long after her period. She now has a new owner who looks after her and she looks brand new, even under the water line."

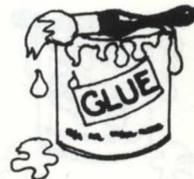


22 ft. and 13 ft. mast sections can be joined with wooden plug and used for Pahi 31, Tangaroa or Narai mizzen mast. Size approx. 6.5" x 5" by Kemp masts to B and R design (as used by IOR fleet 2-3 years ago). Unanodised sections only. £150 o.n.o.

Richard Woods, Denyholme, Chilworth Old Village, Southampton, Hants.



The Sailorman



Pete Jezzard of Cleveland has built an Oro which he has sheathed with epoxy paint and close woven fibreglass cloth. It has been sheathed to the waterline to keep out marine borers. He reckons it is excellent, would use it again and would recommend it to others. Time and wear have shown it to be quite good. He goes on to say that the first consideration of his sheathing system was to keep out worms — nothing else such as impact or abrasive resistance. This is partly as a result of many sheathing failures that have been seen, the worst being a complete fibreglass sheath dropping off a clinker boat in the North Sea. The Unitex method seems to be quite good but he has never met anyone who has used it. Unless one completely cocoons a fibreglass hull with fibreglass and polyester resin he has absolutely no faith in this method, and if the hull should be so cocooned, then would it not be cheaper to build a boat in GRP such as NICK OF TIME which was built by Geoff Fallon. A catamaran flexes when being driven through a wave so whatever sheathing system is used it has to flex in unison with the hull so one often wonders when seeing hulls sheathed with chopped mat and resin up to ¼ inch thick what will happen bearing in mind the dissimilar expansion co-efficients. It is also difficult to achieve a smooth finish on this type of sheathing. He has had doubts in the past about the nylon and resourcinol system but Jim's Tehini and Fred Short's Oro soon allayed any fears he had about this system. The reason he sheathed his Oro in epoxy and fibreglass tissue was that Vic Felgate's Tane used this system which withstood the test of time and secondly he was offered a large quantity of epoxy paint at factory price. The decks are sheathed with epoxy paint and fibreglass tissue. Both tissue and close woven cloth were obtained from Strandglass. The underwater sheathing is 1/8 inch thick and is protected under the keels by a rubbing strake which he strongly recommends be fitted immediately after sheathing the inverted hull. In conclusion he felt that whatever system is used the secret of success is to do the operation either indoors or in warm weather on dry timber.

EPOXY SYSTEM

Ian Kelk from Queensland, Australia built a Hinemora which was sheathed to the waterline with epoxy resin and dynaglass 8 ounce cloth. This was done for worm protection on a sub-tropical mooring. The system was used because Ian found the system easy to use on a previous occasion. He reckons it is excellent and adheres very well — he thoroughly recommends it. The boat was inspected by a marine surveyor after 3 years and the sheathing system was in excellent condition. He then goes on to say that he used top-grade marine plywood the surfaces of which were keyed with rough sandpaper. These must be dusted carefully. The epoxy resin must be weighed exactly with a scientific degree of accuracy — do not glass both sides of the ply hull, put double or treble layers on hard wearing places. Cost was not considered a factor.

Les Landricombe of Plymouth built a Narai Mk. IV which he sheathed to the waterline with epoxy pitch and finishing tissue. The system was used because it is cheap and good, it wears well and he would use it on another occasion. He goes on to say that the keels of his boat are Iroko wood so the sheathing was primarily to protect the plywood hull from borers.

John Bowden of Broadstairs has a Hina which has been sheathed to the waterline with woven cloth and epoxy resin to protect the keels on a drying mooring of hard sand. The system was used because it seemed the simplest to a newcomer in handling glass fibre. The use of resin is sometimes messy. John would not use this system again though. Where there has been lack of resin on the hull the fibreglass has cracked. He then goes on to

say that he thinks that glassfibre sheathing is unnecessary. The hulls, 1066 ply have been painted with 2 pot 708 polyurethane paint with good results.

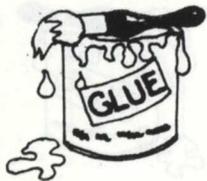
Tony Perridge from Inverness in Scotland has a Tangaroa which was completely sheathed i.e. hulls and decks with epoxy resin and woven glass cloth because the plywood shed paint easily, and a sheathing system means less maintenance and protection from worms. This system was used because it gives better adhesion and abrasion protection than polyester resin. It is cheaper and easier to use than Cascover. Tony thinks his system is excellent and recommends it. The year after application the surface "chalked" so a coat of 2 pot polyurethane would restore the gloss. Tony has since sailed single-handed to Norway and back.

John Bellenger from Toronto has an Oro which he sheathed to 1' above the waterline with 4 ounce woven rovings and epoxy resin. This was done to protect against impact and for abrasion resistance. This system was used because it was available and cheap. There seemed few alternatives. The system seems good but one or two cracks developed along the keel which needed filling after the first year. John would recommend this system. It has given three years fairly good wear. He then goes on to say that ideally it would be best not to have any sheathing because the wood expands and flexes so anything that is stuck to it will always delaminate, but it is a needed evil. John was advised that the sheathing system he used should be thin in order to make it flexible to get bonding durability. The Cascover system was enquired about but there are great delays in availability. The last thing he says is that if you put a few layers of plywood in the keel and stem and stern post laminates this stabilises them from expansions and contractions as these zones are the weak points.

Mr. Ledoux from Quebec, Canada has a Raka which is sheathed in fibreglass cloth and epoxy resin. It was sheathed to protect the wood of the whole hull. One coat of epoxy was painted on to the hull then immediately cloth is applied. This is then saturated with more epoxy resin which takes about 6 hours to dry. The epoxy and fibreglass with more epoxy resin which takes about 6 hours to dry. The epoxy and fibreglass cloth was used because it was reckoned to be the best system. The boat is not afloat yet. It seems nylon cloth is hard to find to use with resourcinol as an alternate system. Cost was not a factor. Mr. Ledoux thinks nylon is possibly the best system and reckons epoxy is better than putting thick fibreglass over the wood. The epoxy used was made by Bote Cote.

Paul van Deenen of Amsterdam writes to say that both his Tangaroa: NIMANO and Dieter Ludwig's Tangaroa LUCKY have both been sheathed with fibreglass and epoxy resin, with excellent results.

When Paul bought his Tangaroa, she was sheathed in glass and polyester resin and parts of it became loose (one could hear) and on both stems it had been torn away by the action of waves. For two successive winters he removed all the polyester and glass which was a difficult job, and replaced it with glass fibre (not mat) of 160 gm per square metre and epoxy resin. On some parts of the hulls the adhesion of the polyester to the wood was so poor that occasionally pieces of several square feet could be torn away without difficulty. Clearly it was the bond between the resin and the wood that failed. On the contrary, in other parts the adhesion to the wood was so good that high speed sanding discs



with hard metal abrasive coats, had to be used to get rid of the glass. Paul says he wore twenty of these discs down, and had to use 30 litres of acetone to dissolve the polyester from the clogged grain of the discs at frequent intervals.

Paul van Deenen discusses polyester a bit more by saying . . . Polyester resin contains a lot of styrene which gives off a smell while the material is being worked. Part of the styrene evaporates whilst curing, leaving a porous layer, not impervious to water.

This means that a waterproof paint is required to finish . . . (Ed.)

Epoxy is four times as expensive as polyester resin, so he feels this is the only consideration when choosing between polyester and epoxy for sheathing purposes. From every other point of view he feels epoxy scores highest, one point being its excellent primer properties for nearly every kind of paint. Paul used ordinary yacht paint which was acrylic based. The original coat of two layers of it over the epoxy and glass sheathing has lasted four years. Only places where minor abrasion has occurred, has there been any need for a touch up coat of paint.

Dennis Schneider recently lived in West Germany, but by now will be in the West Indies. He built a Tangarao called TEVAKE. All surfaces have been epoxy impregnated, while the underwater areas have been sheathed in polypropylene using ChemTech epoxy. This was done for abrasion resistance. The underwater areas took about 40 hours work to complete. The West system was used to glue the internal furniture and polyurethane paint was used to finish the boat. Dennis had heard fibreglass sheathing required a lot of work in sanding and filling, so chose polypropylene instead. He says he had heard stories about fibreglass cracking which did not encourage further thought on its use, although he says he knew a Narai which had been so sheathed and had worn well for five years of its life.

NYLON AND RESORCINOL

Derek Smith of Helensburgh, Scotland has a Hina which has been sheathed on the deck only to protect against abrasion. This had been done with Industrial Nylon and resorcinol glue and was used because of the availability of materials since cost was not a factor. He thinks it is all right once you realise the nylon shrinks during application. He would recommend it to others and may well use this on the Oro which he is building at present.

John Moore from the Isle of Wight built an Oro which is now afloat and was sheathed with 11½ ounce nylon and Aerodux resorcinol glue. The whole hull was sheathed to protect the exterior grade plywood against weather, marine borers and general wear. The system was used because it is very strong and when painted with epoxy paint a good lasting finish is obtained. John thinks this is very good and highly recommends it. The boat has been in the water over a year and the hulls still look as new. A fishing boat broke away from its mooring and bumped the side of the boat several times mooring — only a bit of the paint was rubbed away. Cost was not a factor with this system. It was considered less messy than fibreglass and resin and less likely to delaminate. He then goes on to say that he and his wife worked as a team following the good instructions in one of the early

issues of the SAILORMAN — they glued 3' wide sections and then nailed on battens before moving on. They ran the complete length of the hull with one piece of nylon, using one piece each side and one along the keel. They glued fibreglass tape along all the seams to hide the joins because there was a 3" overlap.

When TEHINI was built some years ago, so Jim Wharram was saying, that the nylon she was sheathed with had been made for industrial applications and that it cost £5!!! Those were the days.

Robin Fautley of Southend-on-Sea built a Tangarao which was sheathed using the CASCOVER method up to the waterline and on the stem and stern posts — this was done to protect against borers and impact damage. This system was used because originally it was thought to be best but seems to be too expensive. Robin would not use this system again but would use a cheaper substitute finishing with Cascote vinyl finish. Good working conditions are required for the application of CASCOVER (as with any other system). Cost was a consideration as at the time it was thought the use of epoxy would have been even costlier.

PTR Riekwell of Imuiden, Holland has a Harai which is sheathed in the Cascover system (nylon) to 15 cm above the water line. Under the humid conditions in which the work had to be done, Cascover was the best system to use. He reckons it is excellent and highly recommends it. It wears very well.

Bob Evans, formerly in the Royal Navy, now resident near Milford Haven in South Wales, built a Narai (photos in SAILORMAN June 1978). The whole hull was sheathed with nylon and resorcinol glue to prevent borers and impact damage, and as he says "I like dry bunks". The method was used because of the good adhesion of the nylon with the glue to the wood. It has worn very well, and Bob reckons this method to be an excellent system and recommends its use. Cost was considered a factor at the time of building so the nylon was bought from Bromley Boats and glue from Borden. The sheathing was finished with epoxy paint.

In January 1978 FRYGGA OF CYMRU suffered a lot of damage to the outboard side of the starboard hull when lying adjacent to a pontoon during a gale. The Narai had been moved to this pontoon unknown to Bob.

The damage occurred in two places.

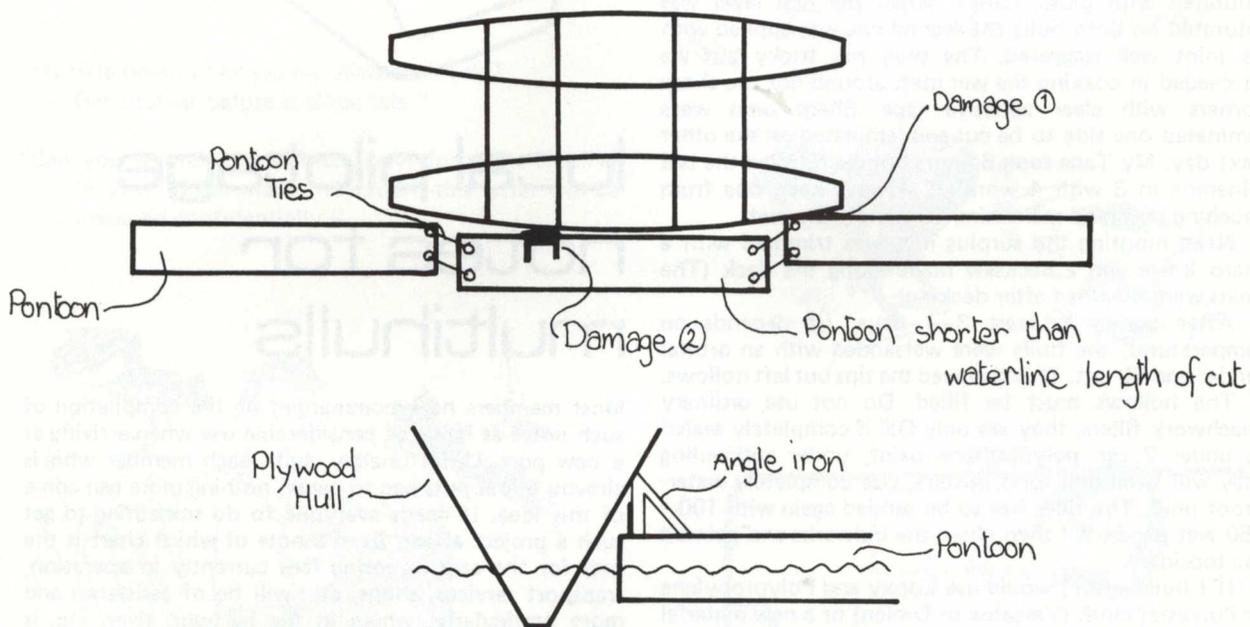
- 1) At the bow from the stem post to the first watertight bulkhead, from just below the waterline to 2' above it. The 9mm marine ply skin and two middle stringers and a diagonal stringer had been split and broken. The nylon sheathing however, had remained intact allowing only a very small weep into the forepeak. The corner of the forward pontoon had caused this damage.
- 2) Aft of amidships between the two aft frames in the main cabin. The nylon sheathing had failed along the weft i.e. vertically and also on the horizontal 2" overlap seam. The ply skin had been pushed inwards. This had been caused by an angle iron fender board support on the pontoon without fenders in the right place.

The cause of this trouble was that the cat had been very badly moored up alongside three pontoons which themselves had been poorly tied together. The weather conditions at the time were bad — northerly force 8 with gusts to force 10 and even one of hurricane force 12. This happened over a period of about 24 hours in an area of Portsmouth Harbour.

The Sailorman



The damage occurred in two places.



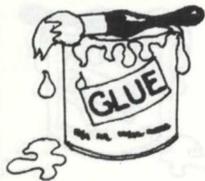
This example showed how tough the nylon is. FRYGGA has since been soundly repaired and is now sailing as a charter and sail training vessel in the Bristol Channel and Irish Sea.

A final thought

The sheathing systems are many and each has its proponents and opponents, but whatever system is used, it is only as good as the person who puts it on.

SHEATHING

By Gerhard Bobretsky



Up to the time of writing I helped to sheath 3 Polynesian catamarans, my own Tane and 2 Hinemoas. Only the Tane is sailing and has endured 3 ½ seasons. She showed some minor defects that could easily be avoided. I used ordinary autocar Polyester filler outside the laminate. If not properly sealed, as under antifouling, it absorbs water and swells thus forming small blisters. Topcoat turned so ugly within one season that I had to sand it down and paint the topsides with 2 pot Polyurethane from International. (2 coats) It is as good as new. The laminate sprung where the port sternpost meets the ply, because water could enter into the sternpost by a horizontal edge of the sheathing that was not properly sealed. One should avoid edges on vertical surfaces. We first filled all screwholes with polyester putty. The WBP ply was only sanded to remove some small faults in joining, and then well dusted. Then everything else was prepared i.e. matt torn to size, 2 large batches of polyester, one with a double amount of accelerator, the other with double amount of hardener, (so small lots were mixed 1:1) 2-3 plush rollers, some brushes, acetone, rubber gloves, etc. The hulls were precoat with one can polyurethane varnish. This is basically the same as Voss' G4 but a lot cheaper. On the last Hinemoa we used a special polyester primer that worked as well. As long as the precoat is still tacky it was rolled with polyester. Into this the first layer of 200 g/m² chopped strand matt was laid. We used it lengthwise with one overlap of 5 cm near the central bulkhead for easier handling. It went right over the keel and 4-5 cm down the other side of the hull. The matt was saturated with plush rollers. When the first layer was saturated on both hulls the second one was applied with its joint well staggered. The skeg was tricky but we succeeded in coaxing the wet matt around not too sharp corners with clear adhesive tape. Sharp ones were laminated one side to be cut and laminated on the other next day. My Tane took 6 hours but we finished the last Hinemoa in 3 with 4 working. Always keep one from touching resin and make him/her handle the matt.

Next morning the surplus mat was trimmed with a sharp knife and a hacksaw blade along the deck (The boats were sheathed after decking).

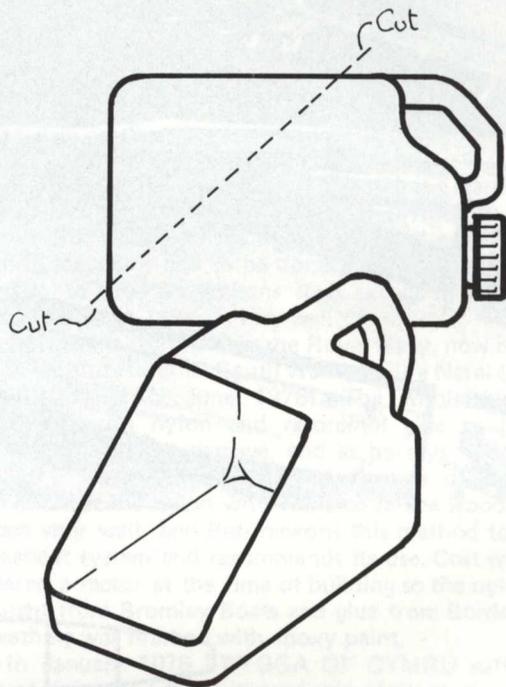
After curing at least 3-4 days, (it depends on temperature), the hulls were wetsanded with an orbital sander and 60 grit. This removed the tips but left hollows.

The hollows must be filled. Do not use ordinary coachwork fillers, they are only OK if completely sealed as under 2 can polyurethane paint, under antifouling they will swell and form blisters. Use completely waterproof ones. The filler has to be sanded again with 100-150 wet paper. We then glued the bulwarks and painted the topsides.

If I build again I would use Epoxy and Polypropylene or Polyester cloth (Versatex or Diolen) or a new material from ICI: Teram. This is a monfilial matt of Polypropylene and Nylon designed for construction work which comes in rolls 4 m wide at less than £-.50 per square meter. We made some samples that were considerably tougher than glass and Epoxy.

Handy Hints

Don't throw those old plastic 1 gallon squash containers away, they're useful!!
Use as a bailer/funnel (shown below)



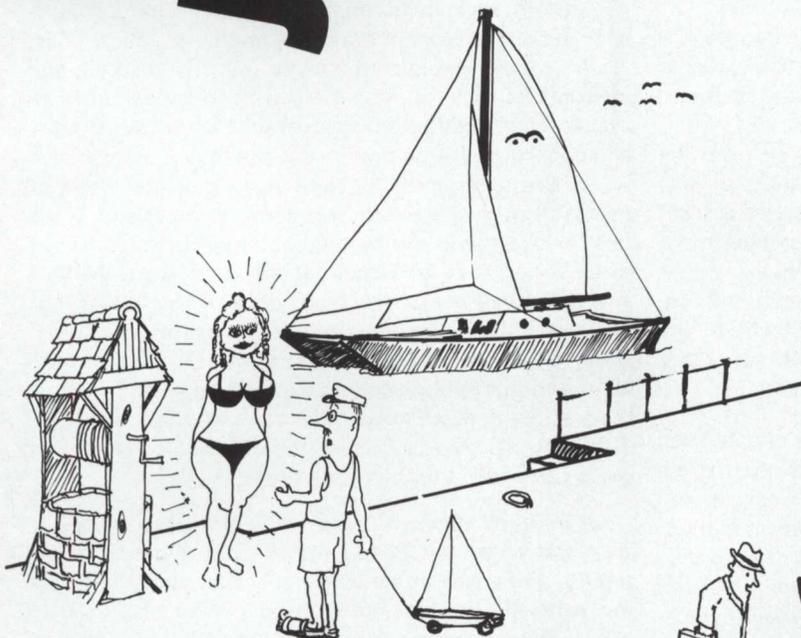
local pilotage notes for multihulls

Most members have commented on the compilation of such notes as being of considerable use when arriving at a new port. Unfortunately, until each member who is already afloat puts pen to paper, nothing more can come of this idea. It needs everyone to do something to get such a project afloat. Even a note of which chart is the best for the area, mooring fees currently in operation, transport services, shops, etc. will be of assistance and more particularly, where in the harbour, river, etc. is there a good place for a Polycat to be left for a period, perhaps unattended while the owner is back home working during the week. To avoid duplication, it might be a good idea to contact your area secretary, especially if you are contemplating the excuse that there must be someone more suitable to give a brief report. It will rarely be valid.

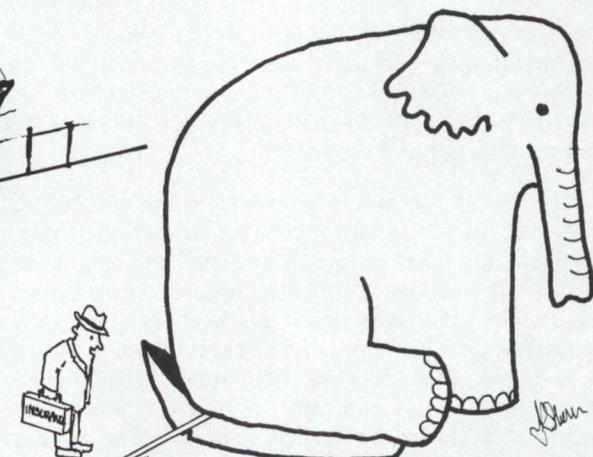
RGF

JUST A GIGGLE

"Torch: case for dead batteries."



THERE MUST BE SOME MISTAKE, I WISHED FOR A BOAT LIKE THAT ONE!



"Sorry Mr. Smith.... your policy doesn't cover your cat being sat on by an elephant."

"My wife doesn't like sailing. What shall I do?
- Get another before it is too late."

"Can you recommend suitable areas for white slavery?
- In view of the market situation, this letter will be answered confidentially."



"Feel like another swim?"



REAR VEIN MIRROR???

Comfortable Cruising

by Hazel Perkes

Alan and Hazel Perkes sailed their 36' monohull SHERPA BILL in last years Round Britain Race and were placed third on handicap. Before the race Robin Fautley spoke to Hazel who was kind enough to give some tips on comfortable cruising.

Bearing in mind that to be dry on and in a boat is very important, and gets more so as the weather deteriorates, it is vital to have dry lockers for clothes and if possible one for each member of the crew.

A separate compartment, not too far away from the 'front door' door oilys and boots, which must be put away as soon as they are taken off, or the place get wet and untidy very quickly. It is a help if the compartment can have drain holes to the bilge and then all wet things drip dry and the bottom of the cupboard stays dry too.

We have hooks just inside the boat, but out of the way, on which all life lines and life jackets are kept. One for each member of the crew.

On 'Sherpa Bill' we have pockets in the saloon, each with a coloured tag and number. Each member of the crew is given a pocket (and so a number and colour) and in this he keeps wallet, loose change and personal items. All passports and ships papers are kept together in case of emergency. So life lines and jackets can be numbered or coloured. This does make for much easier identification, both by day and night, as it is very smart if the crew are all turned out in the same gear but this only works if they are all of a size. If you have a mixture of small and very tall it only makes for lost tempers and in some cases a delay in time when time is short, trying to sort out which bit of clothing belongs to whom.

The colouring can be extended to the plates and cups and sleeping bags (which can be bought in a good range of colours now), pillow cases and towels. This makes it easy to see who has not washed up or put their gear away!!

I give each person a lining for their sleeping bag which makes laundry easier. I have at least two complete sets of linen, towels etc., so on leaving the boat I strip out all the dirty linen and replace with clean so that the boat is ready at all times.

'Silence if Golden' is a good rule on a boat and when stowing food, stores and tools I make sure that nothing can rattle or knock. It is impossible to sleep if there are tapping noises every now and again. Remember too that it is worrying to novices and women (not to mention Captains) if things begin to fly around below in a 'blow' so make sure that everything can be stowed, tied down, or in some way put away so that they stay where they are put.

If the boat is wet down below it is vital to have water proof bags for sleeping bags, pillows etc.

A useful method of getting personal gear and bedding out of the way during the day is to put up netting, using

stretch elastic to hold it in place. This can be on the 'roof' over the bunks or at the top or bottom of the bunk so forming a cushion. These nets hold everthing from falling about and can be made to look nice too is all the bits are wrapped up inside the sleeping bag.

A torch, again coloured, in each cabin is most important, and one at hand in the galley and by the chart table.

All safety equipment to be clearly marked and instructions easy to read. It is vital to have a dry cupboard for all medical equipment and loo paper. A clear and concise notice on how to use the looe.

Carpets, considered by some men as a total waste of money, can give warmth and comfort especially if the boat is being used during the winter. Make sure it is salt water proof, then if it does get wet it can be washed off and will dry with no harm being done. A fire is bliss too!

Make sure if possible that the crew off watch can sleep out of the way so that others can sit down in comfort without falling over bodies! It helps if the lights used at night down below are covered with red strips. This prevents glare and helps those having to come and go on deck and stops night blindness.

Storage of food: A deep, well ventilated space for fruit and vegetables. Plate and cup racks that hold things tightly. These can either be the sort that you take things out from the top of them or if on shelves a light elastic rope can be threaded from below and hooked up to a place above the plates etc. (This is the method we use and it is very successful).

Have all the things used in making drinks at hand near the cooker. It helps if you put dried milk in one coloured container and sugar in another, both clearly labeled. An ice box is a very useful thing (but, if you buy butter from the coldest part of the local shops deep freeze wrap it quickly in silver foil and stow below water level you will find you can keep it for several weeks even in very hot weather)

Pressure cookers are great. They save time, gas and washing up. We use two at a time when there is a big crew.

A cover can be made for the sink, with plastic on one side, the kind resistant to heat so that you have somewhere to put hot things and wood on the other to use as a cutting board. It also hides the washing up that has not been done!!

A gimbelled tray on the side of the cooker itself is a good idea as one always has a place in the roughest of weather to put cups.

Have a special fixed container near the sink for all the washing up things, like mops, brushes, etc. and soap on one of those magnetic holders — NOT near any of the instruments.

Have life line hooks within easy reach so that when it is necessary those coming up on deck can clip on while still down below. Also so that people being ill over the side are safely clipped on. This is important as ill members often lean well out from the boat.