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Editor: Peter Worsley. 294 Chapman Rd., Geraldton, 6530.

Pearling Luggers – *see Rod Dickson's article on p. 17.*

The Maritime Heritage Association Journal is the official newsletter of the Maritime Heritage Association of Western Australia, Incorporated.

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(If you have an unwanted collection of magazines of a maritime nature, then perhaps its time to let others enjoy reading it. Contact the Association; we may be interested in archiving the collection.)

Material for publishing or advertising should be directed, preferably typed or on disk, to:
The Editor, 294 Chapman Road, Geraldton, Western Australia, 6530.

EDITORIAL

I must apologise for the late publishing of this copy of the journal – however I did warn you at the beginning of the year that this could happen!

I have been very busy down at Albany. As at the end of term 3 of the school year the small class has built two 15 foot sailing dinghies, including the spars and oars for them and we have almost completed the planking of the whaleboat which is the major project. Also built were two masts for the whaleboat (see my article on page 14), a boom and gaff, two 17' oars, four 16' oars, four 15' oars and partially completed a 22' sweep. Each class member has also built their own wooden tool chest (mine has been snaffled for a blanket box).

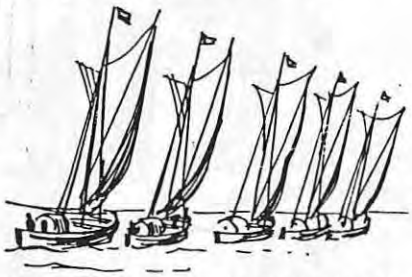
The whaleboat is 28' 6" long and has eight planks per side. These are a mixture of carvel and clinker and are made from Tasmanian Huon pine scarfed into long lengths. The particular consignment of timber had many very small gum veins through it. These proved to be weak points and problems were had with planks splitting along these veins. However with only one plank to fit framing is due to start early in the new term.

In a future issue of the journal I will write an article on the building of the whaleboat.

Please read the page opposite. Rod is to be thanked for his generous offer regarding the prize to be given for the winner of the essay competition. I hope this proposal is successful and look forward to publishing some of the entries in this journal.

I am also looking forward to publishing Nick Burningham's material on his sojourn aboard *Duyfken.*

I am glad to see that items in the journal continue to get responses from readers. Please have your say – send me an item, length is immaterial, on something you are interested in, on something you agree or disagree with, on some information you would like. As I have said before – this is your journal, use it.



WANTED

INFORMATION, OR EVEN BETTER AN ARTICLE, ABOUT BAY WHALING IN WESTERN AUSTRALIA

REPORT FROM THE PRESIDENT

Rod has sent this report so that readers of the journal may be kept up to date with the main proposals and activities of the Committee in Perth.

Having been at sea at the time of the annual general meeting when I was elected president I was naturally keen to have another meeting as soon as possible after I arrived back in Perth.

The meeting was duly called and held at the Wooden Boat Works in the new conference area and thanks must go to Tup Lahiff for allowing the Association to use these facilities. It was also pleasing to see a good turn out of members.

A suggestion that I raised to the Committee was approved by the members present and at this stage is being carried through. This proposal was that the Association hold a composition amongst high school students in years 8 to 10 for a one thousand word essay on a maritime theme. The reason this age group was chosen was because it was felt that the pressures of study would be too great on the year 11s and 12s as they're working their way towards the T.E.E.

It was decided that for subject matter the entrants could choose their own material provided it was on a maritime theme, (even the goldfields had boat builders and yacht clubs). The prize for the winning entry is to be $200 which I will personally donate.

At present I am in the process of writing to all senior schools in Western Australia, (to the heads of the Social Studies Departments) to gauge their reactions and enthusiasm for the project. If enough schools are willing to participate then entry forms will be sent out in the first term of next year and all entries are to be received by July 2001 for judging.

It is envisaged that we will need the help of some duly qualified educationalists to help in the judging, possibly retired teachers and we will have to look at that when we find out the reaction to the proposal. Hopefully we will get a positive result.

The main reason that I brought up the subject of a competition was that I felt that the Association needed more exposure and needed to reach a wider audience and readership and I feel that this is a positive way of achieving this aim.

Another proposal that was raised was that the Association give thought to supporting the art exhibition being put on by the Australian Association of Marine Artists, to be held late next year at the Maritime Museum at Fremantle. This is the first time the exhibition has been held in WA and will showcase our state and our artists some of whom are members of our own Association. As this is still in the discussion stage we have plenty of time to work out how we can help.

It is pleasing to note that the Maritime Reading Club's activities are progressing well and at the last meeting a good and varied selection of books were in evidence and a lively discussion on the merits or otherwise of the books was entered into.

As I am about to depart back to sea again for another stint I hope the members will continue to meet in a convivial atmosphere and uphold the traditions.

Rod

The Ditty Bag

An occasional collection of nautical trivia to inform, astound, amuse and inspire.

Further to the comments on scurvy in the Ditty Bags of journals numbers 10.4 and 11.1 and Nick Burninham's article in the latter, it is interesting to note that Royal Navy submarine crews operating off the coast of Norway in the summer of 1940 suffered from scurvy. After diagnosis they were given dehydrated vegetables which cured the condition. It appears that tinned food of that era did not retain vitamins.

Sad colour. In the eighteenth century the leftovers of the various coloured paints used on warships in the Royal Navy were mixed together and used for boats' bottoms, bilges and the faying surfaces of joints. This drab coloured mixture was called sad colour. also called GREY STUFF

The hard, oily wood Lignum Vitae was used during the 19th century for self lubricating stern bearings for screw driven steamships. The person who introduced this practice was the marine engine builder John Penn in 1854. Penn was the builder of the engine recovered from the wreck of the *Xantho* at Port Gregory and now in the Fremantle Maritime Museum. The practice of using Lignum Vitae lasted for forty years until the introduction of modern metal bushings.

The oldest ship which we know is probably the funeral ship of the Pharaoh Cheops which dates from around 2600 BC. This vessel was prefabricated then the 1224 pieces buried. It was built in cedar and was never really intended to go to sea. As a comparison, this vessel at 133 feet in length is the same length as the sail training ship *Leeuwin II.*

A 74 gun ship took approximately 3,300 plates to copper her bottom. This weighed almost 13 tons. Added to this were the nails (¼" by 1½" long) of which 16 per plate were used. These 52,800 nails, at half an ounce each, would possibly add another ¾ ton to that weight.

In 1828 in Australia the cost of a 250 – 270 ton whaling ship was £5,500 and the cost of a new whaleboat was £30. Completely outfitted for a voyage of one year, including 5 whaleboats, with a crew of thirty the total cost amounted to £7,480. The expected cargo of 200 tuns resulted in a profit after crew payments and wear and tear on ship and equipment of £4,600 or 61.5%.

A conventional single hulled displacement vessel has a maximum speed under ideal conditions of strong, fair winds and smooth seas, of 1.4 times the square root of the length of the waterline. This formula was devised by William Froude (1810-79), a naval architect, who carried out tank tests on model ships and yachts in the 1870s in his own private ship model testing tank built with a grant from the British Admiralty. This tank was 300' long, 20' wide and 10' deep and was later owned and used by the Denny shipyard in Dumbarton, Scotland, to test Sir Thomas Lipton's *Shamrock III* in 1902.

The gaff mainsail of the 1903 America's Cup defender *Reliance* (LOA 149.68 feet) had the following dimensions:-

Luff	72 feet 3 inches
Head	69 feet 4 inches
Foot	112 feet
Leach	139 feet 7 inches

The canvas was 22 inches wide, each seam double sown, and were all, together with all reinforcing patches and the roping, hand sewn! She had six of these sails. Her total sail area was 16,159.45 square feet.

MHA Supports Duyfken Chevron Re-enactment Expedition

Graphic artist and furniture-maker Rachel Walker was sponsored by the MHA (and two other institutions) enabling her to sail on the Geraldton to Broome legs of the Duyfken Chevron 2000 Re-enactment Expedition (ie Voyage). Rachel undertook to provide artwork and an article about her experiences on Duyfken for the MHA Journal.

Having sailed to Broome, Rachel was invited to join the ship for the Indonesian leg of the voyage as ship's carpenter. She returned briefly to Perth and then flew to re-join the ship at Kupang, Timor. Rachel stayed with *Duyfken* through Indonesia and until she reached Weipa on the west coast of Queensland's Cape York Peninsula after the re-enactment landing at the Pennefather River. From Weipa, Rachel flew to Sydney for Olympic duties as a member of the Army Reserves.

We hope that Rachel will be able to complete her artwork and writings for the *Journal* soon after the Olympics conclude.

Not only MHA sponsoree Rachel Walker has been sailing on *Duyfken*. Former President, Nick Burningham, joined *Duyfken* at Broome in mid-May and stayed with the ship until the landing at Pennefather River on August 10th. Burningham has returned several kilos lighter and looking much like Samuel Taylor-Colleridge's Ancient Mariner — a grey bearded loon.

However, he claims to have done some very useful research into circa 1600 sailing techniques. *Duyfken* is sailing well, particularly when tacking to windward in fairly sheltered waters. Techniques such as leading the main tack inboard and half-masting the topsails in a stiff breeze have contributed to sailing efficiency. Edited extracts from Burningham's *Duyfken* journal will appear in future numbers of the *MHA Journal* if space allows.

What's this "Cultured Person's Maritime Book Reading Club"?

The MHA's outgoing president, in his last annual report made reference to MHA committee meetings being combined with meetings of a "Cultured Person's Maritime Book Reading Club", also known as the "Gentleman's Maritime Reading Club".

There were plans to publish the proceedings of the club in this Journal, but those proceedings, as recorded by club secretary Flip Bowdlerham, proved too scurrilous for inclusion here. The irregular meetings of the club seem to combine biblophilia with bibulousness, and serious literary review with facetious badinage.

An impressive list of books have been reviewed during the last year.

Membership of this semi-secret organisation is by invitation only. If you wish to be considered for invitation, your letter of application should be sent to Nick Burningham and accompanied by a case of sound red wine.

N.P. Curmudgeon Quibbles Again

Sir,

In MHA Journal 11.2 you quote your sources for proposing the contention that the rating system of classifying RN ships was introduced by Admiral Anson in the 1750s. The first of those sources certainly does make that claim, but it is *The Oxford Companion to Ships and the Sea*, a tome that is widely known for its amazing compilation of misinformation. The second source is not quite so explicitly a claim that Anson introduced the rating system to the Royal Navy, and I think it is partly correct in saying that the system of rating according to armament alone, introduced in Anson's time was copied from the French. Your third source, Brian Lavery's *The Arming and Fitting of English Ships of War 1600 – 1815*, makes it quite clear that rating systems were used **before** Anson's time. It makes the point that from Anson's time onwards, the establishment of rates was on the basis of armament, whereas until 1745 (before Anson gained control of the Admiralty) the establishment of rates prescribed not only the armament of a ship but also its dimensions. The problem with English ships — the problem that was countered by reforms in Anson's time — was that the dimensions prescribed in the various "Establishments" were almost always less than completely adequate for the weight of the ordnance. English ships tended to be unstable and unable to open their lower deck gun ports in breezy weather. It was not uncommon for English navy ships to be girded to increase their beam before they made a voyage.

The story in *The Ditty Bag* (*MHA Journal* 11.2) section about the lad on board King William IV's yacht is interesting. Perhaps not all our readers are familiar with King William IV, indeed some people believe the oldest son of the current Prince of Wales will become William IV if he becomes the monarch. William IV (1765-1837) was king of Britain from 1830 to 1837. He was the third son of King George III. At the age of 13, William began a long career in the British Royal Navy. During his reign, he became known as the "Sailor King." He also ruled the German territory of Hanover from 1830 to 1837. William was succeeded by his niece Victoria.

In your quiz answers, you say that the Dutch *Geelvinck* means yellow finch, and that is a correct direct translation of the word. However, the bird that the Dutch call *geelvinck* is, I believe, called goldfinch in English. *Nyptangh* can certainly be translated "nipper or pincers", but the name is also used for the tool we normally call pliers.

The President's report to the MHA's AGM announced the sponsorship of a certain Rachel Walker to assist her in taking a place amongst the crew of the *Duyfken* replica. However, the out-going president, Mr Burningham, makes no mention of the fact that he too would be sailing on *Duyfken*. Ms. Walker is, I am given to understand, a very personable young lady. I trust Burningham's intentions in this matter were entirely altruistic.

Faithfully yours, Curmudgeon

A CONTROVERSIAL COMMANDER

As promised in the June Journal, here are some brief notes on the incredible career of Thamas Cochrane, 10th Earl of Dundonald.

Thomas Cochrane was born in 1775, the eldest son of the inventive and eccentric 9th Earl of Dundonald. Thomas first went to sea at the age of eighteen under the command of his uncle, Alexander Cochrane. He commanded the *Speedy* in the capture of the Spanish frigate *Gamo* in 1800, (see MHA Journal 11. 2) and this brought him to the attention of his superiors. His tactics in this encounter are described in his autobiography published in 1860.

> *My orders were not to fire a gun till we were close to her; when, running under her lee, we locked our yards amongst her rigging, and in this position returned our broadside, such as it was..... .....My reason for locking our small craft in the enemy's rigging was the one upon which I mainly relied for victory, viz, that from the height of the frigate out of the water, the whole of her shot must necessarily go over our heads, whilst our own guns, being elevated, would bow up her main-deck.*

In the story in the June journal Henderson states that the surgeon, who took the helm in this action, was aided by possibly two or three boys. Cochrane's autobiography appears to contradict this and give all the credit to Mr. Guthrie.

> *The doctor, Mr. Guthrie, who I am happy to say, is still living to peruse the record of his gallantry, volunteered to take the helm; leaving him therefore both commander and crew of the* Speedy, *the order was given to board, and in a few seconds every man was on the enemy's deck – a feat rendered the more easy as the doctor placed the* Speedy *close alongside with admirable skill.*

He later commanded the *Pallas* and the *Imperieuse* and again carried out some brilliant exploits against Spanish and French ships. In September 1808 his actions in the *Imperieuse* were so damaging to France that 2,000 men were withdrawn to combat his lone vessel. Yet during this time he lost no crew, nor were any injured except one "singed in blowing up a battery".

He entered Parliament in 1806 and interspersed an eight year, stormy political career with further naval service. In April 1809, as a captain, Cochrane, by now the 10th Earl of Dundonald, was appointed by the Admiralty to command a group of fire-ships in the Battle of Basque Roads. The eight French ships were anchored behind a protective boom. The first fire-ship broke this boom and the French panicked cutting their cables to escape. All but two of them ran ashore. The English Admiral Lord Gambier reluctantly took his fleet into the Roads but only three of the French ships were actually taken and burned. A recaptured British East Indiaman later blew up. In Parliament the 10th Earl opposed a vote of thanks to Lord Gambier because he considered that the Admiral had shown excessive caution, particularly his order that Cochrane should withdraw from the Roads. He in fact called for Lord Gambier to be court-martialled. This took place but the Admiralty (who had of course appointed Gambier) made sure he was acquitted. His action against his superior officer did not help Cochrane's naval career at all !

He was expelled from the navy and from Parliament in 1814 because of his involvement in a Stock Exchange fraud.

In 1817 the Chilean Navy requested him to take command of their fleet. Chile was at war with Spain and Cochrane's capture of the Spanish flagship *Esmeralda* eventually led to Chile's freedom from Spanish rule. In 1823 he joined the Brazilian Navy. Brazil was seeking independence from Portuguese dominance. However he again quarrelled with his superiors, and returned to Europe. Incredibly he was then officially invited in 1825 by Prince Alexander Mavrocordatos, Secretary of the Greek National Assembly, to command the Greek Navy in their war of independence against Turkey ! He was given free

rein to buy any vessels required. He ordered six steam gunboats from England and two frigates from America. There were considerable delays and complications with the building of the steamships due, it is rumoured, to bribes to the builders by the Turks. Two were never completed and the others proved unreliable.
The four received into the Greek Navy were the *Karteria, Epicheiresis, Irresistible* and *Hermes.*

In 1832 he was reinstated in to the Royal Navy. In 1848, with the rank of admiral, he was put in command of the American and West Indies Station and served in that position until 1851. At the age of 80 he was refused a command in the Crimean War which disappointed him greatly. He died in 1860.

Thomas Cochrane was a brilliant tactician and was always fascinated by the more offbeat methods of warfare and the elements of surprise attack. He was also an inventor of note. His inventions included improvements to gas lighting and a number to do with steam propulsion such as improvements to tubular boilers. He is purported to have introduced steam ships as fighting vessels. In 1812 he introduced the use of gas and smoke screens, and his plans for these remained secret until 1914.

As a postscript, when *HMS Warrior* was commissioned in October 1861, her captain was A. L. P. Cochrane, the third son of Thomas 10th Earl of Dundonald.

Captain Frederick Marryat based his novel 'Peter Simple', about life in the Royal Navy at the turn of the 18-19th century, on Cochrane's exploits while in command of the frigates *HMS Pallas* and *HMS Imperieuse.* Marryat served as a midshipman in both these vessels.

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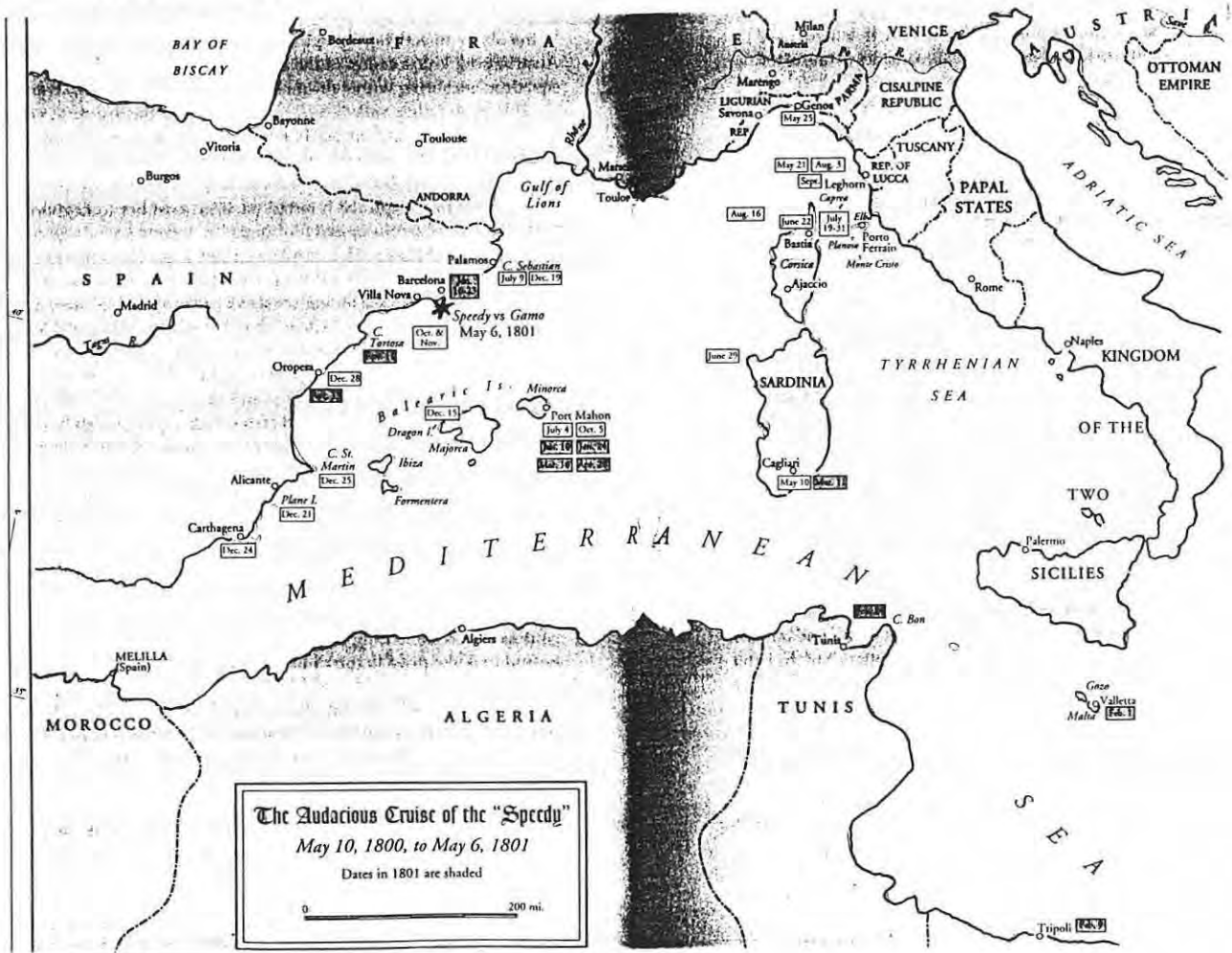


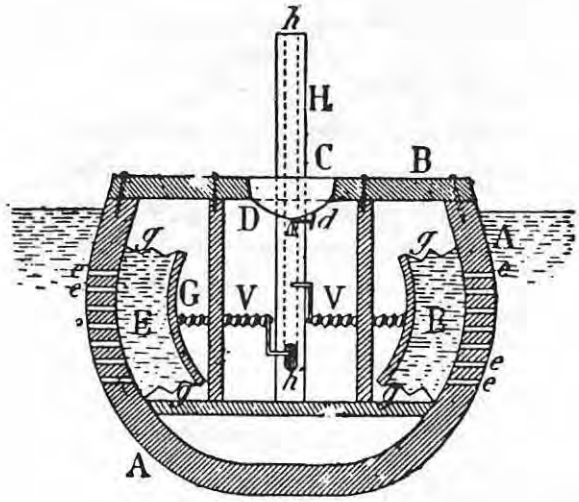
A SHORT HISTORY OF SUBMARINES

After the series *A Short History of Diving* which I presented in this magazine some 12 months ago, I thought that we might take a similarly brief and non-academic look at the development of the submarine.

While assisted diving has a history going back some 2800 years (see front cover of the MHA Journal Vol. 9 No. 2 showing Assyrian "divers") the development of submarines follows a series of comparatively recent ideas and experiments. I found it interesting that while the development of diving gear was motivated largely by curiosity and was only marginally thought of as having a role in warfare, the development of submarines seems to have always had a military focus. British, American, Irish, French and Germans all tried at various times to perfect a "secret weapon" to use against the battleships of whatever nation was aggravating them at a particular time.

The date 1578 may surprise you. In "Inventions and Devices", William Bourne in England wrote that;

> *"It is possible to make a shippe or boate that may goe under the water unto the bottome, and so to come up again at your pleasure".*

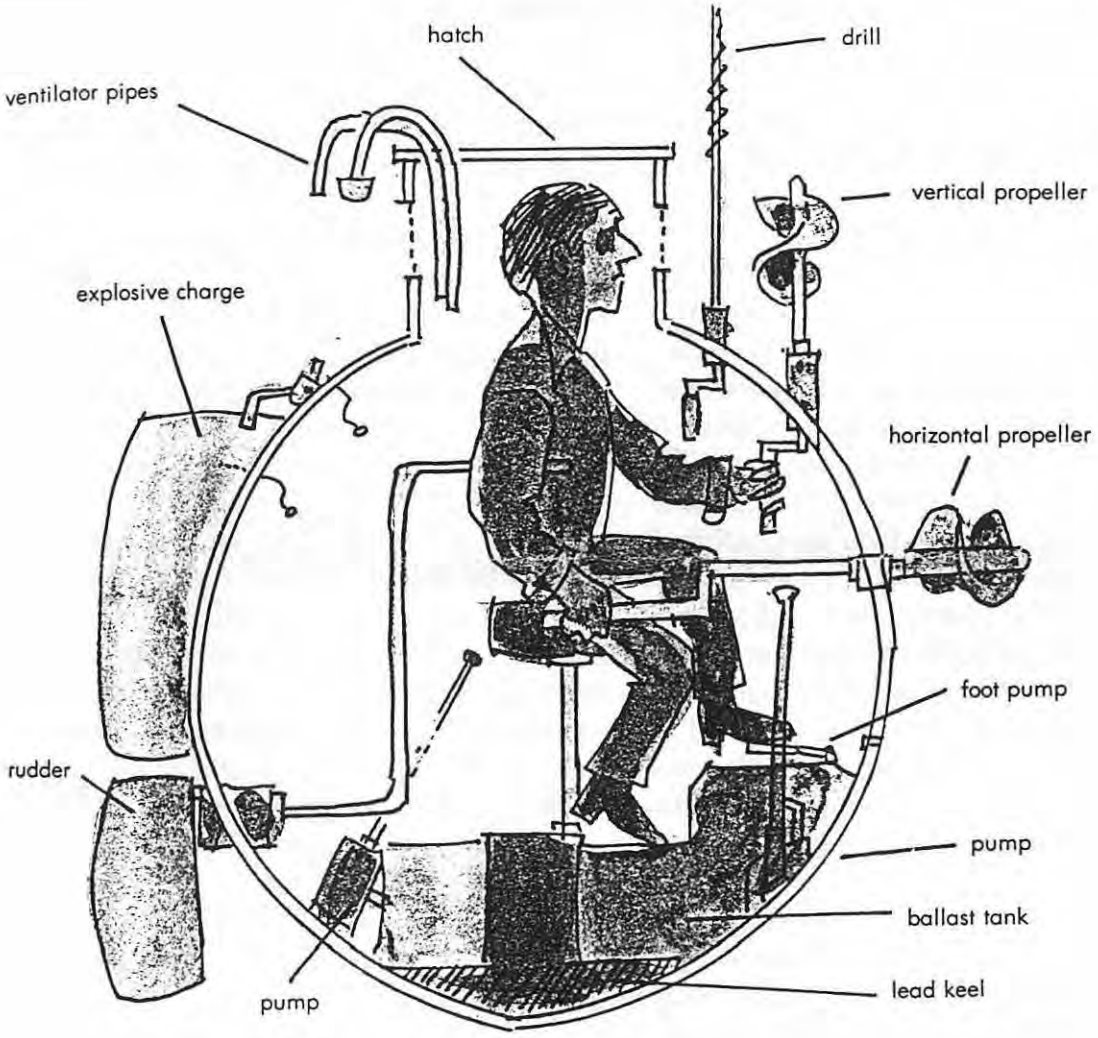


Bourne's idea was to build a vessel with an internal system of horizontal screws connected to leather pads which, when unscrewed, would allow sea water to flood side chambers and cause the vessel to sink. When screwed the other way, the water would be expelled and the vessel would rise. I cannot find any reference to this vessel ever having been built, and there were (to us) obvious deficiencies. However, the concept of a submarine boat was born and this led to later more practical developments.

In 1754 the American War of Independence was only a scant year in the future. David Bushnell from Maine described a battleship-wrecking device which he called "*Turtle*", to be used by the colonists against the British. This was an egg-shaped craft which had just enough water ballast to enable it to travel fully submerged. A man sat on a thwart and looked through tiny portholes, using enclosed air for a maximum of 30 minutes effort. Once the hatch was closed, a foot pedal opened a valve and flooded the ballast tank. After weightlessness was reached, the vessel could be manoeuvred forwards or backwards, up or down, by a series of screws driving primitive propellers, one on the top for vertical and one on the side for horizontal movement. The rudder control was jammed under one arm.

Sergeant Ezra Lee used the *Turtle* to attack *HMS Eagle* anchored off New York. While the *Eagle* survived the attack, submarine warfare had begun.

The next serious development was the brain child of another American, Robert Fulton. He designed the *Nautilus*, but being unable to get American backing, he took his plans to France. In 1801 the *Nautilus* was demonstrated on the Seine. It was a vessel 6.5m (21ft) long with a 2m beam, elliptical in shape with a copper shell covering an inner frame. Fulton and a friend carrying a candle submerged for 25 minutes and travelled underwater at 2.5km per hour. They used their combined muscle power to dive and re-surface several times as well



A cartoon of David Bushnell's TURTLE

as travel "a considerable distance".

The following year, a second *Nautilus* was built and Fulton;

> *"not only remained a full hour under water with three of his companions, but held his boat parallel to the horizon at any given depth. He proved the compass points as correctly under water as at the surface, and while under water the boat made way at the rate of half a league per hour by means contrived for that purpose. Mr Fulton has already added to his boat a machine by means of which he blew up a large boat in the port of Brest: and if by future experiments the same effects could be produced on frigates or ships of the line, what will become of maritime wars.....?"*

What indeed!

Despite its obvious potential, *Nautilus* never went into action. Coming as it did between the Battle of the Nile and Trafalgar, the French never the less felt that submarines did not provide a "gallant death" to the enemy (as opposed, of course, to the extremely "gallant deaths" suffered by those on surface frigates, battleships and other naval vessels raked by gunfire over these turbulent years).

Napoleon even described Fulton as a man without morals. He left for England, and offered his plans to the Admiralty. They too seem to have had qualms over the gallantry of death due to submarines, so in disgust Fulton gave up on submarines and returned to America where he came up with a workable plan for a paddle steamer.

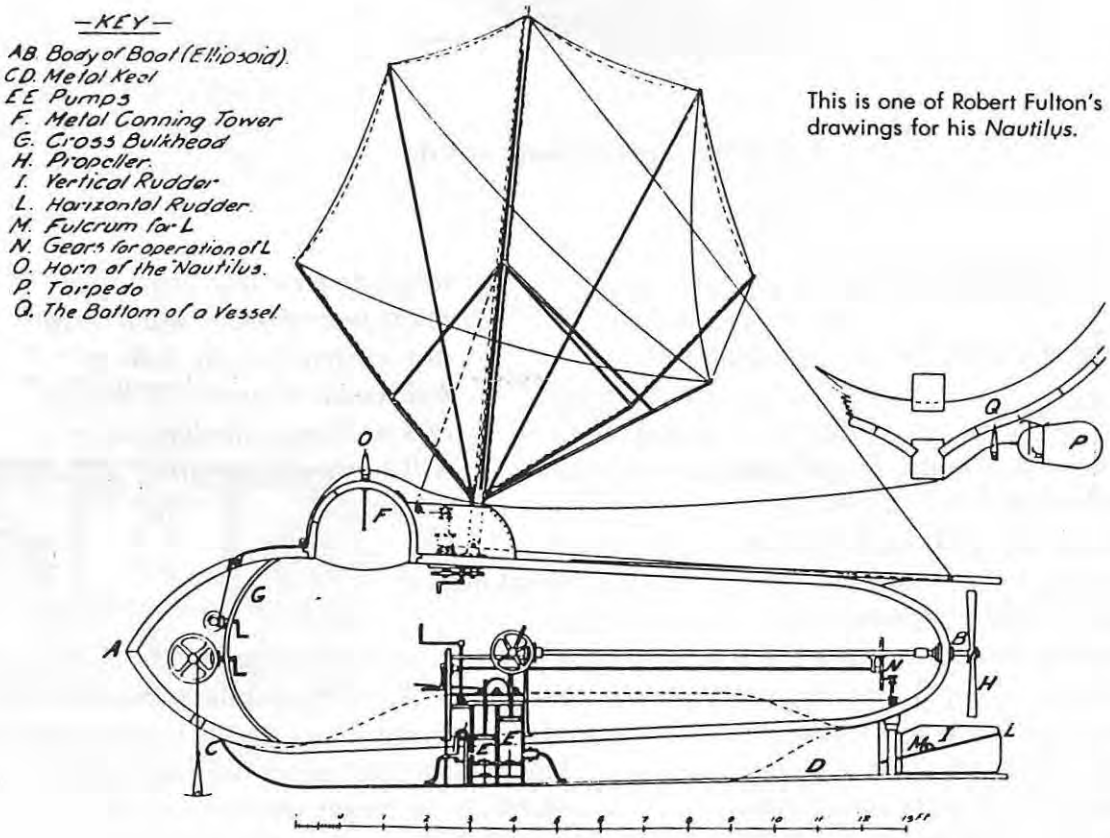
Sixty years later, during the American Civil War, the southern states which had embraced and further developed Fulton's designs for paddle steamers turned again to his idea of using submarines in warfare. Owing to technical advances in other fields, their plans were for submarines propelled by either onboard steam engines or by compressed air held in large reservoirs. In 1865 the Confederates launched the *Spuyten Duivel*, a semi-submersible which was 25m in length and had a beam of 6m. It displaced 270 tons and was protected by 5cm armour plating.

They later launched the huge *Manassas,* also a semi-submersible, designed to travel at top speed and ram enemy (i.e. northern) ships below the waterline. *Manassas* was 39m in length and displaced 387 tons. The most remarkable feature was a 6m ram bow of solid iron, behind which was mounted a cannon capable of firing 31kg shot.

This seems to have been the final development in the "big is beautiful" school. *Manassas* probably caused more fear than actual damage, and future developments were to be of smaller and much more efficient submarines with greater fire power.

To be continued.....

Jill WORSLEY.



This is one of Robert Fulton's drawings for his *Nautilus*.

Blue Gum

Readers of this journal will be aware of the great areas of Tasmanian blue gum forests planted for the woodchip industry in the south-west of this state. Looking at these trees now it is hard to imagine the great use that was made of this timber in the early days of shipbuilding in Tasmania.

John Watson is considered the father of shipbuilding in Hobart, Tasmania. After an apprenticeship in Southampton, UK, he migrated to Tasmania on the ship *Norval* in 1831. He became foreman at Peter de Graves yard and later worked at Port Arthur where he trained prisoners in ship building. The first armed vessel built in Australia was launched by Watson in 1834. She was the 98 ton topsail schooner *Eliza.* Her duties were to patrol the Derwent River and Storm Bay to prevent smuggling and to intercept vessels under suspicion of having escaped convicts on board. Watson later opened his own yard at Hobart.

He built many fine vessels besides the *Eliza* including:-

Flying Fish	Schooner
Flying Squirrel	"
Flying Fox	"
Miranda	"
Circassion	"
Tommy	"
Runnymede	Barque
Southern Cross	"
Panama	"
Free Trader	"
Victoria Packet	"
Middleton	"
White Hawk	Paddle steamer

The barque *Runnymede* was wrecked in Frenchman's Bay, near Albany, in 1881.

John Watson had the following to say about Tasmanian blue gum:-

> *I have found blue gum, which grows in great quantities in the forests, equal to English oak in durability, and superior to it on account of the long lengths available.*

In 1851 Lloyds gave blue gum (Eucalyptus globulus) the same classification as teak. "The average breaking weight of seasoned blue gum was 1,225 lbs greater than that of teak and double that of English oak." However by 1919 this classification had been reduced to 10 years for keels, keelsons, frames, etc and 12 years for bottom planking, ceiling and beams. Teak at that time was still classified for 16 years for all parts of a vessel. Currently Australian Standards 2858 gives a strength grading of SD2 for seasoned blue gum. There are eight strength groups (SD1 to SD8) for seasoned timber with SD1 being the strongest. As a comparison seasoned jarrah rates SD4. Blue gum toughness classification is High when seasoned and Medium when unseasoned. Where blue gum is found wanting is in its durability, which is only class 3 (on a scale of 1 to 4 with 1 the highest durability) and the amount of movement in the timber during seasoning. It requires very careful seasoning and, although it steams well, can be subject to collapse during the steaming process..

This timber was available in enormously long lengths. On 22 February 1851 the brig *Vigilant* sailed for England with 200 tons of blue gum for Woolwich Dockyard. The longest plank was 94 feet 6 inches in length. In 1852 the barque *Emigrant* took a blue gum plank 148 feet long for showing at the London Exhibition, however it arrived too late for that event. One end of this plank rested on the forecastle head and the other end stuck out 14 feet over the counter.

One of the two brigs that left Hobart on 30 December 1818 to establish the penal settlement at Macquarie Harbour on Tasmania's west coast, the *Prince Leopold,* was actually fitted with blue gum spars. She understandably proved very unweatherly and tender.

The barque *Tasman* of 560 tons, built by Peter De

Graves in Hobart and launched in 1847 was completely built of blue gum including masts and spars. She was 133' 6" long, 30' beam and depth of 20' 6". Her figurehead was a kangaroo.

The famous barque *Harriet McGregor* (332 tons and 134 feet 2 inches LOA) was built of carefully selected blue gum, copper fastened, by John G. McGregor. She was launched in October 1870 after fifteen months building. Fitting out took until the end of January 1871 and she commenced her maiden voyage to England on 8 February 1871. Almost all her timber was blue gum, copper fastened throughout. Her keel was one long piece of blue gum, 121 feet in length. The *Harriet* McGregor was copper sheathed below the waterline. She sailed the Australia – England via Cape Horn route for the next 24 years and set some very creditable times and was noted for her consistency in the times taken for the voyages. Her fastest voyage out was 78 days. In the twenty four years she did the Australia to England run only one crew man was lost, the first mate washed overboard in 1881.

She was sold to the Danes in 1895 and renamed *Water Queen* but caught fire at Rio on her first voyage under her new flag and was lost.

Other blue gum built vessels include the barque *Nautilus* of 375 tons, 129' length overall, which had blue gum keel, keelson and stringers in lengths of 112'. The 300 ton schooner *Annie McDougall* had a keel of blue gum 110' long, also in one piece.

Many other Tasmanian vessels, both large and small, were built of blue gum and these 'blue gum clippers' become famous for their sturdy build and graceful designs.

Now the trees planted in our south-west have a life expectancy of 10 or 15 years and then they become woodchips. I wonder how many years it takes a tree to grow to the size where one could get a plank 148 feet long from it ?

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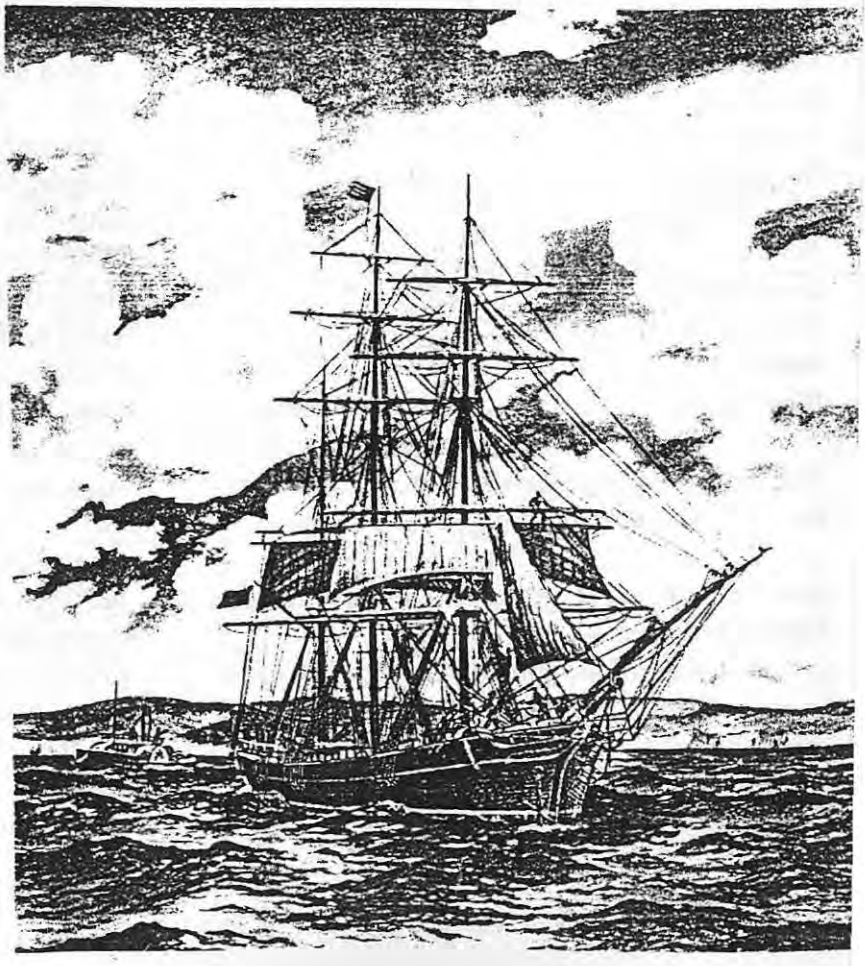

Tasmanian Blue Gum barque
Harriet McGregor

GOLDEN HIND

***Golden Hind* is a very famous name in English naval history. Most people associate the name with Drake's circumnavigation, what is less commonly known is that this particular vessel could be considered one of the very early (first?) museum ships.**

There were three ships named *Golden Hind* during the sixteenth century. The most famous one is that in which Sir Francis Drake circumnavigated the world during the years 1577 – 80. Of the five ships that set out on that voyage *Golden Hind* was the only one to complete the circumnavigation. Originally called *Pelican* she was renamed by Drake as he entered Magellan Straits after the crest of his patron Sir Christopher Hutton. *Golden Hind* was about 75 feet in length. With a crew of over 100 she mounted around 30 artillery pieces. On her return on 26 September 1580 she carried an enormously wealthy cargo captured during raids on Spanish ships and settlements on the coast of South America.

Some six months after the return of *Golden Hind* a banquet was held on board during which Francis Drake was knighted by Elizabeth I.

Soon after this the *Golden Hind* was placed in a dock at Deptford and, ballasted with 18" stone cannon balls. The dock was filled in with earth and a protective wall built around it. The public were then admitted at a small fee to view the ship and the resulting income given to charities. A partial confirmation of this comes from Samuel Pepys who, on a visit to Deptford in 1667 to talk to the master builder regarding cleaning a wet dock, was told that when building the dock in 1653 a ship was found "supposedly of Queen Elizabeth's time and well built with a great deal of stone shot in her of 18 inches diameter". The building of a wharf in the area in 1624 and the dock in 1653 together with the fact that wood will quickly rot when set in damp ground meant that the *Golden Hind* did not last very long.

One of the other two *Golden Hinds* sailed in the small 1583 fleet commanded by Sir Humphrey Gilbert to establish a colony in Newfoundland.

The other was a 50 ton vessel captained by Thomas Flemyng which was scouting off the Lizard in July 1588 when the Spanish Armada was sighted. She immediately reported to Plymouth and the English fleet was consequently put to sea. A couple of days later the little *Golden Hind* brought in to Weymouth the 958 ton *San Salvador* which had been abandoned during the battle.

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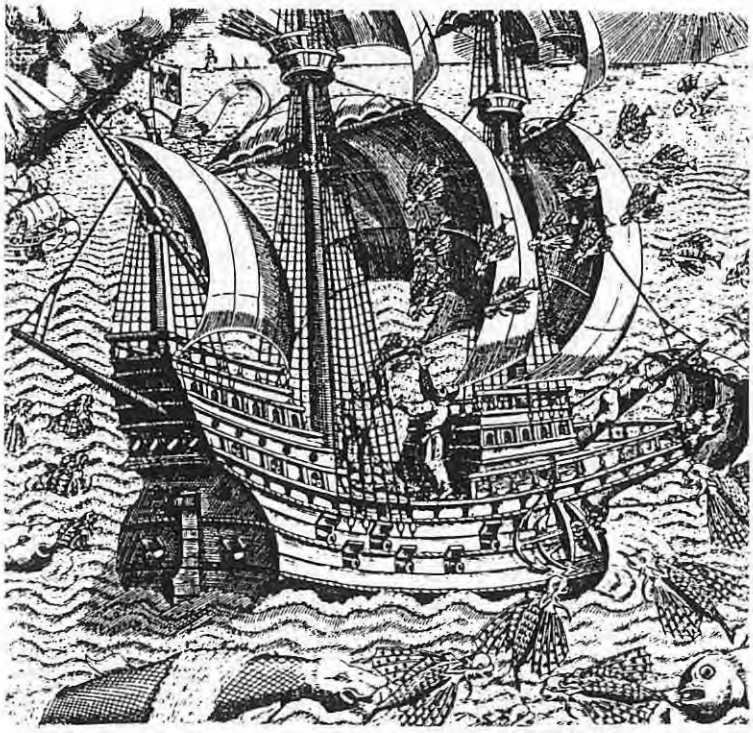


Dolphins spook flying fish some of which land on **Golden Hind's** *deck in this contemporary woodcut.*

BIRD'S MOUTH MASTS

I have been asked to write an article on the construction of the mast for the whaleboat being built as part of the Wooden Boatbuilding course I am doing in Albany. This comparatively new method of construction may be unfamiliar to some readers. I first read an article about the method a few years ago in a *Classic Boat* magazine. I believe it was invented in England by a man called Noble.

The Wooden Boatbuilding course at the Great Southern Regional College of TAFE in Albany has, as its major project, the building of a 28' 6" whaleboat of the type used during the heyday of whaling under sail. The boat has a beam of 6' 5", a depth of 2' 2" and a sheer of 15". This particular plan comes from a boat constructed by Charles D. Beetle in 1933. The lines were taken off by Willits Ansel and Robert Alyn in 1973. This boat was built for the sperm whale fishery and was the last to be built by Beetle. His father, James Beetle (born 1812), also built whaleboats and the firm was one of the best known in New Bedford. This boat is now located at the Mariners Museum, Newport News, Virginia, although the plans came from the Marine Historical Association, Mystic Seaport, Connecticut.

The mast on the Beetle boat is solid spruce some 6.8 metres long. This mast has to be raised and lowered by the crew at sea so that lightness is necessary but not at the expense of the strength required to carry the 294 square feet of sail (main - 242square feet; jib – 52 square feet). As we are making the mast for the Albany boat out of oregon pine, a heavier wood than spruce (33lb/cu.ft. compared to 28lb/cu.ft.), the problem of weight is increased. The mast is120mm in diameter at its widest. Oregon timber of this size is not available in Australia so we would have to laminate it. By building a properly constructed hollow mast a great deal of weight can be saved with no loss in strength compared with a solid mast.

One method used to build a strong hollow mast has been called the bird's mouth or Noble mast method. This consists of eight interlocking staves which when glued together form an eight sided mast ready for final rounding. Each stave remains square on one side and has a right angled V or bird's mouth routed or cut in the opposite side. There is a simple formula to calculate the dimensions of the timber required for the staves.

For the width of the stave divide the maximum mast diameter by 0.4.

For the thickness of the stave divide the maximum mast diameter by 0.2.

As can be seen this gives a stave twice as wide as it is thick. The resultant mast when rounded off exactly complies with the recommendations as to wall thickness given in *Skene's Elements of Yacht Design* by Francis Kinney, an accepted standard on yacht and spar construction. Any taper in the mast is put into each separate stave on the side opposite to that in which the V is made and before cutting the V.

The procedure we adopted in Albany was as follows. Firstly the calculations gave a stave size of 48mm wide by 24mm thick. As we did not have any timber longer than a bit over 5 metres it was necessary to scarf together lengths to make up the required length of the mast, plus some trimming. It was essential that in the eight staves no two scarfs would be close together when the staves were assembled. The glue used was resorcinol formaldehyde, a very strong and waterproof glue whose one drawback in this case is the dark purple/red glue line which shows up on a varnished or oiled light coloured spar.

After the staves had been machined to the correct width and thickness the taper was marked on one edge of one stave. This was cut and planed then used as a pattern to mark the other seven. In our case this reduced the width from 48mm to 30mm at the top end. The thickness of each stave remained the same throughout its length. The

straight, un-tapered edge is the one on which the bird's mouth V is cut.

There are a couple of ways of cutting the bird's mouth. One is to run the timber twice over a table saw set at 45°, end for ending the stave after the first pass. The other is to run the timber over a router with the appropriate sized V bit. We chose the latter method and set up a router with appropriate fences to guide the wood over the bit. Each stave was then passed over the router, with the straight, un-tapered edge down, some 4 or 5 times, starting with a small cut and raising it 2mm or 3mm at each pass until the correct depth was reached. This required a team of three workers – one feeding the 23' length in, one pulling the length from the other side and one pressing down over the router bit.

The staves could now be placed with a square corner of one in the V of another and hose clamps put on and tightened to hold the lot together. They automatically take up a round shape (with a few protruding corners which could easily be planed off later). At this stage the 'mast' was not glued. The next piece to make was the plug which went in the bottom end and which formed both a strengthening section where the mast passes through the tabernacle strap, and the mast heel to fit into the mast step. This was made of kapur, a tropical hardwood from south-east Asia. It had to be octagonal to fit inside the mast and had to be tapered hollow internally at its top to ensure that there was no hard spot inside the mast. A hard spot would occur if the plug was completely solid and finished abruptly, forming a stress area when the mast flexed.

The next task to be undertaken was to glue the eight staves into one mast. This was a messy job that required three people to cope with the long, very flexible lengths of glue covered timber. Again resorcinol formaldehyde glue was used and this was put on the V cut and the back edge of the stave where it fitted into the V of the next stave. When all were glued and put together the hose clamps were put on and tightened using a screwdriver drill with an appropriate sized bit. Just before the lower clamps were tightened the mast heel fitting was coated in glue and slid up into the base of the mast.

The mast was carefully laid in brackets previously made which allowed for the taper and held the centre of the mast in an exactly horizontal line above the spar bench. The straightness of the mast was again carefully checked and the whole lot left to cure for 24 hours.

The next day the hose clamps were removed and the glue lines inspected.

The mast had now to be planed round. The corners were taken off with an electric plane then, using a hand plane, the mast was gradually smoothed to a perfectly round shape. Once the mast was round it was smoothed using a workshop built sander utilising an electric drill and a large sanding belt and finished smooth by hand sanding and lots of elbow grease!

Now consideration had to be given to the top of the mast. As the mast tapered at the top it would have been very difficult to make and fit an octagonal shaped mast head. This mast head had to incorporate a number of things. It had to seal the top of the mast including the end grain of the oregon. It had to contain the sheave for the halyard of the mainsail. There had also to be a rounded section at the very top over which the eyes of the two shrouds could be placed and from which a block could be hung for the jib halyard. The only standing rigging on a whaleboat is the two shrouds which are tightened at their bottom end by lanyards through thimbles, one at the bottom of each shroud and one in a rope spliced to the gunwale on each side. The luff of the jib acts as the forestay and the main pulls back against that. The mast head fitting was made out of nyatoh (another south-east Asian timber) and turned on a lathe with a round section to fit inside the top of the mast. The hollow top of the mast was drilled out round inside for this purpose. Wood turning was another skill I had to learn, never having used a lathe before. By the way, for those who have not used nyatoh before - beware! Breathing the dust from work-

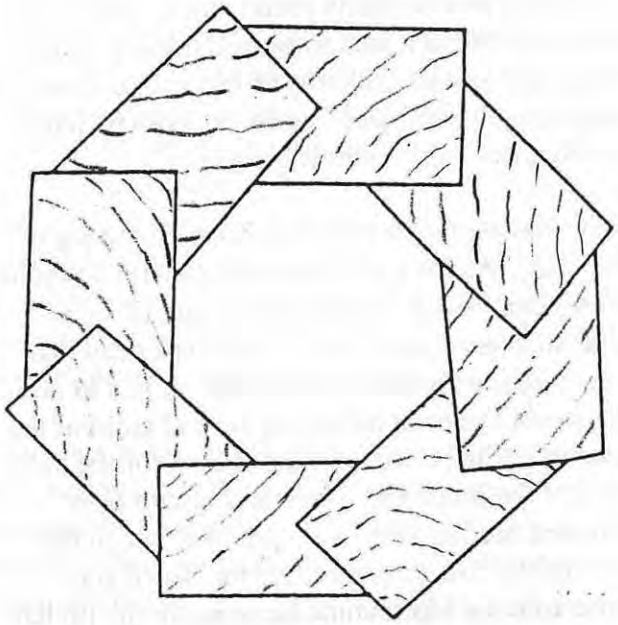
ing this timber causes all sorts of problems in noses, sinuses and throats - a dust mask is a necessity. The wider top of the nyatoh covered the oregon end grain. This masthead fitting was glued into the top of the mast and the wider part planed to follow the taper of the mast. A slot was then cut in the masthead and a sheave fitted for the main halyard.

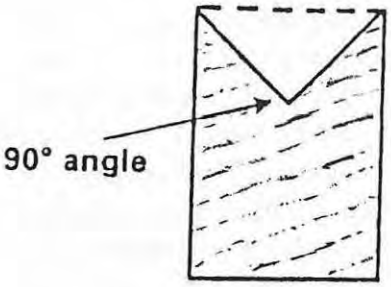
The final job was to oil the completed mast and lay it aside until the day when the whaleboat could be launched, rigged and sailed.

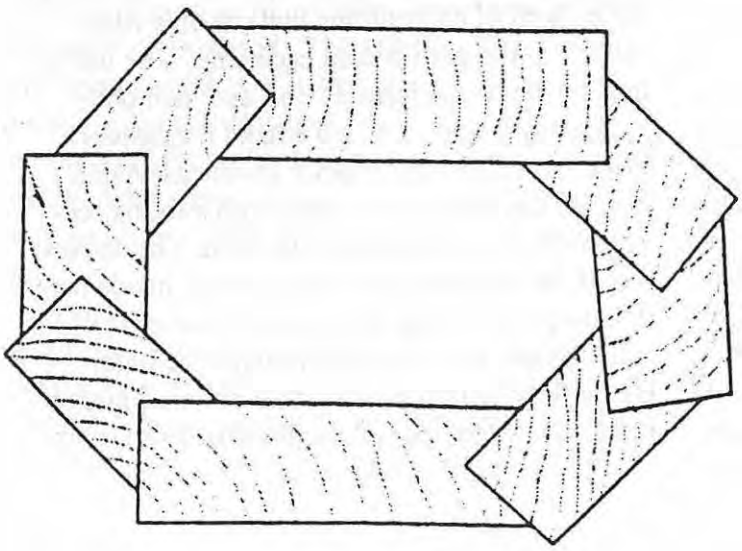
Note: A word of advice for those who might want to use this method at some time – check that the router bit you use is exactly 90 degrees! At TAFE we didn't, presuming it was correct. It was out just a fraction which caused the glue lines to be open a very small amount. Not significant as far as strength goes but requiring a little extra work to make the glue lines look neat.

Reference:

Fraser, A.O. *Bird's Mouth Hollow Spars.* Wooden Boat Magazine No. 149. July/August 1999.







To make an oval spar increase the width of two of the staves.

DIVER IN CHARGE !!

Rod Dickson is currently researching various things that happened to pearling luggers in the early part of the twentieth century. The stories are about the vessels and the men that manned them, and Rod has kindly allowed us to publish a chapter from his next book.

This tale illustrates the self importance that the divers of the pearling schooners placed upon themselves, to the sometimes detriment of the owners of the same vessel.

The divers were almost always Japanese and after going through an apprenticeship with a more experienced diver would then offer their services to the fleet owners on a contract basis. They had no certificates or written qualifications, but in the early days of pearling those sort of restrictions meant little. If they could successfully dive and bring up pearl shell from the seabed in sufficient quantities then that was virtually all that mattered.

As well as diving these men also learnt to sail the vessels that they worked on, and when out working the shell beds, were in command. Generally, the rest of the crew were all indentured labour, mostly from Singapore, Kopang in Timor and the Dutch East Indies but there was a mix of just about every nationality on earth in Broome in the early 1900s during the boom years.

May 1904. Lewis Alfred Prince half owner of the schooner *Leighton*, was preparing his vessel for the coming season. She was laid up in the creek behind Streeter and Male's store and he and his crew were making sure the vessel was seaworthy and tight for the extended voyage that they were about to undertake.

The *Leighton*, O/No. 118986, was a two masted schooner of 13.25 tons. Her dimensions were 38.7 x 12.7 x 4.7 feet and she was built at Guildford on the upper Swan River by the craftsman Jeremiah Asquith in 1903.

She had two owners when built, Lewis Alfred Prince and John Sydney Hicks. Mr. Prince was the working partner and Mr. Hicks, who was a doctor in Fremantle, was the financier and had no part in the actual running of the vessel.

Lying dried out in Dampier Creek the crew swarmed about her checking the planking and the oakum in the seams, tamping in more when it was needed. The rudder and gudgeon pins were examined for wear and passed. As the tide rose and the *Leighton* began to float back into her natural element the men moved about the deck inspecting the standing and running rigging for signs of wear and tear. Eventually all were happy and the job of loading stores and equipment for the coming months began. As well as their own stores they were carrying stores for another three schooners that had rested up at one of the outcamps during the lay-up period.

On Wednesday morning the 10th of May 1904 the vessel was ready for sea, all but having her water tanks filled. To do this she had to go across Roebuck Bay to the steamer jetty, where the local authorities had provided a pipe from the town water supply. The valves on the pipe were only unlocked during the daylight hours due to some of the pearlers being careless and leaving the water running all night. With water a precious commodity the wharfinger was given the job of unlocking the valve at daylight and locking it up again at night.

As the *Leighton* approached the jetty, Mr. Prince, who was on-board just for the trip across the bay instructed the diver to keep to leeward of the jetty. The diver, who was technically in command, half-heartedly agreed, but as he approached he ordered "luff up and let go". At this point in the manoeuvre the *Leighton* was about 300 yards off the jetty and on the weather side with a strong south east wind blowing and a strong ebb tide running. With the anchor down the Japanese diver sat down on the deck and commenced eating his breakfast, ignoring

the fact that he had anchored on the wrong side of the jetty contrary to the owner's instructions.

Mr. Prince was visibly upset at his directions being ignored, but was unable to do much about it at the time and decided to let the matter drop until the contracts were renewed at which time the diver would be dismissed.

Glancing over the side Lewis Prince noticed that the anchor seemed to be dragging and that the schooner appeared to be getting closer and closer to the jetty. He pointed this out to the diver, who just casually looked about and said that everything was alright and calmly went on eating his breakfast in order to emphasise the fact that the diver was boss on the boat and resented even European interference.

Presently Mr. Prince was totally convinced the boat was drifting and he finally, with lots of Invective thrown in, convinced the diver also. The diver roused himself from the deck and ordered the crew to "up mainsail". But it was far too late.

The ebb and flood tides in the port of Broome run in and out at their peak at about 4 knots and the position of the old jetty meant that the tides ran at right angles to it. The *Leighton* drifted beam on straight at the wooden piles supporting the decking. With a splintering crash the unforgiving jarrah piles held the hull fast. The vessel's rails were broken and as she heeled to the pressure of the tide the mainmast caught on the underside of the deck and snapped off at the deck. As it went over the side and into the water the main boom snapped in half and a tangle of sail and rigging drifted off. The foremast and bowsprit shrouds and running rigging became entangled in the jetty timbers and were fast becoming torn asunder.

Lying off the jetty, on the leeward side, safely at anchor was another schooner, the *Annie Taylor*, and when her crew saw the danger that the *Leighton* was getting into they launched their whaleboat and took a coil of line in an attempt to try and tow her away from the jetty. For all their efforts, they were too late as they had to row against the wind and tide, the very forces that were conspiring against the *Leighton*.

When the schooner first hit the jetty the crew panicked and abandoned her for the safety of the jetty's deck and stood there watching the destruction of the vessel.

Within twenty minutes of striking, the *Leighton* sank alongside the jetty. The pressure of the outgoing tide had canted her over and her hatches, being opened to fill the water tanks, were exposed to the seas being blown into hillocks by the south easterly wind. These seas were sweeping across the deck and slowly the hull filled with sea water.

As soon as the tide had run out and the schooner was lying on the sand half submerged Mr. Prince began the task of salvaging all he could. The pumps and diving gear were brought ashore for drying out and by the time that everything was got onshore the tide was back in. Nothing could be done to the wreck while the tide was full and Mr. Prince stood by her to keep a watch and try to prevent further damage. As the tide fell again that night shipwrights stood by and as the hull dried out they began to apply patches to the damaged timbers. By 2 am next morning the shipwrights had finished the temporary repairs and when the tide started to rise the *Leighton* rose with it. At high water the steam launch owned by Messrs Newman & Goldstein towed the damaged vessel across the bay and beached her below the Weld Club Hotel for more permanent repairs.

The hull of the schooner was badly knocked about and cost a considerable amount of money to repair and Mr. Prince's stores for the other vessels were all ruined. The diver had to try and find another berth.

As the drama with the *Leighton* was unfolding another schooner the *Vision* was also dragging her anchor in the direction of the jetty but fortunately for her, her anchor held when she was only 500 yards from the jetty.

The *Leighton* was repaired and returned successfully to the pearling industry and had a long career. Her end came on the 27th April 1920 when her master, J. Bacci, ran her on to a sand bank at the entrance to Barrengarra Creek and she was totally destroyed.

H.M.V.S. CERBERUS

An illness many years ago put the editor in a Royal Australian Navy hospital for a little while. The hospital was at the shore base *H.M.A.S. Cerberus* and I wondered where the name had come from. Here is the story, briefly told, of the ship after which this navy station is named.

It was 1965 and I had recently come from four years as a Patrol Officer in New Guinea to attend the Officer Training School at Portsea in Victoria. This was one of two officer training establishments in the Australian Army, the other being Duntroon. Despite following directions regarding taking the anti-malarial tablets given to me in New Guinea I came down with a severe dose of malaria and was sent quickly to the nearest services hospital, that at *H.M.A.S. Cerberus*.

It appears that the station is named after one of the ships of the colonial navies that existed before the formation of the R.A.N. in 1911. The colonies were empowered, under the Colonial Navy Defence Act, 1865, to provide and maintain vessels of war for their defence as approved by Her Majesty in Council. These vessels were to become part of the Royal Navy if required. All the states, except W.A., had small contingents of naval vessels and *Cerberus* belonged to Her Majesties Victorian Service.

H.M.V.S. Cerberus was designed by E.J. Reed as a monitor, a ship capable of various tasks including shore bombardment. Laid down in September 1867 at Jarrow-on-Tyne she was launched in December the following year. After fitting out at Chatham Dockyard she was completed by late 1870. She was of 3,340 tons displacement on a length of 225' and a beam of 45' 1" with a draft of 15' 6". *Cerberus* cost £117,556 of which the Victorian Government paid £25,000 and the rest paid by the Admiralty. Her armament consisted of four 10" muzzle loading guns in two turrets, two 6 pounders, four Gatling machine guns and four 1" Nordenfelts machine guns. Both the Gatling and the Nordenfelts were multi-barrelled guns. The 10" guns had a 60 pound charge to fire a 400 pound shot and each gun weighed 18 tons.

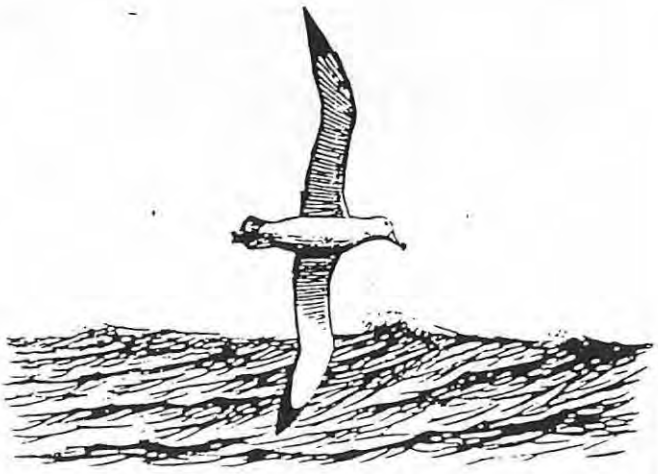
Cerberus had twin screws and a top speed of 9 knots. Her economical cruising speed was 6 knots and she carried 240 tons of coal.

H.M.V.S. Cerberus took 153 days to steam to Victoria via the Suez Canal, arriving on 9 April 1871. Over the next fifty years she served to guard Port Philip Bay and took part in many naval exercises. In 1921 she was renamed *H.M.A.S. Platypus II* and served for a while as a submarine depot ship. She remained in service until sold for scrap in April 1924. She never fired a shot in anger and was eventually sunk as a breakwater by the Sandringham Municipal Council at Black Rock where she remains, her 10" guns still aboard.

The Royal Australian Navy hospital was subsequently named after this ship.

Reference:

Gillett, R. Australia's Colonial Navies. The Naval Historical Society of Australia, Sydney. 1982.



QUIZ

Answers to June quiz.

1. There are two meanings for **logger head.**
   - ❖ One is the wooden post at the stern of a whaleboat around which the whale line runs from the tub up the length of the boat, over the bow and back to the harpoon.
   - ❖ The other is the name given to a cast iron ball on a handle which was heated over the galley fire then taken above decks to the pitch bucket and used to melt the pitch for paying deck seams. This helped reduce the risk of fire.

2. **Hawser laid rope** is laid up of three strands and is laid up against the twist of the strands i.e. from left to right.
   Shroud laid rope is similar to hawser laid rope in its twist but is made up of four strands around a central heart. Although not as strong as hawser laid rope, shroud laid rope has less stretch and was therefore used for the standing rigging in sailing ships.
   Cable laid rope is laid up of three hawser laid ropes twisted from right to left. Cable laid rope is very strong and is also less absorbent of water.

3. The *Tryall* was wrecked in 1622 off the north end of the Montebello Islands. The site is now called Tryall Rocks.

Questions

1. At what Indonesian island was the *Duyfken* abandoned as being not worth repairing in 1608?

2. When talking of ship-building, what is a cathead?

3. What Perth ferry was used to carry blue metal from a loading point at Blackwall Reach to Rottnest Island for the concrete bases of the gun emplacements there during the Second World War?