

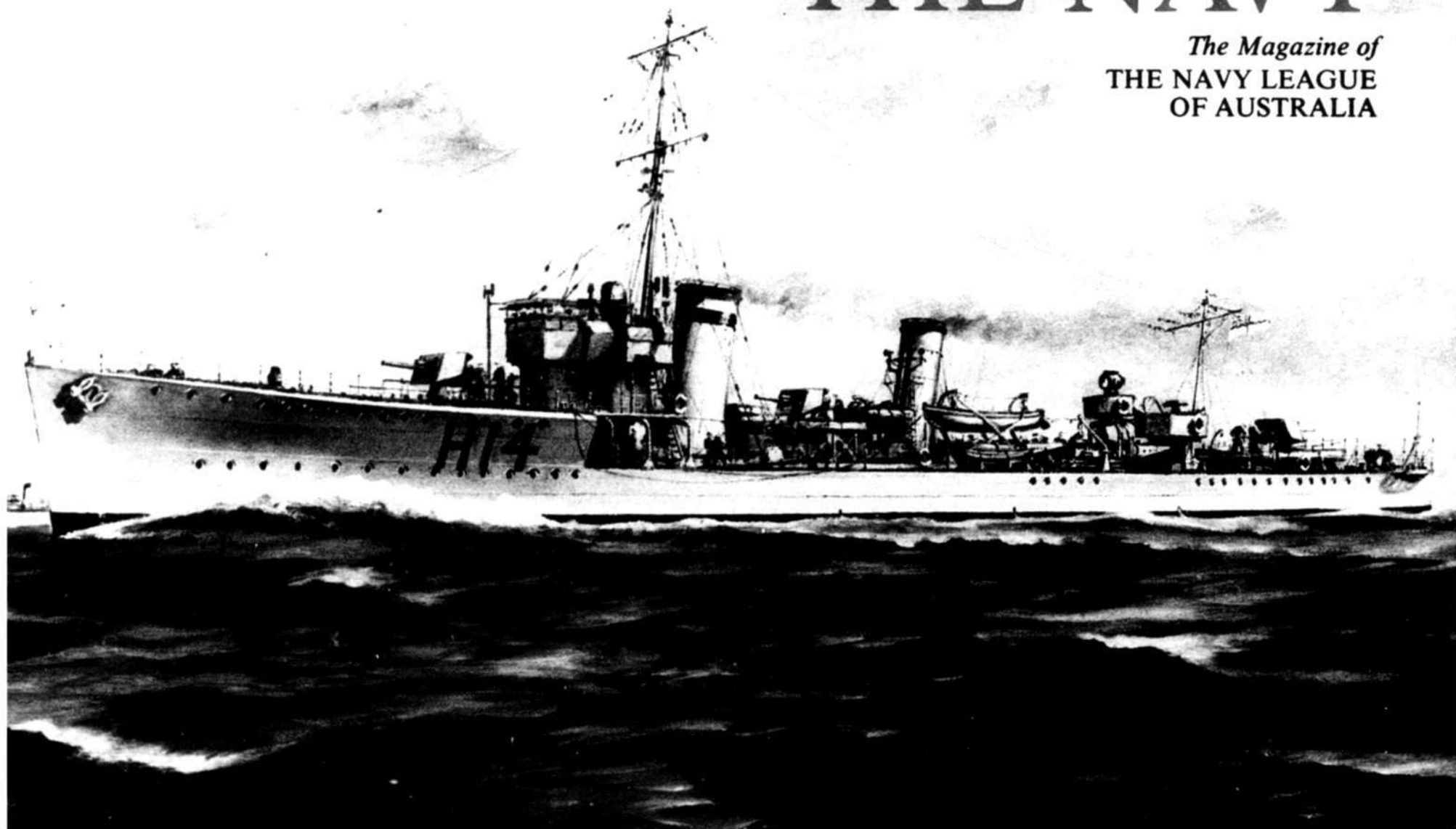
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OCTOBER, 1984

THE NAVY

The Magazine of
THE NAVY LEAGUE
OF AUSTRALIA



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THE NAVY



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The magazine of the Navy League of Australia

Vol 46

OCTOBER, 1984

No 4

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OUR COVER PHOTO

HMAS STALWART, an S class destroyer, served with the Royal Australian Navy from 1919 to 1925. She is depicted in this fine painting by naval author and marine artist John Bastock.

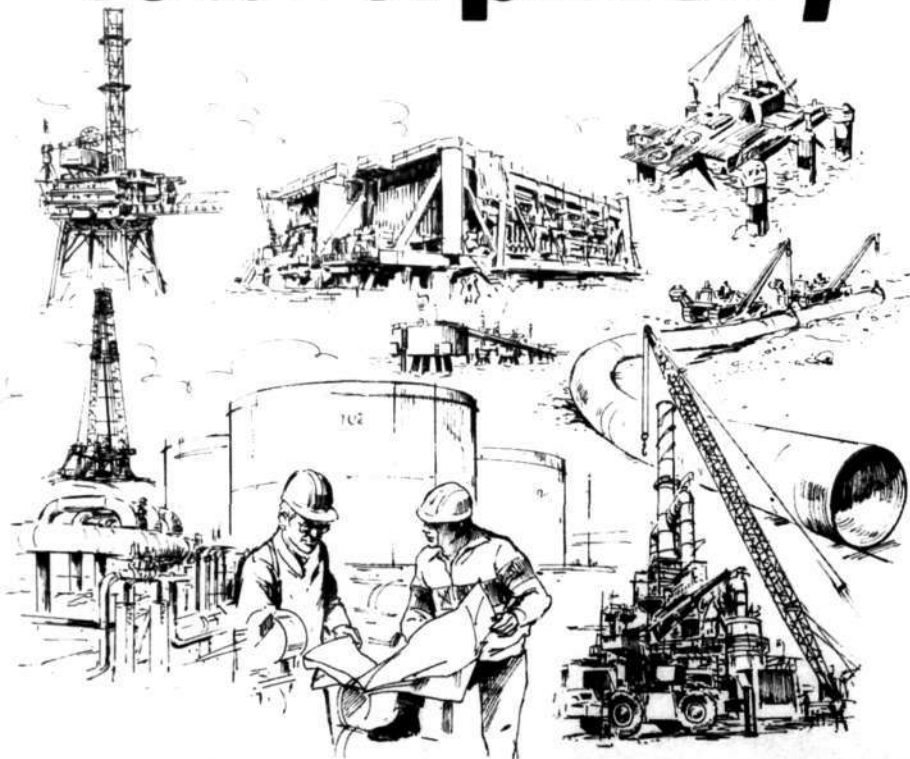
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Page One

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When Quality and Performance are Paramount.

THE EDITOR'S COMMENTS

LEADING the way in this issue of "The Navy" is another article in the series of new or possible warship acquisitions for the Royal Australian Navy. Previous magazines have described the Type 2400 submarine and the locally-designed Mine Hunter Catamaran project.

This quarter British Shipbuilders have prepared an interesting description of the Royal Navy's new Type 23 frigate, its operational requirements, machinery and weapons.

News from Canada details that country's naval activities during 1983/84 and plans for the Canadian Patrol Frigate.

From across the Tasman the Royal New Zealand Navy makes a welcome re-appearance with a pictorial update of the refit of the new Kiwi frigate HMNZS WELLINGTON, ex HMS BUCCHANTE, purchased in 1982.

The major feature article for October focuses upon HMAS STIRLING and was prepared by Western Australia's Navy Public Relations Officer, Vic Jeffery.

Many readers have expressed their compliments on the variety of colour front covers used during the past few years, with special mention for the excellent paintings of former RAN warships. The Editor hopes to continue this policy as long as sufficient paintings and photographs of top quality remain available.

During the period August/October, five units of the fleet will undertake a goodwill cruise to South-East Asia, including visits to China and Japan, before returning to The West to partake in Exercise 'Sandgroper'. The Editor, as the Fleet's PRO, will prepare a comprehensive report for inclusion in the next issue.

ACKNOWLEDGEMENTS

Contributors assisting with this issue included A. D. Baker III, Peter Britz, the Canadian Defence Forces, Command Photographic Section, Conway Maritime Press, Tom Jackson, John Mortimer, Vic Jeffery, Charles H. Mann, the RNZN and Wright & Logan.

DEADLINE

The deadline for the January, 1985 issue is 1st November, 1984.



FOREIGN AND DEFENCE POLICIES NEED TO BE BROUGHT INTO LINE

ONE of the less spectacular but most important features of Australian development over the years has been the realism with which successive governments, of no matter what political persuasion, have viewed world events during their period of office and planned their foreign and defence policies accordingly.

With some exceptions, notably involvement in the Vietnam war, which started with public acceptance and ended without it, foreign and defence policies have developed with the consent of the Australian people.

The foreign policy of the present government as expressed by the Prime Minister and the Foreign Minister, appears by and large to be appropriate to the times and acceptable to most but not all Australians as was made clear at the National Conference of the Labor Party in July. In effect, it is recognition by the majority of the fact that Australia is a part of the West and a potentially important part of its region.

Defence objectives on the other hand appear to be much more limited and to fall short of supporting foreign policy objectives. While lip service is paid to assistance for our allies in the daily business of keeping the peace, in practice our main contribution is to allow the United States to operate and use certain facilities in Australia — and even then with reluctance on the part of some State governments. If the

NATO countries had similarly restricted mutual aid over the past thirty years it is doubtful that we would be the relatively free society we are today.

Defence planning at the present time is clearly focussed on the direct defence of Australia and greater self-reliance is sought. This has some appeal to nationalistic instincts, but apart from the difficulty of becoming self-reliant when much of our weaponry is obtained overseas, one gains the impression of planning to fight a war rather than following the more sensible course of trying to prevent war from starting in the first place by deterring would-be aggressors.

In this day and age however a deterrent strategy is likely to be successful only if countries are prepared to restrain desires for 'military independence' and agree to work together in the common interest. Australia, far from demonstrating a willingness to contribute to regional security, has by drastically reducing the capability of its navy — and this is an essentially maritime environment — displayed a shortsighted and selfish attitude which has not gone unnoticed by our allies.

It is high time our defence policy was brought into line with foreign policy.

Geoffrey Evans

GEORFFREY EVANS,
Federal President of the
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The Yarrow Type 23 Frigate.

Early in 1981, the British Ministry of Defence (Navy) and UK Warshipbuilders met to discuss a new frigate project with the objective of producing a design which would be equally acceptable to the Royal Navy and other navies of the Free World. The result of that meeting was the Type 23 Frigate, now emerging as the solution to a cost problem that has for so long denied the UK a place in the warship export market.

Yarrow Shipbuilders Limited was awarded the Design Contract for the new frigate and is expected to produce the First of Class. Most of YSL's work is carried out for the British Ministry of Defence. The Company is lead yard for the Type 22 Frigate and has successfully completed and handed over six ships of this Class within the targeted delivery times. A further four are under construction at present.

All major facilities at the Company's 64 acre site are indoors, including a multi-million pound complex for building glass reinforced plastic ships. The most recent development is an extensive steelwork preparation complex which makes use of the latest techniques in computer numerically controlled machinery. YSL has a large ICL main frame computer and the Design Department has the latest Computer-aided Design (CAD/CAM) equipment, both of which are heavily involved in the design of the new ship.

The Type 23 Frigate is by no means the over sophisticated design that the UK media has been promulgating in recent times. Indeed, the pressures of strict cost and weight controls on both the British MOD and the shipbuilder have resulted in a relaxation in standards which, while still satisfying Royal Navy requirements, represent a welcome move towards simplicity in design. There are no compromises, however, in standards which are crucial to the operational effectiveness of this ship. In fact, recent Falklands experience and the current Naval Staff Requirements have dictated necessarily higher standards for many

aspects of the design, such as noise control, NBCD and damage control, smoke control etc. Key design issues have been satisfied by attention to naval architecture, improved production methods and better subcontracting procedures.

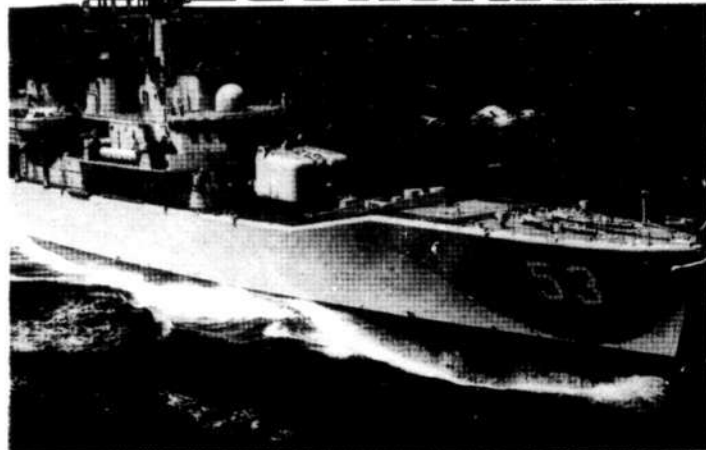
OPERATIONAL REQUIREMENTS

The main task for the Type 23 Frigate is anti-submarine warfare; however the ship also has the capability for defence of shipping, deployment of amphibious forces and shallow water operations and shore bombardment. These are key operations, central to maritime strategy, whether in tension or in support of the land battle. The major threat to all these operations, and certainly the most difficult to counter is the submarine.

The scale of ASW operations has grown very significantly over the past 20 years. The submariner can now fire missiles from extreme range. Consequently, since the Second World War, the tactical arena has moved from an area of 500 sq kilometres or so to an area the size of Continental Europe. This enormous change has been brought about by advances in technology.

As can be appreciated the Type 23 Frigate will be operating far from base when a towed array is deployed, and will require an organic weapon system to localise and attack the enemy. The ship has to be able

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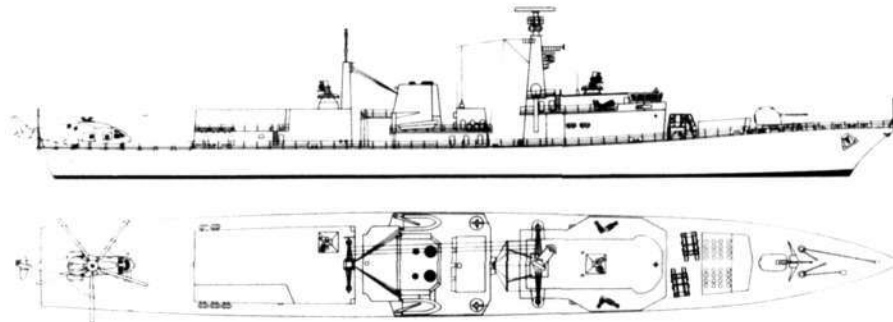
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1 MAIN GUN
1 SURFACE TO AIR SEAWOLF MISSILE LAUNCHER
2 QUADROUBLE SURFACE TO SURFACE MISSILE LAUNCHERS
2 30MM SINGLE GUN MOUNTINGS
4 FIXED TORPEDO TUBES
4 CHAFF DECOY LAUNCHERS

SENSORS

1 MAIN SURVEILLANCE RADAR
2 SEAWOLF TRACKING RADARS
1 ACTIVE HULL MOUNTED SONAR
1 TOWED ARRAY SONAR
FLIGHT DECK AND HANGAR SUITABLE FOR LYNX, SEA KING OR THE EH101 (SEA KING REPLACEMENT) HELICOPTERS

Profile and bird's-eye plans.

to search for and sink enemy submarines and do so as quickly as possible before either losing contact or being tactically out manoeuvred. It also needs a very large helicopter to carry sonar-buoys and torpedoes to these ranges to give the quick reaction which is the key to its success.

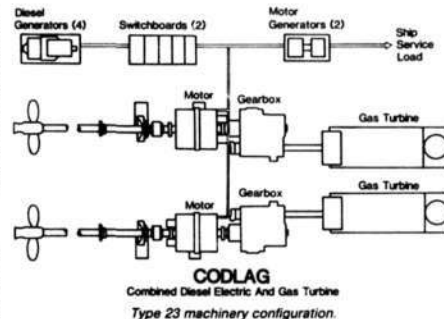
Sea power, of course, is about control of sea areas vital to a country's interests and denial of such areas to an enemy. These areas change with the needs of military operations. Depending on the circumstances, an area can be dominated by mines, submarines, task groups or even single vessels of quite modest capability. However, so long as the enemy needs to be attacked directly, or the land battle supported or supply lines guaranteed, then Frigates will be required. It is these realities which have dictated Staff Requirement for the Type 23 Frigate.

NAVAL ARCHITECTURE

With a waterline length of 123 metres, the Type 23 is slightly shorter than a Batch 1 Type 22 Frigate. The general configuration locates the main surface armaments up forward and the major anti-submarine features down aft. Accommodation is organised to locate personnel close to their action stations and is mostly on No 2 deck and above. This gives quick access to the main passageway for safety and easy escape. Stores and provisions are also grouped on No 2 deck for easy access to galleys and Replenishment at Sea routes.

Structural principles embodied in this design differ from past practice. For the first time in recent British warship construction there is a departure from the exclusive use of close frame spacing and long stalk T sections. The reason for this is cost reduction and ease of construction. The structure combines use of commercially available offset bulb sections and a significant reduction of intermingling longitudinal and transverse stiffening. This provides considerable simplification and a reduction of connections with consequent savings in construction cost. The designers are confident that the structure matches all of the strength requirements with only a slight penalty in additional weight. This hybrid hull structure and the superstructure are of all-steel construction.

In view of the Type 23's main ASW role, noise reduction is perhaps the most important parameter of the design. Of the noise characteristics displayed by different main propulsion configurations, only that from diesel electric drive coupled with extensive noise reduction methods can achieve the required sonar performance over the relevant frequency range. Equally important to the achievement of low noise is a good noise hygiene system to apply during building. This will be done in a similar way to that used in submarine construction.



Type 23 machinery configuration.

POWER AND ENDURANCE

The total power available gives a top speed of around 28 knots. Cruising speed is about 17 knots.

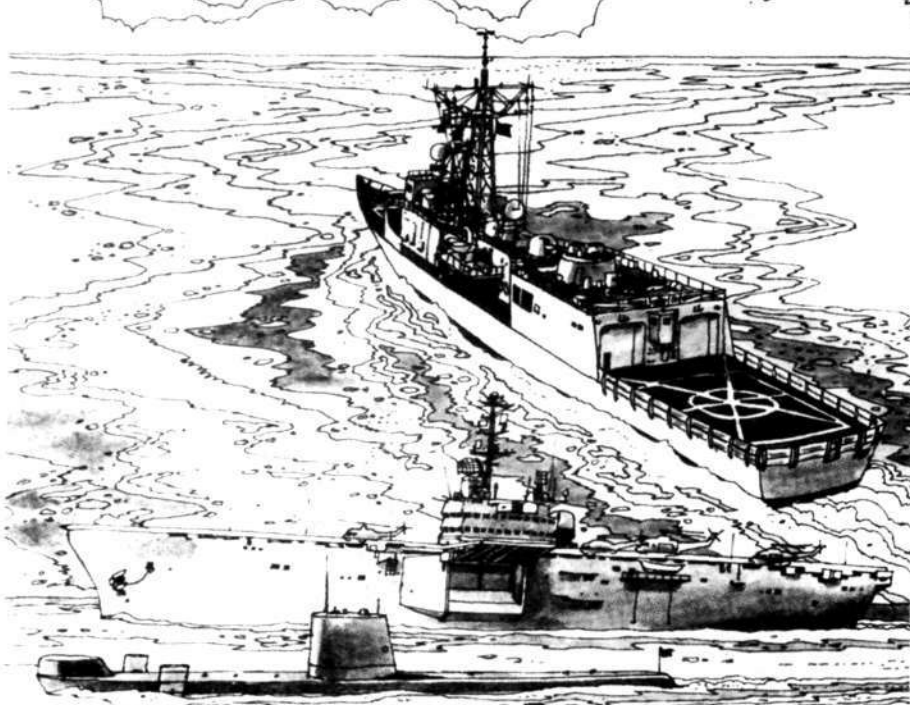
To carry out its operational role, the ship is required to have a long endurance. This is over 7000 nautical miles at 16 knots.

The performance of the ship in head seas has been assessed using a well proven theoretical analysis and compared with T12/Leander against criteria of slamming, subjective motion, bow immersion (green seas) and involuntary speed reduction. The results show that the Type 23 will be at least as good as the Leander in all aspects.

The Type 23 has the ability to operate a helicopter in higher seas states even whilst operating towed array and therefore with unfavourable restrictions on speed and heading. The stability characteristics of the Type 23 are good and it is expected that the ship will exceed the standards achieved in the Type 22 and Leander Classes when all margins are consumed.

ACCOMMODATION

In comparison with Leander and Type 22 Frigates the Type 23 has a little more area allocated per man. The operational complement of the



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ship is 143, comprising 12 officers; 41 senior ratings and 90 junior ratings. This represents a reduction in manning levels in comparison with past practice. To achieve this, a significant degree of automation has been adopted and greater dependence will be placed on base support for upkeep tasks. There is also an accommodation margin of 42 bringing the total personnel which can be carried to 185 at full accommodation standard. Although the area per man is excellent, the fitting out standard of accommodation has been pruned from that in Type 22, both for reasons of cost reduction and to ease the damage control and firefighting task.

ZONING

The zoning concept has been adopted in the Type 23 Frigate. The ship is physically divided into effective zones for ventilation and air conditioning to prevent the spread of smoke and fire following action damage. Another zoning feature is the careful distribution of key equipment. The provision of emergency functions is in separate zones — eg. fire pumps, emergency fire pumps, messing facilities, etc.

Linked very much to the zoning concept is the need for smoke control and smoke clearance. It takes a very long time to clear a large volume of smoke from a ship, even with powerful fans fully opened, and the problem is greater in a closed down action state. It was considered feasible only to clear limited spaces. Each zone has its own dedicated smoke clearance fan and smoke control curtains will be used between zones when watertight doors have to be opened in emergencies. Following Falklands experience, greater priority has been accorded to passive protection measures.

MACHINERY

The basic machinery fit for the Type 23 was conceived by MOD and has been engineered by YSL over the past two years into a detailed working arrangement. The requirements were prolonged low speed operation, flexibility of operation, high endurance and low noise. The installation selected to satisfy these requirements is the CODLAG configuration (Combined Diesel Electric and Gas Turbine). The layout was influenced by a large number of factors including available space, system design, vulnerability and submersibility, etc.

In the motor gear room, space and stiffness requirements dictated that the thrust block should be integral with the gearbox. This led to better location of the main wheel in the gearbox and also reduced overall costs. A separate drain tank was chosen as it led to more flexible layout and allowed a stiffer gearbox seat which is advantageous from the point of view of axial vibration.

For driving speeds in excess of 15 knots, two Rolls Royce SM1A Gas Turbines will be used. The turbines drive through non-reversing gearboxes, onto fixed pitch propellers, astern power being achieved through the reversing capability of the electric motors. It may be of



Vertical launch Seawolf

interest to note that Spey Turbines have been put into T.22-07, HMS BRAVE and are being fitted in the Batch III T.22 Frigates. The Japanese Navy are also committed to Spey (SM1A) for future naval construction and other Navies are following suit.

The gas turbine change unit is changed by sideways removal and turning through 90° before being taken out through a removal soft patch on No 2 deck and on up through the superstructure to the upper deck. It is then rotated through 90°, picked up by the ship's davits and swung onto a jetty.

The four Diesel Generators are Paxman Valenta and can be removed from the ship by direct lift from a dockside crane. Portable plates are arranged directly over each unit through the decks above. In general, the majority of equipments can be removed as a complete unit or a sub-assembly through the standard access hatches.

Normal engineering watchkeeping will be carried out by two watchkeepers resident in the Ship Control Centre (SCC) and a third who may be in the SCC or machinery spaces. The main switchboards are unmanned unless action damage dictates otherwise.



Yarrow Shipbuilders (looking upstream).

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WEAPONS

Recent events in the South Atlantic have emphasised the need for ships to have effective defence against both the most sophisticated weapons and more conventional attack. It has also emphasised the need for an independent capability in limited engagements, as well as the ability to function as part of a task force in a major conflict.

A Cardinal Point Specification, or CPS procedure as it is known, has been introduced by the MOD with the joint objectives of transferring responsibility for design development from the Ministry to Industry and also drastically reducing the time from the issuing of a Naval Staff Requirement to production of equipment.

The technique employed is to issue a specification in which the major requirements of performance and other factors, such as reliability, are specified as guidelines. Industry is then free to respond with the best solutions which the firms can put forward, but these solutions must be for equipment which is in a sufficiently advanced state of development to be available within a relatively short timescale. Points are then awarded to the various submissions, resulting in the most cost effective solution being selected, ie, performance alone is no longer the sole criterion and cost, reliability, maintainability, ship service demands, development risk and so forth are all considered. As a result, much of the new weaponry in the Type 23 has been selected by this procedure.

Post Falklands, the requirement for guns has been revised and it is intended to fit both a Vickers 4.5" MK.8 medium calibre gun and secondary guns. The medium calibre gun system is capable of receiving target information from the forward Seawolf tracker, an electro-optical sight or for surface engagement from the navigation and surveillance radars and CACS. The secondary guns are likely to be high rate of fire, 30mm, single barrelled mountings.

The ship's towed array sonar system is complemented by a helicopter with sonobuoys and maritime aircraft links. Targets can be attacked using the helicopter or magazine torpedo launching system, whilst decoys provide protection for the ship. Attack at long range can be executed using a variety of helicopter carried weapons. The Type 23 is capable of operating, arming, fuelling and maintaining the Lynx, Sea King or its replacement, the new EH101 helicopter, with changes only to hangar equipments for each aircraft type. These helicopters can carry

Torpedoes, Air to Surface missiles and sonobuoys, and are powerful and flexible additions to the strength of the ship.

Vertically launched Seawolf, controlled by a double headed tracker system differs from the original system in that it has dual tracking radars which ensure satisfactory engagement of low flying missiles. The conventional launcher is being replaced by a vertical launcher to fire missiles which are provided with an appropriate boost motor and the necessary turnover capacity. This latter capability was demonstrated some years ago at Woomera, therefore the development risk is low whilst the constraints of launcher arcs and slow manual loading procedures are eliminated. The system is interfaced with a new surveillance radar, providing fully automatic fast-reaction point defence.

The new Surveillance Radar will provide both high and low beam coverage together with an indication of elevation. Surface surveillance features are the electro-optical sight on the foremast and the addition of simple optical sights to control the close range guns.

Main HF/MF communications will be based on existing RN equipment with common aerial working. The overall capability will meet the NATO requirements for a helicopter carrying frigate. In addition, there is SATCOM, a comprehensive cryptographic outfit, a digital facsimile facility and automatic message handling. Navigation aids include log, windspeed, MF/DF receiver, SATNAV and Omega. Two NCSI vertical reference and azimuth gyros and a digital distribution system provide ship's attitude information. The usual internal communications, have been modified to provide more readily re-configurable intercom and interphone facilities and a de-centralised main broadcast system.

BATCH ORDERING

In January 1982, MOD placed with Yarros Shipbuilders Limited, a Shipbuilder Involvement Contract designed to lead to the construction of the First of Class Type 23 Frigate. With competitive tendering in mind, the Ministry has also adopted a 'batch ordering policy' for several sets of ship's equipments. This has enabled YSL to go to the market and negotiate with sub-contractors favourable terms, not only for price, but also in other contract terms such as guarantees, terms of payment, damages, etc. All of this will ensure that the Type 23 Frigate represents the best value for money in the field of sophisticated warships.

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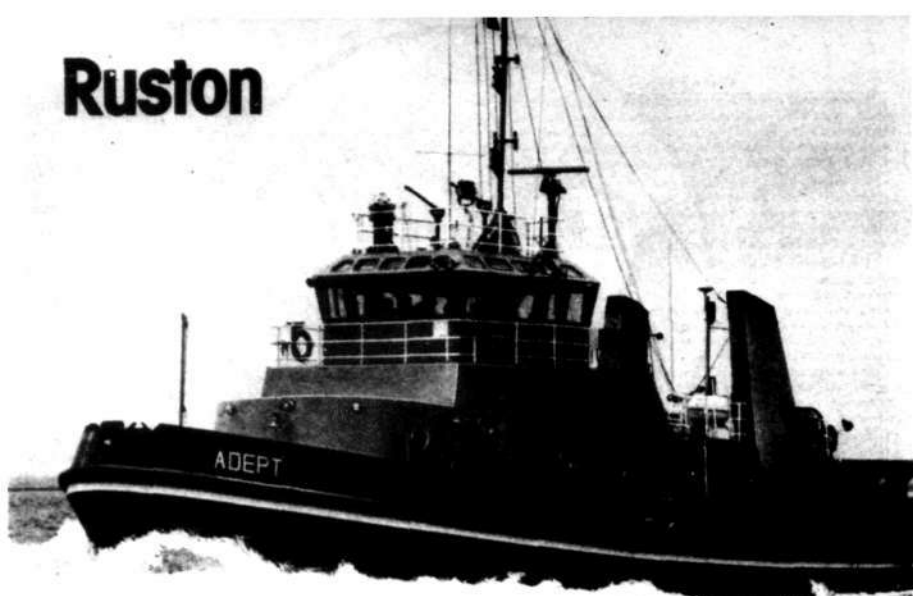
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Canadian Maritime Command *A Report*

HMCS GATINEAU approaching HMAS SUPPLY to refuel during Rimpac 84 in May/June, 1984. (Photo — RCM)



HMC Ships TERRA NOA, RESTIGOUCHE, GATINEAU and PROVIDER pass Diamond Head, Honolulu, 1983. (Photo — RAR)

THE role of Canada's Maritime Command (MARCOM) is to provide an operationally ready maritime force to meet the country's defence commitments. This includes:

- Surveillance, control and defence of Canadian territorial waters, adjacent ocean areas, and the Arctic Archipelago.
- Defence of North America, in co-operation with US forces.
- Contribution to North Atlantic Treaty Organisation (NATO) collective defence measures.

— Assistance to the United Nations and other international bodies.

To meet these commitments, MARCOM Forces and Air Command (AIRCOM) aircraft under the operational control of MARCOM operate from a total of seven bases, five stations, and two detachments, primarily on the coasts, and extending as far north as Frobisher Bay and as far south as Bermuda.

Bases and units comprise dockyards, training schools, supply installations, airfields, communication facilities and Naval Reserve units. They provide support for an operational force of 20 destroyers, three support ships, one diving support vessel, and three submarines. In addition, there are 12 vessels, including gate vessels and the HMCS *Fort Steele*, located at Reserve training units on the east and west

coasts, plus 18 minor vessels located at Naval Reserve units across Canada.

Three maritime patrol aircraft squadrons, two *Sea King* helicopter squadrons, and one *Tracker* medium-range reconnaissance squadron comprise Maritime Air Group (MAG).

ACTIVITIES

During 1983 and early 1984, MARCOM continued to meet the Canadian NATO commitment of supplying a destroyer to the NATO Standing Naval Force Atlantic (STANAVFORLANT). The destroyers ALGONQUIN, ATHABASKAN, MARGAREE and SKEENA saw service in this operational and highly visible multinational squadron. ALGONQUIN and

October, 1984

THE NAVY

Page Thirteen

The Type 2400 is not only a **strike weapon** - it can also offer **forward long-range reconnaissance and surveillance** it can pose a **hidden and lethal threat as a deterrent** and provide a **close defensive mode** for own-ship protection.

The British Type 2400 diesel-electric patrol class submarine has been developed to fulfil the above roles as a replacement for the now ageing Oberons of the Royal Navy. It is designed for long life - well into the 21st Century.

Vickers have offered an even more powerful variant of the Type 2400 to the Australian Government, who are currently considering this in relation to future RAN needs.

The Type 2400 has a massive punch and unrivalled silence in operation and the first-of-class is now under construction for the Royal Navy by Vickers Shipbuilding

and Engineering in England. Replacement of British Oberons by the Type 2400 provides a guarantee of continued support, in all its many aspects, to all our customers throughout the life of these boats.

Possession of a high-quality submarine fleet will force any potential aggressor to expend effort of considerably greater magnitude to mount an effective threat. The modern submarine and especially the Type 2400 - offers unique cost-effectiveness in the future defence of Australia.

VSEL

Vickers Shipbuilding and Engineering Limited
Barrow-in-Furness, Cumbria, England.

A subsidiary of British Shipbuilders

For further information please contact Mr. T.E. Brinkley,
N.R.M.A. House, Northbourne Avenue, Canberra, A.C.T.
G.P.O. Box 820 Canberra City Telex 62111. Tel: (062) 496783.

Flash
The order on VSEL
for the first of class
of the Type 2400
submarine was
confirmed in the
House of Commons,
2nd November 1983.

Apart from attack, the best defence is
DEFENCE IN DEPTH.
Type 2400 2400 offers facility for both.

ATHABASKAN had the honour to serve as flagship during Canada's period of command of the STANAVFORLANT. In the summer and early autumn, the fleet replenishment ship PRESERVER also provided fleet support to STANAVFORLANT.

For the Canadian destroyers in STANAVFORLANT the past year's schedule had sixteen medium-size exercises involving interplay with maritime forces of NATO members. The spring of 1983 was extremely busy with the squadron participating in four major exercises including Exercises Roebuck, Springrain, Bright Horizon and Ocean Safari.

As well, on the Pacific coast HMC Ships TERRA NOVA, GATINEAU and RESTIGOUCHE of the second Canadian Destroyer Squadron and HMCS PROVIDER deployed for Exercise Far Horizons from March to June. The exercise provided an excellent opportunity to hone tactical skills through participation in advanced exercises which included three US Navy carrier battle groups comprising a total of 34 ships in the largest concentration since the Second World War. Canadian ships visited ports in Korea, Japan, Hong Kong, The Philippines and Hawaii and made a historical visit to Shanghai, China, in support of the Departments of External Affairs and National Defence.

In October, the Second Canadian Destroyer Squadron deployed to the Southern California US Navy operating area to exercise with a US Navy battle group and improve individual ship and formation combat readiness training.

The ships of Training Group Pacific continued to ply Pacific waters carrying out basic training for naval officers.

MARPAC and MAG also participated in joint Canadian/US surveillance of the Soviet intelligence collection ship BALZAM, stationed during the summer off the entrance to the Strait of Juan de Fuca on an intelligence gathering patrol.

Varied operational requirements were completed by the West Coast Fleet Replenishment Ship PROVIDER in 1983. She supported both Esquimalt based destroyer squadrons during major deployments and embarked US Navy Reserve SEA KING helicopters for flying training on three occasions. PROVIDER



HMCS PROVIDER refuels an accompanying destroyer. (Photo - RCN)

visited countries as far apart as Shanghai, People's Republic of China and Mexico and operated in conditions varying from Sub-Arctic gales in the North Pacific to tropical monsoons off Hong Kong.

The first step in Pacific Fleet improvement was achieved in 1983 with the return to operational status of GATINEAU, an improved Restigouche class destroyer, after a year long conversion and refit. Improvements were completed in KOOTENAY and started in TERRA NOVA. As well, the Mackenzie class destroyers started a similar update by virtue of their Destroyer-Life Extension (DELEX) Program. QU'APPELLE was also the first of a four ship refit contract let to the Burrard Yarrow Corporation that began in 1984.

The highlight of 1983 for the west coast was the visit of Her Majesty The Queen and His

Royal Highness Prince Philip to British Columbia in March. Military participation was evident throughout the visit from the usual Guards of Honour and Gun Salutes to the organisation and provision of ground transportation, band engagements, hosting duties and escort responsibilities for HMY BRITANNIA.

Their Royal Highnesses the Prince and Princess of Wales visited the four Atlantic Provinces in June, 1983. Escorted by AS-SINIBOINE, HMY BRITANNIA provided the main means of transportation and accommodation for the Royal Couple during their stay in the Maritimes.

PATROL FRIGATE

The Canadian Patrol Frigate Project (CPF) is now proceeding on schedule. Saint John Shipbuilding and Dry Dock Co Ltd, was selected as the prime contractor in June 1983, to design and construct six fully-supported frigates to replace the old St Laurent class destroyers.

Production of the leadship is scheduled in 1989 and the final ship by 1992 at an estimated total project cost of \$3.4 billion in 1983/84 dollars. Taking into consideration the naval practice of assigning the 300 series of numbers to frigates and the fact that it was desired to have nationwide representation, the following hull numbers and names were approved for the ships:

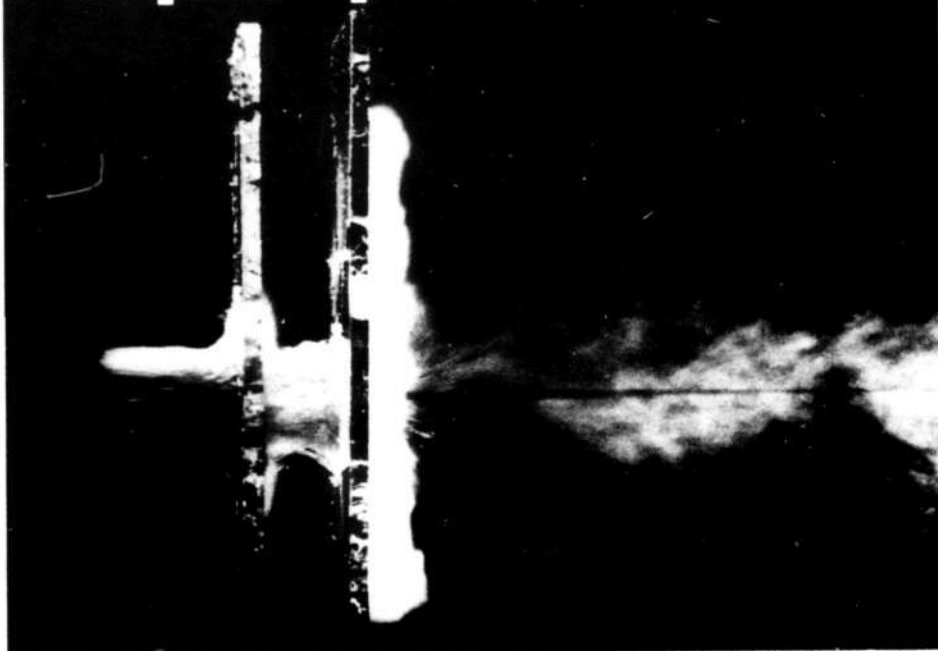
- 330 HMCS HALIFAX
- 331 HMCS VANCOUVER
- 332 HMCS VILLE DE QUEBEC
- 333 HMCS TORONTO
- 334 HMCS REGINA
- 335 HMCS CALGARY

These were all names of former Royal Canadian Navy Second World War vessels. The new generation of Canadian ships will have a full range of capabilities, permitting them to perform both their national and NATO maritime tasks with emphasis on anti-submarine warfare.



Artist's impression of HMCS HALIFAX, the first of the new Patrol Frigates.

Sting Ray explodes the myth of the torpedo-proof submarine.



A fully autonomous underwater guided missile, Sting Ray signals – quite clearly – the end of submarine invincibility. It is a deadly combination of lethal warhead and sophisticated computer. A propulsion system of extraordinary speed, silence and agility matched to a homing system that features rapid search with accurate target classification at long range.

Sting Ray is supremely reliable in all operational



Sting Ray from Marconi. The end of submarine supremacy.

situations. It can be deployed by ships, helicopters, missiles or aircraft. Whether pulling out in the shallowest water or diving deeply, Sting Ray quickly and implacably pursues the fastest, most powerful modern submarines.

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THE NAVY



October, 1984

THE SEAPLANE TENDER

By CHARLES H. MANN

Military and Naval seers throughout history have endeavoured to devise ways to navigate through the air. The devices attempted have been many and varied. Also, nearly all were ahead of their time.

As early as 1794 the French Republican Army successfully used a Hot-Air Balloon in battle against the Austrians. The Austrians felt that the French knew every move they made and were demoralised. Eventually, four such balloons were created. But Napoleon, in 1805, disbanded this "Flying Corps".

Balloons were also used in the American Civil War and in the siege of Paris (Franco/Prussian War). All these events were exquisitely documented in a patriotic exhibition of historical pictures presented in London by the Countess of Drogheda in 1917. Her descriptive catalogue was praised by the editor of JAMES, ALL THE WORLD'S AIRCRAFT – 1918 as "historically accurate". But Balloons are neither aircraft nor airships.

By 1900, Count Zeppelin had shown that rigid airships could operate with battle fleets, this stimulated both France and England to establish developmental programmes to test Dirigible airships.

Then in 1904 and 1905, a Mr E. T. Willows, of Cardiff, successfully flew his own private experimental airship in England. In 1909 he flew to London and in 1910, with his mechanic as a passenger, he flew to Paris.

But the year 1910 completely changed airplane history. Captain Washington Irving Chambers (USN) somehow managed to persuade the (US) Navy Department to build an 86ft long wooden platform on the foredeck of the obsolete light cruiser USS BIRMINGHAM. He then contacted the Wright Brothers to attempt to "take off" from this platform. The Wrights refused!

Captain Chambers next contacted America's second most famous aviator – Mr Glen Curtiss. Mr Curtiss courageously persuaded a student pilot, Mr Eugene Ely, to attempt the stunt.

On 14/11/1910, Ely rose off the deck of USS BIRMINGHAM and flew to Hampton Roads Va. where he landed safely. The world (now) knew that a Curtiss Biplane could operate from a ship. The next question was, "could the pilot get back on board safely?"

This question was answered on 18/1/1911 in San Francisco Bay on board the armoured cruiser USS PENNSYLVANIA. A 119ft platform had been erected on the stern of the vessel and Ely was to land a Wright Pusher on this platform while the ship lay at anchor. The method he chose to achieve this feat was very prophetic.

Ely arranged to have 22-lines erected athwartship. The lines were raised about 12in above the deck and separated 3ft apart along the beam.



HMS ARK ROYAL

A 50lb sandbag was hung from the ends of each line. Three "arrester hooks" on the landing gear were to "catch" these lines so that the drag could halt the forward motion of the airplane. But in case the lines failed to do their job, a canvas "bounce-off" screen was also provided.

As Ely approached the small deck at nearly 50 mph, the frail craft had too much altitude. Ely crossed nearly 36ft of deck before a hook finally caught the 12th line. Fifty feet later, the landing was deemed a success. Ely had landed in 86ft of distance! Aircraft carriers were (now) a possibility!

Ely received no compensation for either his risks or his feat. The (US) Secretary of the Navy did write him a letter expressing his gratitude, but that was all. History does not record whatever else Mr Ely may have done. He simply fades away.

Glen Curtiss, now returned to the foreground. He equipped his biplane with floats and on 17/2/1911 landed beside the PENNSYLVANIA. The biplane was hoisted aboard, placed on a droppable trolley and took off again. Curtiss' round trip from Horn Island, to the PENNSYLVANIA and return to Horn Island proved that the seaplane had the range to operate with ships. But for better or worse, the US Navy did nothing further about this.

Lord "Jackie" Fisher is the next hero of this story. The innovator of the dreadnought wanted to repeat Captain Chambers experiments for England.

At this time, a Mr Frank B. McClean of the Eastchurch Aero Club offered his services and the use of two airplanes to the Royal Navy for the training of pilots. The offer was gratefully accepted and Lts Charles R. Samson (RN), Arthur Longmore (RN), Reginald Gregory (RN) and Eugene Gerrard (RMC)* were seconded for the purpose. The obsolete battleship HMS AFRICA was made available for modification and a take off ramp (twin tracks) was constructed on her foredeck.

The training programme, which began in March 1911, was completed rapidly. Samson, Longmore, Gregory and Gerrard became the first pilots in the Royal Navy.

Also available was a Model 27, 50hp, Short Pusher biplane. This aircraft could mount three, airbag pontoons as well as wheels and could land on or rise from either water or land. Lt Samson used this airplane

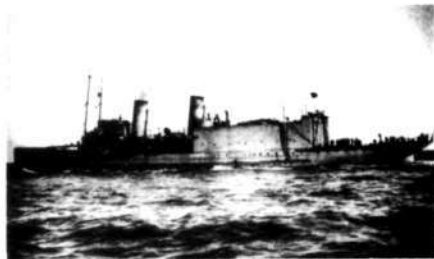


HMS CAMPANIA

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HMS VINDEX

on 10/1/1912 to duplicate the Curtiss feat while HMS AFRICA lay at anchor in harbour.

By April 1912, the obsolete cruisers HIBERNIA and LONDON had also been modified in the same manner as AFRICA. Then, on 4/5/1912, Samson proved he could take off from HIBERNIA while the cruiser steamed at 10½ knots. Later, he repeated the exercise from HMS LONDON. The Royal Navy was given the choice – Dirigibles, seaplane carriers or aircraft carriers.

This complex decision was simplified in 1913 when Arthur Longmore, now a Squadron Commander, launched a 14in torpedo from a Short seaplane. The ability of seaplanes to lift large payloads and operate over reasonably large (for those times) distances convinced Lord Fisher to adopt the seaplane tender for the Royal Navy.

In 1912, the French had commissioned the world's first seaplane tender. The obsolete cruiser FOUDRE was modified to operate 2-seaplanes. It did little and the French attempted even less.

Meanwhile, at the Admiralty, Winston Churchill found the word "Hydro-Aeroplane" was too clumsy to use in writing reports and "minutes". He coined the words "Seaplane" and "Airplane" and radically altered the English language!

He also influenced Lord Fisher to convert the (nearly) obsolete cruiser "HERMES" as a "parent ship" for two (later three) seaplanes. A storage platform was erected on the after deck and an operational platform was erected on the foredeck. The aircraft "took-off" using a droppable trolley attachment. They landed in the sea and were hoisted aboard by crane.

HERMES took part in the 1913 Naval manoeuvres and so impressed the Admiralty that they purchased a commercial hull (on stocks) for conversion to a seaplane tender. The ARK ROYAL, 6900 tons, became operational early in 1915. She had been commissioned in 1914 but was not ready in time to participate in the "Cuxhaven" raid.

However, her pilots served well at Gallipoli. Their later reconnaissance reports were exceptionally clear and detailed. Her mechanics developed a crude, but efficient, bomb release that enabled Commander Charles Samson (of AFRICA fame) to range over the peninsula raiding Turkish positions. His daring leadership made British aircraft much feared by the Turks. But the early efforts of these pilots and their observers proved only their inexperience. This was particularly true of the pre-military (Naval only) phase of the operations.

The "Cuxhaven Raid" is, however, an adventure that reads more like a tale straight from "The Hardy Boys" or "Biggerles". This history is enjoyably recorded by Arch Whitehouse in his book "Zeppelin Fighters". The story is filled with famous firsts and unique occurrences. Its beginning, though, was quite insignificant.

When the Admiralty acquired the ARK ROYAL the fleet insisted on a fast tender to operate with the battle squadrons. The Cunard Lines fast passenger vessel CAMPANIA was purchased for this purpose. She underwent conversion and was returned to service in 1916.

Also purchased, at the same time as the CAMPANIA, were three, fast, cross-channel steamers – EMPRESS, RIVIERA and ENGADINE. When the upper deck structures of these vessels was removed and replaced with a canvas hanger, each could carry three seaplanes. These vessels were operational in December 1914.

** Each of these men were destined to achieve high rank and honours in World War II. However in 1911 they were unknown juniors.

In 1912, the Admiralty had wisely organised the Royal Naval Air Service. However, the RNAS did not become fully operational until July 1st, 1914. The RNAS became responsible for Coast Defence. But when war came, none of the RNAS aircraft were considered to be suited to combat conditions.

None-the-less, Squadron Commander Charles Samson was ordered to patrol the channel coast from Newport to "100 miles around". For this purpose, the Admiralty (in their infinite wisdom) supplied him with several armoured cars. His adventures, raiding in the rear of the German Lines "became adventure classics that were widely read in the early months of the war". (Whitehouse)

Meanwhile, Samson's colleague Gerrard finally received adequate aircraft to launch a raid on the Zeppelin sheds at Cologne and Cuxhaven (near Dusseldorf). At this time the Germans had a reward of £50,000 offered for the capture of Charles Samson.

But calamities were still to come. The Zeppelins, though doing minimal property damage, were creating a mild amount of panic in England. The Cuxhaven raid was of first order political importance. However, while Gerrard endeavoured to arrange for the use of Belgian airfields for the raid, a windstorm destroyed his airplanes. Since Samson (now) also had airplanes it was up to him to remedy the calamity.

NOTE: He retained his armoured cars until after trench warfare had set in.

Samson selected and detailed two aircraft for Cuxhaven and two for Cologne. But a fog set in and only one airplane completed its mission. Lt C. H. Collett successfully dropped his three "Hale Bombs" from an altitude of 600ft over the Cuxhaven sheds near Dusseldorf. The first bomb missed and exploded harmlessly. The other two penetrated the roof of a hangar shed but failed to explode. Collett returned safely.



HMS ENGADINE

After Collett's bad luck, the Admiralty ordered a raid from the Antwerp area. This raid went off in spite of the fact that the Germans were rapidly closing in on the town. Squadron Commander S. D. A. Grey and Lt R. L. G. Marix took off in the face of enemy artillery fire. Grey went to Cologne and Marix went to Dusseldorf.

Grey had no luck whatever. He could not find the Zeppelin sheds and finally bombed a railway station with indeterminate results. Marix had better fortune. He successfully bombed a hangar shed and destroyed LZ-9 which had just been delivered.

But anti-aircraft fire punctured Marix's fuel tank and caused him to force land in a field about 20 miles from Antwerp. (Behind the German Lines!) Lt Marix "traded" his aeroplane for a peasants "push-bike" and returned to Antwerp just in time to evacuate with the ground crew in armoured cars.

Fate now played her ace of trumps in this adventure drama. On 31/10/1914, U27 torpedoed and sank HMS HERMES. This determined the Royal Navy to provide seaplane tenders with cruiser escorts.

Marix's dubious success; plus the fact that Belgium was occupied; plus the continuing Zeppelin raids caused Churchill to order ENGADINE, RIVIERA and EMPRESS to raid Cuxhaven on Christmas Day 1914. The three tenders were escorted by the cruisers HMS ARETHUSA and HMS DAUNTLESS. A screen of six destroyers and several submarines also went along. The plan was: to proceed to a position 12 miles north of Heligoland; launch airplanes; await the return of the airmen; recover aircraft; and return home.

On 14/12/1914, a U-boat identified this force and radioed a report

to Heligoland. LZ-5, under Kapitän Leutnant Von Butlar-Brandenfels and LZ-6, under Kapitän Leutnant Klaus Hirsch, II, went to investigate. LZ-6 went in the wrong direction and leaves the story. LZ-5 made contact with the British flotilla just before dawn on 25/12/1914. Butlar-Brandenfels, promotion staring him full in the face, ordered a radio report to Wilhelmshaven for the battle cruiser SMS SEYDLITZ to cut off and destroy what Butlar-Brandenfels thought were three minelayers. Then calamity struck Butlar-Brandenfels. His radio transmitter lost its power supply. The damage was unreparable. Butlar-Brandenfels could see promotion going out the window when his lookout spotted a German seaplane that had also been sent in to investigate.

LZ-5 gave the pilot the message by flasher lamp. The pilot relayed the message to Heligoland for transmission to Wilhelmshaven. Butlar-Brandenfels luck was "in" that day but he was yet to learn how lucky one can be.

LZ-5 carried three 100lb bombs tied with seaming twin (Haybinders Twine) to a catwalk. Butlar-Brandenfels ordered his bombardment officer Schiller, up a ladder to the catwalk with a sailors jack-knife. LZ-5 moved in to attack ENGADINE.

As LZ-5 zig-zagged back and forth, Schiller cut the twine and released the bombs one at a time. The British reported they were attacked by a heavy salvo. The Germans state the bombs fell individually.

Help for ENGADINE arrived from UNDAUNTED's main battery. A bin shell caused slight damage to LZ-5 and forced her to break off the attack. But LZ-5 was not to be discouraged so easily.

Determined to maintain contact, LZ-5 returned for a machine gun attack on the three British tenders. The German crew were quite amused to see the British crews firing at them with infantry rifles.

After this attack, LZ-5 tried to gain altitude to return to base. The Zeppelin failed to respond. Kapitän Leutnant V. Butlar-Brandenfels jettisoned everything that wasn't nailed down and many things that were. LZ-5 returned to base and found some 600 rifle-bullet holes in the gas bags. The crew was no longer amused.

On his way home, Butlar-Brandenfels passed over SEYDLITZ and dropped a longhand report on the battle cruiser's deck. In this report he completely described the British flotilla. SEYDLITZ ordered a second Zeppelin and several aircraft to attack the waiting flotilla.

The British bombing raid was a complete failure. The aircraft could not locate the Zeppelin sheds. However, one airplane flew over the High Seas Fleet's assembly area. This caused the fleet to move further up the Kiel Canal. The German counter-attack was also a complete fiasco.

All but four of the British aircraft were recovered and the flotilla returned to base. The submarine E-11 remained behind and rescued three of the missing crews. A Dutch trawler rescued the fourth and they were interned.

This was the first time in history that ships had launched a bombing attack on a land based (or any other) target. It was (also) the first time:

- (i) A Zeppelin had attacked a ship.
- (ii) Airplanes had bombed a land target from ships.
- (iii) Aircraft had scouted against ships.
- (iv) Ships had defended against a Zeppelin.

The new era in warfare had arrived on the scene.

In the far east, the Japanese Commissioned the WAKAMIYA (1915). After the outbreak of war this vessel took part in the operations around Tsing Tau and supplied aerial reconnaissance during the



HMS MANXMAN

operation. After Tsing Tau, however, the Japanese did nothing more with seaplane tenders. In 1920 they began developing conventional aircraft carriers.



HMS BEN-MY-CHREE

The year 1915 saw the commissioning of the BEN-MY-CHREE, another cross-channel steamer. BEN-MY-CHREE served at Gallipoli. On 12/8/1915, an airplane from this ship, piloted by Flight Commander C. H. K. Edmonds, used an aerial torpedo to destroy a Turkish transport – another world first.

Later in the campaign, FLITIG B. Dacre, also from BEN-MY-CHREE, torpedoed and sank a Turkish tug. He did this while taxing his short 184 seaplane on the water after repairing an engine failure. He got away even though the Turkish coastal batteries gave him a very harsh time in the beginning.

Regrettably, BEN-MY-CHREE was sunk in Kastelorizo Harbour by Turkish batteries on 11/1/1917.

Also commissioned in 1915 was the VINDEX (ex MANXMAN). This was a new experiment to counter the Zeppelin raids. VINDEX carried five Bristol Scout land planes equipped with inflatable air-bags. The Bristol Scouts could gain the altitude of the Zeppelins, attack them and land in the sea. The floatation bags enabled the aircraft to be recovered by crane. The scheme was not very satisfactory.

In 1915 ARK ROYAL was renamed PEGASUS as a replacement of the original PEGASUS (ex STOCKHOLM) which was sunk by SMS KOENIGSBERG on 10/9/1914. The name ARK ROYAL was then, reassigned to a newly laid down vessel specifically designed to launch and recover land type airplanes.

CAMPANIA, also commissioned in 1916, was to carry 10 seaplanes which could be launched from trolleys. CAMPANIA did not distinguish herself during the war. An error by the Admiralty left her in harbour at the Battle of Jutland.

The final chapter in the saga of the seaplane tender occurred 31/5/1916. Fittingly, it was enacted by the same participant that was in the first Zeppelin/ship encounter – HMS ENGADINE. On 30th May, ENGADINE sailed with Beattie's battlecruiser group from Rosyth and became the first aircraft carrier to launch an airplane in battle. One of her scout craft participated in the early phase of the battle. The effort was noble, but the pilot found nothing.

After Jutland, seaplane tenders were phased out. The aircraft carrier, as it became known in WWII, began to develop. Seaplanes began to operate only from land bases. Their long range and endurance with large payloads made support unnecessary.*2

*1 Although seaplane tenders remained on the naval lists of many nations in the inter-war years, they eventually became fleet repair vessels or were scrapped. None did anything significant in this time. The Japanese retained seaplane tenders longest of all nations. Two were in the Solomon Islands area at the time of the Battle of the Coral Sea (1942)

APOLOGY

THE MISSILE – HOW DEADLY?

Due to an error in typesetting in the July 1984 edition of *The Navy*, authorship of *The Missile – How Deadly?* was incorrectly credited. Our apologies to Charles H. Mann who contributed the article.

Which Submarines Are Best Suited For Australia's Needs?

Foreword by Geoffrey Evans

Federal President of the Navy League of Australia

Submarines will form a significant part of Australia's deterrent capability for many years to come and plans are well advanced for the design and construction of a new class of conventionally-powered (diesel electric) submarines to replace the existing six OBERON-class vessels in the nineteen-nineties. It is necessary however to think even further ahead and in this regard the Navy League established a small group of members with appropriate qualifications to consider the advantages or otherwise of introducing

nuclear-powered submarines into the RAN.

The paper published hereunder was prepared by Mr Peter Scott-Maxwell, formerly Managing Director of Vickers Australia Ltd, and a member of the team involved with the construction of Britain's nuclear-powered VALIANT-class submarines; Rear Admiral Andrew Robertson, RANEM, who retired as Flag Officer, Naval Support Command, in 1982, after a distinguished career in the RAN; and Commander A. W. Grazebrook, RANR, well-known writer on naval affairs.



HMS WARSPITE - 1970

hope that a target will happen to pass in their general vicinity. The example of HMS CONQUEROR sinking the Argentinian cruiser GENERAL BELGRANO is indicative of this capability.

- Much faster passage time from base to operating areas. FSE submarines can thus spend far more time in the fighting area than can diesel electric submarines. With our great distances, this is particularly important. For instance, a FSE submarine could deploy submerged from say the Fremantle area to our Cocos Islands in about 3 days but a conventional boat would take 8 days.
- Higher sustained underwater speeds of about 25 knots allow FSE submarines to patrol larger areas, within a given time, than diesel electric submarines which normally have a sustained speed of only about 10 knots.
- Under most conditions, operations by FSE submarines are much safer than those of conventional boats. Not only is the snorkelling problem avoided but it is much harder for enemy forces to hunt and destroy a FSE submarine. The survivability of our submarines and their crews must be a major consideration especially as technology bounds forward.

Despite the great operational and survivability advantages of the FSE submarine, we must recognise the major obstacle to their acquisition

by Australia — very real concern by elements of the public over the use of nuclear power in any shape or form.

Is this concern justified and does it outweigh the need for Australia to have highly effective naval forces while ensuring the maximum chance for the survival of our Australian crews? Much has been written on this most emotive subject but so far as submarine propulsion systems are concerned there are a number of basic questions which need to be thoroughly examined.

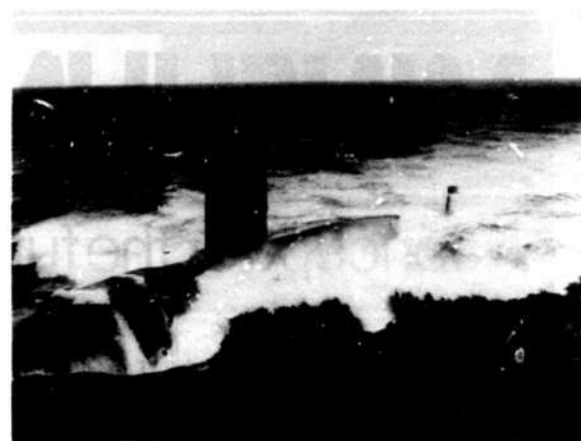
PUBLIC CONCERN

Part of the concern arises from confusion between nuclear weapons and the use of nuclear fission to produce heat to make steam for propulsion purposes. Examination shows that the two purposes are basically different and require systems that are fundamentally different, the former involves the uncontrolled release of atomic energy to cause an explosion — where the latter involves the carefully-controlled release of atomic energy to produce given amounts of heat. To have FSE powered submarines in the Royal Australian Navy neither implies nor necessarily furthers Australia's ability to have nuclear weapons.

The second concern relates to possible failures of the machinery of FSE powered submarines and the alleged possibility of danger to the populace where the submarines operate near, or visit, major population centres.

Enormous technical advances have of course been made in the elimination of any such danger. Successive governments, of both political persuasions, of both our major allies are clearly satisfied that there is now no more significant risk in operating nuclear powered submarines than there is in other major industrial undertakings such as gas driver power stations, oil refineries, etc.

Having taken all possibilities into account, the United States Government bases its nuclear powered submarines near some major population centres such as Pearl Harbour/Honolulu and Bangor Submarine Base/Seattle. Britain bases her SSNs at Plymouth, on the Clyde and at Rosyth (near Edinburgh) and has refitted them near London. In our case in addition to the assurance provided by such evidence we have the great advantages of being able to base such sub-



The Valiant class nuclear-powered Fleet submarine HMS WARSPITE

marines well away from major centres of population.

WASTE DISPOSAL

The third popularly fostered concern involves the disposal of a very small quantity of nuclear waste — the spent fuel that would need disposal only about five times during the 25 year life of each Rubis or similar type submarine. Here again, technological advances have been great. Countries such as Germany, France and Switzerland, driven by threats to their oil supplies and thus their ability to generate electricity, have been compelled to develop nuclear power stations and ways of disposing of nuclear waste. They have done so.

One example of successful research conducted and trialled in "production" quantities is that by the Swiss Federal Institute for Reactor Research onto long term dry storage of spent fuel. It would seem that concern over operating and maintaining FSE powered submarines has been over-stated in Australia.

What other factors are perhaps involved?

IDEAL CONSTRUCTION

It would be possible to build and maintain both FSE powered submarines and diesel electric submarines in Australia. Some additional maintenance facilities would be needed, but these would be much less than is generally supposed.

Overall then, for some possible increased costs, there are clearly huge advantages if Australia were to obtain or build a small force of say 3 or 4 FSE powered submarines to supplement the conventional boats being designed to replace the Oberons. Such a force would provide a most significant deterrent in the coming decades. It would ensure that our submarine sailors would have a high chance of survival in the more dangerous missions they will face, while there would be little if any danger to the populace at large.

It is time serious, well informed and emotional public debate took place on this issue which is so crucial to our effective defence and to the safety of our Australian sailors.

IMPORTANT DECISIONS TO BE MADE

Over the next year or so, Australia must take a decision on the type or types of new submarines to be built for our Navy. The decision must look well forward and encompass much wider issues than the replacement of existing assets. Any vessels ordered now will enter service in the 1990s and can be expected to operate in the navy until 2020 or more. They must be not only operationally highly effective, but must also give their Australian crews the maximum chance of survival in the face of the advancing technology of the 21st Century.

The question must therefore be posed whether conventional submarines, valuable though they may be under some conditions, alone meet the requirement for our submarine force of the coming era. Further options must be considered.

In the past, nuclear propelled submarines seem to have been discarded as a possibility for Australia mainly on political grounds, but also because of their great cost, the advanced facilities needed for support, and their size and noisiness which limited their use under some conditions, including in shallow water. However, times have changed.

As a result of a technological breakthrough in France (other countries notably the United Kingdom are also developing designs), the medium maritime powers of the first decade of the 21st Century will have available a fundamentally new type of fission steam electric powered (FSE) submarine, the first of which (F.S. RUBIS) is now in operational service. This type of submarine uses nuclear fission to

generate steam for the turbo-electric propulsion system. It is about the same size as our intended conventional boats, only marginally more costly (may be 30%) and much quieter than earlier nuclear powered submarines.

FSE POWER ADVANTAGES

Conventional diesel electric submarines are still propelled by machinery systems the same in principle as those which drove the submarines of World War I. Compared with these, the new FSE submarine propulsion systems have overwhelming inherent advantages:

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HMAS STIRLING

Written and compiled by **VIC JEFFERY**
Navy Public Relations Officer
Western Australia

(Photos taken by
POPH STEVE GIVEN and ABPH ERIC PITMAN.)



The Services Reconnaissance Department (Z Force) memorial located within the boundaries of HMAS Stirling.



Captain James Stirling, RN, the man who landed on the island in 1827 and again in 1829 to found, not only the first settlement in Western Australia, but also the first free settlement in Australia. The name HMAS Stirling was chosen to honour this man. The base's crest is based on the Stirling family coat of arms.



Alongside the destroyer wharf during Exercise Kangaroo '83 are four RAN and USN destroyer-type ships. A propeller from the formerly WA-based hydrographic survey ship HMAS DIAMANTINA is in the foreground.



HMAS Stirling from the air with the causeway linking Garden Island to the mainland in the background.

Stirling Saw The Charms

GARDEN ISLAND in Western Australia was a haven for seals and penguins in the early 19th Century.

"I there found reason to admire a magnificent sound (Cockburn Sound) between that island and the main, possessing great attractions for a sailor in search of a port," wrote Captain James Stirling after assessing the area in 1827.

The first record of Garden Island appeared on a Dutch map compiled in 1700 after William Vlamingh's three-ship flotilla visited Rottnest in 1696. Rottnest, Carnac and Garden Islands were charted.

Nobody showed any interest in the area until 1772. Then the Frenchman, Captain De St Alouarn in the ship *Le Gros Ventre*, claimed the entire west coast for France — an act, the British conveniently chose to ignore.

This was followed by a scientific expedition in 1801-02 under the command of Captain Nicholas Baudin.

Australia's south-west coast was carefully mapped with the names of *Geographie Bay*, *Cape Naturaliste* and *Point Peron* surviving today. But the two islands named *Bauche* and *Bertholte* had their names changed to the more familiar *Garden* and *Carnac* by Captain Stirling.

Cockburn Sound's islands were well known to the sealers and whalers who had operated along the west coast since the turn of the century.

In 1826 Major Lockyer — based in King Sound (now Albany) — recorded a number of atrocities committed by the sealers who hunted for seal on Carnac and Rottnest islands. There they had raided Aboriginal camps on the mainland, killing the men and abducting the women.

During the French scare of 1827, Captain Stirling anchored off the mouth of the Swan River in HMS *SUCCESS* north of the sound which he named after Sir George Cockburn.

March 6-7 saw Stirling examine the sound and express the area's great potential.

Stirling left HMS *SUCCESS* at her anchorage and devoted the next four days to a close study of the sound and the islands.

When Captain Stirling returned in 1829, he had been given command of the new Swan River colony. His grant of 100,000 acres included Garden Island together with such livestock as may be found on it, a legacy of his 1827 visit.

HMS *CHALLENGER* under the command of Captain Fremantle anchored off the west coast of Garden Island on April 25, 1829. He camped on Garden Island while a fort was being built at the mouth of the Swan River, now the port named after him.

Between June and July that year, Garden Island was the temporary home of more than 200 settlers, impatiently awaiting the allocation of their land grants on the mainland.

June 10, 1829 was a day of both rejoicing and sorrow. On board HMS *SULPHUR*, Jane Mitchell, wife of a drummer in the 63rd Regiment, gave birth to a son — the first birth in the colony.

On the same day a sailor named William Parsons from HMS *CHALLENGER* died on Garden Island as the result of being struck on the head by a falling tree branch. Parsons was buried on the slope above the wells and was some days later joined by a second sailor who was accidentally killed at Woodman's Point on the mainland.

There were obviously punters amongst the new settlers as the Swan River Colony's first race meeting took place on the expanse of beach at Sulphur Bay, Garden Island.

July 20, 1829 was a day of great excitement as several of the settlers who had ponies participated in the race meeting. It is recorded that the first race was won by Captain Currie riding the Governor's horse and having a convincing win over Lieutenant Preston.

August 9 saw a large party leave the island to venture up the Swan River and lay the foundation stone for the City of Perth.



The Cliff Head memorial on the eastern side of Garden Island.

They arrived on August 12 and the celebrations saw Mrs Dance cut down the first tree (an omen for the State's future development).

Between April and August of that year, six ships had anchored in Cockburn Sound.

Two well-known ships which gave their names to sandbanks in the region were *Parmelia* which ran aground on the *Parmelia Bank* on June 2, 1829 and HMS *SUCCESS* which had the same misfortune in November of that year. Both were refloated. Today the Royal Australian Navy's new fleet oiler on order carries this proud name.

With the arrival of HMS *SULPHUR* on June 8, there were more than 450 people in the colony.

The *Rockingham*, laden with over 400 passengers experienced difficulties off Woodman's Point. The ship was moored in heavy weather to allow passengers to disembark and miraculously no lives were lost.

On May 13, 1830, the 423-tonne *Rockingham* broke her moorings and went aground in Mangles Bay north of the present town of *Rockingham*, which now bears her name.

Subsequently salvaged by a Captain Willett, the *Rockingham* was taken across to *Careening Bay*, from where she was destined never to leave.

Captain Willett salvaged all usable material and let her sink in the northern end of *Careening Bay* in 1831. As late as 1900 her ribs were protruding above the surface off *Colpoys Point*.

August 28, 1829 saw the departure of Captain Fremantle in *Challenger* bound for India, his task having been successfully completed.

May, 1834 saw the destruction of Stirling's original settlement on *Garden Island* when soldiers from the transport *Lonach* wantonly set fire to the island, thus destroying the Governor's temporary residence, the barracks, stores and several huts.

September 8, 1837 — murder on the island. Several Albany Aborigines had been brought to Fremantle on the colonial schooner for an exchange of culture, and because of their reliability as guides and trackers.

While anchored in the Sound, the Aborigines were put ashore on *Garden Island* with several local natives to ensure they were at ease.

One of the Albany men disappeared. A subsequent search found him murdered and mutilated obviously with quartz knives.

These are but a few of the many stories which surround the island's history in the early days of the white settlement of Western Australia.

COCKBURN SOUND Proposed Base for the East Indies Fleet

It is now 20 years since one of the last local reminders of the darkest days of World War Two were removed from Cockburn Sound and Garden Island.

In early 1964 the boom defence dolphins in Cockburn Sound were blasted out of the sea bed, 22 years after being driven in way back in 1942.

Fremantle Harbour's boom gate had been in service since early in the war. It was the first of its kind in Australia and was designed as protection against torpedo attacks. Electrically operated winches opened and closed the gate — a steel net supported by metal barrels.

When open the boom formed a large 'V' against North Mole. When closed, the cable was secured to a chain mooring, the strain taken off the winches.

However, this offered no protection to Cockburn Sound and when Singapore capitulated in 1942 Britain was urgently looking for a secure base for her Eastern Fleet.

The British Admiralty decided that Cockburn Sound was the ideal place for a naval base with its wide expanse of deep water and the fact that it could be protected by anti-aircraft guns on the mainland and *Garden Island*.

Ironically, this was the second time in 30 years the Sound was considered as a naval base, the first in 1913 when the Royal



The boom defence vessel HMAS KARANGI working in Cockburn Sound in 1944.

Australian Navy commenced construction of the Henderson naval base. As it was to turn out it was third time lucky when construction commenced on HMAS STIRLING another 30-odd years later.

Work commenced in 1942 and work went on 24 hours-a-day, seven days a week for the two years it took to complete the job, speed being the essence throughout the project.

The work involved three stages, defences against enemy submarines had to span the northern and southern approaches to the Sound and a channel had to be cut through the *Parmelia Bank* to admit shipping.

Five dredges were used — four having been brought from the eastern States to assist. The crews lived onboard and worked 14 hour shifts.

Between *Woodman Point* on the mainland and the northern end of *Garden Island* jarral piles were driven 5 metres into the sea bed. The piles, in clusters of four, were spaced about 100 metres apart to carry submerged nets across the entrance to Cockburn Sound.

A boom gate was built across the *Parmelia Bank* channel to admit shipping into the Sound.

At the southern end of *Garden Island* (where the causeway is today) a hurdle-type structure of tubular steel was laid across the 3 kilometres separating the mainland from the island.

When this hurdle was dismantled after the war, the tubular steel was used for scaffolding. Mounds of this steel was visible on the beach near *Point Peron* in the early 1950s.

Thousands of mussels found clustered around this structure when it was dismantled were bottled for consumption in Perth.

Costing over \$2,000,000 the Sound was made safe against submarine attack by 1944, the British Government paying the bill. By then however, Japan was on the defensive and the major base visualised was never finished.

Several warships anchored in the Sound and a few US submarines used the new harbour for sound testing. Cockburn Sound had become a backwater as the war pushed closer to the Japanese mainland.



HMS PORPOISE REMEMBERED

The memory of the British wartime submarine HMS *PORPOISE* is perpetuated at HMAS Stirling with the road circling the base's oil fuel installation named *Porpoise Loop*. HMS *PORPOISE*, Fremantle based in 1944-45 had the distinction of being the first submarine to enter *Careening Bay* where it was actually beached for modification to allow it to carry Z Force "Sleeping beauty" boats. It made numerous secret patrols to South East Asia after first picking up Z Force personnel in *Careening Bay*.

HMS *PORPOISE* was also the last Royal Navy submarine lost in World War Two when it was reported missing off *Penang* on 16 January, 1945. It was the second of two Royal Navy submarines to be lost operating from Fremantle. The other was HMS *STRATAGEM* in 1944.



HMS PORPOISE



Main cottages, Careening Bay, 1950s.

Suburban Garden Island

GARDEN ISLAND, the home of HMAS STIRLING, and former island paradise for those who had holiday cottages there, very nearly became an island suburb.

Around 1907, the southern portion of the island was subdivided into blocks of about one acre and offered for sale at prices, which today, seem incredibly ridiculous.

The prices started at eight pounds (\$16) a lot and the terms offered by the selling agents, Peet and Co, were very attractive. For one pound (\$2) deposit and ten shillings (\$1) a month, a purchaser could own a choice piece of land close to where HMAS STIRLING stands today.

Contracts of sale for the freehold land were drawn up and several of the blocks were sold.

Until the Town Planning Act was implemented in 1928, only a surveyor was required in order to subdivide land.

The land was owned by a syndicate, of which Mr J. D. Peet was a member. Peet and Co, were responsible for the subdivision.

But it seems most unlikely that a housing development could have gone ahead on the island as the Commonwealth Government had other plans, and wanted it for defence purposes as much as 70 years ago.

It had been planned to move the Woodman's Point mainland quarantine station to Garden Island when the Henderson Naval Base, about half-way between Fremantle and Rockingham, was being planned. These plans were suspended however, when World War I broke out in 1914.

It was around this time, the Government decided it would be suitable for defence purposes and the future of Garden Island was established.

Today, a colourful framed copy of the subdivision plan hangs in the Rockingham Museum, as a stark reminder of what could have developed.

Only one house was ever constructed before the Government stopped the development and the rambling old house with its wide verandahs remained until construction commenced on HMAS STIRLING.

Located in the vicinity of the headquarters of the naval

diving team CDT4's headquarters only a tall solitary palm remains as a memory to this page in the island's colourful history.



A poster of the day advertising the proposing development. A copy now hangs in the Rockingham Museum.

WARTIME GUN BATTERIES ON GARDEN ISLAND

The wartime coastal artillery batteries on Rottnest Island and at Leighton on the mainland in Western Australia are well known and documented.

However, little is known about the third link of the series of gun batteries which protected the Port of Fremantle during those years — Garden Island, the present day site of HMAS STIRLING.

Garden Island was virtually bristling with coastal guns but as they were placed in reserve and storage in late 1944 they were quickly forgotten.

It all started on December 26, 1942 when "J" Australian Heavy Battery (Coast) was landed at North Head on the island.

"J" Battery were responsible for the installation and manning of the proposed Challenger Battery to be situated on the island.

The advance party consisted of a Major Max Primrose, and 15 other ranks who were landed by lugger from the nearby coastal town of Rockingham.

When they first arrived on the island the only other occupant was an army well-boring unit which struck artesian water at 1120 feet. This ultimately supplied the battery with ablution and drinking water. Camp stores were brought to North Head by an Army Chevrolet four-wheel-drive truck which was run by the well-boring unit.

By December 29 another 42 "J" Battery personnel had arrived on the island and moved into the tents already erected by the advance party.

"J" Battery was also responsible for the siting and emplacing of two ex-US navy 50 cal 4-inch guns which was to be known as Beacon Battery.

These deck guns had been salvaged from the old US Navy destroyer USS PEARY which was sunk during the first Japanese bombing raid on Darwin. Beacon is believed to be the only coastal 4-inch gun battery to serve in Australia during the Second World War.

The heavier Challenger Battery consisted of two First World War vintage ex-US Army 155mm long rifle guns.

Point Peron on the mainland facing Garden Island was the home of "K" Battery, also consisting of two 155mm guns which was also under construction.

The men of "J" Battery were trained and billeted on this site before going across to Garden Island. For two years the men lived in tents on the island concealed under native wattle scrub.



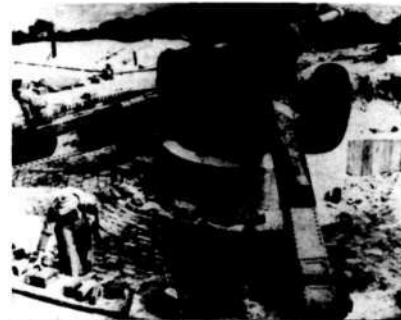
Work proceeding on a concrete pour at one of the gun emplacements on Garden Island.

January 6, 1943 saw the 155mm gun sites selected and work commenced on the gun floors. By January 16 another 18 personnel had arrived and work had commenced on the command post.

Two days later a road was cut through to the 155mm gun positions and on January 21 work commenced on cutting a road from the boro to Sulphur Bay to enable heavy gear to be landed. This was completed within 10 days.

January 21 also saw the camouflaging of the gun sites commence and six days later the arrival of a detachment of the 6th Australian Field Regiment to erect a temporary pontoon landing stage at Tanner's Bay. By this time the road to Sulphur Bay was being surfaced.

On February 9 two 4-inch guns were floated ashore from the



Installing one of the 155mm guns on the northern end of Garden Island, 1942.

SS AGNES. The first was transported to its emplacement in a 6-wheel-drive truck and mounted with the second gun following the next day. The guns were installed in limestone and concrete.

In its position on the north-east end of Garden Island its primary role was to cover the seaward leg of the boom defence net which stretched north-east from the island to the dredged channel through the Parmelia Bank where the boom gate was situated, then shorewards to Woodman's Point. It came under the command of Challenger Battery.

The following month more than 60 field engineers commenced work on the 155mm battery sites when more than 6000 bricks arrived on the island along with another load of timber.

On March 19 water was found at 1112 feet in the bore with a flow of approximately 300 gallons per hour. Five days later saw 330 rounds of 4-inch ammunition arrive by lugger and a position marked out for a 40mm Bofors gun emplacement.

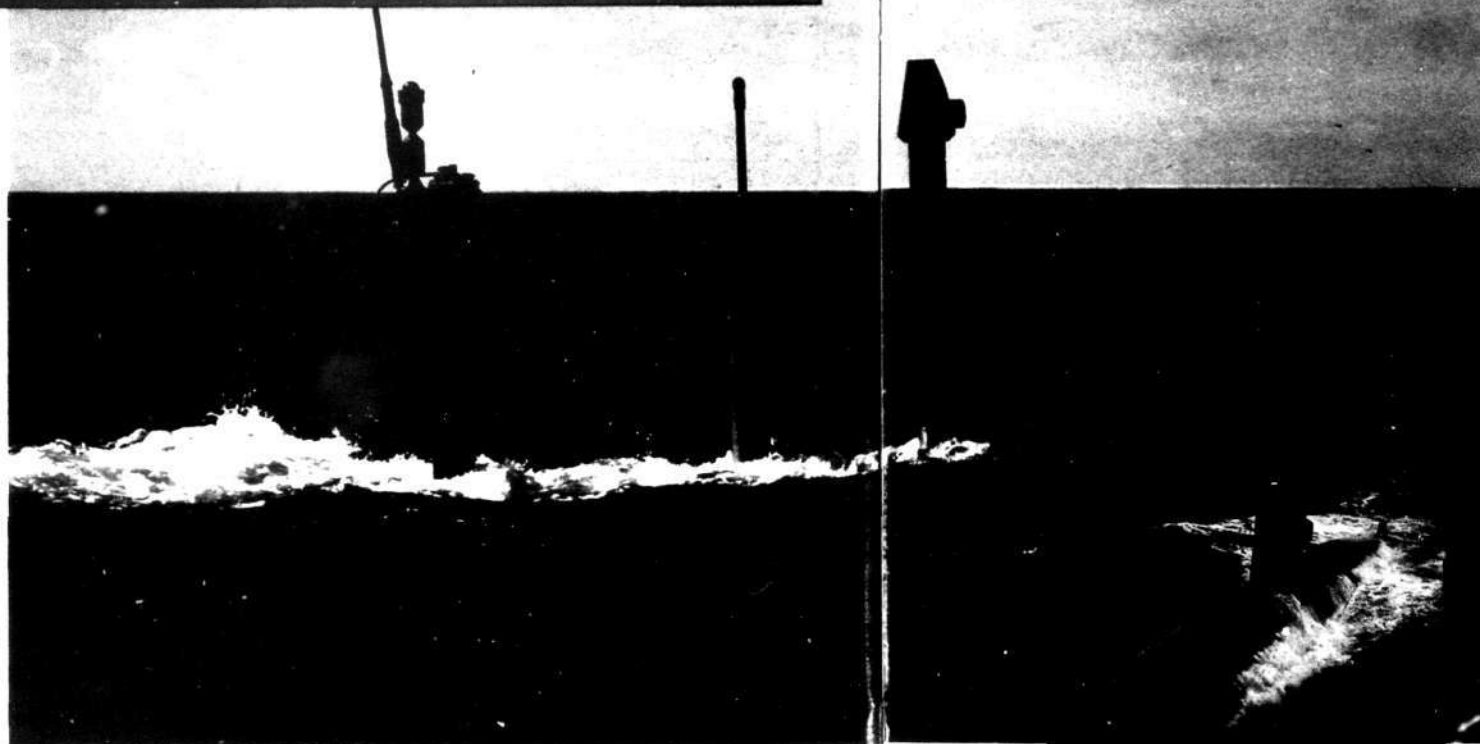
The barge Guildford arrived with the two 155mm guns aboard on March 28, 1942. The first was landed that day and the second the following day. The next day the 155mm guns were towed to position and the 4-inch guns were proofed with three rounds per gun. Later that month the two 155mm guns were dug in temporary positions and camouflaged.

April 2nd saw the two 155mm guns placed in travelling position pending relocation. Two days later telephone communications with mainland were established by temporary line.

On April 6th the excavation of the plotting room and gun blocks commenced. This being followed by the arrival of the first 100 rounds of 155mm ammunition and charges.

Later that month 70 tons of blue metal, a truck, bricks, sand

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and reinforcing batteries were landed at Sulphur Bay and on May 3 Captain Hogg from the Medical Corps surveyed a site for camp hospital on the island.

May was a very busy month with a 40mm Bofors gun being landed and placed in position, 60,000 bricks and blue metal, machinery, cement, hospital equipment and timber landed in large quantities for further construction.

The first shoot by the 4-inch gun battery was a success, 11 rounds per gun at a splash target.

Personnel of the 75th Army Hospital unit arrived to establish camp hospital and the 28th Field Engineers marched in to a water tank system.

In June, two 6-inch searchlights positioned and used in exercises.

By September the operations centre was complete and work was well advanced on the magazine.

Mini rifle ranges were installed, overhead camouflage positioned and signal communications completed.

A 3.7-inch gun was situated on the south-east end of the island to cover the boom defence net which extended across to Point Peron. This remained on the island until the late 1960s.

It was October 16, 1943 before the 155mm guns of "J" Battery were proofed, firing a 102lb projectile.

Then work commenced on the two largest guns on the island

which were situated on Scrivener Hill on the centre west side of the island.

Known as Scrivener Battery, they consisted of two single-mounted large 9.2-inch guns which had a designed range of 34,000 yards using a 380lb projectile.

They were never fired as work stopped on their construction late in 1944 with the war receding towards the Japanese mainland. The guns were in position, but the underground magazines and powerhouses attached to them were never completed. The guns were sold locally for scrap in 1962 when the Coastal Artillery was disbanded.

"J" Battery was withdrawn from the island in December 1944. When the guns came ashore on the mainland a field shoot was carried out at the Warnbro range — starting a bushfire!

Today, only a few overgrown concrete mountings, rusting circular steel rails and crumbling pillboxes and observation posts remain to remind us of Garden Island's role in the wartime defence of the Port of Fremantle.

Army engineers pulling ashore one of the 4-inch guns salvaged from the US destroyer PEARY, lost in Darwin. The gun was one of two installed at Beacon Battery.



THE MOTHBALL FLEET



Formerly two units of the Fremantle Detachment of the Reserve Fleet, the corvette/minesweepers TOWNSVILLE (205) and HORSHAM are readied for their final voyage to the Hong Kong shipbreaker's yards by the Dutch tug Oostzee on 17 January, 1957.

(Photo by courtesy of WA Newspapers)

In the immediate postwar years between 1945 and 1957 there were as many as eleven RAN warships laid-up in reserve in the sheltered water of Careening Bay, the present site of the Royal Australian Navy fleet support facility, HMAS Stirling.

With the end of hostilities in 1945, the Navy quickly set about reducing its numbers as men returned to civilian life. Like all allied navies, Australia had many fine ships surplus to peace-time requirements, therefore Reserve Fleet detachments at various

points around Australia. One was designated to the ideally sheltered Careening Bay at Garden Island in Western Australia.

Apart from the River Class frigate, HMAS LACHLAN, the other ships were corvette/minesweepers, of the Bathurst class. The first of these to arrive was HMAS HORSHAM on 23rd November, 1945, closely followed by HMAS GLENELG on 12th December.

It was another twelve months before the third ship, HMAS PARKES arrived on 31st December, 1946.

Sailors attached to the Fremantle Reserve Fleet Detachment wore HMAS PARKES tally-bands and a posting to the detachment was known as a posting to HMAS PARKES. The detachment was commanded by Lieutenant Commander Keith Gibson, RANR for ten years from 1946 to 1956.

Ironically one young officer attached to Garden Island in 1948 was Lieutenant Neil Boase who had the pleasure of coming back 30 years later to Commission the magnificent HMAS Stirling complex as NOCWA.

The fourth Corvette, HMAS BENALLA arrived at Garden Island on 16th January, 1947. It was followed by HMAS TOWNSVILLE a week later.

Twelve months later on 16th January, 1948, HMA Ships DELORAIN, ECHUCA, KATOOMBA, LITHGOW and MILDURA berthed at North Wharf, Fremantle. Three of these vessels were together again after sinking the first Japanese submarine by the RAN. This occurred off Darwin on 20th January, 1942, when HMA Ships DELORAIN, KATOOMBA and LITHGOW successfully depth-charged the large submarine I-124. After de-storing at Fremantle these five corvettes proceeded to Careening Bay.

The last ship to arrive was the biggest, the frigate HMAS LACHLAN. She proceeded to Garden Island on 6th December. HMAS LACHLAN was only at Garden Island for six months, in which time a great deal of effort went into her maintenance with the view, by the officers and men of the detachment that she was going to make a fine headquarters ship.

This was not to be, for she was taken back into Fremantle on 4th May, 1949, and transferred on loan to the Royal New Zealand Navy in June and later purchased outright by New Zealand.

HMAS MILDURA left Careening Bay after nearly three years in reserve when she was taken to Fremantle where she was re-commissioned as a training ship for national servicemen in the WA area, in February 1951. She went back into reserve on 15th July, 1953, when replaced by a sister ship, HMAS JUNEE.

The next ship to leave Garden Island was HMAS ECHUCA on 5th April, 1952, when she departed under tow by the fleet tug HMAS RESERVE, bound for Melbourne where she was

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DEPARTMENT OF THE NAVY
NAVY OFFICE, MELBOURNE, B.C.I.

14 FEB 1956

Commanding Officer,
Reserve Fleet, Fremantle,
R.N.A.S. PARKES,
FREMANTLE, W.A.

(Copies to: The Secretary, Department of the Navy,
Naval Officer-in-Charge, West Australian Area).


RESERVE FLEET DETACHMENT, FREMANTLE.

Now that the work of de-storing and dismantling the Ocean Minesweeping Vessels (for Disposal) is reaching the final stages, I wish to congratulate the Commanding Officer, Officers and Men of the Fremantle Division of the Reserve Fleet on their good work in accomplishing a most difficult and unenviable task.

Notwithstanding persistent manning difficulties and the handicap imposed by the isolation of the Command, the work of the Fremantle Division has always been of a high order and the ships have been effectively and efficiently maintained right from the inception of the Division.

I know that a lot of hard work has been necessary and that the objective has been achieved only by the effort of each individual in the Command. I should like to express my personal thanks to all concerned.

M. Boase
(A.C. Boase)
A/Captain, R.N.A.
SENIOR OFFICER, RESERVE FLEET.



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transferred to New Zealand on 14th June. It was another 2 years before another ship left, this time HMAS MILDURA in tow by the tug HMAS SPRIGHTLY, in December 1954, bound for Melbourne. From there she became a stationary training ship in Queensland before being broken up in 1965.

HMAS BENALLA followed when she was taken in tow by HMAS SPRIGHTLY on 19th March, 1955, bound for Melbourne and later sold for scrap on 20th February, 1958.

The only time any excitement arose was on 1st April, 1955, when HMAS HORSHAM and HMAS TOWNSVILLE ran aground on a sandbank. The two ships had been driven against the bank by strong easterly winds, after having broken adrift from their moorings early in the morning. A diesel towboat placed them back in position about 300 metres off-shore by mid-afternoon. No maintenance crews had been onboard and neither vessel was damaged.

When the last seven ships went — they went quickly, all within 10 months. On 9th January, 1957 HMA Ships DELORAIN and LITHGOW were towed out by the Dutch tug LOIRE, bound for the shipbreakers in Hong Kong.

Only eight days later the corvettes HORSHAM and TOWNSVILLE were towed out by the Dutch tug OOSTZEE, also bound for the scrap yards in Hong Kong.

When the Federal Government announced on 2nd May, 1957, that HMA Ships GLENELG, KATOOMBA and PARKES had been sold to Hong Kong interests, it was obvious that the end was near.



The end of two fine ships in Careening Bay, Garden Island in 1966. The former lighthouse ship CAPE OTWAY and the corvette/minesweeper JUNEE moored together for demolition. Work is already well advanced on the JUNEE. Both were cut down to the waterline and scuttled in the ship's graveyard outside of Rottnest Island in 1972.

(Photo by courtesy of WA Newspapers)

On 27th November, 1957 the tug BUSTLER towed these three ships out for the last time, thus ending another chapter in the history of Garden Island.

REPORT OF COCKBURN SOUND FEASIBILITY

(Statement by the Minister for the Navy (Hon DON CHIPP).)

As announced earlier in the year, the firm of Maunsell and Partners, consulting engineers, of Melbourne, was engaged by the Department of Works to report on the feasibility of establishing Naval support facilities for the RAN in Cockburn Sound, Western Australia.

The Minister for the Navy (Mr Don Chipp) said today that in accordance with the terms of their engagement, the firm had submitted a report on the first phase of the study, namely a comparison of the possible sites in Cockburn Sound for the proposed facility.

Selection of the precise site is an essential preliminary to progress on the balance of the task, as the question of site

obviously must be determined before work proceeds on the preparation of detailed design studies and master plans and the production of cost estimates.

The consultants' report on the site is currently being considered by the Department of Works and the Department of Navy. When this has been determined, the consulting engineers will continue with their assignment, and their final report is not expected to be ready before the end of this year or the early part of next year.

As the Prime Minister stated, the results of this investigation will be the essential basis for further consideration of the project by the Government.

CANBERRA, SEPTEMBER 1, 1967



... and, if we may make a little suggestion ... a SHIP ??? ... How the Perth "Daily News" newspaper cartoonist Paul Rigby saw the announcement of the feasibility study for a naval base on Garden Island in the edition of Thursday, 25 August, 1966.

HMAS STIRLING A BASE BACK TO NATURE



Sand, sand and more sand. The early days of HMAS Stirling, 1973.

The commissioning of the Royal Australian Navy support facility HMAS STIRLING on 28 July, 1978, was the case of third time lucky for a West Coast naval base.

Two previous decisions, one Australian, one British, to construct a much needed naval base in Cockburn Sound foundered through war-caused circumstances.

The first was the ill-fated Henderson naval base which was to be situated in Cockburn Sound in the Woodman Point area on the mainland.

The Commonwealth Government commenced work on the project in 1911 and this proceeded until the outbreak of World War One in 1914 saw construction suspended, with little to show for the considerable amount of money outlaid.

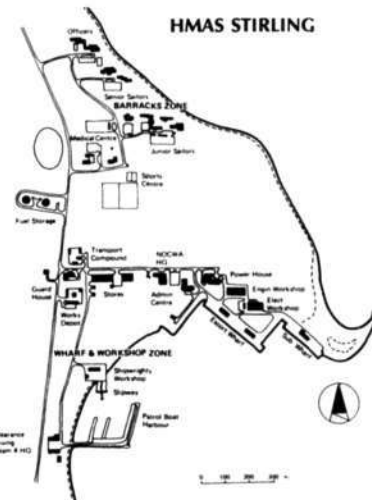
The second attempt was by the British Admiralty in the dark days of 1942 after the fall of Singapore when Britain was looking for an anchorage for its Far Eastern Fleet and selected Cockburn Sound as a suitable site, with its wide expanse of deep water and the fact that it could be secured against submarine and air attack. In 1944, the tide of the war had turned against Japan and the project was halted once more.

In 1966, the Federal Government announced that an investigation into the feasibility of establishing a Naval Support Facility for the RAN on Garden Island in Cockburn Sound would commence. In May 1967, the Department of Construction, in conjunction with a firm of civil and marine engineering consultants, commenced feasibility studies and the report was completed in November, 1967.

In November, 1969, the Government announced the intention to begin planned development of the facility, with the first stage being construction of a causeway from Cape Peron on the mainland to Parkin Point on Garden Island. The Causeway Project was then referred, as a separate package, to the Parliamentary Committee on Public Works in September, 1970. A favourable report was tabled in Parliament in October that year.

The Department of Construction was appointed by the Government to be the Design and Construction Authority for this Project. Construction of the Causeway began in January, 1971, and was completed in June, 1973, within the time scale and estimated costs planned for the project. The Causeway cost \$9.5M and is four kilometres long, with two bridge sections allowing for the movement of tidal waters to maintain the ecological balance of Cockburn Sound.

The Support Facility had originally been programmed for completion in December, 1975. However, in 1972, construction of some sections was deferred, postponing the completion date to December, 1978. This completion date was later accelerated to



mid-1978. Construction of the wharves and workshop areas began early in 1973 and accommodation in late 1975.

The name HMAS STIRLING was selected to honour Captain James Stirling, the naval officer who first landed on Garden Island in 1827 and founded the first Western Australian settlement in 1829. All roads in STIRLING are named after English and French navigators associated with Western Australia, and in the armament depot, after the names of allied submarines lost during World War II.

HMAS STIRLING was formerly commissioned on 28th July, 1978 when the Naval Officer Commanding WA Area at that time, Commodore N. A. Boase, RAN in the presence of the Minister for Defence, The Hon N. V. Killen, MP, and the then Chief of Naval Staff, Vice Admiral A. M. Synnot, AO, CBE, RAN, read the Commissioning Order.

Ships alongside that day were the WA based hydrographic



The headquarters of the Naval Officer Commanding West Australia Area, situated within the grounds of HMAS Stirling.

survey ship HMAS DIAMANTINA, the visiting destroyer escort (and ironically now homeported at the base) HMAS STUART along with the patrol boats HMAS ACUTE and HMAS ADROIT.

The Royal Australian Navy has gone to great lengths to preserve Garden Island since the commissioning of HMAS STIRLING.

Garden Island is regarded as a showpiece, an example of what can be done with proper flora management and people control.

A WA Government Park Authority ranger has been seconded to the Navy since 1979. His role is to advise the Navy on environmental management and enforce the regulations.

An extensive environmental review was carried out before construction commenced on the island. This recognised the fragility of the island and its environment and the necessity to preserve it.

Around 500,000 trees and shrubs were planted to stabilise the soil and enhance the wildlife's habitat.

Eighty percent of the island is still open to the boating public, but people must leave by sunset each day.

The nocturnal Tamar wallabies which are almost extinct on the mainland and were down to 700 on the island in 1978 are now flourishing. Feral cats were eliminated, pets were banned from the island and tiger and carpet snakes abound on the island along with many varieties of birds — bronzedwing pigeons, willy wagtails and magpies.

Areas Involved in the Facility:

Total area of Garden Island	1200 hectares
Total Area fenced to exclude public	200 hectares
Area cleared for construction purposes	85 hectares
Area included in Security Fence, ie, Wharf and Workshop Zone	55 hectares



HMAS Stirling's main workshop area.



CAUTION TAMMARS — The only place in the world where you will find these signs. This nocturnal member of the wallaby family is a protected species and great caution is exercised on Garden Island to ensure they are undisturbed.

Roads:

4.2kms in Causeway
Approx 1km in Bridges, 16km on the Island Hardstandings

Wharves:

Escort Wharf 311m length dredged to 9.7m
Submarine Wharf 213m length dredged to 11.0m
Armament Wharf 151m length dredged to 11.0m
The materials involved in wharf works were:

Dredging	670,000 cubic metres
Concrete	10,000 cubic metres
Reinforcing Steel	1,750 tonnes
Piles 500mm	20km
Pile H	1.3km
Rock Pile	250,000 tonnes



HMAS Stirling's oil fuel installation which recently came into service.

It is worth noting that during the construction period eleven principal contractors with a total workforce of 3500 have been used and only very few days were lost due to industrial trouble in what could have been a particularly vulnerable work situation.

Through a combination of luck and good management the Project enjoyed a good safety record and over the seven years of construction the number of serious accidents involving workmen on the job could be counted on the fingers of one hand.

Today, six years since commissioning, HMAS STIRLING boasts visits from more than 100 ships and submarines including those of the navies of the United States, Britain, New Zealand, Holland and Malaysia. Many vessels have visited HMAS STIRLING on more than one occasion. The largest RAN ship to have visited HMAS STIRLING is the fleet oiler HMAS SUPPLY. The largest foreign warship to have been alongside is the US Navy



The HMAS STIRLING small boats compound, the home of HMA patrol boats GERALDTON, ASSAIL and the RANR manned ADROIT along with the naval tugs TAMMAR and QUOKKA, OFL 1206 and various support vessels.



The entrance to the explosives area of the RAN Armaments Weapons and Equipment Depot on the northern end of Garden Island. The entrance is flanked by two former Royal Navy 16-inch shells, as is the entrance to the non-explosives section.

nuclear-powered guided-missile cruiser, USS LONG BEACH, displacing 17,500 tons, which visited the base in June, 1984.

HMAS STIRLING has been constructed to provide maintenance support to four destroyers and three submarines, as well as assistance to naval vessels visiting or refuelling in the Fremantle/Cockburn Sound area. Ships berthed at HMAS STIRLING have the rare opportunity to shut down all major machinery and equipment, as STIRLING's wharves have "plug in" facilities which can supply a wide range of electrical power variation, salt water, fresh water, distilled water, steam, compressed air, lubricating oil, telephone and discharge facilities for sewerage and oil.

HMAS STIRLING's workshops are fitted with the facilities required for the performance of maintenance on the wide range of equipment found in a modern warship. These diverse abilities cover many areas from electronics and optics, to precision machining and the heavy steel plate work required for ships' hull repairs.

Behind the scene, STIRLING has modern accommodation, recreation and sporting facilities; a small, but well appointed hospital; and a computerised stores supply system which is the life-blood of the repair organisation.

The management of the Base is divided into four functional departments which are:

- **Administration** which provides management of the day to day domestic and administrative activities of the Base and includes the port services division.
- **Technical** which provides technical assistance to home ported, base ported and visiting ships; planning co-ordination and



The RAN Armaments Weapons Equipment Depot wharf situated on the northern section of Garden Island.

supervision of contract refitting of ships; and maintenance of base equipments.

- **Supply** which encompasses all aspects of supply support to the base and attached ships. This includes stores, victualling, clothing, cash and personnel services.
- **Naval Police** who provide naval assets with physical security, as well as emergency services and fire fighting protection to the whole of Garden Island.

HMAS STIRLING is an extremely popular rest and recreation port for US Navy submariners. Rather ironically, many of the visiting submarines carry the names of US submarines which operated out of the Port of Fremantle during World War Two.

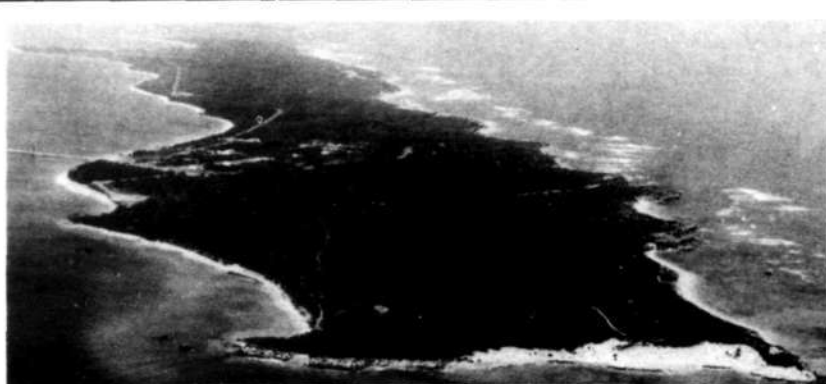
October 13, 1981, saw a major step forward for the RAN in Western Australia when the Naval Support Commander, Rear Admiral Andrew J. Robertson, AO, DSC, RAN, officially opened the new \$3.8M RAN Armament and Equipment Depot on the northern end of Garden Island. Covering an area of 47 hectares, the RANWE depot replaced the 39 year old Byford depot which was originally built for the British Admiralty in 1942.

In his opening address, Rear Admiral Robertson made reference to "the growing realisation of the need to stand on our own feet and to ensure adequate maritime defence of both major coasts".

Tuesday, February 8, 1983, saw another major step forward



The Naval Officer Commanding West Australia Area, Commodore David Orr and the Acting Minister for Defence, The Hon K. C. Beazley inspect the commemorative plaque attached to the new recompression chamber after the Commissioning Ceremony. 21 July, 1983.



Garden Island from the northern end. The RAN Armament and Equipment Depot is to the left of the photo.

for HMAS STIRLING when Captain D. R. O. S. Fox, AM, RAN assumed command as the first independent captain of the fleet support facility. Prior to that date, the Naval Officer Commanding WA Area had also commanded HMAS STIRLING. With the expansion of the base and increased activity in the Indian Ocean, the time had come to separate the two positions.

On July 21, 1983, the Department of Defence Support handed over control of the new 10-man \$1 million recompression chamber installed at HMAS STIRLING, after successfully completing acceptance trials. Construction of the chamber had been carried out at the Government Ordnance Factory at Maribyrnong in Victoria.

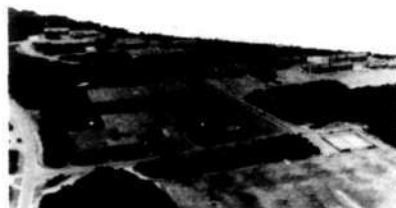
Late 1983 saw the completion of two storage tanks at the base's oil fuel installation which were handed over in early 1984.

The long time dream of home-porting destroyers on the west coast came to fruition on January 20, 1984 when the recently modernised destroyer escort HMAS STUART arrived as the first home-ported destroyer to be based at HMAS STIRLING; it was joined by the new Fremantle class patrol boat HMAS GERALDTON on February 17.

Already based at HMAS STIRLING were the hydrographic survey ship HMAS MORESBY and the Attack class patrol boats HMAS ASSAIL and the Reservist-manned HMAS ADROIT. The new 110 tonne tug QUOKKA arrived on February 5 from Portland in Victoria and the 200 tonne medium tug TAMMAR

was launched at Australian Shipbuilding Industries yards in Cockburn Sound on March 10. Planned for arrival in 1985 is a second destroyer escort and another Fremantle class patrol boat HMAS BUNBURY, which will replace the older HMAS ASSAIL.

Described once by a visiting senior officer as "being one of the jewels of Australia's defence", HMAS STIRLING continues to live up to its motto of "Go Forward".



The accommodation, messing and recreational section of HMAS Stirling.

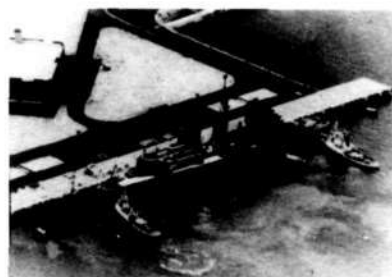


Nestled in amongst the trees, the RAN Armaments and Equipment Depot and the 151m long armament wharf on the northern end of Garden Island.

Notable Dates . . .

PRE-COMMISSIONING

- 11 August, 1975. The guided-missile destroyer HMAS HOBART became the first ship to berth in the HMAS STIRLING destroyer wharf.
- 21 August. The submarine HMAS OXLEY became the first submarine to berth at the submarine wharf. It was in company of the Daring class destroyers HMA ships VAMPIRE and VENDETTA.
- 19 April, 1976. Flagship of the US Seventh Fleet, the guided-missile cruiser USS OKLAHOMA CITY berthed at the destroyer wharf and became the first foreign warship to visit the facility.
- 14 August. Amid a tight security screen the US nuclear-powered submarine USS SNOOK came alongside for a five day visit and became the first nuclear-powered AND FOREIGN SUBMARINE TO VISIT.
- 17 October. HMAS SWAN came alongside the destroyer wharf and became the first ship to plug into shore supplied, through the wharf services.
- 11 November. The destroyer tender HMAS STALWART accompanied by the destroyer escort HMAS TORRENS came alongside for a seven day visit.
- 22 November. Task group alongside — HMA ships SUPPLY, STALWART, STUART and TORRENS alongside for a 24 hour stop-over.
- 8 December. HMA ships SUPPLY, STUART and VAMPIRE paid a four day visit to the island.
- January-March quarter, 1977. HMA ships MORESBY, CURLEW, IBIS and the patrol boat HMAS ATTACK made visits.



The first foreign warship to visit the base, USS OKLAHOMA CITY seen berthing at the destroyer wharf on 19 April, 1976 — two years before commissioning.
(Photo by courtesy of WA Newspapers)

- 27 August. The RANR-manned patrol boat HMAS ACUTE paid its first visit to its soon to be new home.
- 30 November. The submarine, HMAS OTWAY made its first visit.
- 21 June, 1978. The RAN's newest submarine, HMAS ORION paid a four day visit to the base.
- 26 July. HMAS STUART arrived for HMAS STIRLING's commissioning two days later, little knowing that five years later it would be the first home-ported destroyer at the base.
- 28 July. Commissioning Day. Ships alongside were the WA based Hydrographic Survey Ship HMAS DIAMANTINA, HMAS STUART and the patrol boat HMAS ADROIT.

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Minister for the Navy,
Canberra, ACT.

AUSTRALIAN

4 MAY 1972

**Russians
'spy' on
naval base**

A Russian lifeboat with a crew of 10 spent a weekend cruising round Garden Island, site of the proposed Cockburn Sound naval base, a West Australian MP said yesterday.

Mr W. Withers (Liberal; North Province) said he asked the Minister for Police, Mr Dolan, if State police liaised with Federal police on national security and if surveillance was made on movements of light craft operating from foreign ships in the State's ports.

"I asked a friend said he saw the lifeboat on April 22. He said it came from the Russian cargo ship Novomirgorod, which had berthed at Fremantle," said Mr Withers.

CANB. TIMES



USS SNOOK, the first nuclear-powered submarine to berth at Garden Island seen coming alongside on the grey wintry day of 14 August, 1976. Three years before HMAS Stirling was commissioned.
(Photo by courtesy of WA Newspapers)



HMAS MORESBY, based at HMAS Stirling since 1978.

POST COMMISSIONING

- 7 August, 1978. The US Navy nuclear-powered guided-missile cruiser USS TRUXTON became the first nuclear-powered and foreign warship to visit HMAS STIRLING since commissioning.
- 27 November. The patrol boat HMAS ACUTE was brought



HMAS ACUTE, HMAS Stirling based 1978-83.



The patrol boat HMAS BARRICADE at Fremantle, October 1981. Based at HMAS Stirling 1981-82.

- forward from reserve and re-commissioned at HMAS STIRLING's small boats harbour.
- 5 January, 1979. The Naval Officer Commanding WA Area and Commanding Officer of HMAS STIRLING, Commodore Neil Boas retired after a 40 year career.
 - 29 January. Commodore Robert Percy assumed command as NOCWA and Commanding Officer of HMAS STIRLING.
 - 19 April. USS TUNNY became the first nuclear-powered US submarine to visit since commissioning.
 - 23 May. The Dutch frigate KORTENAER came alongside to change a gas turbine. This was the first Netherlands ship to visit HMAS STIRLING and the first ship to undergo this type of maintenance.
 - 9 July. First visit by the Royal Navy when the frigates HM Ships DIDO and PALMOUTH came alongside.



HMAS DIAMANTINA, based 1978-79.



HMAS ADROIT, in Carreing Bay, May 1983. HMAS Stirling based since 1983.



The new Naval tugs QUOKKA and TAMMAR (rear), based at HMAS Stirling from 1984.

- 17 September. The first National Parks Ranger was appointed on the island.
- 1 October. The much loved "Grey Ghost of the West Coast" HMAS DIAMANTINA departed for the last time after a 20 year career on the west coast to the strains of "Don't Cry for Me Argentina (Diamantina)."
- 6 October. The first wedding in the HMAS STIRLING Chapel.
- 5 November. First visit by a Malaysian warship when frigate HANG TUAH (formerly HMS MERMAID) came alongside.
- 29 December. The Governor General Sir Zelman Cowan visited HMAS STIRLING.
- 1 April, 1980. Two US Navy nuclear-powered submarines alongside for the first time, HADDOCK and LOS ANGELES.
- 24 June. The guided-missile destroyer HMAS BRISBANE became the first destroyer to be base-ported at HMAS STIRLING.



HMAS GERALDTON, since 1984.

- 2 September. HMAS DERWENT came alongside for 17 days of repairs to storm damage in the Great Australian Bight.
- 5 September. The submarine HMAS OTAMA also came alongside to repair storm damage sustained in the Bight during Sandgroper '80.
- 10 October. The Royal New Zealand Navy survey ship TUI came alongside for a 24 hour stopover and became the first Kiwi to visit the facility.
- 6 February, 1981. The new Fremantle class patrol boat HMAS FREMANTLE made a brief stopover on its delivery voyage from England.
- 11 October. The submarine HMAS ONSLOW became the first submarine to offload its torpedoes at the HMAS STIRLING facility prior to its slipping in Fremantle the following week.
- 13 October. Rear Admiral Andrew J. Robertson, AO, DSC, RAN, officially opened the Garden Island Armament Depot.
- 16 March, 1982. For the first time in HMAS STIRLING's history the base had three patrol boats alongside at the island.

They were the Attack class ACUTE, ASSAIL (from Darwin refitted) and the RANR-manned BARRICADE.

- 14 May. Commodore David Orr replaced Commodore Robert Percy as NOCWA and Commanding Officer of HMAS STIRLING.
- 20 May. HMAS BARRICADE transferred to Indonesia and became KRI SIGALD.
- 18 July. Exercise Beacon South which saw 1000 US Marines living in tents within HMAS STIRLING's boundaries on Garden Island. Two US support vessels, the water tanker MV PATRIOT and equipment carrying MV LYRA came alongside during the exercise to offload and reload.
- 25 October. The destroyer escort HMAS SWAN became the first ship to use the RAN Armament and Equipment Depot explosives wharf when it de-stored prior to slipping in Fremantle.
- 2 December. The patrol boat HMAS AWARE was transferred to the Adelaide Port division of the RANR after refitting at HMAS STIRLING.
- 22 December. Assisted by the RAN, the WA Maritime Museum covered the wreck of the former American whaler DAY DAWN, located in the HMAS STIRLING small boats harbour in Careening Bay, the 360 ton wreck was covered with 400 cubic metres of sand to preserve its timbers.
- 8 February, 1983. Captain Daryl Fox assumed command as the first independent Commanding Officer of HMAS STIRLING. Prior to this date the position was held by NOCWA.
- 21 March. The guided-missile frigate HMAS CANBERRA became the first FFG to berth at HMAS STIRLING, ironically on the ship's second birthday.
- 21 July. The new \$1 million re-compression chamber installed at HMAS STIRLING was handed over.
- 28 July. The facility's 5th Birthday with the Commanding Officer, Captain Fox and the youngest sailor, Seaman Michael Vidulich (17) cutting the commemorative cake.
- 26 August. HMAS ADROIT transferred to the Fremantle Port Division of the RANR.



The recently modernised HMAS STUART, at HMAS Stirling from January 1984.

- 22 September. The guided missile destroyer HMAS HOBART had the distinction of being the 100th visitor since STIRLING's commissioning.
- 23 October. Open Day. Navy Week '83. A record crowd in excess of 15,000 swarmed over the base and warships alongside.
- 20 January, 1984. HMAS STUART berthed at the base and became the first home-ported destroyer at HMAS STIRLING.
- 5 February. The new naval tug QUOKKA (110 tonnes) arrived from Victoria.
- 17 February. The new Fremantle class patrol boat HMAS GERALDTON arrived at HMAS STIRLING as first of her class to be based there.
- 10 March. The new naval tug for HMAS STIRLING, the 300 tonne TAMMAR was launched by Mrs Judith Orr, wife of the NOCWA, Commodore David Orr at the yards of Australian Shipbuilding Industries in Cockburn Sound.



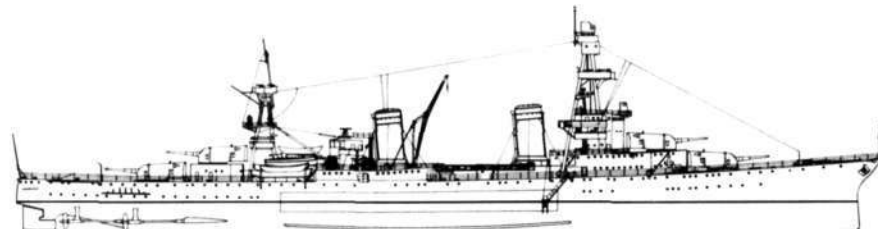
The nuclear-powered guided-missile cruiser USS LONG BEACH berthing at HMAS Stirling in Western Australia on 22 June, 1984. LONG BEACH is the largest foreign warship to have visited HMAS Stirling.

US CRUISERS IN THE THIRTIES

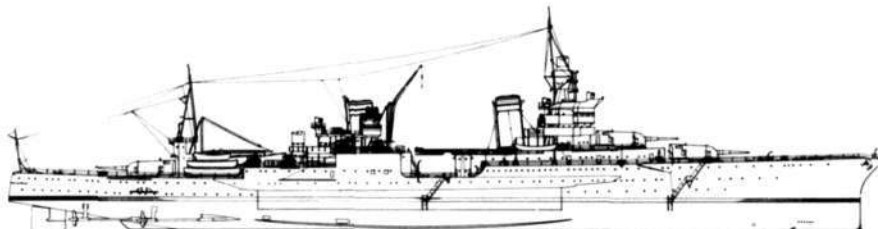
In previous issues we have reviewed the publications "US Aircraft Carriers" and "US Destroyers" Illustrated Design Histories, both by Norman Friedman. The latest book in the series is "US Cruisers", as usual with ships drawings by A. D. Baker, III.

Three profile drawings from the new publication, courtesy of the artist, are reproduced here.

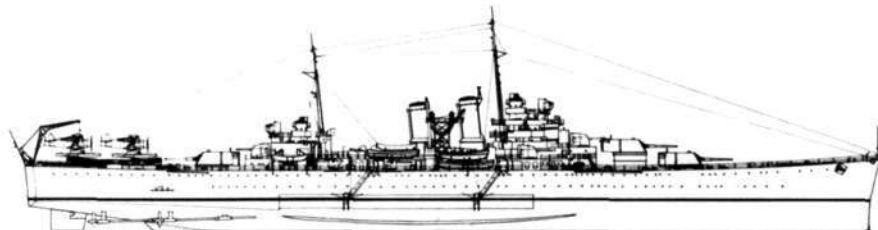
("US Cruisers: An Illustrated Design History", 586 pages, 250 illustrations including 50 line drawings, 8 1/2" x 11". Published by Arms & Armour Press (UK) and the Naval Institute Press (USA).)



INDIANAPOLIS and her sister PORTLAND (CA33) epitomised US Navy cruiser design concepts of the late 1920s. Displacing 11,579 tons on her trials, she could achieve 32.7 knots on the 107,000 horsepower delivered to her four propellers. Heavily modified during World War II, INDIANAPOLIS frequently served as the flagship of Admiral Raymond A. Spruance. While returning from delivering atomic weapons to Okinawa, the ship was sunk by a Japanese submarine on 29 July 1945, the last US Navy major combatant casualty during World War II. Drawing by A. D. Baker III, from Norman Friedman, US Cruisers: An Illustrated Design History, published by the Naval Institute Press, Annapolis MD 21402.



WICHITA, launched on 16 November 1937 at the Philadelphia Navy Yard and commissioned on 16 February 1939, was the only ship of her class, essentially being a heavy cruiser version of the light cruiser Brooklyn class, with nine 8-in guns in three turrets instead of fifteen 6-in guns in five turrets. The 13,700-ton full load displacement, 608-ft, 4-in-long ship served as a prototype for the numerous heavy cruisers of the Baltimore class and saw extensive service in both the Atlantic and Pacific during World War II. CA 45 was placed in reserve on 15 July 1946, was stricken from the Navy List in 1959, and later scrapped. Drawing by A. D. Baker III, from Norman Friedman, US Cruisers: An Illustrated Design History.



PENSACOLA and her sister, SALT LAKE CITY (CA 25), were the first "Treaty" cruisers built for the US Navy after the Washington Naval Treaty of 1921. Commissioned on 11 December 1929, CA 24 carried ten 8-in guns in four turrets — one more such gun and one more turret than any later US Navy "heavy" cruiser. CA 24 initially also carried trainable torpedo tubes and had four 5-in anti-aircraft guns. Extensively modified, the ship saw arduous World War II service and the 1946 Bikini A-bomb tests, finally being sunk as a target on 10 November 1948. Drawing by A. D. Baker III, from Norman Friedman, US Cruisers: An Illustrated Design History.

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4.



1. H.M.S. 'BOXER' — The first of the Stretched, Batch II ships of the Class and the fifth Type 22 all-missile frigate. Another four of these ships, all built by Yarrow — H.M.S. 'Broadsword', 'Battleaxe', 'Brilliant' and 'Brazen' — are already in service with the Royal Navy. A further five Type 22 Frigates are also under construction by Yarrow.
2. H.M.S. 'COTTESMORE' — Hunt Class Mine Counter Measures Vessel now in service with the Royal Navy. Built in glass re-inforced plastic and incorporating comprehensive hunting and sweeping equipment.
3. 1,900 tonne LIGHT FRIGATE — a compact high speed fighting ship capable of being fitted with a wide choice of main machinery, weapons and sensors.
4. LANDING SUPPORT SHIP — Capable of beach landing heavy military vehicles and troops and fitted with helicopter facilities. The ship is also fully equipped for the disaster relief role.

NAVAL ROUNDUP

— Compiled by
"GAYUNDAH"

NAVY'S NEW SUPER GUN IN ACTION

One of the most important lessons to emerge from the Falklands conflict was the need for the modern warship to have the capability to defend itself effectively against air and ship-launched sea-skimming missiles such as the EXOCET.

SYDNEY, the RAN's latest Guided Missile Frigate (FFG), is fitted with the PHALANX Close In Weapon System (CIWS) which is designed as the last line of defence against such missiles.

On 29th June, SYDNEY demonstrated the effectiveness of her PHALANX in trials off Jervis Bay. The system engaged a Delmar target towed by an A4G Skyhawk of the Fleet Air Arm. A large number of hits were scored on the first firing run and the target was destroyed.

The PHALANX Close In Weapon System employs a six-barrel 20mm Gatling gun which has a rate of fire of 3000 rounds per minute. It is automatically aimed and fired to provide a quick reaction, automatic, defence against sea-skimming missiles. A unique feature of the CIWS is its ability to measure the amount by which the bullets are missing the target; the system then adjusts the point of aim to eliminate that error. In this way, PHALANX has a very high success rate against small targets.

Three other RAN FFGs, (HMA Ships ADELAIDE, CANBERRA and DARWIN) will also be fitted with PHALANX CIWS.



HMAS SYDNEY's super gun in action. Hundreds of 20mm bullets were fired against the Delmar target. (Photo — ABPN Keith Cole, RAN)

EXERCISE RIMPAC 84

Eighty ships, 250 aircraft and more than 50,000 sailors, airmen and marines participated in the five-nation maritime exercise Rimpac 84 during late May and June.

The five "Rim of the Pacific" nations participating were Australia, New Zealand, Canada, Japan and the United States. Australia was represented in the exercise by the ships SUPPLY, ADELAIDE, and PARRAMATTA, the submarines OXLEY and OVENS, three RAAF P3C Orions and one RAAF B707 transport aircraft.

Rimpac 84, the ninth in a series of significant international maritime exercises of the same name, and the third to include Japanese units of the Maritime Self Defence Force, was held in both southern Californian waters and mid-Pacific areas.

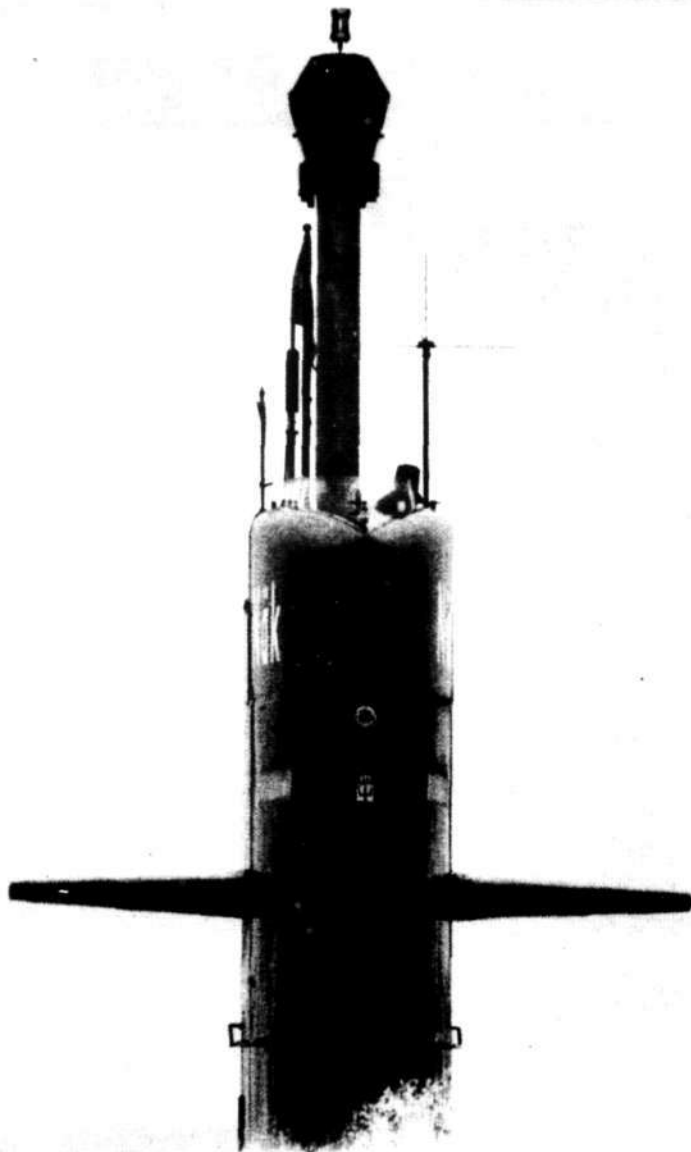
The aim of the exercise, which came under the overall co-ordination of the Commander Third Fleet, Vice Admiral Donald S. Jones, USN, was to improve the tactical capabilities of participating nations and enhance international maritime understanding.



USS MAHLON S. TISDALE during Rimpac 84. (Photo — RAN)



USS WILLAMETTE, a Rimpac 84 participant. (Photo — RAN)



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COMMISSIONING OF NEW HELICOPTERS

Senior Defence officials attended a commissioning ceremony at RAAF Base Fairbairn, ACT, on 22nd May, to mark the introduction into RAN and RAAF service of 24 Ecureuil AS350B (Squirrel) helicopters.



New Squirrel helicopter for the Fleet Air Arm. (Photo - HMAS Albatross).

Nine of the 24 helicopters had already arrived at Fairbairn, with the remaining 15 expected by the end of the year. The ceremony included a formation fly-past of the Squirrel helicopters, followed by a single aircraft-handling demonstration.

Of the 24 helicopters, 18 will replace the RAAF's Iroquois UH-1B models as training and search and rescue aircraft, and six will be used by the RAN for light utility work. Some of the six are likely to embark on the Navy's new FFGs as an interim arrangement, subject to successful trials.

MINISTER KILLS CARRIER SPECULATION

The Acting Minister for Defence, Mr Kim Beazley, announced on 22nd June, that speculation about the purchase of a helicopter carrier for the Royal Australian Navy was inaccurate and misleading.

Referring to an article in the Canberra Times of 22 June, Mr Beazley said that any inference that the government was giving further consideration to the purchase of a anti submarine helicopter platform was incorrect.

"It is public knowledge that the Navy has been directed to develop contingency plans to provide a seagoing platform for Sea King helicopters, but I emphasise that there is no intention to implement such plans unless our strategic situation were to significantly deteriorate.

"Approaches have been made to Navy by a number of companies with interests in shipbuilding and conversion. This is perfectly understandable given the surplus of merchant shipping now available and recent developments overseas," Mr Beazley said.

HARPOON MISSILE SHOT ON TARGET

The guided missile frigate HMAS ADELAIDE briefly took the spotlight in the five-nation maritime exercise Rimpac 84, off the coast of Hawaii in early June, when she fired her first Harpoon missile and scored a direct hit on the target.

ADELAIDE's missile-firing performance, which was against a 30ft radio-controlled motor-boat type target, prompted the USN Third Fleet Commander, Vice Admiral Jones, to signal: "This is a very bright spot in Rimpac 84 and shows the professionalism of all concerned."

The Harpoon firing, which was carried out at a range of more than 50 miles, and which was reported to have impacted midships on the small target, was only the second by a ship of the Royal Australian Navy. The first, which also scored a hit, was fired by CANBERRA in mid-1982 during her initial acceptance trials off the West Coast of the United States.

In Canberra the Chief of Naval Staff, Vice Admiral D. W. Leach, said news of the successful missile firing confirmed that in a comparatively new arena of naval warfare the RAN had the capability and had developed the expertise to confidently move into the new missile era of the 80s.

He said that because the Harpoon was a highly sophisticated and very expensive weapon, few opportunities were presented to RAN ships to test their capabilities. When the opportunities did arise, it was gratifying that the RAN could report a 100 per cent success rate.



HMAS ADELAIDE firing a Harpoon surface-to-surface missile during Rimpac 84. (Photo - RAN)

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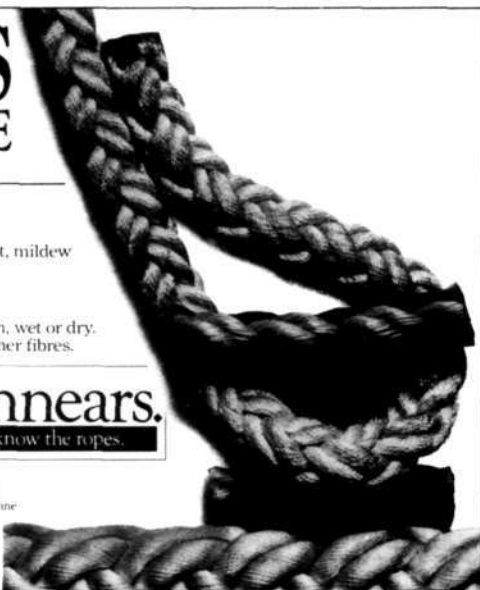
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HMAS GEELONG COMMISSIONED

The Navy patrol boat, HMAS GEELONG, was commissioned into the RAN at a ceremony in Cairns on Saturday, 2nd June.

GEELONG is the twelfth of fourteen Fremantle class patrol boats to be built by North Queensland Engineers and Agents Pty Ltd of Cairns.

The patrol boat is 42 metres long, displaces 220 tonnes and has a ship's company of 22 under the command of LEUT Harold Hickman. LEUT Hickman was born in Geelong and joined the RAN in 1967. He was commissioned in 1971.

FAREWELL FLIGHT FOR TRACKERS

Seven S2 Grumman Tracker anti-submarine warfare aircraft from the Royal Australian Navy staged farewell flights over Sydney and Canberra in early June to mark the end of operations with the Fleet Air Arm, scheduled for 30th June. After that date, all fixed-wing air support for the Fleet is provided by the RAAF.

"The Trackers have made a remarkable contribution to the nation during their 16 years of service in the RAN," the Chief of Naval Staff, Vice Admiral D. W. Leach, said. "They have flown more than 67,000 hours on a variety of tasks — anti-submarine operations and training, coastal surveillance, oil rig patrols, search and rescue missions and Fleet support."

"It is a tribute to the aircrews and maintainers that in all that time only one aircraft has been lost in a flying accident."

"Even more remarkable is that there has not been a single fatality — a record which bears testimony to the skills of all concerned with their operations."

Vice Admiral Leach said that although fixed-wing flying ceased at the end of June, this did not mean the end of the Fleet Air Arm.

"The Government has given assurances that the Navy's helicopter force would continue to expand. I am confident that the Fleet Air Arm will continue to provide a valuable contribution to the Fleet, and the nation, in the best traditions of Australia's naval aviation," he said.

European Spotlight

Photos courtesy:

Wright & Logan
20 Queen Street, Portsea
Portsmouth, PO1, 3HL, England.



The former Royal Navy aircraft, and later commando carrier, HMS BULWARK leaving Portsmouth, May, 1984, to be broken up.



Trackers — the last farewell. (Photo — RAN)



HMS OPOSSUM, March, 1984, celebrates 21 years this year and to mark the occasion she has had a facelift. Sporting her new Australian-style sonar dome makes the vessel the first of the newly designated Opossum class submarines.



One of the new Dutch Standard class, PHILIPS AN ALMONDE, visiting Portsmouth, March, 1984



The Dutch guided missile frigate DE RUYTER arriving Portsmouth.



Swedish minelayer and support ship CARLSKRONA, March, 1984.



The Vosper-built Egyptian missile corvette (fast patrol boat), AL BATNAH, during trials. A small helicopter is resting atop the platform aft.



Two views of the new Belgium frigate WESTDIEP, taken February, 1984, during a training period at Portland. Note the Exocet launchers aft of the mainmast.

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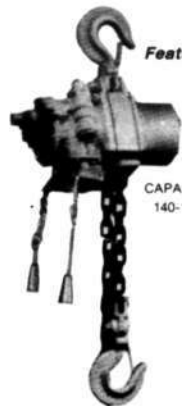
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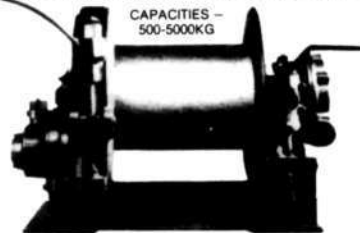
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MARTINDALE ANNIVERSARY

by TOM JACKSON

MEMBERS of the original wartime crew of the converted luxury yacht **MARTINDALE** gathered in Sydney in mid-July to recreate their departure for the battle zone in 1944.

This 40th anniversary commemoration not only involved the Second World War vessel and seven of the crew, but also the identical departure point used in 1944. In that year the 20-metre craft left Sydney for New Guinea waters (including some uncharted areas), to carry out air-sea rescue duties. **MARTINDALE** picked up seven airmen who had been forced down off Goodenough Island during this period.

Built in 1932 for the wealthy South Australian Mortlock family, who lived in Martindale Hall at Mintaro, the 56-tonne yacht was amongst the most luxurious of her type. The following excerpts are reproduced from contemporary newspapers.

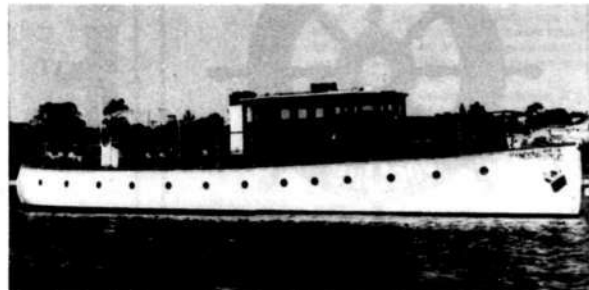
NEW LUXURY YACHT LAUNCHED Martindale Ready For Cruise Soon

Before she took the water from Searles' slip, Birkenhead, yesterday, the new luxury motor yacht built for Mr J. T. Mortlock, commodore of Port Adelaide Sailing Club, was christened **Martindale** by Mrs R. F. Mortlock, mother of the owner.

The launching was witnessed by a large crowd, and, with a party of visitors on board, toasts were honored and tributes paid to the product of South Australian craftsmanship.

The **Martindale** will be ballasted and provisioned, and the finishing touches applied,

while she is at her moorings, in preparation for a several weeks' cruise of South Australian ports by Mr Mortlock and a party of friends. The trip is expected to begin in about a fortnight's time, after the yacht has been through her trials.

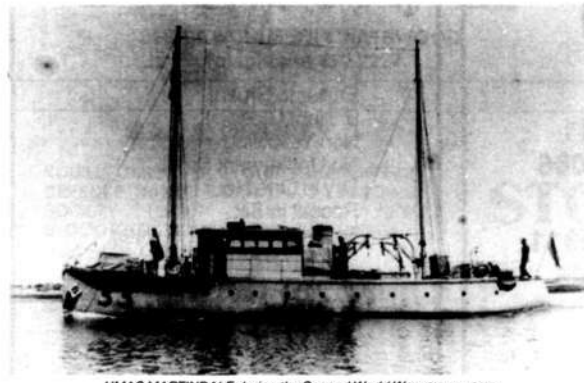


MARTINDALE 1963 (Photos ROSS GILLET)

Fine Craft

The **Martindale** is a single-screw cruiser, 66ft long, with a beam of 14ft 2in and a draught of 5ft 10in. An interesting feature is that more than 30 natural-grown "knees" were used. They are of myall timber from Mr Mortlock's station in Central Australia. A spacious and well ventilated compartment is provided to accommodate a crew of three.

There are two staterooms, one of which was designed for the owner's use. Both rooms have 6ft 6in of headroom, and are replete with every convenience, including reading lamps, wardrobes, electric fans, and bookshelves. The saloon is a spacious compartment in the afterpart of the yacht, and has sleeping accommodation for four. The saloon, staterooms, passage, and vestibule are panelled with mahogany and coloured engravings of celebrated sailing ships of the past adorn the saloon. A wireless set capable of picking up all Australian broadcasting stations is installed in the saloon. The kitchen contains every modern convenience, including an



HMAS MARTINDALE during the Second World War. (Photo - RAN)



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Crew members recreating their 1944 departure. (Photo — LSPH Peter Simpson)

electric refrigerator, and the bathroom has a full-size bath and shower with hot and cold water. She is driven by a semi-diesel engine, and the oil bunkers will carry 300 gallons, sufficient for a cruising range of 1200 miles. The steering wheel is of teak, part of which came from the old gunboat Protector and part from a yacht at one time owned by a former King of Norway.

July 19, 1932

MARTINDALE GIVEN TRIAL RUN

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The new luxury motor yacht Martindale, owned by Mr J. T. Mortlock, the commodore of the Port Adelaide Sailing Club, made its

first trial trip yesterday afternoon. The course was from the sailing club's mooring at Birkenhead, where the craft has been lying since she was launched about a week ago, to the Hougemoni's anchorage off Semaphore. The average speed of the vessel was eight and a half knots.

The craft was taken to the anchorage in the open sea to test her seaworthiness against the tide and the wind, and, according to her owner, the trial was a complete success.

"Her engines were not run full out at any stage," said Mr Mortlock. "Some time will elapse before I do that, because I want them to be properly run in. Marine engines must be properly nursed if the best results are to be obtained from them."

He added that the sailing capabilities of the Martindale were not tested during the trip; that would be done later.

Mr Mortlock was accompanied on the cruise by the master (Captain R. A. Tapley), and Messrs E. Scarfe, who was one of the designers of the craft, R. T. Searles (the builder), and V. A. Richards (an engineering expert).

At the end of next week it is proposed by Mr Mortlock to take the Martindale on an extended cruise to the islands in Spencer Gulf and then on to Port Lincoln. The Martindale, which will be the flagship of the Port Adelaide Sailing Club, cost approximately £4000. She is fitted with all the latest equipment for pleasure cruising. She can carry enough fuel for a 1200 mile cruise.

July 29, 1932

MARTINDALE was requisitioned in 1943 by the RAN, but little is known of her fate after the war. The present owner is Sydney business man Victor Nash, who came across the vessel in classified advertising which listed her for sale in a rather sorry condition. Mr Nash is painstakingly restoring this fine old craft to her 1930s splendour.

As part of the 40th anniversary celebrations he received permission to depart from the same wharf used four decades ago. Moreover, MARTINDALE flew the same White Ensign which signalled her departure for Milne Bay and which has been carefully preserved by crew member Paddy Malone of South Australia.

Other survivors of the wartime deployment are skipper Reg Webb and Keith Collison (both South Australians), Alistair Knox of Victoria, George Sangster of Queensland and Sydney-siders Bon Deany and Ross Gourlay.

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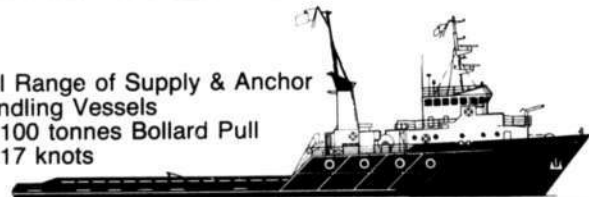
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BOOK REVIEW ARTICLE

"Merchant Ships At War"

The Falklands Experience
by Captain Roger Villar, DSC, RC

Jointly published by Conway Maritime Press and Lloyd's of London Press recently, this book is a unique and most informative account of the British merchant ships taken up from trade for the Falklands War. These ships were used in direct support of navies, and on occasions in actually doing the work of warships.

This account of the urgent action taken by the Ministry of Defence and the other Government departments and is a tribute to the dockyard workers who had already received their redundancy notices and worked willingly for countless hours to modify ships to enable them to sail for the South Atlantic in incredibly short spans of time. Flowing tribute is paid to these ships and their crews who performed magnificently.

Consisting of 15 chapters including Selection and Modification, Dockyards and Logistics, The Royal Fleet Auxiliary and covers all types of ships — Troopships, assault ships, tankers, repair ships, aircraft ferries, stores ships, minesweepers/minerhunters and their support ships, tug hospital ships along with despatch and mooring vessels.

The book is supported by some excellent photographs such as those of fitting one of two bulkheads being installed in the ferry Rangatira, a rare shot of the devastating damage caused to HMS GLAMORGAN by an unexploding Exocet missile, three photos of the damaged Argentinian submarine SANTA FE being towed by RFA tugs and one of the minesweeping trawler JUNELLA pounding through a South Atlantic Swell.

Three interesting appendices shows summary lists of ships in the order in which they were taken in hand for modification, activities of Royal Fleet Auxiliaries and the backgrounds of the ships taken up from trade.

"Merchant Ships at War" is an eye-opening book that should be read by all involved with the maritime defence of Australia. It is available in Australia from Princeton Books, Cnr Mills and Herald Streets, Cheltenham, Victoria at a cost of \$29.95.

The following extract from the book describes the all important aircraft ferries.

The Aircraft Ferries

More lessons were learned in converting ships to carry aircraft than in almost any other role. A number of proposals for such modifications had been made commercially long before Operation Corporate.

None had however been pursued with the single exception of the partly complete Anglo-American Arapaho project for using prefabricated containers to convert a ship rapidly to operate anti-submarine helicopters. Sophisticated proposals could not be considered in the time available. Yet it was essential to have a mobile reserve of aircraft and the need was realised very early on. In peacetime HMS HERMES and INVINCIBLE together carry no more than 10 Sea Harriers and 18 Sea King helicopters when the carriers sailed for the South Atlantic. They faced the modern Argentine Air Force with over a hundred jet aircraft capable of reaching the battle area.

The 14,946-ton Roll-on Roll-off container cargo ship ATLANTIC CONVEYOR, owned by the Cunard Steam Ship Company, was the first to be taken up as an aircraft ferry. She was readily available at Liverpool where her owners were about to bring her forward from reserve. As well as a large flat deck stretching forward from a bridge aft, she was designed as a cargo carrier with a Roll-on Roll-off capability and six

cargo decks, interconnected by ramps, with the main deck opening on to a stern ramp. This ramp was designed to be lowered in harbour onto a prepared standing on a jetty which would support the outer extremity. Her cruising speed was 22 knots with a crew of 34 who all volunteered for service. She was requisitioned on 14 April and sailed almost immediately for Devonport with the initial survey team remaining on board to work out the details of her conversion.

Her deck load was to be a mix of aircraft types including Harriers and the big Chinook helicopters and clearly she had to be able to fly them on and off. Both of these aircraft can impose considerable landing loads on the flight deck besides having heavy all-up weights for normal movements. The upper deck had been designed to carry loaded containers stacked four high and was found to be perfectly adequate for the heaviest aircraft except for the hatch covers over the deep holds. These covers fortunately fitted flush into the upper deck and doubler plates were fitted over those in the projected landing area abaft the breakwater at the forward end of the upper deck.

Aircraft parking was immediately aft of this landing area but still forward of the bridge and some protection against the sea was given by stacking large containers all round the sides. A second landing pad was also created abait the bridge superstructure by extending the deck plating and filling in the corners.

The RAF's ground attack Harrier GR3 was to be included in the load but these were not designed for sea service and have considerable quantities of magnesium in their structure which deteriorates rapidly in a salt atmosphere. They must therefore be washed down with freshwater at frequent intervals and a deep ballast tank had to be cleaned out to give storage for 500 tons of freshwater as well as pumps and pipework installed to take the water to the washing points.

With all that extensive list of work, the ship was superficially capable of operating as an aircraft ferry. Other modifications were usually the standard ones — RAS equipment for both liquids and solids; RN type communications including satellite communications and cryptographic machines; and a main broadcast. A satellite navigator was already fitted. Since there would be no prepared jetty on to which to lower the stern ramp to unload stores, additional chains had to be fitted to enable it to be lowered to the horizontal where a helicopter could lift off a load or a meffloft be used.

All that extra equipment, and the maintenance and operation of the aircraft, called for more men and a naval party of about 100 was made up though it was eventually found to be too few to maintain aircraft properly. That meant more living quarters and domestic facilities. Some 100 or more billets were found by altering existing cabins, converting reception spaces, and using two specially equipped Portacabins each with berths for 12 men. The number of life rafts was increased pro-rata and the ship's hospital supplemented with a frigate's 4-bed sickbay while first aid stores and stretchers were sited all round the ship. As final items, Devonport Dockyard made good all outstanding defects and, in concert with the owners, ensured that the ship carried spares for a minimum of 60 days normal usage.

Eleven days after arriving at Devonport, ATLANTIC CONVEYOR sailed with a cargo of helicopters including four Chinooks. She arrived at Ascension on 5 May where she took on eight Sea Harriers (the reformed 809 Naval Air Squadron) and six of the RAF's GR3 ground attack Harriers and then went south, with 25 aircraft on board, in company with the amphibious group. On 19 May she reached the Total Exclusion Zone and flew off the 14 Harriers to HERMES and INVINCIBLE who had lost three of their original 20.

It was planned that she should enter the San Carlos assault operations area on the night of 25-26 May to disembark helicopters and stores but at 1422Z (GMT) on the 25th as she was beginning to close the land, she was hit by two air launched Exocet AM39 missiles. They penetrated her main cargo deck on the port side aft causing explosions and a fireball. The ensuing fires were catastrophic as the ship was carrying a large amount of highly inflammable cargo and acetylene gases.

Three men died before she was abandoned and a further nine failed to survive the icy sea including her Master, Captain Ian Thorn, who was last to leave the ship with his RN counterpart. Despite all efforts to save her, she sank three days later taking with her a lot of much needed equipment and stores, all but one of her Chinook heavy-lift helicopters, and six Wessex helicopters. But at least she had flown off her Harriers (and an equally welcome tank of LOX) to provide much needed air strength.

Meanwhile her sister ship, ATLANTIC CAUSEWAY, had been requisitioned on 4 May and was taken in hand at Devonport. Many lessons had already been learned with ATLANTIC CONVEYOR and six

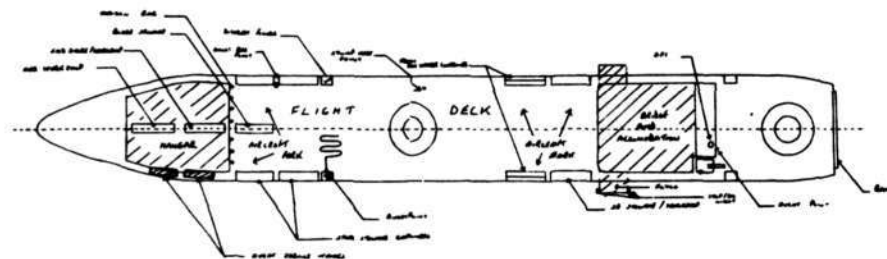
ATLANTIC CAUSEWAY left Devonport on 14 May carrying 20 Wessex and 8 Sea King helicopters and reached Ascension nine days later after fueling at Freetown. She spent little time there other than to receive some supplies by helicopter and to fit machine guns on the bridge wings and went south almost immediately to reach the Total Exclusion Zone on 27 May. Four days later she disembarked her aircraft in San Carlos Water and began unloading stores during intermittent air attacks. After three days she retired 200 miles to the east and headed back to Freetown. She was far from the front line, but carried aircraft and stores which were frequently used as a refueling base for helicopters as much as for a good meal.

As experience was gained each conversion became more sophisticated. CONTAINER BEZANT had everything that ATLANTIC CAUSEWAY had but the installations were much

All the work was completed by up to 500 men in six days and

They did a job which could not have been done otherwise. In no sense of the word were they acting as operational aircraft carriers. They had none of the sophisticated command and control equipment needed to direct aircraft against an enemy. But in bringing aircraft to the Fleet and the forces ashore, and forming a mobile reserve which could also maintain them, as well as carrying considerable quantities of stores, they were splendid. It is thus most significant that the Navy has taken up **ASTRONOMER** again for conversion to a helicopter ship using parts of the ship's own project equipment to help them. The lessons learned in a hurry during Operation Corporate are clearly going to be put to longer term use.

(Reprinted from *Merchant Ships at War* by Captain Roger Villar, DSC, RN.)
PUBLISHED BY CONWAY MARITIME PRESS



Flightdeck layout of ATLANTIC CAUSEWAY from "Merchant Ships at War" by Captain John Villar, DSC, RN, published by Conway Maritime Press and Lloyds of London Press.

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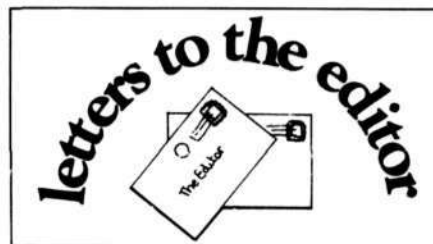
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17 Fifth Street
Weston, 2326
29 June, 1984

Dear Mr Gillett,

I am firmly in favour of Australia possessing an efficient navy and indeed have some strong family connections with the RAN and RN both in World War 1 and World War 2. In the latter war I made several attempts to enlist in the RAN but failed to get outside my reserved occupation as a mineworker.

To me the most urgent need for addressing our naval needs lies in Indonesia and the obvious lack of any US or ANZUS response should we become the object of that military dictatorship's aggression. While I don't accept the USSR at its own valuations, neither do I accept what might be deemed as our own posture vide alliances based on anti-Sovietism which are indeed hollow trends to anyone who cares to look objectively at facts. Anti-Sovietism as distinct from legitimate criticism of Sovietism on the same level as legitimate criticism of the so-called Free World has always led to damaging results, vide Spain, Munich, the Nazi-British Naval Agreement and so much more.

I am prompted to write in this vein following the John Bird piece in your issue of July 1984. Why do we not simply tell the Soviets to take their embassy, etc out of Australia, withdraw our own from Moscow and also tell them that we no longer wish to trade with them, even though a large part of their accounts with us is paid in gold. We should also tell them that whatever Indonesia might attempt in our direction is no business of theirs and we would not wish any assistance from them — diplomatic or otherwise.

Yours sincerely,
JIM COMERFORD.

PS: I am one of the generation that listened each day for radio news about the battles for Moscow, Stalingrad, Berlin, Alamein, Normandy and so much more. In those times the respectable were wont to go on about 'our gallant ally'. So much so that George VI sent the Rosshin's a diamond studded sword as his personal respect for what was done at Stalingrad.

539A King Georges Road
Penshurst, 2222
11th July, 1984

Dear Sir,

The photograph at the top page 29 of the July number of 'The Navy' is of particular interest to me and gives rise to recollection which perchance may be of historical interest to some of your readers.

The photograph shows HMAS KUTTABUL and two other vessels moored at Garden Island during WWII, and the outside ship is the steam trawler 'SAMUEL BENBOW'.

At the outbreak of WWI the British Admiralty hired almost the entire fleet of trawlers in the fishing industry but needing still more, embarked upon an extensive building programme, the outcome of which was a large number of Admiralty owned trawlers all of which were named after men who served in HMS VICTORY and HMS ROYAL SOVEREIGN at the battle of Trafalgar. 'SAMUEL BENBOW' was one of them. I can recall the names of many more and I served in 'JOHN CAMPBELL' and 'WILLIAM BEAUMONT', minesweeping the

'Northern Barrage with the volunteer post war 'Mini Clearance Service in 1919. It was probably in this operation that I first saw 'SAMUEL BENBOW' for I think all the trawlers working on the 'Barrage' from Oskney to Norway were Admiralty owned, but in 1918, I was in the trawler 'ALASKA' in the Northern Patrol based on Lerwick, Shetland, and there were many of the Trafalgar trawlers as I like to call them operating there and 'SAMUEL BENBOW' could have been one of them.

I think it was around 1930 that I first saw her in Sydney. Like most of her sister ships she had been sold into the Fisheries. Many of them saw service in WWII by which time their names had been changed. 'SAMUEL BENBOW' I believe survived the Second War but I have no knowledge of her after that.

Many thanks for the excellent of 'The Navy'.

Yours faithfully,
S. C. GILES.

7 Joyce Street
Elwood, 3184
Phone: 531 8906
July 9, 1984

Dear Sir,

Full marks to John Mortimer for his well-researched article on "HMAS HOUN" (The Navy, July 1984).

It is the most accurate record of the early vessels of The Commonwealth Naval Forces, one has seen.

You can imagine what nostalgic memories it aroused in me as I trained aloft in eight of them; commencing with the TB LONSDALE in May, 1909 (I slung my hammock in the old CERBERUS, and drilled at her 10-inch ML Guns in 1909 and 1910). I also did periods of sea-training in the destroyers PARRAMATTA and YARRA in 1911, 1912 and 1913, and in the 3rd class Protected Cruiser PIONEER in April-May, and on 1st August, 1914.

Research (up to today) has disclosed that it is a "toss up" whether Mr H. Batt, aged 93, of East Gosford, or I, aged 90½, is the "earliest living person" who joined the Commonwealth Naval Forces. I joined at the now non-existent Williamstown (CERBERUS) Naval Depot on 30th April, 1909, and understand that Mr Batt "brought out" (as the old matelots say) the battle-cruiser AUSTRALIA, in October, 1913.

Sadly, one never thought he would live to see — because of circumstances beyond his control — the gradual drift of the RAN away from the RN mother which gave it its birth and infant nature, and is becoming almost a division of the USN. "Anchor's Away" is given equality with "Hearts of Oak".

Yours sincerely,
R. S. VEALE,
Commander RANR Retd.

PS: Congratulations! Surely, the July 1984 edition of THE NAVY is the best ever.

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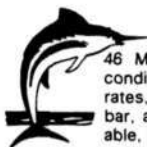
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HMNZS WELLINGTON RETURNS TO SERVICE

(All Photographs courtesy Photographic Section,
HMNZS PHILOMEL.)



HMNZS WELLINGTON, 1984. (Photo - RNZN)



Refitting was not only confined to the ship's exterior. Here drydock workmen complete some important welding work.



The foremast is fitted into place on 19th April, 1984.



Back in December, 1982, some enterprising crew member aboard WELLINGTON attached the above sign to the frigate.



WELLINGTON in the Calliope drydock, Auckland, during her post-Royal Navy refit. The main 4.5-inch turret, all aeriels and minor armament has been removed.

NAVY LEAGUE DIVISIONAL & CADET NEWS

TS VANCOUVER ALBANY WESTERN AUSTRALIA

Saturday, 17th June at 2 pm saw a marvellous turn out of distinguished guests, parents and cadets for the official presentation of the recently purchased Zodiac rescue craft.

The President of the Navy League Albany (Jan Hawkins) officially handed over the Zodiac to Commanding Officer TS VANCOUVER, SBLT Reitze who expressed thanks on behalf of Staff and Cadets.

Following the presentation of the Zodiac rescue craft by the Navy League the cadets launched their boats from off the slipway beach and gave an impressive display of their sailing skills. The main item being formation sailing behind the Zodiac with Mr Crimp, the sailing master, acting as commodore, and PO Mrs T. Madden as coxswain of the rescue craft.

The four boats with Leading Seaman Hinge, Shirley, Waghorn and Heaney as coxswains proceeded under flag signals from the commodore to sail, firstly, in line astern until they were directly out from the beach, when they turned and sailed directly to the beach, where all the spectators were present, maintaining a line abreast formation until, at the given signal they broke left and right in a Prince of Wales feather formation.

Following the formation sailing and after some individual display of sailing skills, they all carried out capsizing drill showing their abilities to right their craft safely.

On returning to the Unit afternoon tea was served by the ladies of The Navy League. Later in the evening a casserole tea was held at the Unit, this was also very well attended.

Recently two of our Cadets LS John Waghorn and LS Tim Shirley have joined the ranks of apprentices at HMAS Nirimba, NSW. We wish them both every success for their future.

THE NAVY LEAGUE OF AUSTRALIA

Notice is hereby given that the Annual General Meeting of The Navy League of Australia will be held at the National Press Club, Canberra, on Friday, 16th November, 1984 at 8 pm.

BUSINESS

- (1) To confirm the Minutes of the Annual Meeting held in Melbourne on Friday, 11th November, 1983.
- (2) To receive the report of the Federal Council and to consider matters arising therefrom.
- (3) To receive the financial statements for the year ended 30th June, 1984.
- (4) To elect Office-Bearers for 1984/85 as follows:
 - (a) Federal President
 - (b) Federal Vice-Presidents (2)
 - (c) Auditor

Nominations for these positions to be lodged with the Honorary Secretary prior to the meeting.
- (5) General Business: To deal with any matter notified in writing to the Honorary Secretary by 2nd November, 1984 by order of the Federal Council.

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J. H. H. PATERSON,
Honorary Federal Secretary.

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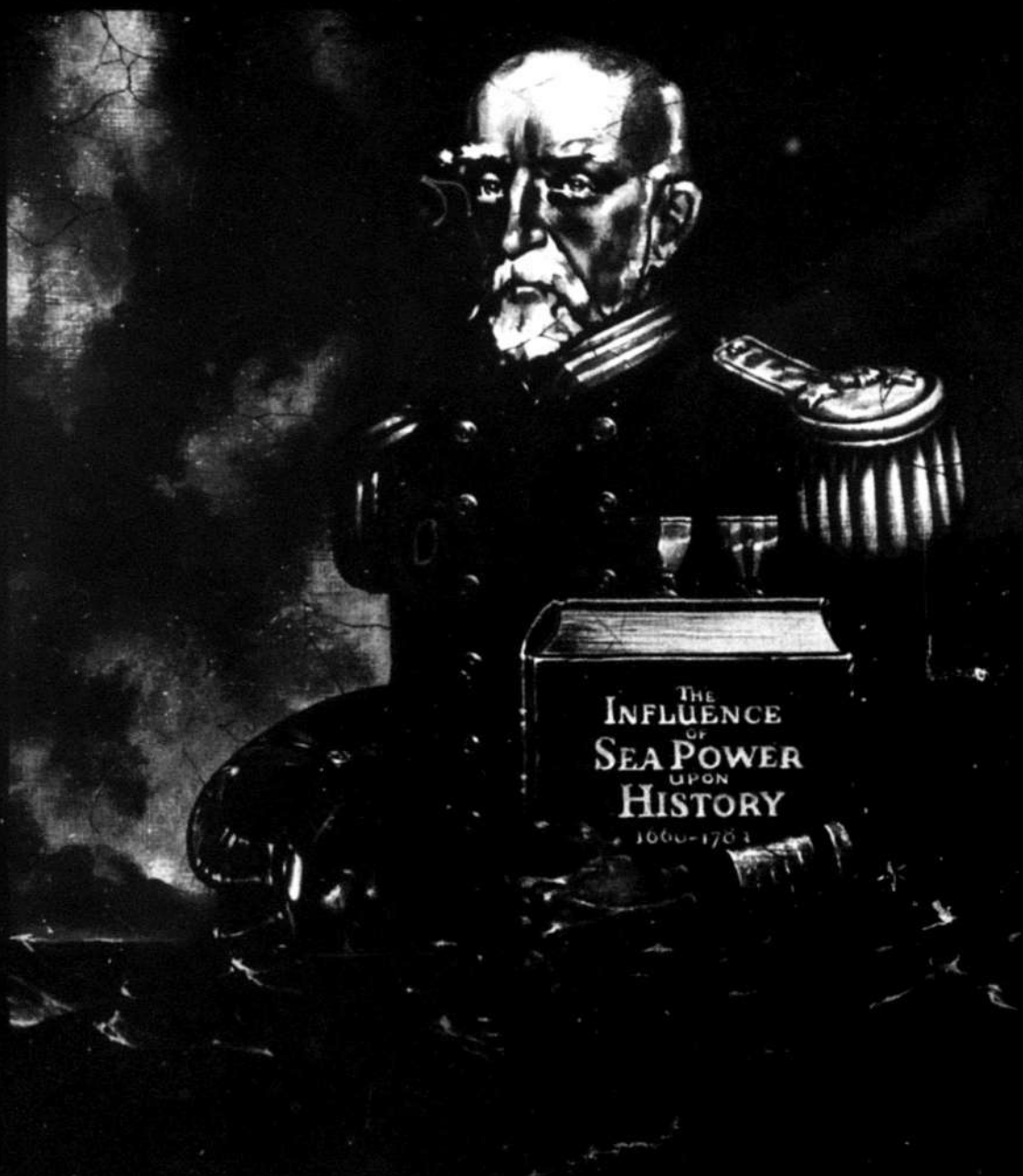
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