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THE NAVY

The magazine of THE NAVY LEAGUE OF AUSTRALIA

- NAVAL POWER IN ASIA
- KAKADU 1
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OUR COVER PHOTO

The new American STEALTH ship SEA SHADOW underway in April, 1993. See story in Naval News.

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THE MONARCHY-REPUBLIC ISSUE

A number of Navy League members have asked why the League has not expressed a formal view on the question of whether or not Australia should renounce the Monarch and become a Republic headed by a President; also why there has been no comment on the proposal to change the national flag.

The member's queries are understandable. The Navy League is known to be closely associated with the Royal Australian Navy, an offspring of the Royal Navy which has a long history of close links with the British royal family, links that continue to this day. Moreover until 1967 Australian warships and establishments wore the Royal Navy's white ensign; many members served under that flag and retain pride in it. The white ensigns of the RN, RNZN and RAN are not greatly different from one another today.

The Federal Council of the Navy League did in fact consider becoming involved in the republic and flag arguments soon after it became clear that the proponents of change were in earnest. The Council however decided not to do so for several reasons but principally because the matter — especially the republic issue — was outside the League's charter, aims and objectives, all of which relate to the nation's maritime wellbeing. The proposal to change the national flag does have some maritime implications and comment on this could be expected a little later.

The Council also had to take into account the League's membership which although maritime-orientated, nevertheless reflected differing attitudes held in the community as a whole. Apart from the principal reason previously referred to, it would have been wrong for the Federal Council of a single-purpose organisation such as the Navy League to make a decision on a major issue — that of changing from a monarchy to a republic — that its supporters must make as members of the wider Australian community.

There is nothing of course to prevent members of the League expressing their personal views on republicanism or national flags through the pages of THE NAVY or any other publication; some members have already done so in this magazine and the writer intends to express a few of his own.

Whether one supports retention of the monarchy or favours an Australian republic, the haste with which the advocates of change are pursuing their cause is to be regretted; such important changes should evolve and not be forced by fixing a date no matter how far ahead.

One must also remark on the lack of regard paid to the dignity and feeling of the present Head-of-State; despite her renowned sense of duty *Queen Elizabeth II must be tempted at times to abdicate her role* as Queen of Australia and leave the country to its own devices. Also to be regretted are the divisions opening in the community and the labelling of opposing elements as "monarchists" and "republicans", terms one never expected to hear in Australia.

In the flurry of excitement that the prospect of change sometimes causes, it is as well to keep in mind that Australia shares its Head-of-State with sixteen other countries, a tenuous but useful link, at a time when many nations are forging closer associations even if some loss of independence occurs in the process. In our haste to find new friends (and an "Australian identity", whatever that means) care should be taken lest we lose those we now have and end up friendless.

THE ADF AND THE RACIAL MIX

Some newspaper reports of an Australian Defence Force Academy study of the racial composition of the Australian Defence Force compared with that of the civilian community, carried out by four university researchers, conveyed the impression the ADF was overly Anglo-Saxon and unrepresentative of the general community; this was said to be due to its British origins and traditions which should be "Australianised".

While the study indicated there was a higher proportion of members with an English-speaking background in the ADF than in a comparable age group of the civilian community, very little was said about the reasons that prevented the ADF from being a replica of the community; these include:

- inability to speak or understand English proficiently — a vital requirement in an organisation dependent on efficient communication especially in times of urgency or danger.
- disinclination of many young people of non-English speaking background to join the military forces; they or their parents often came from countries torn by strife and violence and had no desire for a military career.
- inability to meet physical standards, higher in the armed forces than in the civilian community.

The ADF has been aware of the imbalance for some time — the *writer discussed the matter with the then Chief of the Defence Force*, General Gration, four or five years ago — and there is very little the ADF can do about it without weakening the effectiveness of the Services.

With regard to ceremonial customs and a suggestion that ADF (Scottish) pipe bands were un-Australian, the writer quotes from a letter of protest from a NSW citizen, Mr. Alistair MacPherson, to the editor of The Australian newspaper: "I cannot wait to see the first ceremonial parade with the troops marching by accompanied by massed wobble boards and didgeridoos."

A corroboree perhaps, instead of a guard of honour for the opening of Parliament or to greet visiting dignitaries?

Geoffrey Evans,
Federal President,
The Navy League of Australia

NLA FUNCTION

Lunch for the Admiral: Rear Admiral Oscar Hughes AO RAN, Director of the Submarine Project, was guest of honour at a business lunch held in Melbourne on 20th April. The Federal President of the Navy League hosted the lunch which was attended by Victoria-based Federal Councillors and League Members, also representatives of several of the Navy League's corporate members.

It is hoped to arrange similar functions in other states from time to time so that Navy League Members can be kept abreast of developments in the rapidly changing Australian Defence Force, not least in the Navy.

John Winton

Dear Sir,

With reference to your article by Tom Lewis on John Winton and his books *in the April-June issue, referring to the carrier HMS GLORIOUS*. It was not so much a secret, as what happened was not known till after the war.

The GLORIOUS was not on a war patrol but ferrying RAF aircraft from U.K. to Norway and most of her normal complement of aircraft had been put ashore. At the time evacuation had been decided upon, she was low on fuel oil and unable to steam at full speed. It was intended to embark RAF personnel only, however the pilots of 263 and 46 Squadrons sought permission to land their aircraft on the carrier instead of leaving them in Norway. This was granted by the Air officer commanding, as at that time fighter aircraft were priceless. A Swordfish aircraft led them out to the carrier and they all landed safely inspite of having no arrester hooks and untrained to do this. With so many aircraft on board and Hurricanes and Gladiators with wings that did not fold, air operations were impossible. The GLORIOUS was selected with HMS ARDENT and ACASTA to make her own way home independently.

On June 8th on a very clear day units of the German fleet sighted the *British squadron and opened fire at 17 miles range. In spite of the smoke* screen put up by the destroyers, the GLORIOUS was hit on the flight deck and caught fire with all the aircraft on deck. Soon after she was hit in the engine room, stopped and was sunk. After this the ARDENT was blown up by a direct hit and in true tradition of the Royal Navy the ACASTA, as told by the sole survivor Useaman E. Carter, headed for the Scharnhorst and fired off 4 torpedoes, one which hit her in the engine room, flooding the starboard and centre ones. ARDENT was sunk and the German fleet retired to Norway. As the Germans had successfully jammed all the British radio signals nothing was known about this disaster till after the war.

Yours faithfully
Ken Webbe ex RN, Dee Why 2099

Merchant Shipping

Dear Sir,

It was with great interest that I read the article "A strong Australia" *which appeared in the January-March 1993 edition of "The Navy"*, which outlined the Coalition's projection of the strength of the Royal Australian Navy. Although the recent election has perhaps rendered these views academic, one must still applaud the statement in the foreword to the article which states, "Our Naval Force must have a blue-water capability to patrol our exclusive Economic Zone and to reach sovereign territory like the Christmas and Cocos Islands."

In reviewing the resources available for this responsibility, the construction of the Collins Class submarines and the commencement of the construction of the Anzac Frigates are positive steps in the replacement of an ageing Fleet but frankly that is what the present construction programme is — a replacement programme and the Australian Fleet will not be increased in size. The commissioning of the new vessels will see the phasing out of existing ships.

The Royal Australian Navy currently possesses nine ocean going ships with fighting capacity (apart from the submarine Fleet) — three DDGs and (when the last vessel is commissioned) six guided missile *frigates. The last of the destroyer escorts can, as the article states, be dis*counted as fighting ships. The Maritime Commander therefore has at his disposal nine ships, if every one is operational.

Thus, given we have now acknowleged the probable necessity for operations off both East and West coasts at the same time, there will probably be only three combatant warships continually available on each coast at any one time for all purposes.

The patrol boats may have a role in coastal surveillance especially in peace time but would be of limited use in any hostilities due to their size, lack of armament, endurance and ability to handle heavy weather.

The size of the Royal Australian Navy brings me to the reason for writing to you and that is the ability of the Navy to defend Australian Merchant Shipping in the event of any hostilities or even limited harassment (the term often referred to in the Government's White Paper).

The last two World Wars, the Gulf hostilities and the Falklands War *have demonstrated the importance of the Defence of Merchant Shipping* yet it is a subject that seems to receive little or no attention in Naval circles and certainly there is no explanation of how such protection could be achieved. Yet in all those conflicts the protection of merchant shipping was the key factor between defeat and victory and was only achieved by the narrowest of margins. Without going into a plethora of statistics several references demonstrate how close this margin was.

In 1916 the Commander-in-Chief of the British Grand Fleet advised the Government that if the submarine menace could not be mastered Britain would have to sue for peace in 1917. When the unrestricted U-boat campaign was at its height in that year one out of every four ships leaving British ports was being lost. In the second World War the German Naval High Command gave the directive that its primary task was the destruction of merchant shipping — not only British and allied but any shipping that carried cargo for the allies. Ships of the Kriegsmarine were ordered to concentrate on the destruction of merchant shipping and avoid engagement wherever possible.

Shipping losses in the Second World War were even greater than in the first and perhaps the margin between victory and defeat even closer. To quote Sir Winston Churchill the British Prime Minister: "battles might be won or lost, enterprises succeed or miscarry, territories might be gained or quitted but dominating all our power to carry on the war or even keep ourselves alive was our mastery of the ocean routes and the free entry to our ports. The only thing that frightened me during the war was the U-boat peril."

Once again, without going into detail, more than twenty million tons of shipping were sunk, fourteen and a half by U-boat alone. But U-boats were only one source of danger, there were also surface warships, aircraft, merchant raiders and mines against which protection was required.

On the other side of the coin the Japanese Imperial Navy learnt too late the importance of protecting its merchant shipping which was almost totally destroyed before the end of the war. To quote once again the words of Sir Winston Churchill: "It would be a mistake to suppose that the fate of Japan was settled by the atomic bomb. Her defeat was certain before the first bomb fell and was brought about by overwhelming maritime power. This alone made it possible to seize ocean bases from which to launch the final attack and force her metropolitan army to capitulate without striking a blow. Her shipping had been destroyed. She entered the war with over five and a half million tons later much augmented by captures and new construction, but her convoy system and escorts were inadequate and ill-organised. Over eight and a half million tons of Japanese shipping were sunk, of which five million tons fell to submarines. We, an island power equally dependent on the sea, can read the lesson and understand our fate had we failed to master the U-boats."

That final sentence is certainly relevant to Australia also.

The earlier Gulf conflict between Iran and Iraq in which both sides indulged in tit-for-tat sinkings to choke off each other's exports demonstrates further the manner in which merchant shipping becomes the first casualty in war. By 1987, 448 tankers had been hit, 80 ships being hit in 1986 and 178 in 1987 with heavy loss of life. The world's largest tanker, the 564,739 tonne "Seawise Giant", was hit twice. This in spite of Naval patrols by various navies. It also exposes the fallacy that the neutrality of ships would be respected in hostilities.

Before leaving the subject of attacks on merchant shipping, in the Falklands War 56 ships were "taken up from trade", the "Atlantic Conveyor" which carried all the task force helicopters was hit twice by missiles and sank and the RFA vessels "Sir Tristram" and "Sir Galahad" unprotected by air were both hit and set ablaze with heavy casualties to the landing force and the loss of much equipment.

Let us now look at the merchant shipping at Australia's disposal. The Australian Merchant Navy is small. There are approximately 80 commercial vessels on the Australian Register. These are only sufficient to carry Australia's coastal trade and a very small percentage of our overseas exports. The loss of even one of these ships would result in a most serious dislocation of vital industries. It has been stated by authoritative sources that Australia could become a net importer of oil by the turn of the century.

Dependent as both our imports and exports are on foreign flag shipping we could well see the consignees of our export cargoes turning to other sources of supply in the event of harassment of our seaborne trade. Apart from small specialised vessels there is no longer any merchant shipbuilding capacity available in Australia and all larger vessels are purchased overseas. Thus the loss of any Australian ships could be well nigh irreplaceable.

Thus it would be beyond the capacity of the Navy to provide adequate escort for even this small merchant fleet. All this may be a depressing scenario, but experience of the decimation of a convoy protected only by a numerically small escort leaves a lasting impression.

Perhaps just as important as the size of the Royal Australian Navy must be the quality of its seamen. Today there seems to be an almost lack of interchange between the Royal Australian Navy and the Merchant Navy. Both have become very specialised in their separate fields. Once many Merchant Navy Officers were proud to obtain commissions in the Navy and in the Second World War many served with distinction and commanded fighting ships. This type of Reserve seems to have died out. Equally some years ago a Naval officer having reached *a certain rank and experience could apply for and obtain a Certificate of* Service as a Master Mariner. Many Naval officers did so and on retiring or resigning from the Navy were able to pursue a rewarding career in the Merchant Service. The Certificate of Service is no longer available and these valuable men are now lost to the sea service.

This may be due to the degree of specialisation which has become the norm in both services. Merchant ships have become larger and by comparison Naval vessels have become smaller. Many merchant ships are now of far greater size than a World War II battleship and have an operating speed which an escorting ship would find difficult to maintain.

It is rarely realised just how efficient the modern merchant vessel is and yet is manned by a very small crew. Engine rooms of enormous power and electrical capacity operate almost unattended for the greater part of the day, all controls and monitoring equipment is increasingly being centred on the bridge which is now designated the Command Centre. Yet bridges (or command centres) are designed to be operated by a single officer who also handles radio communications. Automatic Data Transfer (ADT) enables the Head Office of the Shipping Company to be informed of the condition of the ship's power plant and auxiliary equipment and much other data at any time. Similarly loading and discharging equipment in port enables these operations to be carried out at a rate of many thousands of tonnes per hour to ensure that the ship's stay in port is kept to a minimum. Such developments have enabled crews to be small in number. For instance the largest refrigerated ships in the world with an operational speed well in excess of twenty knots are manned by a crew of nine men.

In the case of the Royal Australian Navy the small number of operational fighting ships must mean that the opportunities for command must be limited. Also the length of a sea appointment is short and, judging by the length of time that frigates seem to spend tied up at the Fleet Base, only a relatively short time will have been spent actually at sea. With all respect, officers of Flag rank are not likely to have commanded any combat vessel larger than a frigate or destroyer and that for not very long. This is not intended to be in any way derogatory but merely to illustrate the way in which the two services have grown apart. It is doubtful if any Naval officer has spent any time on a merchant ship and vice versa.

Having discoursed at some length on the difficult problem of the protection of merchant shipping, the question could well be asked of how to achieve it. This in turn could be the subject of long discussion. It is the lot of democracies to maintain only a minimum of armed forces for economic reasons in the piping days of peace but, as we have seen so often in the past, whilst emergencies arise quite suddenly the means to cope with them are not readily available.

It is not sufficient for our political masters to dismiss the matter with the statement that there is no threat within the forseeable future. Surely it *would be more realistic to admit the magnitude of the task of protecting* merchant shipping even in what is referred to as harassment and to demonstrate what resources are or will be readily available to achieve it.

Quite frankly the fact is today the RAN even with RAAF support is not capable of ensuring the protection of shipping vital to this nation's survival, even in a crisis involving comparatively low level attacks on our ships.

Yours faithfully,
A. Pearson, M.B.E.
Fairlight 2094

The Emerging Balance of Naval Power in Asia

Malcolm R. Davis*
photographs — Brian Morrison

Indonesian frigate HASANUDDIN

The peaceful 'New World Order' envisaged at the conclusion of the 1991 Gulf War died a brutal death in the killing fields of the former Yugoslavia, the former USSR and Cambodia. Far from living in a post-Cold War world of peace and cooperation, the International System is beset by conflict and regional instability. Australia's region of primary strategic interest — namely Eastern Asia — is not immune from the instability of the Post Cold War Era. Continuing tension on the Korean Peninsula, Chinese claims to the Spratly and Senkakus Islands in the South China Sea, and tension between India and Pakistan are the most dangerous regional flashpoints. Concerns that the US will be forced to at least partially withdraw from its defence commitments to Eastern Asia as a result of domestic problems, and a reduced military threat from the former USSR, are leading to the fears of an expansion of military power by China, India and Japan. As a result of this instability defence spending has been increased by ASEAN states to counter potential threats in the 1990s, and to take advantage of the large amount of military hardware available at cheap prices on the world markets. Naval power is of prime importance in this regional arms buildup.

Indonesia is seeking to expand its Navy beyond a 'brown water' force to a limited 'blue water' force. Its current strength includes two Type 209 *Cakra* class Diesel Electric Submarines (SSKs) able to carry fourteen 533mm torpedoes each in forward tubes. Indonesia seeks to expand its submarine force to four or five boats, but at this stage money is yet to be allotted for this expansion, although talks began with German officials in January 1993. Should the expansion go ahead, the Indonesian submarine force will be a potent power projection capability within the region.

In terms of surface combatants, Indonesia's Navy deploys seventeen frigates including six *Van Speijk* class FFGs that are equipped with Harpoon antiship missiles, three *Fatahillah* class FFGs equipped with Exocet antiship missiles, one *Hajar Dewantara* class FFG equipped with Exocet antiship missiles and seven FFs designed for Anti Submarine Warfare. Indonesia also deploys forty-three patrol and coastal combatants including four equipped with Exocet antiship missiles, as well as sixteen amphibious vessels, two mine warfare vessels and eighteen support vessels.

To this potent force, Indonesia is possibly adding two *Tromp* class DDGs from the Netherlands equipped with Harpoon antiship missiles. Indonesia is also purchasing thirty-seven warships from the former East Germany including; sixteen *Parchim* class corvettes, twelve *Frosch I* and two *Frosch II* amphibious vessels and nine *Kondor* class Mine Warfare vessels. The amphibious ships are classed as LSTs and can carry up to eleven tanks and 200 troops. They are also equipped with two banks of forty BM-21 Multiple Rocket Launchers designed for shore bombardment. Finally, Indonesia is also building an additional 16 fast patrol boats.

It can be seen that Indonesia is expanding its naval capability to a significant degree, especially in the area of power projection and amphibious warfare. The enhanced amphibious capability will allow Indonesia to deploy its entire Marine force (approx. 12,000 men) in three lifts, whilst the surface combatants and submarines defend the amphibious transports. The expansion of Indonesia's air force to include up to forty-two F-16 fighters, C-130 Hercules transports and E-2C Hawkeye AEW aircraft means that Indonesia is seeking to have a significant power projection capability in Southeast Asia by the end of the decade in

order to maintain regional stability and counter future potential threats from outside the ASEAN region.

The most significant purchase for the **Royal Malaysian Navy** have been two FFGs equipped with the Vertical Launch Seawolf surface to air missile and the Exocet antiship missiles.' The FFGs will be built in the UK, and will be also equipped with an up to date electronic warfare system, anti-submarine warfare system and will be able to operate advanced helicopters. The first ship will enter service by 1996. In addition, Malaysia plans to acquire eighteen to twenty-four offshore patrol vessels as well as two submarines.' The offshore patrol vessel project has attracted wide interest from shipyards around the world, and many of the options being offered to Malaysia are equal in capability to Australia's ANZAC class light frigates that will enter service in the late 1990s. The Malaysian naval buildup will be complemented by the purchase of tactical fighter aircraft — probably the MiG-29M Fulcrum — as well as Hawk 200 fighter ground attack aircraft. The new aircraft are capable of carrying antiship missiles, and providing additional air cover for the naval forces.

Like Indonesia, Malaysia seeks to maintain regional stability and counter external threats, particularly any moves by the People's Republic of China against the disputed Spratly Islands in the South China Sea. Malaysia is also seeking enhanced regional defence cooperation through joint training exercises, commonality of ordnance and command, control, communications and intelligence (C3I) systems, as well as improved coordination of defence policy at a higher political level.

The **Royal Thai Navy** is seeking to acquire a Blue Water Navy capable of defending its maritime interests in the Gulf of Thailand and the Bay of Bengal. Of particular concern is the increasing activity of pirates in the Bay of Bengal against Thai fishermen. Thailand suspects Myanmar (formerly Burma) of complicity in the pirate attacks which have led to the disappearance of up to 500 Thai fishermen over the past two years. Thailand is also concerned with the rapid growth of China's People's Liberation Army Navy (PLAN) in the region as a result of China's increasing support of Burma. Ironically, Thailand has purchased six FFGs from China — four *Chao Praya* class FFGs and two *Naresuan* class FFGs, all of which will be fitted with Harpoon antiship missiles and Vertical Launch Sea Sparrow SAMs. Thailand has also ordered the first of three helicopter carriers from EN Bazan in Spain, which will be delivered in five years. The Thai 'Helicarriers' will be fitted with ski-jumps to allow them to operate up to 12 Sea Harrier type VSTOL aircraft, and the ships will displace 13,000 tons, have a top speed of 26 knots and a range of 10,000 nautical miles at 12 knots. These ships will allow the Thai Navy to project power out into the Bay of Bengal and attain a 'blue water' capability. Thailand is also examining the possibilities of acquiring a fleet of three diesel electric submarines to support its surface vessels.'

Given the current strength of the Royal Thai Navy of eight Frigates, and sixty-five patrol and coastal combatants, the future acquisitions of the Royal Thai Navy will mean that Thailand could challenge Indonesia's place as the dominant naval power in the region by the end of the decade. The Thai Marine force has been expanded into a divisional sized unit. The expansion of the Thai Air Force with purchase of the French Crotale Air Defence system, more F-16s, possibly up to 38 AMX aircraft from Italy that are capable of carrying the Kormoran antiship missile, and a squadron of E-2Cs, can only enhance Thailand's power projection capability.

Indonesian patrol boat KERAPU

Singapore's Navy is centred around offshore patrol craft and corvettes, equipped with antiship missiles. The fleet includes six *Victory* class corvettes, equipped with Harpoon antiship missiles, and six *Sea Wolf* fast attack craft equipped with Harpoon or Gabriel antiship missiles.' In addition the RSN deploys eighteen inshore patrol craft, mine warfare vessels and five *Endurance* class LSTs capable of carrying 200 troops and 16 tanks each.' Singapore is seeking to replace its mine hunters with more modern GRP hulled *Landsort* class mine hunters, that use the Thomson ASM Sintra TSM-2022/TSM-2061/Ibis V Mk.2 mission sensor package.' In addition, Singapore is seeking to acquire a number of offshore patrol vessels equipped for anti-submarine warfare.' The OPVs will have variable depth sonars and hull mounted panoramic sonars, that are highly effective in shallow water areas.

Perhaps the most neglected ASEAN Navy, the **Philippines Navy**, is now seeking to modernise and expand after the US withdrawal from Subic Bay and Clark Air Base. The Philippines Navy requires up to 100 new ships to guard its 1.94 million square kilometres of oceanic territory, but can only afford to acquire 38 vessels.' Its main missions are fishery protection and anti-smuggling operations. The growth of piracy, and the emerging blue water capability of the Chinese PLAN, mean that the Philippines Navy is facing an increasingly difficult task, given the limited financial resources it has access to. At this time, the Philippines Navy has ordered three *Comoran* class missile gunboats from Spain, three coastal patrol boats from Australia, and twenty-eight fast patrol boats from Halder Marine in the US.' The *Comoran* class PCMs will be equipped with Oto Melara 76mm main guns, 25mm twin cannons, and four Aerospatiale MM-40 Exocet antiship missiles. They will also feature an optronic fire control system, navigation radar, collision avoidance radar, data display consoles and weapons consoles, integrated into the Alcor naval combat system by a common data bus. The Philippines Navy also plans to purchase two fleet logistic support ships from China, as well as an additional six medium landing ships and four mine countermeasures vessels. The new ships will add a more modern dimension to the rapidly ageing Philippines Navy, which is currently only equipped with outdated gun armed frigates and patrol craft, plus a reasonable amphibious capacity centred around 7 ex US LSTs that can each carry up to 16 tanks or 10 tanks and 200 troops each.

Finally, **Brunei** is set to acquire two to three offshore patrol vessels from Britain, three CN-235 maritime patrol aircraft from Indonesia and Indonesian PB-57 patrol boats. It is also looking at purchasing British Aerospace Hawk 100 and 200 trainer aircraft that can be used to support naval forces.

Therefore it can be seen that virtually all ASEAN states are currently engaged in some form of defence buildup, and ASEAN naval capability will improve by the end of the 1990s. It is important to understand what is driving what some call a 'regional arms race' and others call the 'modernisation' of navies that previously were designed for counter-insurgency operations during the Cold War and are now seeking to have a conventional war fighting capability for the Post Cold War Era.

Firstly, there seems to be real concern in the ASEAN states that as a result of the reduced military threat from the former USSR, the US will be unwilling to maintain its defence commitments at the current level to the East Asia region in the future. The Clinton Administration initially sought to maintain a 'laser beam focus' on domestic issues and was unwilling to become mired in foreign issues on coming to office. Ironically it has been forced to assist the beleaguered Russian President, Boris Yeltsin, and reluctantly to play a greater role in dealing with the Balkans Conflict.

For the time being US military officials such as Admiral Charles R. Larson, Commander in Chief of the US Pacific Command (CINCPAC) are seeking to reassure Asian states that the US will maintain a 'forward presence' in Asia.

"The key point is that forward (military) presence sends an unmistakable message about American commitment ... It says we are serious about protecting our interests overseas."'

At the same time, the Clinton Administration's political rhetoric suggests that it would prefer states such as Japan or an ASEAN or APEC based security alliance to play a greater role in ensuring their own security. The Clinton Administration's Defence Secretary Les Aspin recently stated that:

"I think we are going to have to decide the use of force case by case. Nothing has happened that would lead us to say on the one hand that we're never going to use force short of war, or on the other hand that we're going to be the cop on the beat for the whole world ... I think these things are going to tilt future debates somewhat in the direction of the limited objectives school, but it has by no means been decided."'

It is by no means certain that the US will be prepared to maintain a 'blanket commitment' to defend the region against all threats in the future. In addition, any future US commitment will be more difficult given the defence spending cutbacks currently underway. In terms of naval forces, the US Congress seeks to reduce the number of Aircraft Carrier Battlegroups from fourteen to eight globally, and reduce the size of the surface navy in general from 600 ships to somewhere between 290 and 340 ships globally.' Given the increasing potential for US military involvement in the Balkans and the continued need for a US presence in the Persian Gulf, the US Navy may not have the forces to spare for a large commitment to Southeast Asia later in the decade ahead, especially if it is militarily involved on a large scale elsewhere. Rear Admiral Riley Mixson, Director of Naval Aviation, stated recently:.

"The US Navy cannot reduce its aircraft carrier fleet to less than 12 ships without adversely impacting its ability to show force around the globe."'

Thus, in spite of comforting words from Washington, there is real concern that the US will not be able to or be unwilling to maintain its defence commitment to Eastern Asia (especially Southeast Asia and the South Pacific — Australia's region of primary strategic interest) in the future, and partial US withdrawal from the region will eventually occur. The resulting effect would be a dangerous power vacuum in our region of primary strategic interest, leading to increased instability.

Which states would seek to fill this vacuum? The three states most likely to replace the US presence are the People's Republic of

Malaysian missile boat PERDANA

Thai frigate KHIRIRAT

Japanese destroyer SHIRAYUKI

Indian Leander class frigate UDAYGIRI (left) and KASHIN II class destroyer RAJPUT. (RAN)

China, Japan and finally India. All three are currently engaged in modernisation and expansion of their armed forces, with an emphasis on gaining a "blue water" Navy and an effective "power projection" capability in terms of air and naval forces, and in the case of China and India, strategic nuclear forces.

Of greatest concern are recent efforts by the **People's Republic of China** to acquire an *aircraft carrier from the former USSR*.[1] Whilst it appears as though the sale of the *Kuznetsov* class carrier *Varyag* has fallen through for the time being, it does show that China is interested in maritime power projection as part of an overall push to achieve military superpower status in the 21st Century. Russia has supplied China with naval variants of the Sukhoi Su-27 Flanker air superiority fighter that are designed to be used on board *Kuznetsov* class carriers. The carrier can also carry the naval-based variants of the MiG-29 Fulcrum, MiG-27 Flogger, and the Su-25 Frogfoot close support aircraft, of which China has bought in significant numbers from Russia. At this stage it remains unclear whether China is continuing to seek the purchase of a carrier from overseas or build one locally, perhaps with Russian assistance, but it is likely that an aircraft carrier is to be part of the Chinese PLAN later in the decade. China is also negotiating with Russia to acquire *Sovremenny* class DDGs armed with SS-N-22 antiship missiles, the latest *Kilo* class SSKs, and the Tupolev *Tu-26* Backfire bomber capable of carrying AS-4 and AS-6 antiship cruise missiles, both with 250 nautical mile ranges and with the AS-4 being nuclear capable.[2] The purchases of Su-27 Flankers, MiG-31 Foxhounds, T-72 tanks and other weapons make China one of the fastest militarising states in the region. Taken together with recent statements made by the Chinese Government about its future intentions in the region, especially in relation to China's claims to the Spratly Islands and the South China Sea, and the ASEAN states have good reason to be concerned.

Japan's naval and air power is also of concern to the ASEAN states, given the legacy of Japan's actions in the Second World War. According to the Japanese constitution, Article 9 renounces war and use of force except in self defence. Yet under pressure from the US to play a greater role commensurate with its economic power, the Japanese Government is in the process of reviewing Article 9, and the despatch of Japanese forces for peacekeeping operations in Cambodia and Mozambique is seen by many defence analysts as the first steps in this review. Japanese security interests are twofold — deterring regional threats to the Japanese islands from Russia, North Korea and China, and maintaining access to raw materials resources in Asia that Japan's economic growth relies upon. In both cases, naval forces and maritime air forces play a large role, and thus they have received the bulk of finances in terms of defence spending over the past decade.

Currently the Japanese Navy is undergoing a period of modernisation with the 7200 ton *Kongo* class Aegis Destroyer recently commissioned. *Kongo* is the lead vessel in a series of four Japanese versions of the advanced US *Arleigh Burke* class DDGs, and additional ships may be procured later. Besides being equipped with SPY-1D Phased Array Radar, the ships can carry SM-2 Standard Block 4 SAMs, as well as Harpoon and Tomahawk antiship missiles (the latter having a range of 450 nm), making it one of the most potent vessels afloat, and almost as capable as the *Ticonderoga* class Aegis Cruisers of the US Navy. Japan is also continuing to build a range of DDGs, HDGs, and SSKs including the new *Harushio* class SSKs. Under consideration is a greater amphibious capability centred around an 8500 ton mini helicopter carrier, with a floodable well deck and a large flight deck.[3] The vessel will be similar in size to the Italian San Georgio LPDs and the new Thai Helicopter Support Ship.

The other major power that ASEAN states feel could become a potential threat in the future is **India**. Over the last two years the Indian Navy has engaged in a dramatic expansion of its forces to the point where it is now the seventh largest navy in the world. Currently the Indian Navy is seeking to develop a balanced "blue water" fleet capable of maritime power projection into the Indian Ocean, the Arabian Sea and the Bay of Bengal. The objective is to have four ships join the Navy each year until the end of the decade, an expanding network of bases throughout India's region of strategic interest, and a modernised fleet including "big deck" aircraft carriers (either from France or the former USSR, or indigenously built), nuclear submarines, advanced destroyers and frigates and an amphibious capability sufficient to eventually lift a corps sized force.[4] Indian defence spending is set to increase by 9.6% in 1994.[5] In addition the modernisation of Indian airpower with purchases of the MiG-29 Fulcrum from Russia, and the development of intermediate range ballistic missiles (IRBMs) that potentially can be armed with nuclear warheads, is causing concern for Indonesia and Singapore. It is plausible to suggest that recent Indonesian talk of purchasing Scud missiles is a response to the ballistic missile threat posed by both India and China. India's military presence on the Andaman and Nicobar Islands, and its growing power projection capability could be perceived as a potential threat to the Straits of Malacca, Lombok and Sunda.

In conclusion it is the growing military power of these three states (particularly China) that is of the greatest concern to Southeast Asian states. When taken in combination with the gradual US withdrawal from the region, the developing strategic situation has forced the ASEAN states to begin their own modernisation and expansion in naval and air forces to counter what they perceive as potential threats in the future. The ASEAN military expansion has been made possible by the abundance of cheap weapons on the market, as a result of the end of the Cold War.

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Indian missile corvette KIRPAN. (RAN)

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NAVAL NEWS

New RAN Minesweeper Drone No. 4, on trials in March 1993. The boat participated in a mine warfare exercise in June, held north of Sydney.

HMAS TOBRUK RETURNS FROM SOMALIA

The Royal Australian Navy's heavy landing ship HMAS TOBRUK returned to Sydney on Monday 21 June.

The 8800 tonne ship returned from deployment in Somalia as part of the Navy's supporting role in Operation Restore Hope.

HMAS TOBRUK left Australia on Boxing Day (December 26) 1992 to carry Army equipment including Land Rovers, water and fuel trucks and general supplies for Australian troops in Somalia.

Commanded by Commander Kevin Taylor RAN, HMAS TOBRUK is manned by 130 officers and men, including a small Army contingent.

FOURTH DDG PURCHASED

USS GOLDSBOROUGH in Sydney, August 1982. (Ross Gillett)

The acquisition of a guided missile destroyer (DDG) surplus to US Navy requirements will provide training and equipment which will mean considerable savings to the Navy, the Minister for Defence, Senator Robert Ray has announced.

The purchase of the decommissioned DDG, formerly USS GOLDSBOROUGH, would cost $US 2.2 million.

The ship will be towed to Australia and stripped of equipment required for training.

"It should be obvious that this is *not* an addition to the Navy's order of battle," the Minister said. "It is a purchase being made solely for training equipment and spares.

"And at the price quoted, which includes towing to Australia, the purchase will mean significant savings in terms of training, and equipment which can be used to support the three DDGs HMA Ships PERTH, HOBART and BRISBANE — and the five guided missile frigates (FFGs) we have in service."

Senator Ray said that GOLDSBOROUGH was the last of the US Navy DDG 2 class and one of only three USN ships modernised to a configuration similar to that of the RAN DDGs.

"Major equipments fitted onboard are applicable to the training needed for both our DDGs and our FFGs," he said. "The electronic warfare (EW) equipment alone fitted to GOLDSBOROUGH is worth $US 18 million.

"However there are other items also — the guided missile launcher, radars, guns, chaff launchers, torpedo tubes and gyros which will support the conduct of technical training for the RAN in Australia."

The Minister explained that the Navy is continuing to bring to Australia training which in the past has been undertaken overseas. "This is already well underway with submarine training, formerly provided with the Royal Navy in the United Kingdom, now being offered at the Submarine Training Facility at HMAS STIRLING," he said. "The establishment of training facilities at home makes us more self-reliant and, once establishment costs have been amortised, represents significant savings in terms of the cost of sending people overseas to attend courses."

New Admirals Barge (for the Naval Support Commander) during trials on Sydney Harbour. (RAN)

SAILORS HOME

Two Royal Australian Navy Ships carrying more than 500 officers and sailors returned to Sydney on Thursday 10 June.

Both ships, HMAS MELBOURNE (guided missile frigate) and HMAS HOBART (guided missile destroyer) recently took part in EXERCISE SPRING TRAINING 93 with the American aircraft carrier USS INDEPENDENCE and her battle group off Darwin.

HMAS MELBOURNE is commanded by Commander A.G. Johnston while HMAS HOBART is commanded by Captain W.A.G. Divers.

The ships berthed at the Fleet Base East, Woolloomooloo.

NAVAL CONTROL OF SHIPPING EXERCISE

Senior Australian Naval officers have directed and controlled the international maritime exercise, BELL BUOY '93, involving personnel from seven navies and merchant ships operating in the Pacific and Indian Oceans.

The exercise, which began 3 May was designed to practise, test and evaluate naval control of shipping (NCS) plans and procedures.

In addition to the Royal Australian Navy, BELL BUOY '93 participants included personnel from the navies of the United States, United Kingdom, Canada, France, Republic of Korea and Chile. About 300 officers and sailors — most of them reservists — were involved in the two ocean exercise.

In Australia, more than 80 RAN Reservists participated. The largest group were in Sydney with at least one in each of Darwin, Townsville, Mackay, Gladstone, Brisbane, Melbourne, Port Adelaide, Fremantle and Dampier — to monitor the movements and board merchant ships visiting these major Australian ports.

Naval control of shipping involves naval personnel advising merchant ships in a period of tension associated with limited hostilities in the areas of responsibility of the participating nations. They brief merchant ship captains on possible dangers that may be encountered at sea and if required suggest alternative routes to keep vessels clear of danger.

HMAS GEELONG at speed, April 1993. (RAN)

HMAS CANBERRA — ELEVEN COUNTRIES IN ELEVEN MONTHS

The arrival in Sydney on 19 April of the Guided Missile Frigate HMAS CANBERRA, marked only the second time the ship entered her home port in more than ten months.

A two year refit and modernisation complete, the ship departed Australian shores for Hawaii and San Diego in May last year to participate in Exercise RIMPAC '92.

During the exercise CANBERRA acquitted herself well and gained a lot of training value working with ships from four other nations.

CANBERRA returned to Sydney on 27 August and almost exactly one month later sailed as Australia's contribution to the Multinational Interception Force operating in the North Red Sea.

After a rigorous training program conducted on the way to Western Australia, CANBERRA visited the island of Mauritius and Kenyan port of Mombasa, arriving on station in the North Red Sea in mid November.

In the North Red Sea CANBERRA's primary role was boarding and searching the cargo of merchant vessels bound for the Jordanian port of Aqaba. Jordan's common border with Iraq allows the port to commonly be used by vessels with consignments for Iraq, so cargo must be checked for its compliance with United Nations Security Council sanctions.

While in the Operational Area CANBERRA visited the Egyptian ports of Hurghada and Port Suez, the Saudi Arabian ports of Jeddah and Yanbu and the Jordanian port of Aqaba. Christmas was spent alongside Naples in Italy, many of the ship's company of 234 getting away for a quick look at Europe.

January and February 1993 saw CANBERRA in the Red Sea boarding grounds plying her trade, a little extra excitement occurring during the mid January increase in hostilities in the area.

CANBERRA left the Operational Area on 12 March to visit the Pakistan port of Karachi before truly heading south for the idyllic Thai island of Phuket and the shopping extravaganza of Singapore.

The ship visited Darwin over Easter to clear customs and allow the ship's company to re-acclimatise to the Australian way of life and then made passage south for Sydney where many families will be reunited after ten out of eleven months apart.

In that eleven months the CANBERRA personnel experienced the ways of life in California, Hawaii, Mauritius, Kenya, Egypt, Saudi Arabia, Jordan, Italy, Pakistan, Thailand and Singapore.

Still going strong after almost 50 years afloat, the workboat AWB 433, operated by the Master Attendant in Sydney. (RAN)

LASER MAPPING PLANE ON SHOW

A Royal Australian Navy plane that uses lasers to map the ocean depths flew over Sydney for the first time on Thursday 13 May, 1993.

The plane, a Fokker 27-500 has been decked out with a Laser Airborne Depth Sounder (LADS) which can accurately map the sea floorbed within a small tolerance.

The LADS system relies on a series of lasers projected by equipment onboard the former East-West Airlines aircraft and its precise location is set and recorded by a global positioning satellite accurate to within a couple of metres.

Scientists from the Defence Science and Technology Organisation invented LADS which is being commercially developed by BHP Engineering and the electronics consortium, Vision Systems.

The hydrographic mapping by air will help avert major maritime disasters around Australia's coastline by more accurately drawing the seabed.

The LADS Fokker, based in Townsville, was on its way to Melbourne for routine maintenance.

STEALTH SHIP UNVEILED

The United States of America rolled out the SEA SHADOW on 11 April 1993, a $ 3 million radar eluding stealth ship.

Measuring about 160 feet in length, 70 feet across the beam and

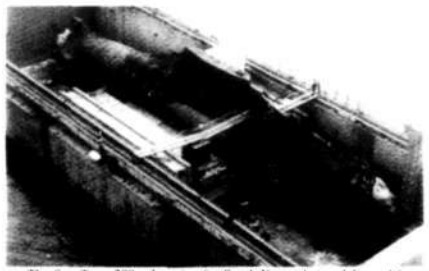
NAVAL NEWS CONTINUED

14 feet deep, the project to build the 560 ton, 13 knot catamaran was formally unveiled because the vessel was being trialled in daylight hours. Present plans see the United States Navy operate a number of stealth ships, the SEA SHADOW being the first no longer classified as secret.

Built by Lockheed in Redwood City, California, the prototype is manned by a crew of four. Designed to explore a variety of advanced technologies for surface ships that include ship control, structures, automation for reduced manning, seakeeping and signature control, the SEA SHADOW is classified as a limited mobility platform.

Her intended roles, if pressed into active service would include arming the vessel with surface to air missiles to protect aircraft carrier battle groups.

Building and testing the San Diego based ship has cost more than $248 million since the project began in the 1980s.



The first Type 209 submarine for South Korea, being delivered from Germany. The CHANG BOGO is the lead boat for a class of nine.

US AIRCRAFT CARRIER VISITS AUSTRALIA

The aircraft carrier USS INDEPENDENCE sailed into Australia's northern waters in May for joint/combined exercise involving elements of the Royal Australian Air Force and Royal Australian Navy.

The exercise, called "Spring Training '93" began on 22 May and ran to 22 June, with the major focus on airwing operations for US Navy aircraft.

Over 1,000 RAN personnel were involved in the exercise, designed to enhance US-Australia inter-operability.

Air operations were conducted in Top End airspace, utilising Delamere Air Weapons range and along the west coast of Australia, as the USS INDEPENDENCE sailed to Fremantle for a port visit. The carrier then sailed north to continue air operations in the vicinity of Darwin.

FA18 Hornets, A6 intruders and EA6B Prowlers from the US Navy's carrier based Air Wing 5 operated at various times from RAAF Darwin throughout the exercise.

US and RAN vessels participating included the supply ship USS SAN JOSE, cruiser USS MOBILE BAY, fleet oiler USNS ANDREW J HIGGINS and guided missile frigate USS THACH. The RAN's guided missile destroyer HMAS HOBART, guided missile frigate HMAS MELBOURNE and destroyer escorts HMAS SWAN and HMAS TORRENS joined the carrier battle group.

TORPEDO REMAINS RECOVERED

Navy divers are renowned for the unusual souvenirs they collect during the varied, unusual and often dangerous tasks they carry out.

One of the more eye-catching items on display at the headquarters of Australian Clearance Diving Team Four based at HMAS STIRLING is the remains of a World War Two United States Navy 21-inch torpedo.

This torpedo was one of two fired by the US submarine USS SEA-RAVEN at Christmas Island on 17 November, 1942 when it sank the Imperial Japanese Navy transport NISSEI MARU which had been pressed into military service.

The remains were recovered when Clearance Diving Team Four was disposing of unexploded Japanese ordnance in the vicinity of the shipwreck and wharf areas.

HMAS ORION off the WA coast, March 1993. (LSPH Scott Connolly)

KAKADU ONE

By CMDR Tim Bloomfield

The fleet entry into Darwin on 21st May of some 15 Naval Ships from Australia, Malaysia, Thailand, Singapore and Hong Kong (Royal Navy) marked the culmination of the inaugural Fleet Concentration Period Kakadu One — a 15-day exercise off Australia's Top End.

In his opening remarks to Kakadu One participants, the Maritime Commander, Australia, Rear Admiral Rob Walls AO RAN, said it was the first time such an exercise had focused on regional co-operation instead of the specific defence of Australia.

"Fleet Concentration Period Kakadu One should demonstrate to all participants the capability of participating forces to operate to the highest level to which compatability of equipment allows," he said.

"Apart from good training in damage control and communication procedures and interaction between air, surface and submarine assets, the event has provided a wide range of other opportunities including work in the area of mine warfare and explosive ordnance disposal techniques used by clearance divers."

Additional to the participating ships Kakadu One also involved the HS 748 electronic warfare aircraft and Sea King helicopters, the Royal Australian Airforce 92 wing P3C Orion Maritime Patrol Aircraft and 81 wing FA18 Hornet Fighter Intercept aircraft, A4K Strike aircraft of the Royal New Zealand Airforce Number 2 Squadron and Northrop F5 aircraft of the Republic of Singapore Airforce number 44 Squadron.

The Royal Australian Artillery 111 Air Defence Battery was borne in HMAS SWAN with Rapier and RBS 70 missiles and clearance divers of the Royal Australian Navy and the Royal Malaysian Navy provided diving in support of an "exercise awkward" against HMAS SWAN.

Other support, including the Fleet Support Services which provided the air targets and further, a very large component of administrative support to cope with the 2000 additional personnel in the Darwin area, was provided by HMAS COONAWARRA, (CAPT Ian Watts).

Fleet Concentration Period Kakadu One was an ambitious undertaking and, although hampered by poor weather, the enthusiasm and professionalism of all participants ensured that maximum advantage was taken of the opportunities that arose.

HMAS HOBART, KD KASTURI and HMAS TORRENS during KAKADU ONE. (RAN)

RSS VICTORY transiting a minefield. (RAN)

The people of Darwin opened their hearts to the visiting ships with an evening of jazz for all participants provided by the Darwin Casino including dinner and drink. The Royal Australian Navy's Fleet Band also made a guest appearance.

Unable to enjoy much of the festivities of the harbour phase of Kakadu One, a special mention must be given to the men of HMAS OTWAY (LCDR Ian Arthur RN) who worked around the clock to ensure the submarine remained in the exercise.

In an interview during the exercise, Defence Minister Senator Robert Ray signalled that Australia's military links with Asia and the Pacific region should become as important as those with the United States.

Stronger links with South East Asia would "develop steadily".

"I see it growing as a step-by-step building process. I don't see any revolutionary change but an evolutionary process. The interpersonal relationships between our military leaders and those in South East Asia are excellent and I intend to make sure these are built on into the future," he said.

The visit was also a first for the Royal Thailand Navy's Training Ship HTMS MAKUT RAJAKUMARN.

On berthing in Darwin, the 113 Midshipmen undertraining embarked, were wisked away for a four-day whirlwind tour of Sydney and Canberra.

The busy events schedule of Kakadu One was interrupted on a number of occasions to undertake medical and Sea Air Rescue requests.

The most notable was the rescue of a fisherman suffering severe head injuries following a fall onboard a fishing trawler some 28 miles north of Darwin.

A Sea King from 817 squadron, commanded by LCDR Tim Nicholsan RN, put his crew's training into practice, winching the seriously injured man into the helicopter and transferring him direct to the Darwin Hospital, where he was reported to be in a serious but stable condition.

KALANG AV 97

1st Australian Floating Watercraft Workshop A.E.M.E.

KALANG in Sydney April 1944, port quarter view

In my almost five years I served in the AIF probably the most interesting time was spent on the AV Kalang, a floating watercraft workshop. I joined the Army in July 1941 and after a brief period of training in Australia I went to the Middle East on the Queen Mary. As we steamed South we were joined by the Queen Elizabeth. Our naval escort comprised HMAS Australia, HMS Cumberland, HMS Exeter and one other warship. After reaching Trincomali in Ceylon the convoy split up with the Q.E. going to India and the Q.M. travelling to Suez. On disembarkation at Suez we travelled to Palestine and later served in Egypt and the Western Desert. Eventually I returned to Australia and after serving in Western Australia, was posted to Bougainville in Papua New Guinea, where I joined the Kalang.

The Kalang was a steel hulled vessel of 1100 tons displacement, 187 feet long with a beam of 36 feet. Constructed in Scotland she made the journey to Australia under her own steam, and was put into service as the vehicular ferry between Milsons Point and Bennelong Point on Sydney Harbour, before Sydney Harbour Bridge was built. She had single screws fore and aft to facilitate easier manoeuvrability when berthing. After the construction of Sydney Harbour Bridge the Kalang was converted to a dance/show boat and was very popular up until World War II, when she was requisitioned by the Army for use as a repair ship.

In her newly acquired grey battle dress she bore little resemblance to the Showboat. Commissioned AB97 on 28 June 1944 Kalang had been fitted with a false bow to facilitate her movement in heavy seas and open water. The prefix AB (Army boat) was changed to AV (Army vessel), a more fitting title. I have the dubious honour of hanging over the side in a Bosuns chair for two days to alter the letters on both sides and the stern. I remember those days only too well as I was terribly seasick at the time. The funnel was shortened and she became a single deck vessel with an area in the centre below and each side of the funnel where the workshop equipment and the galley were fitted. The superstructure just forward of the funnel carried the bridge, officers' quarters, the sick bay, and the wireless room. The crew was housed below deck in two reasonably spacious quarters on each side of the engine room. In the fo'castle situated in the false bow were the chain locker and the inflammable store. As corporal painter, this was my area. In the stern were two more areas, another chain locker and the store for the machine shop. The forward propeller was removed which increased the speed of the vessel slightly.

The Kalang carried a large boom derrick with a 30 ton lift capacity and a 60 foot reach. Anchored near the funnel the derrick lay along the forward deck about 12 feet high resting on the front stores locker. A canvas cover was fitted over this and the space beneath became our mess deck whilst in harbour. At sea the cover was stored and the mess was set up in the sleeping quarters as per Navy. The boom was activated by a powerful steam winch. Kalang could steam alongside a cargo ship and unload deck cargo using the boom. Landing craft on the deck of a Liberty ship were lifted over the top of the Kalang and lowered into the water on the other side. The boom operator required considerable skill for this operation as he was unable to see the load on the deck of the ship. There were no walkie talkies in those days, just whistle blasts. The loaded boom only just cleared the Kalang's funnel and then had to be positioned almost perpendicular to place the landing barge in the water alongside the Kalang. To put the barge directly in the water with the boom outstretched at 45 degrees could have caused the Kalang to capsize. Remember unloading was carried out in the middle of Torokina Bay, one of the deepest harbours in the Pacific, situated on the Western coast of Bougainville.

Anti-aircraft protection comprised twin Oerlikon heavy calibre machine guns set in turrets on each side of the ship, in addition Vickers and Bren machine guns were mounted around the perimeter rail. An energised cable encircled the outer rail as protection against magnetic mines.

AV Kalang's complement was approximately 95 all ranks. There were ship wrights, fitters and turners, painters, electricians, welders, carpenters, telecommunication and instrument mechanics, motor mechanics, blacksmith, sail maker, draughtsman, pattern maker, tool maker, and even a diver with all of his equipment. It logically followed that all of the necessary workshop equipment was installed in the ship's workshops to make the tradesmen fully functional. When the ship was first commissioned the army in its wisdom had two officers with equal command, one for the ship's crew and one for the workshop personnel. This was soon found to be unworkable. Ultimately Lieutenant (later Captain) Rutherford with WOII V. Trevivian as 2/i/c was placed in charge of both teams.

The ship's power supply was provided by a three phase 415 volt alternator driven by a Hellis and Mercom compound steam engine. As well, there was a diesel alternator for emergency use.

From the moment Kalang anchored in Torokina, she was ready for her role as an advance workshop catering for the large number of army craft in the area. In addition she provided valuable service in lifting landing barges and heavy loads from freighters arriving from Australia and America. In Torokina the Army had 170 vessels including 100 barges, 30 cargo vessels, launches, tugs and a floating dock. The RAN had numerous ships including one frigate, four corvettes and some Fairmiles.

Jobs flooded into the workshop, and although it was supposed to repair only army vessels, no request was ever refused. The army had difficulty in supplying Kalang with boiler fuel, but because of our assistance with repairs to Naval and American ships we were able to obtain adequate supplies of surplus bunker fuel from these vessels. Repairs were carried out on the frigates Hawkesbury and Lithgow. These repairs were considered temporary so as to enable the frigates to return to Australia for permanent repairs. However, after inspection by highly qualified naval technicians, the repairs were considered A1 and the ships were able to remain in service. I remember a letter being read to us from the Naval Officer in Command, Torokina, commending the crew of the Kalang for the excellent job carried out by the unit on naval vessels.

The diving team undertook underwater inspection of many vessels to assess damage and to subsequently repair such damage. The RAN's appreciation was further demonstrated when some of our crew were invited to join a task flotilla during the bombing of Japanese defences on the South-east coast of Bougainville.

At times workshop personnel worked on a three shift basis to meet deadlines for a total war effort against the Japanese forces. At such times the Kalang was a veritable "mother" ship with up to a dozen vessels in various stages of repair strung out along Port and Starboard sides through a tangle of compressed air hoses and electrical supply cables, like so many umbilical cords.

KALANG at anchor in Newcastle Harbour. Starboard bow view.

At the surrender, Kalang proceeded to Rabaul which had been the main base of the Japanese in the Pacific. Considerable work was needed to rebuild the facilities prior to the return of civilian personnel. Again, the Kalang's workshop was called upon to assist. When her work was finally completed, her equipment was removed and installed in army establishments in Rabaul. AV Kalang sailed home on 20 January 1946 enduring a tropical hurricane on the return journey during which she escorted to Cairns a small naval craft with engine trouble.

In the meantime, those of us with a high number of points were transferred to shore establishments prior to returning to Australia for discharge. I was transferred to the 4th Advanced Workshop, where we were given the task of building POW camps to house the

Japanese who were rounded up after the surrender. We also demolished some of the Japanese camps and packed up stores for return to the mainland of Australia. I eventually returned to Australia on the British aircraft carrier HMS Pioneer.

Five years before, I had sailed from Sydney Harbour on the Queen Mary, so for me it was a great thrill to be entering Sydney Harbour lining the flight deck of the aircraft carrier dressing ship together with navy personnel with every ship in the Harbour sounding their horns and whistles. A scene never to be forgotten.

Although the war was over for Kalang, her long life was not yet over. She was restored to her former pre-war glory as a showboat and renamed "Sydney Queen", cruising the Harbour in all her splendour. Alas, the tempo of life had changed and with the advent of television she no longer had her former attraction. She was withdrawn from service and languished at a remote harbour berth. Sold and resold a number of times she eventually became the property of overseas interests. Those of us who have served at sea assert that ships have souls, and certainly a mind of their own, as Kalang proved. As she was being towed to an overseas port, Kalang broke away from her tug and beached herself at South West Rocks near Kempsey, NSW. When after efforts to refloat her failed, she broke up in heavy seas, although not entirely. Her skeleton is still visible. A soul she had, for in true Australian style she ended her days on the beach in the sun.

I have based this article from my own experiences and from a report by Major E.H. Colley (Rtd) in an article in the Army magazine "Craftsman" under the title "A Repair Shop for E.A.E.M.E." as well as an article in the Macleay River Historical Society Journal of August 1988.

By Ted Woodwell B.E.M. Formerly NX37888 Cpl. E.C. Woodwell
1st Australian Floating Watercraft Workshop A.E.M.E.
AV Kalang, Torokina South Pacific

Rebuilt as the Sydney Harbour Showboat, SYDNEY QUEEN. (Ron Hart)

NAVAL MATTERS

A VISIT TO THE FRENCH NAVY

By A.W. Grazebrook

During April, the writer was invited to spend a day with the French Navy at their Mediterranean base at Toulon, between Marseilles and Nice.

The visit was of particular interest because, contrary to general Australian expectation and political hyperbole, we in Australia see a good deal more of the French Navy than we do of the British Royal Navy.

This is because France still maintains a major naval power projection capability, as well as naval squadrons, permanently on station in the Pacific and Indian Oceans.

Although there are some reductions, current French Government plans allow funding to modernise and continue France's world wide naval power projection capabilities, and maintain French squadrons in the Pacific and Indian Oceans.

Under the Commander-in-Chief Mediterranean, Vice Admiral Michel Tripier, French naval forces based at Toulon are the Force d'Action Navale, the Mediterranean Flotilla of light vessels and the Mediterranean submarine flotilla. In addition, there is a large dockyard at Toulon, a number of naval air stations and other support elements.

The Force d'Action Navale is the French Navy's main air and surface striking force, and includes the major amphibious units. The two CTOL aircraft carriers FOCH and CLEMENCEAU and the amphibious warfare ships FOUDRE, ORAGE and OURAGAN are the centrepieces. Four DDGs (specialising in anti-aircraft warfare) and five modern anti-submarine frigates (GEORGES LEYGUES class) escort Force d'Action Navale. Afloat support is provided by two DURANCE class underway replenishment tankers (very similar to HMAS SUCCESS). A tank landing ship is also attached.

Looking ahead for at least two decades, the strength of this force is to be maintained. A new nuclear powered strike carrier, CHARLES DE GAULLE, is under construction and the new French Government has confirmed its commitment to build a second ship of this type. The carriers' Super Etendard fixed wing strike fighters are to be replaced by a new generation of aircraft — the Rafale N — later this decade. The carrier force is supported by six naval air stations, including one for maritime patrol aircraft ; 1 which 18 new generation Atlatique II are joining the Fleet Air Arm). Naval aircraft total 120 of all types.

The writer visited the new amphibious warfare ship FOUDRE, which has a dock (with roll-on roll-off capability), a 122 metre vehicle deck, a main flight deck and two further helicopter capable decks which can be used for vehicle or container storage, and a lift for moving cargo up to main battle tank weight between all levels. The hangar, which is equipped with cranes etc for significant maintenance, can accommodate 4 Super Puma or more smaller helicopters. When the writer visited FOUDRE, she had just returned from the Adriatic, where she had delivered a total of seventy helicopters.

FOUDRE's hospital can accommodate 47 patients, and has two operating theatres, two burns treatment units and two contagious diseases wards. Full bunked accommodation is provided for 500 troops. A total of 2000 personnel can be carried in "boat people" conditions, to use the phrase of one of FOUDRE's officers.

There are plans to replace the older ships ORAGE and OURAGAN with further FOUDRE class ships.

The submarine flotilla includes the four nuclear powered attack submarines of the Rubis class and AMETHYSTE, the lead boat of the improved Rubis class. RUBIS herself, which the writer visited, was just completing a refit at Toulon (where all French nuclear submarines refit). The Rubis type are smaller than other western nuclear attack submarines, reflecting French industry's technological breakthrough in submarine nuclear power plant design. Two more Amethyste class boats are under construction.

Four Daphne class small diesel electric submarines are attached to the flotilla. There are four larger diesel electric submarines based on the French Atlantic coast. Some years ago, the French Navy ceased building diesel electric submarines, and there are no plans to resume this.

The five French nuclear powered ballistic missile armed submarines are all based on the French Atlantic coast. The first three replacement boats are now under construction, a programme which is absorbing a significant portion of available funds. It remains to be seen whether the Government proceeds with all five new SSBNs.

The Light Flotilla includes seven small frigates of the A79 class, four coastal minehunters of the Eridan (or Tripartite) class and the

mine warfare diving support ship PLUTON. A number of research and trials craft are attached.

The writer visited the coastal minehunter L'AIGLE, divisional leader of the group of four L'AIGLE, which entered service in 1987, is equipped with the Thomson Sintra ASM Ibis minehunting system which includes the ASM DUBM21B minehunting sonar, and ECA PAP remotely controlled mine disposal vehicles. Derivatives of this system are in service with the Indonesian and Royal Malaysian navies. A similar system will be fitted to the four Landsort class minehunters now being built for Singapore. Although L'AIGLE is fitted for a limited form of minesweeping, actual use is confined to one exercise each year.

L'AIGLE's minehunting capability has been found to be wholly satisfactory for mine clearance operations up to the 80 metres depth needed in the coastal waters of the French Mediterranean.

Following the cancellation of the new Narvik class of 900 ton minehunter/sweepers, the path for further French Navy mine clearance development is unclear. However, for the Narvik class, Thomson Sintra ASM has developed the DUBM 42 minehunting sonar which can be towed to a depth of 300 metres at up to ten knots. This system is at sea in the trials vessel THETIS. At the time of our visit, THETIS was in Norfolk, Virginia, demonstrating the DUBM 42 to the US Navy.

The frigates under construction demonstrate French commitment to maintaining strength in this class of ship. The first of six new La Fayette class 3500 tons full load "light" frigates is due to complete next year. Six La Fayette class are on order for Taiwan. These ships will be similar in size to, but markedly more strongly armed than, the RAN's Anzac class frigates.

For service in the Indian and Pacific Ocean squadrons, the first four of six new Floreal class patrol frigates are already in service. In this interesting design, speed (FLOREAL has a maximum of 20 knots) has been sacrificed for endurance (10,000nm at 15 knots) and seaworthiness. These 2950 ton full load beamy diesel driven ships are armed with two surface to surface missiles, a 100mm gun, a point defence anti-aircraft system and two close in weapons systems. Although there are no sonars or anti-submarine torpedoes, the hangar will accommodate a helicopter of Super Puma size.

Three Floreal class are expected to be stationed in the Pacific, where they will join the amphibious logistic support ship BOUGAINVILLE and the landing craft and supply tenders attached to the French nuclear test range.

The support ship RANCE, whose medical facilities have been substantially improved, is attached to the Mediterranean Command as fleet training flagship. There are also a number of patrol vessels and the oceanographic ship D'ENTRECASTEAUX.

Although the French Navy's strongest elements are based in the Mediterranean, substantial forces are based on the Atlantic coast. These include the helicopter carrier JEANNE D'ARC (serving as cadet training ship), over a dozen destroyers and frigates and a similar number of mine counter measures vessels.

Although budgets are being maintained to a greater degree than in other western European and north American countries, there are areas of doubt. One is successors for the aging anti-aircraft destroyers DUQUESNE and SUFFREN. A second is the successor class of mine counter measures vessel. A third is the manpower effect of the reduction in (and probable eventual elimination of) conscription. Both officer and sailor conscripts help man virtually all units — even the SSN RUBIS has two conscripts on board.

However, as commitment to the second nuclear powered aircraft carrier and nuclear submarine force demonstrates, the French Government intends to maintain the main strength and capabilities of their Navy. As Britain and the United States reduce their naval budgets, with the inevitable reduction in development of modern ships, weapons and naval systems, France will be able to build on her existing strength as one of the world's leading suppliers of modern naval equipment.

A FAMILY OF HELICOPTER CARRIERS

HC 500-PC Helicopter Carrier.

Helicopter carriers provide navies with the following benefits:
— Operational flexibility.
— Fast action within the helicopter's operating radius.
— High platform endurance.
— Large transport capacity.
— Lowest procurement cost in comparison with single-role vessels.

The helicopter carrier's size permits installation of both C²-ship equipment and training systems.

Bremer Vulkan's studies have led to the development of a complete range of helicopter carriers:
— From 5000 tons to 11000+ tons displacement.
— With and without weaponry.
— Six, eight or 14 helicopters.
— Complement from 200 to 600.

All designs provide flexibility for different naval duties and continuous long-range patrol capability, and they are well suited to disaster relief or public-service missions.

The four Bremer Vulkan HC designs described below demonstrate the family's size range and flexibility in equipment fits. The type designation comprises a number that indicates the vessel's displacement and a suffix to characterise the major operational application.

HC 500-PC (5000 t, Patrol/Combat)

This 5000t helicopter carrier has been designed for patrol duties in the customer's territorial waters, and is equipped with a frigate-size combat suite for self-defence and for offensive missions.

Helicopter operations are facilitated by a flight deck over the full length of the ship. At the designated take-off positions, four helicopters *can be prepared for sorties simultaneously. The HC 500-PC can trans*port up to six large SeaKing-Type helicopters in its hangar, which is equipped with aircraft maintenance facilities. The hangar can also be used for roll-on/roll-off cargo; it is accessible via a vehicle side ramp.

The platform design of the HC 500-PC is based on the proven hull of a naval multi-purpose vessel built to the requirements of Lloyd's Register of Shipping.

HC 600-PT (6000 t, Patrol/Troop transport)

This 6000t helicopter carrier has been designed for patrol duties in the customer's territorial waters and for fast troop transport. The vessel can carry up to eight SEAKING-type helicopters for continuous area

surveillance and helicopter warfare roles. Alternatively, the vessel can carry up to seven SEA HARRIER STOVL aircraft for long-range airborne missions.

The HC 600-PT provides the customer navy with a means for fast transport of troops and materials and/or vehicles. Troops can easily be deployed by two beaching craft or by airlift with the vessel's own helicopters. The vessel is ideally suited to a multitude of naval missions, both as a stand-alone unit or as the leader of a naval task force.

The design of the HC 600-PT includes the growth potential for an extensive combat suite for own-ship defence or for an active combat role.

HC 800-P (8000 t, Patrol)

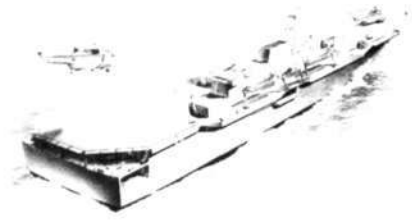
This 8000t helicopter carrier has been designed specifically for patrol duties. It has a superior endurance of over 12,000nm at an economic speed of 12kn. The embarked ten helicopters or eight STOVL aircraft provide the navy with continuous long-range surveillance capacity and airborne defence capability.

The HC 800-P is designed to support amphibious operations, and to provide disaster relief to offshore installations or coastal areas. The vessel has a ramp for roll-on/roll-off of cargo transported in the hangar. Two landing craft, LCVP type, can be used for amphibious transport of materials and personnel. The large hospital provides medical facilities for airlifted casualties during disaster relief or military action. The HV 800-P is equipped with a medium-to-close range surveillance radar and short-range air defence guns. The design includes the growth potential (space, weight, ship supplies) for a full combat suite.

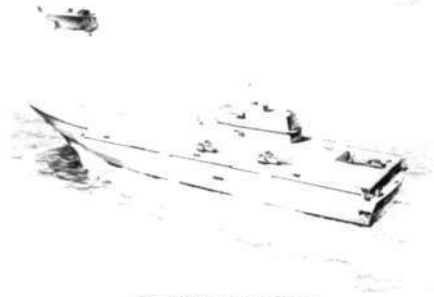
HC 100-PV (11,000 t, Patrol/STOVL aircraft)

This 11,000t helicopter carrier has been optimised for around-the-clock aircraft operations during continued patrol missions. The vessel can carry up to 14 SEAKING-type helicopters or up to ten HARRIER II Plus STOVL aircraft. The HC 1100-PV is equipped with a continuous flight deck with a 12° ski jump to facilitate fixed-wing-aircraft take-off at maximum payload weights.

Aircraft operations are supported by two independent aircraft lifts, parking positions for the full number of aircraft on the flight deck and in the hangar, and by fully equipped maintenance facilities. The state-of-the-art CODOG propulsion system allows economic loitering while on patrol duties or fast transit to the designated operational area.



HC 600-PT type



HC 1100-PV Helicopter Carrier.

HELICOPTER CARRIER FAMILY DATA SUMMARY

Platform	HC 500PC	HC 600PT	HC 800P	HC 1100PV
Length overall	110.0 m	127.0 m	151.0 m	170.0 m
Length of waterline	100.0 m	116.0 m	138.0 m	152.0 m
Breadth max	25.8 m	29.8 m	30.8 m	31.0 m
Breadth at w.l.	18.0 m	18.0 m	20.0 m	22.0 m
Depth moulded to Flight Deck	*15.5 m*	*16.0 m*	*16.0 m*	*19.5 m*
Design Draught	5.0 m	4.9 m	5.0 m	6.1 m
Displacement	5,000 t	6,000 t	7,800 t	11,000 t
Speed max	18.2 kn	25 kn	25 kn	> 26 kn
Endurance at 12 knots	13,000 nm	> 12,000 nm	> 12,000 nm	> 10,000 nm
Propulsion	2 diesel engines (MWM SBV 8M 640)	4 diesel engines (MTU 20 V)	4 diesel engines (MTU 20 V)	2 GT (LM 2500) 2 diesel (MTU 16 V)
Autonomy	30 days	21 days	30 days	21 days
Complement				
Ship and airwing	205 persons	220 persons	220 persons	455 persons
Troops/evacuees	107 persons	250 persons	250 persons	150 persons
Aviation				
Helicopter SEA KING	6	max. 8	max. 10	max. 14
Helicopter take-off positions	4	2	4	5
Helicopter landing positions	2	2	4	5
Helicopter Transponder	VESTA	TACAN	TACAN	TACAN
VSTOL aircraft	no	max. 7	max. 7	max. 10
Aircraft Lift	1	1	2	2

LIFE ABOARD HMAS ENCOUNTER

Framed by the palm trees, HMAS ENCOUNTER takes a break during service in the Great War.

Scrubbing decks.

Time to party and forget about the never ending patrols.

End of a Perfect Day

Crew members ashore at Albany, Western Australia

Aboard the wreck of the German Raider SEEADLER, at Mopeha Island. HMAS ENCOUNTER lies on the horizon

Crossing the Line ceremony around the forward 6 inch gun

Another view of the SEEADLER

SHIPS AND AIRCRAFT OF THE U.S. FLEET

by
Norman Polmar
Published by the
U.S. Naval Institute Press
2062 Generals Highway
ANNAPOLIS
MARYLAND, 21402 USA
Reviewed by
Ross Gillett

This edition, the fifteenth since 1939, is a massive 639 pages illustrated by more than 950 photographs and line drawings.

The author has presented the US Fleet through its overall organisation, highlighting the various commands, personnel, reserves, ships, aircraft and armament. Most ships or classes are presented individually preceded by an introduction including naming, operations and future construction. Extensive commentary on all post Second World War actual and proposed ship programmes concludes most of the chapters. Supporting this, are tables to outline the late 1992 strength of the particular ship type and historically, post 1945 ships and their final fates.

With the demise of the USSR and its global naval operations, the US Fleet is depicted as a shrinking force, both in terms of current ships being laid-up and new construction being reduced. The submarine force, planned to number 90-100 attack boats in the late 1980s, will now be fortunate to maintain 60 or 70 craft. The massive cost associated with the building of the new Seawolf class, at more than $2.1 billion for the second unit, has curtailed further orders. The same problems are also being experienced in the naval aircraft, destroyer and amphibious communities.

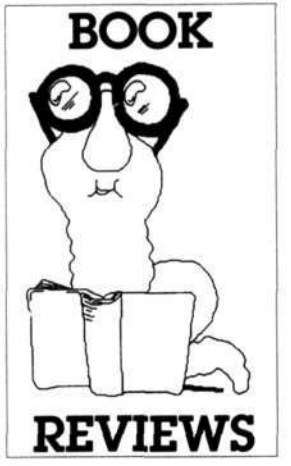
Plenty of well researched narrative is backed up by the excellent quality of the numerous photographs and itemised scale profile and deck drawings.

From the largest combatants to the small but important harbour craft, author Norman Polmar has provided a professionally produced reference book. Ships and Aircraft of the U.S. Fleet will provide many hours of browsing for some and/or incisive reading for others.

COMBAT FLEETS OF THE WORLD 1993

Edited by
A.B. Baker III
Published by
U.S. Naval Institute Press
2062 Generals Highway
ANNAPOLIS
MARYLAND, 21401 USA
Reviewed by
Ross Gillett

The list of contributors acknowledged at the front of the new 1993 Naval Institute Guide to Combat Fleets of the World indicates the massive amounts of material offered to and the effort expended in, the creation and subsequent publication of such a reference book.



The 1993 edition of Combat Fleets has grown again, this time to over 1000 pages, 4300 photographic images and 100 line drawings. With such books needing to be as current as possible, the entire narrative is revised with the addition of more than 3500 new prints into the latest publication.

For the first time Combat Fleets has been able to avail itself of previously classified characteristics on the warships of the former Soviet and Warsaw Pact Fleets. Now firm data on Russian strength/deleted ships and what if any are the new designs on the drawing board or just entering service are included within the covers.

Positive features of Combat Fleets, compared to rival Janes, are: the additional amounts of narrative devoted to each entry, the use of most blank areas for further photos, regular full page illustrations and the inclusion of all ship, naval air arm and armament data within each navy's section. At a fraction of the price of Janes, Combat Fleets was soon sold out in the USA. Additional copies were reprinted in mid 1993.

SOVIET WARSHIP DEVELOPMENT

Volume 1: 1917-1937
by
Siegfried Breyer
Published by
Conway Maritime Press
Reviewed by
Michael Wilson

For almost 20 years the Conway publishing group have presented the naval enthusiast with an unrivalled selection of new and re-printed titles. The latest in this long line, is the English language translation of Soviet Warship Development by German author Siegfried Breyer.

Unlike many naval books which group their chapters in any haphazard method, Soviet Naval Developments is presented chronologically from the beginning of the century, chapter one, narrating the warship construction efforts before 1918. From chapter two, each ship held by the New Soviet Navy is described individually or as a class, with most attention being devoted to design and technical aspects. Backing-up these descriptions are numerous and various ship plans, profiles, internal arrangements, side elevations and cross sections.

Vessels being built for the Soviets are described in chapter three, but due to the revolution and poor economy, many larger units were not commissioned. Details of Russian naval ordnance and shipyards are then described in the next two chapters.

Reconstruction of the Fleet was authorised at the Tenth Party Congress in March 1921. Many units taken over by the "Navy of the Red Workers and Peasants" were earmarked for return to service, some suffering year-long delays and even then, only a few could operate continuously. During the 1920s, more than 25 surface ships were employed again. The author states, "the benefit of hindsight allows us to give due recognition to the remarkable achievements of Soviet naval engineers and shipyard workers in restoring and modernising these time-served, but essentially sound, vessels during a period when materials and resources were in exceptionally short supply".

The final chapters describe the 1929-31 construction programme, the First Year Plan 1929-31 and naval weapons up to 1937. The follow-on volume of the book will trace the Soviet fleet through the Second World War and beyond.

The majority of photographs appearing in Volume One have reproduced well, some rarer units portrayed via artist impressions.

To readers of The Navy, Soviet Warship Development, Volume 1: 1917-1937 is highly recommended.

THE IRON SHIPS

A Maritime History of BHP

"THE IRON SHIPS" features more than 250 pages of authoritative narrative complemented by a unique collection of over 300 photographs, many never previously published. This significant and prestigious publication takes you back to the Company's origins in Broken Hill, NSW, through the purchase of the first ships in 1919, to the international operation of BHP Transport in the late 1990s.

The footnoted and referenced text highlights significant developments in ship design, working conditions, cargo handling and commercial practices as the operation of BHP Transport grew to support the widening interests of the BHP Group.

The historical narrative is supported by extracts of original documents and a comprehensive fleet list, endorsed by the World Ship

HMAS KOOLONGA as the BHP ship IRON MONARCH

Society.

"THE IRON SHIPS" is published by BHP Transport, based on the original work of Denis Riley, a former seaman who served with the BHP fleet. Editing and further research was undertaken by Dale Crisp, a senior journalist with Australia's national transport and trade newspaper, "Daily Commercial News". The work has been authenticated by BHP Archives and managed by BHP Transport Public Affairs.

The following data, featuring the former RAN collier KOOLONGA illustrates the general style of the ship reference section.

IRON MONARCH
(1917-1928) S GENERAL CARGO
Official Number: 132450
Tonnages: 4,260 gross, 2,632 net
Dimensions: Length 364, breadth 50.7, depth 26.1, draught 23.5 ft.
Machinery: Triple expansion three cylinder engine manufactured by North Eastern Marine Engineering Co. Ltd., Sunderland. 344 nominal horsepower.
History
February 1914: Completed by Sunderland Shipbuilding Co. Ltd., Sunderland, as Koolonga for McIlwraith McEacharn's Line Pty Ltd. of Melbourne.
6 August 1914: Requisitioned by Royal Australian Navy for service as a collier.
May 1915: Released from RAN service and partially employed in BHP ore trades.
October 1917: Sold to Edward Percy Simpson (BHP nominee – 53/64th) and William Scott Fell (11/64th) and 22 November 1917 renamed Iron Monarch, registered Sydney.
1920: Sold to Interstate Steamships Ltd., but remained in registered ownership of Simpson and Scott Fell.
1928: Registered to Interstate Steamships Ltd.
1937: Owners re-titled Interstate Steamships Pty. Ltd.
1937: Sold to Madrigal & Co., Philippines and renamed Paz.
March 1942: Scuttled at Sourabaya but subsequently salved by Japanese and renamed Hatsu Maru.
13 November 1944: Sunk in Manila Bay by U.S.A. carrier-based aircraft.

THE FIRST FRIGATES

Nine-pounder and twelve-pounder frigates 1748-1815
by
Robert Gardiner
Published by
Conway Maritime Press

This is the first volume in a new series of monographs which will outline the development of specific ship types. Based upon the huge and under-utilised collection of plans at the National Maritime Museum, Greenwich, each title is primarily a technical history but will also deal with the structure and fittings of the ships themselves in the degree of detail demanded by modelmakers.

This particular volume deals with one aspect of the revolutionary change that came over the Royal Navy in the mid-eighteenth century: the introduction and development of a radical new type of cruising ship, known to history as a frigate. The early classes were all armed with 9-pounder or 12-pounder guns, and although a few were built as late as 1805, this is essentially the story of British cruiser design between about 1740 and 1785.

As well as the design histories of the classes, this book also addresses more general questions, such as the supposed superiority of French shipbuilding and the relative strength of British and French influence on early American frigate design. Based entirely on original sources, it not only describes the ships but seeks to analyse their strengths and weaknesses and to explain the thinking behind their development.

DESERT STORM SEA WAR

by
Arnold Meisner
Reviewed by
Vic Jeffery

Published by Motorbooks International, USA and distributed in Australia by Capricorn Link (Australia) Pty Ltd of Lane Cove, NSW. 128 pages, RRP $26.95.

This paperback book is an account of the naval campaign in Desert Storm and Desert Shield. As the author states: "This book makes no pretence of being an academic history. Rather, it is what can be called a popular history."

The book is an account of the overall campaign at sea and covers the Gulf War from day one until the homecoming.

A total of 258 Allied ships from the USA, United Kingdom, France, Australia, Italy, The Netherlands, Canada, Spain and Argentina made this the largest armada to join forces since World War Two.

Largest contributor was the USA with 179 ships and submarines — including eight aircraft carriers, followed by the United Kingdom with 21, Italy 11 and France nine.

Australia's contribution of six ships is listed in Appendix 1 in the book and unfortunately *includes two errors. Those being listing the* guided-missile destroyer HMAS BRISBANE as a "frigate" and spelling HMAS WESTRALIA's name "WESTFAILIA". Another error, a common one I'm afraid, is HMAS STIRLING spelt with an "e".

Lavishly illustrated with 94 photographs — 88 in colour, this is an easy-to-read account of the war.

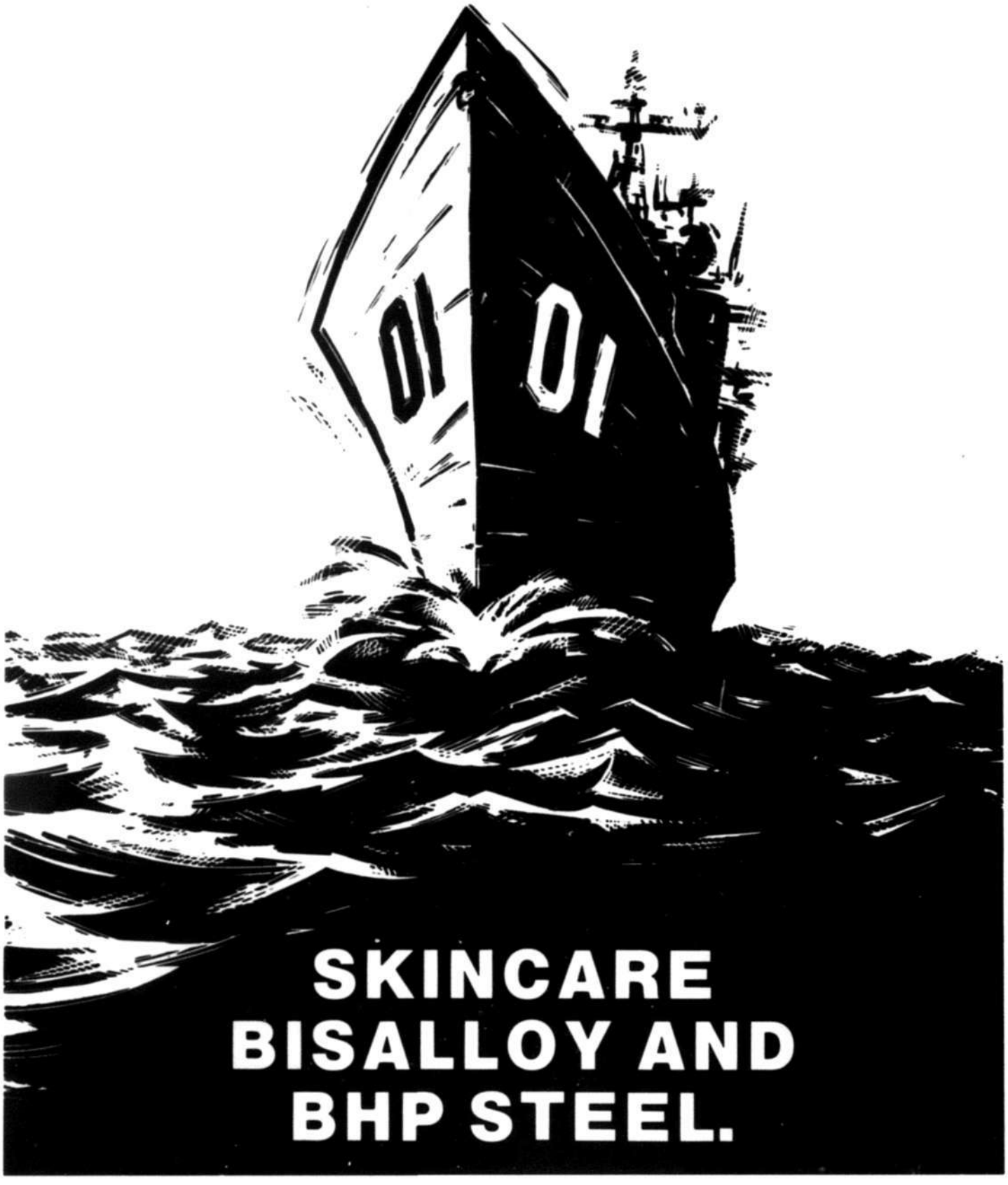
ANATOMY OF THE SHIP

THE BATTLESHIP DREADNOUGHT
by
John Roberts
Published by
Conway Maritime Press

The first 'Anatomy' volume, *The Battlecruiser Hood*, was by John Roberts and it set a standard of draughtsmanship for the series which has seldom been surpassed since its publication. His new book, however, *The Battleship Dreadnought*, is even more impressive in its coverage and over 650 drawings are incorporated to make this the biggest and most detailed 'Anatomy' volume so far.

Launched in 1906, she was the first 'all-big-gun' battleship and as such revolutionised battleship design and construction. She was built at Portsmouth in 14 months — a record which has never been equalled — and when she was launched she was superior in both fire power and speed to anything then afloat. Perhaps even more revolutionary and risky than her design was the proposal to adopt Parsons turbines which at that time had barely been tested.

John Roberts' drawings offer fine documentation of her construction, armament and fittings while the text outlines her career during which she rammed and sank U29 thus becoming the only battleship to have sunk a submarine.



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The Navy League of Australia

APPLICATION FOR MEMBERSHIP

HISTORICAL

The Navy League was established in Australia in 1901, initially in the form of small branches of the United Kingdom Navy League (established in 1897) and since 1950 as an autonomous national body headed by a Federal Council consisting of a Federal President and representatives of the six States, the Australian Capital Territory and the Northern Territory.

The Navy League of Australia is now one of a number of independent Navy Leagues formed in countries of the free world to influence public thinking on maritime matters and create interest in the sea.

The Navy League of Australia cordially invites you to join us in what we believe to be an important national task.

MEMBERSHIP

Any person with an interest in maritime affairs, or who wishes to acquire an interest in, or knowledge of, maritime affairs and who wishes to support the objectives of the League, is invited to join.

OBJECTIVES

The principal objective of the Navy League of Australia is "The maintenance of the maritime well-being of the Nation" by:

- Keeping before the Australian people the fact that we are a maritime nation and that a strong Navy and a sound maritime industry are indispensable elements of our national well-being and vital to the freedom of Australia.
- Promoting defence self reliance by actively supporting manufacturing, shipping and transport industries.
- Promoting, sponsoring and encouraging the interest of Australian youth in the sea and sea-services, and supporting practical sea-training measures.
- Co-operating with other Navy Leagues and sponsoring the exchange of cadets for training purposes.

ACTIVITIES

The Navy League of Australia works towards its objectives in a number of ways:

- By including in its membership leading representatives of the many elements which form the maritime community.
- Through soundly-based contributions by members to journals and newspapers, and other media comment.
- By supporting the Naval Reserve Cadets, and assisting in the provision of training facilities.
- By encouraging and supporting visits by recognised world figures such as former United States Chiefs of Naval Operations and Britain's First Sea Lords.
- By publishing "The Navy", a quarterly journal reporting on local and overseas maritime happenings, past, present and projected.
- By maintaining contact with serving naval personnel through activities arranged during visits to Australian ports of ships of the Royal Australian and Allied Navies.
- By organising symposia, ship visits and various other functions of maritime interest throughout the year.

Member participation is encouraged in all these activities.

JOINING THE LEAGUE

To become a Member of The League, simply complete the Application Form below, and post it, together with your first annual subscription of $20.00 (which includes the 4 quarterly editions of "The Navy"), to the Hon Secretary of the Division of the Navy League in the State or Territory in which you reside, the addresses of which are as follows:

NEW SOUTH WALES DIVISION: GPO Box 1719, Sydney, NSW, 2001.
VICTORIAN DIVISION: C/- 4 Eleanor Court, Donvale, Vic, 3111
QUEENSLAND DIVISION: C/- PO Box 170, Cleveland, Qld. 4163
AUSTRALIAN CAPITAL TERRITORY DIVISION: C/- 45 Skinner Street, Cook, ACT, 2614.
SOUTH AUSTRALIAN DIVISION: GPO Box 1529, Adelaide, SA, 5001.
TASMANIAN DIVISION: C/- 42 Amy Road, Launceston, Tas, 7250.
WEST AUSTRALIAN DIVISION: C/- 23 Lawlor Road, Attadale, WA, 6156.
NORTHERN TERRITORY DIVISION: GPO Box 2612, Darwin, NT, 5794.

Subscriptions are due on 1st July in each year, and your membership will be current to 30th June immediately following the date on which you join the League, except that if your first subscription is received during the period 1st April to 30th June in any year, your initial membership will be extended to 30th June in the following year.

THE NAVY LEAGUE OF AUSTRALIA
Application for Membership

To The Hon Secretary
The Navy League of Australia

Division

Sir or Madam,

I wish to join the Navy League of Australia, the objectives of which I support, and I enclose a remittance for $20.00 being my first annual subscription to 30th June next.

Name
(Mr)
(Mrs)
(Ms) PLEASE PRINT CLEARLY
(Rank)

Street Suburb

State Postcode

Signature Date

Subscriptions are due on 1st July in each year, and your membership will be current to 30th June immediately following the date on which you join the League, except that if your first subscription is received during the period 1st April to 30th June in any year, your initial membership will be extended to 30th June in the following year.

JOIN THE NAVAL RESERVE CADETS

If you are between the ages of 13 and 18 years:

The Naval Reserve Cadets provide for the spiritual, social and educational welfare of boys and girls and help to develop in them character, a sense of patriotism, self reliance, citizenship and discipline.

Uniforms are supplied free of charge.

Cadets are required to produce a certificate from their doctor to confirm they are capable of carrying out the normal duties and activities of the Cadet Corps. If injured while on duty, Cadets are considered for payment of compensation.

Parades are held on Saturday afternoon and certain Units hold an additional parade one night a week.

The interesting syllabus of training covers a wide sphere and includes seamanship, handling of boats under sail and power, navigation, physical training, rifle shooting, signalling, splicing of wire and ropes, general sporting activities and other varied subjects.

Instructional camps are arranged for Cadets and they are also given opportunities, whenever possible, to undertake training at sea in ships of the Royal Australian Navy.

Cadets, if considering a sea career, are given every assistance to join the Royal Australian Navy, Mercantile Marine or the Royal Australian Naval Reserve, but there is no compulsion to join these Services.

For further information, please contact the Senior Officer in your State, using the addresses provided below.

NEW SOUTH WALES: Staff Office Cadets, HMAS Watson, Watsons Bay, NSW, 2030.

QUEENSLAND: Senior Officer NRC, HMAS Moreton, Merthyr Road, New Farm Queensland, 4005.

WESTERN AUSTRALIA: Staff Office Cadets, HMAS Leeuwin, PO Box 58, Fremantle, WA, 6160.

SOUTH AUSTRALIA: Staff Office Cadets, HMAS Encounter, PO Box 117, Port Adelaide, South Australia, 5015.

VICTORIA: Staff Office Cadets, HMAS Lonsdale, Rouse Street, Port Melbourne, Vic, 3207.

TASMANIA: Staff Office Cadets, HMAS Huon, Hobart, Tas, 7000.

AUSTRALIAN CAPITAL TERRITORY: Commanding Officer, TS Canberra, PO Box E52, Queen Victoria Terrace, Canberra, ACT, 2600.

NORTHERN TERRITORY: Commanding Officer, TS Darwin, PMB 13 Winnellie, NT, 0820.

"THE NAVY"

All enquiries regarding the Navy Magazine, subscriptions and editorial matters should be sent to:

The Hon. Secretary, NSW Division
NAVY LEAGUE of AUSTRALIA
GPO Box 1719, SYDNEY, NSW, 2001

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THE NAVY

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Vol. 55 **OCTOBER-DECEMBER, 1993** **No. 4**

OUR COVER PHOTO

The Royal Australian Navy's three new diving tenders, SHARK (foreground), PORPOISE and SEAL, underway off the WA coast on 16 August, on the only occasion all will be seen in company. (Photo – LSPH Scott Connolly)

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CONTENTS

An Armed Forces For The United Nations?

There have been suggestions that the United Nations should create and maintain a standing (or permanent) "rapid deployment force" able to intervene quickly when acts of aggression take place.

A standing multi-national force is of course different to a coalition of national forces put together to cope with a particular emergency – one is permanent and the other temporary. The North Atlantic Treaty Organisation (NATO) is an example of the former and the 1991 Gulf War Coalition typical of the latter.

Standing and coalition forces have at least two things in common – they are formed to deter or resist aggression and their unity depends upon commonality of interests on the part of the contributing nations.

NATO was successful because it involved a comparatively small number of culturally similar nations (14), each fearing for its future in the face of the Soviet threat. Following removal of the threat the purpose and aims of NATO are being reviewed.

The Gulf War coalition involved a larger number of countries, about 20, but cohesion was hampered by the restrictions placed by many governments on the extent to which their armed forces could be used; there were also interoperability difficulties. If this group of countries had problems, they are nothing compared to those certain to be experienced if an organisation consisting of 184 countries of diverse cultures and beliefs tries to form and maintain an effective standing armed force.

The only possible way a United Nations rapid deployment force could come into being would be the consent of the Assembly of the formation of such a force by the five permanent members of the Security Council – Britain, China, France, Russia and the United States – but not the ten geographical members who change every two years: Perhaps one or more of the latter could contribute during their period of membership.

The five permanent members of the Security Council are all significant military powers (especially of course the United States) and perhaps more importantly they are also nuclear powers. The UN Assembly also includes nuclear powers and countries capable of producing nuclear weapons and there must be considerable doubt that the "big 5" would be prepared to act together in all circumstances; nevertheless the five might do so if they feared the consequences of failing to prevent a particular act or acts of aggression, thus creating doubt and causing a potential aggressor to think twice before embarking on some military adventure.

However, while virtually all governments act only in their own national interests and given the great diversity of interests, it is unlikely members of the United Nations could agree to the formation of the equivalent to a world police force, nor is there any indication that the permanent members of the Security Council or any country or group of countries wants to take on the role.

It is more likely that regional security groupings will evolve over time but even this will not be easy, especially in Australia's region where the number of countries, variations in geographical and population size and diversity of cultures and customs, are formidable obstacles to unity. Such links as have been formed with our neighbours are due in no small part to the efforts and perseverance of the Australian Defence Force; naval and tri-Service exercises, exchange visits by senior personnel, the provision of training facilities in Australia, all have done much to create a better understanding between countries in the region.

Only time will tell whether the links so far established are strong enough to withstand the strain sure to be imposed upon them on occasion.

Geoffrey Evans

Federal President

THE NAVY

All enquiries regarding *The Navy* Magazine, subscriptions and editorial matters should be sent to:

The Hon. Secretary, NSW Division
NAVY LEAGUE of AUSTRALIA
GPO BOX 1719, Sydney, NSW 2001

Nuclear Boats?

5 August 1993

Dear Sir,

I am a Year 12 student in 1993. I am writing to offer my support to the views put forward in the July-September 1991 edition of your magazine *The Navy*, calling for the introduction of nuclear powered submarines. The Royal Australian Navy is the most important arm of the Australian Defence Force. As we are an island nation, our strongest defence must come from maritime strength. Only with systems such as nuclear powered submarines can we as a nation hope to maintain a strong political standing in the region.

The RAN currently employs five Oberon class diesel-electric submarines. Even with the upgrade currently underway to replace these with Collins class diesel-electric, we still lack the vital underwater force we require. Australia has a vast area in which it has an interest. To properly control that interest, we need greater resources. The current submarines being operated are inadequate, as will be the Collins class, due to the fact they are diesel-electric. These submarines must come close to the surface in order to snorkel to recharge their batteries. This is a dangerous and unnecessary practice. In a time of conflict, the shallow water runs made to do this would render the submarine a soft-target. Diesel-electric powered submarines also have – because of their reliance on battery power – limited speed and severely limited range. In a time of conflict, Australia's submarines would not be able to "ride shotgun" for a convoy as American or British nuclear powered submarines could. This deficiency greatly hinders Australia's capabilities and must also retard strategic thinking. If we are not to fall behind our regional neighbours, we must look at alternatives such as nuclear propulsion.

Much public debate rages over issues of atomic energy. It saddens me deeply when people denounce nuclear power as dangerous and futile, as often these people have no background knowledge of the topic. As pointed out by your magazine, those who work on nuclear powered submarines receive less radiation than a person standing on dry land. The public need to be educated fully on this issue so real discussions may be held.

Having such a force as nuclear powered submarines not only presents Australia with a valuable deterrent force, but it also allows our surface combatants a chance to practise their anti-submarine skills on a target that is both more challenging and more realistic. The current force of "O" class boats cannot simulate the targets our sailors are likely to encounter in future conflicts. Also, Australia has an international responsibility to assist nations with which we have alliances. If we are to make and fulfil a serious commitment, we need to have the resources with which to back it up.

If Australia and Australians are to be respected in the world arena, we must not only be strong politically and economically, but we must be strong militarily. The most visible sign of our military status comes from the visits to foreign ports of Australian warships. Having nuclear submarines would prove our resolve to maintaining domestic and global peace.

Yours faithfully
Brad Barratt
Kallangur 4503

NAVY LEAGUE OF AUSTRALIA

ANNUAL GENERAL MEETING 1993

ACN 008 451 063

Notice is hereby given that the

ANNUAL GENERAL MEETING

of the

NAVY LEAGUE OF AUSTRALIA

will be held at

the Naval & Military Club, 27 Little Collins St., Melbourne 3000

on Friday, 12th November 1993 at 8 pm.

BUSINESS

1. To confirm the minutes of the Annual General Meeting held in Canberra on Friday 13th November 1992.
2. To receive the report of the Federal Council, and to consider matters raised therefrom.
3. To receive the financial statements for the year ended 30th June 1993.
4. The following Director being over the age of seventy-two years, seeks re-election as a Director (Federal Councillor) in accordance with the Companies Act.
   A.H. Hewitt (WA Division)
5. To elect the Office Bearers for the 1993–94 year as follows:
   (a) Federal President
   (b) Federal Vice President
   (c) Additional Vice President (1)
   (d) Federal Auditor

Nominations for these positions are to be lodged with the Honorary Federal Secretary prior to the opening of the Annual General Meeting.

6. General Business: To deal with any matter notified in writing to the Honorary Federal Secretary by 31st October 1993.

ALL MEMBERS OF THE NAVY LEAGUE ARE WELCOME TO ATTEND

PO Box 269, Burwood, Victoria 3125. Telephone: (03) 805 2559 Fax: (03) 888 8075
By Order of the Federal Council John M Wilkins, Hon Federal Secretary

Australian Shipping and the Future

by Joe MARCELLO,
Research Officer of the Australian National Maritime Association, peak association representing Australian flag shipowners, ship operators, salvage and towage operators.

There are three main themes that need to be addressed when describing shipping in Australia. The first is to analyse the role Australian shipping plays in our economy, the second is to canvass its basic structure and lastly to consider how external forces and government policy mould Australian shipping. These themes are the subject of this article.

Most people ask very probing questions to do with Australian Shipping such as: "What is the future of shipping in Australia?" What these questions indicate is that most people have an interest in shipping even though they might know very little about the subject. The first area which needs to be made clear is the distinction between shipping and the waterfront. Shipping and the waterfront are separate: the unions which have coverage on the waterfront are not the same unions which have coverage on vessels, the employers which employ waterside labour are not the same employers which own and operate vessels. The structure and the level of competition which the waterfront is subject to is not the same as that applying to shipowners.

This point is important as many people all too frequently confuse shipping to mean the waterfront.

In terms of the personalities involved with Australian shipping there are a number of Australian companies which have shipping interests. However one of the problems facing the industry is that it is relatively anonymous. Ships plying the oceans are rarely seen by people except when they come into port or are the centre of some misfortune. And most government statistics are grouped in such a way that the shipping arms of most companies are buried within the larger industry sectors such as mining, steel, petroleum etc. This was one of the reasons why the Australian National Maritime Association Limited (ANMA), the shipowners' body, decided to publish its own report on the industry, to give the industry some flesh, to identify shipping as an "Industry in its Own Right".

Coastal Shipping is really the backbone of this industry. There are some 90 vessels registered in Australia. Roughly 60 per cent ply the coastal trades with about half of these involved also in international voyages.

Trade around the coast is dominated by companies which have invested in shipping to ensure control and supply of an important input in their production process. What businesses call vertical integration. These companies are oil, gas, alumina, aluminium, cement, sugar and steel producers. Coastal shipping in fact carries more cargo interstate than any other mode of transport on a tonne/kilometre basis.

There is also a strong demand for general cargo across Bass Strait and along the West Coast of Australia. And there are a number of independent shipping companies providing and competing for business across Bass Strait.

Australian shipowners have also been very quick to adopt and implement new technologies or strategies for various trades. For example four ships involved in the Alumina trade in Queensland are coal fired rather than the conventional oil burners. While these vessels had a higher capital cost the price differential between using coal as a fuel compared with oil, was expected to favour the former over the longer term. A containerised service was introduced between the east coast and west coast of Australia as early as the 1960s and many dry cargo ships introduced around the Australian coast boast pioneering automated cargo handling equipment on board. The container service was forced to close following the alleged subsidised competition from rail transport. There is a certain deja vu in that Inter-Link, a company which is considering introducing a container service along the Eastern seaboard has recently written to the Federal Minister for Transport asking for assurances that subsidised rail freight rates should not undermine the viability of this container service.

GOLIATH (Photo – ROSS GILLETT)

Australian vessels involved in the international trade include tankers trading between the Middle East and Singapore and Australia; liner and general cargoes between Australia and New Zealand, Asia, Europe and North and South America; dry bulk cargoes between Australia and Asia and specialised cargoes such as the transport of LNG between Australia and Asia.

While most people recognise ANL Limited as part of the Australian fleet in fact there are at least another 22 companies involved with shipping in Australia. The State Governments of Tasmania, Western Australia and South Australia also have shipping interests. Australia can also boast having one of the oldest – if not the oldest – still independently operating shipping company in the world, Howard Smith Industries Pty Ltd.

The Industry Report which ANMA the shipowners' association publishes, indicates that there are some $1.6 billion in assets tied up in Australian Shipping. The industry has a turnover of over $1 billion per annum and employs some 4500 seagoing personnel. Its contribution to Australian Government charges and taxes is close to $150 million per annum.

While the above statistics indicate that Australia does have a significant shipping industry of its own it is certainly not without its problems. There are at least three factors which will determine the future of Australian shipping in this country. The most important factor and that which is ostensibly outside of Australia's control is international freight markets.

Australian vessels trading internationally are price takers. Australian shipping companies have little or no influence on the level of freight rates. The implication of this for Australian owners is that international freight rates have fallen to such an extent that in many cases shipowners barely cover their marginal costs let alone make a contribution on their assets employed. Unless Australian shipowners' are able to employ commercially advantageous trading patterns the result will be that they are squeezed out of existence.

The way many foreign shipowners have addressed this problem is to reflag their vessels in flag states which provide generous taxation or other cost advantages such as the ability to hire lower paid third world crews. Some of the traditional maritime countries which wanted to maintain the advantages and benefits conferred on their economies by the maintenance of indigenous fleets have established second registries which provide favourable taxation or other advantages to their shipowners.

The other factor affecting the future of Australian shipowners is to ensure that costs which they control are out of kilter with what is available internationally. These costs relate mainly to the benefits conferred on crews. Australian vessels were notorious in the past for their industrial relations record and for their excessive manning and their wage rates for seafarers. Over the last six years these areas have been tackled under a tripartite approach involving the government, shipowners and the maritime unions.

The success of these reforms has staggered even the most ardent critic of Australian shipping. For example since June 1989, 723 Voluntary Redundancy Packages (covering 1590 seafarers) were made available at a cost to the industry of over $40 million. Crew industrial disputes fell from their high in 1982 of over four days in every 100 to now just over one day in every 1000. While there remains the last leg of the reforms to still complete over the next two years, manning on Australian vessels is now comparable with the best OECD practices.

The industry has responded to these positive initiatives introduced by the government and by the cooperative nature of the maritime unions by investing over 1.6 billion dollars in new and secondhand tonnage since June 1989. The average age of Australian vessels is now just over eight years compared to the World average of over 15 years.

The last factor affecting the future of Australian shipping is the way it is perceived both within the government and by the community generally. Unfortunately as Professor Geoffrey Blainey has indicated "Australia has a beach culture but it does not have a sea culture." While most countries in the world consider trade and shipping to go hand in glove such as Japan the emerging Asian economies and the European economies, the situation in Australia is very different.

Australia is a shipper country – a major commodity exporter, yet only some 4% of Australia's international trade is carried in Australian vessels. An explanation for this was noted earlier in terms of Australian shipping's higher manning costs and less than favourable government and fiscal regime. However an even more fundamental factor was Australia's relative ease in selling commodities overseas and favourable terms of trade up until some ten years ago.

These events conspired to lull Australia into a false sense of security and to make Australians forego the still rewarding but more difficult areas of selling services and other ancillary benefits to foreigners when they concluded these deals. This is in spite of the fact that freight rates paid to foreigners to carry our international seaborne trades represents the single biggest drain to Australia's invisibles account. Traders can also benefit by concluding their marine insurance, legal , shipbroking, forwarding and customs activities in Australia. The Australian seaborne trades after all generate close to a fifth of the world shipping market on a tonne-kilometre basis – these opportunities should not be handed to foreigners as if they have some divine right to capitalise on them.

IRON PACIFIC (Photo-BHP)

In spite of these excellent reasons to ensure that Australia has a solid and all encompassing mercantile and related service industry base, Australian shipping still faces an uphill battle.

There continues to be powerful vested interests who have influence within government and the community and which have no affinity with the industry who would seem to prefer to see the demise of Australian shipping rather than its expansion.

These interests are the same who believe that Australia will return to its golden age of favourable terms of trade for commodity exports. They also endorse the view that cabotage, the policy that reserves the coastal trades of a country to vessels registered in that country, should be eliminated. The fact that nearly every country with any substantial coastline has some form of cabotage policy in place, is completely overlooked by these interests. Also overlooked is the changing trade pattern which is moving away from commodities to growth in trade in services, such as transport and its ancillary services and the trade in higher value added goods.

These interests unwittingly promote the notion of a zero sum world. Where one Australian industry is in effect sacrificed for the supposedly greater good of the others. Australia would be wiser to move away from this position and to positively encourage all industries that are viable to expand, and where possible complement one another.

In conclusion, there is an Australian Shipping industry which does play an important role in the economy. The industry has shown itself to be dynamic and capable of meeting the challenges of the time.

The industry will need to continue to adapt however as the international market place is forever changing.

If the Australian shipping industry is to continue to expand how it is perceived by the government and the community will also need to change. In this regard the industry's strategic and commercial value to Australia needs to be stressed. The interests opposing the expansion of the industry are unlikely to be placated regardless of its achievements. In the end both the community and the government will need to ask themselves the question: "Do we want a shipping industry?"

If the answer is "yes" the industry is well down the road to achieving international competitiveness with the price and quality objectives appropriate for a relatively governed nation such as that which we are fortunate enough to live in.

If the answer is "no" the shipping reform process will have been a monumental waste of resources, goodwill and unparalleled industrial restructuring.

This bald question will shortly be staring us in the face.

Attachment:

List of the Australian Merchant fleet of 2000 deadweight tonnes and over.

Australian Trading Vessels 2000 Deadweight and Over

Manager	*Operator*	*Name*	*Built*	*DWT*	*Vessel Type*
ABC	ABC	Accolade 11	1982	8410	Bulk
Alsoc	Alsoc	Northwest Sanderling	1989	72870	Tanker (Lng)
Alsoc	Alsoc	Northwest Snipe	1990	72870	Tanker (Lng)
Ampol	Ampol	Ampol Sarel	1979	101609	Tanker (crude)
Ampol	Ampol	Ampol TVA	1990	36700	Tanker (products)
ASP	ANL	Anro Australia	1977	22200	Ro/Ro Container
ASP	ANL	Australian Endeavour	1972	27978	Cellular Container
ASP	ANL	Australian Trader	1978	8450	Cellular Container
ASP	ANL	Australian Venture	1977	39450	Cellular Container
ASP	ANL	Bass Trader	1976	7486	Ro/Ro Container
ASP	ANL	River Boyne	1982	76358	Bulk
ASP	ANL	River Embley	1983	76308	Bulk
ASP	ANL	River Torrens	1977	31921	Bulk
ASP	ANL	River Yarra	1992	31698	Bulk
ASP	ANL	Searoad Mersey	1991	3287	Ro/Ro
ASP	ANL	Searoad Tamar	1991	9958	Ro/Ro
ASP	BP	Australian Achiever	1982	127575	Tanker (crude)
ASP	BP	Australian Spirit	1987	32800	Tanker (products)
ASP	Esso	Mawson	1972	24487	Tanker (products)
ASP	Goliath	Goliath	1977	4270	Bulk Cement
ASP	ICI	Kelvin	1990	13403	Tanker (LG)
ASP	K Line	Australian Searoad	1982	9033	Car Carrier
ASP	Mobil	Flinders	1982	149235	Tanker (crude)
ASP	Mobil	Tasman	1990	31500	Tanker (product)
ASP	Shell	Conus	1981	31950	Tanker (products)
ASP	Shell	Nivosa	1984	124754	Tanker (crude)
ASP	Shell	Osco Star	1992	40503	Tanker (product)
ASP	TNT	TNT Alltrans	1983	34600	Bulk
ASP	TNT	TNT Capricornia	1983	75105	Bulk
ASP	TNT	TNT Carpentaria	1983	75105	Bulk
ASP	TNT	Zincmaster	1975	17605	Bulk
ASP	Union Shp	Seaway Hobart	1976	7357	Ro/Ro
ASP	ANL	Australian Advance	1983	35407	Container
ASP	ANL	Tranztas Trader	1988	14101	Cellular Container
BHP	BHP	Iron Baton	1990	37557	Bulk
BHP	BHP	Iron Carpentaria	1977	45430	Bulk
BHP	BHP	Iron Curtis	1978	45430	Bulk
BHP	BHP	Iron Dampier	1981	21889	Container
BHP	BHP	Iron Flinders	1986	17370	Container
BHP	BHP	Iron Kembla	1986	148150	Bulk
BHP	BHP	Iron Monarch	1973	14885	Ro/Ro Container
BHP	BHP	Iron Newcastle	1985	148140	Bulk
BHP	BHP	Iron Pacific	1986	232375	Bulk
BHP	BHP	Iron Prince	1981	21735	Bulk
BHP	BHP	Iron Shortland	1979	107140	Bulk
BHP	BHP	Iron Spencer	1981	141475	Bulk
BHP	BHP	Iron Sturt	1979	22093	Bulk
BHP	BHP	Iron Whyalla	1981	141475	Bulk
BHP	BHP Petr	Iron Gippsland	1989	87241	Tanker (crude)
BHP	Boral	Island Gas	1976	6330	Tanket (LPG)
BHP	Kopper's	Seakap	1980	6706	Pitch Carrier
Brambles	Brambles	City of Burnie	1982	4700	Ro/Ro
Brambles	Brambles	City of Port Melbourne	1983	4700	Ro/Ro
Caltex	Caltex	Australian Ocean	1986	107000	Tanker (crude)
Caltex	Caltex	Australia Sky	1989	32000	Tanker (products)
Caltex	Caltex	Australia Star	1986	85000	Tanker (crude/products)
CSR	CSR	Kowulka	1984	23258	Bulk
CSR	CSR	Ormiston	1979	16602	Bulk
HSI	Alcoa	Lindesay Clarke	1985	28684	Bulk
HSI	C&A	Camira	1980	3450	Bulk
HSI	C&A	Wallarah	1986	6666	Bulk
HSI	HSI	Express	1990	17309	Bulk
HSI	ICI	Sandra Marie	1986	5000	Bulk
HSI	PSS	Portland	1988	36500	Bulk
HSI	RW Miller	Canopus	1986	95000	Tanker (crude/products)
HSI	RW Miller	Era	1987	95000	Tanker (crude)
HSI	SA Govt	Island Seaway	1987	1200	Ro/Ro (passenger)
HSI	Stolt Nielsen	Stolt Australia	1986	9000	Tanker (gas & chemicals)
QCL	QCL	Cementco	1978	16556	Bulk
QCL	QCL	Warden Point	1978	6127	Bulk
Stateship	Stateship	C Y O'Conner	1988	2700	General
Stateship	Stateship	Frank Konecny	1990	3454	General
Stateship	Stateship	Gordon Reid	1991	3454	General
Stateship	Stateship	Roberta Jull	1990	2700	General
TDT	TDT	Abel Tasman	1975	3500	Ro/Ro passenger)

New Support Craft Diving Launches

On Monday 16 August the RAN's new large diving launches constructed by Geraldton Boat Builders were handed over to the Royal Australian Navy.

The three new diving tenders (Photo - RAN)

Part of a $2.8 million contract, the three vessels, SEAL (2001) PORPOISE (2002 and SHARK (2004), were built to a simple but robust construction. Each is 21.7 tonnes with an overall length of 19.95 metres and a speed of 28 knots. They will routinely carry 16 divers and attendants plus two tonnes of diving equipment.

Mr Terry Bromley, the Managing Director of Geraldton Boat Builders officially handed the vessels over to the Navy in an informal ceremony.

Apart from SHARK which has been allocated to Clearance Diving Team Four at HMAS STIRLING, SEAL will operate with Clearance Diving Team One and PORPOISE with Clearance Diving Team Two, both in Sydney.

The contract for the three vessels was placed in October, 1992 and is the second defence contract to be awarded to Geraldton Boat Builders.

Each vessel will be able to support 24 hour diving operations, in depths up to 54 metres, employing self-contained and surface supplied breathing apparatus. Their secondary role will include low level naval policing duties.

Landing Craft

Three of the Royal Australian Navy's (RAN) new Landing Craft Vehicles and Personnel (LCVPs) were put through their paces on Sydney Harbour, on Tuesday 13 July.

The craft arrived in Sydney on the previous Monday for delivery to HMA Ships TOBRUK and SUCCESS, two being carried by the former and one by SUCCESS.

Fully laden , the new LCVP can transport one 4 x 4 Land Rover and one half tonne trailer or four and a half tonnes of cargo. Each can travel through the water at 22 knots. A three man crew operate their vessel from a small superstructure aft, which also provides access to the engines below.

New LCVPs on Sydney Harbour (Photo - ABPH Steve Gurnett)

New SMB

The Royal Australian Navy Hydrographic Service has just completed accepting a new class of Survey Motor Boat (SMB) into service. The vessels, six in number, are the newest of their type in the world and were designed and built in country by Pro Marine, Seaford, Victoria to meet the Navy's specifications. The vessels were built between October 1992 and July 1993 at a total cost of $1.92M with the final two boats being delivered in late July. In addition a smaller Antarctic Survey Vessel (ASV), based on the same design, was also constructed by Pro Marine at a cost of $0.4M.

The new SMB's will be used to replace the Navy's ageing fleet of SMB's, three in HMAS MORESBY, one in HMAS FLINDERS, and two at the Hydrographic School, HMAS PENGUIN.

All are aluminium monohulls powered by two Volvo Penta inboard/outboard engines driving conventional propellers, with a design speed of 25 knots. They are similar in size and layout to the current SMB's, but with vastly improved visibility, habitability and ergonomics.

The general features of the SMB's are:

Length (OA)	10.7m	
Beam:	2.9m	
Draught:	1.7m	
Speed:	max	29 knots
	transit	25 knots
	survey	12 knots
Crew:	max 4-1 x OIC, 1 x Survey System Operator, 1 x Boat Coxswain, 1 x Technical Sailor min 2- 1 x OIC/Survey Systems Operator, 1 x Boat Coxswain	
Accommodation:	4 berth cabin fwd complete with toilet compartment and stowage lockers	
Endurance:	25 hours at 12 knots with 20% fuel remaining	
Engineering:	Twin Volvo Penta 200hp diesel stern drives Mase 7KvA 50 Hz 240 volt AC diesel generator	

SMB 1010 at speed (Photo - RAN)

The boats are fitted with some of the latest navigational equipment including DGPS, an all weather JRC radar and a Coursemaster autopilot which is interfaced with the Marine Science Suite (MSS). In addition to the MSS, the boats are fitted with a Doppler Log and a side scan sonar towfish is provided as standard fit. HF and VHF radios are fitted allowing communications with other units of the Marine Science Force as well as the Navy as the occasion arises. The crew's comfort is not neglected with a fridge/freezer unit and microwave oven being fitted in the fully enclosed and air conditioned wheelhouse. The diesel generator provides 240v AC power which is compatible with commercial survey systems and sensors which allows easy upgrade and replacement of equipment in the future. The diesel also allows operations to be carried out at anchor without the need to run the main engines. The SMB's are also fitted with a retractable awning and a davit for over the side evolutions while the ASV is fitted with a small A-Frame for side scan sonar operations.

All vessels have been named with a view to commemorating the considerable efforts of previous surveyors, explorers and ships that have worked the coasts of Australia and Antarctica.

HMAS MORESBY– SMB's FANTOME, MEDA and INVESTIGATOR – HMAS FLINDERS – SMB DUYFKEN (Dutch for Dove). HYDROGRAPHIC SCHOOL – SMB's TOM THUMB and JOHN GOWLLAND.

Two SMBs. 1009 and 1010 after handover at HMAS PENGUIN (Photo - RAN)

NAVAL NEWS

Compiled by "Gayundah"

COASTAL MINEHUNTER

A request for tender (RFT) was issued to the three contenders for a contract to build up to six coastal minehunters for the Royal Australian Navy, last July.

The Minister for Defence said the Australian Submarine Corporation (ASC) (SA), Transfield Shipbuilding/Vosper Thornycroft (Vic) and Australian Defence Industries (NSW) were asked to:

- Respond to an RFT which spells out contractual terms which would apply to the winning bidder; and
- Respond to a project definition study (PDS) contract issued previously under which they are required to outline how they would address Australian content requirements for the construction of the minehunters.

He said the consortia now have until December 15 to provide answers to the RFT and PDS contracts with the Navy MHC Project Directorate having three months to compare the responses and prepare a recommendation for Ministerial and Cabinet consideration.

"All being well, we should have a decision on who will build the MHC's by mid-1994," he said, "with the aim of the first vessel being delivered to the Navy by December 1997."

Mine warfare vessels from HMAS WATERHEN "at rest" during a mine counter-measures exercise. From left: the leased CAROLE S. WALLAROO and KORAAGA. (Photo - RAN)

Visitor to Fremantle. USS CHANCELLORSVILLE. (Photo - Rod Salmeri)

HMAS WESTRALIA SEVEN MONTHS AWAY

The Navy's underway replenishment tanker HMAS WESTRALIA returned to HMAS STIRLING on Monday, 9 August, after seven months away.

The ship sailed in January for Newcastle, NSW where she underwent a refit which included extensive upper deck maintenance, tank painting and the replacement of some fuel piping before working-up off Australia's east coast and visiting New Zealand.

The largest ship in the Royal Australian Navy, the 40,870 tonne WESTRALIA is commanded by Commander W.F. (Bill) GARNER, the ship normally carrying a complement of 61 male and female naval personnel.

Entering RAN service on October 9, 1989, HMAS WESTRALIA saw active service during the Gulf War. She previously saw active service in the Falklands War while serving as the British fleet auxiliary, RFA APPLELEAF.

ATTACK CLASS PATROL BOATS

The Attack Class patrol boats, HMA Ships ARDENT and AWARE, are to be withdrawn from service. The boats, based respectively in Hobart and Adelaide, are approaching the end of serviceable life and are no longer able to contribute effectively to naval operations, the Chief of Naval Staff, Vice Admiral Ian MacDougall, has reported.

He said that the Brisbane-based heavy landing craft, HMAS LABUAN, also used in the past to train Navy Reservists, would be relocated to Cairns.

And the location of the more modern Fremantle Class patrol boats, HMA Ships FREMANTLE and WARRNAMBOOL (now based respectively in Sydney and Melbourne) will be further examined.

"Since Defence's 1990 Force Structure Review, the role of the Naval Reserves has changed," Admiral MacDougall said. "The Reserves organisation is being integrated with the permanent Navy, rather than existing as a separate organisation which trains personnel in a limited range of naval skills.

"The principle being applied now is that we are 'all of one company'; and we are looking for good people who already possess or can be given basic skills needed by the Service as a whole."

HMAS ARDENT (Photo – RAN)

ANZAC SHIP NAME

The spelling of the second Australian ANZAC Class frigate is to be changed from ARRERNTE to ARUNTA. The Chief of Naval Staff, Vice Admiral Ian MacDougall, said that the decision to change the name was made in accordance with the wishes of the Arrernte Aboriginal people of central Australia.

ARUNTA is due to be launched in 1996.

Units of the ROC (Taiwan) Navy during their recent Pacific deployment. (Photos – Chris Sattler)

Submarine COLLINS after launch at Port Adelaide on 28 August (Photo – John Mortimer)

First Australian-Built Submarine Launched

The first of six new submarines being built for the Navy was recently launched at Osborne, South Australia.

The submarine, built by the Australian Submarine Corporation, was launched by Lady Collins, widow of Vice Admiral Sir John Collins, one of Australia's greatest naval heroes. Sir John, whose exploits as a commander of HMAS SYDNEY (II) in the Mediterranean and closer to home made him a household name in Australia at the time, gives his name to both the first of type and the class of the six boats to be built here.

Submarine 01 will be known as HMAS COLLINS when commissioned in about 18 months. Collectively, the six boats will be known as Collins Class submarines.

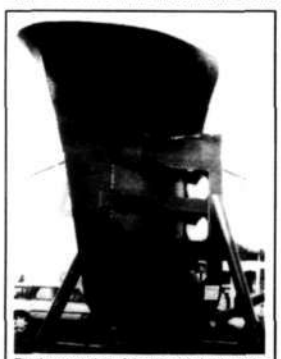
The first submarine to be built in Australia, COLLINS will be the subject of an extensive trials programme after fitout and setting to work of equipment, and systems has been completed, leading up to the commissioning which will mark the boat's entry to RAN service early in 1995.

Based on the Swedish Kockums Type 471 design, the six Collins Class submarines are being built for a total of $4.96 billion at April 1993 prices.

The Corporation directly employs about 1200 people at its construction facility on the bank of Adelaide's Port River. Their Navy contract also provides employment indirectly for many thousands of other Australians working for firms subcontracted to ASC.

The Corporation has exceeded the 70 per cent Australian content target set budget. The performance of the submarine is expected to meet and in some areas exceed the contracted requirements.

White Ensign aloft, new boat COLLINS on 28 August (Photo – John Mortimer)



The bow section of the scraped submarine HMAS OXLEY, on display at the WA Maritime Museum. (Photo – Rod Salmeri)

ESMERALDA VISITS SYDNEY

The Chilean Sail Training Ship ESMERALDA arrived in Sydney on Monday 13th September as part of its 1993 training cruise around the Pacific, having set sail from Valparaiso, Chile on 4th April 1993. The ship will complete her 26,013 nautical mile voyage at Valparaiso on 7th November 1993. She last visited Sydney in July 1991.

ESMERALDA, one of the largest and most magnificent sailing ships in the world, is a 113 metre 3,673 ton, four-masted brigantine schooner launched in 1953. In addition to her crew and Chilean trainees, one midshipman each from France, USA, Japan, South Korea, South Africa, Israel, Honduras, China, Malaysia, Tonga, New Zealand and Australia are participating in the cruise.

AUSTRALIAN AND INDONESIAN SHIPS IN EXERCISE

More than 2000 sailors and airmen participated in a combined maritime exercise, known as NEW HORIZON (CAKRAWALA BARU) VII/93, in northern Australian waters in August.

Eleven visiting ships arrived in Darwin at the start of the 10-day exercise, the latest in a series which was aimed to enhance Australian and Indonesian cooperation and cohesion in maritime operations. The first was held in 1978 and the most recent in 1991.

Above: Patrol Vessel KRI BADAK arriving Darwin (Photo – John Mortimer)

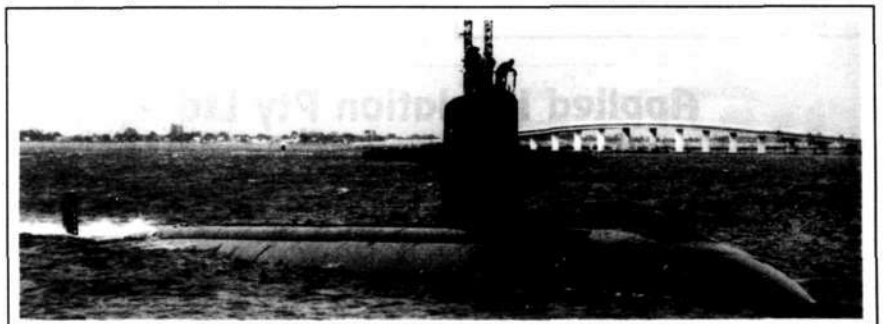
Below: HMAS GAWLER with the frigate KRI OSWALD SIAHAAN during Exercise New Horizon (Photo – John Mortimer)

After in-harbour training, the ships put to sea with Australian and Indonesian personnel practising the skills required for surface warfare, air defence and anti-submarine warfare. Other specialist units were busy with mine countermeasures and clearance diving.

Nine ships of the Royal Australian Navy worked with six ships of the Indonesian Navy, elements of the RAN's Fleet Air Arm, a Republic of Indonesia patrol aircraft and clearance diving teams from both countries.

"Exercises such as those in the NEW HORIZON series assist greatly in maintaining stability in the region which is not only critical to our strategic situation but also essential for economic growth and development," Australia's Maritime Commander, Rear Admiral Rob Walls, said. "The focus on economic growth in turn enhances regional security."

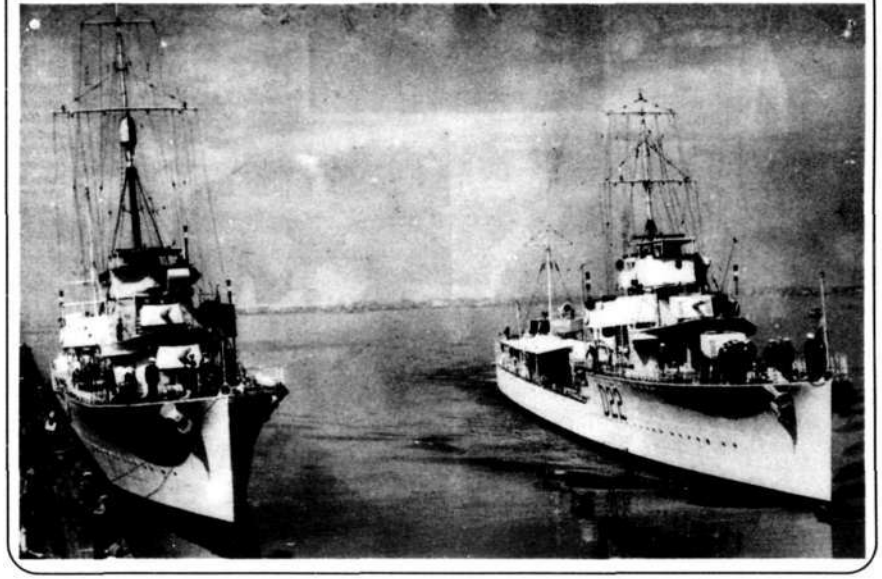
"It is important that Australia and Indonesia continue to develop practical cooperation in areas of shared strategic interest. The NEW HORIZON exercises are specifically aimed at developing this co-operation in the maritime arena".



USS BIRMINGHAM arriving at HMAS STIRLING (Photo – LSPH Scott Connolly)

Out of The Past

Above: HMAS STUART, pre-war in Port Phillip. (Photo – T. Weaver)
Below: HMAS WATERHEN approaches her berth ahead of STUART. (Photo–T. Weaver)



HMAS WARRAMUNGA PICTORIAL

Photographs courtesy MR SAM WHITE

Pom pom crew: Korea

HMAS WARRAMUNGA in Seeadler Harbour, Manus Island in October 1944

Superb aerial of HMAS WARRAMUNGA in 1955

Refuelling at sea from HMAS SYDNEY, 1949

Coming alongside: early 1943

Above: Maintaining the 2 pounder pom-pom

Launch day, 7 February 1942

Left: HMAS WARRAMUNGA inoculations at sea 1944 Leading Head, now Federal President Geoff Evans (fifth from left) left the ship in Milne Bay on 29 August to FLINDERS and the Officer Training School

Rare photograph of the three Tribals together, 1947. HMAS BATAAN leads HMA Ships ARUNTA and WARRAMUNGA, through Sydney Heads

Korean duties: 1952

Admiral Sir Bruce Fraser, CIC British Pacific Fleet leaves HMAS WARRAMUNGA at Yokohama, September 1945

Ship's boat, carrying USN wounded to the USS PENNSYLVANIA, January 1945

Builders Trials

Stand-easy

Gun crew of the 4.7 inch mount in action

Preparing to fire the depth charges

Naval Shipbuilding in Australia

by A.W. GRAZEBROOK

The launch of HMAS COLLINS marks another stage in the progress of modern naval combat vessel building in Australia.

For there are two different types of naval shipbuilding involved in constructing the vessels needed by the Royal Australian Navy. Both are closely associated with refits and other types of thorough life support.

Building, fitting out, setting to work and integrating the systems of fully combat capable vessels such as destroyers, frigates and submarines is a far more demanding task than building and commissioning minor war vessels (patrol boats, landing craft) and support ships (underway replenishment ship, survey vessels etc.)

Both types of work were undertaken in Australia during and after the Second World War. Construction of minor war vessels, survey ships etc has continued more or less continuously until today. At present that type of work is sustained only by the Pacific Patrol Boat programme for export, but construction of general naval shipbuilding work should expand again shortly.

However, combat vessel (or warship) building stopped with the completion of the River class frigate HMAS TORRENS at Cockatoo Island in 1971. The RAN planned that warship building would continue to evolve with the light destroyer (DDL) building programme at Williamstown. That programme, which had the approval of the Government of the day, involved designing a modern warship specifically to meet Australian requirements. The DDL programme would have brought a significant warship design capability to Australia, and involved the modernisation of Williamstown.

However, the DDL programme was cancelled by the Whitlam Government in 1973, who ordered instead the FFG7 class frigates from the United States.

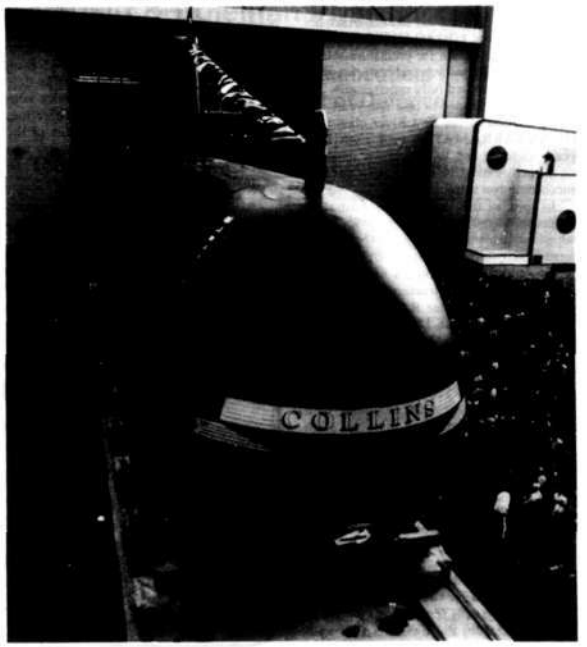
The concentration of destroyer building at Williamstown was to have been balanced at Cockatoo by the construction of a major underway replenishment ship (an AOE, to have been named HMAS PROTECTOR). However, that too was cancelled by the Whitlam Government. Cockatoo refitted submarines but had no naval construction work until work started on HMAS SUCCESS in 1980.

However, elsewhere general naval shipbuilding continued, with HMAS TOBRUK at Carringtons, the Fremantle class patrol boats at Cairns, and others.

After the cancellation of the DDL programme, there was no warship building in Australia for over ten years – until work started on the FFG7 guided missile frigate HMAS MELBOURNE at Williamstown.

During that period, the gap between Australian warship building technology (the River class) and modern warship construction widened very significantly. This was aggravated by a serious lack of modern major warship programme contracting and management systems in Defence, by unsuitable management organisation in Defence and at Williamstown, and by a trade union organisation badly outdated for modern warship building.

Had the DDL programme proceeded, the gap in technology would have been largely avoided but the Defence and trade union organisational problems would have seriously hindered the programme. These problems were intensely complex, but can be summarised by stating that Defence (and therefore HMA Naval Dockyard at Williamstown) had a highly centralised organisation optimised for public service administration instead of a productive industrial facility (which Williamstown should have been).



The Williamstown employees were divided between far too many trade unions. These spent their time fighting over demarcation matters instead of working in the best interests of their members by co-operating in the introduction of the new equipment and methods essential to long term employment (and to an effective Royal Australian Navy).

After the completion of the River class HMAS SWAN in 1970, Williamstown was occupied with refit and modernisation work (the Daring class destroyers) and River class frigates), and the construction of HMAS FLINDERS. Although Williamstown was compensated (to a small degree only) for the cancellation of the DDL programme by an order for the construction of the oceanographic vessel HMAS COOK, the uncertainty over the future of the establishment caused a rapid decline in the confidence of the employees.

Defence's organisational problems with modern project management showed up in the construction of HMAS FLINDERS, but the whole Defence and industrial problem at Williamstown developed to the prohibitive stage during the construction of HMAS COOK and the modernisation of the River class. Approved in 1969, COOK was laid down in 1974 but did not undertake her first operational task until 1983. A major factor in her selection for premature sale in the 1990 budget cuts was that her propulsion system never worked fully satisfactorily.

Originally planned to take two years, the modernisation of the first River class ship HMAS PARRAMATTA took over four years. Defence and Williamstown achieved no improvement in time taken for the succeeding two ships.

In spite of this, to optimise Australian industrial capabilities for the through life support indispensable to the RAN (today's term is self reliance), higher Defence and naval authority perceived a need to start modern warship construction in Australia. Fairly early on, senior RAN engineering officers and others in Defence recognised that the only way to make Williamstown productive and cost effective was a totally fresh organisational and industrial start. That could only be achieved by selling the yard to a modern engineering company with access to modern methods. No such company would invest in Williamstown unless there was a prospect of major contracts.

Therefore, investment in new equipment was undertaken to prepare Williamstown for modern warship construction, to the point where the yard was reasonably well equipped, including modern facilities such as computer aided design. As a first step, an order was placed for two FFG7 class ships. The combat systems for these ships were to be supplied from the United States on a "turn key" basis, i.e. ready to install, set to work and integrate. Even that was no mean task. A local content of some 50 per cent would be achieved.

Work on the first ship, HMAS MELBOURNE, started. However, much of the new equipment was left unused while the 23 trade unions argued over whose members would operate it. This, and Defence's failure to rectify the organisational problems, soon showed up in lack of progress on HMAS MELBOURNE.

The prospect of a contract to build the eight new Anzac class frigates, with the existing contract to complete the two FFG7 ships made Williamstown an establishment potentially attractive to major heavy engineering companies. The yard was put up for sale.

After spirited competitive bidding, and some corporate shareholder changes amongst competing bidders, the Transfield Group owned Williamstown, established Amecon to run the yard and assumed the contract for the two FFG7s. Amecon began simultaneously the two massive tasks of getting the yard running to complete the FFG7s and winning the contract to build the ten Anzac frigates. Amecon have been outstandingly successful in this.

Under their revised contract, Amecon duly delivered HMAS MELBOURNE on time. Even more impressive was the new ship's prompt acceptance into service with only very minor defects for rectification. Amecon demonstrated that, in spite of the doubts of many, Australian industry can build modern surface warships to international standards.

After intense competition with Newcastle based Australian Warship System, Amecon won the Anzac frigate contract. That project is progressing well, with a much higher local content – well over seventy per cent.

As a group, Transfield Shipbuilding is expanding and has prospects of winning further work in a very competitive market. Transfield subsidiary Australian Shipbuilding Industries, WA has won export orders for patrol boats and built patrol boats for Australia's Pacific Patrol Boat programme.

Both the surface warship and submarine programmes involve a great deal more industry than the building yards (which are really large assembly facilities). Work of all types is subcontracted in many parts of Australia (and New Zealand for the Anzac frigates). For example, there are literally hundreds of subcontractors involved in the Collins class submarine project.

There is no doubt that Government's preparedness to place long term orders, for the whole class of vessel, has contributed very significantly to the success of both the Anzac frigate and submarine projects.

Diesel electric submarines had never before been built in Australia. Therefore, establishing the submarine project was even more demanding than the construction of modern surface warships. The choice of site was dictated by modern submarine assembly methods.

After initial difficulties Cockatoo Island had successfully built HMAS SUCCESS and developed considerable relevant submarine expertise in refitting the Oberon class submarines. However, the island did not have the space required for a modern submarine assembly facility.

Therefore, the Swedish specialist submarine designer and builder Kockums joined with several Australian organisations to form Australian Submarine Corporation and build the Collins class submarines at a completely new "greenfields" site near Adelaide. Both the building facility and the industrial relations system were completely new.

Now launched, HMAS COLLINS will be almost complete physically. The launching is a very significant achievement and triumph when one remembers the criticism of the decision to build the submarines here. However, the hardest task of all – the integration phase – now begins, and will continue when the new submarine begins sea trials next year. Only when these are successfully completed will Australia and ASC have proven that they can build the most modern diesel electric submarines in the world.

With the submarine programme well underway, ASC have been moving to secure more business for their future. They are optimistic that they will eventually refit the Collins class, but that will be insufficient to utilise fully ASC's equipment and skills. To utilise the extra capacity, ASC plan to be involved in supplying submarines to regional powers. They have brought Carringtons' facilities at Newcastle and have a provisional order for patrol boats for the Philippines Navy. Basing their bid on the Swedish designed LANDSORT, ASC are competing for the RAN coastal minehunter. They have bid for the oceanographic hydrographic ship programme.

Other opportunities include the offshore patrol combatants which will succeed the Fremantle class patrol boats, the destroyers or frigates that succeed the RAN's three DDGs, and a training and helicopter support ship.

Although ASC need to break into the building of naval surface ships, they have competitors for all these projects. Cairns, North Queenslands Engineers and Agents, who built the Fremantle class patrol boats, are keen to win back naval work. Australian Defence Industries are keen to win the coastal minehunter order and utilise the modern warship fitting out skills and equipment developed by minehunter, DDG and FFG modernisation.

Transfield Shipbuilding, with its two facilities Amecon at Williamstown and ASI near Fremantle, is moving to build on its position to become the RAN's primary surface vessel supplier.

Naval vessel refit work offers an opportunity. However, the advent of new vessels means that, for some years at least, refit work on older ships will be reduced. Following the base porting of RAN ships in the west, Transfield ASI are developing building their refit work, necessarily at the expense of ADI's work on the east coast. Even then ADI have competitors in Newcastle's Forgacs. Much minor war vessel refitting now takes place in Cairns and Darwin.

So how is the RAN placed now for naval shipbuilding capacity and capability?

In Transfield Shipping Australia has a major warship and general naval vessel builder, employing the most modern management and construction methods. Building on experience gained with FFG7 and Anzac projects, Transfield is developing its ability to design naval combatants. The group has a research and development programme which includes the use of modern composite materials in warships. Although Transfield has enough warship work for well over a decade, they can handle and want more.

In ASC Australia has a very competent submarine builder, again employing the most modern specialised management and construction methods. In addition, they have at Newcastle a very useful establishment for general naval shipbuilding. In addition to submarine export work after the Collins class project, the logical next step is for ASC to expand into surface warship construction.

The difficulty is that there is not enough warship work for both Transfield and ASC. On the other hand, there are clear advantages to the taxpayer in having two builders competing for the work. The $A300 million saving achieved by the Anzac frigate competition testifies to that.

Both industry and their customer, the Department of Defence, realise that there is not enough work for everyone. The competition for the coastal minehunter and transfield's pre-emptive move to form a joint offshore patrol combatant project with Malaysia testify to that.

The Defence Department and Government generally need to achieve an optimum balance between the advantages of competition and the benefits of fewer larger yards.

The results of the coastal minehunter, oceanographic and hydrographic vessel and offshore patrol combatant project competitions will indicate how many naval shipbuilders Government wishes to keep in competition

TOMAHAWK
High Tech Naval Punch for the 1990s

*by MALCOLM R. DAVIS

As has been demonstrated in the 1991 Gulf War and subsequent raids by the US on Iraq, the General Dynamics BGM-109 Tomahawk Land Attack Missile has emerged as one of the most effective long range stand-off weapons currently being deployed.

Tomahawk gives a state the ability to use military force without risking the lives of aircrew as would be the case with an airstrike. It also allows a nation to project military power without the need for large Aircraft Carrier Task forces or forward basing facilities. It is accurate, cost effective and highly lethal. Recent statements by the Liberal/National Coalition in their Defence Policy suggests that Tomahawk cruise missiles based on Collins class submarines could either replace or supplement the F-111C force as Australia's primary deterrent against potential aggressors. How does Tomahawk work? Is it as effective as most people think? Would it be right for Australia's defence needs? I propose to explore some of these issues in this paper.

The concept of the cruise missile actually originated as early as the Second World War. Germany used the V-1 'Buzz Bomb' to bombard Britain from across the Channel. The V-1was inaccurate, was launched from sites in Peenumunde, and travelled at 400 mph for 250 miles.[1] It carried an explosive warhead of up to 1,870 lbs, and of the 900 V-1s launched against Britain from June 13th 1944, around 2,400 fell on London.[2] After the war, the US used V-1 technology to develop a series of Strategic and Intermediate ground launched cruise missiles that carried nuclear warheads. Some of these included the MGM-1 Matador, the SM-62 Snark, and the MGM-13 Mace. The air launched AGM-28 Hound Dog was developed in the 1960s, and the Navy developed the SSM-N-8 Regulus I and SSM-N-9 Regulus II cruise missiles.[3] All of these weapons were inaccurate, slow moving and had large radar cross sections, and thus were very vulnerable to Soviet air defences. These weapons were designed to flood the Soviet air defences with so many targets, that a percentage were sure to get through.

In the early 1970s, the future of the Manned Bomber was in doubt, after the cancellation of the Mach 3 B-70 Valkyrie that had originally been developed to replace the B-52 as SAC's primary strategic bomber.[4] The B-1A programme that had emerged as a result of the B-70s cancellation was still years away from completion, and the questionable effectiveness of the rapidly ageing B-52 fleet of the US Strategic Air Command led to concerns that US bombers would not be able to penetrate Soviet airspace to deliver free fall nuclear bombs. As a result there was increased interest in using cruise missiles so that the B-52s could 'stand-off' from Soviet airspace and still achieve their missions. In this way, the B-52s could still deliver nuclear warheads onto Soviet targets, without needing to deeply penetrate Soviet airspace, thus forcing them to confront massive Soviet air defences. By the end of the 1970s, the result of an air launched cruise missile development programme was the AGM-86B Tomahawk Air Launched Cruise Missile (ALCM), to be carried on B-52s and B-1As.[5] The Tomahawk was also developed as a Ground Launched Cruise Missile (BGM-109G) and 572 of these were deployed in Europe throughout much of the 1980s until the 1987 INF Treaty saw them eliminated along with 108 Pershing II IRBMs.[6]

At the same time as strategic cruise missiles were being developed, a non-strategic 'tactical' version, the BGM-109 Tomahawk Land Attack Missile (TLAM), was also under development, and these weapons ultimately became known as Sea Launched Cruise Missiles (SLCMs – pronounced Slickems). It was the BGM-109 Tomahawk SLCM that was used throughout the 1991 Gulf War and in the recent actions in January and June 1993, and the BGM-109 would be the model Australia would consider were it to purchase cruise missiles in the future.

Malcolm R. Davis is currently undertaking a PhD in defence and strategic studies at Bond University in Queensland where he lectures in international relations and strategic studies. He holds a Master of Arts degree from the University of Lancaster (UK) and a Bachelor of Arts degree from Flinders (SA) University. His paper 'The Emerging Balance of Naval Power in Asia' was published in the July-September issue of The Navy

The BGM-109 Tomahawk comes in a variety of models. The BGM-109B Tactical Anti Ship Missile (TASM) is designed for use against enemy ships.* It has a 1000lb High Explosive warhead, and a range of 460km, flying at Mach 0.7. The TASM has the same active radar terminal seeker as used in the Harpoon antiship missile, as well as an inertial guidance system for use during the cruise phase. The missile can be deployed on both surface ships and submarines, with surface ships carrying the missiles in four round armoured box launchers, or in Vertical Launch Systems, while submarines can launch the weapons from Torpedo Tubes or Vertical Launch Tubes on later model Los Angeles Class SSNs.

Similar to the BGM-109B TASM is the Tomahawk Land Attack Missile. This comes in three versions. The BGM-109A Tomahawk Land Attack Missile – Nuclear (TLAM-N) has a range of 2590km, flying at Mach 0.7, and is equipped with a 200 kiloton (200,000 tonnes of TNT) nuclear warhead.* The BGM-109C Tomahawk Land Attack Missile (TLAM-C) has a range between 1600 and 2400km and has a 1000lb High Explosive warhead.[10] Finally the BGM-109D Tomahawk Land Attack Missile (TLAM-D) is designed to carry a submunition warhead to destroy area targets.[11] It has similar performance to the TASM and the TLAM-C. Other variants currently under development include TLAMs with a Fuel Air Explosive warhead, an Electromagnetic Pulse warhead (one of the new 'Non Lethal Weapons'), and a reconnaissance and electronic warfare package.[12]

All the various models of the Tomahawk use a unique guidance system known as Terrain Contour Matching (TERCOM), which essentially allows a computer in the missile to compare the terrain it is flying over with a digital map of the terrain along the pre-programmed flight path that is stored in the computer.[13] The missiles are also equipped with Digital Scene Matching (DSMAC) systems that allows the missiles to navigate at night.[14] It is these navigation

systems that allow the Tomahawk to have chilling accuracy.

"It is said that if a Tomahawk cruise missile were fired at the British Houses of Parliament from the Mediterranean Sea, it would be able to choose which window or door to fly through – it is that accurate".[1]

Improvements currently underway include the installation of Navstar Global Positioning System (GPS) receivers that will supplement TERCOM and as a result, the missile need no longer rely on flying along a pre-planned path.[2] The missile can instead fly over a variety of flight paths, and does not depend on geographic reference points matched against memory by an onboard computer. As a result, mission planners will have the added flexibility of launching a Tomahawk strike along a wide variety of trajectories, complicating the enemy's use of AAA and SAMs to intercept the Tomahawks. The upgrades will also include improved DSMAC for greater accuracy in the terminal stages of flight, as well as a 'time of arrival' control system to enable TLAMs to be more effectively coordinated with airstrikes by manned aircraft.[3]

Throughout the 1991 Gulf War, the US Navy launched a total of 291 Tomahawk TLAM-Cs and TLAM-Ds at high value Iraqi strategic targets which were too heavily defended for the Coalition to risk aircrew and aircraft.[4] There were 264 TLAM-Cs and 27 TLAM-Ds used, and out of the 291 fired, 279 were launched from surface vessels and 12 were launched from submarines.[5] Only 2 Tomahawks were shot down by the Iraqis, probably because they were flying along a predictable course, rather than approaching their target from indiscriminate directions as is normal procedure.[6] The success rate of the Tomahawk Cruise Missile (both C and D models) were 85%.

Tomahawks were used again on January 17th, 1993, during attacks on Baghdad in retaliation for Iraqi provocations at the closing stages of the Bush Administration.[7] 45 Tomahawk TLAM-Cs were launched at the Zaa'faraniyah Advanced Engineering Facility located near Baghdad, which was suspected of being a nuclear weapons research centre.[8] The weapons were launched from four US warships, the *Ticonderoga* class Cruiser USS Cowpens, and the *Spruance* class Destroyers USS Hewitt and USS Stump deployed in the Persian Gulf, as well as the *Spruance* class Destroyer USS Caron deployed in the Red Sea.[9] One Tomahawk TLAM-C malfunctioned and hit the Al Rashid Hotel, causing collateral damage. The Zaa'faraniyah Advanced Engineering Facility was destroyed.

BGM-109 Tomahawk TLAM-Cs were also used in the attack on the Iraqi Intelligence Service Headquarters launched on June 27th, 1993. 23 TLAM-Cs were launched, 16 of which scored direct hits on the target, 4 landed within the Iraqi Intelligence Service Compound and 3 unfortunately missed the target hitting a residential area and killing 6 people and wounding 12. The *Ticonderoga* class Cruiser, USS Chancellorsville, deployed in the Persian Gulf fired 9 TLAM-Cs, while the *Spruance* class Destroyer, USS Peterson, deployed in the Red Sea, fired 14 TLAM-Cs.

Therefore, the Tomahawk has established a proven combat record as a highly lethal and effective means of projecting military power at zero or minimum cost. Could such a weapon have a future in Australia's military operations? The Liberal Party Defence Policy, entitled "A Strong Australia – Rebuilding Australia's Defence", which was released in October 1992, states that:

"The second issue is the need to decide on whether to augment the (Collins class) submarines weapons systems. The 1987 Defence White Paper raised the possibility of equipping the submarines with a weapons system which would, in effect give it a stand-off strike capability in addition to their anti-shipping weapons. Such a weapon would add significantly to the deterrent posture advocated as part of this policy. The Coalition will reconsider this option, studying the possibility of equipping the Collins class submarines with weapons providing it with a deterring stand-off strike capability."[10]

By contrast the Government's Force Structure Review, released in 1991, provided no mention of a submarine based deterrent capability beyond the immediate tactical capability provided by the torpedoes and Harpoon anti-ship missiles. Instead, the Government focuses more on acquisition of stand-off missiles for the F-111C force. [11] Such missiles would probably be the AGM-84E SLAM (Standoff Land Attack Missile) that were used effectively during the Gulf War. The SLAM is a land attack derivative of the Harpoon anti-ship missile, and they could be launched from the P-3C orion, the F-111C Aardvark and the F/A-18A Hornet, with minimal modifications to the avionics of the aircraft.

In comparing the two options – submarine based Tomahawks vs aircraft based SLAMs – we can determine which provides the greater operational capability and the better cost effectiveness. Tomahawk has a longer range than SLAM – up to 2400km, versus the SLAM's range of 100km.[12] SLAM has an accuracy of around 16 metres, provided it is used with the Global Positioning Satellite System, while Tomahawk has an accuracy of around 20 metres. SLAM has a warhead of 500lbs yield – half of that of the 1000lb yield of Tomahawk. Furthermore, SLAM has no option to carry a submunition warhead, or for that matter any other type of warhead other than a normal high explosive one.

Each F/A-18A can carry 2 SLAMs, the P-3C can carry up to 6 SLAMs, while each F-111C can carry up to 4 SLAMs. While it is highly unlikely that the ADF would commit its total F/A-18A, P-3C and F-111C force to a retaliatory strike against an enemy, theoretically up to 290 SLAMs could be delivered against a wide variety of enemy targets, from a variety of directions given Australia's current inventory of P-3Cs, F/A 18As and F-111Cs. In comparison, the six Collins class submarines can fire only a maximum of 48 Tomahawks at any one time. They can reload, but in launching the weapons, the submarines risk betraying their position to enemy ASW units. Thus time for a reload and a second launch of Tomahawks would depend on to what extent the RAN had Sea Control in the operational area of the submarines.

While many more SLAMs can be launched than Tomahawks, the submarine based Tomahawk option has the advantage of stealth that SLAM lacks. The Tomahawks can be launched against targets from any direction so long as the submarine is within the 2400km range of the missile. SLAM on the other hand, must be launched within 100km of the target, and must be directed by the Weapons Systems Officer in the launching aircraft as it approaches the target.[13] As a result the delivery aircraft may have to penetrate enemy airspace, and loiter near the target until the missile strikes, thus dramatically increasing the vulnerability of the aircraft to enemy air defences, and reducing the element of surprise. The aircrew delivering the missiles are placed in danger – far more than the crew of a submarine that has a reasonable chance of evading enemy ASW units after launch. Once out of danger, the submarines can reload to fire further Tomahawk strikes.

Furthermore, in order to inflict unacceptable damage on an enemy using purely aircraft delivered weapons, a considerable portion of the F-111C force would have to be committed. It is pointless firing a small number of missiles if the aim is to deter an enemy from a course of action that conflicts with Australian interests. Deterrence is only credible if it inflicts unacceptable damage on the enemy, and a significant number of strikes would need to be launched to fulfil this requirement. By employing submarine launched Tomahawks, a large number of different targets could be struck simultaneously, and if necessary the F-111C force could be used to supplement the raid with smart weapons.

Ideally the Australian Government should acquire both SLAM and Tomahawk, to ensure the maximum possible deterrant capability against the enemy. A combined Tomahawk/SLAM strike could be carried out with Tomahawks attacking C^3I centres, air defence assets, airfields (using submunition warheads), and other strategic sites too heavily defended to commit manned aircraft to. In this way the Tomahawks would neutralise the air defences of the enemy, allowing F/A-18As and F-111Cs the greatest chance of penetrating enemy airspace to deliver a large number of SLAMs against a wide array of other targets. By utilising both weapons, Australia can maintain a highly credible deterrent capability against an enemy. Once an enemy's air defences are neutralised and Australia has Air Superiority, subsequent raids can be much more devastating and comprehensive. The use of a combined Tomahawk/SLAM strike to eliminate the enemy's air defence leaves the enemy open to sustained attack and increases the incentive for the enemy to seek a negotiated settlement.

In acquiring Tomahawk land attack missiles for deterrent purposes, the Australian Government could also acquire a small number of BGM-109B TASMs that would give the Collins class submarines long range naval punch against enemy shipping. The TASM has a range of 460km, which is considerably greater than the 160km range of the Harpoon missile that currently is deployed on RAN ships and submarines, as well as RAAF P-3C Orions, F-111Cs and F/A-18As. While the TASM is slightly slower than the Harpoon, and has a larger Radar Cross Section, making it more vulnerable to being detected and shot down, the ability of the submarines to attack enemy shipping well out of range of an enemy's ability to return fire, would give a huge tactical advantage to the RAN. The larger warhead of the TASM would allow it to be more effective against heavier vessels than is the case with Harpoon. Once again, if TASMs and Harpoons were used in coordinated attacks on an enemy task force, then a high probability of defeating the enemy threat would exist. By undertaking coordinated attacks in this way, valuable submarine assets would be placed in less danger of detection and subsequent destruction during the battle.

In conclusion, it appears obvious that if the Australian Defence Forces are serious about maintaining a deterrent capability against an enemy, then conventional standoff weapons such as the Tomahawk TLAM-C, Tomahawk TLAM-D, TASM and SLAM should be examined for future acquisition.

Acquiring such weapons would be relatively cheap (Tomahawks cost $1 million US per round) – much cheaper than risking the valuable lives of aircrew and expensive aircraft such as the F-111C – yet the capability of the weapons would dramatically boost the ability of the ADF to strike at an enemy throughout Australia's region of strategic interest. Certainly current platforms such as the F-111C, the P-3C, the Collins class submarines and the F/A-18A would have to undergo some modification in order to allow them to use the new weapons, driving the cost up somewhat, and the exact number of missiles to be acquired could only be determined by the nature of the enemy threat that they are likely to be employed against.

However the flexibility of the weapons means that they could be used strategically against the homeland of an enemy, or tactically, should an enemy seek to maintain a 'limited lodgement' on Australian territory. TASMs could give the RAN a much greater ability to counter enemy naval forces further away from Australian territory, and SLAM would dramatically improve the ability of the RAAF to deliver munitions with pinpoint accuracy, while reducing the risk to aircrew and aircraft. Therefore acquiring stand-off weapons such as Tomahawk, TASM and SLAM are a cost-effective means of ensuring the ADF can maintain a credible deterrent capability, and an offensive strike capability for decades to come.

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PRESERVING SACKVILLE

HALIFAX ▪ NOVA SCOTIA ▪ CANADA

Canada declared war on Germany on September 10, 1939. At the outbreak of war, Canada's navy consisted of just 13 seagoing vessels and 3,864 officers and men.

By 1944, following a massive mobilisation which far exceeded that of any other Allied navy, there were 378 warships and 95,705 servicemen. During the course of World War II, 110,000 men and women served in the Royal Canadian Navy, every one of them a volunteer.

The RCN is best remembered for its vital contribution to the winning of the Battle of the Atlantic: the convoy lifeline of essential supplies from North America to beleaguered Britain. Of all the ships used by the RCN, it is the Canadian-built corvettes, small, sturdy convoy escorts, which have come to symbolise the dedication and sacrifice of those who have served in Canada's navy.

The only surviving corvette, HMCS Sackville, named after the town of Sackville, New Brunswick, was built in Saint John. She has been carefully restored to her wartime configuration to serve as Canada's Naval Memorial.

From the earliest days of World War II, it was recognised that the supply convoys from North America to Britain would be crucial to the eventual outcome of the war. Threatening the convoys were U-boats – fast torpedo-armed submarines, almost impossible to combat.

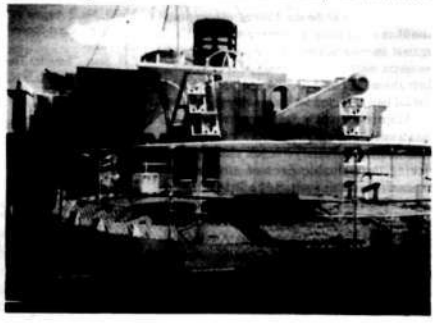
To protect the convoys, escort vessels were needed as quickly as possible. The solution was to build a class of small vessels known as "corvettes". Originally designed as coastal escorts, they were soon pressed into service as ocean-going escorts with unfortunate consequences for the ship's company. Corvettes fully deserved their reputation as one of the wettest and most uncomfortable warships afloat.

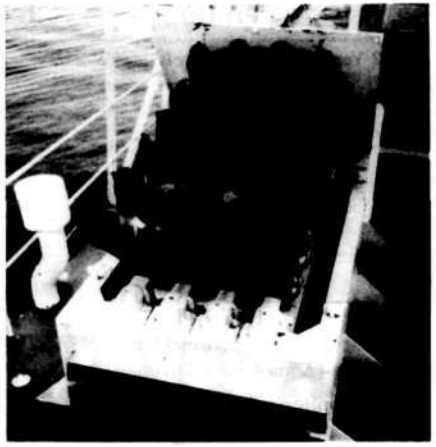
Because of their small size (205 feet), corvettes could be produced in most Canadian shipyards and a total of 111 were built in Canada for the RCN and 11 for the United States Navy.

In December 1982, after 40 years of service as a World War II warship and peacetime auxiliary vessel, HMCS Sackville was retired from the navy and transferred to the Canadian Naval Corvette Trust for restoration to her wartime configuration. Her restoration commenced with the removal of over forty tons of plate which had been added since the end of the war.

By 1985, the external reconfiguration had been completed and she was also declared Canada's Naval Memorial.

In January 1986, the Trust which owns the ship was restructured and renamed "The Canadian Naval Memorial Trust" with head office in Halifax. Since then, restoration work has continued through the efforts of volunteers and the contributions of donors.





CORVETTE SPECIFICATIONS (1944)

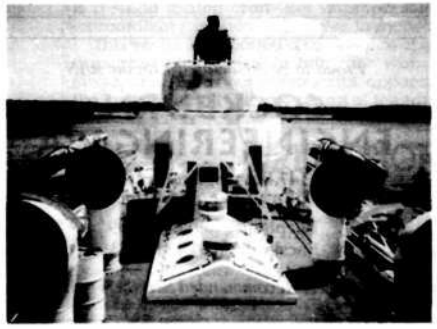
Displacement:	1,170 tons (full load)	
Dimensions:	length overall:	205 feet
	beam:	33 feet
	draught:	7 feet 9ins. fwd
		14 feet 10 ins. aft.

Armament:
1–MK IX 4 in. BL gun on CP1 mounting • 1 – MK VIII 2 pounder pom pom on an AA mounting • 2 – 20mm Oerlikons on AA mountings • 4 – Depth charge throwers • 2 – Depth charge stern rails • 1 – MK 3 Hedgehog

Machinery:
Single screw 4 cylinder vertical triple expansion engine, 2750 HP = 16 knots • 2 – cylindrical scotch boilers in SACKVILLE one has been removed)

Radar:	1 Type 271
	1 Type 291 (or SW2C)
Asdic:	1 Type 127D
Complement:	80 officers and men
Endurance:	4,000 miles at 12 knots

In 1990, HMCS Sackville opened to the public with her own wharf and Interpretation Centre on the Halifax waterfront, overlooking the harbour from which so many convoys sailed.



SRD vessel KRAIT

KRAIT ANNIVERSARY

by JOE STRACZEK

Lying peacefully among the vessels that commemorate Australia's maritime heritage at the Australian National Maritime Museum at Darling Harbour, Sydney is a small fishing craft. Her unprepossessing appearance belies her role in an extraordinary mission which was launched fifty years ago in September.

This vessel transported a small force of gallant raiders on a 4000 mile round trip through enemy waters to bring the war to the Japanese in their naval base at Singapore. It was her nondescript appearance that was crucial to the success of the operation and the safe return of the raiders.

OPERATION JAYWICK

In 1942 approval was given for the planning of a raid on Japanese shipping in Singapore Harbour. The operation was assigned to the Services Reconnaissance Department. The SRD was responsible for coordinating covert operations against the Japanese in the South West Pacific Area.

The plan worked out involved six men in two-man canoes entering the harbour and placing limpet mines against the hulls of merchant ships. The men and canoes would be transported to the Singapore areas by the KRAIT, a nondescript fishing fleet tender of 68 tons gross with a length of just over 70 feet. She had been captured from the Japanese by the RAN in December 1941. The code name allocated to this daring operation was JAYWICK.

After an abortive attempt early in 1943 KRAIT sailed on her mission from Exmouth Gulf on 2 September. The operation was under the command of Major I. Lyon, a British Army officer who had escaped from Singapore and was part originator of the idea for the raid. Under Major Lyons were five SRD operatives, four Navy and one Army. The ship was commanded by Lieutenant H. E. Carse RANVR and had a crew of seven.

As KRAIT proceeded north her crew darkened their skins to conceal their European origins from observers. She reached Lombok and Bali on 8 September and entered the Lombok Strait. KRAIT's passage of the strait was made difficult by adverse tides and currents, eventually taking 24 nerve wracking hours. The confined waters prevented any avoiding action to be taken if sighted by Japanese patrols. After reaching the Java Sea she sailed towards the southern coast of Borneo, keeping an especially keen lookout for other vessels. The more open waters of the Java Sea allowed the ship's company sufficient time to alter course away any vessels sighted to avoid detection.

On 12 September Borneo was sighted and KRAIT followed the south west coast around to the Karimata Archipelago. From there, on 14 September, she altered course to the east to cross the South China Sea to the Lingga Archipelago south of Singapore. The increasing volume of shipping meant that she could no longer take avoiding action and had to rely on her commonplace appearance as a local fishing vessel to avoid arousing Japanese suspicions. For some time she was surrounded by nine sailing craft following her course. In the event she was not challenged and reached the Temiang Strait in the Lingga Archipelago on 16 September, anchoring off Pompong Island on the night of the 16th and 17th.

The next day was spent searching for a secluded embarkation point for the canoes. A suitable place was found at 2am on the 18th at Panjang Island in the Riau Archipelago only 22 miles from Singapore, the lights of which could be seen on the horizon. The SRD raiders and their equipment were disembarked.

KRAIT then sailed for the south western Borneo coast where she was to cruise in this for a fortnight, filling in time and avoiding

detection until the rendezvous with the canoes. This was a most frustrating and dangerous time for those on board KRAIT with no news of the raiders and little to relieve the tedium and tension until she started to retrace her course to Pompong Island where she arrived on 2 October at 12.20am.

In the meantime, in the islands south of Singapore, the Major Lyon's party had spent the first two days of the intervening fortnight resting on Panjang Island. They then moved to Dongas Island where, at midnight on 22 September, an observation post was set up close enough to look into Keppel Harbour on Singapore Island.

A first attempt to attack on the night of the 24th and 25th was abandoned due to an adverse tidal current. On the night of the 25th they moved to a better observation post on Subar Island and at 7pm on 26 September the raiders in their three canoes set out for Singapore. Paddling quietly through the dark waters of the harbour they placed their mines on seven ships before making a successful withdrawal to Dongas Island. The first mine was heard to explode about 5.15am on 27 September. This was followed by a succession of further explosions.

From Dongas the operatives returned safely to Pompong Island where they successfully rendezvoused with the KRAIT. At 3am on 4 October she set sail from Temiang Strait for Borneo. Rounding the south west tip of the island on 7 October the small vessel set course for Lombok Strait which she approached at 4.30pm on the 11th. The crew again began feel mounting trepidation at the prospect of passing through these confined waters.

They had cause for their anxiety. At 11.30pm, as KRAIT was making her stealthy passage through Lombok, a Japanese patrol vessel loomed out of the night and closed her. For the next five nervewracking minutes KRAIT and her unwelcome companion continued on their way. The Japanese flag flown by the KRAIT and the type of vessel she was presumably convinced the Japanese that a challenge was unnecessary and the patrol vessel sheered off and steamed away, allowing KRAIT to complete the passage of the Strait without further incident. On 19 October she reached Exmouth Gulf and Operation Jaywick was successfully completed.

Of the seven ships mined in Singapore Harbour two, the HAKUSAN MARU (2197 tons) and the KIZAN MARU (5077 tons) were sunk. The five damaged vessels included the tanker SINKOKU MARU of 10000 tons. The total tonnage sunk or damaged was just under 40000 tons. This was a very good result for the commitment of a small ship and fourteen men, all of whom returned. This occurred at a time when the increasing success of the American submarine campaign and the losses incurred in the campaigns in the south west Pacific were starting to make the service of every merchant vessel critical to the Japanese war effort.

KRAITS's crew members and Operation Jaywick operatives

Despite all the work carried out on her machinery two attempts to sail her to Australia were foiled by engine failure and she was finally dispatched as deck cargo on a freighter. Upon her arrival more work was carried out on her engine at Garden Island.

Her engine was to cause the postponement of Operation JAYWICK, the code name for a raid on Japanese merchant shipping in Singapore Harbour by operatives in canoes and armed with limpet mines. The KRAIT, with her Japanese lines, was to be used to transport the raiding force through Japanese waters to the Lingga and Riau Archipelagos whence the raid was to be launched. In early 1942, when en route to Northern Australia from Victoria to take part in the operation her engine broke down beyond repair off Townsville and she was towed to Cairns. There she was laid up until a new engine was brought up and fitted. She departed Cairns on 9 August for Exmouth Gulf, arriving on 28 August and embarking the men, canoes and limpet mines for Operation JAYWICK.

She departed on the operation at 5.30 on 1 September 1942. At 5.31 her propeller shaft extension piece broke, repairs delaying her departure until the next day. She reached the Lingga Archipelago on 16 September, disembarked the raiding party and then proceeded to the south west coast of Borneo, returning to the Linggas to pick up the raiders on 2 October. They had successfully penetrated Singapore Harbour and sunk two and damaged five Japanese merchant vessels on the night of 26–27 September.

The KRAIT returned to Exmouth Gulf on 19 October after a voyage of 4000 miles lasting 48 days, 33 of which were spent in Japanese waters. In course of her journey she had mixed with enemy merchant vessels and, on her return through Lombok Strait, had been closely inspected by a Japanese patrol vessel. Her Japanese ensign and appearance had apparently been enough to carry her through.

After Operation JAYWICK she moved to Darwin where she was to be based for the remainder of hostilities, arriving on 6 November 1943. On 5 April 1944 she was commissioned into the RAN as one of the 'Snake' vessels of the Services Reconnaissance Department (SRD), responsible for covert operations. As such she was involved in a number of voyages in support of the SRD, including Operation HORNET, the establishment of a base on Cassini Island off North Western Australia to which she made a number of subsequent voyages. She was part of the naval force present at the Japanese surrender at Ambon on 22 September 1945.

She was paid off at Labuan on 12 December 1945 and transferred to the control of the British Borneo Civil Administration Unit. She later passed into private service as a timber carrier in British North Borneo. In 1963 an appeal was opened in Australia to purchase her and return her to Australia where she arrived in March 1964. After refitting she was used by the Royal Volunteer Coastal Patrol based on Pittwater. In 1985 ownership passed to the Australian War Memorial. She is currently based at the National Maritime Museum in Sydney.

PERSONNEL INVOLVED IN OPERATION JAYWICK

OPERATIVES	
Major I. Lyon	UK
Lieutenant D.M.N. Davidson RNVR	UK
Lieutenant R.C. Page AIF	of Potts Point, b Sydney
Able Seaman W.G. Falls	b Aberdeen, Scotland
Able Seaman A.W. Jones	of Perth, b Guildford WA
Able Seaman A.W.G. Huston	of Brisbane, b Brisbane
SHIP'S COMPANY	
Lieutenant H.E. Carse RANVR	of Sydney, b Ruthergien VIC
Leading Stoker J.P. McDowell	b Belfast, Ireland
Leading Telegraphist H.S. Young	of Sydney, b WA
Leading Seaman K.P. Kain	of Brisbane, b Brisbane
Able Seaman M.Berryman	of Adelaide, b Adelaide
Able Seaman F.W.L. Marsh	b Brisbane
Sergeant R.G. Morris RAMC	of Wales
Sergeant R.R. Crilly	of West Ipswich, Qld. b Fauldhouse, Scotland

SHORE ESTABLISHMENTS OF THE ROYAL NAVY

by **Lieutenant Commander Ben Warlow, Royal Navy**
Published by ***Maritime Books, Lodge Hill, Liskeard, Cornwall PL14 4EL, United Kingdom***
Reviewed by **ROSS GILLETT**

This very interesting book is a professionally produced dictionary of all the shore establishments of "stone frigates" of the Royal and Commonwealth Navies.

Spanning from the early 19th century, the book lists more than 2,700 entries. If a shore base, each is described via name, location, role, commissioning date and fate. Ships deployed as depot or accommodation vessels are summarised via name, year built, where constructed, original ship type, if transferred (to RAN), periods of service, renamings and final fate. Supporting this data are a list of abbreviations and preface.

A final section of the book, titled "The Gazette" lists the locations alphabetically and aboard by country. For Australia, this means 21 locations have been identified for 85 establishments or units (including Royal Navy/British Pacific Fleet) detailed. Heard of NABSTOCK in Maryborough, the repair camp ALERT in Sydney and the convict hulk ANSON in Hobart? These and many other unusual entries make the book a valued acquisition.

Shore Establishments of the Royal Navy is highly recommended to readers as a useful addition to the maritime library.

☆ ☆ ☆

THE LOST SHIPS OF GUADALCANAL

by **Robert D. Ballard**
with **Rick Archbold**
Published by **Allen and Unwin**
Reviewed by **ROSS GILLETT**

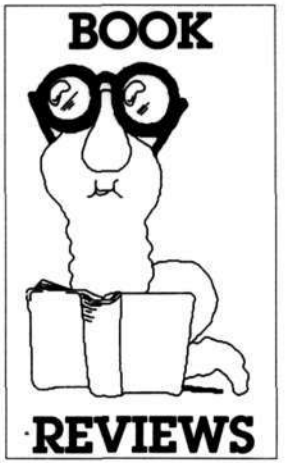
After presenting the long lost images of the TITANIC and BISMARCK to the maritime enthusiasts during the past decade, author and ocean explorer Robert Ballard has now searched the seabeds of the South Pacific to discover the "Lost Ships of Guadalcanal".

Not only are the famous Allied men-o-war, like USS QUINCY and HMAS CANBERRA described and illustrated, but the Imperial Japanese Navy's battleship KIRISHIMA and numerous destroyers from both sides. Wrecks on Iron Bottom Sound include four cruisers, seven destroyers and the battleship.

For Australian readers, the County class heavy cruiser HMAS CANBERRA is depicted via colour underwater photographs, illustrating various sections of the now 65 year old ship. A double page artist impression of the ship is also featured, lying upright on the sea floor. Still recognisable are the four twin 8 inch turrets, the aircraft catapult, boat davits, port torpedo tubes and most of the upper works.

The Lost Ships of Guadalcanal is a professionally produced book, covering the entire campaign story, via contemporary and current day photographs. The artists impressions of the sunken ships by Ken Marshall deserve special mention. Overall the book contains 400 illustrations, including 200 in colour.

One can only hope that the author continues his searches for other famous ships and important sea battles. Costing $49.95, The Lost Ships of Guadalcanal is recommended to all readers.



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CONVOY PROTECTION

The Defence of Seaborne Trade
by **Paul Kemp**
Reviewed by **VIC JEFFERY**

Published by Arms and Armour Press, London and distributed in Australia by Capricorn Link (Australia) Pty Ltd of Lane Cove, NSW. 124pp, RRP $39.95.

In September, 1968 the NATO powers carried out a most important exercise code named "Silver Tower". It was a massive post-war Atlantic convoy with more than 100 ships participating.

For centuries trading nations have found the maintenance of mercantile trade during wartime – let alone the transportation of troops – a deeply taxing problem resulting in the defensive strategy of convoy.

Leading British naval historian Paul Kemp in this well researched reference book looks a the application of the convoy strategy in the 20th century.

Focusing upon two examples – of Britain and the U-boats in World War One, and the US submarine campaign against the Japanese in World War Two – Kemp shows how the adoption of the convoy defeated the U-boat threat in 1917, while pointing to the US Navy's Pacific campaign utterly destroyed Japan when the convoy system was not properly put into action.

Looking beyond the statistics of tonnage built and sunk, the author examines the methods of convoy protection and attack, offering answers to the important question of how the convoy came to be forgotten; the reasons for its return to favour; and how its adoption worked for Britain yet failed to prevent defeat for the Japanese.

Supported by 96 black and white photographs and a number of tables, "Convoy Protection" is interesting reading.

☆ ☆ ☆

Conway's History of the Ship STEAM, STEEL AND SHELLFIRE

The Warship 1840-1905
Editor: **ANDREW LAMBERT**

After three hundred years of dependence upon the broadside-armed sailing man-of-war, the world's battlefleets were to change out of all recognition in the span of a single lifetime. Between 1840 and 1905, sail was replaced by steam,wooden hull construction with iron and then steel, and the shell-firing gun encouraged the adoption of armour plate. As the pace of technology accelerated, entirely new underwater weapons in the form of the mine, torpedo and the submarine evolved to threaten the traditional pre-eminence of the surface warship.

Earlier historians felt that navies were slow to respond to these technical changes, but with the benefit of much recent research this volume reveals the old view to be untenable. The interaction of politics, economics and technology needs to be considered in any coherent history of naval development and for the first time *Steel, Steam and Shellfire* offer the general reader a proper understanding of this neglected, misunderstood but fascinating period.

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WATERMEN OF WAR

by **Colonel John Pearn**

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Reviewed by **BRIAN ALSOP**

At its peak in early 1945, the Australian Army Transportation Service (Royal Australian Engineers) operated over 1,900 watercraft ranging in size from dinghies and launches to 300 tonne cargo vessels. Landing craft of six types were numerically the largest group among the various types of vessels employed, with 836 in service as of 1st July 1944.

These vessels, operated by Water Transport Companies and Small Ship Companies, were the lifeline to Australian and American troops fighting the Japanese in coastal Papua New Guinea and the Islands and provided the mobility essential for amphibious assaults against enemy held areas. Watermen of War recounts the story of one such unit – 43rd Water Transport Operating Company (Landing Craft) – from its raising on 1st December 1943 at Coochiemudlo Island in Moreton Bay, Queensland, its move to active service in New Guinea, to the completion of its task in February 1946.

Formed in a most unusual way, most of the unit's initial personnel came from two groups of highly trained troops from two prestigious units. Sixty men and their officers (including the first Officer Commanding – Major G.D. Mitchell, MC, DCM) came from the 3rd Australian Corps Guerilla Warfare Unit. They were joined by virtually the entire NCO compliment of the 25th (Light Horse) Machine Gun Regiment and soldiers of C Squadron of the 2/8th Armoured Regiment. Officers from the new unit selected other personnel at various Army camps they visited in New South Wales and Queensland. With the exception of former Guerilla Warfare Unit members, very few of the new unit's members had any skill or knowledge of watercraft. They were however, mostly young, resourceful and self-reliant men who learnt quickly in the short fifteen weeks of training they received prior to their deployment to New Guinea and active service. Among the unit's members were a number who would distinguish themselves in post-war Australia, including Corporal Ninian Stephen, Captain Nigel Bowen and Captain Frank Packer. On active service, work for the unit was often intense with continuous shifts at times of up to 72 hours under difficult and dangerous conditions.

The 43rd Landing Craft Company had a difficult job to do and did it well. Without the largely unrecognised job done by water transport units of this type, the Allied armed forces (navy, army and air force) in New Guinea and the Islands during World War Two would have faced a much more difficult task simply to survive.

Very few books have been published about the operation of Army Water Transport during the Second World War. Although it deals with the operations of only one unit, this is one of the best of those books. Highly recommended.

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