Wormald Advanced Systems Engineering brings together over 20 years of Wormald experience in the specification, design, implementation, manufacture and installation of electronic and computerised systems; experience earned in the rapidly changing world of high technology.

With extensive national and world-wide resources, ASE's ability places it proudly as a leader in Australian systems engineering.
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. The League was formed and is a national organisation, independently of any other political or nationalistic group. As a result, its members have been left free to express their own views on republicanism or national flags.

 Merchant Shipping

The Navy League of Australia

Dear Sir,

With great interest I read the article "A strong Australia" which appeared in the January-March 1993 issue of the Navy, written by Mr. Alistair MacPherson. Mr. MacPherson states, "Our Naval Force must have a blue-water capability to patrol our exclusive Economic Zone and to reach beyond it."

In reviewing the resources available for this responsibility, the construction of the Collins Class submarines and the commencement of the construction of the Collins Class submarines may be seen as essential steps in the replacement of an ageing Fleet but frankly that is what the current 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 placing out of existing ships.

Merchant Shipping

Yours faithfully,

John Winton

Dear Sir,

With reference to your article by Tom Lewis on John Winton and his book that Navy League Members can be kept abreast of developments in the rapidly changing Australian Defence Force, not least in the

John Winton

Dear Sir,

With reference to the article by Tom Lewis on John Winton and his book that Navy League Members can be kept abreast of developments in the rapidly changing Australian Defence Force, not least in the

John Winton

Dear Sir,

With reference to the article by Tom Lewis on John Winton and his book that Navy League Members can be kept abreast of developments in the rapidly changing Australian Defence Force, not least in the

John Winton

Dear Sir,

With reference to your article by Tom Lewis on John Winton and his book that Navy League Members can be kept abreast of developments in the rapidly changing Australian Defence Force, not least in the
The Emerging Balance of Naval Power in Asia

Malcolm R. Davis

Photographs - Brian Morrison

Indonesian flag

Cables

Manufacturers and Distributors of a Full Range of:
- Energy
- Mining
- Communications
- Data Cables
- Bare and Insulated Aerial Conductors and Leads

Telephone: (02) 600 0888

1 HEATHCOTE ROAD LIVERPOOL, NSW, 2170

Facsimile: (02) 600 0966

BRANCHES THROUGHOUT AUSTRALIA TOTAL CABLE SERVICE

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. For living in a post-Cold War world of peace and cooperation, the International System is best described as fluid and regional instability. Australia's region of primary strategic interest - namely Eastern Asia - is immune from the instability of the Post Cold War Era. Continuing tension on the Korean Peninsula, claims to the Spratly and Senkaku 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 fear 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 to 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 (440 class) Diesel Electric Submarines (SSK), able to carry fourteen 533mm torpedoes each in forward tubes.
- Indonesia seeks to expand its submarine force to four or five boats, but 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 projection capability within the region. In terms of surface combatants, Indonesia's Navy deploys thirty frigates including six Van Speijt class FFGs that are equipped with Harpoon anti-ship missiles, three Van Speijt class FFGs equipped with Exocet anti-ship missiles, and seven two Van Speijt class FFGs. Indonesia is also purchasing thirty-seven warships from the former East Germany, including sixteen Parchim class corvettes, twelve Frikas and two Frikas II amphibious vessels and ten Donau 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 40 x 21 Multi Rocket Launchers designed for shore bombardment. Finally, Indonesia is also building an additional two fast patrol boats.

In contrast, 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 against 12,000 men in three lifts, while 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 10 Harkore AEW aircraft means that Indonesia is seeking to have a significant power projection capability in Southeast Asia by the end of the decade.

The Navy, July-September, 1993
order to maintain regional stability and counter potential threats from outside the ASEAN region.

The most significant purchase for the Royal Malaysian Navy has been the FFG 179 equipped with the Vertical Launch SeaSparrow surface-to-air missile 

The FFG 179 will be built in the UK, and will be equipped with an upgraded data link system, an advanced fire control system, and a new sensor suite that will allow it to operate at higher levels of automation. The first ship will enter service by 2018. In addition, Malaysia plans to acquire eight Royal Submarine Patrol vessels (RSPV) as well as three submarines. The RSPVs will be equipped with the British-built Brunel 2000, a high-speed patrol vessel designed for short-range interdiction missions.

The three submarines will be built in the UK as well, and will be equipped with the Spearfish anti-submarine warfare system. They will be armed with Harpoon anti-ship missiles and will be capable of carrying out a wide range of missions, including anti-submarine warfare, anti-ship warfare, and intelligence gathering.

The FFG 179 has been chosen as the baseline platform for the Royal Malaysian Navy's new frigate programme, with a focus on achieving high levels of interoperability with other navies in the region. The new frigates will be equipped with a new-generation combat management system and a suite of advanced sensors, including an optical and infrared search and tracking system, and will be capable of operating in a wide range of environments.

The Royal Thai Navy is also seeking to acquire a new class of frigate, with a focus on increasing its capabilities in anti-submarine warfare and anti-ship warfare. The new frigates will be equipped with a range of advanced systems, including a new-generation combat management system, an improved air surveillance radar, and a suite of advanced anti-submarine warfare systems.

Singapore's new frigate programme is focused on acquiring vessels that can operate in shallow waters, with a focus on increasing its capabilities in anti-ship warfare and anti-submarine warfare. The new frigates will be equipped with a range of advanced systems, including a new-generation combat management system, an improved air surveillance radar, and a suite of advanced anti-submarine warfare systems.

The Royal Singapore Navy is also seeking to acquire new frigates, with a focus on increasing its capabilities in anti-ship warfare and anti-submarine warfare. The new frigates will be equipped with a range of advanced systems, including a new-generation combat management system, an improved air surveillance radar, and a suite of advanced anti-submarine warfare systems.

The Royal Thailand Navy is also seeking to acquire new frigates, with a focus on increasing its capabilities in anti-ship warfare and anti-submarine warfare. The new frigates will be equipped with a range of advanced systems, including a new-generation combat management system, an improved air surveillance radar, and a suite of advanced anti-submarine warfare systems.

The Royal Malaysia Navy is also seeking to acquire new frigates, with a focus on increasing its capabilities in anti-ship warfare and anti-submarine warfare. The new frigates will be equipped with a range of advanced systems, including a new-generation combat management system, an improved air surveillance radar, and a suite of advanced anti-submarine warfare systems.

The Royal Philippines Navy is also seeking to acquire new frigates, with a focus on increasing its capabilities in anti-ship warfare and anti-submarine warfare. The new frigates will be equipped with a range of advanced systems, including a new-generation combat management system, an improved air surveillance radar, and a suite of advanced anti-submarine warfare systems.

The Royal Indonesia Navy is also seeking to acquire new frigates, with a focus on increasing its capabilities in anti-ship warfare and anti-submarine warfare. The new frigates will be equipped with a range of advanced systems, including a new-generation combat management system, an improved air surveillance radar, and a suite of advanced anti-submarine warfare systems.

The Royal Vietnam Navy is also seeking to acquire new frigates, with a focus on increasing its capabilities in anti-ship warfare and anti-submarine warfare. The new frigates will be equipped with a range of advanced systems, including a new-generation combat management system, an improved air surveillance radar, and a suite of advanced anti-submarine warfare systems.

The Royal Singapore Navy is also seeking to acquire new frigates, with a focus on increasing its capabilities in anti-ship warfare and anti-submarine warfare. The new frigates will be equipped with a range of advanced systems, including a new-generation combat management system, an improved air surveillance radar, and a suite of advanced anti-submarine warfare systems.

The Royal Thailand Navy is also seeking to acquire new frigates, with a focus on increasing its capabilities in anti-ship warfare and anti-submarine warfare. The new frigates will be equipped with a range of advanced systems, including a new-generation combat management system, an improved air surveillance radar, and a suite of advanced anti-submarine warfare systems.

The Royal Malaysia Navy is also seeking to acquire new frigates, with a focus on increasing its capabilities in anti-ship warfare and anti-submarine warfare. The new frigates will be equipped with a range of advanced systems, including a new-generation combat management system, an improved air surveillance radar, and a suite of advanced anti-submarine warfare systems.

The Royal Philippines Navy is also seeking to acquire new frigates, with a focus on increasing its capabilities in anti-ship warfare and anti-submarine warfare. The new frigates will be equipped with a range of advanced systems, including a new-generation combat management system, an improved air surveillance radar, and a suite of advanced anti-submarine warfare systems.

The Royal Indonesia Navy is also seeking to acquire new frigates, with a focus on increasing its capabilities in anti-ship warfare and anti-submarine warfare. The new frigates will be equipped with a range of advanced systems, including a new-generation combat management system, an improved air surveillance radar, and a suite of advanced anti-submarine warfare systems.

The Royal Vietnam Navy is also seeking to acquire new frigates, with a focus on increasing its capabilities in anti-ship warfare and anti-submarine warfare. The new frigates will be equipped with a range of advanced systems, including a new-generation combat management system, an improved air surveillance radar, and a suite of advanced anti-submarine warfare systems.
NAVAL POWER IN ASIA

China, Japan and India. All three are currently engaged in modernisation and expansion of their Armed Forces, with an emphasis on gaining a blue water Navy. A key focus is the development of a balanced blue water fleet capable of maritime power projection into the Indian Ocean, the South China Sea and the Bay of Bengal. The objective is to have four ships of the JS Ariake class at sea each year by the end of the decade.

Japan's naval forces and maritime air forces play a role in securing Japan's economic growth and prosperity. In both 2004 and 2005, Japan's defence budget was the third largest in the world, second only to the US and China. Japan's navy has been modernised to meet the challenges of the 21st century, with a focus on network-centric warfare and the development of a blue water fleet capable of projecting power into areas of strategic interest.

China, on the other hand, is facing a major arms build-up, with the development of a new-generation of naval vessels. The Chinese navy has been modernised to meet the challenges of the 21st century, with a focus on network-centric warfare and the development of a blue water fleet capable of projecting power into areas of strategic interest.

India, like China, also has a significant navy, with a focus on network-centric warfare and the development of a blue water fleet capable of projecting power into areas of strategic interest.

In summary, the nations of Asia are rapidly modernising their navies and maritime air forces, with a focus on network-centric warfare and the development of a blue water fleet capable of projecting power into areas of strategic interest.

For further information contact: MR STUART COLMAN
Telephone: (08) 266 0666 Facsimile: (08) 266 0667
NAVAL NEWS

Fourth DDG Purchased

New RAN Monopropellor Torpedo Vessel commissioned in March 1993.

The boat participated in a mine warfare exercise iny.-Field north of Sydney.

HMCS TOBRUK Returns From Somalia

The Royal Australian Navy's heavy landing ship HMCS TOBRUK returned to Sydney on Monday 29 June.

The 4000-tonne ship returned from deployment in Somalia as part of the Navy's supporting role in Operation Restore Hope.

Commanded by Commander Kevin Taylor RAN, HMCS TOBRUK is retained by 340 officers and men, including a small contingent of Special Forces personnel to support the three DOGSHMA ships to the III.

The purchase will mean significant savings in terms of training, and equipment and spares so battle, the Minister said. "The purchase was made solely for

BELL BUOY II (RAN) equipment, along with DDG's worth $40 million cost $43 million.

However, there are other items also the guided missile launchers, turrets, short launchers, torpedo tubes, and guns which will support the conduct of technical training for the RAN in Australia.

The Minister explained that the Navy is continuing to bring Australian training which 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 in the United States. The establishment of training facilities at home makes us more self-sufficient and, as the Submarine training facility at HMAS STIRLING," he said. The establishment of training for the KAN in Australia "has been undertaken overseas. "This represented significant training will support the conduct of technical training for the RAN in Australia.

A new system of training facilities has been amortised, represents significant savings in terms of cost of sending people overseas to attend courses while HMAS MOHARI is commanded by Captain Andrew Cooperative training in the KAN has been undertaken overseas. "This represented significant savings in terms of cost of sending people overseas to attend courses..." he said. The establishment of training facilities in Australia has been undertaken overseas. "This represented significant savings in terms of cost of sending people overseas to attend courses while HMAS MOHARI is commanded by Captain Andrew Cooperative training in the KAN has been undertaken overseas. "This represented significant savings in terms of cost of sending people overseas to attend courses while HMAS MOHARI is commanded by Captain Andrew Cooperative training in the KAN has been undertaken overseas. "This represented significant savings in terms of cost of sending people overseas to attend courses while HMAS MOHARI is commanded by Captain Andrew Cooperative training in the KAN has been undertaken overseas.

HMAS Canberra - Eleven Countries in Eleven Months

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

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

During the exercise CANBERRA acquired itself 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 in Australia's contribution to the Multinational Interception Force operating in the North Red Sea.

After a seaplane training program conducted on the way to Western Australia, CANBERRA entered the Indian Ocean area on the 10th of October. It was then that the ship's home port was set and recorded by a Global Positioning Satellite accurate to within 10 feet, within a small tolerance.

The aircraft on board were a fleet of high performance aircraft, including a Sea Shadow, which was being commercially developed by the Israel Aircraft Industry. A laser pod was installed on the aircraft and its precise location is recorded by a Global Positioning Satellite accurate to within 10 feet, within a small tolerance.

The aircraft included an F-117 Nighthawk, which is being commercially developed by the Israel Aircraft Industry. A laser pod was installed on the aircraft and its precise location is recorded by a Global Positioning Satellite accurate to within 10 feet, within a small tolerance.

In Australia, more than 200 RAN Reservists participated in the largest group of exercisers in Australia in that seven months of CANBERRA's deployment in the Pacific and Indian Oceans, the Multinational Interception Force was established in the North Red Sea.

During the exercise CANBERRA acquitted himself 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 in Australia's contribution to the Multinational Interception Force operating in the North Red Sea.

During the exercise CANBERRA acquitted himself 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 in Australia's contribution to the Multinational Interception Force operating in the North Red Sea.

During the exercise CANBERRA acquitted himself 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 in Australia's contribution to the Multinational Interception Force operating in the North Red Sea.
TORPEDO REMAINS RECOVERED

Navy divers are searching for the unexploded torpedoes they discovered during the quiet, 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 the Imperial Japanese Navy transport SISSEI 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 wreck area.

US AIRCRAFT CARRIER VISITS AUSTRALIA

The aircraft carrier USS INDEPENDENCE sailed into Australia's northern waters in May for a six-week 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 air operations for US Navy aircraft.

Over 1000 RAN personnel were involved in the exercise, designed to enhance US-Australia inter-operability.

Air operations were conducted in Top End airspace, involving Delawares Air Weather 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 commence air operations in the vicinity of Darwin.

FAIR Horizons, AB intruders and EA-6B Prowlers from the US Navy's carrier based Air Wing 5 operated at various times from RAN Darwin throughout the exercise.

US and RAN vessels participating included the supply ship USS SANSJOE, cruiser USS M V S BATA, frigate USS ANDREW HIGGINS and guided missile frigate USS THACH. The RAN's guided missile destroyer HMAS HOBART, guided missile frigate HMAS MELBOURNE and destroyer escort HMAS SWAN and HMAS TORRENDS joined the carrier battle group.

KAKADU ONE

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 Wallis AO RAN, said it was the first time such an exercise had focused on regional cooperation instead of the specific defense 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 compatibility of equipment will permit.

Apart from good training in damage control and communication procedures and interaction between air, surface and submarine assets, the event 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 HMAS 748 electronic warfare aircraft and Sea King helicopters, the Royal Australian Air Force's C-130J Hercules, P3 Orion Maritime Patrol Aircraft and S-80 Strike aircraft of the Royal New Zealand Air Force Number 2 Squadron and Northrop F-5 aircraft of the Republic of Singapore Air Force number 44 Squadron.

The Royal Australian Artillery 111 Air Defence Battery was based at HMAS SWAN at Perth and RRS 36 mines and clearance divers of the Royal Australian Navy and the Royal Malaysian Navy.

In addition to the participants, the RAN provided diving support of an 'exercise area', 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 3000 additional personnel in the Darwin area was provided by HMAS GUANA AIRS. (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.

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 further phase of Kakadu One, a special mention must be given to the men of HMAS OTWAY LEF DR, last April RANs 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, he said.

I see it as growing into 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 Thai Navy's Training Ship HIMS MAKUT RAPISMAI, which arrived in Darwin for the first time since 1980.

On berthing in Darwin, the 113 midshipmen undertaking their basic training embarked, were welcomed 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 aboard a fishing trawler some 25 miles north of Darwin.

Sea King from 817 squadron, commanded by LCDR Tim Nicholls RAN, put his crew's training into practice by rescuing 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.

KAKADU ONE

By CMDR Tim Bloomfield

The NSW Egg Producers Co-Operative

Suppliers of:

Eggbert Eggs
The Original Good Egg and Egg Products

GRANTHAM FARM
71 SEVEN HILLS RD (SOUTH)
SEVEN HILLS, NSW 2147

For Orders:
Telephone: (02) 831 8299
Fax: (02) 671 5257

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.

UNIQUE LAUNCHING OF 'RAN WARRIOR'

Commander Defence Force Australia, Rear Admiral W S Blayney, RN, yesterday launched the Royal Australian Navy's new guided missile frigate HMAS WARRIOR.

The ceremony was held in the presence of the Minister for Defence, the Hon. Dr. John Kerin, MP, at the launch ceremony in Fremantle.

The launching ceremony is one of a series of events held by the Defence Force to celebrate the 100th anniversary of the Royal Australian Naval Forces.

The new frigate is the first of a new class of guided missile frigates and will replace the 27-year-old HMAS WARRIOR, which was decommissioned in 1993.
On disembarkation we travelled to one other warship reaching Inkoniali and after a period of training in Australia I went in the most interesting turn we spent going to India and the trip travelling to Sydney I went to the train started between Milsons Point and steam, and was put into service a technical modification between Palestine and India served in Egypt and the Middle East before the surrender.

There were no workshops available until World War II, when the ship's crew was reduced and the ship was put into service. The superstructure, including the forecastle, was removed, and the forward deck became a mess deck for the ship's crew. The ship's power supply was provided by a three-phase 415 volt alternator driven by a Peckham & Meylan compound steam engine. Although it was supposed to repair only army vessels, it was also used to repair merchant vessels.

The ship carried the bridge, offices, quartermaster's quarters, the sick bay, and the supply room. The crew was housed below decks in two rows of bunks, and the ship was equipped with a single deck vessel with up to a dozen vessels, including one tugboat, four carpentry and carpentry equipment was installed.

The Kalang sailed home on the 27th of August 1944, reaching Sydney Harbour after a short voyage. The ship was put into service a technical modification between Palestine and India served in Egypt and the Middle East before the surrender.

The ship's power supply was provided by a three-phase 415 volt alternator driven by a Peckham & Meylan compound steam engine. Although it was supposed to repair only army vessels, it was also used to repair merchant vessels. The ship carried the bridge, offices, quartermaster's quarters, the sick bay, and the supply room. The crew was housed below decks in two rows of bunks, and the ship was equipped with a single deck vessel with up to a dozen vessels, including one tugboat, four carpentry and carpentry equipment was installed.

The ship's power supply was provided by a three-phase 415 volt alternator driven by a Peckham & Meylan compound steam engine. Although it was supposed to repair only army vessels, it was also used to repair merchant vessels. The ship carried the bridge, offices, quartermaster's quarters, the sick bay, and the supply room. The crew was housed below decks in two rows of bunks, and the ship was equipped with a single deck vessel with up to a dozen vessels, including one tugboat, four carpentry and carpentry equipment was installed.

The ship's power supply was provided by a three-phase 415 volt alternator driven by a Peckham & Meylan compound steam engine. Although it was supposed to repair only army vessels, it was also used to repair merchant vessels. The ship carried the bridge, offices, quartermaster's quarters, the sick bay, and the supply room. The crew was housed below decks in two rows of bunks, and the ship was equipped with a single deck vessel with up to a dozen vessels, including one tugboat, four carpentry and carpentry equipment was installed.
KALANG AV 97


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 air cruiser H.M.S.Prince.

Four years before I had sailed from Sydney Harbour on the Queen Mary which was a great thrill to be entering Sydney Harbour lining the flyde dock of the aircraft carrier dressed ship 450,000 tonnage with guns personnel with every ship in the Harbour sending their horns and whistles. A scene never to be forgotten.

Although the war was over for Kalang, her long life was not over. She was retained to her former pre-war glory at a showroom and renamed "Sydney Queen" capturing the Harbour at all her splendour. Also 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. Sold and sold a number of times until she eventually became part of overseas interests. Those of us who have served at sea are aware that ships have souls and certainly a mind of their own. As Kalang proved, she was being looked upon as an overseas port. Kalang broke away from her tug and beached herself in South West Rocks near Kempsey. NSW. When the crew efforts to refit her failed she broke up in heavy seas, although not entirely. Her skeleton is still visible. A soul, she is, for in true Australian style she ended her days in the sun.

I have based this article from my own experiences and it is a report after you.

Ansett Australia recognises the important contribution made by Australia's servicemen and women. Not just in Australia, but all round the world.

As the official carrier for all Australian Defence Force personnel, we urge our way of helping you. For private travel as well as official travel. The Defence Force Travel Club can organise your trip, provide holiday advice and offer the best possible prices. And not just for you, but also for your family. For bookings and holiday information, call our special Defence Force Liaison consultant on 13 1231. You know we're on your side.

Ansett Australia.
One of the world's great airlines.

By A.W. Graeme Brook

A VISIT TO THE FRENCH NAVY

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 hype, 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 Trinquier, 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 separate support elements.

The Force d'Action Navale is the French Navy's main air and surface striking force and includes the amphibious force. The two CTOL aircraft carriers Foudre and Clemenceau and the amphibious warfare ships Foudre, Orage and Orléran are the centrepiece of the French Pacific Fleet. In this fleet, the Atlantique II class nuclear-powered attack submarines and three French carriers were replaced by four modern anti-submarine frigates. (George Leguix.

class of recent Force d'Action Navale. Aircraft support is provided by two Durance class underway replenishment tankers, each with a typical load of 15 tons of stores. A tanker landing ship is also available.

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. After this decade, the carrier force is supported by six naval air stations, including one for the super carrier. The main naval air station, Toulon, will be a major naval air station, the Mediterranean submarine Flotilla, the Mediterranean Flotilla, and the Mediterranean submarine Flotilla.

The five French nuclear powered ballistic missile submarines, are based on the French Atlantic coast. Some years ago, the French Navy ceased building diesel submarines, and there are no plans to resume this.

The five French nuclear powered ballistic missile submarines are based on the French Atlantic coast. The first three replacement boats are now under construction. The programme is far from complete, but it is evident that the French Government plans to build a new series of submarines.

The Light Flotilla includes seven small nuclear submarines. These submarines are based on the French Indian Ocean. The French government has announced its intention to build a new generation of submarines. The programme is far from complete, but it is evident that the French Government plans to build a new series of submarines.
NAVAL MATTERS

The frigates under construction demonstrate French commitment to maintaining strength in this class of ship. The first of six, the 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 Floréal class patrol frigates are already in service. In the Third Way design, speed IS Douéacal has a maximum of 20 knots has been sacrificed for endurance 110000nm at 15 knots and seaworthiness. These 2900 ton full load быстроходные motor driven ships, are armed with two surface to surface missiles, a 76mm gun, a point defence anti-aircraft system and two close in weapons systems. Although there are no sonars or anti-submarine torpedoes, the frigates will accommodate a helicopter of Super Puma size.

Three Floréal 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 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 in each 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 success for the ongoing 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 probable eventual elimination off conscription. Both officer and sailor conscripts help man virtually all assets - even the SSN Rubis has two conscripts on board.

Following the cancellation of the new Navix class of 10,000 ton nuclear powered patrol vessels, the path for further French Navy mine clearance development is unclear. However, for the Navix class, Thomson-Strates, IFMM has developed the DUIM 12 minehunting vessel which can be towed to a depth of 500 metres at up to ten knots. This system is as seen in the trials vessel THYTUS. At the time of our visit, THYTUS was in Norfolk, Virginia, demonstrating the DUIM 12 to the US Navy.

PROVEN DEFENCE CAPABILITY

DESIGN MANUFACTURE & SUPPORT OF SUBMARINE WEAPON HANDLING & DISCHARGE SYSTEMS COLLINS CLASS OBERON CLASS TOWED ARRAY HANDLING SYSTEMS PROJECT MANAGEMENT INTEGRATED LOGISTIC SUPPORT

Strachan & Henshaw Australia Pty. Ltd.
A.C.N. 050 019 817
10 Peckarra Street
Regency Park
S.A. 5010
Phone: (08) 346 8921
Fax: (08) 340 0714

GEORGE NORMAN
& CO. PTY. LTD. A.C.N. 004 604 951
25 Boden Road, Seven Hills, N.S.W. 2147
Suppliers of Cleaning Products and Wiping Cloths to the Royal Australian Navy

TELEPHONE: (02) 838 7211
Facsimile: (02) 838 7029

A FAMILY OF HELICOPTER CARRIERS

Helicopter carriers provide navies with the following benefits:

- Operational flexibility
- High endurance within the helicopter's operating radius
- High platform endurance
- Large transport capacity
- Landed procurement cost in comparison with single role vessels

The helicopter carrier's size permits installation of both C-shh and training system.

Bremen-Vulkan's designs have led to the development of a complete range of helicopter carriers:

- From 3000 tons to 10000 tons displacement
- With and without weapons
- Six, eight or 14 helicopters
- Complement from 300 to 600

All designs provide flexibility for different naval duties and minimum long-range patrol capabilities, 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 type.

HC 500-PC Helicopter Carrier

This 5000 ton helicopter carrier has been designed for patrol duties in the customer's territorial waters, and is equipped with a frigate-sized 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 short take-off. The platform design allows transport to six large sea-going type helicopters in its hangar, which is equipped with aircraft maintenance facilities. The hangar can also be used for roll-on/roll-off cargo, and it is accessible via a single 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.

The HC 500-PC is designed to transport and to support up eight SEAKING type helicopters, for continuous area
surveillance and helicopter warfare roles. Alternatively, the vessel can carry as many as ten EA-HARRIERS STOVL aircraft for long-range airborne missions.

The HC 800 PT provides the carrier 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 multi-ship force.

The design of the HC 800 PT includes the growth potential for an extensive combat role for anti-ship defence or for an active combat role.

HC 800-P (Patrol)

This 6678-tonne helicopter carrier has been designed specifically for patrol duties. It has a superior endurance of over 12,000 km at an economic speed of 18 knots. The embarked ten helicopters or eight STOVL aircraft provide the navy with continuous long-range surveillance, anti-submarine warfare, and airborne defence capabilities.

The HC 800 PT is designed to support amphibious operations and to provide fast re-deployment and/or sea-lift of troops and materials. The vessel also provides a medical facility for casualties during disaster relief or military action. The HC 800-P is equipped with a medium to low range surveillance radar and short-range anti-aircraft guns. The design includes the growth potential for anti-ship warfare and logistics support.

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

This 11,000-tonne helicopter carrier has been designed for amphibious operations, and to provide for the rapid deployment of units and logistic support. The vessel carries up to 14 EA-HARRIERS STOVL aircraft, or up to 10 EA-HARRIERS STOVL aircraft. The HC 100-PS is equipped with a continuous flight deck with a 12-knot ramp to facilitate fixed-wing aircraft take-off and landing operations.

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 on the flight deck. The hangar and flight deck are designed to meet the needs of EA-HARRIERS STOVL aircraft. The design includes the growth potential for increased capacity and capability for future operations.

HELCOPTER CARRIER FAMILY DATA SUMMARY

<table>
<thead>
<tr>
<th>Platforms</th>
<th>HC 500</th>
<th>HC 600</th>
<th>HC 600 PT</th>
<th>HC 800</th>
<th>HC 1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length overall</td>
<td>100.0 m</td>
<td>127.0 m</td>
<td>151.0 m</td>
<td>180.0 m</td>
<td>200.0 m</td>
</tr>
<tr>
<td>Length at waterline</td>
<td>100.0 m</td>
<td>127.0 m</td>
<td>151.0 m</td>
<td>180.0 m</td>
<td>200.0 m</td>
</tr>
<tr>
<td>Breadth m</td>
<td>15.8 m</td>
<td>18.0 m</td>
<td>20.0 m</td>
<td>22.0 m</td>
<td>25.0 m</td>
</tr>
<tr>
<td>Breadth at w I</td>
<td>15.8 m</td>
<td>18.0 m</td>
<td>20.0 m</td>
<td>22.0 m</td>
<td>25.0 m</td>
</tr>
<tr>
<td>Depth moulded to light Deck</td>
<td>5.0 m</td>
<td>6.0 m</td>
<td>8.0 m</td>
<td>10.0 m</td>
<td>12.0 m</td>
</tr>
<tr>
<td>Design Draught</td>
<td>5.0 m</td>
<td>6.0 m</td>
<td>8.0 m</td>
<td>10.0 m</td>
<td>12.0 m</td>
</tr>
<tr>
<td>Displacement</td>
<td>10,000</td>
<td>15,000</td>
<td>20,000</td>
<td>25,000</td>
<td>30,000</td>
</tr>
<tr>
<td>Speed max</td>
<td>25 kn</td>
<td>28 kn</td>
<td>30 kn</td>
<td>32 kn</td>
<td>35 kn</td>
</tr>
<tr>
<td>Endurance at 12 knots</td>
<td>12,000 km</td>
<td>15,000 km</td>
<td>18,000 km</td>
<td>20,000 km</td>
<td>22,000 km</td>
</tr>
<tr>
<td>Autonomy</td>
<td>20 days</td>
<td>25 days</td>
<td>30 days</td>
<td>35 days</td>
<td>40 days</td>
</tr>
<tr>
<td>Complement</td>
<td>200 persons</td>
<td>250 persons</td>
<td>300 persons</td>
<td>350 persons</td>
<td>400 persons</td>
</tr>
<tr>
<td>Flight and air keeping</td>
<td>100 persons</td>
<td>150 persons</td>
<td>200 persons</td>
<td>250 persons</td>
<td>300 persons</td>
</tr>
<tr>
<td>Aircraft</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

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

LIFE ABOARD HMAS ENCOUNTER

Scrubbing decks.

Time to party and forget about the never ending patrols.
This edition, the twelfth since 1974, is in massive 8.9 x 11.0 inches illustrated by more than 900 photographs and line drawings. The author has presented the U.S. Navy through its overall organization, highlighting the various commands, personnel, reserves, ships, and armament. Most ships or classes are presented individually, preceded by an introduction including naming, operations, and future construction. Extensive commentary on all post-World War II 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 fate.

With the demise of the USSR and its global naval operations, the U.S. Navy is depicted as a sloshing force, both in terms of current ships being laid up and new construction being reduced. The submarine force, planned for 1990 and now reduced in size, will grow to approximately 50 by the end of the decade. The Navy's effort to maintain 60 or 70 craft the massive cost associated with the building of the new Seawolf class, at more than $2.5 billion for the second unit, has culminated in several 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 numerous scale profile and deck drawings.

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

SHIPS AND AIRCRAFT OF THE U.S. FLEET

Norman Polmar
Published by the
U.S. Naval Institute Press

MARYLAND 21401 USA

This edition, the twelfth since 1974, is in massive 8.9 x 11.0 inches illustrated by more than 900 photographs and line drawings. The author has presented the U.S. Navy through its overall organization, highlighting the various commands, personnel, reserves, ships, and armament. Most ships or classes are presented individually, preceded by an introduction including naming, operations, and future construction. Extensive commentary on all post-World War II 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 fate.

With the demise of the USSR and its global naval operations, the U.S. Navy is depicted as a sloshing force, both in terms of current ships being laid up and new construction being reduced. The submarine force, planned for 1990 and now reduced in size, will grow to approximately 50 by the end of the decade. The Navy's effort to maintain 60 or 70 craft the massive cost associated with the building of the new Seawolf class, at more than $2.5 billion for the second unit, has culminated in several 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 numerous scale profile and deck drawings.

The largest contributors to the small but important harbor craft, author Norman Polmar has provided a professionally produced reference book. Ships and Aircraft of the U.S. Navy 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

MARYLAND 21401 USA

Reviewed by Ross Gillett

The 1993 edition of Combat Fleets has grown again, time is over 1000 pages, 1000 photographs, images and line drawings. All ships are cataloged, with the addition of more than 1900 new ships and aircraft. 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. From data on Russian strength-held ships and what it aims are the new designs on the drawing board or not entering service are included within the covers.

Positive features of Combat Fleets, compared to rival Jane's, are the additional amounts of narrative devoted to each entry, the use of more blank areas for further photos, etc., 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 Jane's, Combat Fleets was soon out in the USA. Additional copies were reprinted in mid-1993.

SOVIET WARSHIP DEVELOPMENT

Volume 1: 1917-1945

Siegfried Breyer
Published by
Conway Maritime Press

Reviewed by Michael Wilson

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

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

Unlike many naval books which group them in a haphazard method, Soviet Warship Development is presented chronologically from the beginning of the century, chapter one, narrating the warship construction efforts before 1914. 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 authorized at the Tenth Party Congress in March 1921. Many units taken over by the NA, Red Workers and Peasants, were earmarked for return to service, some suffering sea trials and delays even then, 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 assessing and monitoring 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 rare units portrayed in wartime impressions.

To readers of The Navy, Soviet Warship Development, Volume 1: 1917-1945 is highly recommended.

THE IRON SHIPS

"THE IRON SHIPS" features more than 150 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 1913, to the international operation of HBP Transport in the late 1990s.

The footnoted and referenced text highlights significant developments in ship design, working conditions, cargo handling, and commercial practices in the operation of HBP Transport. The story of the Eastern Lines is a part of this history, and the book is lavishly illustrated with hundreds of photographs, charts, and maps.
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 Crop, 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 KOOLANGA illustrates the general style of the ship reference section:

**IRON MONARCH**
- **Year:** 1917, 1920 & GENERAL CARGO
- **Official Number:** 136450
- **Tonnage:** 2,190 gross, 2,692 net
- **Dimensions:** Length 156m, breadth 9.7, depth 6.1, 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 Mclachlan McEwan's Line owned by Sydney, Melbourne.
- **August 1914:** Requisitioned by British Royal Navy for service as a collier.
- **May 1917:** Released from RAN service and partially employed in BHP's export trade.
- **October 1917:** Sold to Edward P. Jones Simpson (BHP Stock 7 - 75/4/4) and William Scott Fell (11/4/4) and 22 November 1917 renamed Iron Monarch, registered Sydney.
- **1920:** Sold to Interstates Steamships Ltd., but remained in registered ownership of Simpson and Scott Fell.

**ANATOMY OF THE SHIP**

**THE FIRST FRIGATES**
- **Note:** The standard for these ships was the French model, theאיר-Heine in the rebuild of the Royal Navy in the mid-eighteenth century. The introduction and development of a new type of warship, known as a frigate. The early classes were all armed with 9-pounder guns, and although a few were built as late as 1805, this is essentially the story of the British cruiser design between 1740 and 1805.

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

**DESERST STORM SEA WAR**
- **Author:** Arnold Hambur
- **Published by:** Motorbooks International, USA and distributed in Australia by Capital Link (Australia) Ltd of Lane Cove, NSW. 128 pages, ISBN 52895.

This paperback book is an account of the naval campaign in Desert Storm and Desert Shield. As the author states: "This book makes no pretense 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 over 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 naval expedition 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.

Australasia's contribution of six ships is listed in Appendix 1. This book is also a source reference to the story of the Royal Naval ships.

**Asset Services**

The Asset Services Division of The Administrative Services provides a total Asset Management service to its customers.

Asset Management consists of a coordinated program of repairs and maintenance to buildings or engineering services, planned to ensure the customer has maximum use of the asset within an acceptable limit of cost and downtime.

An integral part of the Asset Management service is the service provided by the Operations Centres.

To provide a highly responsive and coordinated building management service, groups of tradespeople and workshop facilities are located throughout the Victoria/Tasmania region.
SKINCARE BISALLOY AND BHP STEEL.

We are proud to be associated with the Dept of Defence and the Australian Services

For Orders or Enquiries
Phone: (042) 71 4944
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:

VICTORIAN DIVISION: C/O 4 Eleanor Court, Donvale, Vic, 3111
QUEENSLAND DIVISION: C/O PO Box 170, Cleveland, Qld, 4163
AUSTRALIAN CAPITAL TERRITORY DIVISION: C/O 45 Skinner Street, Cook, ACT, 2614.
SOUTH AUSTRALIAN DIVISION: GPO Box 1529, Adelaide, SA, 5001.
TASMANIAN DIVISION: C/O 42 Amy Road, Launceston, Tas, 7250.
WEST AUSTRALIAN DIVISION: C/O 23 Lawlor Road, Attadale, WA, 6156.
NORTHERN TERRITORY DIVISION: GPO Box 2612, Darwin, NT, 0810.

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) (Rank)

Street Suburb Postcode

State

Signature

PLEASE PRINT CLEARLY

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 on 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
SKSTEMS INTEGRATION FOR CUSTOMERS WHO REQUIRE THE HIGHEST DEPENDABILITY

Wormald Advanced Systems Engineering brings together over 20 years of Wormald experience in the specification, design, implementation, manufacture and installation of electronic and computerised systems; experience earned in the rapidly changing world of high technology. With extensive national and world-wide resources, ASE's ability places it proudly as a leader in Australian systems engineering.

A division of
tyco

ADVANCED SYSTEMS ENGINEERING

176 South Creek Road
Dee Why, NSW 2099
Australia

Tel: 61 2 981 0611
Fax: 61 2 971 1759

Registered by Australia Post Publications No NBP 1482
Reproduction in part or whole is forbidden without the permission of the Editor in writing.

THE NAVY

The magazine of THE NAVY LEAGUE OF AUSTRALIA

Vol. 55
OCTOBER-DECEMBER, 1993
No. 4

FEATHERS COUNCIL

FRENCH, the Governor General

President: F. Garvey Evans, CBE, VD

President: F. Garvey Evans, CBE, VD

Vice-President: Rear Admiral A.R. Robertson, AD, DSC, RAN(Rtd), John Bird

Hon. Secretary: John Wilcox, PO Box 329, Bonnie Doon, Vic, 3172

Telephone: 9788 8175

NEW SOUTH WALES DIVISION

President: Rear Admiral, The Governor of New South Wales

President: R.O. Allen, RFD, RDI

Hon. Secretary, J.A. Jeffery, GPO Box 1719, Sydney, NSW 2001

Telephone: 372 6245

VICTORIAN DIVISION

President: Rear Admiral, The Governor of Victoria

President: O.M. Young, RFD

Hon. Secretary: Neil Meadon, 48 Flaxton Crescent, Doncaster, Vic, 3111 Telephone 917 7964

QUEENSLAND DIVISION

President: Rear Admiral, The Governor of Queensland

President: J.M. Cran, RFD

Hon. Secretary: R.J. Pharaoh, RFD, PO Box 175, Cleveland Qld 4163 Telephone 3457 2174

AUSTRALIAN CAPITAL TERRITORY DIVISION

President: Admiral Sir Victor Smart AC KBE CB DSC RAM (Rtd)

President: W.A. Pugh, OAM

Hon. Secretary: Miss J.E. Couper, GPO Box 1012, Alice Springs, NT 5775 Telephone 3471 1955

TAIWAN DIVISION

President: Rear Admiral, The Governor of Taiwan

President: M.J. Cooper

Hon. Secretary: Mrs J.M. Cooper, 324 Maryvale, Qld 4074 Telephone 3 1952

NORTHERN TERRITORY DIVISION

President: Rear Admiral, The Administrator

President: R. Williams, P.O. Box 921, Darwin, NT 0801 Telephone 3 3659

FEDERAL ADVISORY COUNCIL

Chairman: W. F. Briscoe

Chairman: W. F. Briscoe

Vice-Admiral Sir Victor Sir Victor Smart, AC KBE CB DSC RAM (Rtd)

Hon. Secretary: Mr G. A. MacPhee, GPO Box 102, Darwin, NT 0801 Telephone 3 3659

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

CORPORATE MEMBERS

ROCKWELL SYSTEMS AUSTRALIA PTY LTD.

STRANG INTERNATIONAL PTY LTD.

COMPUTER SCIENCES OF AUSTRALIA PTY LTD.

BTR AEROSPACE AUSTRALIA

THE AUSTRALIAN NATIONAL MARITIME ASSOCIATION

PRESERVING SACKVILLE ........... 28

KRAIT Anniversary ............. 31

Book Reviews .................. 35

THE NAVY LEAGUE OF AUSTRALIA

Viewpoint ....................... 2

Australian Shipping and ......... 5

the Future ...................... 5

Naval News ..................... 15

Out of the Past .................. 14

HMAS WARRAMUNGA ............ 15

Pictorial .............. 18—19

Naval Shipbuilding ............ 21

in Australia .................... 21

Tomahawk – High Tech Naval .... 25

Punch for the 1990s ............ 30

4102 Elizabeth Street, Waterloo, NSW 2017 Telephone: (02) 319 6231
370 Little Bourke Street, Melbourne 3000 Telephone: (03) 670 4321
2nd Floor, 97 George Street, Adelaide 5000 Telephone: (08) 231 6225
2 Wallace Street, Mawley 4660 Telephone: (07) 370 1500 Fax: (07) 370 1581
3rd Floor, 480 Ann Street, Brisbane 4000 Telephone: (07) 832 1253

ADVERTISING AND PUBLICATION

Pearce Publishing Co Pty Ltd

(Wistributed in NSW)

SYDNEY

MELBOURNE

ADELAIDE

BRISBANE

362 Elizabeth Street, Waterloo, NSW 2017 Telephone: (02) 319 6231
370 Little Bourke Street, Melbourne 3000 Telephone: (03) 670 4321
2nd Floor, 97 George Street, Adelaide 5000 Telephone: (08) 231 6225
2 Wallace Street, Mawley 4660 Telephone: (07) 370 1500 Fax: (07) 370 1581

3rd Floor, 480 Ann Street, Brisbane 4000 Telephone: (07) 832 1253

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)

BOOK REVIEWS

THE NAVY, October-December, 1993 1
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 (16), 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 inter-operability difficulties. If this group of countries had problems, they are nothing compared to those certain to be experienced if an organisation consisting of 194 countries of diverse cultures and beliefs tries to form and maintain an effective standing armed force.

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 to small part to the efforts and perseverance of the Australian Defence Force, naval and air 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.

Yours faithfully,

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

Data Defence!

World's best anti-virus software • Data recovery from crashed disks & tapes • Specialist software/ hardware for defence industries • Data conversion between all foreign formats • Supply & support of database retrieval software • Creation of electronic manuals & brochures • CD ROM Mastering

Contractors & preferred suppliers to the Department of Defence

Data Protection Australia
Suite 201A, 48 Kangaroo Sth, South Yarra, VIC 3141

Data Protection Australia
224 Clarence St, Melbourne VIC 3000

QLD: Unit 4-1, 1 St Pauls Tce, Spring Hill, QLD 4000

WA: 77 Balber Street, Perth, WA 6000

SA: 60 Kensington Road, Rose Park, SA 5067

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. I think Mr. Standing's 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 defense 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 world 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 vast areas in which an attack is likely to occur.

We need nuclear submarine technology that Canberra is not willing to purchase in order to ensure that our navy keeps pace with international standards.

Yours faithfully,
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 consider 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 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 vessels, the employers which employ waterside labour are not the same unions which have coverage on vessels, the employers which employ waterside labour are not the same as that applying to shipowners. The structure and the level of compensation 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. Traditionally 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 inter-state 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.

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 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.
AUSTRALIAN SHIPPING AND THE FUTURE

The Industry Report which ANMA the shippers' association published, indicates that there is some $14 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 which is ostensibly outside of Australia's control is international freight markets.

Australian vessels trading internationally are price takers. Some of the traditional maritime countries which choose to register their vessels in states which provide generous taxation concessions will be squeezed out of existence. While the above statistics indicate that Australia does have a shipping industry which is dynamic and capable of meeting the challenges of the future, the most important factor was Australia's relative ease in selling commodities overseas and favourable terms of trade up until some 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 superpower, one Australian industry is in effect sacrificed for the benefit of 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. But 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 it is paradoxical the government will not support it as a priority change. In this regard the industry's strategic and commercial value to Australia is extensive. The interests opposing the expansion of the industry are unlikely to be placated regardless of its nobles sentiments. In the end both the community and the government will need to ask themselves the question "Do we need 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 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 unpalatable international restructuring.

The bold question will be to move away from this position and to positively encourage all those who believe that Australia will return to its golden age of favourable terms of trade for commodities exports. They also endorse the view that cabotage, the policy that restricts the coastal trades of a country to vessels registered in that country, should be abolished. The view that nearly every country with any substantial coastline has some form of cabotage policy in place, is completely over looked by these interests. Also overlooked is the phenomenon which is evident away from commodities trade in growth in trade in services, such as transport and its ancillary services and the trade in higher value added goods.

These interests are also promoting 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 worse 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 interests opposing the expansion of the industry are unlikely to be placated regardless of its nobles sentiments. In the end both the community and the government will need to ask themselves the question "Do we need 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 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 unpalatable international restructuring.

The bold question will be to move away from this position and to positively encourage all those who believe that Australia will return to its golden age of favourable terms of trade for commodities exports. They also endorse the view that cabotage, the policy that restricts the coastal trades of a country to vessels registered in that country, should be abolished. The view 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 phenomenon which is evident away from commodities trade in growth in trade in services, such as transport and its ancillary services and the trade in higher value added goods.

These interests are also promoting 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 worse to move away from this position and to positively encourage all industries that are viable to expand, and where possible complement one another.

The most important factor was Australia's relative ease in selling commodities overseas and favourable terms of trade up until some 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 superpower, one Australian industry is in effect sacrificed for the benefit of 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. But 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 it is paradoxical the government will not support it as a priority change. In this regard the industry's strategic and commercial value to Australia is extensive. The interests opposing the expansion of the industry are unlikely to be placated regardless of its nobles sentiments. In the end both the community and the government will need to ask themselves the question "Do we need 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 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 unpalatable international restructuring.

The bold question will be to move away from this position and to positively encourage all those who believe that Australia will return to its golden age of favourable terms of trade for commodities exports. They also endorse the view that cabotage, the policy that restricts the coastal trades of a country to vessels registered in that country, should be abolished. The view 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 phenomenon which is evident away from commodities trade in growth in trade in services, such as transport and its ancillary services and the trade in higher value added goods.

These interests are also promoting 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 worse to move away from this position and to positively encourage all industries that are viable to expand, and where possible complement one another.
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.

Part of a $2.8 million contract, the three vessels, SEAL (2001), POISE (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 23 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 SEAL which has been allocated to Clearance Diving Team Four at HMAS STIRLING, SEAL, will operate with Clearance Diving Team One and POISE 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 divers using self-contained breathing apparatus. Their secondary role will include low level naval poling duties.

New SMB

The Royal Australian Navy Hydographic Service has just completed accepting a new class of Survey Motor Boat (SMB) into service. The vessel, 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 July.

In addition a smaller Antarctic Survey Vessel (ASV), based on the same design, was also constructed by Pro Marine at a cost of $940k.

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 Officer, 1 x Boat Coxswain, 1 x Systems Operator, 1 x Technical Sailor)

The boats are fitted with some of the latest navigational equipment including DGPS, all weather IRC 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 operations 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 FLYKAN
HMMS Flinders - SMB DUVKSEN
HMS Penelope - SMB TOBY THUMB and JOHN GOWLAND

Proud to be Associated with RAN

KING COTTON
4 BOORALEE STREET
BOTANY 2019

TELEPHONE: (02) 666 6369
FACSIMILE: (02) 316 8935
CLEANING CLOTHS & PRODUCTS, ETC.
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;

• 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."

The Navy's underway replenishment tanker HMAS WESTRALIA returned to HMAS STIRLING on Monday, 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) GENER, 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.
Proud to be Associated and Compliments to all Navy Personnel from...

MT ELIZA FRUIT EMPORIUM
Specialising in Fresh Fruit and Vegetables
Official Suppliers to HMAS Cerberus

112 Mount Eliza Way, Mt Eliza
Telephone: 787 3502

Proud to be Associated and Best Wishes to All Navy Personnel from

HEWLETT PACKARD
17-23 Talavera Road
North Ryde
Telephone (02) 950 7444
Fax (02) 888 9072

HAMilton ENGIEnNEERING
5 Mews Road
Fremantle, WA 6160
Marine and General Enquiries
Manufacturers of all Types of Winches
Telephone: (09) 335 1296
Facsimile: (09) 430 5227

Gestetner Lasers Pty Ltd
7 Phipps Place, Deakin, ACT 2600
Appreciate their association as suppliers of quality products to the
Royal Australian Navy
Telephone: (06) 285 1177 • Facsimile: (06) 285 3838

ATTACK CLASS PATROL BOATS
The Attack Class patrol boats, HMAS 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 Brodie-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, HMAS 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."

ANZAC SHIP NAME
The spelling of the second Australian ANZAC Class Frigate is to be changed from ARERNTE 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 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 float and setting in 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 the 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.

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) VH/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.

After a 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 cooperation in the maritime arena."

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)

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.

The bow section of the scrapped submarine HMAS OXLEY on display at the WA Maritime Museum (Photo - Rod Saimen).

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

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) VH/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.

After a 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 cooperation in the maritime arena."

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)

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.

The bow section of the scrapped submarine HMAS OXLEY on display at the WA Maritime Museum (Photo - Rod Saimen).

White Ensign aloft, new boat COLLINS on 28 August (Photo - John Mortimer).
Proud Contractors to the RAN
HOWARD SMITH INDUSTRIES PTY LTD
(Trading As Melbourne Tug Services)
30 South Wharf, Port Melbourne, Vic 3207
Telephone: (03) 646 0322 Facsimile: (03) 646 0217
“Recommended Service”

The OPTI-FREE SYSTEM
- A System so simple you will use it...
  - Safe and effective Disinfecting Solution
  - Advanced formula Daily Cleaner
  - Non-sensitising, one-step Enzymatic Cleaner
  - A simple lens-care system designed to enhance compliance

Customer Service (02) 452 4255
Toll Free (08) 02 5004
Alcon Laboratories (Australia) Pty Ltd
ACN 000 740 830
25 Frenchs Forest Rd
Frenchs Forest 2087
Registered Trade Mark

Not your average Shell Service Station.
But there are similarities.
For instance, the fuel is Shell, the biggest supplier of fuel
for the Navy. And then, of course there’s location.
Shell, like the Navy, go to all sorts of extremes to make sure
you get fuel where you want it and when you want it.
It just goes to prove that even at sea, you just can’t go past Shell.

Applied Insulation Pty Ltd
- Thermal
- Acoustic
- Structural Fire Protection
- Hot & Cold Piping
- Engine Exhaust
- General Sheet Metal Work
SOLE MANUFACTURERS OF QUALITY HIGH TEMPERATURE
INSULATED BLANKETS WITH STAINLESS STEEL MESH PROTECTION,
STAINLESS STEEL DUCTING WORK
7 Ballantyne Road, Kewdale, WA 6105
Telephone: (09) 451 6309 Fax: (09) 458 4562

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

Out of the Past

The Navy, October–December, 1993
Admral Sir Bruce Fraser, CIG British Pacific Fleet leaves HMAS WARRAMUNGA at Yokohama. September 1945.
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 1972. 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. It ordered instead the FFG7 class frigates from the United States.

The concentration of destructor 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 MELBOURNE in 1980.

However, elsewhere general naval shipbuilding continued, with HMAS TOBRUK at Carringtown, 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 HMAS 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 in their views about this production. Some felt that the company was not prepared for the demands of modern warship construction and that the quality of work was suffering as a result. Others, however, believed that the company could successfully adapt to the new challenges.

The government's decision to place an order for two FFG7 class ships was seen as an important step towards modernising the Royal Australian Navy (RAN). These ships were equipped with modern facilities such as periscope, radar, and sonar systems.

The construction of HMAS COOK and the modernisation of the River class were important projects for the RAN. These ships were approved in the 1980s and the modernisation of the River class was completed in 2000.

The Transfield subsidiary, Australian Shipbuilding Industries (ASI), was chosen to build the new ships. After intense competition with other bidders, the Transfield subsidiary Australian Shipbuilding Industries (ASI) was selected to build the new ships.

The construction of HMAS COLLINS will be a significant step towards modernising the RAN. This ship will be a high-speed patrol boat, capable of operating in rough seas and in shallow waters.

The ASC Australia is a very competent surface vessel supplier. The company has successfully completed the Collins class project, the logical next step for ASC will be to expand into surface warship construction.

The SAFETY question was raised in the context of the Collins class project. The RAN is keen to win back naval work and ASC have proven that they can build modern diesel electric submarines in the world.

The SAFETY requirement is therefore a priority for the Collins class project. ASC have been moving to secure more business for their future. They are keen to win back naval work and ASC have proven that they can build modern diesel electric submarines in the world.

In conclusion, ASC Australia is a very competent surface vessel supplier. ASC have proven that they can build modern diesel electric submarines in the world. The SAFETY question is therefore a priority for the Collins class project. ASC have been moving to secure more business for their future.
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-1 was inaccurate, was launched from sites in France, and travelled at 400 mph for 250 miles. It carried an explosive warhead with a range of 2000 lbs. and 900 V-1s launched against Britain in 1944. Around 2000 died as a result of the V-1s. The Royal Navy developed the SS-9 Seawolf which carried a nuclear warhead.' The BGM-109C Tomahawk has a range between 1600 and 2400km and can carry either a conventional (TNT) or nuclear warhead. The BGM-109C Tomahawk Land Attack Missile (TLAM-C) was designed to carry a 900-2000-tonne warhead and was based on the Collins class submarine. It was first deployed in Europe in 1987 and is used against targets in Europe. In September 1993 it was used against Yugoslavia with a 2000-tonne warhead. The BGM-109C Tomahawk Land Attack Missile (TLAM-C) was designed to carry a 900-2000-tonne warhead and was based on the Collins class submarine. It was first deployed in Europe in 1987 and is used against targets in Europe. In September 1993 it was used against Yugoslavia with a 2000-tonne warhead.
 systems that allow the Tomahawk to have chilling accuracy.

This was underlined by the fact that if a Tomahawk cruise missile were fired at the British Houses of Parliament from the Mediterranean Sea, it would hit a door to fly through - it is that accurate.

Improvements currently underway include a Joint Service Designation System (JSD) and an Improved Positioning System (GPS) receiver that will support the pre-planned paths, and the missile need no longer rely on flying along a pre-planned path. The missile can instead go off course, that is not dependent on geographic reference points matched against memory by an onboard computer. The result will be a highly lethal and effective way of taking out military targets, at the minimum cost. Could such a weapon have a future in Australia's military operations? The Australian Party Defence Policy would have added the flexibility of launching a Tomahawk when the battle was underway, such as the trajectories, completing 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 the ability of the Tomahawk to control itself to target points.

Throughout the 1991 Gulf War, the US Navy launched a total of 291 Tomahawk TLAM-C missiles. The launch total was spread across five major engagements: the destruction of the Iraqi navy, the destruction of the Iraqi air force, the destruction of Iraqi command and control assets, the destruction of Kuwaiti oil infrastructure, and the destruction of Saddam Hussein's personal residences. Of these 291 missiles, 287 were fired by the US Navy, and 4 by the US Air Force. The Tomahawk was used to destroy a wide array of targets, including ships, shore facilities, airfields, and command and control centers. The missile was highly accurate, with a maximum error of less than 20 meters at 1000 meters.

The Tomahawk has a range of over 2400 km, making it one of the longest-range cruise missiles in the world. It can be launched from submarines, surface ships, and aircraft, and is capable of carrying a variety of warheads, including conventional and nuclear. The Tomahawk is also capable of being launched from land-based systems, such as the Tomahawk-LR cruise missile, which has a range of over 3000 km.

In conclusion, the Tomahawk cruise missile is a highly effective and versatile weapon, capable of being used in a variety of different roles. Its accuracy, range, and versatility make it a valuable asset for any military force.
By 1944, following a massive mobilisation which far exceeded that of any other Allied navy, there were 376 warships and 95,705 servicemen. During the course of World War II, 110,000 men and women served on 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. In 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.

As convoy escorts 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 deserve 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 plating which had been added since the end of the war.

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.

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.

Proud to be Associated with the Department of Defence
BIOSIS RESEARCH PTY LTD
Environmental Consultants
322 Bay Street, Port Melbourne, Vic 3207
- Environmental Management
- Impact Assessment - Marine Biology
- Soil and Land Assessment
- Management of Problem Plants and Animals

Telephone: (03) 882 0111
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 unassuming 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 area 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 mission which was launched fifty years ago in September is a small fishing craft.

After an abortive attempt early in 1943 the KRAIT sailed for the south western Gulf on 2 September. She had been captured from the Japanese by the RAN in December 1941. The code name allocated to this daring operation was JAYWICK.

On 12 September Borneo was sighted and KRAIT followed the south west coast around to the Karimata Archipelago. From here, 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 alarming 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 Temsang Strait in the Lingga Archipelago on 16 September, anchoring off Pompong Island on the night of the 16th and 17th.

The next day she was spotted searching for a secluded embarkation point for the canoes. A suitable place was found at 2am on the 18th at Panjang Island in the Berau 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 southern Perak coast where she was to cruise in this area for a fortnight, filling in time and avoiding
The Navy, October-December. 1993

KRAIT ANNIVERSARY

The crew again began feeling mounting trepidation at the prospect of passing through these confined waters. They had cause for their anxiety. At 11.30 pm, 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 nerve-wracking minutes KRAIT and her unwelcome companion continued on their way. The Japanese flag flown by the KRAIT included the tanker SINKOKU MARU of 11,000 tons. The total tonnage sunk or damaged was just under 40,000 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 successes 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.

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 landing force through Japanese waters to the Lingga Archipelago on 16 September, disembarked the raiding party and then proceeded to the south west coast of Borneo, returning to the Lingga to pick up the raiders on 2 October. They had successfully penetrated Singapore Harbour and sunk two and damaged five Japanese naval 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 Cassiura Island off North Western Australia to which she was transferred after the successful voyage. She was part of the naval force present at the Japanese surrender at Ambo 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 Port Lincoln. In 1986 ownership passed to the Australian War Memorial. She is currently based at the National Maritime Museum in Sydney.

Proud Contractors to the RAN

BIMSON WELDING

Unit 4/91 Darley Street
Mona Vale, NSW 2103

SPECIALISTS IN:

- REPAIRS
- STAINLESS STEEL AND STEEL FABRICATION
- ALL TYPES OF HIGH QUALITY MACHINING

Phone: (02) 997 6622
Facsimile: (02) 997 5624

HUSKY FAST PHOTOS

HUSKISSON

ONE HOUR SERVICE

DISCOUNT FILMS
GOOD RANGE OF CAMERAS
- ENLARGEMENTS
Service & Quality Guaranteed
Telephone (044) 41 5226
FLETCHER PHOTOGRAPHICS
Nowra Fair - (044) 23 2955
Owen St., Huskisson - (044) 41 5226

Proud to be Associated and Best Wishes
To All Navy Personnel from

SIGMA MARINE PROJECTS

245 Collins Street, Thornbury
Telephone (03) 416 8984
Fax (03) 480 4852

Proud to be Associated and Best Wishes
To All Navy Personnel from

MEASUREMENT RESOURCES

Suit 25B, 33–37 College Street
Cladesville
Telephone: 816 3377
Fax: 816 3806

JOHN HONEY HYDRAULIC SERVICES

Henderson, WA 6116

- PUMPS • VALVES • MOTORS • CYLINDERS • FILTERS
- HOSE & FITTINGS • POWER PACKS

Distributors for • Austoff • Danfoss • Hartwell • Heades • Parker
- Vickers • Various Other Brands

Telephone (09) 410 1155 • Facsimile (09) 410 1580

FOR ALL SALES SERVICE AND INSTALLATION

For all Sales, Service & Installation

KRAIT ANNIVERSARY

PERSONNEL INVOLVED IN OPERATION JAYWICK

OCEAN//ADELADE

Bimson Welding

2 Egmont Street (entr Sparks Road)

JOHN HONEY

ONE HOUR SERVICE

Nowra Fair - (044) 23 2955
Owen St., Huskisson - (044) 41 5226

FOR ALL SALES SERVICE AND INSTALLATION

32 The Navy, October–December, 1993
**Reviews**

**BOOK REVIEW**

**Convoys’ History of the Ship**

**STEAM, STEEL, AND SHELLFIRE**

**Wartime**

**The Warship**

**Review by Andrew Lambert**

After three hundred years of dependence upon the broadside-armed sailing man-of-war, the world’s battleships were to change out of all recognition in a 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 threatened the traditional pre-eminence of the broadside.

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 analysis of naval development and for the first time the roles of ships and shipbuilders in their development are discussed.

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.

**The Lost Ships of Guadalcanal**

by Robert D. Ballard

Published by Allen & Unwin

Reviewed by Ross Gillett

For presenting the lost images of the TITANIC and BISMARCK to maritime enthusiasts during the past decade, author and ocean explorer Robert Ballard has now searched the seaboards of the South Pacific to discover the “Lost Ships of Guadalcanal.”

Not only are the famous Allied man-o-war, like USS QUINCY and HMAS CANBERRA described and illustrated, but the Imperial Japanese Navy’s battleship KUMOHA 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 KIRKISMIMA and numerous destroyers from the Royal Navy/British Pacific Fleet are detailed. Heard Island and many other islands have been identified for the first time, for the 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 threatened the traditional pre-eminence of the broadside.

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 analysis of naval development and for the first time the roles of ships and shipbuilders in their development are discussed.

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.
A peak in early 1945, the Australian Army Transportation Service (Royal Australian Engineers) operated over 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 February 1946.

These vessels, operated by Water Transport Companies and Small Ship 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. Without the largely unrecognised job done by watermen of war in 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 Packet. 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 available. Highly recommended.
Asset Services

The Asset Services Division of The Department of Administrative Services provides a total Asset Management service to our customers.

Asset Management consists of a coordinated program of repairs and maintenance to buildings or engineering services, planned to ensure the customer has maximum use of the asset within an acceptable limit of cost and downtime.

An integral part of the Asset Management service are the services provided by the Operations Centres.

To provide a highly responsive and coordinated building management service, groups of tradespeople and workshop facilities are located throughout the Victoria-Tasmania region.

Services

The Operations Centres carry out work in all trades covering such areas as:

- Air Conditioning
- Refrigeration
- Mechanical Services
- Electrical/Electronics
- Fire Safety
- Security
- Lifts
- Plumbing
- Carpentry
- Painting

The services offered are:

Urgent and Minor Repairs

Our Tradespeople will quickly respond to requests for repairs, both in and out of working hours where the customer nominates the response time:

- **Immediate** requests will be responded to in **two hours**.
- **Urgent** requests within **two days**.
- **Minor** requests will be completed within **two weeks**.

There is a varying cost scale depending on the response time requested and the nature of the repair.

Operational Services

We have skilled operators to attend to items such as air conditioner boilers, pumps and incinerators. The services generally include consumables, labour, supervision and support costs.

Minor Works

We can carry out many minor works including fitout electrical work and additional air conditioning.

Preventive Maintenance

The Operations Centres carry out an agreed level of maintenance on plant and equipment throughout the year. This service includes all labour and parts.

Planned Specific Maintenance

For a fixed price, our Tradespeople also carry out planned maintenance such as internal or external painting, replacement of plant and items of fitout.

For further information on the availability and costs of the services contact your local Operations Centre.

**Western Port**

Phone
Business Hours
(059) 83 9972

After Hours
24 Hour Call Out
(059) 85 9972

Manager
Derrick Melder
018 631 189

ASSET SERVICES

Department of Administrative Services
PLEASE NOTE

THIS MATERIAL WAS FILMED AT A REDUCTION RATIO OF 23.5x

SOME PAGES MAY CONTAIN POOR PRINT, TIGHT BINDING, FLAWS AND OTHER DEFECTS WHICH APPEAR ON THE FILM