

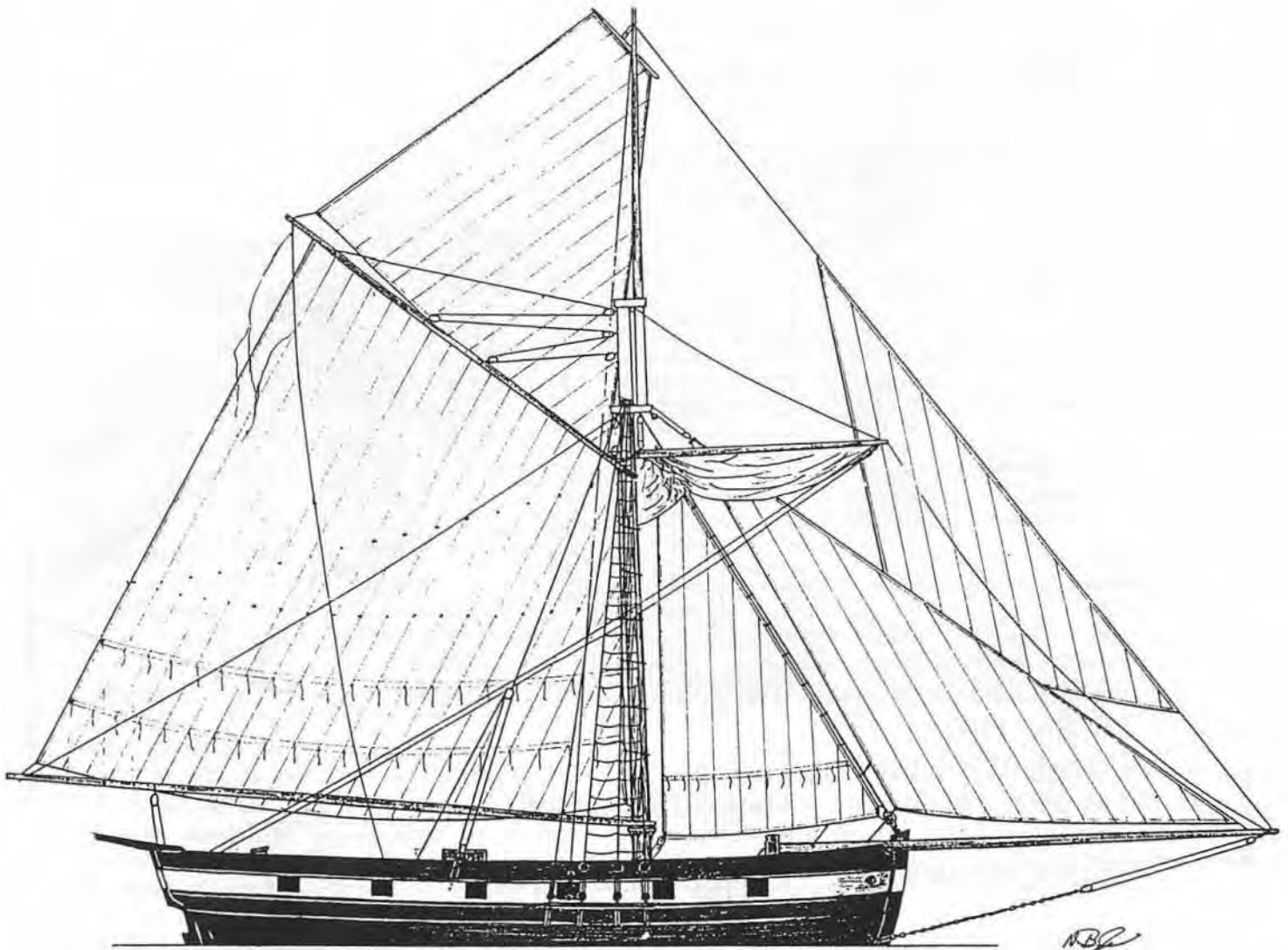
MARITIME HERITAGE ASSOCIATION NEWSLETTER

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WA 6160

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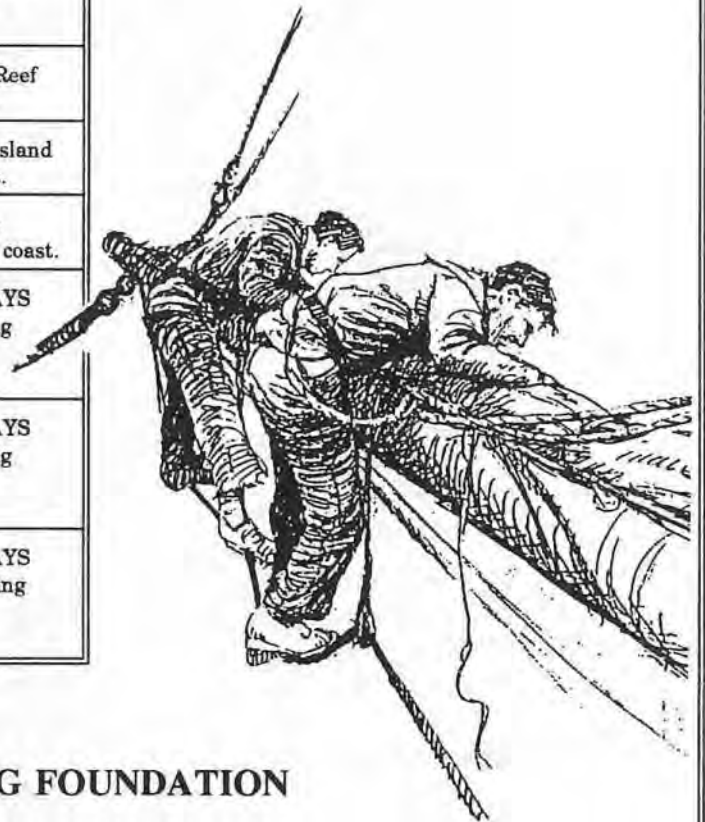


H.M. Cutter MERMAID: a reconstruction by Nick Burningham from contemporary sketches.
(See story, page 3.)



Schedule: S.T.S. LEEUWIN ADVENTURE VOYAGES

No.	Departure	Arrival	Remarks
4/94	Esperance 22/2/94 Tue.	Albany 4/3/94 Fri.	Visiting Bremer Bay and Recherche Archipelago.
W1/94	Fremantle 1/4/94 Fri.	Fremantle 3/4/94 Sun.	Easter Long Weekender \$350. (Join at 9.00am)
7/94	Fremantle 5/4/94 Tue.	Fremantle 15/4/94 Fri.	SCHOOL VOYAGE: minimum age 15 years. Visiting Cape Naturaliste and Geographe Bay.
8/94	Fremantle 19/4/94 Tue.	Geraldton 29/4/94 Fri.	SCHOOL HOLIDAYS: visiting Abrolhos Islands.
9/94	Geraldton 3/5/94 Tue.	Dampier 13/5/94 Fri.	Visiting Ningaloo Reef and Monte Bellos.
10/94	Dampier 17/5/94 Tue.	Broome 27/5/94 Fri.	Visiting Depuche Island and Rowley Shoals.
11/94	Broome 30/5/94 Mon.	Darwin 10/6/94 Fri.	FULLY BOOKED: visiting Kimberley coast.
12/94	Darwin 14/6/94 Tue.	Darwin 24/6/94 Fri.	SCHOOL HOLIDAYS (N.T.): visiting King George River and Kimberley coast.
14/94	Darwin 28/6/94 Tue.	Darwin 8/7/94 Fri.	SCHOOL HOLIDAYS (N.T.): visiting King George River and Kimberley coast.
15/94	Darwin 11/7/94 Mon.	Broome 22/7/94 Fri.	SCHOOL HOLIDAYS (W.A.): \$975. Visiting Beagle Bay and Kimberley coast.



For information on all voyages, contact:

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Further Endeavours?

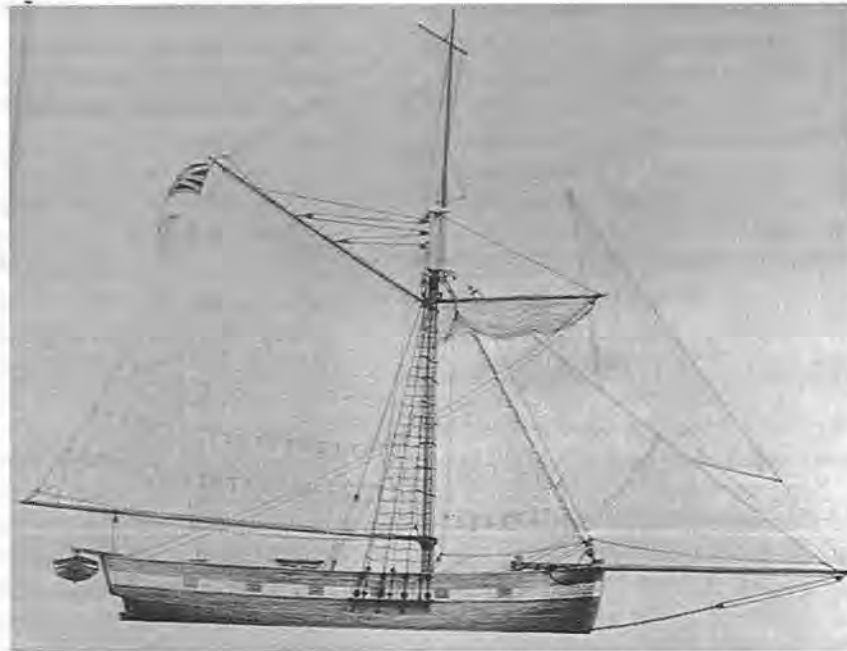
by Nick Burningham

The team which has nearly completed the Endeavour Replica has undoubtedly achieved excellence. Aside from its manifold technical expertise, the Endeavour Replica Foundation has achieved many other wonders including a Souvenir Shop that does not specialise in junk; interpretive displays that are both entertaining and genuinely informative, mammoth fund raising and, perhaps most importantly, the provision of genuinely enhancing employment to young people. It will be a great loss if this accumulation of expertise is simply allowed to dissipate when ENDEAVOUR sails to Sydney.

Can another replica ship project be launched? I don't know... John Longley and his chief shipwright, Bill Leonard, are keen to build another ship but they are understandably disinclined to get involved in such a massive fund-raising effort again. But if another project is possible, then the selection of an appropriate ship is of critical importance. There is probably no vessel from Australian history with quite the same national cachet as ENDEAVOUR (even though we all know that Cook didn't actually discover Australia) but there are several candidates with greater significance for Western Australians. HMS SUCCESS is an obvious example. But SUCCESS was a big ship compared to the bark ENDEAVOUR, and her widely-spread frigate's sail plan was meant to be handled by a large and experienced crew: it would probably exceed the difficulties of any replica or sail-training ship afloat today. In any event, SUCCESS wasn't a complete success and she might be too big a replica project for the moment. Other possibilities of purely Western Australian significance are PARMELIA or perhaps HMS CHALLENGER.

However, I would like to suggest a smaller vessel

which has both Western Australian and national importance - H.M. Cutter MERMAID, the small and robust vessel in which Lieutenant Phillip Parker King sailed three long voyages to survey the western and northern coasts of Australia, and in so doing, twice circumnavigating the continent.



Phillip Parker King was a son of Phillip Gidley King, the founding Governor of Norfolk Island Colony and later the Governor of New South Wales between 1800 and 1806. P.P. King was born on Norfolk Island: thus he was Australian born. The Who-is-Who of Australian

History asserts that "King was one of the first native-born Australians to gain international prominence"; he was certainly our first naval hero, and a man whose intrepid voyages of discovery deserve greater recognition.

In 1817, the twenty-five year old Lt. King, with two midshipmen, John Septimus Roe and Frederick Bedwell, were directed through the Admiralty - by Earl Bathurst, the Secretary of State for the Colonies - to continue the hydrographic survey of Australia that had been started by Matthew Flinders. They sailed out to



Port Jackson as passengers on the ship DICK, accompanied by Harriet, King's wife. In Sydney, King took command of the cutter MERMAID, which was purchased for the survey work.

Just before Christmas, 1817, King accompanied the botanist Allan Cunningham, as well as Boongaree, the Aboriginal chief of the Broken Bay area, and a small crew, and sailed from Sydney, bound for King George Sound. MERMAID made reasonably good time on that long windward passage south of the continent, but on later voyages King always took the favourable winds on the risky Cape York route. Indeed, King pioneered the route inside the Great Barrier Reef, which became known to sailing ship navigators as King's Passage.

At King George Sound, Roe led a number of short expeditions to explore the interior. After completing the investigation of King George Sound, Lt. King took MERMAID up the west coast, surveying a large stretch of the coast, including Exmouth Gulf, and reaching as far as Cape Lambert, before sailing up to survey the north coast in the vicinity of present-day Darwin and finally returning to Sydney after a visit to Timor.

Later, in 1818, MERMAID made a relatively short voyage to survey part of the coast of Tasmania. In May, 1819, she set out on her second major surveying voyage, on which King discovered the passage to Torres Strait inside the Barrier Reef, before taking over surveying from where the poor condition of HMS INVESTIGATOR had curtailed Flinder's work in the Gulf of Carpentaria. Through 1819 and 1820, King's surveying continued; he worked methodically down from the Cambridge Gulf around the Kimberley coast. But by 1820 MERMAID was leaking badly. King careened her for repairs in a bay which he called Careening Bay. During the repairs it was found that her iron spike fastenings were dangerously corroded. She was patched-up with an extra "streak" of copper to a foot above the load waterline, and returned safely to Sydney. King made a final circumnavigation of Australia in the Brig BATHURST. (Another replica candidate?) Meanwhile, MERMAID was repaired and refastened. She took the first establishment to Port Macquarrie and continued to be used for several more surveying voyages and for supplying the short-lived settlements established on the north coast of Australia. The year before Major Edmund Lockyer founded the Western Australian settlement at Albany, he took MERMAID 195 km up the Brisbane River.

It is curious that P.P. King and MERMAID are not more famous. Perhaps it is because King's achievements were very considerable but he was

never controversial. He surveyed more of the western and northern coasts of Australia than anyone else and his work was meticulous - many of his charts were still in use until the middle of this century. His four years of almost non-stop survey voyaging were conducted without serious mishap in spite of the tremendous risks that are inevitable when sailing - as a surveying ship had to, close to the shore and using a blank sheet of paper for a chart. The risks were increased during much of MERMAID's surveying work by defective and lost anchors. King was anxious about this, but his greatest concern seems to have been the health of his crew and the lack of a surgeon amongst their number. Both his naval crew and the civilians seem to have been happy: Cunningham made five voyages with King, and Boongaree, who had also sailed with Flinders, was a particularly loyal and committed member of King's company. His young assistant surveyor, John Septimus Roe, went on to become Surveyor General of Western Australia.

King later commanded HMS ADVENTURE and HMS BEAGLE during a four year survey of the South American coasts, in the years before BEAGLE's circumnavigation with Charles Darwin in the ship's company.

In 1832, King returned to Australia, where Harriet had been building up the family's farming interests. His mother Anna Josepha King also returned to Australia. By this time, King had risen to the rank of Commander, and he was later promoted to Rear Admiral, the first Australian to reach that rank. He died in Australia in 1856.

Phillip Parker King was certainly the Royal Navy's greatest surveyor after James Cook, and he was almost the only hydrographic surveyor to match Cook's quiet tenacity and indomitable purpose. Hydrographic surveying in the days of sail, expressed on modern terms, was appallingly stressful. The danger and anxiety were unmitigated for as long as the survey was conducted, and there was absolutely no assistance nor likelihood of rescue if disaster occurred on those farthest coasts. Most of the surveying commanders - both British and French - either failed to maintain a sufficiently accurate survey, or they broke-down, at sea or later.

The cutter MERMAID was obviously as capable as her commander. She was built of teak in India and several watercolour sketches by King show that she was a plain, bluff-bowed vessel, fairly high sided and with rather flat sheer. King related that "her construction was rather sharp" in writing about the problems of careening her at Careening Bay (i.e. she



had considerable deadrise, not a sharp bow or stern). On occasions she made some reasonably fast passages.

There are no actual lines and construction plans of MERMAID (unlike ENDEAVOUR) but her appearance and design could be reconstructed with reasonable accuracy. King did draw a scaled sketch plan showing her accommodation, general arrangement and rig. Her length and beam recorded by King in his published journal were 56 feet and 18 feet 6 inches, and she was of was 84 tons. Prior to, 1836 the formula for tonnage, using measurements in feet, was:

$$\text{(length of keel - } \frac{3}{5} \text{ beam x beam x halfbeam)}$$

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But this gives a tonnage of only 81.74. If the beam of 18½' is accepted, then the length measured for tonnage would have been 57'3", so 56 feet was probably the length between perpendiculars. Moulded depth or depth in the hold were not included in the calculation for tonnage. King did record that MERMAID had a draft, when deep laden, of just under 9 feet. Plans exist for cutters of the same era and with very similar length, beam and tonnage. For instance, the CLIO, of Whitby, illustrated in

Merchant Sailing Ships Vol 11 (Macgregor 1984). CLIO had less deadrise than MERMAID but her lines could easily be modified.

As we strive to encompass a less eurocentric understanding of Australian history, aspects of the European discovery and settlement must be viewed with some degree of opprobrium. Yet we should not lose our admiration for the dogged heroism and pioneering idealism that motivated men and women such as Phillip Parker King and his mother Anna Josepha. P.P. King was always anxious to establish good relations with the Aboriginal peoples he encountered, and it was his father, Phillip Gidley King, who wrote to Governor Bligh: "I have ever considered them [the Aborigines] the real Proprietors of the Soil..." In his view, Terra Nullius was apparently only a legal fiction.

MERMAID, when under King's command, seems to have been a splendid little ship. She surveyed much of the Western Australian coast, and the careers of Edmund Lockyer and John Septimus Roe (important figures in WA history) were both linked with MERMAID. I believe that if her history was better known she would be viewed as a symbol of much that is most admirable in the history of the establishment of our nation.

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ISIS: Building a Traditional River Launch (Part Seven)

by Mike Beilby

Observant readers will notice that the TRL now has a name! Yes, folks, Isis was the Roman name for the Thames above Henley, where many boats similar to this one are preserved, and where I first became aware of them. At last report we were about to fit cockpit coaming and rubbing strip and finish off with varnish.



When released from their steaming jigs, the fore and aft coaming portions sprang out about 50% - so much for my steam bending skills - but with Marg's help, and after planing in scarf joints, they were coaxed into the boat and glued in, along with the easier side pieces.

The deck "planks" had already been varnished to allow the application of masking tape alongside all seams before injecting Sikaflex which was to simulate

caulking. Now the outside rubbing strip was glued and screwed all round the deck edge, effectively hiding the last sign of modern plywood. The strip was about 50mm by 20mm of the best jarrah I could find locally, scarf-jointed near amidships, and laminated around the difficult stern area. With the deck in place, clamps could not be applied, of course, so I had to rely on screws through all the glue-wet laminations - a messy job with some unavoidable cavities. Then the final varnishing took place, using the time-tested trick of



warming a near-new can and using a very clean brush for the last coat.

After double checking the engine alignment with a thinner, tighter string, I skimmed some material off the engine bearers and plugged the original bolt holes before drilling new ones about 3mm to starboard. Only then did I feel brave enough to bolt the engine in. The shaft was pushed in from the stern and a mount glued in for a small bronze intermediate bearing which had come with it. Skin fittings were drilled and fitted for both cooling water and exhaust, the latter under the counter stern to minimise unsightly black marks, and the exhaust connected using large rubber hose and a small rubber muffler at the stern. The main muffler is part of the engine casting and is water cooled, so rubber is quite OK from there on and controls noise well.

Close inspection of the ancient fuel tank revealed it to be very rusty inside and not all of it could be got out, so a large glass-bowl petrol filter was purchased at great expense and incorporated into the copper petrol line which turned out to be very easy to bend into position, running under the floorboards to reach the carby.

A pair of paddles was quickly fabricated in anticipation of an engine leaving us in the lurch and it was off to the Ashfield launching ramp (selected solely for convenience, straight off the Metro Road Guide) for the BIG DAY. The ramp area, incidentally, is delightful, with trees down to the water's edge and a great picnic area.

ISIS slid off the trailer easily and rode quite high out of the water as we tied her to one of the aforementioned trees, drank toasts and splashed a little cider over her stem. Then it was out into the Swan for initial trials. Six adult crew brought her down to her marks nicely; the engine fired on the second pull, then we moved off. Initially, we got underway easily and showed a good turn of speed but then troubles set in as the engine started repeated stalling. After blaming carburettor adjustments for about half an hour (and casting aspersions at the prop size) I touched the inner prop shaft bearing and found it to be extremely hot, despite the drip of lubricating water, so we paddled back to base, had another couple of drinks and came home.

I was able to borrow an expanding reamer, so the shaft came out and the bearing was opened out until the shaft could be felt to be just a little loose in it. (I had been warned that plastic-type bearings can swell in water and tighten up.) The second run was much more successful, with no more seizures, and we ran for about

ninety minutes up through Bassendean. The helm was, if anything, too light, so the rudder could use a reduction in counterbalance area. The carby settings did not seem at all critical and the prop was about right, with hull speed being achieved on only about half throttle.

However, while the exhaust was quiet, mechanical noises coming up the shaft were horrendous. The obvious culprit was wear at the outer end of the shaft (the shaft seems to have done much more work than the engine) so following that day's cruise a new shaft of stainless steel was organised. Examination of the old, bronze shaft revealed a fair amount of bend, which must have added to the cacophony, so a little effort was spent getting the new one straight before fitting it. During this exercise I was able to get the engine's clutch apart and moving freely for the first time but found that as I tightened the engine bolts down it seized up. So I started playing with packing under the engine-mount lugs and eventually, with 0.040" under the front lugs, the clutch remained free - so the engine must have been well out of line as well. The two final touches before trial number three were to glue sound insulation into the engine box (leaving little room for the engine, as it happened) and to add a shelf under the fore deck to hold the mandatory life jackets.

Trial three was conducted right on the editor's deadline for this issue and went well after initially flooding the carby in front of half a dozen onlookers - followed by leaving the stern gland locknut loose, resulting in a rather wet bilge. The mechanical noises seemed to be reduced to the rattling of an uncontrolled clutch lever, so a rubber pad on the engine box end may fix that.

Before starting out we'd measured the distance to the next launching ramp, on the map, at about three kilometres, or two miles. This we covered in sixteen minutes on about half throttle at what felt like hull speed. If ISIS was indeed holding 8 mph, that's more than I'd dared hope for and the engine would appear to be adequate, at least in flat water.

Over the next half hour we motored up to Fisherman's Landing in Guildford and had a short snort before returning for a picnic lunch at Ashfield. Things are coming together well and the final chapter in the saga would seem to be the framing up and covering for a canvas awning. Hopefully that should be reported finished in the next issue.

(Congratulations are in order to Mike and Margo on the tremendous achievement. Its always good to see perseverance paying dividends in the end. Editor)

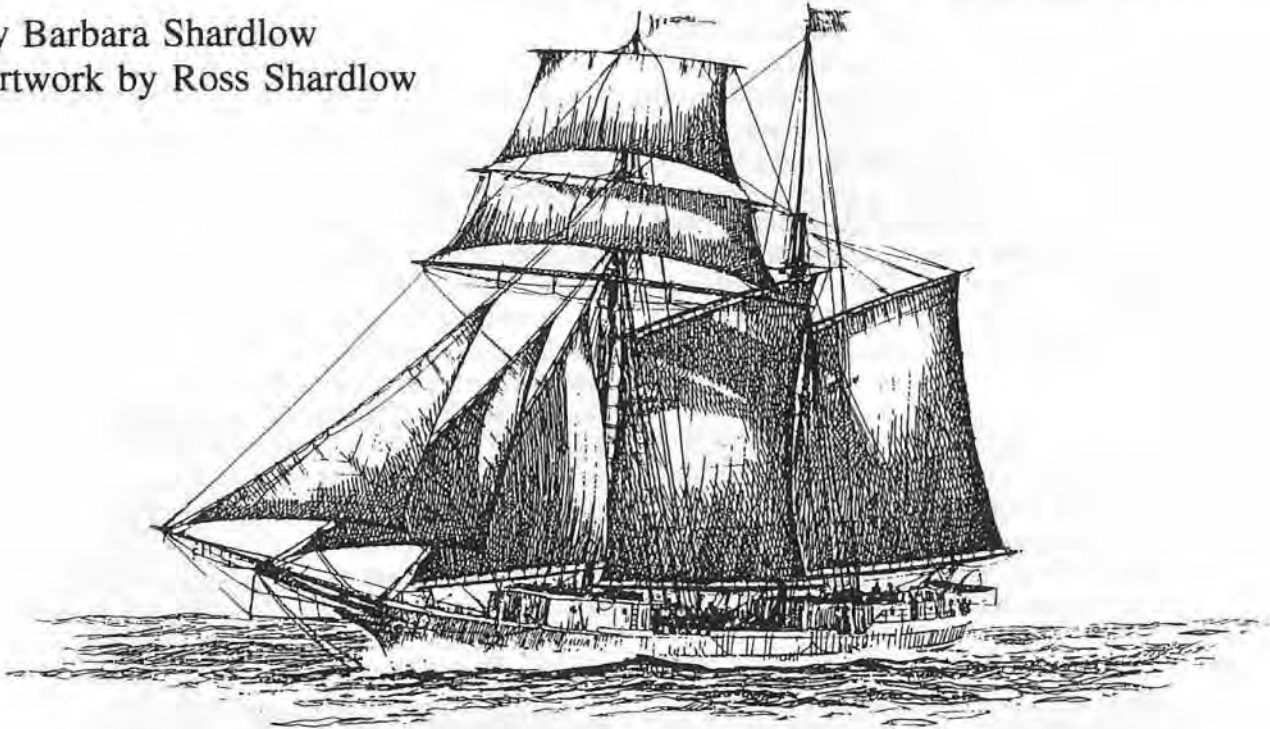


HUIA: 1894-1951

The last topsail schooner to work regularly from Fremantle

by Barbara Shardlow

Artwork by Ross Shardlow



By the 1930's only one working topsail schooner was regularly visiting the port of Fremantle. She was the beautiful auxiliary topsail schooner HUIA, the sole survivor of a considerable fleet of small sailing vessels that traded out of Auckland, New Zealand after the turn of the century.

HUIA was built in 1894 as a timber carrier, by James Barbour, at Aratapu (popularly known as Barbour Town), Kaipara Harbour, New Zealand, for Messrs. E. Mitchelson & Brothers. Barbour was a multi-talented craftsman and seaman and HUIA was his largest ship. He built the HUIA without plans, having selected the timbers from the bush himself. He also carved the ship's huia bird figurehead and painted a portrait of the schooner on the saloon wall.

The 107' keel was cut from a 110' length of timber, the largest ever carried on a New Zealand railway. The keel and most of the framing and outer skin was pit-sawn. The framing was puriri of the very best quality and was considered equal, if not superior, to any put into a vessel at that time. All planking and spars were of heart of kauri. Huge fourteen foot kauri slabs, 4½' by 4½", were used in the construction of the cabin. However, for the sake of economy, her tonnage (204 gross, 196 net) was kept

under 200 tons net, as vessels above that tonnage had to sign on a second mate!

Though built to take 200 000 feet of timber, the 192 316 feet of pine loaded for her first voyage in 1894 put her well over her plimsoll marks. After a six day voyage, she discharged her cargo in Sydney and, as was usual for sailing ships in the Kaipara and Hokianga timber trade, proceeded to Newcastle to load coal for the return passage. HUIA was to make many record breaking five-day passages from Newcastle to Kaipara in the sixteen months she was on the stormy Tasman run.

In late 1897, HUIA was docked for repairs and extensive alterations. She was greatly strengthened and an 80 H.P. Union Gas auxiliary engine installed. This was itself replaced in 1922 with a new semi-diesel Beardmore engine - which was in turn replaced in 1930 by a 152 B.H.P. Gardner heavy oil



engine. HUIA's accommodation was excellent, as was her machinery - she had a spacious deckhouse at the foremast and a galley at the main, with a raised poop, fine saloon and comfortable crew quarters. The engineer's department lacked nothing in the way of pumps, cargo handling and fire-handling aids.

Timber laden, the first passage under power and sail on a new run from Kaipara to Lyttleton took a little over three days, the engine being used for sixteen hours on one day, against a head wind. The advantage of the engine was apparent from the start.

Over the next sixteen years, the little ship again made record-breaking round trips, which included smart discharging and loading of cargoes.

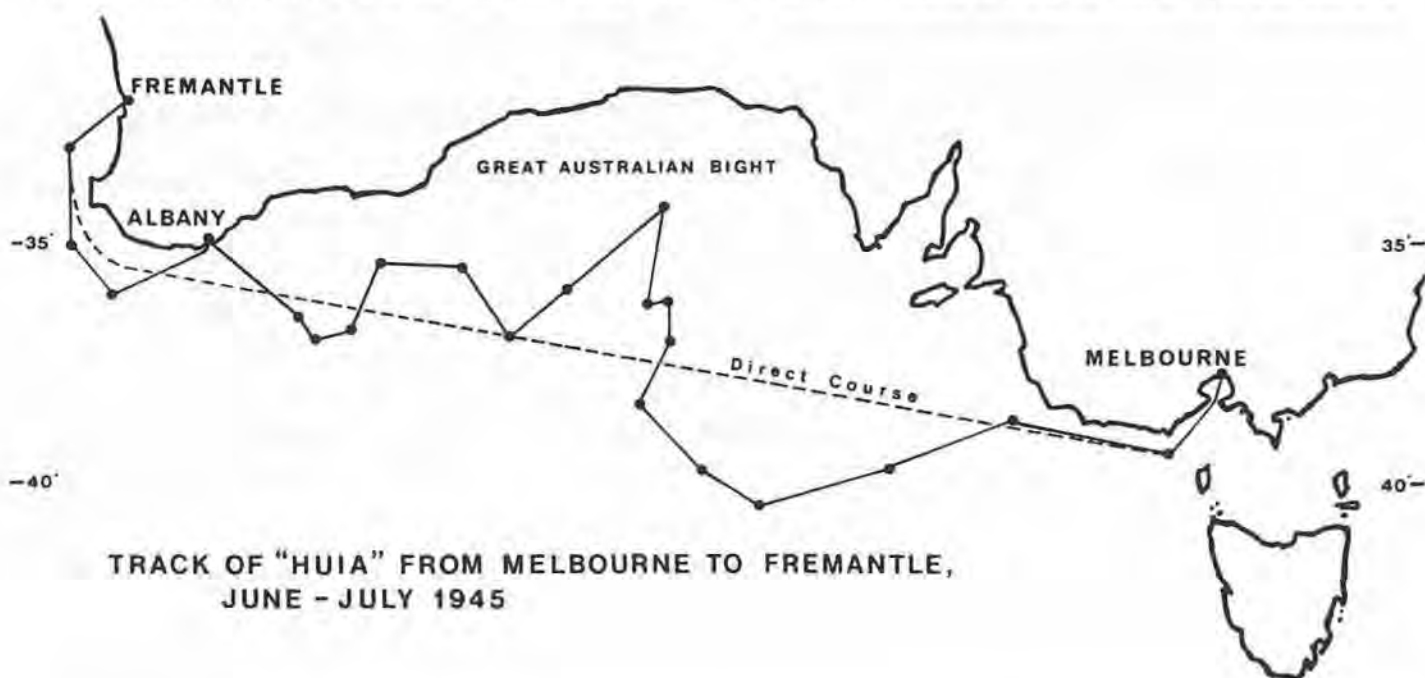
The HUIA remained on the Kaipara - Lyttleton run until 1912. She was then purchased by the Nobel Explosive Company for the trans-Tasman run, to carry explosives and general cargo. For safety reasons, the benzine engine was converted to kerosene. In 1917, HUIA returned to Australia. After arriving in Melbourne from Auckland, she continued on to Hobart, making the crossing in a record 48 hours. Later in the same year, the HUIA made the longest ocean crossing of her career, from Auckland to San Francisco with a load of copra and rubberoid roofing.

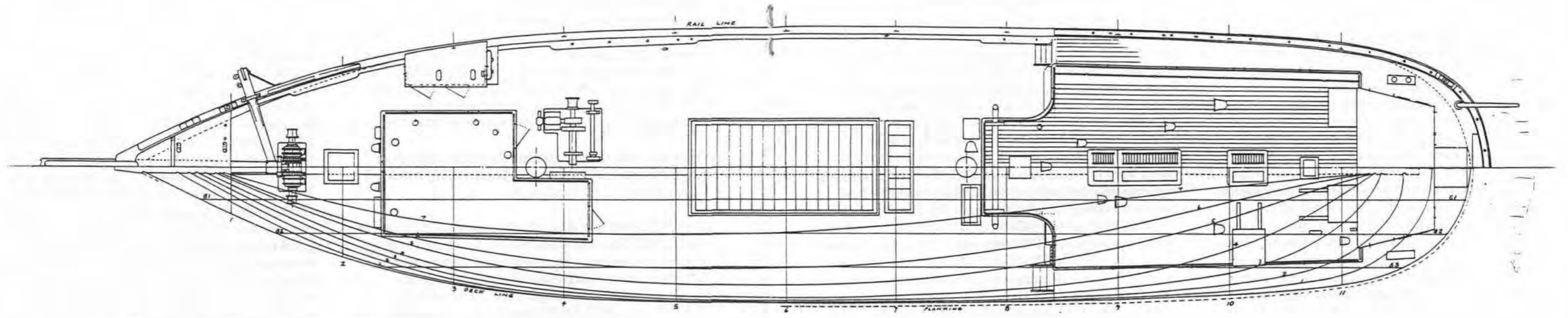
HUIA became a favourite vessel in Australian waters from Cairns to Fremantle. Her owners kept her in top condition and under the command of excellent captains. She entered Fremantle for the first time on June 22nd, 1931, berthing at Woodman's Point jetty.

She was also a frequent visitor to Bunbury and the crew to the Seaman's Mission there. In 1932, the HUIA was photographed at Victoria Quay, her sails spread on the yards to dry. The spectacle was unusual and the photograph was published in a local newspaper.

During her 57 years of service, the HUIA experienced stormy passages, near disasters, lucky escapes from death and some tragic losses of lives. In 1907, a diver died when the HUIA was engaged in an attempt to salvage bullion from the wrecked passenger steamer ELINGAMITE which had sunk in bad weather with the loss of 45 lives. In 1908, a seaman jumped overboard and drowned. In the following year, a Norwegian seaman was swept overboard in a south-westerly gale. In 1923, the second mate was lost overboard when he lost his balance while patching the staysail. In 1942, while the jib was being secured after blowing out in a squall, the ship dived heavily - completely submerging the bowsprit and the two seamen and the ship's boy who were on it. The boy was washed off and efforts to rescue him were unsuccessful. After this sad accident, a safety net was spread under the jib-boom and bowsprit and handgrips fitted to the two spars. HUIA's last tragic death was that of a sixteen year old seaman who fell to the deck from aloft while the ship was berthed in Melbourne, in 1948.

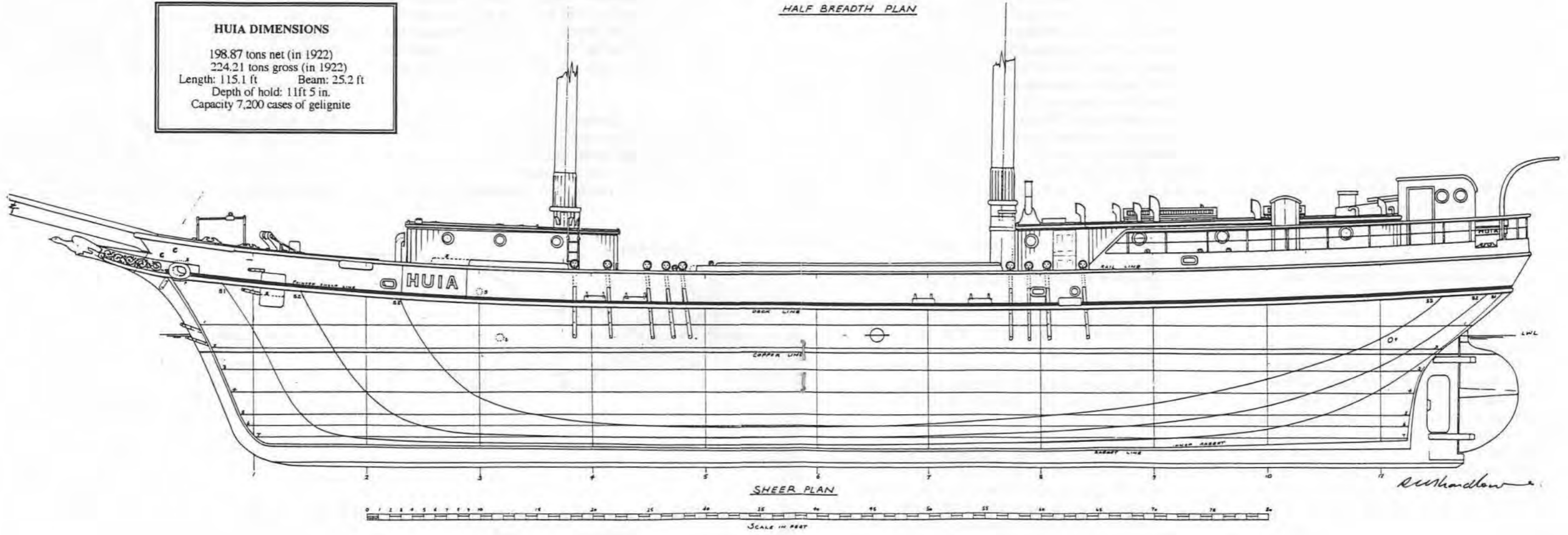
The ship herself had some close encounters with destruction. On Christmas Eve, 1909, fire raged for two hours in the sail locker. By the time it was under control, the deck and deck beams were badly charred, partitions round the engine room were burned and





HALF BREADTH PLAN

HUIA DIMENSIONS
 198.87 tons net (in 1922)
 224.21 tons gross (in 1922)
 Length: 115.1 ft Beam: 25.2 ft
 Depth of hold: 11ft 5 in.
 Capacity 7,200 cases of gelignite



SHEER PLAN

SCALE IN FEET

R. W. Handlow



several sails and lengths of rope were lost. HUIA was threatened again by fire in 1950 when a fire started in the galley, swept through the companionway, into the adjoining cabins and up into the wheelhouse. When the fire had been extinguished, the saloon was a sorry spectacle and nothing was left of Barbour's painting. Fortunately, actual structural damage was slight. HUIA lost her bowsprit in 1919 when she broached-to in a heavy sea when the wind suddenly shifted in a squall. The lower topsail starboard sheet carried away, breaking the lower topsail yard in two places; the upper topsail yard parrel carried away as well as the jib-boom, taking the bowsprit and a tangle of gear over the side with it.

1945 was a bad year in Western Australian waters. It was 107^o on a January day when the HUIA was forced to make a hurried exit from Fremantle Harbour when oil on the water was set ablaze by a welder who had thrown an ignited sack overboard from the S.S. PANAMANIAN. Later in the month, HUIA was thirty miles south-west of Cape Naturaliste in a heavy swell, when she dived and carried away the port jib-boom guy. The jib-boom instantly broke off short at the bowsprit cap band. An anchorage was made off Toby Inlet, Geographe Bay where the terrible tangle of gear, made worse by the wire seized safety net, was cleared and the staying of the foremast completed. Six months later, in June-July, she made a slow passage from Melbourne to Fremantle when hard westerlies prevailed in the Bight. The fresh water was contaminated by a sea which broke aboard, fuel was low and it took eighteen days to reach Albany for fresh supplies. While at the wharf there, a gale came up, raising a very steep sea in the harbour. The rising and falling of the vessel was so violent that the rope fenders were soon destroyed, the belting along the starboard side was carried away and the outer edge of the starboard covering board was chafed to a depth of 2½". Spray filled the lifeboat in the davits and the port davit was considerably bent.

HUIA's beauty was marred in 1940 when she was deprived of her topsails and the yards were sent down. Her age was beginning to tell, and all that could be done was to cut down the sail area if it could not be used to any advantage. The last topsail schooner in Australia was left with three headsails and only fore and main trysails. Nevertheless, she continued to make good passages and, with the fore trysail replaced with a gaff foresail, still had a fair turn of speed.

On January 20th, 1949, at age 55, the HUIA was paid off. In early 1950, she was sold to the newly formed Huia Trading Company, registered in Suva,

and put into service carrying passengers and cargoes between the south sea islands. At 1:00pm on January 26th, 1951, HUIA sailed from Port Noumea for Vila with a pilot to take her through the hazardous Woodin Canal and Havannah Passage. At 7:30pm, the pilot was taken off, leaving the schooner just inside the reefs but with a clear passage ahead. With the change of watch at 8:00pm, the course was altered, it being thought that the reefs were cleared. At 8:42pm, the HUIA came to a grinding standstill on Komekame Reef on the southern side of the Havannah Passage. Radio calls were overwhelmed by atmospheric electrical disturbances typical of summer in the tropics. The next morning, the pilot returning to Noumea saw the HUIA's masts sticking up over the horizon and went to investigate. Help was summoned, but by the time the French sloop TIARE and the tug NEM BROU arrived, the tide had been missed and HUIA was left to pound on the reef for another night. The next morning she was full of water. In spite of pumping and jettisoning cargo, she lay hard over on her port bilge at high tide and there was no way that she could be towed over the underwater ledge. The decision was then taken to abandon her. No sooner had the last three crewmen been taken into the lifeboat than a swell lifted the schooner and then dumped her onto the top of the starboard anchor, stoving her in. In the days that followed, she held together as her cargo was salvaged and plans were made to fill her hold with empty drums in the hope of floating her off, but she started to break up - and then fire took a hand again. HUIA was burnt to the waterline and a few days later an intense cyclonic storm swept her away. The last sailing ship to be used in the trans-Tasman trade was gone.

Footnote: MHA member and model shipwright, Murray Johnson, has just begun building a 1:48 scale model of the HUIA. He is keen to promote the modelling of vessels significant to WA's maritime history. The MHA has assisted Murray with the interpretation and redrawing of the ship's plans and provision of reference materials. His project follows on from the highly successful model of the KRAIT, built by Brian Lemon.

References: Hawkins, Clifford W., *Log of the HUIA: a record of the schooner 1894-1951*; Salter, Harold, *Bass Strait Ketches*; Parsons, Ronald, *Sail in the South*; Noble, John, *The Golden Age of Sail*; McMurray, Robert, *The New Zealand Topsail Schooner HUIA*; article in *Model Shipwright*, No.32; newspaper clippings.



Stirling's Innovation? *Healthy debate begins ...*

Nick Burningham follows his article "*The First Record of Bermudan Rig on the Swan River*" with further argument to his proposition ...

Several readers have expressed incredulity towards the rig which I suggested was carried on Captain James Stirling's cutter (MHA Newsletter 4,4). I have real doubts about the rig myself - and therefore about the paintings attributed to Frederick Garling which show the unexpected rig - but some evidence has come to light showing that very similar rigs were common around Singapore and the West Coast of Malaya (where I speculated the rig might have originated) at the end of the 19th Century.

*The rig shown in the four Garling paintings in the Art Gallery of Western Australia is a tall and raked marconi sloop rig with the hounds and the head of the jib only halfway up the mast. A set of drawings by William Maxwell Blake, published in *Yachting* magazine during the 1920's, illustrate a rig of very similar proportions carried by a Malay vessel of a type called a *Prau Bugis* at Singapore. *SEANG HATI*, the vessel which Blake measured and drew, was employed carrying pineapples from the west coast of Malaya to a cannery in Singapore. She was some forty years old when Blake surveyed her and in *Yachting* he observed: "the raking mast, lofty rig and shape of the sails have forestalled our present day fliers by more than half a century".*

SEANG HATI carried a form of gunter rig rather than a true marconi rig, but the gunter spar did not extend the sail above the truck of the mast - it was purely a means to keep the luff straight above the hounds. A true marconi rig is shown on a model of a similar vessel, labelled *Gubang Bugis* in the collection of the Cambridge Archaeology Museum. This model was probably collected during the 1870's. A photograph published in 1902 shows that it had lost its boom and had been unsympathetically "restored" (as many similar models were in Britain and the USA) but it is very unlikely that the marconi rig is a result of a restoration carried out before 1902, since that rig was then virtually unknown in the west.



Sail plan of SENANG HATI, after W.M. Blake (Author)



ORIEL: The Restoration Saga of a Born-again Gaffer (Part Seven)

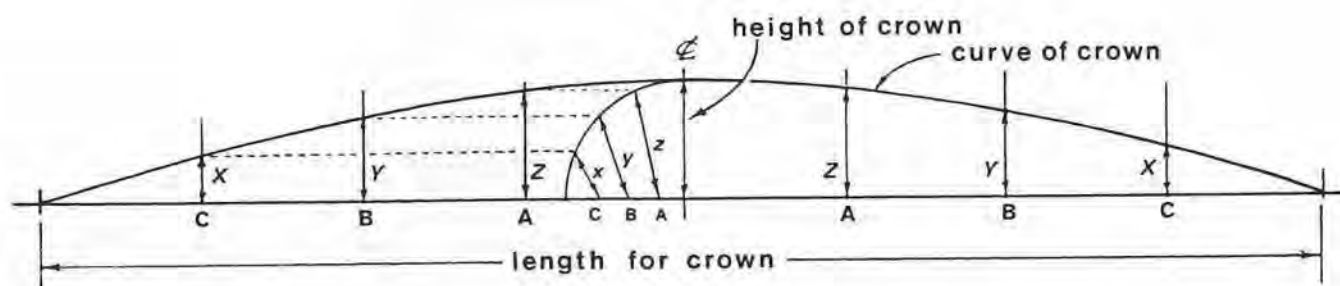
by Mike Igglesden

June, 1991

Before tackling the laying of the new deck, the Stuart Turner's fuel tank, in its fitted cradle, was pulled up hard to the foredeck deck beams, using stainless steel straps. Also, new bronze chainplates were bolted to the sheer clamp, sheerstrake and down to the thwart risers. The deck beams required some tender loving care. The boat's all-teak construction ensures that she had very few areas of rot, and the deck beams are no exception. Problems arose, however, since, having been deckless and the beams exposed to the elements for a long period of time, the half dovetail joints into the carlins and the sheer clamp had worked loose and were in a very unsatisfactory condition. Monel screws were therefore driven down through the joints and, where

Some of the temporary struts and braces which had hitherto been holding her in shape, could now be removed, permitting a little easier access to the clambering up, down and around, which is an essential part of the fun of boatbuilding.

I don't know if it was a product of the builder's technique or years of neglect, but the foredeck profile had, to my eyes, an unsightly dip where the kingplank ran from the stemhead to the forward end of the cockpit. At about two thirds the distance back from the stem, a stretched line showed this dip to be 5/8". The remedy was to glue a packing piece on top of the kingplank being its full width but tapered in its length from zero to 5/8" then back to zero in



MAKING DECK CROWN PATTERN

deemed necessary, small knees were screwed alongside to bring this very important framework back to designed strength. In addition, ten 1/4" stainless steel rods, made up as long bolts, were installed in way of the cockpit area to tie the carlins and the sheerclamp more firmly together. What a difference to the rigidity of the hull! No longer the jelly-like ripples down the boat if the stem was pulled from side to side. The effect could now be likened to a sponge cake consistency, with minimal movement which, in turn, would stiffen to the firmness of a biscuit after the deck had been laid.

thickness. The foredeck beams were then reshaped to accommodate the reformed kingplank. Each deck beam was raised by gluing oversized battens along their top edges, facing them to width, and then planing down to the required new shape drawn onto them from a masonite pattern made up for each individual deck beam. I used the old method, as shown in the sketch, for drawing out the patterns for the new crown shapes and it worked very well. The revised total heights of the new cambers varied from one inch for the most forward beam, to 2 1/8 inches for beam number five. The time taken over this



exercise was well spent. The result has made a pretty little boat even more attractive. After the beams had the usual five coats of paint treatment, the first really visible sign of new work was to be the next challenge to overcome.

The original deck had consisted of 7/16" teak match boarding, canvas covered and painted. It seemed to me a great pity, to put it mildly, to hide a teak deck under a coating of painted canvas. Sufficient matchboarding for the new deck came as part of the deal when I purchased the boat. I decided to lay the deck and pay the seams with Sikaflex. If for any reason this method proved to be unsuccessful then I would bring on the canvas part of the exercise. A test piece of four lengths of matchboarding about eighteen inches long was made up in the fashion in which I proposed laying the new deck. After a month of exposure to the winter weather, it showed no signs of doing anything but be a good indicator that I should proceed with this method on the boat. To simulate our hot summer sunshine, this test piece was then subjected to the indignity of being blasted by a heat gun until the timber was very hot to the touch. Still no problems. The formation of the new seam (as shown in the sketch) was made by setting the bench saw so that it protruded above the bench top just sufficiently to remove the chamfers on each plank prior to laying, so forming a U-shaped joint rather than the original V section, in order to give the Sikaflex a better chance to do its stuff. The counterbored heads of the one inch by ten gauge monel screws used to hold down the deck were plugged with 3/8" plugs cut from scrap teak. The

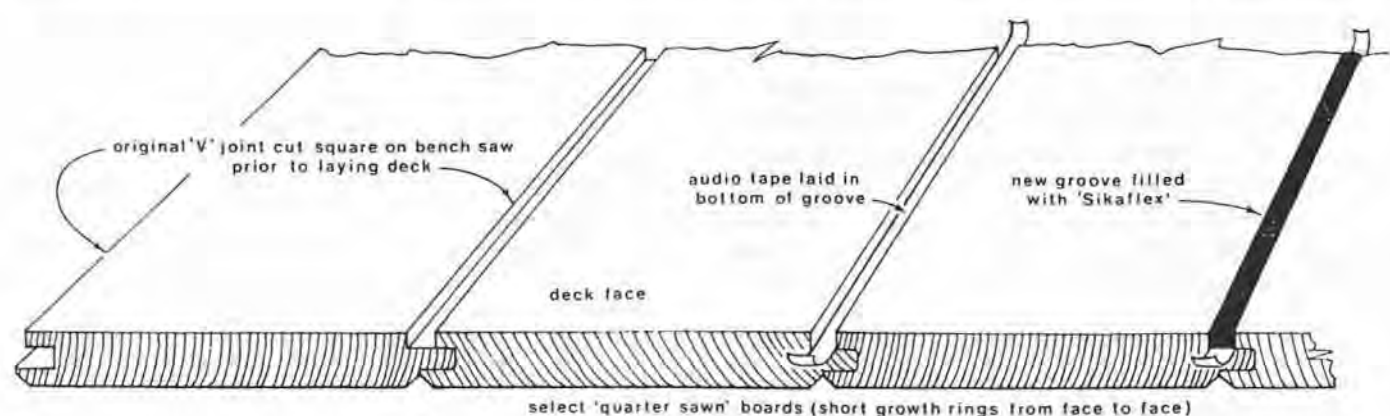
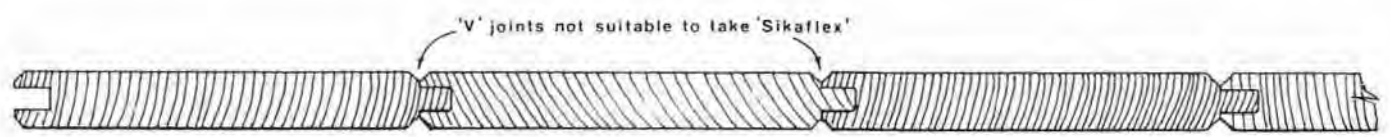
cutter consisted of a length of 3/8" internal diameter tube, resplendent with four filed teeth, set up in the drill press, and was kept ..., well, plugging away whenever I felt like putting the old brain in neutral. The fastenings were staggered along each plank alternately from edge to edge, relying on the additional security of the tongue-and-groove jointing to ensure the production of a strong and leakproof deck.

The idea of a plywood subdeck was toyed with but eventually dismissed as both unnecessary and also a possible source of future rot problems if the deck were to leak and water become trapped between the two layers.

The afterdeck, being much smaller and less daunting than the foredeck, was layed first. Each board was bedded down on Sikaflex and checked for parallel with the centre line of the boat by means of a string stretched from bow to stern at the required distance from the kingplank - so ensuring that the side decks, when layed, would fair in with both the fore and aft decks.

Prior to paying the seams, a special primer coat was applied, and then an old audio tape was laid into the bottom of the grooves. This was not an attempt to provide a musical deck to enhance tranquil hours afloat or to console in times of trauma, but to prevent the Sikaflex from adhering to the bottom of the seam, and so permitting its required expansion and contraction essential for the prevention of the ingress of water.

MATCHBOARDING



MODIFIED MATCHBOARDING





Once the decking had been layed, it was trimmed to the carlins and sheerstrake. A capping was bent around the sheerstrake to protect the hood ends of the decking. This capping had a routed groove along its length on the inboard edge at deck level which was payed at the same time as the deck seams. Two 4" diameter holes were cut in the deck, one for a fuel intake fitting and the other to give access to the bilge pump handle. Both fittings are bronze and have turned into a beautiful dark green colour after their exposure to the elements. Most of the Sikaflex ended up in the seams, the remainder covered the deck, hands, arms and anything else within a six foot radius of the gun. After it had partly cured, the surplus standing above the seams was removed with a sharp 1" chisel. Acetone and time removed the remainder. After a few days, the

seams had skinned sufficiently for the deck to be lightly sanded to clean up any remaining unwanted caulking and to fair off any parts of the deck which stood proud. This latest exercise was to prove to be the cause of problems later on as, in an effort to obtain a fair surface, over-enthusiasm with the sander resulted in a short length of three of the foredeck seams splitting the following summer. This sanding had reduced the upper section of some of the tongue-and-groove joints to possibly only 1/8" thick and its reduced strength could not withstand the two-pronged attack of the pressure of thumping feet and the inevitable shrinkage in the hot sunshine. A temporary quick-fix was to run epoxy resin in the cracks. Removal of the offending sections and the insertion of 3/16" square splines will ensure a satisfactory solution.

Something to Tell Your Grandchildren?

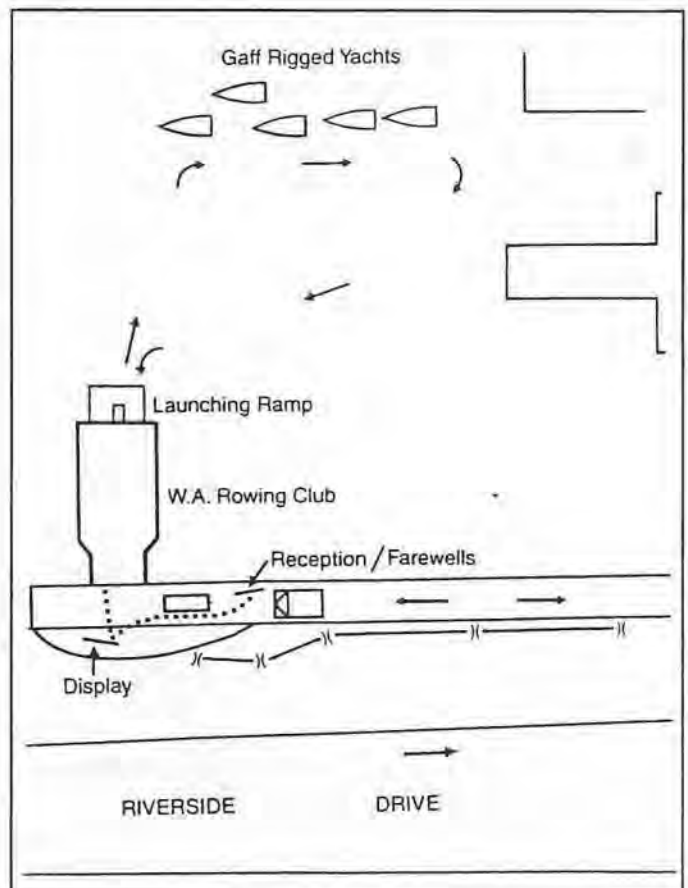
Frank Marchant, President of the Old Gaffers' Association, reports on a recent Royal visit to a small gathering of their craft:

Mr. Hugh Samson, State Director of the recent visit by His Royal Highness, the Prince of Wales, approached the Association in relation to the Premier's proposal that the Old Gaffers be involved in some way with a visit by the Prince to the old WA Rowing Club boathouse currently being restored.

As a result, the Association put on a mini Spithead Review, by mooring six yachts adjacent to the building, to await the Regal inspection. Prince Charles then boarded the Police rubber duckie and visited each yacht in turn - chatting amicably to those on board, who appeared to thoroughly enjoy themselves.

The yachts involved were: ROAMARICK, Doug Rickman; DELTA, Brian Axcel; CORINTHIA, Alan Horridge; KARINA, Wally Cook; ORIEL, Mike Igglesden; and NEW YACHT, Brian Phillips. The Association's craft moored in line, making a fine sight which some of the older spectators would remember when other yacht clubs used to be located there - clubs such as the Perth Dinghy Club, Perth Flying Squadron, and Perth Yacht and Boat Club (now Royal Perth Yacht Club).

The day ended with an invitation from the Premier and Mrs. Court to skippers and crew to a reception in Government House gardens.

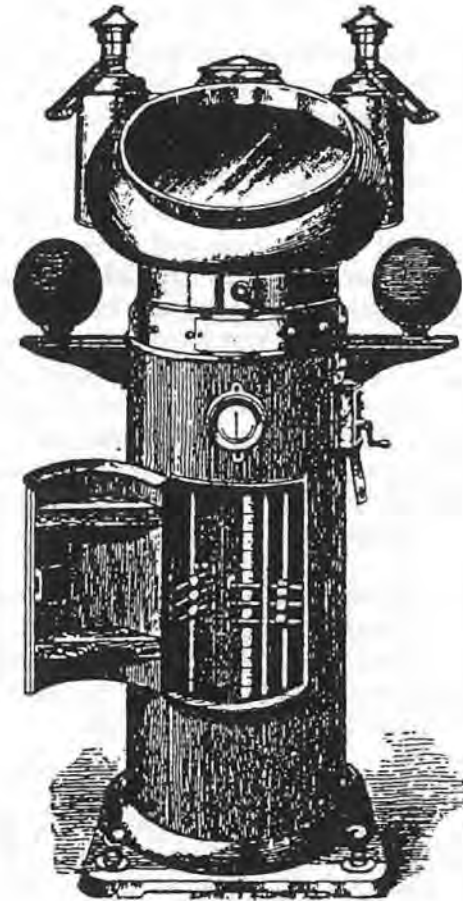




The Deviant Compass

by Peter Worsley

For a captain sailing a ship to Australia from England in the 19th Century, the most important navigational instrument was the magnetic compass. In fact, it was the main navigational instrument for offshore voyaging from at least the 11th Century until the invention of the gyroscopic compass in the early part of the twentieth century. Because of the gyroscopic compass's reliance on electricity - which may fail at sea - even modern ships normally have a standby magnetic compass. S.T.S. LEEUWIN has both. Although the magnetic compass is reliable, it is, however, subject to a number of errors. The two common errors which have to be compensated for are Variation and Deviation.



Variation is the difference between true north (the direction of the geographic north pole) and magnetic, the direction of the magnetic pole. In fact, the earth is a giant magnet with the magnetic poles some distance from the geographic poles, and deep inside the earth. As a consequence, the magnetic needle of a compass does not point directly to the magnetic poles, but varies in different parts of the world from 0° to 90° close to the poles. This variation is also - in most places - changing slightly each year as the magnetic poles move. Variation has been well understood for 300 years or more. Halley mapped lines of variation in the late 17th Century. All current charts have the local variation marked on them and there are charts which show worldwide variation. Variation would have been no worry to our 19th Century captain.

However, Deviation, the second major error, was a problem. Deviation is the deflection of the compass

caused by magnetic influences near it. These deflections can be caused by any iron or steel object such as bolts or nails, wire rigging, steel, the hull and masts, ballast, cargo, the shaft of the ship's wheel, etc. It can and does alter over time (even over one voyage) for various reasons; e.g. vibration can alter the magnetism of iron objects. Iron-hulled vessels which were built of riveted plates were normally highly magnetic in a particular direction, depending on the way they were facing while the ship was being built. It was essential that a captain knew his compass deviation at all times, for if an error occurred which he did not know about, his ship could be in danger.

Compass deviation is normally different for different headings of the vessel. This requires that a ship is "swung". Swinging a ship is carried out by putting the vessel onto various headings at a known position in sight of marks on shore, then comparing the



compass bearings with those calculated from the chart. A compass adjuster's declaration or deviation card can then be made up (see attached). This should be checked at least yearly, when any major work has been done aboard the vessel or when a considerable change in latitude occurs, e.g. 15° or more.

Returning to the ship enroute from England to Australia, although she would have had a deviation table, the vessel has possibly covered some 90° of latitude or more by the time she is half-way across the southern Indian Ocean heading for Fremantle. How does her captain work out the deviation of his compass when out of sight of land and after weeks of voyaging? There are two ways: an azimuth, and an amplitude. Both require an approximate idea of position but an azimuth also requires an accurate knowledge of time. An amplitude does not need such accuracy and is the common compass check which can be and was done twice daily - at sunrise and sunset. Many cruising yachts still use this method to check their compasses and I have used it to check the compass on the "Leeuwin".

The time is also required so that the declination of the sun can be ascertained from the Nautical Almanac. The Almanac has been around since 1767 and was essential for celestial navigation before the advent of satellite navigation and the Global Positioning System.

The amplitude method is quick and simple: a bearing is taken of the Sun at either sunrise or sunset and the time noted. This is the compass bearing of the Sun. The true bearing of the Sun is then calculated from the declination, taken from the Almanac for the particular date and time and the latitude of the vessel. It can be calculated using either tables found in navigational books such as Bowditch or Norie or by the formula $\text{Sin}A = \text{Sec}L \text{Sin}D$. Here, A is the amplitude, L is the latitude and d is the declination. The amplitude is named East or West according to whether it is sunrise or sunset and then North or South to coincide with the declination.

The resulting figure is the true bearing of the Sun and the difference between it and the compass bearing is the compass error, made up of variation and deviation.

To calculate the compass error by the azimuth method is more accurate and can be done at any time of the day or night. However, it requires an azimuth ring to be fitted to the compass and is more involved than an amplitude. An azimuth necessitates that the compass is used to take a bearing of one of the 57 navigational stars (i.e. those mentioned in the

Almanac) or Polaris, the Moon, the Sun, Venus, Mars, Jupiter or Saturn. The azimuth can be taken at any time of the day that the celestial body is visible but, as I said before, an azimuth ring is required. The azimuth ring is a sighting device which includes a prism, fitted to the compass. The exact time of the bearing is noted and tables such as Norie's A.B.C. Tables or Sight Reduction Tables are used to obtain the true bearing to compare with the compass bearing.

The reasonably steady, liquid-filled magnetic compass of today is a fairly recent invention. The dry card compass was used as the standard compass by the Royal Navy until 1906, when the liquid variety was adopted by the Board of Admiralty. Dry card compasses have a nasty habit of swinging rather wildly from side to side, hence the present practice of filling the compass bowl with a liquid (either a light oil or alcohol) to dampen these oscillations. Even a liquid compass is not capable of being read to any closer tolerance than about 1° on a large, comparatively steady ship. On a small vessel or in rough seas this figure rises considerably. In a yacht or other small vessel, therefore, the amplitude can be calculated easily to within the ability of the navigator to take an accurate bearing. Our captain would have found an amplitude sufficient for his compass check twice daily. The importance of checking the compass can be illustrated by the fact that Bowditch names at least two dozen azimuth tables and eleven azimuth diagrams devised in the nineteenth and twentieth Centuries to simplify this vital task.

MERCATOR is alive and well ...

In response to Peter Worsley's article *Was It BONANZA or TRANSIT?* (MHA Newsletter, 3,3), in which Peter indicated that he had heard that the barquentine MERCATOR (1932) may have been wrecked or burned a few years ago, Frank Marchant reports that in May of last year he saw the ship in A1 shape in Ostende harbour. He believes the ship is being used by a Naval Training Association.

NOTICE OF ANNUAL GENERAL MEETING

Monday 11 April at 7:30pm

At the *Leeuwin* S.T.F. Conference Room
B-Shed, Victoria Quay, Fremantle

Refreshments provided following the AGM

Guests welcome

COMMITTEE

Nominations are called for the positions of President, not more than four Deputy Presidents, Treasurer, Secretary and not more than four Committee Members. Nominations should be in the hands of the Secretary by 8th April.



MHA COMMITTEE NOMINATION 1994

I nominate

for the position of

Signed

Signature of nominee

NOTE: Financial members only may vote.



EYE OF THE WIND

by Robin Hicks



About the turn of the century, thousands of jarrah sleepers were being shipped to England for the network of railways that were being built all over Britain. A lot of these were loaded onto sailing ships for the long haul across the world. Some of the sleepers were used on the Tenterden line, in Kent.

A few years after World War Two, the railways began to decline. Those that did not pay were closed down, and the Tenterden line was one of the victims. The track was ripped up and the sleepers used to build a sea-defence wall. They were driven into the mud to break the force of the waves.

Years later, the sleepers were pulled out and sold to the public. At this time, a group of people were rebuilding a burnt-out iron ship at Faversham, in Kent. They bought some of the best sleepers and cleaned and planed them up to use as pin rails all around the bulwarks of the ship. Years passed ...

That same ship came to Fremantle for the Americas Cup. She was the brigantine EYE OF THE WIND, and her pin

rails - in pristine condition and well varnished - had arrived back at Fremantle some ninety years after they had left Fremantle's shores. They had left on a sailing ship, and had eventually returned on a sailing ship.

In 1990, EYE OF THE WIND experienced some bad weather and part of her pin rail was pulled out. This was mainly caused by deterioration of the steel brackets fixing the rail to the ship's bulwark. After ninety years' service - and an extremely hard service at that - this jarrah is now being replaced. Long live King Jarrah!

Footnote: In September, 1990, EYE OF THE WIND had an extensive refit before leaving Sydney to round Cape Horn on her way to England. All the jarrah pin rails had been finally replaced with spotted gum which had been used as beams in an old warehouse. These measured 12" x 12½" and were 27' long. They needed only a good sanding to bring them up to a varnish finish.

STOP PRESS

Before the Annual General Meeting, members will be invited on a tour of the HM Bark ENDEAVOUR replica, with none other but Ross Shardlow acting as tour guide.
Time: approx. 6.30 - 7.30 pm. Don't miss this opportunity!