

THE NAVY

S3.50
July - September 1995

Print Post Approved PP247978/0013



IN THIS ISSUE

The Small General Purpose Escort	6
KAKADU II - a Photo Essay	7
New Zealand's Navy - Today and in the Future	10
HMAS WYATT EARP	19
Japanese Maritime Self Defence Force	25
Mutiny and Black Magic	30
Nulka - Active Missile Decoy System	31

The Magazine of the Navy League of Australia Vol 57 No 3

Regular Features

Viewpoint	1
Naval Medicine	4
Book Reviews	14
History Revisited	24
Book Reviews	32



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FROM OUR

viewpoint

READERS

Dear Sir,

I am writing a book on the history of the Japanese submarine I-124, sunk off Darwin in 1942. I have already published in 1992 *Wrecks in Darwin Waters*, with a brief history of the submarine included, as well as a number of other items on the submarine in various magazines.

This new publication will be an extensively researched volume, covering the building of the boat, details of the crew, the sinking, and controversies over the wreck that have happened since. I-124 had a chequered history; she was the first Japanese submarine to sink an Allied vessel in WWII, the first submarine sunk by Australian forces in the war, and the primary reason behind the formation of the Historic Shipwrecks Act.

I would be interested in hearing from any of your readers who have useful material about the I-124. I am already in contact with ex-crew members of HMAS DELORAINÉ, the Corvette accredited with the sinking, and I have already extensively researched American and Australian material from incidents in the war, the 1970s, when dives were made to investigate salvage of the submarine. I am particularly short of photographs of the I-124 and her sister boats - 121, 122, and 123. Perhaps somebody out there may have such items I could reproduce.

Full credit for any help received will be given in my publication.

Yours faithfully,

Tom LEWIS,
MA, BA, Dip. Ed., RAN
GPO Box 2935, Darwin 080:
Fax: 089 48 0261
Internet: lewis@peg.apc.org

Dear Sir,

My husband Eric Jehan was a member of the League for some years and received much pleasure and interest from the League's magazines. Sadly, he passed away on the 4th November, 1994.

I have enclosed a list of navigational maps which belonged to him and I am wondering if any of your members would be interested in having them. They are all in good condition.

AUS 145 Cape Paterson to Kent Group (2 maps)
1079 Tasmania

Great Barrier Reef to Port Douglas Qld

1595 English Channel and Western Approaches

AUS 75 Approaches to Port Jackson

Australia and South-East Asia

Morton Bay, Brisbane, Qld

Kiama to Norah Head

Norah Head to Crowdy Head

Port Phillip Vic

Port Phillip & Gabo Island

Tahira to Wollongong

Port Jackson

Capt James Cook Bicentenary Map

A few Naval posters of naval ships
Yours sincerely,

(Mrs) Jean JEHAN
71 Railway Pde
Mortdale 2223

Dear Sir,

The Fairmilers' Association is currently compiling a history of the Fairmile B Motor Launches, the Harbour Defence Motor Launches and associated small ships in service with the RAN in the Second World War.

Information is urgently sought for names, places and actions etc. If any readers of *The Navy* can help, please contact Peter Evans at 56 Warragal Road, Turramurra, NSW 2074 or telephone 02 449 1199.

Thank you for your assistance.

Peter EVANS
Turramurra 2074



EVENTS REMEMBERED.

...LESSONS LEARNED? - CONTINUED

The Second World War then Tony Grazebrook's article gives such reflection a contemporary context.

FOOTNOTE

In the last edition of *The Navy* I wrote of the need to constantly remind the community that our continent is an island. Of the need to keep the importance of maritime matters to the fore. Of the difficulty when such emphasis is placed on the wide brown land.

The above views were barely published when another reminder was given of just how necessary it is for the

league to be a little evangelical.

It was brought to my attention that Australia Post was about to issue four commemorative stamps to mark the end of the second world war. Two depict members of the army, one a war widow and one an airman. No Navy!

I am happy to say that the Minister for Veterans' Affairs has informed me that Australia Post will now issue in August a further four stamps including a naval hero.

Graham HARRIS
Federal President

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An ADF for UH Operations?

By A.W. Grazebrook

Periodically, we hear it argued that the Australian Defence Force should include units and/or equipment specifically to enable or improve Australia's ability to contribute to United Nations peace keeping and military relief operations

Similarly, it is suggested that the need for regional defence cooperation should influence the choice of capabilities of the Australian Defence Force.

Both these arguments are strenuously opposed by the Department of Defence, the Australian Defence Force's senior command and staff officers and by many defence academics.

Their argument is that the ADF's primary strategic role is to defend Australia and its area of direct military interest against all forms and levels of military attack. That is, the ADF exists to defend continental Australia, our offshore territories and resources and the trade routes around and close to Australia.

As strategy should determine the equipment, organisation and training of any defence force, so the ADF's primary strategic role determines its equipment, organisation and training.

This is what happens today, with the possible exception that commonality of equipment (with its logistic support benefits when operating with United States forces) may influence the choice of equipment types (as distinct from capabilities).

The force capabilities required for operations with the United Nations and regional defence cooperation can differ significantly.

The United Nations have a diversity of requirements, ranging from peacekeeping, through conventional operations by military units to protect UN forces on relief operations to relief or medical aid.

Thus, to Somalia for famine relief and protection of personnel engaged on that work, the ADF sent an Army battalion group supported by the RAN's ships HMAS TOBRUK and JERVIS BAY, RAN Sea King helicopters and RAAF transport aircraft. To Rwanda, the ADF sent medical personnel. To Cambodia, the ADF sent a wide variety of largely specialist personnel and units from all three services. To the Arabian Gulf (an international but not strictly United

Nations military operation), the ADF sent FFGs and DDGs supported by underway replenishment ships, medical personnel, clearance diving units and support personnel. After active military operations were completed, other personnel (including civilians) were sent. The ADF has contributed to and

absorbed an imprudently large portion of the Australian Army's frontline strength. With TOBRUK involved full-time and JERVIS BAY a large part of her time, Somalia absorbed for some months the whole of the RAN's ongoing Army support capability. The Somalia support activity placed a heavy burden on the RAAF's C130 squadrons.

The desirability of Australia playing its part in United Nations peacekeeping and associated military activities is not in question. However, regional defence cooperation has been becoming an increasingly important part of Australia's national defence strategy.

With the growing power of China and the reduced United States defence capability, the next few years will see regional defence cooperation become an essential and quantitatively significant aspect of Australia's national defence strategy.

So far, this has not influenced Australia's force structure. In maritime terms, the capabilities required of our ships, submarines and aircraft for the defence of Australia's area of direct military interest happen to provide capabilities appropriate to regional defence cooperation. Our regional partners provide similar and/or complementary capabilities which, together with our own, improve the capabilities of all parties. There is the further, and very important, advantage of regional powers (including Australia) improving their ability to operate together tactically.

Thus RAN submarines, essential to any case to Australia's national defence, provide anti-submarine training for regional powers which do not yet operate their own submarines. The anti-air warfare capabilities of our DDGs and FFGs can provide training for the high performance combat aircraft in regional air forces.

On the other hand, there are types of naval capability which are not required by the RAN for the defence of Australia's area of direct military interest but from an opportunity to operate with which the RAN can benefit. Our current force structure enables us to do this without



HMAS TOBRUK

continues to participate in a number of other United Nations operations.

In other words, Australia plays a very substantial role in United Nations activities involving military units. We undertake more than our share by sending units which are available from an ADF structured for its current strategic role. We can do this without adding capabilities specifically for United Nations operations.

The limiting factor is not types of capability but numbers. Many of Australia's most competent defence observers say the Somalia commitment

adding types of capability for the sole purpose of improving regional defence cooperation.

Thus the RAN needs no missile armed fast attack craft for the defence of Australia's area of direct military interest. The Royal Malaysian, Royal Thai, Singaporean and Indonesian navies have all operated this type of craft for some years. They provide the RAN with the opportunity to exercise defensive tactics against these vessels.

All regional navies have and need a greater amphibious capability than the ADF. This illustrates another opportunity for the ADF to benefit from regional defence cooperation.

Until the new Huon class coastal mine hunters are completed, the ADF is behind regional navies in important aspects of mine counter measures. In recent years, there have been extended periods when the RAN has had no MCM capability and regional powers have had numerically limited but technologically advanced MCM forces.

With the dependence of Australia's economy on international maritime trade through south east Asian waters, mine counter measures may well become an area of prime importance in regional defence cooperation. With the Huon

class coastal minehunters, supported by the Australian Auxiliary Mine Sweeping System (AMASS) for fitting in fishing vessels and the Bay class inshore minehunters, the RAN will be able to play its part.

However, it is questionable whether current plans provide us with numerically sufficient MCM forces in the longer term.

The MCM numerical problem highlights a problem the ADF is likely to face increasingly over the next decade.

While we will have good forces, we may well not have enough forces. Somalia was the first instance of this.

After meeting the current very conservative national force readiness requirements, all we could afford to send to Somalia was one battalion group.

Even that contribution was limited to a few months.

Contributions to the United Nations are not essential to the defence of Australia's area of direct military interest. If we lack the forces to send, or they are required for other activities, the United Nations will have to look elsewhere.

Regional defence cooperation is another matter. We are a long way from a regional defensive alliance of the NATO type. However, it is very much in Australia's interests that regional powers'

self defence capabilities are optimised and we ourselves need the training and other benefits that arise from joint defence activities.

Australia's concern must be ADF members (both personnel, equipment, support capability and reserves of ammunition and spare parts) and maintaining high technological capability.

Much has been achieved in recent years. However, the percentage of gross domestic product allocated to defence is falling. The defence budget itself, in real dollar terms, is falling. In spite of recognition in the 1987 Defence White Paper of the need for more surface combatants, no progress has been achieved. We had eleven destroyers and frigates then. That is all we have now.

The Australian Army is in a similar position. There are fewer troops than there were. New equipment programmes are coming forward but in low numbers.

Although they are not yet in this position, the RAAF needs new aircraft over the next few years to maintain existing capabilities and add a new (AEW & C) capability.

The time is fast approaching for an essential and significant increase in the Australian defence budget.

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The Small General Purpose Escort

By Ross Gillett

During the seventh decade of the 20th century, the Royal Australian Navy undertook the design of a new "middle of the range" General Purpose Escort (GPE).

Few particulars survive of the 1960s effort except for a broad outline of the characteristics and proposed armament. The GPE was required to satisfy a broad cross range of wartime and peacetime duties. These included a surface to surface role, with a sufficient anti-aircraft capability. Anti-submarine weapons were to include six Mk 46 Mod 0 or Mod 1 torpedoes fired from Mk 32 tubes.

The 330 foot long escort was to boast a 34 foot moulded breadth and 11 foot deep draught. Maximum displacement was 1 800 tons. A combined diesel gas turbine power plant was considered with a top speed of 37 knots. Endurance was 7 100 miles at 12 knots, reducing to 5 200 at 15 knots and 3 700 miles at 18 knots. A fuel capacity of 200 tons was envisaged.

To arm the proposed class of GPEs, naval authorities agreed on a well balanced outfit of weapons. A single Seacat triple launcher for the sub-sonic anti-aircraft missiles would be fitted aft the after superstructure. The main five inch 54 calibre Mod 0 gun on a Mk 45 mounting was placed forward of the bridge on No 1 deck, with the two Hispano-Suiza single barrelled 20mm guns port and starboard of the Seacat director on 01 deck. Two Mk 32 torpedo tubes were to be carried, port and starboard on the stern of No 1 deck.



Artists impression of the 1960s proposed General Purpose Escort

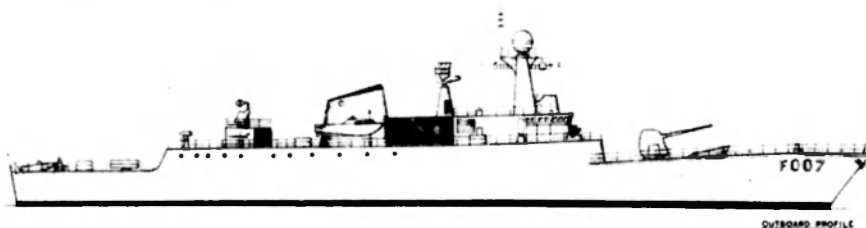
Small arms in the form of L2A1 rifles (four in number), Owen 9mm carbines (6), L1A1 rifles (30) and Browning pistols (6) were to be embarked for the patrol role in northern Australian waters.

Two MOD(N) type rocket flare launchers forward of the bridge on 01 deck were included, along with 5 inch starshell and one Xenon-Arc searchlight. Countermeasures equipment included Knebworth-Corvus Window launchers and Nixie torpedo decoys.

No names were ever allotted to the

class of General Purpose Escorts, although a sketch of the design has the prototype allotted the 007 hull number. With the entry into service of the Attack class patrol boats and the decision to design and build three light destroyers (DDGs) in Australia, the project to acquire GPEs was finally dropped.

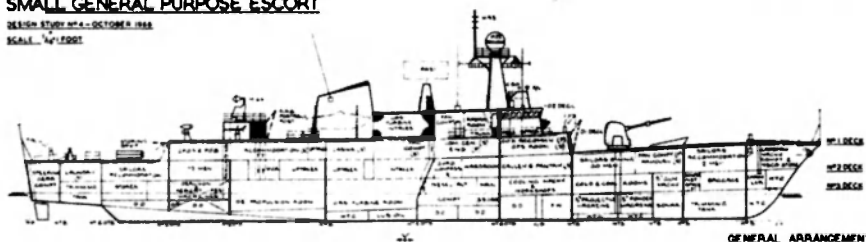
In 1995, the RAN is in the process of designing a new class of GPEs, now known as Offshore Patrol Vessels (OPVs), intended to replace the Fremantle class patrol boats.



OUTBOARD PROFILE

SMALL GENERAL PURPOSE ESCORT

DESIGN STUDY NO. 1 - OCTOBER 1966
SCALE: 1/4"=10'



GENERAL ARRANGEMENT
SHEET No. 1

KAKADU II ...A Photo Essay

By Antony Underwood

More than 5000 sailors and airmen from eight nations recently gathered in Darwin to participate in the first major event on the RAN's 1995 calendar.



Stern view of the Kakadu Two Ships. (Photo - ARPH Tracy Casteleijn)

Fleet Concentration Period (FCP) Kakadu Two, with 22 ships, two submarines and more than 35 aircraft, represented a significant advance on Kakadu One conducted in May 1993.

It was also a good example of the value of lateral thinking both in terms of deriving maximum benefits from a limited number of steaming days and aircraft hours and of improving regional security.

The first FCP of the year could have remained a domestic workup...or one with some input from New Zealand.

However, thanks to the decision to reorient it to the north every other year, the steaming days and aircraft hours for the FCP are woven into a richer tapestry with those of visiting navies and air forces.

Not only are there more ships and aircraft but there is also more variety in

RAN commitment considerably greater

assets and the sensors and weapons systems with which they are fitted.

And the second FCP Kakadu showed increasing South East Asian interest.

The RAN commitment was considerably greater with guided missile destroyer (DDG) HMAS HOBART; guided missile frigates (FFGs) HMA Ships ADELAIDE, CANBERRA, SYDNEY, DARWIN and NEWCASTLE; destroyer escort (DE) HMAS SWAN; HMA Submarines ORION and ONSLOW; replenishment vessels HMA Ships SUCCESS and WESTRALIA; patrol boats HMA Ships CESSNOCK, WHYALLA and GERALDTON; an HC723 Squadron

HS748 and Clearance Diving Team One.

The Royal Malaysian Navy increased its commitment to two corvettes instead of one and the Royal Thai Navy sent a surface combatant to FCP Kakadu Two rather than the training ship sent to inaugural Kakadu.

Indonesia, represented with observers only at FCP Kakadu One, sent a major fleet unit, *KRI Fatahillah*, to participate in the Harbour Phase of Kakadu Two. Their observers joined observers from the Philippines for the sea phase of the most recent FCP.

In the sea phase, while night steaming in company, officer of the watch manoeuvres and fire and damage control exercises were general features of both Kakadus, the availability of two submarines, embarked S70B2 Seahawks and P3C Orion aircraft of both the RAAF and RNZAF in FCP Kakadu Two, made

KAKADU II...A PHOTO ESSAY

for more intensive anti-submarine warfare serials.

The H5748 electronic warfare trainer and strike and combat aircraft including RAAF F111s and F/A 18s, RNZAF and RSAF A4 Skyhawks worked with civil Learjets to provide air warfare training.

Commodore Flitillas, CDRE Tim Cox, who directed the FCP from Darwin said success came through participation and willingness of participants to help out when things became difficult to "make it work".

His Chief Staff Officer (Operations), CMDR Peter Clarke, said FCP Kakadu Two with the number of ships, aircraft and countries required built in flexibility.

He was entirely satisfied that the aim - for the ships to be brought to an adequate state of capability to enable them to be deployed away from our shores - had been achieved.

Covering the air, surface and subsurface aspects, CMDR Clarke described the achievement of aircraft flying 105 per cent of allotted flying hours as "outstanding by any standards" and said that only four of 26 surface firing serials planned had been cancelled.

"And, the two submarines," he said, "old as they are, just kept running - faultlessly."

Speakers from visiting countries said also that, despite some anticipated language problems, they had derived worthwhile training, particularly



The two Singaporean missile boats with the frigate, HMNZS WAIKATO.
(Photo - ABPH Tracy Casteleijn)



Five of a
Ships NEWCASTLE, DARWIN, SYDNEY, CANBERRA and ADELAIDE.
(Photo - ABPH Tracy Casteleijn)

in areas of inter-operability.

In his closing remarks, Maritime Commander Australia RADM Don Chalmers underlined the significance of Kakadu FCPs in terms of regional security.

"Each of the participating nations (in FCP Kakadu Two) has demonstrated a sense of partnership," he said. "Both in harbour and at sea there has been a blossoming of acquaintances - an exchange of information, procedures and ideas



Indonesian frigate FATAHILLAH. (Photo - John Mortimer)



LEKIR, Malaysia, arriving in Darwin Harbour. (Photo - John Mortimer)

KAKADU II...A PHOTO ESSAY

"We have developed our ability to cooperate at sea. We have clearly demonstrated an ability to communicate successfully but I do not know any multilateral activity where communication has not been a problem but, as with FCP Kakadu One, there is still room for improvement in some areas."

RADM Chalmers described the Kakadu series of FCPs as "unique" and "important".

"Unique" in that it is the only activity in which we see regional naval and air forces coming together in Australia in such numbers," he explained. "Important" because Kakadu is firmly in keeping with Australia's foreign policy - in particular that element of policy which seeks through regional engagement to have Australia contribute to viable forms of cooperative security based on relationships which reflect a greater sense of genuine partnership."

RADM Chalmers added that the security environment in the Asia region "requires us all to take an increasing interest in the strategic affairs of the area".

"Australian Government initiatives involve specific economic, cultural and diplomatic programs tailored to reflect our partnership in the region," he said.

"The strengthening of links between Australia and our neighbours in South East Asia is fundamental to our security."

"Regional security and maintenance of



Thai corvette, SUKOTHAI (Photo - John Mortimer)



VENGEANCE, Darwin Harbour (Photo - John Mortimer)

stability are also essential for continued economic growth and development of the region."

Meanwhile, HMAS SUCCESS (CAPT John Moore) and HMAS WESTRALIA (CMDR Steve Hooke) made RAN history during Kakadu Two.

On Wednesday, March 22, the two tankers met in the Darwin exercise area to do a consolidation replenishment of SUCCESS.

Commencing at 1500 and finishing at 2100, WESTRALIA

pumped to SUCCESS 4775 cubic metres (roughly 4775 tonnes) of diesel fuel. It was the largest amount of fuel passed between RAN ships while underway at sea.

While conducting the replenishment it was necessary for the tankers to make two alterations of course while still connected.

The first alteration was of 30 degrees and the second, just on sunset, was almost a complete reversal of course from west to northwest to east.

It was also the third largest underway replenishment conducted by SUCCESS.

During the Gulf War, Operation Damask, she received 5275 cubic metres from VALDEZ, a merchant freighter tanker, and in September 1993 4940 cubic metres was received from the USNS PECOS.



On hand to assist, the Western Australian based naval tug, TAMMAR (Photo - John Mortimer)

NEW ZEALAND'S NAVY

...Today and In The Future

Rear Admiral Jack Welch, New Zealand's Chief of Naval Staff, recently discussed the RNZN at a gathering of Auckland businessmen. His remarks have been condensed and are published here.

The Royal New Zealand Navy is a 2,500 strong organisation, controlling over \$2 billion in assets, a \$180 million cash flow and involved a ship-building project worth \$800 million to New Zealand's industries; by any commercial measure in this country it is a large operation. Understanding the Navy is therefore important – but first people must understand why our Navy exists.

Why a Navy?

For many in New Zealand, like other western countries, their first question is: "why do we need a navy, why pour money into warships when the Cold War is over?"

New Zealand is an island nation, dependant on exports and consuming imports. That is an immutable fact that has been true since 1840 – it is the fundamental strategic factor for our nation – and it does not alter simply because the armed standoff between the former Soviet Union and the West is now over. Indeed, not one of the businesses in this country could long continue without the 4000 or so merchant ships that come into our ports every year.

Freedom to trade across the sea is a hard won privilege – it is not a fact of nature nor a constitutional right; freedom of the seas is an internationally accepted situation

because the navies of the west have since the Anglo-Dutch wars of the 1600s – fought to make it so. And fighting to keep the seas open for trade is not only ancient history – off Singapore and Malaysia in the 1600s, in the Gulf through the 1800s, and off Kuwait in 1991, navies have worked together to protect merchant shipping and prevent disruption to trade. If there is any doubt about the relevance of this to New Zealand, just recall how quickly the price of petrol went up in August 1991 as Saddam Hussein invaded Kuwait.

We are fortunate that the US, Western Europe, and now the other major naval powers support this doctrine – GATT for example would be meaningless if the ability to trade across the sea was not widely agreed and accepted. There is of course an international Law of the Sea and the resource implications of the

current law allow Exclusive Economic Zones while also confirming the right of innocent passage. But more law requires an enforcement capability, and New Zealand therefore has obligations in that regard.

And threats and challenges to freedom of the seas do exist, as well as the conflicts and confrontations I mentioned earlier. In recent times there has been the Libyan mining of the Red Sea (1981) the

of the enormous yet unspectacular coalition of sea powers – it is their collective action that makes freedom to trade accepted as the norm – our nation does benefit from the long naval heritage of Europe and North America.

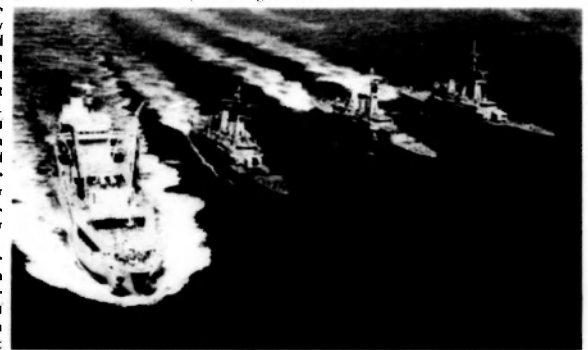
New Zealand's part in this is to be able to exert our sovereignty and support international law and order in our region, a region that is largely open ocean. Even if we had no other interests – and of

course the Kiwi business community has a daily interest in market conditions around the globe – even without those interests New Zealand is still an oceanic nation – we have constitutional obligations and responsibilities to the Cook Islands, Niue, the Tokelau and Samoa, that means this nation has to be able to project its power (albeit limited) over a vast ocean area. Indeed from the sub-antarctic islands to Porthryn in the Cooks is an area about the same as the North

Atlantic ocean. So that then, in very simplistic terms, is why we have a Navy: we are an island nation, a trading nation, a Pacific neighbour – the RNZN exists to give support and strength to our nation's interests across our region.

The job incidentally cannot be done solely by aircraft – although they have an essential part to play – aircraft are limited by weather or endurance. They do offer a quick reaction but they cannot easily be sustained in an area. And note that the Navy's job is not just coast defence; if we were isolationist, then we would simply put up barbed wire and buy a few Exocets – of course as the Falklands Campaign showed, that's not sufficient anyway.

So New Zealand has a Navy – indeed since 1887 when Parliament first voted money for the Royal Navy's Australian



Four units of the Royal New Zealand Navy at sea. From left: HMNZS Ships ENDEAVOUR, WAIKATO, SOUTHLAND and CANTERBURY

Iran-Iraq war, overlapping territorial claims in the South China Sea (among others), and disputes about the Law of the Sea as well as exclusion zones other than those permitted under the law eg Libya, Vietnam, and the former USSR have claimed various exclusion zones on the high seas. Geography too creates natural choke points – the South China Sea (where there are multiple claims to the Spratly Islands), the Gulf, Panama and the Caribbean, the English Channel. Unless there is international agreement, territorial ambitions can lead to these being closed – at best inconvenience, at worst war (eg Israel and Gulf of Aquaba in 1967).

But New Zealand does not aspire to be a global policeman and by setting this framework I do not mean to imply that the RNZN should be "in amongst it" anywhere and everywhere across the globe. Rather, this framework reminds us



The new RNZN Anzac class frigate

squadron, New Zealand has consistently placed the Navy at the centre of its defence policies. Our Navy today is not just a few ships, but a dynamic amalgam of people, doctrine, skills and equipment.

The RNZN Today

The RNZN has five main force elements, ie five main capabilities that we provide the government:

- The naval combat force, currently

three frigates and ENDEAVOUR, our fleet replenishment tanker. In fact we have four frigates, but as of 1 March this year HMNZS SOUTHLAND was decommissioned so as to release manpower and operating funds for the new sealift ship, the CHARLES UPHAM. But it is the frigates that are the core of the navy and that would provide the essential combat power should conflict occur. The present frigates are all over 20 years old: SOUTHLAND is in fact nearly 32, CANTERBURY, the youngest is 24 this year. CANTERBURY was the last combat ship actually built new for the RNZN, the only other frigate built expressly for us is the WAIKATO, which was commissioned in 1966. We intend to operate two of these frigates until about 2004 – CANTERBURY which is presently in the dockyard undergoing modernisation) and WELLINGTON, which was acquired second hand but which has been extensively – and expensively – refitted to serve into the next century. The Phalanx close in weapon system and the Dutch LW0-8 radar are the most visible examples of that modernisation.

The naval combat force also includes the ENDEAVOUR, a merchant-design tanker fitted with derricks, pumps and boxes so as to refuel other ships at sea. We have had ENDEAVOUR since 1988 and she is a very welcome and essential part of our operations. The standards of seamanship and shiphandling necessary for this task are high and require constant practice.

- The next element of our Navy is the

seamanship, leadership, management and patience. And if they get it wrong the mistake could be very costly, in lives or to the environment.

- The next force element is a considerable contrast, the mine counter-measures force. New Zealand was first attacked from the sea in 1917 when the German raider WOLF laid mines off Nelson and the North Cape. Such was the state of our defences that New

Zealand only learned of this after the WOLF returned to Germany and her exploits were published in the wartime German press! Mines continue to be an unglamorous but crucial factor in conflict at sea. A 1908 model mine crippled a brand new, billion dollar US cruiser off Kuwait in the Gulf War: there was no amphibious landing at Kuwait because of the mine problem.

It would be remiss of the Navy if we neglected mine warfare, and our approach is to develop

a modern mine detection system so as to be able to avoid, then safely destroy any mines that could be laid in our approaches. This sounds simple but depends on painstakingly building up a detailed picture of the sea bed in the approaches to our harbours – if we know what is there now, then we can easily recognise the mines were they to be laid. The volunteer reserve have this task, in their New Zealand-built patrol craft, with precision navigation systems they are scanning the seabed and logging the contacts. Again it requires high-tech equipment and precise shiphandling: it is an art, not a drill and requires continual practice.

The Operational Diving Team has the



Diving support ship, HMNZS MANAWANUI

task of mine clearance and the diving capabilities of the Navy also mean we must have a high standard of medical support. The hyperbaric chamber at Devonport is there for Naval reasons, but it also serves for civilian medical emergencies.

Linked to this task is the work of our oceanographic ship, HMNZS TUI. On a long-term lease from the United States, TUI plays a key role in the work of our Defence Scientific Establishment both in acoustic studies and bottom profiling for mine-vulnerable areas.

The Volunteer Reserve play a key role in the fourth naval capability – naval control of shipping. In the event of a conflict it may be necessary to control the timing and tracks followed by the merchant ships in our region and so liaison with the shipping companies, communications systems with the ports and naval headquarters and overseas destinations is all part of ensuring that the ships can sail clear of threats or dangers. It is a subtle task, and one that depends very heavily on cooperation with allies as well as the shipping companies. I have to note that the ill-effects of the ANZUS dispute have been felt very strongly in this area.

The last force element of the Navy is sealift – the role of our new ship, the CHARLES UPHAM. She has now arrived and we will take her into dock, paint her grey livery and fit her out for naval service. Later in the year we will commission the CHARLES UPHAM with full ceremonial appropriate to the double VC winner the ship is named after. The new ship will then play a full role in both army and naval exercises.

Those then are the ships and their roles, but the ships are nothing without people and that is the role of the shore bases at PHILLOMEL and TAMAKI to train support and administer the 2116 officers and ratings in the RNZN. Five hundred civilians are also part of our Navy, while the Dockyard, under the commercial management of Babcocks (NZ) Ltd, employs another 550 people.

As well as our Naval tasks, the RNZN also contributes to UN operations. We currently have a team of four medical personnel with UNSCOM in Iraq, a UN military observer in Bosnia and we sent two teams of 30 ratings in Cambodia during the successful UNTAC operation there.

And the Navy contributes to our own society – TAMAKI took part in Operation

Krypton, the training scheme for the unemployed, while all through the recession the Navy continued to recruit and train technical apprentices – it is one of the biggest technical training organisations in the country. Inevitably, now that the economic recovery is here, those are the people it is hardest to retain in the service. Our own management is under scrutiny, and we have recently formally adopted the "Situational Leadership model" as the common basis for training all our officers and petty officers – the intent is to move away from the traditional habits of our day to day management and improve the quality of leadership throughout the fleet.

So where is the RNZN headed?

Five years out from the next century

The Anzac Frigate Project is the primary factor shaping New Zealand's Navy. We are about to launch the first of

in 1971. Their operating savings will be considerable – a smaller crew, better fuel economy and reduced maintenance costs. Few commercial firms operate major equipment for as long as the armed forces do, and despite our critics, it is obviously business-like to take advantage of the lower operating costs of modern technology. The new ships will mean an important change to the RNZN – the Navy is already computer literate, but the new ships will demand that we are experts in LANS, data links and real time software.

At the same time, we expect to be introducing new naval helicopters. The government has approved the start of the procurement process for a replacement aircraft for our veteran Wasp helicopters, and by 1997 we will have a new, very capable machine in service to enhance the capabilities of the frigates. Naval helicopters from British warships played the main part in eliminating Iraq's missile-armed patrol craft during the Gulf War. The so-called experts say that the new frigates will be "missile magnets" in the face of a few fishing boats with Exocets; patrol boats and missiles in fact did become very important after 1967 when the Israelis lost a Soviet-built missile.

But the frigate and armed helicopter combination has proved time and time again to be more capable, more seaworthy and more deadly than any patrol craft. Responsible navies simply don't disregard hard-earned experience and rely on fishing boats with jury-rigged missiles.

So we are leading up to a watershed year for the RNZN in 1997. In addition to the updated equipment I have outlined above, we will also be awaiting the outcome on the replacement ships for WELLINGTON and CANTERBURY. During 1997 the contract option expires, to build two more ships under the same contract terms. This is some time away and it is not appropriate to forecast what might be the outcome of the Government's deliberations. Suffice it to say there are a number of possible options which are likely to appear in the next couple of years. I will observe, however, that through most of my naval career the RNZN was built around four frigates, all very similar and all with considerable commonality in systems and equipment. The logistic advantages were enormous and the Navy has consistently been the least expensive of the three services to operate.

The 1991 Defence Policy, which is

still current and endorsed in the 1994 assessment process, lays out the principle of the "credible minimum". That means that the armed forces must be credible, both in their military structure, their interoperability with friends and in the eyes of possible enemies. With only two frigates we could not sustain a credible contribution to UN or regional operations, nor could we be assured of providing the sea time to train new officers and ratings. The RNZN deployed a frigate to the Arabian Sea area in 1982 and sustained that commitment for nearly two years. That would not have been possible with fewer ships.

Today there is a substantial coalition naval force on duty in the Adriatic, while a large multi-national task force came together off Somalia. The Australians have taken part in the UN naval patrol to enforce sanctions against Iraq. These examples show that long-range naval operations are an inherent part of peacekeeping in the 1990s. The probability is that capable warships will still be necessary for New Zealand in the years ahead. Given the uncertainty of our world – witness the numbers of conflicts presently under way today and the rather dismal prognosis by those who study these things – I would observe that New Zealand will be involved in military

operations to a greater or lesser extent in the decades ahead. These will include naval operations demanding suitable ships able to operate in a variety of conditions, at a distance from support and from shore, possibly under threat from high technology weapons (available so readily in the markets). I envisage these activities being part of a coalition of forces from like-minded nations who accept responsibility for the protection of our hard-won freedom of the sea for safe passage of the trade so vital for the well being of our society. To suggest that this can be done somehow at no, or minimal cost and thus reducing our Navy to some sort of coastguard is irresponsible. Neither is it government policy.

The absolute need for a Navy by this island nation so dependent on trade, is a fact. At issue only is the force structure of the Navy and its roles. I hope that this review will give readers an insight to the challenges the RNZN is addressing.

The RNZN Today

Naval Combat Force

HMNZS WELLINGTON and HMNZS CANTERBURY

– modernised Leander-class frigates, 2 x 115mm guns, 2 triple torpedo tubes, SRBOC missile decoys, Phalanx close in weapons system, NAUTIS computerised

command and control system, Wasp helicopter

HMNZS WAIKATO

– unmodernised Leander-class, 2 x 115mm guns, 2 triple torpedo tubes, SRBOC missile decoys, JYA analogue manual command system, Wasp helicopter.

HMNZS ENDEAVOUR

– Fleet replenishment tanker.

Hydrographic Force

HMNZS MONOWAI

– Ocean survey ship
HMNZS TAKAPU and TARAPUNGA
– Inshore Survey Craft

Mine Countermeasures Force

HMNZS MANAWANUI

– diving support ship Operational

Diving Team

Naval Control of Shipping

HMNZS KIWI, MOA, HINAU and WAKAKURA

– Inshore Patrol Craft

– Four Volunteer Reserve Divisions

Sealift

HMNZS CHARLES UPHAM

– Roll on/Roll off transport ship

Oceanography

HMNZS TUI

– tasked by the defence scientific establishment



HMNZS ENDEAVOUR

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Naval Task Group On Tour

Ships from a Royal Australian Navy task group have undertaken a series of visits to North Asia ports in Korea, Russia and Japan.

Under the command of Captain Jim Stapleton, the task group comprised the guided missile destroyer (DDG) HMAS HOBART, supply ship HMAS SUCCESS, and guided missile frigates (FFGs) HMA Ships SYDNEY and CANBERRA.

To ports only rarely of ever visited by Australian Naval ships, the visits included:

- HOBART and SUCCESS to Incheon (the port of Seoul) South Korea, May 19-23, a port call which featured 'Australia Day in May' celebrations by ships' companies (designed to commemorate Australia Day at a more suitable time of year than the deep freeze of a Korean January).

- SYDNEY making the first ever visit by an Australian Naval ship to Russia's eastern seaport, Vladivostok, combined with an AUSTRADE exhibition of Australian commodities on board, in the period May 21-25.

- SYDNEY and CANBERRA visiting Nagoya, in the 15th year as Japanese sister city to Sydney, from May 29-June 5, and

- HOBART and SUCCESS visiting Yokosuka, Japan, in the period May 26-June 5 and providing a combined Naval guard for a wreathlaying at a Commonwealth War Cemetery on May 27.

A Navy spokesman said the North Asia port visits were one feature of a busy year of RAN deployments for fleet concentration periods, maritime and combined exercises in Australia and with a variety of countries in the Pacific and Indian Oceans.



USS TOPEKA, berthing at HMAS STIRLING on 7 April for a seven day R and R visit (Photo - ABPH Stuart Farrow)

Navy Celebrates VE Day

Across Australia, Navy celebrated the 50th anniversary of the Second World War Victory in Europe on 8 May.

In Sydney the day was highlighted by an ecumenical commemoration service in the Opera House forecourt where the Royal Australian Navy Band and a 100 strong tri-service guard marched on. Navy helicopters also carried out a fly-past at 10.50am in support of the commemoration. As a backdrop, HMAS KANIMBLA, the recently

acquired training and helicopter support ship anchored in Farm Cove adjacent to the Opera House.

For the celebrations, the RAN's youngest guided missile frigate, the 17-month-old HMAS NEWCASTLE, was also berthed at the Overseas Passenger Terminal, West Circular Quay. The same morning her first CO, Commander Rowan Mottitt, handed over the ship to his successor, Commander Nigel Perry, CSC, before being 'rowed ashore'.



Visitor to Sydney, the United States aircraft carrier USS CONSTELLATION, April 1995



Australian and New Zealand warships sail from Sydney for exercises early in 1995



Former National President, Geoffrey Evans leads the Navy section of the Anzac Day March along Flinders Street on 25 April, 1995. Behind him, as aide to leader, is CPOTEL Henri Conway

Sydney's Submarines Arrive for Final Time

To commemorate the arrival in Sydney of the RAN's last "squadron" of Oberon class submarines, three of the boats sailed up harbour on Friday, 12 May.

HMA Submarines ORION, ONSLOW and OVENS passed through Sydney Heads in a line abreast formation at

9.00am prior to berthing at HMAS PLATYPUS in Neutral Bay.

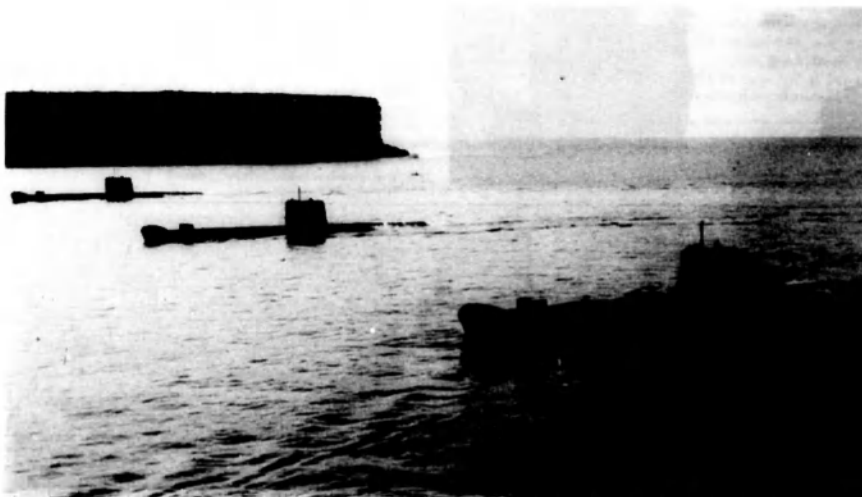
The entry by the boats marked the final concentration of the Oberon submarines on the east coast with HMAS OVENS scheduled to decommission in 1995 and the first of the new COLLINS class submarines expected to

enter service later this year.

After their formation entry the boats formed into a column for the passage up harbour. A brief ceremony was held at HMAS PLATYPUS, with the new Maritime Commander, Rear Admiral Chris Oxenbould and the boats' commanding officers.

Australia's six Oberon class

submarines, OXLEY, OTWAY, OVENS, ONSLOW, ORION and OTAMA have enjoyed long commissions in the Royal Australian Navy with the first commissioned in 1967 and the last in 1978. During their careers all of the boats underwent major mid-life modernisations.



HMA Submarines ORION, ONSLOW and OVENS arriving in Sydney on 12 May

Aviation Force Receive Praise

The Maritime Commander, RADM Chalmers AO RAN recently visited ALBATROSS with a purpose of familiarising himself with the Maritime lodger units at the station and as an opportunity to present the Squadrons with annual awards.

In his opening address, RADM Chalmers stated that 1994 has been a busy year for the Fleet Air Arm. The year commenced with units being deployed to the Bass Strait for the Sydney to Hobart Yacht race, followed by assistance with the NSW Bush Fires, numerous deployments around Australia and overseas and involvement in various searches. The most notable of these was the rescue of the

French yachtswoman Isabelle Autissier, in January 1995.

The McNicoll trophy was presented to 817 SQN for displaying the highest efficiency and effectiveness in the conduct of their duties throughout 1994. In particular, their assistance with the NSW Bush Fires, their numerous deployments and their support to the local community. LCDR Smith, CO 817 SQN graciously accepted the trophy on behalf of his squadron personnel.

The Navy League Shield was presented to all the Squadrons for their outstanding service to the local community, especially during the January Bush fires. RADM Chalmers made comment on the remarkable effort displayed by the

Squadron personnel who were recalled from leave at the time. They received the support of the whole Air Station and were

the outward face of the NAVY. CMDR Wright, CO HS 816 SQN accepted the shield on behalf of the Squadrons.

First visits by Canadian City Class

Her Majestys Canadian Ships (HMCS) VANCOUVER and REGINA, the second and fifth Halifax class patrol frigates to be completed for the Royal Canadian Navy arrived in Australian waters in June to begin port visits to Brisbane/Sydney and Darwin respectively.

As part of the deployment to Australia, VANCOUVER participated in exercises with RAN units along the NSW coast in late June and on 2 July opened its gangways for public inspections.

Crewed by 24 officers and 201 enlisted personnel, the 5,200 ton frigates form part of the 12 unit Halifax class, designed and built in Canada to replace the numerous 1950s-1960s vintage destroyers that had formed the basis of the Canadian fleet for the past thirty years.

The first six of the new frigates was ordered in 1983, followed by the second group in 1987. Compared to the older destroyers, optimised for the anti-submarine warfare

role, the new class mount a balanced armament to counter aircraft, surface and submarine threats. During 1994, the lead ship, HALIFAX, was deployed to the Adriatic in support of the United Nations sanctions against the former Yugoslavia while VANCOUVER participated in the multi-national RIMPAC exercise from Hawaii.

VANCOUVER was formally handed over to the Navy in September 1992, the total value of the whole project being \$10 billion. The ship is armed with sixteen vertically launched Sea Sparrow surface to air missiles, eight Harpoon surface to surface missiles, one Bofors 57mm gun, a Phalanx Close In Weapon System, six .50 calibre machine guns and Mk 46 torpedoes launched from the ship and via the two embarked Sea King helicopters.

Maximum speed is more than 28 knots with power provided by two LM 2500 General Electric Gas Turbines and for cruising, one Pielstick diesel.



USS LAKE ERIE leaving Fremantle on 12 April. The cruiser was part of the USS CONSTELLATION group (Photo - USPH Peter Lewis)



HMCS VANCOUVER

Navy Move To New Headquarters

The new Naval Support Command Headquarters was formally opened by Rear Admiral Tony Hunt on Monday, 1 May.

The site on Jones Bay Road at Pyrmont has been occupied by the Royal Australian Navy since early 1907, when the buildings were "commissioned" as a victualling yard for ships homeported in Sydney. The day also witnessed the beginning of the official occupancy by NSC staff in the two heritage buildings, known by most naval persons as REVY, short for the Royal Edward Victualling Yard. The yard was in fact the first in the southern

hemisphere to be granted the title "Royal".

As part of the refurbishment of the 90 year old complex, special attention was paid to retaining as much of the original buildings as possible, with only a few low profile additions added to provide a modern security entrance, cafeteria and gymnasium, conference room and credit union facilities.

The resultant Headquarters now houses 270 uniformed and civilian staff, all within only a few minutes of the central business district and by boat, no more than ten minutes from the Fleet Base, Garden Island. HMAS WATERHEN at Waverton and HMAS

PLATYPUS in Neutral Bay.

Throughout the "new" NSCHQ, a number of historic machines, operated within the former REVY buildings have been preserved. These include derricks, lift motors, a clothes folding machine and the original timber boat landing, a testament to the site's former dependence on water transport.

Conservation work also included the removal of later day modifications and the reconstruction of many original characteristics of the two buildings. The original richly coloured stores buildings were designed by the prominent NSW Government Architect Walter

Liberty Vernon and today remain classic examples of Federation Warehouse Buildings. REVY was in fact one of the first fully electric powered warehouses in Sydney, when it was completed in 1907. Total cost of building was £35,426.17.10.

REVY continued in a stores capacity until the late 1970s when all of its roles were transferred to and consolidated at Zetland. The buildings were only partially used after this time and in 1994 the decision was made to transform the Pyrmont site into the new Naval Support Command Headquarters.



Helicopter operations in Jervis Bay, a Sea King from HS 817 and the new helicopter support ship, HMAS KANIMBLA

Mine Countermeasures Exercise From Geelong

The RAN mine countermeasures forces recently conducted "Phosphor-bronze" 1995, an exercise involving five vessels and 160 personnel operating from the Port of Geelong between mid May and early June.

Also participating were the Reserve divers, a mine sweeping drone unit and the mine warfare operational systems support and auxiliary systems groups.

For the first time, the Forward Support Unit (FSU), was transported from Sydney by rail, the success of the deployment possibly determining future such exercises. In contrast to the last years mine warfare operations in Jervis Bay, where the FSU was self-supporting in a remote area, the 1995 exercise was concentrated in the heavy industrial and populated area of Geelong.

Supporting the naval

activities, Australian Army units assisted with the necessary heavy lift and transportation tasks. Shore based naval personnel operated from Corio Bay, the FSU comprising various containers including storage and offices, technical workshops, an operations room, accommodation, communications, dining and galley.

MCM ships involved in the deployment included the auxiliary minesweepers BROLGA, WALLAROO, BANGCOOT, BERMAGUI and KORAAGA. During the time in Victoria the vessels and personnel aimed to operate in a cold water environment and conducted hunting, influence and precursor sweeping techniques. As well, the MCM group "lead through" a commercial ship and undertook exploratory and clearance operations.

American Ships Remembered

A memorial to the Second World War American "Destroyer Squadron 4" was unveiled at Garden Island by Vice Admiral A.R. Clemins, Commander of the United States Seventh Fleet on 24 April. The ceremony was conducted at the northern end of Garden Island.

The nine ships of "Squadron 4" operated almost exclusively with units of the RAN during 1942-43. These included the SELFIDGE (DD-357), HENLEY (DD-191), BAGLEY (DD-186), BLUE (DD-187), HELM (DD-188), MUGFORD (DD-389), RALPH TALBOT (DD-190), PATTERSON (DD-392) and IARVIS (DD-393). HENLEY, BLUE and IARVIS, were lost during this period.

Several US ships, including those of "Destroyer Squadron 4", operated from the Australian east coast during

"Several US ships, including those of "Destroyer Squadron 4", operated from the Australian east coast during the Pacific War serving on screen, patrol and escort duties."

the Pacific War serving on screen, patrol and escort duties.

Initiated by the USS Bagley (DD-386) Association, the memorial now overlooks the harbour from which they mostly operated. The ships were berthed in Woolloomoolloo Bay, at the finger wharf or in the vicinity of the present day Fleet Base.

BAGLEY operated against the Japanese during the Guadalcanal campaign, the Battle of the Coral Sea and the operations leading to the liberation of the Philippines.

New Navy Hydrographic Office

The Royal Australian Navy's new Hydrographic Office in Station Street, Wollongong, was officially opened by the Minister for Defence, Senator Robert Ray, on Friday 7th April.

Built at a cost of \$10m and completed in October 1994, the high technology office has quickly established itself as a world leader in the fields of Geographic Information Systems, both afloat and ashore.

This year the Hydrographic service celebrates its 75th anniversary of foundation, when the Federal Government began the seemingly never-ending task of surveying the vast Australian coastline.

As part of the ceremony, the Minister outlined the important role of the service, including defence, international transport, the environment and science and administration.

For defence, the Hydrographic branch provides

accurate maps and charts fundamental to the success of operations. Commercial seafarers, from international to coastal to local operators are provided with nautical charts

setting out the safe sea lanes, ports and anchorages, tides and currents and any unseen reefs or obstructions.

Safety of navigation is closely linked to the marine

environment as is the provision of special data by the branch to the scientists and engineers who administer and operate in the coastal zone and the EEZ.



The National Maritime Museum, Darling Harbour, Sydney. In the foreground is the former SRD vessel HMAS KRAIT and in the rear, the new replica of the Bark ENDEAVOUR

HMAS WYATT EARP

BOOK REVIEW ARTICLE

By Phillip Law

Author of the Antarctic Voyage of HMAS WYATT EARP
Published May 1995 by Allen and Unwin

What kind of vessel was our ship, the Wyatt Earp? In 1919 a small, wooden ship had been built in Norway for herring fishing at Bolsenes shipyard, Molde. She was called the Fanefjord. She was 136 feet long, of 29 foot beam and 15-foot draft, and 402 gross tons. She had a single deck and a fore-and-aft rig of Marconi-type sails - long, peaked, triangular sheets - and two head sails.

Purchased by the American explorer Lincoln Ellsworth in 1933, she made four summer Antarctic voyages under his leadership, in 1933-34, 1934-35, 1935-36 and 1938-39. The last was to the Vestfold Hills, where the Australian station, Davis, is now situated. Ellsworth had renamed the ship Wyatt Earp after the gun-toting Marshall of Dodge City, his childhood hero and a distant relative. He sheathed her with oak and steel plating to protect the hull against damage from ice.

Accompanying Ellsworth as aircraft pilot and observer was the Australian Antarctic explorer, Sir Hubert Wilkins. By the end of the voyage, Ellsworth had become increasingly exasperated by the excessive rolling of the ship. Returning to the United States from Antarctica via Australia in 1939, he presented WYATT EARP to Wilkins, who promptly sold her to the Australian government for 4,400 pounds. Shortly afterward, World War II began and the government used the ship, renamed HMAS WONGALA, to carry stores and ammunition from Sydney to Darwin in 1939. From 1940 until 1944, she served as an Examination Vessel in Adelaide, as a Guard Ship at Port Pirie and Whyalla, and as a mother ship in that region to the Naval Auxiliary Patrol. In March 1945, she was tied up in the Torrens River, Port Adelaide, and made



HMAS WYATT EARP from the top of the adjacent pile driver. The vessel is being fitted out for her southern cruise

available to the Boy Scouts Association for Sea Scout training.

As described in Chapter 1, the Australian National Antarctic Research Expedition (ANARE) was organised by the Government in 1947 with these

objectives: to set up scientific stations at Heard Island and at Macquarie Island in the Sub-Antarctic and to carry out a reconnaissance of the Antarctic coastline of George V Land to try to find a site suitable for a third station. It was decided



Mess deck, HMAS WYATT EARP



Forward crew quarters

HMAS WHYATT EARP

to use a Navy LST (Landing Ship Tank) for the two island voyages.

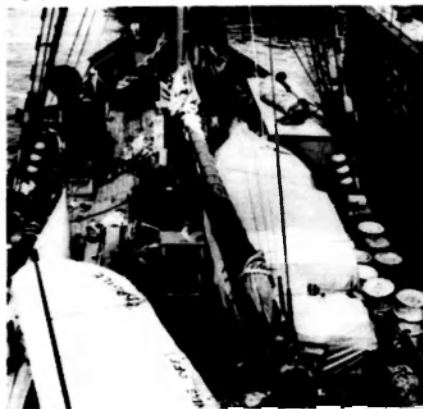
Finding a ship for the 1947 Antarctic voyage had presented a real problem. There seemed to be no vessel suitable in Australia, and time was too short to search for and charter one from overseas.

Then Sir Douglas Mawson, who lived in Adelaide, remembered the WYATT EARP. He suggested to the ANARE Planning Committee that she could be refitted and used. He was supported by his old colleague and captain, John King Davis, who believed that wooden ships were superior to steel ones for polar sailing.

The Royal Australian Navy agreed to be responsible for the project, and the WONGALA was placed in the Torrens Dock at Port Adelaide. There she was largely rebuilt, at a cost of about 150,000



Crew members at the jetty whaling station at Port Jeanne d'Arc



Preparing to sail for the Antarctic



HMAS WYATT EARP in drydock at Williamstown. The ship was under refit to repair the storm damage suffered during the abortive Antarctic mission in December 1947.

pounds. Rotting timbers in her hull were replaced, and the super-structure was extended forward, to enlarge the accommodation, and upward, to provide a new bridge and chartroom, a cabin for the captain and a cosmic ray laboratory. Lieutenant-Commander William F. Cook, RAN joined the ship in June as First Lieutenant, to attend to all matters leading to her commissioning. The ship was then just a gutted hulk on the slipway.

Raising the bridge provided her with better visibility and left more space on the main deck for cabins. An enlarged galley was fitted out, with a wardroom and a crew's mess deck, one on each side of it, beneath the bridge. The bulkheads between these areas were left unlined, so that the heat from the galley could permeate the steel to warm the messes. This proved extremely effective. A large 8-cylinder 400 HP Crossley semi-diesel engine was installed, together with two auxiliaries to provide electric power.

Extra fuel tanks fitted into the hold gave the ship a cruising range of 10,000-11,000 miles at a maximum speed of 8 1/2 knots. An echo-sounder, a gyro-compass and a small radar set were installed on the bridge.

The sails of the Marconi rig were retained, partly as an emergency provision in the event of engine failure, but mainly to help stabilise the ship.

The First Officer, Bill Cook, was later to write:

Perhaps we were the last of His Majesty's ships under the white ensign to use sail. I know I got a great thrill out of piping 'Hands to sailing stations' when we set all plain sail as we so often did. We found that with a favourable wind on the quarter we increased her speed by up to two knots. But the real advantage was that it slowed down her rate of roll by at least two seconds which, when she was rolling 30° to 40°, really meant something.

When the superstructure was extended forward to provide extra accommodation, what had been scuppers on the main deck were boarded over, as the hull was extended upward. This work was badly done, with gaps between the planking left inadequately caulked. These boarded-up scuppers became part of the bulkheads of the various officers' cabins. When the ship rolled enough to immerse these parts of the hull, sea water would be forced through the gaps. For much of the voyage the cabins on each side of the main deck had three inches of icy water sloshing around on their decks.

Our cabin did not suffer this disadvantage, having no exterior bulkhead. But we did not remain dry for long: the officers in the cabin directly astern of us, which because of the fore and aft camber of the ship was at a slightly higher level than ours, bored holes with a brace-and-bit through the

separating bulkhead at deck level in order to allow their floor water to drain through into our cabin.

The installation of a new diesel engine of much greater weight than the original small power unit was to have very serious results, which I shall describe later.

The RAN, in making the ship available for ANARE use, returned to the Ellsworth name because of its Antarctic associations. The vessel became HMAS WYATT EARP on 16 July 1947.

The ship was commissioned at Port Adelaide on 17 November 1947. In the presence of the Governor of South Australia, Sir Willoughby Norrie, Sir Douglas Mawson, the Naval Officer in Charge in Adelaide and other dignitaries, the ship was to be launched from the dry dock into the Torrens River. With the commissioning pennant flying proudly from the mainmast and the uniformed crew lined up on the deck, the chocks were removed and the little vessel slid smoothly down the slipway, stem first into the water.

HMAS WHYATT EARP

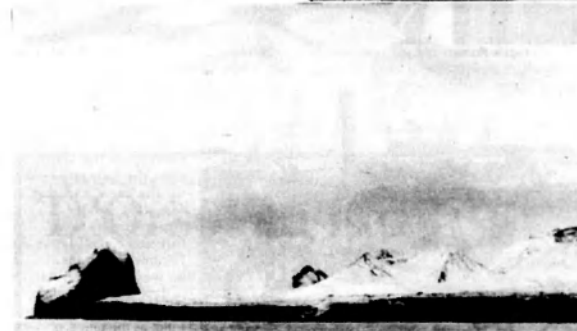


Galley and Cook

ships that I experienced. Seaman Norman Tame told me that, with outside temperatures around 47°F, the forecabin accommodation was about 74°F. When, in Antarctic waters, the outside temperatures dropped below freezing point, inside temperatures were around 60°F.

The Captain's accommodation was on the upper deck, just aft of the bridge, and astern of this was a drying room, and then my laboratory.

The officers were in two-berth cabins running down each side of the main deck aft of the crew's mess and the wardroom respectively. In the centre of this accommodation block was the engine



Views of the southern continent

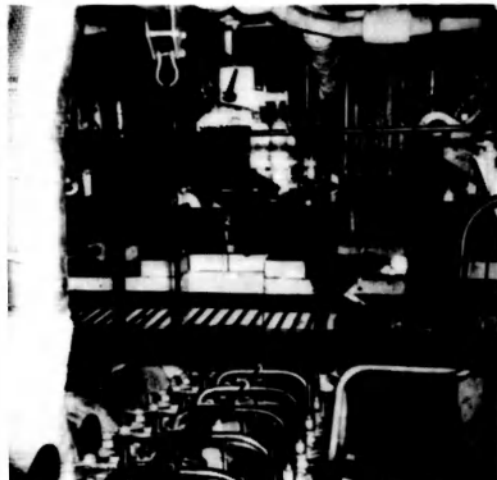
The wooden hull of the WYATT EARP was extremely strong. With oak beams and planking giving a total thickness of more than two feet, there were no watertight bulkheads. In the stem of the ship the timbers were four to six feet thick. Bunks for the crew were provided in two forward sections, eight in the forecabin and sixteen in a bunkroom just aft of that. Seamen occupied the starboard bunks and petty officers those on the port side.

The thick wooden hull provided good insulation and there was no condensation on the inner bulkheads, as in later steel



Hoisting workboat in Atlas Roads

HMAS WHYATT EARP



Engine Room



HMAS WHYATT EARP

room casing. Immediately astern of this was my cabin and astern of this again, with ports onto the afterdeck, was a three berth officers' cabin a commo dation knocker. White and John Yule. In place of lifeboats the ship was provided with two 26-foot carved-planked whaleboats with oars for propulsion.

I shared my cabin in the WYATT EARP with the geomagnetician of the party, Ted McCarthy. I could not have asked for a better colleague and travelling companion. A graduate in science from the University of Western Australia, Ted was about thirty years of age and had had wide field experience as a geomagnetician with the Bureau of Mineral Resources. He was used to living in rough outdoor conditions and to mixing with all sorts of men. Unfailingly cheerful and of quiet disposition, he was easy to live with and, in addition, was a tenacious and conscientious worker, and an expert in electronics.

The ship had no facility for producing fresh water, and shortage of this commodity was a continuing source of discomfort throughout the voyage. Except while in the pack ice zone, where ice could be melted for fresh water in an



The Kingfisher aircraft secured to the foredeck

improvised snow melting tank heated by the exhaust pipe from the engine, all on board were rationed to one pint of fresh water a day, for cleaning teeth, shaving and washing.

I could not understand why provision had not been made for sea-water showers and for salt-water soap. It was not until long after the voyage had ended that I found out that crew members had salt-water soap and could collect jugs of hot sea water each day for washing from the cooling system of the ship's engines.

There were two toilets on the main deck, one forward of the main mast and one aft of the officers' cabins, on the starboard side. The forward one was for the crew and that aft for the officers and supernumeraries. The forward toilet, however, became frozen up as soon as we reached Antarctic waters, and from then on the crew used the same toilet as the officers.

The ship's toilets discharged straight into the ocean from the side of the ship. The officers' toilet had a defective non-return valve and, when the ship rolled as she did most of the time and the outlet port dipped beneath the waves, sea water fountained up through the toilet bowl, regurgitating the contents in a disgusting fashion. It was nicknamed the splutterer.

The toilets were unheated and the seats unpleasantly cold and wet from this process. An attempt by an innovative officer to remedy this by carrying on each visit a thick annular oval of felt proved ineffective, because one 'fountain' eruption of the toilet bowl would soak the felt, which would take hours to dry.

The four-berth cabin shared by McCarthy and I measured 8 feet by 7 feet 6 inches. Being in the centre of the ship,

it had no portholes. Its only ventilation was an iron grating about eight inches square in the deck, just above my pillow, which opened directly on to the boat deck above. Since the deck was always wet, water dripped through on to my face until I nailed a piece of tin over the opening. Thereafter we had the choice of suffocating in our own tug overnight with the door shut, or of opening it and becoming asphyxiated by the diesel fumes which waited in from the open engine room casing next door. The cabin was aptly named 'the black hole of Calcutta'.

The WYATT EARP rolled 30 degrees each side of the vertical in an ordinary sea and, in very tough weather, rolled 55 degrees or more. She was the stiffest ship I have ever known, with a period for a double roll of 4 1/2 seconds. This was reassuring in one sense, for she was unlikely to capsize, but the angular accelerations generated as she moved through 100 degrees or more and back again in 4 1/2 seconds had to be experienced to be believed. In a heavy sea, objects not securely fastened would be hurled horizontally against the bulkheads, while objects carelessly lashed would tear loose and follow the same trajectory.

HMAS WHYATT EARP

Leading Cook Stan Parfrey had no relief cook. He worked from 0430 until 2130 hours for seven days a week, with an occasional Sunday off, providing meals for the whole ship's company. Various seamen were rostered, one each day, to wash up and give other assistance in the galley.

There was no refrigeration on the ship. Food on the voyage was limited to what could be carried in the form of tinned goods and dried provisions — except for meat. Surprisingly, no victuals were supplied in barrels, such as corned beef or pork in brine, or salted fish. The tinned meat rations resembled those provided to Australian troops in New Guinea during World War II — 'bully beef', ham, meat and vegetables, lamb and green peas, and sausages. We had tinned butter and dried milk. The dried vegetables were of good quality, as were the tinned fruits. In general, the cook was faced with a lack of variety in the materials available to him, but he used his imagination and ingenuity to good effect, and we dined surprisingly well.

One problem he faced was that, when stores were loaded in Port Adelaide, the cases of food were stacked in the hold, along with other stores, without any system. In consequence, a number of

items that appeared on his bill of lading for the provisions could not be reached until late in the voyage, when the overlying stores had been consumed.

A passage had been left between the stores in the hold so that crew members could move from their accommodation in the fore part of the ship through the engine room to the mess amidships and the bridge, thus avoiding crossing the exposed foredecks.

In an attempt to provide a source of fresh meat for the early part of the voyage, a crew's washroom on the port side of the foredeck was floored with sawdust about a foot deep, then alternate layers of ice, meat and sawdust were stacked right up to the ceiling. The sides of meat remained chilled until we reached cold Antarctic waters south of the Convergence. At that stage the meat was removed and hung from the rigging to keep cool. However, voracious skuas soon defeated this stratagem, despite Le Guay and Gray amusing themselves by practising shooting with a .22 rifle.

Oranges had been provided among the foodstuffs but they were placed in an unheated store and, before long, became frozen. Then they rotted when thawed. Potatoes also froze and became unfit to use because of unhealed storage.

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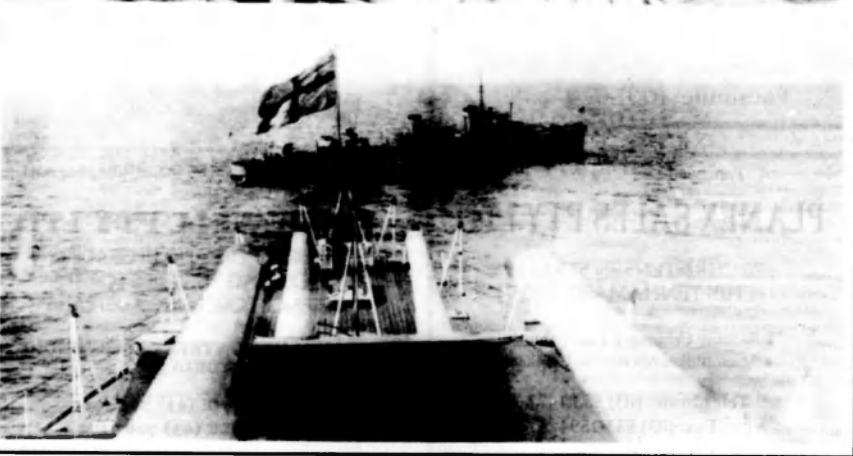
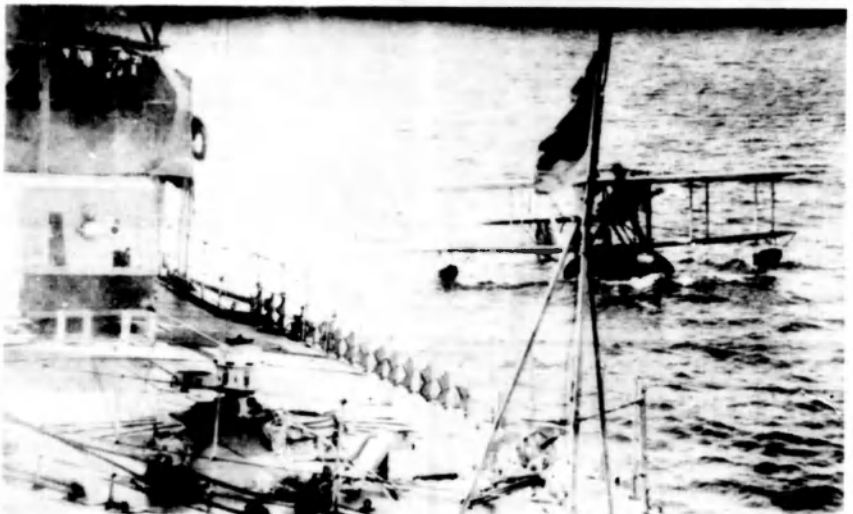
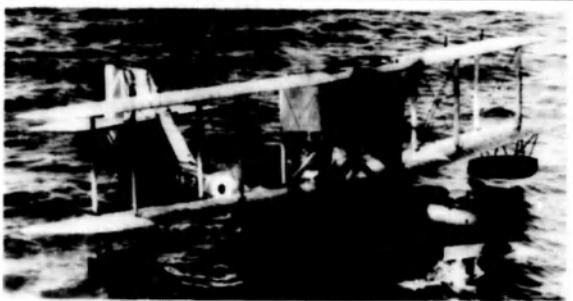
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History Revisited

Right: Seagull III, A3-2. Note the amphibians' wheels in the folded position

Below: Seagull III amphibian approaches an RAN S class destroyer during the late 1920s

Bottom: Taken from a County class heavy cruiser, an S class destroyer "at rest". Crew members are being moved by the ship's boats.



The Japanese Maritime Self Defence Force

REBORN FROM THE ASHES

By Mike James

Rising, Phoenix-like, from the ashes of Japan's WWII Imperial Japanese Navy, the new Japanese Navy, the Maritime Self Defence Force (MSDF), has grown slowly and surely to take its place as one of the world's most powerful navies.

Currently, the MSDF operates 17 conventional submarines, 40 destroyers, 20 frigates and a host of smaller craft backed up by over 100 land based maritime patrol aircraft. This fleet greatly exceeds most of the world's navies, with the French and British navies

only dominant in the areas of nuclear submarines and aircraft carriers. When counting blue-water combatants (disregarding patrol boats and other "brown-water" or coastal forces) Japan emerges as the world's third largest navy, after the US and Russia, with Asia's most powerful fleet.

The roots of the MSDF lie in the aftermath of Japan's defeat in 1945. General Douglas MacArthur was appointed as commander of the allied occupation forces, acting as de facto head of government. Under his direction the current Japanese constitution was written with the express intention of preventing the resurgence of a militaristic Japan. Under this imposed constitution Japan was forbidden to have military forces and renounced the use of force to solve international disputes. In 1950 however, war broke out on the Korean peninsula and United Nations forces, led by the United States, were plunged into the conflict to defend South Korea. US forces operated from Japanese bases throughout the war, providing air support, naval repair facilities and staging posts while enjoying R & R in Japan. As the Korean War drew to a close and the "domino theory" of communist expansion developed, the US and Japanese government approved the creation of a Self Defence Force (SDF).

The naval arm of the SDF, the Maritime Self Defence Force, is tasked with the defence of the home islands, later increased to deterring Japan's sea

lines of communications (SLOC's) out to a distance of 1000 nautical miles. Today the MSDF is organised as follows:

a. Four Escort Flotillas, each comprising a mix of up to eight anti-aircraft (AAW) and anti-submarine (ASW) destroyers. Flotillas are based at

made up of ten YUUSHIO class (commissioned 1980-89) and five HARUSHIO class (commissioned 1990-94) with two more building. Basically similar, they range in size from 2250 tons (YUUSHIO) to 2450 tons (HARUSHIO) with all having a crew of 75. Both classes

are equipped with a mix of twenty Sub-Harpoon surface to surface missiles (SSM) and Type 89 torpedoes and are capable of more than twenty knots submerged. The two surviving members of the UZUSHIO class (commissioned 1976-78) are used for trials and training but remain combat capable being equipped with 20 torpedoes. One boat is being used to trial a Sterling air-independent propulsion system for fitting to the new "Improved HARUSHIO" class

due to enter service at the rate of one per year from 1998.

The MSDF is committed to maintaining a fleet of 164 submarines and producing one boat a year, resulting in a submarine arm made up modern, capable boats, the oldest front line is but 15 years old with an average fleet age of eight years. This compares with the USN and RN where the average age of the attack submarine arm is 15 and 12 years, respectively.

Destroyers

The MSDF has long operated a dual stream of destroyer classes. Anti-air warfare (AAW) destroyers to protect the Anti-submarine (ASW) destroyers from aircraft and missiles, allowing the ASW vessels to concentrate on their real task, defending the convoys carrying Japan's economic lifeblood from the ravages of enemy submarines.

AAW Destroyers

The majority of the JMSDF surface combatants are designed for ASW and are armed with only a point defence



HARUNA, helicopter destroyer

Yokosuka, Kure, Sasebo and Maizuru.

b. Submarines are operated in two squadrons based at Kure and Yokosuka.

c. Two Mine Countermeasures (MCM) Flotillas are based at Kure and Yokosuka.

d. Five District Flotillas (comprising six to eight destroyers and frigates, a landing ship-tank (LST) and a number of MCM vessels) are based at Yokosuka, Kure, Sasebo, Maizuru and Ohminato.

e. Numerous support ships divided amongst the five major bases.

Beginning in 1954 with a force made up of ex-US warships and survivors of the Imperial Japanese Navy of WWII, the MSDF today operates a modern, powerful force of state-of-the-art ships and submarines. While Japan's constitution outlaws the use of force in solving international disputes, it is well to remember the maxim: "capabilities, not intentions". To this end an examination of the equipment and capabilities of the MSDF is in order.

Submarines

The submarine arm of the MSDF is

system anti-missile system such as the standard octuple mount for the eight nautical mile range Sea Sparrow missile or the last ditch Phalanx close in weapon system (CIWS) for missile defence. It was felt that the threat of Soviet bombers armed with long range anti-ship missiles such as the Mach 4 AS-4 Kitchen warranted the construction of destroyers specifically armed with the Standard SM-1 missile. These ships would be capable of providing an air defence umbrella out to twenty-five nautical miles, enough to cover a flotilla of destroyers or a convoy.

With the exception of the most recent class, the MSDF's AAW destroyers have followed basically similar lines, mounting a single-arm Mk 11 launcher for forty of the twenty-five nautical mile range Standard SM-1 Surface to Air missile (SAM). Additional armament usually includes an octuple Anti-Submarine Rocket (ASROC) launcher and two banks of triple ASW homing torpedo tubes. For self defence the usual armament has been two 5 inch guns in single mounts. None of the AAW vessels are fitted with a helicopter hangar although several classes are fitted with a platform for vertical replenishment (VERTREP) by helicopter.

During the eighties all of the AAW destroyers were fitted with two quad mounts for eight Harpoon SSMs and two Phalanx close in weapon systems (CIWS) for missile defence. The single exception was the original AAW vessel, the 3050 ton AMATSUKAZE (commissioned 1965). Considered too old for upgrading with Harpoon and Phalanx, she remains armed with two 3 inch twin mounts, ASROC and ASW torpedoes and is due to pay off in 1995, replaced by a new class of AAW destroyers. Each successive class has grown in size, reflecting improvements in habitability and the explosive growth in the electronics which are so vital to modern fighting ships. The AMATSUKAZE was followed by the three ships of the 3850 ton TACHIKAZE class (commissioned 1976-81) and the two 4600 ton HATAKAZE class (commissioned 1986-87).



Frigate SETOYUKI

The most recent destroyer class to enter service are the four ships of the KONGO class. Based on the American ARLEIGH BURKE class Aegis destroyers, the first ship, KONGO, was commissioned in 1993 with the remaining three due to commission by 1998. These ships, officially classed as destroyers but weighing almost 10,000 tons at full load, are armed with a ninety cell vertical launch system holding a mix of forty nautical mile range Standard SM-2 surface to air missiles (SAM) and six nautical mile range Anti-Submarine Rockets (ASROC) carrying homing torpedoes. In addition eight Harpoon SSMs are carried in two quad mounts. For defence a 5 inch gun, two Phalanx close-in anti-missile weapons systems (CIWS) and six torpedo tubes carrying anti-submarine homing torpedoes are fitted. The heart of these vessels is their Aegis radar and fire control systems. First employed on the USN's TICONDEROGA cruisers, the lightweight and improved system installed on the KONGO's allows the ship to detect, track, engage and destroy airborne threats at ranges far in excess of conventional radar/fire control systems. In addition the system allows these ships to control the missiles of an entire task force and is capable of controlling friendly fighters and vectoring them in on hostile targets.

The completion of this class was delayed by the suspicions of the US legislature and their reluctance to hand over Aegis technology to Japan. It was

felt that the Japanese would copy the electronics and introduce Aegis-derived technology into electronic equipment produced in Japan, reaping the benefits of US research and development without the costs. The Bush administration was finally able to authorise the sale of the Aegis systems which allowed the commissioning of KONGO in March 1993.

The sophisticated radar and missile tracking and guidance systems on board these ships have led them to be earmarked for use as lynchpins of the programme to defend the Japanese home islands from short range "Scud-type" ballistic missiles fired from nearby nations such as North Korea. To allow them to carry out this new role a joint feasibility study is underway with the United States to investigate what changes to the ships and their armament is required. It is reported that the ships would be armed with a new hypersonic, high altitude missile to allow hostile missiles to be intercepted before they approach Japan itself. It is believed that if the study proves the feasibility of the KONGO's new role up to an additional eight vessels may be ordered.

ASW Destroyers

Anti-submarine warfare has long been the major focus of the MSDF, with memories of the successful submarine campaign waged against Japan in WWII not having faded, while Japan's dependence on imports has grown exponentially since 1945. To protect these vital lifelines the MSDF operates thirty-six ASW destroyers divided into seven different classes.

The oldest ASW destroyers in commission are the TAKATSUKI class (commissioned 1967-70). Two of the class, the 3100 ton MOCHIZUKI and NAGATSUKI, are armed with ASROC, two five inch guns in single turrets, six homing torpedo tubes and a Bofors four barrelled anti-submarine mortar effective to 1 nautical mile. The two oldest ships were taken in hand for extensive modernisation in the mid 1980s and emerged with enhanced self defence capabilities. TAKATSUKI and KIKUZUKI lost their after five inch gun, replaced with a Phalanx CIWS and an octuple Sea

Sparrow SAM mount while two quad Harpoon SSM launchers were also fitted. In addition the electronic fit was substantially upgraded. The modifications entailed a 150 ton increase in standard displacement to 3250 tons and a rise in crew size by ten to two hundred and seventy. As the oldest ASW destroyer class in service, the MSDF is already planning their replacements and they will probably decommission before the end of the decade.

The next ASW class to enter service were the three ships of the MINEGUMO class (commissioned 1968-70). Designed to provide ASW escort to Japan's extensive coastal shipping trade and optimised for shallow water ASW, at only 2100 tons they were much smaller than the preceding TAKATSUKI's. Armed with ASROC, ASW torpedoes, four 3 inch guns in twin turrets and a Bofors anti-submarine mortar, the MINEGUMO class set the pattern for the essentially similar YAMAGUMO class (three ships commissioned 1977-78). While proving a success, the MSDF requirement for ships with better sea-keeping and self defence capabilities for "blue water" ASW operations led to a decision to construct additional frigates derived from the MINEGUMO class for coastal ASW while a larger ASW destroyer class was laid down for open ocean escort duties.

This was the HARUNA class (commissioned 1970-73). HARUNA and her sister HIEI were notable for operating three Sea King heavy ASW helicopters on a displacement of 5000 tons. The first Japanese warships designed to operate manned helicopters, with their blocky superstructures and a flight deck area comprising almost forty per cent of their length, the HARUNA's were a bold departure from previous designs and represented a statement of faith in the helicopter as the primary instrument of anti-submarine warfare (previously attempts had been made to operate the US designed remotely controlled Drone Anti-Submarine Helicopter (DASH), from the MINEGUMO class destroyers. A rather unsuccessful concept, far in advance of the technological capabilities of the time, DASH was rapidly phased out of the USN and MSDF upon the introduction of more efficient manned helicopters).

Besides the three Sea King's, soon to be replaced by new Sea Hawk helicopters, HARUNA and HIEI each mount two single 5 inch guns, octuple mounts for ASROC and six anti-submarine torpedo tubes. In the late 1980s both ships underwent modernisation programmes, most notably improving their air defence capabilities, resulting in the installation of chaff launchers, an octuple mount for the Sea Sparrow SAM system and two Phalanx CIWS atop the superstructure block. So successful did the operation of helicopters prove, that every ASW destroyer class laid down since have been designed to incorporate at least one helicopter, and the next ASW destroyer class to be completed, the two ships of the SHIRANE class (commissioned 1980-81) were virtual repeats of the HARUNA's. The major improvements in the new class were installation of a towed array sonar and the incorporation

Harpoon SSM quad mounts, are carried and for self defence a 76mm gun, two Phalanx CIWS and an octuple Sea Sparrow SAM launcher are fitted. With so much attempted on a limited displacement it comes as no surprise that stability may have been a problem, hence tin stabilisers were incorporated into the design and the "Beartrap" helicopter landing aid system was fitted for rough weather helicopter operations.

Perhaps as a recognition of the limitations inherent in trying to do so much on a limited displacement, the next ASW class, the eight ships of the ASAGIRI class (commissioned 1988-91) incorporated identical armament to the HATSUYUKI's on an additional 600 tonnes displacement, resulting in a total displacement of 3550 tonnes. Designed to operate Sea King's the ASAGIRI's are re-equipping with new Sea Hawk helicopters, as well as being fitted with towed array sonars and an improved radar suite.

Construction has commenced on a follow on to the ASAGIRI class, with four ships of the 4400 ton MURASAME class building or on order. Major improvements over the ASAGIRI's include a vertical launch system holding a total of twenty nine vertical launch Sea Sparrow SAM's and vertical launch ASROC, allowing the missile load to be tailored to the anticipated mission. A Sea Hawk helicopter replaces the Sea King of earlier classes while the usual defensive armament of a 76mm gun, two Phalanx CIWS and

of the chaff launchers and Sea Sparrow SAM during construction. These improvements, together with habitability improvements resulted in an increase in tonnage to 5200 tons full load.

Both classes provide the flagships for the MSDF's four escort flotillas, with SHIRANE assigned to the first flotilla, KURAMA to the second, HARUNA to the third with HIEI leading the fourth flotilla.

The next series of ASW destroyers were the twelve ships of the HATSUYUKI class (commissioned 1982-87). Displacing 2950 tonnes, they were a sizeable step down in displacement from the 5000 tonnes of SHIRANE and her sisters. Despite the drop in displacement the HATSUYUKI's still manage to operate a Sea King helicopter, in addition to the usual ASW destroyer armament of ASROC and ASW torpedo tubes. Two

six torpedo tubes are fitted. Stealth features have been incorporated into the design with the hull and superstructure having rounded edges and sloping sides to reduce the ship's radar signature while measures have been taken to reduce the infra-red signature generated by the gas turbines exhaust. An increase in automation has allowed a saving of sixty crew over the ASAGIRI's two hundred and twenty. It is intended that the class will eventually number eight ships with the first, MURASAME, scheduled to commission in March 1996.

Frigates

Much smaller than the MSDF's destroyers, frigates in the MSDF are designed for inshore anti-submarine warfare (ASW) and convoy protection.



IWAI, coastal mine warfare vessel (Photo: R. Takayama)



Frigate SHIRAYUKI

JAPANESE MARITIME SELF DEFENCE FORCE

The largest and most recent vessels of the ABUKUMA class displace only 2050 tons with earlier classes weighing less than 1500 tons. The six ABUKUMA class (commissioned 1989-93) are armed with an eight cell ASROC system as the primary ASW armament, backed up by six homing torpedo tubes. Two quad Harpoon SSM launchers are fitted, as well as a 76mm gun and a Phalanx CIWS. Crew numbers have been kept down with extensive automation, resulting in a complement of only one hundred and fifteen.

Two very similar classes preceded the ABUKUMA's, the single 1300 ton ISHIKARI (commissioned 1981) and the two ships of the 1500 ton YUBARI class (commissioned 1983-84). Both classes are armed with a Bofors four barrelled anti-submarine mortar effective out to one nautical mile as their primary ASW armament, backed up by the usual six torpedo tubes. Two quad Harpoon SSM launchers are fitted, in addition to a

has ordered a total of six missile armed hydrofoils, numbered PG01-06. These vessels are based closely on the Italian SPARVIERO class but exchange that class's 76mm gun for a 20mm Sea Vulcan cannon. Displacing 50 tons and capable of 47 knots when foiborne over a distance of 400 nautical miles, these craft are also armed with four Mitsubishi SSM-1B one hundred and fifty kilometre range SSMs. The Japanese decision to construct hydrofoils is courageous, given the decision of one of the three navies that currently operates hydrofoils, the USN, to place their own PEGASUS class in reserve as too expensive to operate. The Russian Navy is also reported to be paying off their hydrofoil classes.

Amphibious Vessels

The MSDF has restricted the scope of its amphibious forces due to the sensitivity with which the acquisition of such "offensive" capability is viewed by other nations within the region. The

Vehicle/Personnel are in service, mostly carried in davits aboard the LSTs.

The MSDF has requested funding for the construction of a much larger LST but was repeatedly turned down by the Diet (Japanese Parliament). Preliminary designs show a vessel of 9000 tons, equipped with a well deck capable of flooding down to admit landing craft, and surmounted by a three quarter length flight deck. This design, similar in many respects to the Italian Navy's SAN GEORGIO class, was finally authorised in 1993 for commissioning in 1998. It remains to be seen if the MSDF will acquire the VSTOL aircraft that could be operated from the new design, for such a purchase would send political shockwaves throughout the region.

Mine Warfare Forces

The MSDF takes the mine threat very seriously, having suffered severely from mines laid by submarines and aircraft during the Second World War. This is reflected in the size and capabilities of the MSDF's mine countermeasure forces (MCM). To command the flotillas of MCM craft providing communications, workshop and helicopter support, the MSDF operates two MCM support ships, the 2150 ton SOUYA (commissioned 1971) and the 2000 ton HAYASE (also commissioned 1971). Both ships are armed with a twin 1 inch gun turret, two Sea Vulcan 20mm cannon and six homing torpedo tubes. SOUYA also incorporates a mine-laying capability and is capable of carrying up to 460 mines. Both vessels are due to be replaced by two much larger (5500 ton) Minesweeper Support Ships in the late 1990s.

Largest and most modern of the minehunter minesweeper classes in service are the three ships of the YAEYAMA class (commissioned 1993-94). Their large size (1000 tons) is dictated by their role as ocean minehunter sweepers, required to operate out on the boundaries of the continental shelf, hunting deep-laid mines. Three more may be ordered in due course as funds become available.

The most numerous class are the twenty-three craft of the HATSUSHIMA class (commissioned 1979-89) which, together with the four ships of the essentially similar UWAHIMA class (commissioned 1990-1993) with three more on order, comprise the bulk of the coastal MCM force. Designed to operate close to shore, clearing shipping channels and approaches to ports, these 400-500 ton vessels can be substantially smaller than the ocean going minesweepers. The MSDF's minesweeper force took part in Japan's first post war deployment of military forces to a potential combat zone. Four HATSUSHIMA class minehunter/sweepers, led by the MCM support ship HAYASE were sent to the Persian Gulf in



Dockyard scene (Photo: R. Takayama)

76mm gun. All three vessels are planned to be fitted with a Phalanx CIWS when available. The major difference between the two classes is that the additional 200 tons displacement of the YUBARI has resulted in improvements to habitability and an increase in range.

The oldest frigates still in service are the eleven ships of the CHIKUGO class (commissioned 1970-77). Derived from the MINEGUMO class ASW destroyers, at 1470 tons they are the smallest vessels in any navy to operate the ASROC system. Six homing torpedo tubes are carried while for anti aircraft defence the CHIKUGO's mount a twin three-inch gun turret and two Bofors 40mm cannon.

Missile Armed Attack Craft

To replace a number of elderly torpedo carrying patrol craft the MSDF

JAPANESE MARITIME SELF DEFENCE FORCE

the aftermath of Operation Desert Storm to sweep for Iraqi mines.

Auxiliaries

For a Navy of its size, the MSDF is woefully under-strength in underway support capabilities, the tankers and replenishment vessels capable of sustaining task groups for extended periods at sea. The roots of this shortage lie in the political nature of the SDF, and the MSDF in particular. The MSDF is the one arm of the Japanese military capable of operating at any distance from its shores, as Japan's participation in the biennial RIMPAC exercises held in the waters adjacent to Hawaii demonstrates. The limitations of only four relatively small underway replenishment vessels for more than sixty surface combatants is seen by other nations within the region as a reassuring sign of the strictly defensive nature of the MSDF. While the MSDF would like additional such vessels it seems unlikely that any additional ships will be ordered in the immediate future.

The 11600 ton full load SAGAMI (commissioned 1979) was the first replenishment vessel, or in Japanese parlance, Fleet Support Ship to be built in Japan. Capable of supplying fuel oil, diesel and aviation fuel in addition to food and ammunition via two alongside

stations per side, SAGAMI is also fitted with a flight deck to allow VERTREP (vertical replenishment of stores by helicopter) but is not fitted with hangar facilities or defensive armament. Operated by a crew of one hundred and thirty, SAGAMI proved to be a successful design however her small size proved somewhat limiting, creating a need for a larger, more capable design.

These were the three Fleet Support ships of the TOWADA class (commissioned 1987-90). A full load displacement of 15850 tons allowed a substantial increase in cargo capacity over SAGAMI. Unlike SAGAMI however, all three ships in this class will receive self defence weaponry, notably a Phalanx CIWS for missile defence. Automation has required only a minimal increase in crew size of ten over the SAGAMI. Again, there is no provision for a hangar for an embarked helicopter, simply a VERTREP flight deck.

The Self Defence Force has followed a policy of building as much of its military equipment at home as possible. Main battle tanks, fighter aircraft based on the F-16, Cobra attack helicopters, anti-tank missiles and many other items of military hardware have all been built in Japan, often at a price far greater than would

have been the case if the material had been bought from the original manufacturer. The MSDF has paid a high premium to construct an indigenous fleet with the hulls, the helicopters and anti-ship missiles, the torpedoes and sonars and almost all the electronics either designed and built in Japan or built in Japan to foreign designs. This policy has resulted in the MSDF paying a premium to develop a powerful industrial base for future military growth or mobilisation, it required.

While the Self Defence Force is limited to a national one per cent of GDP Japan's powerful economy has allowed the growth of all branches of the SDF. The MSDF has been the primary beneficiary of this growth with expansion slated to continue into the next century. The Maritime Self Defence Force has, in the space of some forty years, grown from the battered remnants of misguided imperial ambition to a position as one of the largest and most powerful navies of the world. Technical innovation, married to a powerhouse economy and industrial might, has produced the most capable navy in the region, a navy watched with interest and some trepidation by its neighbours.

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Mutiny and Black Magic ...HMAS Geranium 1923

By Greg Swinden

Launched at Greenock, Scotland, on the 8th of November 1915, GERANIUM was a Flower class sloop of some 1250 tons and capable of 16 1/2 knots.

GERANIUM arrived in Australia in late 1919 with her sister ships MARGUERITE and MALLOW to conduct minesweeping operations (to clear minefields laid by the German raider WOLF). The three enjoyed limited success as only one mine was swept, this being off Cape Everard, Victoria on the 8th of September 1919.

All three were paid off from the Royal Navy in Sydney on the 18th of October and handed over to the RAN as part of the Royal Navy's gift to Australia. For the remainder of her career GERANIUM operated as a survey vessel, which often saw her operating in Northern Australian waters.

In mid 1923 GERANIUM was sent on a cruise to the Gulf of Carpentaria, a cruise which was to see the ship struck down by black magic and a mutiny of sorts.

On the way north GERANIUM called in at Cairns, and leave was granted. That night some of the men who were ashore ran across the Captain (Captain Harry Bennett DSO, RNI, and Lieutenant J.P. Dixon RN, and proceeded to use foul language in front of them. Later that night Dixon found oil waste and peanut shells littering his cabin.

Bennett called the crew together and spoke to them about the matter, asking if any had a complaint then they were to stay behind to talk to him about it (one man stayed but it was not known what was discussed).

GERANIUM finally arrived in Darwin where she provided a guard of honour for the unveiling of a memorial to Sir Ross Smith. While in Darwin Rear Admiral (later Vice-Admiral) Clarkson

KBE, CMG, was entertained onboard. As he and Bennett dined one night the lights failed and a number of men were heard outside the captain's cabin to sing 'Oh I don't want to die, I want to go home'.

The GERANIUM was far from being a happy ship, the crew wanted to go back to Sydney (and made this fact well known on many occasions), and they continued to be cheeky to Lieutenant Dixon (as they disliked his Royal Navy brand of discipline). Captain Bennett was worried about what the men might do, so he had the ships rifles removed from the Gunners Store to a safer place where the crew could not get at them. To make matters worse, a number of Aborigines had been brought onboard at Darwin to do general work. The GERANIUM's crew took offence when they saw that the head Aborigine was allowed to use a ladder which was restricted for Petty officers and above use. For the crew to use this ladder would mean instant punishment.

Finally prior to sailing from Darwin for the Gulf, a seaman who had been found drunk and absent without leave, and another who had sworn severely in front of the Captain were sent south on the steamer MONTORO.

However the GERANIUM's problems were not over. At Turtle Island one of the officers went ashore and found in the bush a strange log which was painted red and yellow with plugs of mud and leaves at each end. Pulling out one of the plugs the officer found the log had been hollowed out and contained Aboriginal remains. The log was taken back to the GERANIUM, where the Aboriginal workers onboard went into a

frenzy, refusing to touch the log and calling out that it contained a devil.

Nine days later on the 27th of June, the GERANIUM struck an uncharted reef near Vanderlin Island. The ship came off the reef that night and the damaged section was concreted over using cement which was kept onboard for making survey marks. Later one of the ship's whalers was swamped by a large wave and sank. After encountering very bad weather near Thursday Island Captain Bennett decided the Aborigine remains had to go, but even as they were being taken ashore the cutter they were being borne in was accidentally rammed by a pearl lugger.

The remainder of the trip to Moreton Bay (where the GERANIUM coaled before proceeding to Sydney) was uneventful. Despite her problems the GERANIUM had done some useful work (even discovering some species of fish previously not known to exist in Australian waters).

However, GERANIUM's days were numbered. She continued to carry out survey work and in June 1924 she embarked a Fairey III D seaplane for survey work, the first Australian ship to use an aircraft for surveying. On the 11th of November 1927, GERANIUM was paid off into reserve and was finally scuttled off Sydney on the 24th of April 1935.

END NOTES

1. Lew Lind: *History, Events of Australia Day* by Dan.
2. Ross Gilbert: *Australian and New Zealand Warships 1914-1915*.
3. *The Brisbane Courier*, August 18 1921.
4. *The Guardian*, August 1923.

NULKA... Active Missile Decoy System

Background

The NULKA Active Missile Decoy System is a product of hovering rocket technology developed by the Defence Science and Technology Organisation at Salisbury, South Australia. The full Scale Engineering Development of the system has been undertaken as a joint project with the United States under a Memorandum of Arrangements which was signed in August 1986.

The system consists of a controllable hovering rocket with a payload designed to seduce the guidance system of anti-ship missiles. Under the joint program, Australia is to develop the vehicle, the ship installed launch sub-system and to integrate the ship, launch sub-system, vehicle and payload. The United States has responsibility for the development of the payload.

Initial development trials were conducted at the Woomera instrumented range from October 1990 to December 1991. The success of these land based trials paved the way for sea trials on board the DDG, HMAS BRISBANE, in May-June 1992. The US also conducted their own land and sea trials during 1992 which culminated in a mini Operational Evaluation in December 1992.

System Description

The NULKA system comprises a Fire Control System which provides the means of control of the AMD system. With its own processor, the Fire Control System manages the launching of decoys from multiple launchers located around the ship. NULKA can be integrated with the ship's Electronic Warfare and Command and Control systems or can be "stand alone".

The Fire Control System comprises the following units:

- a. Primary Fire Control Panel (PFCCP), situated in the ships CIC, allows for control and monitoring of the system in a local condition.
- b. Secondary Fire Control Panel (SFCCP), located on the Bridge, serves as a secondary position for control of the system in the event of a casualty to the primary panel.
- c. Launchers. The system includes multiple launchers which are lightweight, deck-mounted structures, each holding four decoys. The

launchers have a small deck footprint and impose light reaction loads during decoy launch:

- d. Command Interface Module (CIM), situated in the CIC, provides the Command with a "fire-push" facility in the Remote condition and a "one-glance" indication of the operational status of the AMD system;
- e. Processor Power Supply (PPS). Each launcher requires a PPS to serve as an interface between the FCS and the launcher; and
- f. The Decoy. The hovering rocket decoy is held in a hermetically sealed

digital flight control unit mounted above the rocket motor. The combination of thrust and flight control enables successful decoy launches to be accomplished in severe sea state and wind conditions. Once launched, the decoy operates autonomously and, following its stored flight demands, moves away from the ship at a pre-programmed height and speed, thus presenting an alternative and more attractive target to the incoming missiles.

Current Status

Following the successful full scale engineering development program, another project, SEA 1229, has been established to acquire an Active Missile Decoy system, which uses the NULKA decoy, for the defence of RAN major surface combatants against Anti-Ship Missiles.

SEA 1229 is a phased project. The first phase is for the development of the RAN Fire Control System, installation of the system into a lead ship, an FFG, and Acceptance into Naval Service by December 1997. A subsequent phase allows for installation in the remaining five FFGs and in eight Anzac ships.

The contract for Phase 1 was let in June 1994.

The Department of Defence announced in January that the licence agreement for the NULKA active missile decoy had been signed with AWA Defence Industries (AWADI).

The licence agreement gives AWADI the right to market, manufacture and sell the NULKA system to the Royal Australian Navy and other approved customers.

AWADI was selected in 1988 as the Australian prime contractor to develop the vehicle and launch system and in the same year the United States Navy placed a contract with US industry for the development of the payload.

The development process involved both the Royal Australian Navy and the United States Navy in comprehensive sea trials of the system.

With development successfully completed and production underway, signing the licence agreement clears the way for AWADI to begin marketing in earnest.



A NULKA decoy is launched from an RAN guided missile destroyer

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THE OTTOMAN STEAM NAVY 1828 to 1923

By
Bernd Langensiepen
and Ahmet Guleryuk

Published by
Conway Maritime Press

Reviewed by
Ross Giffitt

Until I opened this new book from the stables of Conway Press, I was unaware of the magnitude of the former Ottoman Navy. For a start the number of major wars and minor conflicts involving the Ottoman Navy is quite amazing. From 1828 up to and including the Great War in 1914, the nation and its navy participated in no less than nine armed naval actions.

To accomplish all of these missions the Ottoman Steam Navy amassed a fleet comprising a variety of warships, some built locally and others constructed overseas.

For Australia, the RAN's only confrontation with the Ottoman Navy came in April 1915 when the tiny HMAS AE2 became the first allied submarine to breach the "narrow", the Dardanelles, and reach the Sea of Marmara. The book provides a good description of the action, obviously from the local point of view.

HMAS AE2 was finally sunk by the torpedo boat SULTANHISSAR in April and ironically, in early 1995, has only just been re-located sitting on the bottom of the Sea of Marmara.

The Ottoman Steam Navy 1828 to 1923 is divided into three main sections, plus appendices. The first is an outline of the various fleet states with the conflicts presented via a chronological description of the action. Part two is the photographic section, a compilation of more than 250 black and white illustrations, mostly finely reproduced for today's reader. The only drawback to the section is its lack of headings to highlight when one warship or class of ships begins and ends. The third part comprises the technical data of the all major warships and auxiliary fighting vessels.



From its earliest days up until the 1990s, the Ottoman and later Turkish navies have always invested in a strong force of minelayers, designed to block the "narrow", in times of war and halt the movement of enemy ships from the Black Sea to the Mediterranean and vice versa. Today one of these minelayers, the 1912 vintage NUSRET, ex YARDIM is now preserved ashore at an Army Park at Chanakkale.

Although books on the Ottoman Navy have never been readily available in Australia this new Conway release is sure to fill that gap, especially when one considers the presence of HMAS AE2 and the Anzac convoy and troops in the Gallipoli region from April to December 1915. Highly recommended.

* * * FREMANTLE'S SECRET FLEETS

Allied Submarines based
in Western Australia
during World War II

By
Lynne Cairns

Published by
The Western Australian
Maritime Museum,
Cliff Street,
Fremantle, WA 6160

Reviewed by
Vic Jeffery

This is a worthy addition to the information available on the activities of the largest

submarine base in the southern hemisphere during World War II, the Port of Fremantle in Western Australia.

Largely unknown due to wartime secrecy and security between 1942-45, some 416 war patrols, mainly by the United States Navy with 153, and later by the Royal Navy and the Royal Netherlands Navy (who had made earlier patrols under USN control) were made from Fremantle.

As the author points out, this book can only touch the wider range of topics and the details of patrols which warrant further research. However, with 23 chapters, four appendices, four maps and 63 interesting photographs, it is a good general summary and also looks at the social impact with chapters on The Home Front, Submarines on Leave, Maritime Marriages and The Economic Impact.

One small criticism I do have is in Appendix 1 which is titled Royal Australian Navy Submarines. Regrettably it ignores the significant slipping of HMAS ONslow, the first and only Australian submarine to be slipped on the old WA Public Works Department Slipway in Fremantle for a trial slipping in October, 1981. This information was made available but was not used. ONslow is, and will seemingly remain, the only RAN submarine to be slipped in Fremantle.

A useful addition to the subject of Fremantle submarine base, the main strength of this reasonably priced book lies in the details provided of the buildings and facilities requisitioned or leased, and the social impact.

*** THE ROYAL NAVY An Illustrated History By Anthony J. Watts

Published by
Arm and Armour Press,
London and distributed by
Capricorn Link (Aust), 2/13
Carrington Road, Castle
Hill, NSW 2154

Reviewed by
Vic Jeffery

This book is a good general history of the Royal Navy covering the last 180 years of its proud history from the triumphant aftermath of Trafalgar through to its present status as a vital part of the NATO alliance.

The opening double page frontispiece with a superb shot of the new, and the Royal Navy's second last cruiser, HMS LION proceeding to sea in 1961 sets the scene for the book - entertaining and informative narrative, detailed maps illustrating key battles, line drawings and 250 carefully selected quality black and white photographs.

Crammed into 256 pages are 46 chapters with coverage including: From Sail to Steam, Gunboat Diplomacy and Conditions of Service, The Iron Race, The Pre-Dreadnought Navy, The East Coast Raids, The Dardanelles, Jutland - Defeat or Victory?, Peace and the Rundown of the Royal Navy, Re-arming for War, The Battle of the Atlantic, Arctic Operations, Pacific Operations, The Cold War, and the High-Tech Navy of the Nuclear Age.

Anthony J. Watts is a renowned naval writer and he provides assessment and critique of decisions, designs and tactics over the period covered in this book.

I found this book difficult to put down, the short and concise chapters encouraging one to read on. With its informative coverage of the last years of sail through to today's "high-tech" ships and submarines, it is highly recommended reading to historians, ship lovers and anyone with an interest in the Royal Navy.

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In response to popular demand, SERVICE COMMEMORATIVES announces the long awaited release of a commemorative medal "FOR SERVICE AT SEA". THE SEA SERVICE MEDAL COMMEMORATIVE This S.S.M. Commemorative is to be available to all qualified British Commonwealth and Allied ex-service personnel. This medal is to commemorate all those who have performed service at sea. Sailors or Naval, Coast Guard and Merchant services are eligible provided they have served at sea in ships, aircraft, or in submarines. Soldiers and Airmen who have served aboard Naval or Merchant vessels or in Army small ships, service rescue boats or sea-going tenders/auxiliaries etc., will be eligible.

Airmen will be eligible if they have completed one sortie that has been predominantly of a maritime nature. For all services the qualifying period is one voyage or sortie, except for those on troop ships, hospital ships and special purpose ships, who should have, either continuous or aggregate, a total of ten days at sea. Both this superb medal and its miniature are STRUCK (not cast) and have a high grade bright nickel finish that will not require polishing. This is not some inexpensive casting. (The medal and ribbon suspender bar are a two piece assembly, for both the full size medal and the miniature.) The design is deliberately reminiscent of the by gone days of "Empire". The medal's beautiful WATERED ribbon is ocean blue merging into white; one edge of the ribbon has a narrow stripe of red, the other edge of the ribbon has a narrow stripe of green. When worn, the red should be nearest the left shoulder. The colours of the ribbon represent the ocean and the colours of ships' lights.

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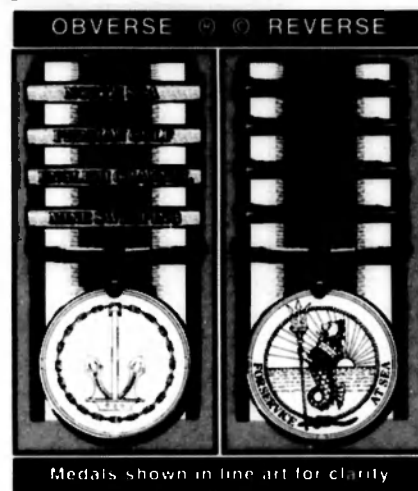
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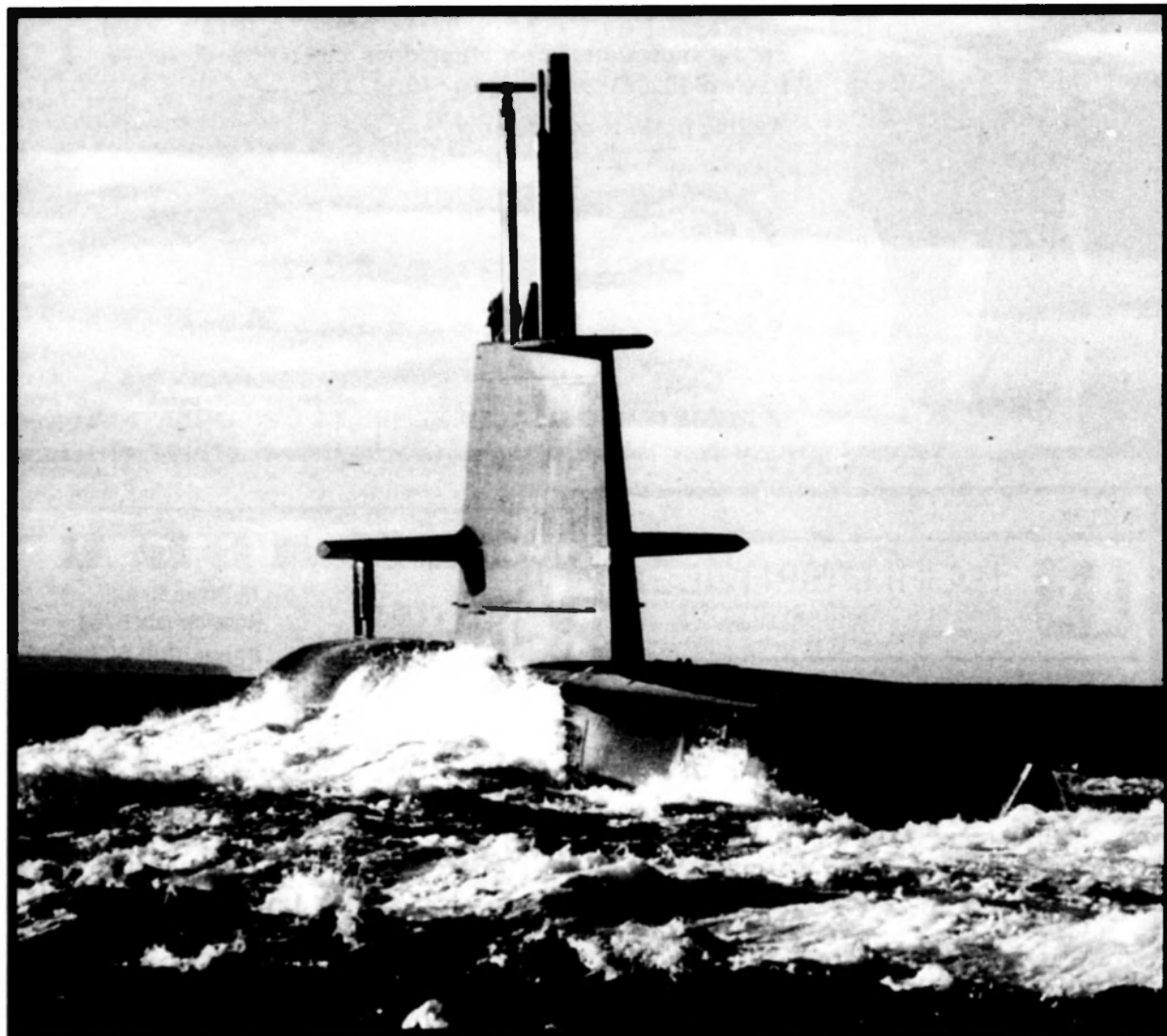
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\$3.50
October-December 1995
Vol 57 No 4

The Magazine of the Navy League of Australia



In this Issue

	Page
A Slow Boat to Stirling	3
RAN in WWII.....	10
New Destroyers	12
Singapore's Navy	15
RAN "Fleet Poster"	18-19
PEGASUS	20
Launching PARRAMATTA	26
HMCS VANCOUVER	27

Regular Features

	Page
Viewpoint	1
In Brief	9
History Revisited	21
Naval News	22
Book Reviews	31


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OPVs, HOW MANY IS ENOUGH?

There has been considerable discussion about the proposed successor to the Fremantle class patrol boat. The debate is about the type of vessel needed and the number that should be obtained.

One option that is said to be under consideration is for a vessel much larger than the present Fremantles. Apart from benefits in range and seakeeping the real need for the increase in size is to enable this new vessel to carry a helicopter.

This type of vessel would no doubt have greatly increased capabilities. It is envisaged that it would have much better self defence than the Fremantles. The helicopter would increase the area it could cover very considerably. The RAN in acquiring such a ship would be taking a step up from patrol boats to something much more capable. A real

offshore patrol vessel (OPV). Some navies would call them corvettes.

In addition to increased capability another factor which will be affecting the mind of both Navy and government is the prospect of such a vessel presenting the opportunity for a joint venture with Malaysia.

The prospect of a larger helicopter carrying OPV is attractive. So too is the concept of a Transfield consortium building these ships in concert with Malaysia. The whole prospect seems a plus. Bigger more capable ships being produced for the RAN in a programme

with real industry, trade and diplomatic benefits.

There always seems to be another side to the coin. In this case coin is the relevant word. If rumours are correct the cost of building these new ships would be such that 15 Fremantles will be replaced by 9 OPVs.

There seems to be a trend here. 20 Attack class patrol boats were replaced by 15 Fremantles. Now it is suggested that 15 Fremantles be replaced by 9 OPVs. Are the capabilities of the new ships such that they can make up the difference? Or is it that there will be less work for them to do?

In this context it is worth noting that the 200 nautical mile Australian Exclusive Economic Zone has recently been proclaimed. At the same time Australia has acquired

new rights over the Continental Shelf. Within the Exclusive Economic Zone (EEZ) Australia has sovereign rights over the resources of the water, the seabed and what lies beneath the seabed. On the Continental Shelf Australia has sovereign rights over the seabed and what is beneath it. The two areas overlap. The total offshore area to which Australia, on one basis or another, now claims sovereignty is about 15 million square kilometres. This includes water and seabed not just around Australia. There are Christmas and Cocos Islands in the Indian Ocean. Lord Howe and Norfolk Islands in the Pacific. Heard, McDonald and Macquarie Islands in the Antarctic. The offshore areas of Australia's Antarctic Territory are also included.

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Cargo Deadline for next issue: 5th November 1995

The opinions and assertions expressed in articles in *The Navy* are those of the authors and are not necessarily those of the Federal Council of The Navy League of Australia, the Editor of *The Navy* or The Royal Australian Navy.



Former RAN Attack class patrol boat.

Dear Sir,

Firstly, many congratulations on a very interesting and worthwhile publication, *The Navy*.

In reference to the photograph of the "Mystery Ship" on page three of your Jan-Mar 1995 issue. The ship in the photograph bearing the pendant number 71 appears to be HMAS LUCY STAR. The ship is referred to in Vera Bradley's book "I Didn't Know That" on page 206 and 207. It appears that the ship operated out of Cairns.

Yours sincerely

A.J. Pearson
North Rockhampton 4701

Dear Sir,

Please find enclosed a photo taken in Port Moresby in early May this year.

I believe it shows an ex RAN patrol boat badly in need of a refit. This may be of interest to readers of *The Navy*.

I apologise for the poor quality of the photo. The photo was taken in a hurry from Paga Hill.

I hope it is of some use to you. Perhaps someone will give me more information on the fate of the ex RAN ATTACK boats in PNG service? I know at least two of them were moored in Moresby Harbour in a very poor state of repair in 1992.

Yours sincerely

M.W. Meredith
Berkeley Vale 2261

OPVs HOW MANY IS ENOUGH?

CONTINUED

To patrol so large and in some cases distant waters will no doubt require ships larger than our present Fremantles. But surely we will need more than 9. That number would suggest no more than 5 or 6 available at any one time. We seem to be taking on increasing maritime responsibilities at the same time as we contemplate reducing our ability to handle such responsibility.

Will we try to make do with just 9 vessels? Will some jobs presently done by the Fremantles be left to Customs, Fisheries, Immigration or

Coastwatch? This seems unlikely. It may be that Navy will, given budgetary constraints, have to make a choice between having more OPVs and getting less of something else. This difficult choice might involve the question of replacements for the DDGs. Whatever the solution, it is to be hoped that it results in more than 9 OPVs. Graham HARRIS
Federal President

THE NAVY LEAGUE OF AUSTRALIA

ANNUAL GENERAL MEETING

1 9 9 5

Notice is hereby given that the
ANNUAL GENERAL MEETING

of

THE NAVY LEAGUE OF AUSTRALIA
will be held at the South Park Motor Inn,
Main Conference Room, No 1 South
Terrace, Adelaide, South Australia on
Friday 17 November 1995 at 8pm

B U S I N E S S

1. To confirm the minutes of the Annual General Meeting held in Canberra on Friday 11 November 1994.
 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 30 June 1995.
 4. To elect Office Bearers for the 1995/1996 year as follows:
 - a) Federal President
 - b) Federal Vice President
 - c) Additional Vice Presidents (2)
 Nominations for these positions are to be lodged with the Honorary Federal Secretary prior to the commencement of the Annual General Meeting.
 5. General Business:
 - a) To deal with any matter notified in writing to the Honorary Federal Secretary by 28 October 1995.
 - b) To approve the continuation in office of those members of the Federal Council who have attained 72 years of age, namely Arthur Hewitt (WA), Eric Mahony (ACT), Joan Cooper (Tas), Mervyn Cooper (Tas)
- ALL MEMBERS ARE WELCOME TO ATTEND**
By order of the Federal Council
Roger Blythman
Honorary Federal Secretary
PO Box 309 Mt Waverley 3149
Telephone (03) 9888 1977
Fax (03) 9888 1083



HMAS OVENS departs from Sydney for the final time, 4 August 1995. (Photo - Naval Photo Unit)

A SLOW BOAT TO STIRLING

By Mike James

In a career spanning 26 years, HMAS OVENS has on numerous occasions quietly slid down one of the most magnificent harbours in the world, but this would be her final such voyage. After some 407,000 nautical miles, OVENS was commencing her last voyage from Sydney, a journey of 21 days "round top" around northern Australia bound for HMAS STIRLING.

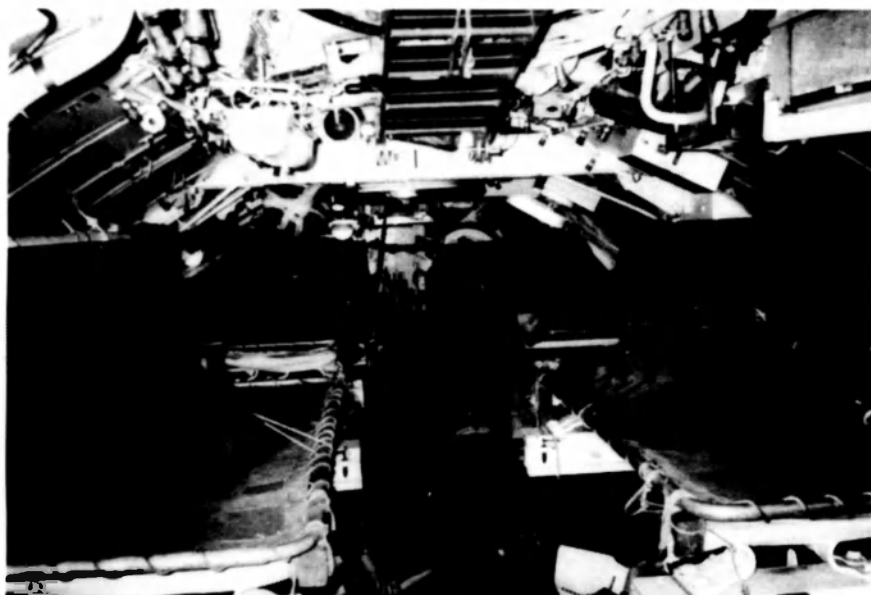
OVENS departed from the submarine base at HMAS PLATYPUS for the final time on Friday, 4 August 1995. A crisp sunny winter morning saw OVENS, some sixty crew, fifteen trainees, four assorted media and one somewhat apprehensive "NAVY" correspondent, slide down harbour, dodging the ferries and jetsats

and quietly run for the Heads. As quietly as one can that is, with a television helicopter buzzing around the masts like a hyperactive blowfly at a B-B-Q.

Fortunately, upperworks still intact, OVENS escaped to the open sea and turned left, bound for HMAS STIRLING in WA. The 21 day journey would give the large contingent of Phase 3 trainees aboard the opportunity to gain additional experience towards the coveted "Dolphin" submariners badge. A passage through the Great Barrier Reef would also provide advanced pilotage training for a number of the watchkeepers. As OVENS dive certification had lapsed, it had been decided that a southerly surface passage in the depth's of winter might be a bit much

on the stomach's of some of the less hardy souls. A television crew from the Nine Network's 'Today' programme was aboard to record the unique nature of the life aboard while a photographer from the 'Age' newspaper compiled a photo essay of the submarine's routine. All declared themselves "surprised" by the conditions aboard, with some expressing themselves even more strongly.

Several hours passed, while below, the usual bustle of departure gave way to the quiet routine of submarine life and the never ending training that accompanies it. As your correspondent delved into any nook and cranny in search of a story, he rapidly discovered two facts: firstly that a submarine has a huge number of nooks



Torpedo room, on this trip home to 15 trainees and 1 'NAVY' correspondent

and crannys, and second; they're all filled with protrusions cunningly designed to catch unwary passers-by in various painful locations. At 185cm (6'2" in the old money) I was not the tallest person on board, by several inches, but soon developed a decided stoop to avoid bouncing my skull off the overhead maze of pipes and panels. How those taller others made out I never quite understood.

A gentle south-easterly swell followed us up the coast towards Newcastle. Down below the camera crew was everywhere, dragging a veritable ton of gear into compartments manifestly too small for half of it. Reporter, cameraman and sound man all joined by an umbilical of cables and other gubbins. At one stage the media circus climbed to the dizzy heights of the bridge, somehow managing not to lose anyone over the side or dropping anything while 'traipsing' up and down ten metres of narrow ladders and ladders. Initially I thought the camera man seemed a little too attached to his gear, later I learned the camera alone was worth over \$80,000!

Fortunately the troops took the media invasion in good spirits and got on with the million and one things that need to be done on a submarine at sea. The trainees, recognisable by their uniformly harassed look, were bombarded with questions on

all aspects of sub operations. Too often the answer was "Sorry Chief, I'm not sure", to be followed by a stern admonishment and directions on how to find out. Clusters of trainees could be found in the fore-end torpedo room, heads bowed in study as they re-read passages from various training manuals and contemplate the requirements of their taskbooks, which must be signed off to acknowledge proficiency in tasks before they can progress closer towards those "golden dolphins".

About noon the steward, Leading Seaman Birch, ferrets me out to ask what I would like for lunch. Surprised that I have a choice, I ask what's on the menu, to be told that the "scran" is Chicken Kiev, veal cordon bleu, rump steak or stir fried Calamari. Somewhat overwhelmed I selected the rump steak and watched anything while 'traipsing' up and down ten metres of narrow ladders and ladders. Initially I thought the camera man seemed a little too attached to his gear, later I learned the camera alone was worth over \$80,000!

There are two overwhelming sensations of life on OVENS. The first is the continuous roar of the diesel engines that charge up the huge banks of batteries which in turn power the rest of the ships systems (after while only truly noticed when it stops). The second is the insidious taint of diesel that permeates everything on the sub and, in the words of one crew member, "it's like a bloody mongrel dog,

it follows you home". Advice from experienced submariners is that when you get off the boat, wash your clothes separately from other washing to avoid the smell of diesel spreading through your other clothes. From hard won experience I can also attest to how hard it is to get the taint off the skin and out of your hair.

1300 arrives and with it lunch. Eating in the wardroom, the feeling is of living in a tiny 1960's caravan with no windows, with cupboards and cunning hideaways everywhere to store all the gear, even the seat cushions lift up to reveal additional storage. Later I learn that the fit out was in fact done by a well-known caravan manufacturer. The wardroom is office, sleeping quarters, dining room and recreational space for up to six officers at a time, sometimes more.

The food is plentiful and delicious, much to the amazement of the media, who have difficulty believing that so much can come out of a galley barely 2.5 x 2 metres. The Chief, Leading Seaman Dave Egley, and his two trainees whip up almost eighty meals three times a day. Even worse, when in submerged watches, they have to produce four meals a day, averaging one every six hours. Due to the requirement to keep watches, everyone is fed in shifts so a meal break can really take up as much as two hours to get



Looking aft down the passageway past the senior sailors mess towards the galley and wardroom.

through. After cleaning up the plates and scrubbing up the galley, the chef and his mates get to back up and do it all again.

After a quick diversion into the harbour at Newcastle to transfer the Channel 9 crew into a boat for the trip ashore, OVENS headed back out to sea. The navigation crew finally able to stand back from the chart table after running a continuous plot throughout the run in and out of the harbour approaches and the actual manoeuvring inside the port. The navigation of the sub in confined waters requires close coordination between a number of personnel on the bridge, another person "shooting" the bearings of prominent landmarks through the periscope, yet another monitoring the depth sounder, and the navigator and the watchkeepers actually plotting the course on the chart table.

Every two or three minutes the navigator reports the submarines position, accurate down to a few yards thanks to the help of the Global Positioning System.

This miracle of computer technology takes continuous bearings on a number of satellites in geosynchronous orbit high above the earth and gives a latitude and longitude reading on a monitor just above the chart table. With the accuracy of the GPS, within several metres, the frenetic activity at the plotting table may seem a bit redundant, but as one of the watchkeepers pointed out, "computer gear has a bad habit of breaking down just when you need it most".

The passage out from Newcastle took OVENS almost directly ahead of the growing south-easterly swell, increasing the submariners roll and starting the first signs of queasiness in the stomach, definitely not improved by the fumes from the diesel engines. Several of the trainees also looked a little sick so your correspondent didn't feel totally on his own. After all misery loves company.

Moving through the boat, one is struck by the total lack of personal space. In the passageway crewmembers have to flatten themselves against the walls to allow each other to pass. In the messes it's a better story but only in comparison with the passageways. In some cases you don't even have a bunk to call your own, the unfortunate requirement being to "hot bunk". This involves two people using the same bunk at different times with each person using a sleeping bag. If the food is 4 star the accommodations in "Chez OVENS" probably rate no more than a half star, and that's being exceptionally generous.

Sitting in the wardroom over a cup of coffee, one quickly learns to decipher the quiet reports of the intercom, repeated on a speaker in the wardroom and another in the captains cabin, keeping even those off watch continuously up to date on the state of the boat. One of the most common messages is relaying requests up to the bridge for personnel to go up for a breath of fresh air. At all times a list of the number of personnel on the bridge and their names are kept in the control room. Even though OVENS will not be submerging on this last trip hard experience has made the rules unbending when it comes to crew safety.

As darkness descends the boat's routine changes as well. Red lighting replaces white in the control room, wardroom and the captain's cabin to aid in maintaining the watchkeepers night vision. Thick curtains block the passageway's leading forward and aft to prevent white light from spilling in. Dinner is served in the wardroom however an attack of sea-sickness prevents me from enjoying the chef's latest culinary marvels. Perhaps just as well as the red lighting makes the food look rather less than enticing. The XO, Lieutenant Doug Theobald, jokes that this way you can't see if the food is undercooked, burnt or just about right.

Over dinner the chatter is about former and future postings, runs ashore (best left unreported), mutual acquaintances in the submarine service and the wider navy. With less than six hundred active members of the submarine arm everyone knows everyone else. One of the main topics is the new Collins class submarines coming into service over the next few years. Several members of the complement of the second Collins, FARNCOMBE (completing at Osborne in

South Australia) have been brought aboard OVENS to assist in the current trip.

Most of the crew of OVENS will eventually undergo conversion training to the new submarines. The differences between the Oberons and the Collins classes can best be illustrated by comparing an EH Holden with a 1995 Commodore Calais. Sure, you can upgrade some of the equipment on the EH, but there comes a point when improvements to equipment can only go so far. The Oberon class are still a remarkable effective platform, as demonstrated in numerous exercises. Even the much vaunted nuclear fast-attack submarines of the United States Navy don't always have things their own way when they play against the 'O-boats'.

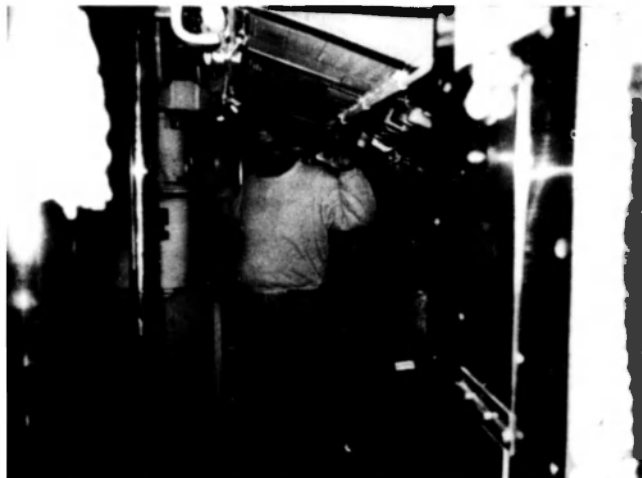
One thing that continues to amaze the US submariners though, is that people actually live on an Oberon. American submarines are up to four times larger than OVENS and have about twice the crew. The big ballistic missile submarines are more than twice as large again. Most US submariners consider themselves hard-done-by in comparison with surface ships however they're frankly incredulous that more than sixty people can live in something as small as OVENS let alone beat something as impressive as an American Los Angeles class sub. Just goes to show that bigger doesn't necessarily mean better.

Despite the still impressive capabilities of the OVENS and her sisters, the crew is looking forward to the new Collins class and the quantum improvements in capabilities and living conditions that they will bring. The first of the class, COLLINS will commission in the near future, to be followed by another five over the next few years.

Ten o'clock arrived and with it lights out in the forward torpedo room. I was bundled in there with the fifteen phase three trainees, occupying the space normally taken up by torpedo's and Harpoon missiles. With these gone, metal frames had been set up with canvas lashed between the frames to make stretchers. Getting into the huge sleeping bags issued was a major job in itself. In a bureaucratic bungle, OVENS had been issued with sleeping bags way too large for the bunks on board. Over six feet long and a giant built in pillow, they were almost impossible to fit into the standard bunks. Given that most of the bunks had sixty centimetres or less of vertical height, the pillows were the first things to go, simply to leave enough room for the person to sleep. A foot or two of the bottom of the bag usually hung out of the end of the bunk, simply because there wasn't room for it in the bunk.

The following morning found OVENS ghosting into the quiet sheltered waters of South West Rocks. A sleepy hamlet on the NSW mid-north coast, OVENS was here to

A SLOW BOAT TO STIRLING



Your intrepid (and somewhat green) correspondent, in the control room between the periscope and the diving control board.

participate in a wreath laying ceremony to commemorate the fiftieth anniversary of the end of war in the Pacific. Anchoring some kilometres off the town, the captain, LCDR Mel Jones, and ten members of the crew in ceremonial blues are ferried ashore by local dive boat to take part in the ceremony while on board OVENS a number of the crew take the opportunity to come up onto the casing to get some fresh air, have a cigarette and in some cases, fish.

The arrival of something as darkly menacing as OVENS off such a quiet township as South West Rocks ensures a stream of small craft come out to get a close up view of this strange visitor. The dive boat returns with a family who had won a local competition to look over OVENS and the family, mum, dad and two shy young girls, are escorted through the submarine by several members of the crew. The officers and crew of OVENS seem to take an almost perverse delight in showing visitors the difficult conditions of the world in which they live and work. As they depart, each wearing an OVENS ball-cap, the general consensus amongst the visitors is that they could not live in OVENS but they have nothing but admiration for the submariners who do.

Meanwhile, up on the casing, the impromptu fishing party seems to be doing the right thing as several reasonable size fish of various types were hauled on board, along with a selection of 'little-uns' that are thrown back as too small. On shore, the remembrance ceremony on the point overlooking the township went off splendidly in front of some five hundred or more locals. When the party returns they

are laden down with ice creams, lollies and the morning papers. On a submarine it is all too easy to lose touch with the outside world so the newspapers will do the rounds amongst the entire crew, helping them maintain contact with things we on shore take for granted like how our favourite team might be doing or the latest political storm in a teacup.

Returning with the shore party was a small group of media and dignitaries from Coffs Harbour. OVENS had been granted the freedom of the city of Coffs Harbour and the party was aboard to experience some of OVENS final voyage. The group included a local television crew, a journalist from the Coffs Harbour Advocate newspaper, the Mayor of Coffs Harbour and the State and Federal members of Parliament for the region. They would be making the day trip with us to Coffs where they would disembark via boat transfer but were looking forward to a well-high unique experience.

As the media wandered about the sub, I was able to spend some time chatting to OVENS Commanding Officer, Lieutenant Commander Mel Jones. A former Royal Navy submariner who joined the RN in 1976, he had served on a number of boats, both nuclear and conventional, before transferring across to the RAN in January of 1995. OVENS was his first RAN command but previously he had commanded two members of the RN's latest class of conventional submarines, the Upholder class. As C.O. of HMS UNSEEN and HMS UNICORN, it has been his melancholy duty to decommission both boats in turn in accordance with the recent UK

government decision to cease operating conventional submarines and concentrate exclusively on nuclear submarines.

Following his transfer in January 1995, LCDR Jones was initially posted to the staff of the Commander, Australian Submarine Squadron before taking command of OVENS in May. Once OVENS decommissions at the end of the year, he is taking up a short posting to Submarine Sea Training Group before commencing Collins conversion training preparatory to taking command of one of that class. As Mel put it he was "looking forward to commanding a submarine that he won't have to decommission".

Now living with his family in Western Australia, which he described as 'Paradise' after thirteen years posted to Faslane in Scotland, Mel finds himself in a unique position. Having commanded an Upholder class and now preparing to eventually take command of a Collins class, he will have had the opportunity to compare the two most modern and capable conventional submarines (or SSK's) in the world. In the meantime he is looking forward to getting to HMS STIRLING in Western Australia at the end of this voyage and taking some well earned leave before taking up his new post.

The Federal and State members for the Coffs Harbour area, Garry Nehl and Andrew Fraser, together with the city's Mayor, John Smith, were impressed by life aboard, with Mr Fraser describing it as 'a real eye-opener'. Following lunch, yet another culinary marvel from the chef and his assistants, the distinguished guests climbed up to the bridge to catch a view of the coast slipping by and took the opportunity to chat with various members of the bridge watchkeeping team.

As we ran up the coast the swell increased and OVENS rolling grew progressively worse. Have to off the entrance to Coffs Harbour, the boat's roll set more than a few stomachs churning as we waited to disembark. I was looking forward to getting on to dry land when the word filtered down from the bridge, 'Sorry, too rough for a boat transfer. Look's like you are stuck on board for another night. We will try and get you off at Byron Bay tomorrow morning'.

"What!" Feelings of mild panic overtook the visitors as they contemplated the thought of contacting friends and family. As for myself, I had visions of my flight back to Sydney winging its way south without me. En masse, there was a stampede of people up to the bridge, mobile phones at the ready. Fortunately the mobile network extended out far enough to sea to allow everyone to alert family and friends and try and make alternative travel plans. As I sat perched on top of the sail I could see dolphins briefly playing at the bow, leaping from the darkening sea across OVENS path. Given the dolphins traditional association with the submarine arm I considered their appearance a good omen.

A SLOW BOAT TO STIRLING

As night fell I reluctantly left the fresh air of the bridge and climbed back down into the control room. Red lights were already in place and dinner had already started. That was fine with me as I was still not feeling too well and I went looking for something to distract me from the feelings of nausea that the boats motion was conjuring up.

What I found was Leading Seaman Bryce Chandler of Bourne in South Australia. An eight year veteran of the RAN, four and a half of those years had been spent in various postings to OVENS. When asked what attracted him to the submarine service he replied that it was the lure of something different, and subs were certainly that. As part of the move of the Submarine Squadron from PLATYPUS to STIRLING, he was now a resident of Rockingham in Western Australia. As I left him to continue his watch in the engine room, I reflected that he was probably looking forward to OVENS decommissioning so that he could be posted to a submarine that wasn't OVENS.

The chief's mess was taking in a movie on the mess video machine. The wardroom and most of the messes have a video machine, allowing each to show a different movie. OVENS left Sydney with twenty one videos for the twenty one day trip, enough for each mess not to double up. The video's ranged from action thrillers like Under Siege, comedies such as Arnold Schwarzenegger in Junior to the eclectic Forest Gump. According to the chief's they help take your mind off the sheer boredom that can be part and parcel of being on a submarine.

Back in the wardroom, the guests were chatting with the C.O. and X.O. who

informed them that they would attempt a boat transfer at six the following morning. The visitors suggested that the C.O. was reintroducing that fine old RN tradition of the press gang to the RAN to alleviate the submarine arms recruitment problems. After some time spent chatting and 'spinning warries', conversation turned to other matters. In particular the VIP's were interested to learn of OVENS eventual fate in light of her close association with the City of Coffs Harbour. LCDR Jones explained that it is planned to use her as an alongside training submarine until 1997 when she will be handed over to the WA Submarine Association.

Their intention is to submerge OVENS up to the casing in concrete, allowing her to be used as a display open to the public, in addition to acting as a memorial to the submarines that operated from Fremantle in World War Two. Mr Nehl suggested that it was a far better fate for OVENS than being torn up for scrap metal to make razor blades. It was suggested that another submarine, one of the new Collins class, might take over the OVENS close association with the district.

Later that evening I watched as the visitors came to grips with the cramped nature of life aboard. Much as I had when I first came on board, they were managing to find every protrusion and hatch coming to snag clothing on or hit their head on. Over the past twenty four hours I had learned to 'think small' and in doing so had discovered how to get around OVENS without unnecessarily disrupting life aboard. Living aboard is a challenge, more mental than physical. Perhaps the thing that I had found most difficult to become used to was the complete lack of privacy

and personal space aboard. Personal space stopped at your skin and privacy might only be found in a curtained off bunk, and even that might not be exclusively your own if it had to be shared with someone else when 'hot bunking'.

As the conditions worsened I headed forward to the torpedo space to try and



Looking aft through the alley between the two 16 cylinder diesel engines.

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A SLOW BOAT TO STIRLING

get some sleep. As I lay on my rack I became aware of one of the trainees in a nearby bunk. This wretched individual was suffering from chronic sea-sickness, leaving him unable to do much more than lie there in a miserable state. Shortly afterwards the Coxswain, "Jack" Frost arrived with another trainee in tow. He had to give the stricken trainee an injection designed to alleviate the worst of his sufferings and was taking the opportunity to teach another trainee the proper procedure for giving injections.

As I watched the preparations take place it struck me that no opportunity was missed to continue the never ending training that is part and parcel of submarine life. Shortly afterwards a muffled yelp announced the arrival of the needle in the appropriate place, followed by the 'swains cheerful inquiry as to how he felt. "Took my mind off my stomach" was the muttered reply. Several minutes later he was sound asleep, proving that whatever had been in the needle worked.

The following morning I was shaken at five thirty to get ready to depart. The sheltered waters of Byron Bay were calm enough to allow us to transfer to a boat that was waiting for us. The chef had even managed to prepare breakfast for us before we disembarked. The climb

halfway up the sail to the forward hatch led out onto the casing, the air chilly after the warmth below, to find the Volunteer Coastal Patrol Boat alongside and waiting for us. With everyone aboard and with a wave from the C.O. on the bridge, OVENS turned and made for the open sea.

As I watched OVENS disappear into the dawn light, I reflected on life on a submarine. While it may not be me I had nothing but admiration for the men (and soon to be women) of the submarine service. Their life is totally unlike any other, they live in conditions that would cause a riot if prisoners were put in them, yet remain cheerful and hospitable even to novices like myself. OVENS has been the spearhead of Australia's maritime deterrence for a quarter century, silently and invisibly deterring would-be aggressors by her simple presence and the outstanding skill and daring of her crews.

Now on her way to Western Australia and an honourable retirement, she makes way for her younger and deadlier sisters. Those new submarines, huge and potent as the Collins class may be, are nothing without dedicated officers and sailors to man them. Based on what I witnessed of the people on board OVENS, the future of Australia's submarine arm is in good hands.



The galley, tiny for the number of meals it has to produce, 80 at a time!

"Behind the Wheel" of HMAS ONSLOW

HMAS ONSLOW (LCDR M.A. SANDER) recently capped off a successful shake down cruise by hosting a film crew from the television programme "Behind the Wheel". The segment was compared by renowned musician and television personality James Morrison. ONSLOW embarked the film crew by boat transfer in Sydney Harbour before proceeding to sea off the heads. After division the Submarine went deep and conducted a series of high speed manoeuvres to the delight of all concerned.

Black lighting and filming proved to be incompatible operations, but with the help of red torches and a lot of improvisation a satisfactory impression of the "Control Room by Night" was achieved. There was a little concern expressed when Mr Morrison was offered a chance on the helm but his first attempt was good enough to earn him more than one offer of a spot in the watch.

The dives festivities were concluded with an exercise emergency surface from 120 feet which was filmed by another crew embarked on TRV TREVALLY (CPOB HARBER). From all accounts the sight of the Submarine rising from the depths was spectacular, with comments that it was better than the scene from "The Hunt for Red October".

After coming alongside HMAS PLATYPUS the ships company were given a further opportunity to become film stars while some scenes were re-shot and interviews of a few select personnel were



HMAS ONSLOW. (Photo - Brian Morrison)

conducted. The BTW crew were given a comprehensive tour of a boat before they were forced to drag themselves back into the fresh air and sunlight to return to the studios.

IN BRIEF

By FG Evans

DIPLOMATIC DISARRAY

At the beginning of 1995 it was inconceivable that by mid-year Australia would be diplomatically at odds with two major countries and publicly criticising a third. In July Indonesia decided not to replace its outgoing Ambassador, basically because of the Timorese sore that refuses to heal, while in August France recalled its Ambassador over the nuclear testing issue. China was criticised for much the same reason as France - nuclear testing - but for some reason did not receive the same attention in Australia as that directed at France.

Rude exchanges between diplomats and the governments they represent are one thing, the effect on trading relations between countries is another, particularly at a time when commercial links tie countries even more closely together.

National defence forces are caught up at both diplomatic and commercial levels. Governments can and do withdraw their military representatives abroad on occasion, they can and do refuse to allow their forces to take part in joint training exercises etc. In the commercial area, major items of defence equipment - ships, aircraft tanks etc. - contain many components of foreign origin, vital if the equipment is to function.

Australian defence equipment is no exception and the writer has often wondered how the ADF would get on in the event of becoming involved in a prolonged military struggle or to sustain damage in a short, sharp skirmish. Could Australian defence industry replicate every essential component originating in a foreign country if that country declined to co-operate?

The same question could of course be asked in other countries, including those that purchase Australian-made or assembled equipment, some of which will probably include components made in other countries, possibly even in France or China!

Oh!, the problems we have as the 21st century draws nigh.

MEDICAL STANDARDS

Without wishing to be drawn into anti-discrimination or

human rights issues, the writer believes the armed forces must be allowed to determine their own medical standards, although they may well vary between sea, land and air forces and categories within each service.

The ADF is no place for the faint-hearted and those who seek to equate relatively "soft" civilian life with Service life and to impose their own standards of physical fitness on servicemen and women are out of touch with reality.

LOSS OF THE IRON BARON

To members of the maritime community, the sight of a ship sinking is usually a distressing occasion even when the vessel is a far from graceful bulk carrier such as the IRON BARON.

On the night of 10 July 1995 the ten-year-old IRON BARON, 37557dw, operated by BHP Transport, stranded on a reef off the mouth of the Tamar while preparing to enter and discharge a cargo of manganese ore at Bell Bay. The weather was foul at the time.

Damage to the hull allowed a quantity of fuel oil to escape in the first few hours and decreasingly thereafter, resulting in uproar in the local community and environmental groups when it drifted ashore coating penguins and other sealife in the process.

As an inquiry into the grounding has not been carried out as this column is completed, any comment as to the possible cause would be improper, however some facts concerning subsequent operations are well known.

IRON BARON was not refloated until 16 July and towed to an anchorage nearby. Entry to the river to enable cargo to be discharged and temporary repairs effected was declined and on 25 July a decision was made to scuttle the ship: on 27 July the ship was towed into the Tasman and scuttled in about 4000 metres three days later.

The reason for deciding to sink the ship and her cargo will be awaited with interest but it is reasonable to assume that environmental considerations and adverse publicity played a part.

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THE ROYAL AUSTRALIAN NAVY IN THE SECOND WORLD WAR

By Joe Straczek

From the outbreak of the Second World War until the cessation of hostilities in August 1945 the men, women and ships of the Royal Australian Navy served in every theatre of operations, from the tropical Pacific to the frigid Russian convoys. They took part in almost every major naval battle from the hunting of the BISMARCK, the landings on D Day through to the savage kamikaze attacks in the Philippines and Okinawa.

The personnel and ships of the RAN helped the Allied Navies establish and maintain command of the seas. It was this command that allowed the troops, equipment and material of war to flow to the battle fronts in the Middle East, Europe, Asia and the Pacific. Ultimately, it was command at sea that allowed the Allied forces to finally win the war.

At the outbreak of the war HMAS PERTH was the first Australian unit on active service. After the final surrender ships of the Royal Australian Navy were employed in the repatriation of Australian service personnel and the acceptance of Japanese surrenders throughout the south-west Pacific. After the war RAN ships were involved in the dangerous but important task of clearing Australian waters of mines.

Personnel

The Royal Australian Navy paid a heavy price during the Second World War. A total of 2,176 men and women died in the war. This represents 5.5% of the peak wartime strength of the RAN. 1,740 Australians died serving in RAN ships, included in this native crewmen and civilian canteen staff. The peak wartime strength of the Navy, on 30th June 1945, was 39,650 personnel of all ranks. This included the Women's Royal Australian Naval Service and the Nursing Services.

Awards

During the Second World War members of the RAN received the following awards:

CC	4*	MBE	42	GM	9
CB	3	2nd Bar to DSC	2	Bar to DSM	2
CMG	1	Bar to DSC	10	DSM	157
KCVO	1	DSC	149	BEM(mil)	35
CBE	8	DFC	1	MID	601
Bar to DSO	3	Albert Medal	1	Commendations	12
DSO	18	CGM	1		
CBE	31	Bar to GM	3		

*The George Cross is equivalent to but ranks behind the Victoria Cross

A large number of foreign awards were also bestowed upon members of the RAN.

Ships

Prior to the outbreak of war in September 1939 the seagoing strength of the RAN consisted of:

HMAS CANBERRA - Heavy Cruiser	HMAS VOYAGER - Destroyer
HMAS HOBART - Light Cruiser	HMAS SWAN - Sloop
HMAS SYDNEY - Light Cruiser	HMAS YARRA - Sloop

The light cruiser HMAS PERTH which had commissioned in June 1939 was overseas at this time.

Other ships were either in reserve or under the orders of non-operational authorities.

On the 30 June 1945 the main combat strength of the RAN consisted of:

2 - Heavy Cruisers	33 - Fairmile Motor Launches
1 - Light Cruiser	28 - Harbour Defence Motor Launches
11 - Destroyers	3 - Landing Ships Infantry
6 - Frigates	3 - Anti-submarine Auxiliaries
2 - Sloops	6 - Auxiliary Minesweepers
53 - Corvettes	1 - Minelayer



"Skinheads" aboard the Australian Minesweeper HMAS COOTAMUNDRA, 1944.

These ships were supported by over 200 other vessels ranging from fleet oilers and repair ships through to Auxiliary Patrol vessels and tugs.

Of the ships in commission prior to the outbreak of war all except HOBART and SWAN were sunk. Though HOBART did sustain serious damage as a result of a torpedo hit.

The major losses suffered by the RAN included:

1 - Heavy Cruiser	3 - Stores Carriers
2 - Light Cruisers	1 - Water Carrier
4 - Destroyers	2 - Fairmile Motor Launches
2 - Sloops	1 - Depot Ship
3 - Corvettes	1 - Small Survey Vessel
1 - Minesweeper	

In addition to the regular naval vessels over 600 pleasure craft served as part of the Navy Auxiliary patrol providing protection to Australia's ports. Many of these craft were subsequently used as Air Sea Rescue vessels.

Over 200 other vessels were also requisitioned for naval service in roles ranging from harbour support to Landing Ship Infantry.

Shipbuilding

The following warships were built in Australia for the RAN during the war:

3 - Tribal Class destroyers
56 - Bathurst Class corvettes, as well as 4 for India
6 - Frigates
35 - Fairmile Motor Launches
9 - 80 ft Harbour Defence Motor Launches
3 - Boom Defence Vessels

In excess of 30,000 small craft were also built for the RAN as well as the Army, RAAF and Allied forces.

Ship Repair

Throughout the war Australian industry carried out repairs, refits and maintenance on ships of the RAN and allied navies. The number of ship jobs undertaken consisted of:

RAN	408 ships	2,150,000 tons
RN	391 ships	1,671,000 tons
USN	513 ships	800,000 tons
Dutch Navy	171 ships	220,000 tons
French Navy	44 ships	92,000 tons

In addition to this naval tonnage some 51,962,480 tons of merchant shipping under-went repair or major maintenance and a further 6,020,240 tons was slipped or dry docked.

THE ROYAL AUSTRALIAN NAVY IN THE SECOND WORLD WAR

Industrial Production

The war placed large demands on Australian manufacturing industry. Items which in the past were imported had to be manufactured in Australia. During the course of the war Australian industry provided for the RAN:

4 inch guns	266
Naval Mines	12,336
Radar equipment	374 sets
Mk VII Depth Charges	24,000
Type M Depth Charges	3,600

Work also commenced on the construction of a torpedo factory and this facility had commenced production by the end of the war. In addition to this production, repair and modification work was also carried out. This work included:

- o Relining of, 4 inch, 4.7 inch and 8 inch naval guns.
- o Modifying over 280 Army 40mm Bofors guns for mounting on RAN and British Pacific Fleet ships.
- o Designing and modifying twin Oerlikon mountings to take 40mm Bofors (designated Boffin). Over 100 mountings were delivered.
- o Design and production of a powered Bofors mounting.

Coastal Convoys

During the course of the war in excess of 1,100 coastal convoys were escorted by units of the RAN. This does not include a number of special convoys or troop convoys.

Only six ships were lost in convoys and a further two damaged.

Troop Convoys

RAN ships and personnel were heavily involved in the protection and administration of troop convoys.

From January 1940 through to September 1942 a total of over 180,000 Australian and New Zealand troops were conveyed to the Middle East. Following Japan's entry into the war a total of 127,000 Australian service personnel were returned to Australia from the various theatres of war. Accompanying these personnel were:

10,500 vehicles and guns
39,000 tons of war stores
Between 1941 and 30 September 1945 over 450,000 Australian personnel were transported from Australian ports to New Guinea and northern areas. A large amount of equipment, including:
27,000 vehicles 550 surface craft
1,110 guns 8,200 live sheep
1,900,000 tons of stores
was also transported to support combat operations.

Tobruk Ferry Service

RAN units involved in the Tobruk Ferry Service made a total of 139 runs. In addition to actually taking supplies into Tobruk and removing the wounded the ships were also employed in escorting other vessels. Such escort duties are not included in the above figure.

In twenty trips from Tobruk HMA Ships VAMPIRE and VENETTA evacuated 3391 personnel, including prisoners of war.

Minesweeping

Minesweeping groups consisting of requisitioned craft were based on Australian ports as follows:

Sydney - M/S Group 50	Hobart - M/S Group 60
Fremantle - M/S Group 66	Brisbane - M/S Group 74
Melbourne - M/S Group 54	Adelaide - M/S Group 63
Darwin - M/S Group 70	Newcastle - M/S Group 77

After the war RAN vessels were involved in the clearing of all known minefields. This operation resulted in the loss of HMAS WARRNAMBOOL and the deaths of four sailors.

Mine Laying

The minelayer HMAS BUNGAREE laid approximately 10,000 mines in Australian and New Zealand waters during the war.

Additional minefields were also laid to defend the main Australian ports.

Anti-Submarine Measures

In order to protect Australian coastal shipping convoys were introduced early in the war. From December 1941 until August 1945 only six ships were lost while travelling in convoys. Over the same period 18 ships travelling independently were sunk by submarines off the east coast.

Some 2,300 personnel were trained in anti-submarine warfare during the war. Of the RAN personnel trained 36% served with the Royal Navy and this number added up approximately 10% of the Royal Navy's anti-submarine warfare specialists.

RAN ships are credited with the destruction of 1 German U Boat, 2 Italian submarines and 3 Japanese submarines. In addition 3 Japanese midget submarines were lost during the attack on Sydney Harbour in May 1942.

RAN personnel serving with the RN are also credited with the destruction of a number of submarines.

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PROUD SUPPLIERS TO THE R.A.N.



Naval photographer John Mortimer sent in these images of the guided missile destroyer HMAS HOBART taken off the east coast in July 1995.

NAVY'S NEED FOR NEW DESTROYERS

By Navy Leaguer

The months go by and there is still no result from the Defence Department study into the number and capabilities of surface combatants (destroyers and frigates) the Royal Australian Navy needs to fill its strategic role in the first quarter of the twenty first century.

On the contrary, there have been delays in Project Sea 1400 - the acquisition of up to eight new destroyers to replace the DDGs and older FFGs when they reach the end of their life.

It has been confirmed that completion of the preliminary studies for Project Sea 1400 has been delayed from 1995/96 to 1996/97. It is reported, but not confirmed, that the project definition studies have been delayed from 1997/98 to 1998/99.

The last of the DDGs is due to pay off in 2001. With the introduction of the Anzac class frigates, the RAN is expected to maintain its major surface combatant strength at 11 until 2001, after which it should rise to 14 as the remainder of the Anzac class enter service.

There are proposals to fully arm the Anzac class frigates. Under these proposals, later ships will be fully armed as they are built. For timing reasons, at least the first two ships (ANZAC and ARUNTA) will only be fitted for but not with some of their armament and space and weight will be provided for many armament and sensors. ANZAC and ARUNTA will be retrofitted with the remainder of their armament during refits. With a decision on the additional capabilities not yet made, it is impossible yet to determine whether this will result

in a delay in the availability of any of the ships for operational service.

It is proposed to give the Adelaide class ships a major upgrade, principally in anti-air warfare. It is believed that this can be implemented during normal refit periods, i.e. there will be no reduction in operational strength whilst these upgrades are implemented.

It is planned that the 15 Fremantle class patrol boats be replaced by fewer but larger and more capable offshore patrol combatants.

With so much dependent on projects which are currently unapproved proposals, the target strength for 2005 looks extremely optimistic.

The chances are that the destroyer/frigate strength of the RAN will fall below eleven before the fourteen is reached.

Thus, if all these proposals are implemented promptly, by 2005, the surface combatant strength of the RAN should be:

- * six upgraded Adelaide class guided missile frigates
- * eight fully armed Anzac class frigates
- * nine to twelve offshore patrol combatants

At first glance, this appears to be a

significant improvement on the current position. However, it is an optimistic scenario.

At this stage the imaginative and much needed Adelaide class AAW upgrades are proposals only. No commitment will be made until 1996/97.

The proposal to fully arm the Anzac class frigates is at the stage of major capability submissions - a very early point in the large process towards a contract to do the job, let alone see all ships in commission.

For the extra AAW will be needed when the DDGs pay off. Even the fully armed Anzacs would have only self defence AAW capabilities. The Anzacs will lack the area defence capabilities of the DDGs. Although in some respects (a helicopter) the Anzacs will be more capable than the DDGs, in others (particularly area AAW) they will be markedly less capable.

No decision will be made on the offshore patrol combatants until it is clear whether or not the joint project with Malaysia will proceed. An Australian decision to proceed would have to be made very soon to ensure even nine ships are in operational service by 2005.

Furthermore, as the offshore patrol combatants will replace the Fremantles, their primary peacetime role will be patrol. Although they will be able to carry out this more effectively than the Fremantles, and their extra capabilities will enable them to play a full role in a military emergency, the offshore patrol combatants will not result in an increase

in the strength of the RAN.

With so much dependent on projects which are currently only unapproved proposals, the target strength for 2005 looks extremely optimistic. The chances are that the destroyer/frigate strength of the RAN will fall below eleven before the fourteen is reached.

Further, the RAN will not have the fourteen major surface combatants for long unless a build decision on the Project Sea 1400 is made promptly. It has taken eight years from the signature of the contract to build the Anzac class to the commissioning of the first ship. This eight years is not exceptional by international standards.

The first of the Adelaide class frigates is due to pay off in 2008. Thus, to ensure timely availability of a successor, a design must be finalised and a construction contract signed by 2000.

To take their place in the balanced force that the Australian Defence Force needs in the increasingly uncertain years of the first quarter of the 21st century, the new Sea 1400 ships will need:

- * A strong and diverse anti-air (including anti missile) warfare armament capable of defending ships in company and with layers of self defence
- * Two helicopters, capable of long range anti-submarine and anti-surface warfare.
- * A surface warfare capability - guns and missiles, with airborne long range targeting.
- * A self defence anti-submarine capability.
- * Command, control and communication capability.

There are worrying reports emanating from Defence.

These suggest a reversion to the misguided isolationist view that, provided Australia can defend the sea-air gap, we will survive. That error is compounded by the old argument that a task group of warships, lacking sea borne integrated

fixed wing fighter aircraft (as the RAN does), will be overwhelmed by sea skimming missiles. Therefore, runs the erroneous argument, warships are a waste of money.

Undeniably, sea skimming missiles are a threat to all ships - war and, much more so, merchant. However, the threat is a very far cry from proving that sea skimming missiles will overwhelm properly defended warships. There is available the combination of phased array and other new generation radars, long range anti-aircraft missiles, medium range missiles, short range self defence missiles and electronic counter measures such as the Nulka active off board decoys.

However, there are other potential threats, wide in variety and intensity. Any realist would agree that some of these are far more likely than the threat of a major invasion. We need a balanced force to respond to these threats and to participate in regional defence activities.

Furthermore, even the most capable high performance combat aircraft are far from invulnerable both on the ground and in the air, as the United States Air Force have found with their F-16s in Bosnia.

Clearly, the sea air gap is our last line of defence against a major invasion of continental Australia. Therefore, we must be able to defend it.

However, there are other potential threats, wide in variety and intensity. Any realist would agree that some of these are

far more likely than the threat of major invasion. We need a balanced force to respond to these threats and to participate in regional defence activities.

Currently, there are some serious gaps in that balanced force.

One of the worst of these is airborne early warning and control - a defect which cost the British Navy dearly in the Falklands in 1982. It was also a defect which the allied forces did not suffer in the Persian Gulf in 1991. There, the only ships damaged were those which struck mines.

After a decade or more of hesitation and delay, there are at last real signs of progress in the ADF acquiring an AWE & C capability (Project Air 5077). However, it is unlikely that this will enter operational service before 2000.

Another potential gap is helicopters for the Anzac frigates. Requests for tender are due to be issued shortly. If the acquisition proceeds on schedule, HMAS ANZAC should only be in service a year or so before she gets her first helicopter. However, most of us remember that the first four Adelaide class ships were in service for up to nine years before their first Seahawk helicopter joined.

Unless there are prompt decisions on successor projects to other equipment, obsolescence and old age will force further gaps in the ADF's balanced operational force.

These include replacements for the Caribou transports, the Army's Kiowa and Iroquois helicopters.

And of course, the Adelaide class frigates (Project Sea 1400).

Looking further ahead, the prospects are even darker. The RAAF's F/A 18s, F111s and P3Cs all fall due for replacement within a few years of each other - about 2010.

Clearly, the prospects of that massive block obsolescence problem, budgetary prudence and the need for a balanced force dictate a prompt decision on Project Sea 1400.

Australia's Navy in the Second World War 50th Anniversary Commemorative Profile



In 1945 the men and ships of the Royal Australian Navy commenced returning to Australian shores after over six years of war.

Indelibly etched into their memories were the sights, sounds and images of that war. After fifty years many of these men have joined their shipmates who did not return and for those who are left the memories are not as sharp as they once were. Additionally there are now in Australia a large number of people for whom there is no direct contact with the Navy of the Second World War. To many of these people war means soldiers.

AUSTRALIA'S NAVY - In The Second World War, the latest in a series of publications from Topmill, does much to turn this around.

This 88 page booklet briefly describes the activities of the Australian Navy during the Second World War. From the deployment of HMAS PERTH at the very outbreak of the war until the final surrender of the Japanese in 1945. Not

only are the large events, such as the Battle of the Coral Sea covered, but also the smaller ones, such as the commissioning of the first Fairmile. Taking into account the limitations placed on the author by space, he has produced a very readable and interesting history of the RAN in the Second World War.

The text in this book is very well supported by a wide range of excellent photographs showing both life at sea as well as the ships. Whilst some of these photographs are fairly common a large number have rarely been seen in print. The photographs selected display not only the human cost and tragedy of war, but the lighter side. The excellent photographic coverage alone should make this book a

must for any naval enthusiast.

Given that this booklet is intended to be sold through newsagents, its price of \$9.95 is very reasonable. The wide public availability of AUSTRALIA'S NAVY In The Second World War will do much to highlight the important role that the Navy and seapower played in the final victory during the Second World War.

AUSTRALIA'S NAVY In The Second World War is highly recommended for anybody interested in the Second World War and naval history.
Joe Straczek

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ACTION AGAINST JAPAN: SHIP LOSSES 1942



NEW GUINEA 1942



RECLAIMING THE ISLANDS 1944



THE FINAL YEAR 1945



Missile corvette VENGEANCE. (Photo - NPU)

THE REPUBLIC OF SINGAPORE NAVY

By Mike James

The Republic of Singapore Navy is one of the youngest in Asia, having been established after World War Two with the Republic itself. Growing from humble origins as a constabulary force to today's modern navy, the RSN has been shaped by the constraints of mission and geography. As a small island state surrounded by larger neighbours, the RSN has been forced to adopt the strategy of "sea denial", denying the waters surrounding the island nation to would-be aggressors. This, in turn, has determined the structure and equipment of the RSN, leading to a combat force principally composed of missile and gun armed corvettes and attack craft, supported by a force of amphibious vessels for army support.

Tasked with policing the Straits of Singapore, one of the world's busiest and most vital waterways, the RSN must combat the almost endemic piracy that

plagues the area, in addition to the more normal roles and functions of a navy. With plans afoot for further increases in the RSN's combat capabilities and Singapore taking a more active role in the region's maritime affairs it seems appropriate to take a closer look at South East Asia's most technologically advanced navy.

CORVETTES

The introduction into service of the VICTORY class corvettes, beginning in 1990, introduced a quantum leap in the capabilities of the RSN. Displacing 550 tonnes with a complement of only forty nine (including eight officers), the six German-designed Lürssen MGB 52 class mount a 76mm gun, up to eight Harpoon surface to surface missiles (SSM), and six anti-submarine homing torpedo tubes. An Israeli-designed Barak vertical-launch point defence surface to air missile (SAM) system is scheduled to be fitted in the near future.

Designed to provide a command and control function to Singapore's flotillas of smaller attack craft, the VICTORY class combine the capabilities of the smaller Fast Attack Craft - Gun, and the Fast Attack Craft - Missile vessels, in a far more seaworthy hull. As the Navy's most capable combat unit the VICTORY class have borne the brunt of the RSN's deployments "out of area", with visits as far afield as Australia (most recently to participate in Exercise Kakadu 95 in the Northern Territory). The only major concern is their bad rolling characteristics. Fin stabilisers are being trialed but the prominent mast structure may have to be cut down to reduce top-weight. Together the six vessels make up Squadron 188 of the First Flotilla.

FAST ATTACK CRAFT - MISSILE

Until the arrival of the Corvettes, the main striking power of the RSN resided in the six Lürssen FPB 45 missile boats of the SEA WOLF class. Displacing 260 tonnes

20mm cannon and two 7.62mm machine guns. Capable of thirty knots, they can be fitted with two Gabriel SSM's in an emergency. The SWIFT craft are supplemented by twelve inshore patrol craft, numbered FB31 through 42. These 20 tonne craft are fitted with a single 7.62mm machine gun and are capable of 30 knots, making them ideal for the pursuit and interception of possible waterborne infiltrators. Together, these craft make up Coastal Squadrons 183 and 186. Several other SWIFT class have been transferred to the Singapore Police in recent years.

MINE WARFARE VESSELS

The capability to deal with mine warfare is a relatively recent development in the RSN force structure. Four Swedish-designed Landsort class minehunters were selected after competitive evaluation against several international designs. The first, BEDOK, completed in Sweden while her sisters KALLANG, KATONG and PUNGGOL are being assembled in Singapore from Swedish components. Constructed with GRP fibreglass hulls and displacing 360 tonnes, the four vessels will give Singapore the ability to hunt mines throughout the full reach of Singapore's territorial waters and beyond. All four are due to commission in 1995.

AMPHIBIOUS FORCES

One of the major tasks for the RSN is support of the Army, transferring equipment between the outlying islands and Singapore proper. To provide this support a range of amphibious vessels are operated.

The largest vessel in the RSN is the recently acquired Landing Ship - Logistics (LSL) PERSEVERANCE. Formerly the UK

Royal Fleet Auxiliary SIR LANCELOT, the 5674 tonne PERSEVERANCE was acquired from South African commercial interests in late 1992 and recommissioned in May 1994. Able to transport up to 540 troops, 16 heavy tanks and more than 30 other vehicles, PERSEVERANCE is capable of delivering her cargo directly over the beach through bow doors or over the side into landing craft for transport ashore. Operation of two medium sized helicopters for troop lift are possible from a landing platform aft. In addition to the amphibious role PERSEVERANCE is also used for midshipman training cruises.

Five ex-US Navy World War 2 vintage Landing Ship - Tanks (LST) comprise Squadron 191 of the Third Flotilla. Transferred in the mid-1970's, these 4100 tonne vessels have undergone extensive modernisation during their RSN service lives. ENDURANCE, EXCELLENCE, INTREPID, RESOLUTION and PERSISTENCE are able to deliver their cargo directly to the beach through bow doors and can transport up to 1500 tonnes of general cargo in addition to some 125 troops, more over short trips. A sixth member of the class, the original PERSEVERANCE, has been cannibalised for spares to support her sisters.

To support the operations of the LSL and LST's, a range of landing craft are in operation. These range in size from the six 150 tonne RPL type Landing Craft (Mechanised), designed to transport vehicles and tanks, down to the more than one hundred 4 tonne Landing Craft (Vehicle/Personnel) designed to transport a single rifle platoon over short distances. A single 12 tonne hovercraft, able to lift 2.6 tonnes at speeds of up to 35 knots is currently being trialed. To transport sections of infantry through the rivers, creeks and backwaters of Singapore island four hundred and fifty 6 metre assault craft are operated. Powered by a single outboard motor they are capable of 12 knots and are man-portable.

AUXILIARIES

The RSN operates two diving ships, the 170 tonne Diving Support Ship JUPITER and the 250 tonne Diving Training Ship

cushion landing craft, faster and more versatile than the conventional landing craft currently in service.

The largest and most far reaching programme currently underway is the acquisition of a submarine arm, comprising up to a possible six boats. The initial acquisition will be an ex-German Navy Type 206 submarine. This boat, un-modified and surplus to German requirements, will be operated by the RSN to familiarise its personnel with the submarine and to gain experience in submarine procedures and capabilities, especially in Singapore's specific operational environment. Following on from this it is anticipated that up to a further five former German Navy boats would be acquired and all six would undertake a substantial refit and upgrade to the current standard of Germany's own Type 206A class.

The Type 206 class were commissioned in the early 1970's, and displace less than 500 tonnes dived with a maximum speed of 10 knots surfaced and 17 knots dived. Designed for operations in the shallow waters of the Baltic, they should be easily

adaptable to Singapore's area of operations. They are equipped with eight 533mm torpedo tubes and can be fitted to lay mines. The limited crew size (22 including 3 officers) should also be attractive in view of the RSN's small overall size (4000 personnel).

Tasked with a combination of deterrence and policing duties the RSN has evolved into a quintessential "Sea Denial" navy, capable of giving any aggressor pause. The introduction into service of the Type 209 submarine will introduce a completely new capability that will further enhance Singapore's security. With continued political backing for new construction to maintain existing capabilities and develop new ones, the RSN's future seems assured.

Led by a thoroughly professional officer corps and manned by highly skilled and motivated sailors, having forged strong links with other regional navies and supported by political will, the Republic of Singapore Navy is arguably Southeast Asia's most efficient and professional navy.



VICTORY, first and nameship of six missile corvettes. (Photo - John Mortimer)

ENDEAVOUR. JUPITER, commissioned in 1991, is designed for search, survey and salvage operations and operates a variety of equipment to assist in diving operations, most notably a two man recompression chamber and high pressure compressors for filling divers air tanks. The German-built ENDEAVOUR was commissioned in 1970 and operates as a training vessel for divers.

THE FUTURE

A number of projects that will expand the capabilities of the RSN dramatically in the years to come are currently underway. In addition to the new FEARLESS class patrol discussed previously, the RSN plans to order up to four Landing Ships (Platform/Dock) to replace the current class of aging WW2 vintage LST's. The new vessels will operate helicopters and will have a stern bay that can be flooded to allow landing craft to be loaded directly from the storage and vehicle decks, protected from the influence of wind and wave, allowing a smoother and faster transfer of cargo and personnel. In addition the new ships will operate air-



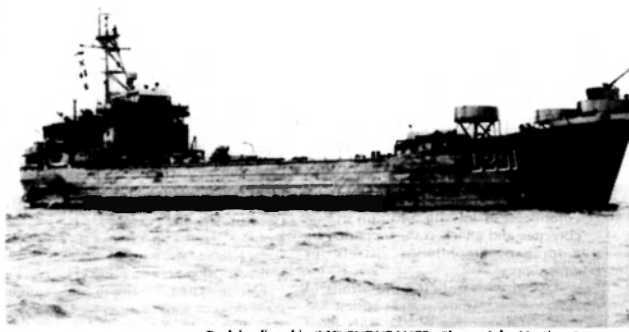
Singaporean Sea Wolf class missile craft. (Photo - John Mortimer)

and armed with a mix of two 130 km range Harpoon and two 20 km range Gabriel SSM's, in addition to single Bofors 57mm and 20mm cannon, the SEA WOLF and her sisters are capable of almost forty knots, making them ideally suited for the style of hit and run warfare that characterises archipelago and inshore maritime conflict. All six form Squadron 185 of the First Flotilla. They are scheduled to be supplemented and eventually replaced by a new design of Fast Attack Craft to be built in Singapore.

This new design, the FEARLESS class, are under construction and displace 500 tonnes with a complement of only twenty seven (five officers). In belated recognition of the vulnerability of small Fast Attack Craft to air and missile attack (as convincingly demonstrated on the Iraqi Navy during the Gulf War) the class will mount a twin arm launcher for the French designed Mistral Infra-red homing missile, capable out to 4 km. They will also mount a 76mm gun and two triple torpedo tubes for anti-submarine (ASW) homing torpedoes, highlighting the RSN's growing appreciation of the submarine threat. An initial group of six are to be constructed with a follow on batch of six to be armed with Harpoon missiles in place of the ASW torpedoes. All are to be constructed in Singapore.

FAST ATTACK CRAFT - GUN

The first Flotilla's Squadron 182 is composed of two variants of a Vosper Thornycroft design built in 1970-71. The three Type A FAC-G, (INDEPENDENCE, FREEDOM and JUSTICE) are fitted with the Bofors 40mm and an Oerlikon 20mm cannon, whilst the three Type B FAC-G

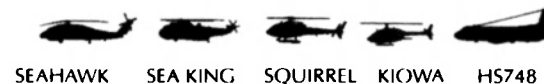


Tank landing ship (LST) ENDURANCE. (Photo - John Mortimer)



The Fleet

Fleet Air Arm



Guided Missile Destroyers

38 PERTH
39 HOBART
41 BRISBANE

Guided Missile Frigates

01 ADELAIDE
02 CANBERRA
03 SYDNEY
04 DARWIN
05 MELBOURNE
06 NEWCASTLE

Frigates

Anzac class

Destroyer Escorts

50 SWAN
53 TORRENS

Submarines

Collins class
60 ONSLOW
61 ORION
62 OTAMA

Training and Helicopter Support Ships

51 KANIMBLA
52 MANOORA

Landing Ship Heavy

L50 TOBRUK

Auxiliary Oiler Replenishment Ship

OR304 SUCCESS

Underway Replenishment Ship

0195 WESTRALIA

Mine Countermeasures Vessels

Huon class
M80 RUSHCUTTER
M81 SHOALWATER
Y298 BANDICOOT
Y299 WALLAROO

1102 BROLGA
1121 BERMAGUI
1185 KORAAGA

Patrol Boats

203 FREMANTLE
204 WARRNAMBOOL
205 TOWNSVILLE
206 WOLLONGONG
208 WH-YALLA
209 IPSWICH
210 CENNOCK
211 BELDIGO
213 GERALDTON
214 DUBBO
215 GEELONG
216 GLADSTONE

Survey Ships

73 MORESBY
312 FLINDERS

Survey Motor Launches

01 PALUMA
02 MERMAID
03 SHEPPARTON
04 BENALLA

Landing Craft Heavy

L126 BALIKPAPAN
L127 BRUNEI
L128 LABUAN
L129 TARAKAN
L133 BETANO

Trials Vessel

ASR241 PROTECTOR

General Purpose Vessel

244 BANKS

Navigational Training Vessel

A243 ARDENT

Sail Training Ship



STS YOUNG
ENDEAVOUR

Cadet Training Vessel

TV1 TOI TOI

SUPPORT CRAFT Lighters

8001 WARRIGAL
8002 WALLABY
8003 WOMBAT
8004 WYULDA

Torpedo Recovery Vessels

01 WATTLE
02 BORONIA
03 TELOPEA

Tugs

801 TUNA
802 TREVALLY
803 TAILOR

Diving/Patrol Launches

2601 TAMMAR
1801 QUOKKA
501 BRONZEWING
502 CURRAWONG
504 MOLLYMAWK
2001 SEAL
2002 PORPOISE
2003 MALU BAIZAM
2004 SHARK

'Pegasus'

Next generation Mark V, high speed special operations craft

Halter Marine, Inc., of the Trinity Marine Group has been selected by the U.S. Special Operations Command (SOCOM) to build the Mark V, the next generation of high-speed craft designed to insert and extract U.S. Navy SEAL teams and other special operations forces (SOF) personnel.

The Halter/Trinity Mark V Pegasus class Special Operations Craft (SOC), an all-aluminum monohull design variant of Trinity's XFPB (extra fast patrol boat) now in service with the Mexican Navy, was selected after months of intensive testing and evaluation.

The initial SOCOM contract estimated to be over \$11 million, calls for construction of two SOC systems, with options for up to 18 additional craft and transportation systems, bringing the potential contract value up to approximately \$190 million U.S. All of the boats will be built at Equitable Shipyards, Inc., New Orleans, LA, an affiliated shipyard of Halter Marine, Inc., in the Trinity Marine Group.

SOCOM solicited proposals from shipyards with the stipulation that the vessels should be a variant of an existing parent craft. Nine proposals were received and Halter as well as Peterson Builders Inc. and Cougar Marine Ltd. were selected to build actual vessels for testing and evaluation near SOCOM's headquarters at MacDill Air Force Base in Tampa, Florida.

Halter built two variations of the same design, but of different materials and power suites. The winning Halter Pegasus Mark V SOC is an all-aluminum monohull craft 82 feet in length with a 17.5 foot beam and seven foot-nine inch depth. It is powered by two diesels developing 2,251 hp each at 2,000rpm through two water jets.

The stringent SOCOM design and performance criteria included items such as: the boat had to be diesel powered and able to reach a top speed of well over the 45 knot minimum and cruise speed of over 30 knots in specified sea states; the boat, support equipment and personnel had to fit in a U.S. Air Force C-5 aircraft for rapid loading and unloading while meeting the aircraft's balance requirements; at light load the boat had to be able to carry its crew of five, a full load of fuel and lubricants, at least 6,400 pounds of payload including 16 fully armed and equipped SOF personnel; and comfort had to be such that SOF forces could arrive for battle; maximum weight including the boat's transport/trailer, and prime mover could not exceed 150,000 pounds, range at maximum speed had to be at least 500 nautical miles at cruising speed; the boat had to be able to



The new Pegasus high speed special operations craft.

launch, retrieve and store four inflated combat rubber raiding rafts and six outboard engines; the crew and passengers compartments had to be covered by removable hard canopies; the cockpit had to permit unobstructed weapons-firing and quick access and exit; removable, track-mounted, sufficiently cushioned door shock absorbed seating was required as well as tie-downs for a 500 gallon fuel bladder; and minimal radar, infrared and human eye detectability were also among some of the design features.

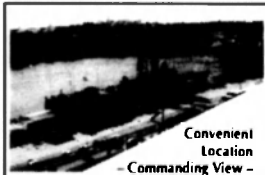
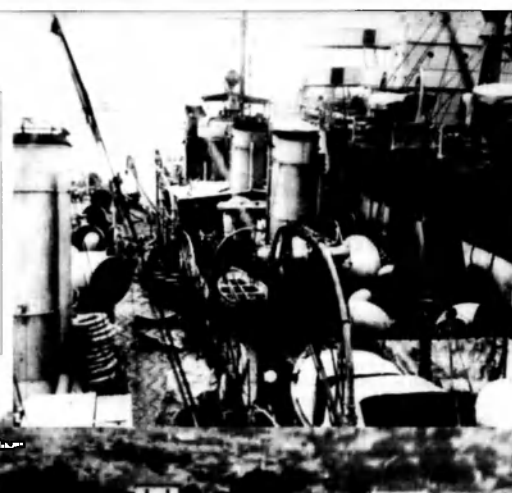
In making the announcement, John Dane III, president of the Trinity Marine Group said, "We knew this would be a very challenging competition for requirements which call for the world's faster patrol crafts of its size. We were quietly confident the Trinity/Halter Pegasus Class Mark V SOC would be selected based on previous Navy competitions we have won because of our mission and costs sensitivities and design and manufacturing experience and expertise."

The first two boats in the contract are scheduled to be delivered by September 1995. Dane said while no new employment position will be created by the contract, it will keep approximately 60 people employed at Equitable. The shipyard is the site of the former Higgins, Inc., where many of the famed U.S. Navy World War II PT boats were built as well as thousands of landing craft used in most theaters of that war.

History Revisited

Right: Deck scenes aboard two of the RAN's River II class torpedo boat destroyers (PARRAMATTA on left). The still camouflaged oiler KURUMBA is to the right.

Bottom: Launch of the sloop HMAS WARREGO at Cockatoo Island.



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Two Thai Warships

Two Thai Navy training ships, the guided-missile frigates HMTS CHAO PHRAYA (hull no. 455) and HMTS KRABURI (457) arrived at Fremantle on Monday, August 7 for a four day visit.

HMTS KRABURI (commanded by Captain Jetrabut Panskun, RTN) had Rear Admiral Sumpao Polathorn, Deputy Commandant Royal Thai Naval Academy embarked. The ship carried a complement of 36 officers, 139 enlisted men, 61 cadets and nine civilians.

HMTS CHAO PHRAYA (Commander Rungsrit Sattayanukul, RTN) carried a complement of 28 officers, 119 sailors, 60 cadets and nine civilians.

The Chinese-built ships, constructed at the Hudong Shipyard, Shanghai were commissioned in 1991 (CHAO PHRAYA) and 1992 (KRABURI).

HMTS KRABURI is armed with a eight Ying Li (Eagle Strike) missile launchers, two 100mm guns in a twin turret, four twin 37mm guns and anti-submarine weapons and a helicopter.

HMTS CHAO PHRAYA carries an additional 100mm twin turret and no helicopter and flight deck.

The 2000 tonne ships have a length of 103 metres and a beam of 11.3 metres.

The last naval Thai training squadron to visit Western Australia were the former US Navy World War Two frigates HMTS MAEKLONG and HMTS PRASAE which made a five day visit to Fremantle between March 7-12, 1982.



The first Royal Navy Type 23 to visit Australia, HMS MONMOUTH in July 1995. (Photo NPU)

HMAS WESTRALIA Sails with 70,000

When HMAS WESTRALIA, the Royal Australian Navy's largest vessel, the 40,870 tonne (full load) underway replenishment ship sailed from HMAS STIRLING on Monday, July 24, she boasted an additional 70,000 "crew" members.

Berthed on the ship's quarterdeck were 70,000 worms living in a 1.3 metre square aluminium container.

Officer-in-charge of the 70,000 worms was Lieutenant John Polglaze (32) who is studying the food waste management of ships at sea as a project towards his degree at Murdoch University.

The concept of the studies is to reduce garbage and its disposal at sea.

Lieutenant Polglaze obtained permission to take his "team" onboard from HMAS WESTRALIA's captain, Commander Steve Hooke before the ship sailed for Exercise Kangaroo '95.

Royal Navy Returns

The British Duke class (Type 23) frigate, HMS MONMOUTH arrived in Sydney on 26 July at the start of her first visit to Australia. Lasting 14 days, the visit was the first by a Royal Navy warship to Sydney since 1988.

The deployment of MONMOUTH to

east Australia ports remembers the ships of the British Pacific Fleet (including several RAN) which featured prominently in the latter stages of the Pacific War.

After Sydney, the vessel called at Brisbane, Townsville and Cairns before returning to the UK. She was in Brisbane on VP Day (15 August). Two other ships in her Task Group, the destroyer HMS SHEFFIELD and the oiler RFA BRAMBLELEAF visited Darwin.

Displacing 4000 tonnes, the 133 metre frigate was commissioned in September 1993, the sixth ship of a class of thirteen ordered to date. She is armed with one 4.5 inch gun and two 30mm Oerlikon guns able to fire in both anti-surface and anti-aircraft roles, as well as Harpoon anti-ship missiles. Sea Wolf missiles are carried for anti-aircraft defence and Stingray torpedoes for close-in anti-submarine protection. MONMOUTH's weapon systems are complemented by her embarked Westland Lynx helicopter.



HMAS PROTECTOR in Western Australian waters. (Photo - Navy PA WA)

Smoke does not always get in your eyes. . .

Tuesday, July 11, witnessed a new era for the Royal Australian Navy when its new gas-fired firefighting unit was officially opened by the Navy's Maritime Commander, Rear Admiral Chris Oxenbould.

The ceremony was concluded with the Admiral pressing the ignition button for a spectacular display with flames igniting from the ground and first floor decks of the fire training modules.

The new "environmentally friendly" smoke will allow people to work in these compartments for long periods. It is non-toxic, non-chemical and non-carcinogenic and allows personnel to walk through thick smoke without eye and respiratory discomfort.

Acutely aware of its environmental responsibilities, the Navy took initiatives to convert its existing fire-fighting facilities to propane gas.

Traditionally, the Navy has used solid fuel and diesel oil to create training fires but these generated considerable smoke and noxious gases.

The gas conversion project consisted of the manufacture and installation of equipment designed to simulate various fire scenarios that may be encountered in the normal daily routine of a ship at sea or in harbour.

HMAS STIRLING and HMAS CRESWELL at Jervis Bay, NSW also have simulated helicopter gas-fired training facilities. A third firefighting facility is located at HMAS CERBERUS in Victoria.

Classic Aircraft Carrier

One of the oldest and most honoured U.S. Navy aircraft carriers has got a five-month reprieve from the scrap heap and went on a sentimental voyage across San Francisco Bay.

The ship is the Hornet, a 51-year-old veteran of three wars and three space missions. Carrying a cargo of Navy veterans, the ship made the trip from Hunters Point in San Francisco to Alameda Naval Air Station, where it will be on

display through at least October.

The Hornet looked like a huge gray ghost as four tugs slowly pushed and pulled it across the bay. The ship has no power of its own and the four-mile voyage took three hours.

The Hornet has been laid up at Bremerton, Wash., for 25 years and shows it. The paint is peeling, and weeds are growing out of the flight deck.

Inside, the Hornet has the feel of a floating haunted house. The navigating bridge is silent, and the deck is littered with pieces of equipment. The hangar deck, which resembles a huge garage for planes, is empty and echoes to the sound of footsteps. The ship's ladders go down and down into hundreds of compartments far below.

Yet the dead and empty ship is full of memories. It was launched in 1943 to replace an earlier Hornet, a famous ship that carried 16 B-25 bombers that made the famous first air raid on Tokyo. The previous Hornet was sunk in 1943, but this one was lucky - and deadly.

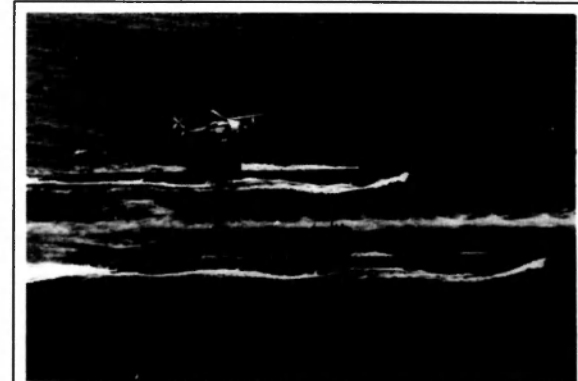
Pilots from the Hornet sank 1.2 million tons of Japanese ships, including a cruiser and a carrier, shot down 1,200 planes and earned 11 battle stars. The vessel also saw service in the Korean war and made three voyages to the waters off Vietnam.

"A piece of history," Captain James Dodge, commanding officer of Alameda Naval Air Station, calls it.

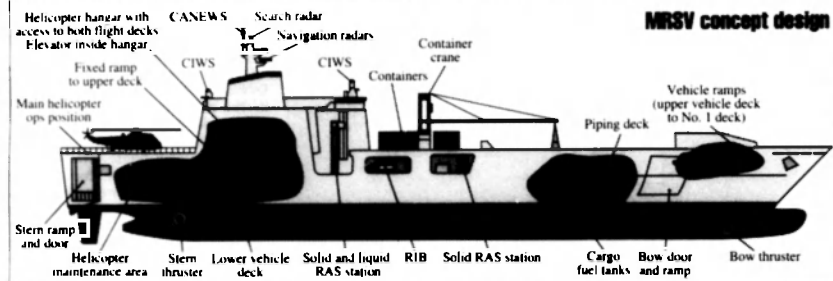
"This ship also picked up three of the Apollo space missions and President Richard Nixon stood on this deck in 1969 to welcome the first men back from the moon," Dodge said in a lecture on the ship's past he delivered on a bull-horn.

In two years, the Alameda base itself will be history. It is being closed.

Dodge wants to show the public the



Two of the RAN's Oberon class submarines working with a S-70B-2 Seahawk helicopter. (Photo - NPU)



The Canadian Department of National Defence (DND) is studying the concept of a Multi-Role Support Vessel (MRSV) to replace Maritime Command's three ageing auxiliary oiler replenishment ships and provide Canadian forces with an organic sealift capability. The MRSV's secondary role would be to support forces operating ashore. A draft statement of requirements has outlined a hybrid vessel combining the features of a tanker with those of a roll-on/roll-off ferry. The diesel-driven single-shaft design has a deep displacement of 26,600t, an overall length of 195m, a maximum beam of 28m and a draught of 8.5m. Ice strengthening to Lloyds TAS or equivalent would allow for operations in near-Arctic waters and transits in first-year ice up to one metre thick.

Affordability is the key driver, with significant emphasis placed upon the use of commercial standards wherever practicable. Built-in weight and space margins will also provide for the later incorporation of certain fitted for but not with equipments. Procurement processes may also be streamlined, with the DND adopting a performance-based procurement specification and employing commercial acquisition and oversight practices. Approval for Preliminary Project Development may be forthcoming later this year. Maritime command currently envisages a four-ship MRSV programme, allowing two units to be based on both the Atlantic and Pacific coasts.

legacy of the base. What could be better, he thought than a nuclear-powered carrier, like the Carl Vinson, or an old one, like the Hornet. The Vinson is already in port, so Dodge talked the scrappers into lending him the Hornet. He plans to have it open to the public as soon as he finds enough volunteers to clean it up a bit.

There was some talk yesterday about saving the ship, turning it into a museum perhaps. But the cost of cleaning up and maintaining an 899-foot ship with miles of passageways makes that prospect dim.

"To be realistic, saving the whole ship is not possible," said Ralph Appezzatto, the mayor of Alameda.

But seeing the ship again and riding aboard one last time were enough for Ray Vyeda, who was a bosun's mate during the Hornet's Korean War service. Nostalgia is a wonderful thing, he thinks. "When I was in the Navy, I sure didn't like it much," he said. "But I sure like it now."

The ship was the star of the base's big "Preserving the Legacy Day" on Saturday, May 20. Dodge has big plans for public display this summer, ending with a grand

bash on Fleet Week in October. After that, the Hornet probably will be scrapped at Hunters Point.

HMAS CANBERRA Rescues Noah's Ark

Eight crew members from the Royal Australian Navy's guided missile frigate HMAS CANBERRA visited the national capital on 31 July/1 August.

The Navy personnel carried out much needed repair work to the Noah's Ark Centre at Rivett Primary School, Bangalow Crescent, Rivett.

"The Noah's Ark Centre has been associated with our frigate since the early 1980s and we come down as much as possible to help out", Commander Matt Tripovich, Commanding Officer of HMAS CANBERRA said.

"Our crew will be providing some eager working hands to complete a number of outstanding odd-jobs".

Children from Noah's Ark later visited the ship in Sydney to participate in the Victory in the Pacific celebrations on 15 August.



Antarctic support ship AURORA AUSTRALIS in Hobart. (Photo - Brian Morrison)

Whither Varyag?

It now seems increasingly unlikely that the aircraft carrier Varyag will ever be completed after talks between Ukraine and Russia failed to produce any positive results.

In late March Ukrainian Defence Minister Valeriy Shmarov said that Russia had "officially and definitely refused to take any part in the construction", a position reaffirmed by First Deputy Prime Minister Oleg Soskovets during recent bilateral talks.

Laid down at the Chernomorsky Shipbuilding Yard in Nikolayev, Ukraine, in December 1985, the 65,000t Varyag, the second Admiral Kuznetsov class carrier, has become a bone of contention in the wake of the break up of the Soviet Union. Fitting out work stopped in 1993 with the ship some 70% complete.

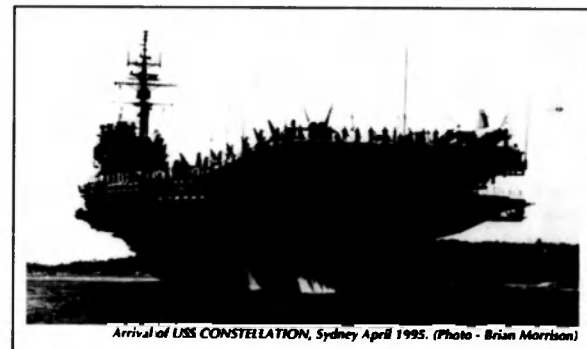
Varyag, pictured whilst in a fitting out berth, was last year moved to the Chernomorsky yard's outer pier in order to free up space for commercial shipbuilding work. It is understood that preventative maintenance is continuing in order that work on Varyag can resume if money is eventually found.

Managers at Chernomorsky said that there were currently no plans to scrap the Varyag, and that the yard remained ready to complete the ship.

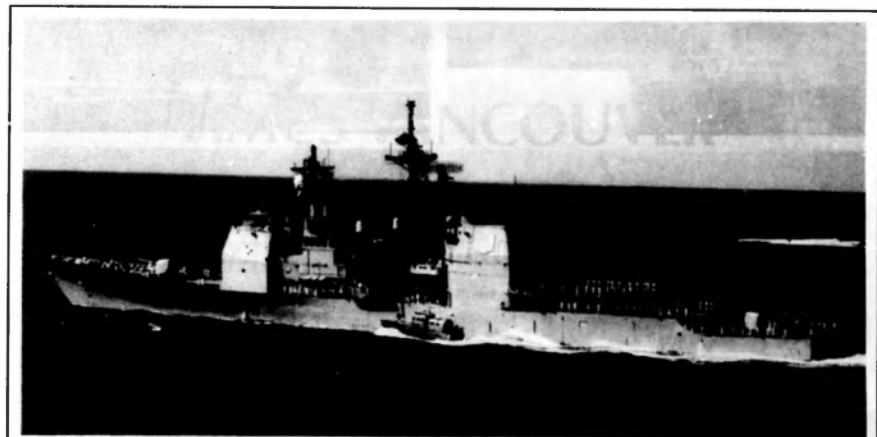
Russia has been unable to fund the completion of the Varyag from its depleted naval budget, while India and China have failed to pursue initial interest in acquiring the carrier.



Russian carrier VARYAG.



Arrival of USS CONSTELLATION, Sydney April 1995. (Photo - Brian Morrison)



Argis guided missile cruiser USS CHOSIN departs Sydney after a recent visit

Launching Parramatta

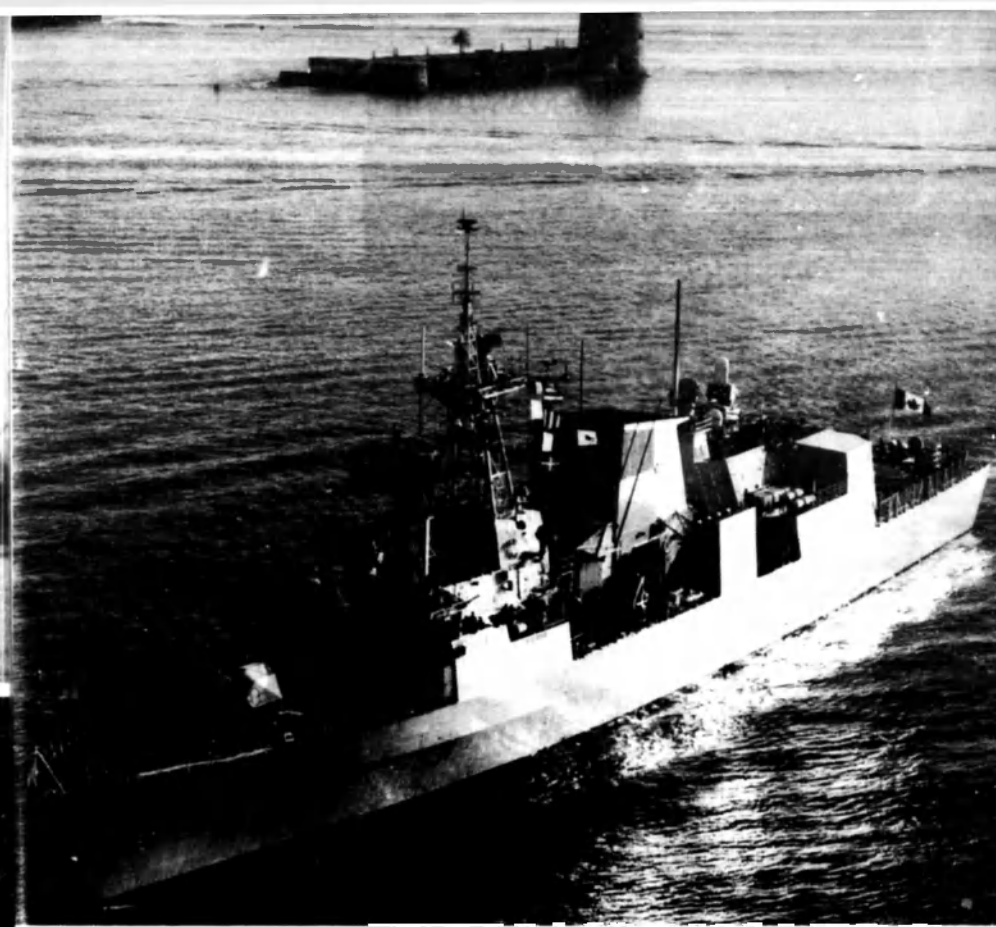
Top: PARRAMATTA after launch, her Commonwealth flag flying proudly from the foremast.

Centre Left: Prior to the ceremony and in nervous anticipation, the traditional bottle of champagne sits in its cradle.

Centre Right: Stern view of PARRAMATTA showing her triple screws and tiller rudder.

Bottom Left: The media (right) and official guests assemble on the launching platform.

Bottom Right: The bottle "smashes" and the first warship for the "New Navy" is born.



HMCS VANCOUVER arriving alongside the Fleet Base East in Sydney, June 1995. (Photo - NPL)

HMCS VANCOUVER

By Mark Schweikert

During the opening stages of the battle for the Atlantic in World War II the Canadian Navy was sharply criticised by the Royal Navy. This came about through its failure to escort convoys across the Atlantic safely, its lack of professionalism and skill in Anti Submarine Warfare (ASW) against German U-boats. Following these charges the Canadian Navy embarked on a massive re-training programme and an upgrade of ships and ASW tactics. Throughout the remainder of the war the Canadian Navy

was considered one of the best in the world. The skills and professionalism gained during the war have not been forgotten and are still in practice. Canada is now a world leader in ASW technology, building its own towed arrays, helicopter launch and recovery gear as well as helicopter ASW equipment and ships. Canadian designed and built ships are among the best in the world.

Sydney recently hosted a visit by HMCS VANCOUVER, a newly built "City" class frigate. What many in the media failed to realise and identify as a news worthy item

was that this vessel is one of the new "stealth" warships entering the naval scene. The VANCOUVER is the second of 12 "City" class frigates which Canada is building. Her principal role is ASW and she is designed to stay at sea for 90 days free of all shore facilities in a hostile environment. It is in this environment that her stealth qualities can be appreciated.

The ship's "stealth" features are not restricted to radar evasion only as many may have thought, but also Infra-red (IR), magnetic and noise suppression.



Note from this photo the angled and rounded sides of the ship's superstructure which reflect radar energy in multiple directions. Also visible is the Mk 15 Phalanx, the aft STIR illumination radar as well as one of the Mk 48 VLS for the Sea Sparrow missiles. Notice the flat angled panel covering the launch tubes.

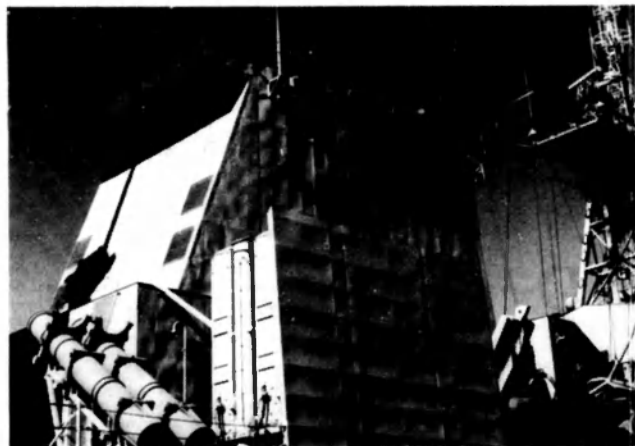
Infra Red (IR)

IR photos of the ship in motion, show no heat emissions from the engine exhaust funnel. The hottest part of the ship, as told to me by one of the evaluation officers, are the windows on the bridge and even then they are not significant enough emitters to warrant any modification. The IR suppression comes from insulation of all exhaust pipes and ducts throughout the ship as well as cooling ventilation of turbine exhaust emissions in the funnel before they are released. These measures allow the ship to be nearly invisible to most IR sensors particularly the ones found on some current anti-ship missiles. The IR reduction measures also significantly enhance IR decoys such as flares. The flare being far more noticeable to an IR sensor than the heat emissions from the ship, thus enhancing the ship's survivability.

Acoustic Suppression

Noise suppression has been achieved by a strict noise control programme. The propellers are designed to produce maximum speed with no cavitation. The two gas turbine engines are raft mounted and its diesel engine on a double raft mounting. Double rafting was also provided for other systems such as the gear box and where needed, noise attenuating resilient mountings and flexible connections are also fitted to further reduce the acoustic signature. Underwater hull openings have been kept to an absolute minimum with the necessary openings designed in such a way to avoid turbulence or resonance. Two prairie air masker bubble units are fitted, these form tiny air bubbles over the

hull of the ship to mask any radiated noise. The underwater bearings for the propellers and shafts are the same found on US nuclear powered submarines and are very quiet. These noise reduction measures reflect the ship's primary mission of ASW. As the ship is so quiet it makes it far more difficult for a submarine to detect. This gives it the ability to remain aloof of a submarine contacts weapons whilst the ship's towed array and Sea King helicopter do the work.



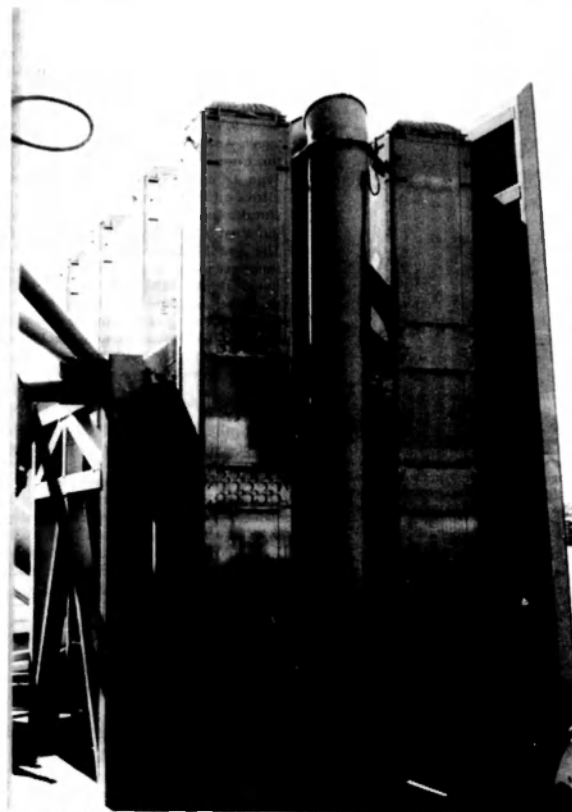
Apart from the angled sides of the funnel there are large grates for the induction of cool air which is mixed with the exhaust gases to cool them before release thus reducing IR emissions. Visible are two of the eight Harpoon missiles. Also, just visible to the top right is the Sea Giffard radar.

Magnetic Signature

The magnetic signature of the ship can also be manipulated to any setting that is desirable or necessary for the mission it is undertaking. This is achieved by a comprehensive on board degaussing system which can be utilised in any sea state and is continuously fine tuned.

Radar Cross Section (RCS)

The other stealth feature of the "City" class is its small Radar Cross Section (RCS). This 4300 tonne 134 metre long frigate actually looks more like an open ocean sized trawler than a warship. A number of features have gone into giving the "City" class its small RCS: low number of topside radar reflecting corners, very few superstructure decks, an angled transom, angled superstructure surfaces and flared hull sides. If one looks closely at the ship they will notice that no panel of the ship is at a 90 degree angle to the water line. This allows radar energy to be reflected in different directions rather than the one it originated from. Consequently only a small amount of radar energy actually makes it back to the searching radar, making the ship look far smaller than it actually is and far less detectable at longer ranges. Anti-ship missiles also have trouble locking onto the ship as their low powered search radar's must close in further than would be normal to be effective. A missile launched with an incorrect bearing to intercept and start a search pattern for the ship may in fact never find it. Even then, the ship can employ "Soft Kill" measures such as chaff and Electronic Counter Measures (ECM) which the small RCS enhances to further aid in concealing the ship from an incoming missile.



One of the two Mk 48 VLS for the Sea Sparrow missile with an angled panel covering the sharp radar reflective edges of the launch tubes. Notice the pipe under the left launch tube which vents the missiles exhaust gases up and out.

Weapons

Apart from the impressive stealth features of the ship which make it far more survivable in a modern naval warfare theatre its weapons and electronics also have the ability to fully defend it from almost any threat.

The ship's main anti-aircraft and anti-missile defence's are in the form of 24 Sea Sparrow missiles from two Mk 48 Vertical Launch Systems (VLS) located on either side of the ship. Although only 16 missiles are carried in peacetime. There are two STIR tracking radar's facing forward and aft to control and guide the Sea Sparrows. During exercises with the RAN and RNZN, A-4 Skyhawks and Lear jets towing missile sized targets were launched against the "VANCOUVER" to

simulate an air and anti-ship missile attack. Informed sources from the ship indicated that they were firing two Sea Sparrows each at two targets simultaneously.

To back up the anti-aircraft and anti-missile defence is a Bofors 57mm rapid fire gun. This gun can fire 220 rounds per gun minute at an air, surface or sea skimming target using different types of ammunition for each target. The gun mount is un-manned and can change ammunition types automatically and in a split second, i.e. HE for surface targets or HE-Proximity fused pre-fragmented rounds for an airborne threat. The gun receives fire control data from one of the STIR illumination radars but can also take fire control information from other sensors such as the Sea Giffard search and

tracking radar or from an optronic sensor, which incidentally was the only thing the class was lacking. The gun mount itself is also designed with "stealth" in mind with the turret sides being angled and the edges rounded.

If an anti ship missile were to get past the RCS, the ECM, the Sea Sparrows, 57mm gun and the chaff decoys it then has to contend with a Mk 15 Mod 1 Phalanx Close In Weapon System (CIWS). This weapon is a stand alone bolt to the deck system which detects a target and then classifies it as friendly or hostile. If hostile it then tracks the target and fires 3000 20mm rounds per minute at it. The Phalanx is equipped with a six barrel gattling gun with a range of 1.5km and can also be targeted from inputs by the command and control centre or be placed on automatic mode.

The anti-surface warfare (ASuW) component is made up of two Mk 141 quadruple launchers for 8 AGM-84D-1A Harpoon anti-ship missiles. This is one of the latest versions of the Harpoon anti-ship missile and has a range of approximately 130 km and a 227kg HE warhead.

The ship's ASW weapons are mainly air launched from its single Sea King helicopter. This large helicopter can travel long distances and gives the frigate the ability to patrol 76,000 square kms. It can also independently prosecute a submarine contact with dipping sonar, sonobuoys or radar as well as being able to provide Over The Horizon Targeting (OTHT) for the ships Harpoons. First line maintenance can be carried out on board the ship as well as some second line maintenance. A helicopter landing recovery system is fitted making it possible to launch and recover the helicopter up to sea state 6. It is hoped that the Sea King will be replaced by the EH 101 helicopter in the near future.

The ship launched ASW weapons comprise two twin Mk 32 Mod 9 torpedo tubes for Mk 46 Mod 1 or Mod 5 active or passive torpedoes. On board ASW sensors include an AN/SQS-505 or AN/SQS-510 hull mounted sonar and an AN/SQR 501 towed sonar array.

The radars on the ship include the Sea Giffard and SPS-49 which have both been selected for use on the ANZAC frigates. The Ericsson Sea Giffard radar is capable of detecting and tracking both high diving and sea skimming anti-ship missiles out to a range of 46km and as mentioned before, can supply tracking data to other weapons systems such as the 57mm gun or even the Sea Sparrow missiles. The Raytheon SPS-49 is a long range air search radar able to detect a 2m target at 457kms and able to track 250 targets simultaneously. The SPS-49 gives the ship as much advanced warning of an impending air threat as possible with the Sea Giffard providing close range detection and tracking cover in a high clutter environment.

HMCS VANCOUVER



The 57mm gun is one of the best anti-missile defence weapons on the market today. It fires 220, 57mm rounds at either an air or surface target changing ammunition types automatically and in a fraction of a second. The gun has also been designed with stealth in mind evidenced by the angled and rounded sides of the turret.

Another unique feature of the "City" class frigate is its fire control combat system. In a modern naval high threat environment normal human reaction times for detection, identification, tracking and engagement might not be fast enough, given that the next generation of anti-ship missiles will be supersonic as opposed to today's subsonic, or if the ship is under a saturation attack. For example, the time it takes for a Mach 0.9 missile, such as Harpoon or Exocet, to travel 15km is approximately 50 seconds. For a missile travelling at Mach 2.7, such as most Russian anti-ship missiles like the SS-N-12 and 19 and the new French and German ANS missile, the time taken to cover the same distance is only 16.7 seconds approximately. The ship's combat system can be placed on automatic mode which will detect, either by radar or ESM means, identify, track and engage with the appropriate weapon in a matter of several seconds. In addition giving the Captain course and speed suggestions to enable the weapons and sensors the widest possible view as well as presenting a smaller target to the incoming threat.

Although the ship represents the latest in naval technology it does have limitations. The 57mm gun is far too small for shore bombardment duties but superb in anti-missile defence. A 127mm gun, or 5 inch, would provide the ship with some offensive firepower but be far less effective in anti-missile defence. The 57mm cannot be described as a compromise but more of a trade off, ship survival for shore

bombardment. It forms another layer in the ship's impressive defence which includes ESM/ECM and the ship's small

RCS. As mentioned before the ship lacks an optronic sensor or optronic fire director. This video imaging unit can be slaved to a gun or missile fire control radar in order to provide target engagement data to the weapons system. All the operator needs to do is keep the cross hairs on the target. An optronic fire director, such as the ones found on the Royal Navy's Type 22 batch 3 and Type 23 frigates allow another target to be engaged simultaneously whilst the radar illuminators are engaging other targets. The Sea Sparrows on the class are extremely well suited to defence from low flying aircraft at short range and high diving or sea skimming anti-ship missiles but not for long range anti-air defence. The ship has the capability to use longer range anti-aircraft missiles and this may be a future upgrade option. The addition of longer range missiles such as the US Standard SM-2MR would allow the ship to keep potential attacking aircraft at a further distance from it and provide some anti-air defence for the Sea King helicopter and for a Merchantman convoy.

All in all the "City" class frigate is indeed an extraordinary and capable ship with the ability to take on nearly any assigned naval task. The technology represented is now considered the benchmark for new warship design.

CHARACTERISTICS

Displacement:	4300 Tonnes (Operational light) 4750 tonnes deep departure.
Dimensions:	length 134m, beam 16m, draught 5m.
Machinery:	2 shafts. CODAG, 2GE LM2500 gas turbines, 1 SEMT Pielstick 20 PA6-V280 MPC diesel.
Armament:	8 RGM-84D-1A Harpoon surface to surface missiles. 2 Mk 48 Vertical Launch Systems (VLS) for 24 (war time) Sea Sparrow Missiles, 16 in peace time. 1 Bofors 57mm L70 Gun. 6 12.7 (.50 cal) machine guns. 1 Mk 15 Mod 1 Phalanx 20 mm CIWS. 2 twin Mk 32 Mod 9 torpedo launchers (24 Mk 46 Mod 1/5 torpedoes)
Electronics:	ANSQS-505 or ANSQS-510 hull mounted sonar. ANSQR-501 CANTASS towed array sonar. ANSPS-49 air search radar. Sea Giraffe HC 150 air/surface search radar. 2 STIR illumination radars. Mk XII IFF. Type 107 navigation radar. ANJURN-25 TACAN.
Countermeasures:	4 Shield II triple decoy launchers. Nixie ANSLQ-25 towed acoustic decoy. RAMSES SLQ-503 ECM CANEWS ESM. Communications intercept equipment.
Helicopter:	1 Sea King ASW helicopter.
Complement:	195 officers and ratings, accommodation for 230.



BOOK REVIEWS

THE NAVAL INSTITUTE GUIDE TO COMBAT FLEETS OF THE WORLD 1995 Their Ships, Aircraft, and Armament



COMBAT FLEETS OF THE WORLD 1995

Edited by A.D. Baker III

Published by USNI

Reviewed by Ross Gillett

Every two years I have the pleasure to review this mammoth world naval reference book from the publishing stables of the United States Naval Institute. Again in 1995, I am not disappointed.

Combat Fleets of the World can be best described as the most comprehensive guide to the world's navies, with much greater narrative and photographic coverage than the veteran Janes Fighting Ships. For example, the Australia section in Combat Fleets features extensive descriptions of all classes and individual ships while many of Janes' entries are simple one or a few lines.

The most obvious advantage of Combat Fleets is the quality of reproduction and overall greater size of the illustrations used inside the covers. Many RAN and Australian photographers have had efforts rewarded in the 1995 edition.

Combat Fleets spans over 1050 pages including introduction, all the Navies presented alphabetically from Albania to Zimbabwe, an addenda and a comprehensive index. The degree (or should I say depth) to which Mr Baker goes into his research is evidenced by the inclusion of the RAN's five four ton training yachts.

When the reader moves into the United States Navy section, he is presented with 150 pages of information, from the numerous front line ships down to the "reserve" fleets used to augment the active fleet. The many weapons and systems, front-line and support aircraft employed by the various combat fleets are also featured under the country of origin.

Combat Fleets of the World 1995 is now available in Australia or can be purchased from the USNI, Annapolis, Maryland, USA. The book is a highly recommended addition to the naval enthusiast's library and provides many hours of informative reading or browsing.

STATESMEN & SAILORS: Australian Maritime Defence 1870-1920

by: Bob Nicholls

Published by: Bob Nicholls

STATESMEN & SAILORS: Australian Maritime Defence 1870-1920 describes the battle to establish and develop an Australian Navy. The book also describes the important and dominant role played by Admiral W.R. Creswell in his fight to establish an Australian Navy as opposed to a division of the Royal Navy in Australia.

In conducting his research Bob Nicholls has made extensive use of archival material in both the United Kingdom and Australia. Many of these sources have previously not been used by researchers of Australian navy history. Accordingly, the book is one of the more original works on Australian history, especially naval history. Previous books on this subject have been very limited in their coverage and research. STATESMEN & SAILORS: Australian Maritime Defence 1870-1920 has set a new benchmark for such publications.

This book should not only appeal to those interested in naval and defence history but also to readers in the development of the relationship between the newly established Commonwealth of Australia and the United Kingdom. How the Commonwealth related to the institutions in England and the limitations on the powers of the Commonwealth are clearly described.

Unlike most scholarly works, the author has not only researched and written the book but has also privately published and distributed it. The fact that the author has had to go to this extent to see the fruits of his labours is an indictment of the lack of interest shown by publishers.

Overall this is an excellent book covering a very important period of our Navy's history. STATESMEN & SAILORS:

Australian Maritime Defence 1870-1920 will remain for many years essential reading for anybody studying the development of Australia's navy and defence in general. Highly recommended.

(STATESMEN & SAILORS: Australian Maritime Defence 1870-1920 is available from the author for \$30.00). B. Nicholls, 25 Duke Street, Balmain, NSW 2041

Joe Stracsek

THE ROYAL NAVY IN FOCUS IN WORLD WAR II

By Sydney Goodman
and Ben Warlow

Published by Maritime Books

This is the eighth naval photograph booklet produced by Maritime Books. In this book the authors have illustrated over 100 ships of the Royal Navy which served from 1939 through to 1945. All the illustrations come from the private collection of Sydney Goodman. Many of these fine illustrations are being publicly published for the first time.

The ships illustrated in this book are arranged alphabetically with one photograph per page. Each of the photographs has a single paragraph caption which briefly encapsulates the history of the ship.

An interesting cross section of ships has been selected to illustrate this booklet. Apart from the usual battleships, aircraft carriers, cruisers, destroyers and submarines a number of miscellaneous craft are also illustrated. One of the more interesting is the torpedo training ship HMS MENELAUS. Originally built as a monitor she is shown with a single torpedo tube mounted over her bows.

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BOOK REVIEWS

Overall THE ROYAL NAVY IN FOCUS IN WORLD WAR II is an interesting book which will appeal to those who are interested in naval aspects of the Second World War or those who have an interest in warship photographs generally.

Joe Straczek

WAR WITH JAPAN

Books 1-4 with accompanying Map cases
Published by HMSO Books
Reviewed by J.H. Straczek

Throughout the Second World War the Royal Navy actively recorded and analysed the course of the naval war. This was done for two reasons; one was to learn from the experience gained and the other was to collect information for the writing of the future official histories. In order to disseminate the lessons learnt a number of Battle Summaries were produced and distributed to units of the Royal and Commonwealth navies. These Battle Summaries subsequently formed the basis, with other reference material, for the writing of Naval Staff Histories.

When originally written, the Naval Staff Histories were highly classified publications which were only available to those with a need to know. Each book was copy numbered and had to be signed for and sighted quarterly. In many cases some of the source information used in the writing of these books has only recently become publicly available. Given the classified nature of these publications very few copies were available in Australia. In the case of the volumes dealing with the "War With

Japan" only one complete set is known to exist, held by the Naval Historical Section in Canberra, with a small number of individual volumes in Defence libraries and the Australian War Memorial.

Now fifty years after the end of the Second World War this treasure trove of history is being made available to the public.

In 1994 to mark the fiftieth anniversary of the landings at Normandy, HMSO in conjunction with the Naval Historical Branch in the United Kingdom reprinted the series of Naval Staff Histories dealing with the naval aspects of Operation OVERLORD. In all this covered three volumes accompanied by two map cases. A truly invaluable resource for anybody studying amphibious warfare or the war in Europe.

This year, to mark the fiftieth anniversary of the end of the war HMSO and the Naval Historical Branch have again reprinted a series of Naval Staff Histories. This latest offering is titled "War With Japan" and was originally published in six volumes. This reprint has been published in four volumes each with an accompanying map case.

The first Book consists of the original Volumes 1 and 2. This covers the political and strategic background to the war and the initial defensive phase. Included in this first volume are details of Britain's attempts to form a closer relationship with the United States in matters dealing with Japan. This includes brief details of the various staff discussions and meetings. The second half of the Book provides details of the early operations and the defeat of Allied naval forces in the Far East, culminating in the disintegration of the ADBA command and the fall of Singapore. Book 1 finishes with the

Japanese defeats in the battles of the Coral Sea and Midway.

Book 2 covers the campaigns in the Solomon Islands as well as the operations of Japanese submarines against Australia. Also dealt with in Book 2 are submarine operations and blockade runners in the Indian Ocean. British operations in the Indian Ocean, including the occupation of Madagascar are also covered. This book covers the period when Allied seapower began to sway the balance against the Japanese and they were eventually forced onto the defensive.

Book 3 is another combined volume, in this case Volumes 3 and 4. The first half of the book covers operations in South East Asia and the central Pacific advance and the division of British naval forces into the British Pacific Fleet and East Indies Fleets. The second half of Book 3 deals with the blockade of Japan by submarines and mining. While much has been written about the US Navy's submarine campaign less well known is the Royal Navy's participation in this campaign. Of equal importance to the submarine campaign, but again little known, was the extensive mining campaign against Japanese ports. This coupled with the submarine campaign destroyed the Japanese merchant marine and crippled her military-industrial infrastructure.

The final book, Book 4, commences with an assessment of the strategic situation in late 1944. It then goes on to cover the initial operations of the British Pacific and East Indies Fleets and as well as the logistic problems encountered by these fleets. This is followed by detailed descriptions of the Philippines campaign, the invasions of Iwo Jima, Borneo and

Okinawa and finally Japan's ultimate surrender.

Though combined into four books the integrity of the original six volumes has been maintained. For ease of handling the maps which were at the end of each volume have been removed and placed into slip cases.

Most recent books that have been written about the war against Japan approach this war as the 'Pacific War' and totally ignore operations in the Indian Ocean, Burma and Australian waters. This is especially true with American books which tend to cover Pearl Harbor, the fall of the Philippines, the battles of the Coral Sea and Midway and then go onto the central Pacific campaign and Japan's surrender. British books on the other hand, keep reminding the reader about the 'Forgotten Fleet' and only scantily cover the other details of the war in the Pacific. The "War With Japan" suffers from none of these faults. It is the most

comprehensive series of books dealing with the naval war against Japan ever to be published.

Originally written to be read by professional naval officers, these books lack the excitement or the conspiracy theories which some authors feel they must insert into their books today in an attempt to increase sales. Naval Staff Histories were written with the intention of passing on knowledge and providing a basis from which naval officers could learn the lessons of the war. As such they are perhaps more valuable than some of the more recent offering which deal with the war against Japan.

Given that the original volumes were written some forty to fifty years ago there are some minor errors in the text. However, these are only superficial and in no way detract from the value of these books. The narrative chapters of the various volumes are supported by a large number of appendices containing

supplementary information, orders of battle for both sides, statistical information and text of various historical documents and signals. The scope and magnitude of these four books is truly encyclopedic, covering almost every aspect of the naval war against Japan.

Extensive use has been made of explanatory footnotes and at the end of each volume a comprehensive bibliography is provided. Interestingly, and very usefully this bibliography is arranged so as to show the principle documents used in each chapter. This will prove to be an invaluable aid to researchers.

One aspect of the "War With Japan" which is pleasing is that the service rendered by ships of the Royal Australian Navy is recognised and not glossed over as in most commercial publications. The role played by the cruisers, destroyers, corvettes and support ships is placed into the context of the various campaigns.

The only thing which detracts from these books is the price which ranges from £55 to £70 for a volume. As a boxed set they will cost £190. While these prices will put a hole in the average wallet the books are of a high quality and very well produced and do represent excellent value for money. Also noting how official histories have a tendency to appreciate in value faster than most normal books, this set may represent a valuable investment.

All in all, the "War With Japan" consisting of over 1600 pages supported by 115 maps and numerous organisational charts, tables and other important facts represent one of, if not the best history ever written about the naval war against Japan. These books are a must for anybody interested, not only in the naval war against Japan but also, in naval warfare generally. They not only describe the strategy and tactics of the greatest oceanic war ever to have been fought, but also provide an objective analysis of the errors and limitations on both sides. The "War With Japan" will prove to be an invaluable reference and research tool which will pass the test of time and is very highly recommended.

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August 1995

Photographs Courtesy John Mortimer



The Indonesian Tribal class frigate, MARtha KHRISTINA TIYAHAMU, was the former HMS ZULU.



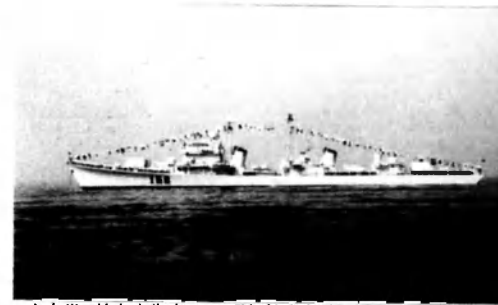
One of the remnants of the Indonesian Navy of the 1960s, the old Don class depot ship, shown here laid up, after her withdrawal from active service.



Chinese Jiangwei class guided missile frigate. Note the sextuple anti-aircraft missile launcher between the forward gun and bridge.



The Command ship MULATUJI was completed in 1961 as a submarine depot ship. Ship is now used as a flagship for the eastern force.



Luda III guided missile destroyer. This ship is the third of the updated type, featuring four twin "Strike Eagle" surface to surface missiles.



The Claud Jones class frigate, SAMADIKUN, ex USS JOHN R PERRY was transferred from the USN in 1973.



One of the more modern mine warfare vessels currently in Indonesia service is the Tripartite minehunter PULAU RUPAT.



The South Korean logistic support ship CHUN JEE.



Indian offshore patrol vessel (OPV) SARYU. Completed in 1991, she is one of seven of the type currently in Indian service.



The corvette MEMET SASTRAWIRIA was built for the East German Navy. She was one of 16 sisterships purchased in January 1993.



Another former East German class to be transferred to Indonesia in 1993 were the nine Kondar coastal minesweepers. No. 727 is PAIAU RANGSANG. The ship is armed with three 25mm guns, one forward and two amidships.



Thailand's Chinese built light frigate KRABURI, operates with the Coast Guard and on training cruises.



Port quarter view of the Indian Khukri class corvette KHANJAR. A helicopter platform is fitted aft, but no hanger.

Australian Coastal Minehunter

The Minister for Defence, Senator Robert Ray, has laid the keel of the first Australian built coastal minehunter (MHC) at Newcastle.

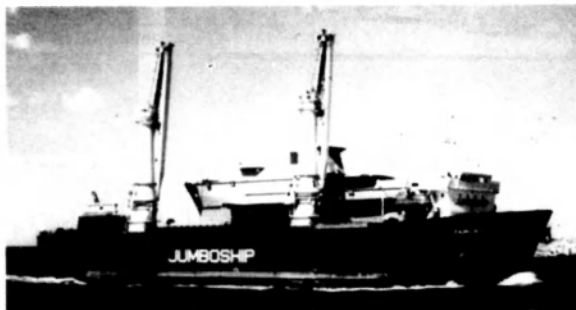
On Tuesday 12 September he opened the new \$26 million Australian Defence Industries' construction facility at Throsby Basin, Newcastle before activating machinery to lay the keel of HAWKESBURY, the first MHC to be built completely in country.

The opening also marked the start of operations of the largest glass-reinforced plastic (GRP) ship production facility in Australia.

The new minehunters are more than 50 metres long and, fully equipped, will weigh 720 tonnes. They will be the largest GRP vessels to be built here. In all, six MHCs are being built for the Royal Australian Navy.

The fast-track project, to enable the timely introduction into service of this high priority capability, involved choice of the proven Italian Gaeta design with the first hull being moulded in Italy.

The imported hull of the first MHC,



Jumboship FAIRLIFT delivers the RAN's new Huan class minehunter HUON into Newcastle in September for fitting out by ADI.

HUON, arrived in Newcastle on September 1 and is being fitted out.

Lights flashed and bells rang after Senator Ray pressed a button for a crane to lay the first mats of fibreglass in the 52 metre steel mould for the MHCs' hull.

some 20 metres above his head.

The six 720-tonne minehunters will be based in Sydney at HMAS WATERHEN. From there they will work to ensure that Australian ports and sealanes are free of mines.

Soviet Submarine Arrives



The old Foxtrot submarine delivered from Russia to Sydney in September. The boat is shown in Harbour with her towing vessel.



The former Soviet submarine was retired from active service in 1994 after her sale to the Australian company.



The Foxtrot will be refitted to be placed on exhibition and public inspection at the National Maritime Museum.

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