

THE NAVY

The magazine of
THE NAVY LEAGUE OF AUSTRALIA

\$2.50



- VIEWPOINT ● NAVAL MATTERS
- NEW ZEALAND 50TH FLEET REVIEW ● NEW OVERSEAS DESIGNS
- BOOK REVIEWS ● NAVAL NEWS UPDATE

CFM Commonwealth ADF The Rollover for Public Sector Employees

If you're about to retire or change jobs, you should consider rolling over your lump sum payment into the new Commonwealth ADF.

Why? Because the Commonwealth ADF has been specifically established to meet the needs of current and former public sector employees. And, its funds are invested by the same funds manager who has been successfully looking after Commonwealth superannuation money for many years.

The Commonwealth ADF offers you a simple, flexible and low-cost way to rollover your benefits. It lets you secure your future while maintaining control over your money.

Low-cost & flexible

You can choose from a range of investment options that have been designed to satisfy a wide variety of investor needs. You have the freedom to change your selected investment options any time, at no cost.

There are no entry or exit fees, and the ongoing management fees are low.

Simple & secure

Investing in the Commonwealth ADF is simple with its easy-to-read prospectus and reports, and easy-to-understand investment options.

And you have the added security of knowing that your investment is managed by one of Australia's largest and most successful funds managers.

To secure your future, call our friendly and experienced Customer Services team on (06) 275 0123 or (008) 020 152 toll free, or fill in and return the coupon.

CFM

Commonwealth ADF

CFM (ADF) Limited ACN 051 288 272 - Manager, Commonwealth ADF
Wholly owned by Commonwealth Funds Management Ltd (formerly Superannuation Fund Investment Trust)

Please send me your free booklet, *Why Rollover?*, and more information about the simplicity, flexibility and peace of mind I can enjoy by investing my rollover in the Commonwealth ADF.

Surname

Other names

Address

State

Postcode

Telephone

(Business)

(Home)

☐ I would ☐ I would not (please tick)
appreciate your Customer Services team ringing me.

Mail this coupon (no stamp required) to:

Reply Paid 35
Commonwealth ADF
GPO Box 1921 Canberra ACT 2601

or fax the coupon to
Commonwealth ADF
Facsimile: (06) 275 0345

Telephone: (06) 275 0123 toll free (008) 020 152

☐ I would also like to have a copy of the
Commonwealth ADF Prospectus (please tick)

A Prospectus for the Commonwealth ADF has been lodged with the Australian Securities Commission. A copy of this Prospectus dated 16 July 1991 can be obtained from the address listed here. Deposits can only be accepted on the application form attached to a current Prospectus.

THE NAVY

Registered by Australia Post Publications No NBP 1482

Reproduction in part or whole is forbidden
without the permission of the Editor in writing

The magazine of THE NAVY LEAGUE OF AUSTRALIA

Vol 54

JANUARY — MARCH, 1992

No. 1

THE NAVY LEAGUE OF AUSTRALIA

FEDERAL COUNCIL

Patron in Chief: His Excellency, The Governor General.

President: F. Geoffrey Evans, OBE, VRD

Vice-Presidents: Rear Admiral A. J. Robertson, AO, DSC, RAN (Rtd); John Bird,

L. F. W. Vickridge, OBE, VRD

Hon Secretary: John Wilkins, PO Box 269, Burwood, Vic 3125

Phone: 805 2559 (W)

NEW SOUTH WALES DIVISION

Patron: His Excellency, The Governor of New South Wales.

President: R. O. Albert, RFD, RD

Hon Secretary: J. C. J. Jeppesen, OAM, RFD, GPO Box 1719, Sydney, NSW, 2001.

Phone: 570 8425

VICTORIAN DIVISION

Patron: His Excellency, The Governor of Victoria.

President: John Bird

Hon Secretary: Neil Meaden, 4 Eleanor Court, Donvale, Vic 3111. Phone: 842 3158

QUEENSLAND DIVISION

Patron: His Excellency, The Governor of Queensland

President: A. H. Robertson, OAM, VRD, 42 Gligandra Street, Indooroopilly,

Qld, 4068. Phone: 870 1272

AUSTRALIAN CAPITAL TERRITORY DIVISION

Patron: Admiral Sir Victor Smith, AC, KBE, CB, DSC, RAN (Rtd)

President: H. A. Josephs, AM

Hon Secretary: E. M. Mahoney, 45 Skinner Street, Cook, ACT, 2614

Phone: 251 1833

SOUTH AUSTRALIAN DIVISION

Patron: His Excellency, The Governor of South Australia.

President: D. M. Schrapel

Hon Secretary: Mrs J. E. Gil, GPO Box 1529, Adelaide, SA 5001. Phone: 347 1985

TASMANIAN DIVISION

Patron: His Excellency, The Governor of Tasmania.

President: M. J. Cooper

Hon Secretary: Mrs J. M. Cooper, 42 Amy Road, Launceston, Tas, 7250.

Phone: 44 1531

WEST AUSTRALIAN DIVISION

Patron: His Excellency, The Governor of Western Australia.

President: L. F. W. Vickridge, OBE, VRD

Hon Secretary: Mrs G. Hewitt, 23 Lawler Road, Attadale, WA, 6156.

Phone: 330 3600

NORTHERN TERRITORY DIVISION

Patron: His Honour, The Administrator

President: Don Milford

Hon Secretary: G. Reed, GPO Box 2612, Darwin, NT, 0801

FEDERAL ADVISORY COUNCIL

Wm. Bolting, AM, Chairman ANMA

Vice Admiral Sir Richard Peak, KBE, CB, DSC, RAN (Rtd)

Admiral Sir Victor Smith, AC, KBE, CB, DSC, RAN (Rtd)

Admiral Sir Anthony Symon, KBE, AO, RAN (Rtd)

ADVERTISING AND PUBLICATION

Percival Publishing Co. Pty Ltd.

(Incorporated in NSW)

SYDNEY

862 Elizabeth Street, Warrigoe, NSW 2017. Phone: (02) 319 6231

MELBOURNE

370 Little Bourke Street, Melbourne, 3000.

Phone: (03) 670 4321

ADELAIDE

2nd Floor, 97 Currie Street, Adelaide 5000. Phone: (08) 231 6225

PERTH

2 Walcott Street, Mt Lawley, 6060

Phone: (09) 370 1500 Fax: (09) 370 1581

BRISBANE

3rd Floor, 480 Ann Street, Brisbane 4000 Phone: (07) 832 2531

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.

OUR FRONT COVER PHOTOGRAPHS

Top: Units of the RNZN steam line abreast off Wellington, prior to the 50th Anniversary Review. Bottom left: Review Day in Auckland, 5 October. HMNZS TUI proceeds past the lines of anchored warships. Bottom right: Wasp and Sea King helicopters overfly the Review ships.

(All photos courtesy RNZN)

CONTENTS

	Page
Viewpoint.....	2
Naval News.....	3
Royal New Zealand Fleet Review.....	6
The British Pacific Fleet – A Contemporary Report.....	12
Naval Matters.....	18
New Zealand Navy League – 44th Conference.....	21
Trumped Up.....	24
New Warships from Overseas.....	26
Book Reviews.....	28



Land of the long white cloud

Readers of *Viewpoint* may recall that in the October-December issue of *The Navy*, the writer mentioned his acceptance of an invitation to be keynote speaker at the Navy League of New Zealand's annual conference to be held in Auckland in October. The following is an account of the writer's travels and impressions gained while in New Zealand.

The visit commenced on 10th October and two days were spent meeting members of the Auckland Branch of the League; a visit to the RNZN's principal shore establishment (HMNZS PHILOMEL); a meeting with the Commodore, Auckland; and a visit to the Sea Cadet Unit TS BELLONA.

The Conference was opened on 12 October by the Deputy Chief of Naval Staff representing the Chief of Naval Staff who was in the United States and was attended by representatives of the NLNZ's eight branches together with a number of observers. The conference lasted all day and was followed by a dinner attended by Navy League members and their friends.

The fourth day of the visit included a Navy League Service in the Chapel at PHILOMEL attended by League members and Sea Cadets from local units; two cadets read the Lessons in admirable fashion. Later in the day, the writer departed for Wellington.

The morning of day five was taken up by meetings with the Minister for Defence, the Chief of the Defence Force and the acting CNS. These meetings were followed by a lunch hosted by Wellington Office-bearers and attended by CDF and the acting CNS. The remaining part of the day was "free".

The sixth day was spent in Christchurch and activities included a visit to the local Naval Reserve establishment and an informal meeting with Christchurch Branch Members in the evening. Lyttelton was also visited.

The final "formal" stopover was Dunedin, hometown of my host-in-chief, the Dominion President of the NLNZ (Mr Peter Aburn). The program included a visit to Port Chalmers, Dunedin's deep-water container port; an external inspection of the local Sea Cadet Unit's splendidly sited headquarters; a reception and a dinner.

The return journey to Christchurch International Airport was made via Central Otago and the magnificent Lakes District, where the mountains were still snowcovered although the temperature was quite mild. An overnight stop was made at Queenstown where Japanese tourists appeared to outnumber the residents.

The writer returned to Australia on the night of Friday, 18th October and was rather thankful a free weekend lay ahead!

The purpose of the visit was to offer advice and encouragement to the NZNL following an earlier decision to form a Sea Cadet Association to support the Sea Cadet Corps and allow the Navy League to concentrate on national Maritime Affairs. This was a step taken by the Navy League of Australia 20 years ago and our New Zealand colleagues wished to learn from our experiences.

It was made clear to the writer during the Wellington talks that a well-informed Navy League with access to the wider community would be an asset to those responsible for the nation's security and maritime well-being.

During the whole of the visit the nuclear issue – the possible repeal of legislation which precludes nuclear-powered ships from visiting New Zealand ports and prevents New Zealand from rejoining ANZUS – was receiving media attention. The anti-nuclear group made it clear any change would be resisted. A poll published at the time indicated the community was fairly evenly divided on the nuclear issue but a majority wished to rejoin ANZUS. Without doubt, Australia and the United States would like New Zealand to return to the fold but understandably, not on a conditional basis.

Two Parliamentary Committees are to be established by the NZ Government, one to report on health issues associated with nuclear power and the other to keep an eye on NZ participation in the Anzac Frigate Project – yes, there is an anti-frigate lobby in New Zealand as well. The health report can be expected to influence public thinking and the Government's decision to change or not change the present legislation.

Australia and New Zealand are important to each other not only for trade and economic reasons, an area where considerable progress has been made in recent years to bring the countries closer together, but in the vital area of national security where the ANZUS rift has created difficulties for both countries.

It is easy to forget the rest of the world and its troubles in beautiful New Zealand, but the writer has the feeling that left alone and encouraged rather than pressed, this very independent community will sort out its problems and close the gap presently separating New Zealand and its friends.

Geoffrey Evans, Federal President

Geoffrey Evans

From our **viewpoint** Readers

Dear Sir,

The carrier debate; it just won't go away!

Now the Navy is looking at a combined helicopter carrier/training ship to replace HMAS JERVIS BAY in the late 1990s. Several commentators have claimed that the new ship will only carry Blackhaws for troop transport and not dedicated Seahawks, flown by the Fleet Air Arm.

The acquisition of such a ship would be a wasted investment if only "jungle green" aircraft are flown. Surely, like the USN, couldn't the RAN push its case for proper use of the new ship and not just to satisfy the Army General's.

FOUDRE, depicted in the last issue of the Navy is an obvious type of ship for the RAN, capable of many roles and if built locally, a benefit to the economy.

S. PORT Brisbane City Old 4000

Dear Sir,

I read with interest the article on the Second World War anti-submarine vessels, requisitioned by the RAN.

Navy today seems to be suffering the same problems re available tonnage, for if conflict was to break out in our region, the Navy would be forced to look to the merchant marine for sufficient ships. I read recently that the COOP programme is to be discontinued and the present craft returned to their owners.

This is a waste of both taxpayers money and the time and effort put into the conversion of the vessels for mine warfare. Once Navy was operating the COOPS, the politicians should have let the senior service get on with the job. At the present time, it's just a start and stop affair.

S. MICHAEL, Manly NSW 2095

NAVAL NEWS



Ex HMAS PARRAMATTA, leaving Sydney for the last time.

Ex-Navy destroyer bound for scrap yard

The former Royal Australian Navy destroyer escort HMAS PARRAMATTA left Sydney under tow for the last time on 11 October, bound for a shipbreaker's yard in Pakistan.

PARRAMATTA and her sister ship YARRA were sold for scrap earlier in 1991 for an undisclosed amount by AUSSALES, the Commonwealth sales agency, the buyers, Silooka Steels Ltd based in Karachi.

A private tug towed the 2200 tonne ship from Sydney with the voyage to Karachi expected to take about six weeks.

HMAS PARRAMATTA, the third Australian ship to bear the name, was built at Sydney's Cockatoo Island Dockyard. Launched on 31 January, 1959, she was commissioned into the Navy on 4 July, 1961. She undertook many deployments to South East Asia, and served with distinction during the Vietnam War as escort to the troop transport HMAS SYDNEY.

She was decommissioned on 11 January, 1991 after nearly 30 years' of service.

Ex HMAS Parramatta update

The RAN's former destroyer escort PARRAMATTA was towed into the Victorian port of Portland on 17 October, after the tug WOOREE broke down with fuel injector problems plus water in the fuel and alternators.

Both vessels were towed into Portland by the harbour authority for repairs to the tugboat. PARRAMATTA is destined for

Karachi in Pakistan to be broken up for scrap.

Crane move from Sydney to WA

The Royal Australian Navy has moved a crane from Cockatoo Island Dockyard in Sydney Harbour to the HMAS STIRLING fleet support facility in Western Australia.

The 280-tonne travelling portal crane was carried on board the specially designed heavy lift ship DOCK EXPRESS.

Loading of the crane for the 2144 nautical mile journey was completed in early October.

The ship sailed from Sydney on 9 October. The crane was unloaded at STIRLING in two days where it will become an integral part of operations from the base's fleet pier, which will be built as part of Stage 2 of the ongoing development of the HMAS STIRLING fleet support facility.

The move of the Navy crane cost approximately \$1m – about \$4m less than the cost of buying a new one.

Smart sailors save almost \$1 million

A Darwin freight forwarding team has received a national productivity award after saving the Australian taxpayer nearly a million dollars a year.

The Navy's Supply Officer in Darwin, Lieutenant Commander Greg Coombes-Pearce, received the Defence Productivity Award from the Chief of the Defence Force, General Peter Gratton, in Canberra last week.

The award and individual commendations

were made to seven present and former members of the Navy's Supply Centre at HMAS COONAWARRA Fleet Support Base.

The centre achieved a substantial improvement in productivity as well as big cost savings by creating an efficient freight forwarding system for specialised military spare parts for the Navy, Army and RAAF in Darwin.

By replacing an ad hoc delivery system with two scheduled trailer loads per month, the group saved about \$180,000 per year in freight costs.

Using existing staff, they arranged for receipt and distribution of all military spare parts from HMAS COONAWARRA, making further savings in freight costs.

By scheduling backloadings instead of sending repairable parts south on an ad hoc basis, they cut backloading costs from \$257,000 to \$35,000 per year.

The group also handed back to Navy's financial controllers \$500,000 in savings on express freight and local purchases because of improved freight scheduling.

LCDR Coombes-Pearce said the Australian Defence Force now hired a private contractor to carry a semi-trailer load of about 20 tonnes of specialised military spares from Sydney each fortnight.

The truck was unloaded within 90 minutes of arriving at the gate and the load was broken down and distributed to individual military units within four hours. The truck then returned to Sydney with a load of parts for repair and reconditioning.

LCDR Coombes-Pearce said Navy spent \$9.5 million annually purchasing general

hardware spares and services in the Darwin area. Savings in freight costs meant Navy had more money to spend locally.

The Commanding Officer of HMAS COONAWARRA, Commander David Horton, said the Supply Centre's efforts were a fine example of the Navy's drive for economy and efficiency.

"We have to live within a tight budget and the dollars saved by such innovative programs as this will help Navy to make the capital equipment purchases which are necessary to keep it in the forefront of Australia's defence in years to come," he said.

Ex-Navy ship to become luxury liner

The former Royal Australian Navy oceanographic research vessel, HMAS COOK sailed from Sydney on 1 October bound for the Greek Islands where she is to be converted into a luxury passenger liner.

The ship was sold earlier this year for an undisclosed amount by AUSSALES, the Commonwealth sales agency. The new owners, Stability Lines who are based in Piraeus, Greece, plan to spend up to \$10 million rebuilding and refurbishing the ship, named MARIA KOSMAS.

HMAS COOK was decommissioned on 31 October, 1990, 10 years after she was commissioned into the Navy. During her decade of naval service she steamed nearly 300,000 nautical miles whilst undertaking oceanographic research in Australian and South East Asian waters. The ship was built at the Williamstown Naval Dockyard in Victoria.

HMAS Darwin returns from Gulf duties

The Royal Australian Navy guided missile frigate HMAS DARWIN returned to her home port of Sydney on Tuesday, October 1 after a six month deployment to South East Asia and the Gulf region.

A big crowd of family members greeted the ship when she berthed at the Fleet Base, Woolloomooloo.

DARWIN has completed two tours of duty in the Gulf in support of United Nations sanctions against Iraq. Most of her crew of 230 have spent the past 10 months either preparing for or on duty in the Gulf.

During her second tour the ship was mainly involved in escorting merchant vessels into Kuwaiti ports through channels cleared of mines. Iraq laid more than 1200 sea mines during its invasion of Kuwait.

About 80 crew members left the ship when she arrived in Darwin on 22 September, and the fathers of 32 crew joined their sons onboard for the passage to Sydney.

DEPLOYMENT DETAILS

Distance steamed: 36,304 nautical miles
Days away from Sydney: 182
Days at sea: 107



Ex HMAS COOK alongside Garden Island, complete with her new name. (Photo - T. Weaver).



HMAS ADELAIDE (Photo - RAN)

Merchant vessels escorted: 25

First Australian guided missile frigate to be based in Western Australia

The guided missile frigate (FFG), HMAS ADELAIDE, veteran of the first Australian Gulf deployment - will be homeported in Western Australia from October 1992, the Minister for Defence, Senator Robert Ray has announced.

The relocation of the ship, the first of the USN FFG-7 class ships built for Australia, is in line with the Government's policy aimed at progressively basing about half the Navy's major combatants in WA by the end of the decade.

A major building program is also under way at Australia's west coast Naval base, HMAS STIRLING, to upgrade facilities for new ships and submarines.

Senator Ray said the homeporting of ADELAIDE, now commanded by Commander Mark Proctor, at STIRLING will be a significant enhancement to the destroyer/frigate force currently based there.

The ship's arrival in the west would also demonstrate the importance the Government attaches to achievement of the two-ocean basing policy.

Change in homeporting, the Minister added, was a major operation involving, amongst other tasks, the relocation of the wives, families of married officers and sailors and their belongings. FFGs have a ship's company of about 200 including helicopter flight personnel. (ADELAIDE will embark one Sikorsky Seahawk helicopter when they are formally accepted into Naval service.)

New Navy PR vans

The RAN has launched its latest additions to the fleet - MELBOURNE, BRISBANE and SHEEAN.

Not HMA Ship-type additions, but three new specially equipped \$80,000 Navy public relations and recruiting caravans.

The official "launching" was carried out at Sydney's Fleet Base by the Chief of Naval Staff, Vice Admiral I. D. G. MacDougall on 21 October.

In performing the launching VADM MacDougall said nearly two years ago Navy began to consider acquiring the mobile

display units to project the RAN throughout the country.

"We felt that these caravans could help to explain the Navy's role in Australia's defence and give young Australians details of careers in their Navy," VADM MacDougall said.

The Admiral said the originator of the project, CMDR Ralph Macdonald, and LEUT Kathy Beadley then spent about a year going to various caravan displays and trade shows, as well as finding out about overseas developments.

"Having got a clear idea of what was possible, three caravan shells were ordered from Brimarc Industries of Ballarat. They were fitted out by Acumen Communication Planning and Design of Melbourne.

"Both companies can be justly proud of their skills in both design and manufacture. Navy is well pleased with the vans, especially as they were completed on budget and on schedule," Admiral MacDougall said.

Each of the caravans has been fitted out with different theme and they will be deployed to obtain maximum exposure - particularly to country areas.

The SHEEAN - which represents one of the future Collins class submarines - will be based in Sydney and will travel through most of NSW.

The BRISBANE - representing the guided missile destroyer of that name and a Gulf War veteran - will be based in the city of Brisbane and will travel not only the length and breadth of the Sunshine state but also to towns in northern NSW.

The third unit is named after the latest of the RAN's guided missile frigates, the MELBOURNE, and will be based in that city.

It will tour Victoria, South Australia and Tasmania.

VADM MacDougall said he hoped in the near future additional caravans would tour West Australia and increase and boost the coverage of the outback.

"I am sure that these vans will increase the public's awareness of the Navy.

"To those young men and women interested in a naval career, I believe that these caravans will prove informative and give a glimpse of the life at sea," the Admiral said.

Navy now has two fleet bases

The Royal Australian Navy now has two fleet bases.

The Chief of Naval Staff, Vice Admiral Ian MacDougall, said he had decided to adopt the titles Fleet Base East for the major facility in Sydney and Fleet Base West for the facility being developed at HMAS STIRLING, south of Perth.

"Use of these new titles will help the Navy overcome the occasional confusion which comes with having two fleet bases each within a Garden Island - one on each

New Navy Maritime Commander on deck

Australia's new Maritime Commander, Rear Admiral Robert Walls, AM RAN assumed command of the Australian Fleet during a shipboard ceremony held on the Heavy Landing Ship HMAS TOBRUK on 7 November, 1991.

The changeover also witnessed the farewell of the current Maritime Commander, RADM Ken Doolan, AO RAN, who assumed the position in July, 1990 and who directed Fleet operations by the six RAN ships and the Diving Team during the recent Gulf conflict.

RADM Doolan gave a brief farewell speech to his Commanding Officers before greeting his successor on TOBRUK's flight deck. After inspecting the guard and band, RADM Wall read out the posting, with his flag being broken aboard TOBRUK.

Born in Colac, Victorian 1941, Rear Admiral Walls is the RAN's 56th Maritime Commander. His previous appointment was as the Deputy Chief of Naval Staff in Canberra.



Chief of Naval Staff, VADM MacDougall, launches the new mobile display units. (Photo - RAN)

coast," he said.

"But for the people in Western Australia, the adoption of the title 'Fleet Base West' recognises the growth of the facilities at STIRLING to accommodate eventually about half of the RAN's vessels. Progress towards this aim continues unabated."

Navy minesweeper search for Boeing 707 wreckage

The RAN auxiliary minesweeper BROLGA left Jervis Bay in NSW on 24 October to assist with the search for wreckage from the crash of a RAAF Boeing 707 off the Victorian coast.

The vessel is equipped with sensitive side scan sonar to provide an almost photographic-like image of the sea bed. The vessel is also capable of recovering wreckage weighing up to one tonne.

Last year BROLGA assisted in the recovery of the wreckage of an RAAF Macchi trainer which crashed in 150 metres of water off Newcastle.

A team of navy clearance divers from HMAS PENGUIN in Sydney also assisted police divers in the search for crewmen.

Navy VIP Sea Day

Fourteen Royal Australian Navy Fleet units manned by more than 1500 officers and men participated in a VIP-Media Sea Day off Sydney, on Wednesday, 6 November.

Six of the larger ships sailed from Sydney at 0900 with embarked Navy Sea King and Seahawk helicopters operating from the Gulf veterans, HMA Ships WESTRALIA and DARWIN. Aviation activities were followed by officer of the watch manoeuvres, jockey transfers between ships and demonstrations of replenishment at sea.

Aircraft from the Naval Air Station, Nowra including four A4 Skyhawks from RNZAF detachment, plus two FA-18s and two F111s from the RAAF later exercised with the ships with target towing Lear jets subjected to anti-aircraft fire from all fleet units steaming in a single column for thirty minutes.

As the finale, eight other fleet units conducted a steam past the six VIP ships as they entered the harbour.

ROYAL NEW ZEALAND NAVY

50th ANNIVERSARY REVIEW

The Royal New Zealand Navy heralded its fiftieth anniversary with an impressive Fleet Review in city of Auckland during late September and early October, 1991.



Three RNZN frigates approach Auckland at the beginning of the Review week.

To begin the celebrations, fourteen New Zealand and seventeen other warships from eight allied navies sailed into Auckland's harbour on a windy Tuesday morning, 1 October. Greeting the ships for the three hour long ceremonial entry were several hundred spectators on the northern headland, some equipped with deck chairs, mounted in the old gun emplacements to avoid the 30 knot gale conditions and occasional rain squalls.

Leading the Fleet Entry were the "Kiwi" Fleet's larger units, including the frigates CANTERBURY, SOUTHLAND, WELLINGTON and the support ships,

MONOWAI and TUI. Nine Navy helicopters, including seven Wasps, normally flown from the frigates escorted the first group into Waitemata Harbour, while the

Story and photographs ROSS GILLET

Royal Marines Band played at the nearby Princes Wharf.

To provide sufficient alongside wharf space many of the ships "doubled up" at the naval base, HMNZS PHILOMEL, with others berthing on the city side at Queens and Princes wharves.

Sailors from the shore establishment HMNZS TAMAKI led the parade of naval personnel through the streets of Auckland on Thursday 3 October. More than 1000 officers and other ranks from nine stations marched three abreast behind the bands from Australia, New Zealand and Great Britain. Greeting the marchers were tens of thousands of Aucklanders with the official salute being taken at the Town Hall, the welcome being far warmer than the weather.

The actual Review Day on Saturday, 5 October dawned fine and clear. Ships had commenced moving to their allocated anchorages on Friday afternoon with the

remainder on the morning of the review. Two long lines of warships were ultimately formed, the northern one comprising the sixteen larger units and the southern line, thirteen smaller vessels. HMNZS TUI, the official Review Ship embarked the New Zealand Governor General with the other naval and official guests. Escorting TUI over the route of the Review was HMNZS TARAPUNGA, herself followed by several harbour ferries and other privately owned craft.

The Review of the ships and the naval flypast of RNZN and RCN helicopters brought to a climax, the week of celebrations to mark the 50 years of the Royal New Zealand Navy. Thousands of people from the various Auckland suburbs gathered on the foreshores and afloat in boats to witness the

largest Naval Review ever conducted in "Kiwi" waters. Fortunately the predicted gale force winds abated for the day. TUI departed her berth to systematically review the ships, all manned and formally dressed, with each unit providing three cheers for the Governor General.

Some historic vessels also took their place at the north-eastern end of the review lines, these being five former auxiliary patrol craft which provided harbour defence during the Second World War.

Two former Fairmile B Motor Launches, originally in service with the RNZN from 1943-45 were also present. Converted to harbour ferries, named NGAROMA (ex ML 402) and IRIS MOANA (ex ML 409) the two boats have sailed almost continuously upon the waters of Auckland's harbour since

1969 and 1965. Preserved atop the main dockyard wharf was the 72 foot Harbour Defence Motor Launch No. 3563, earmarked for the nearby Naval Museum.

Far removed from the excitement of the main harbour events were five former naval ships, the largest, the former HMAS/HMNZS LACHLAN out of sight at the RNZN ammunition depot west of the Auckland Harbour Bridge and the four smaller class patrol boats, decommissioned several years ago. The latter were moored near LACHLAN (one boat) and at the RNZAF base Hobsonville (three boats).

The RNZN 50th Anniversary Celebrations came to a formal close on Monday, 7 October, with the departure from Auckland of the majority of the visiting ships.

HMNZ Ships TUI and MONOWAI make their way to city side berths.



HMNZS SOUTHLAND.

HMAS PERTH, one of four RAN ships to attend the Review.



*Some of the Canadian contingent.
(Photo - B. Morrison)*



Malaysian frigate LEKIR.



HMNZS MOA and her three sister RNZVR training vessels.



HMNZS PHIL OMEL wharves. (Photo - B. Morrison).

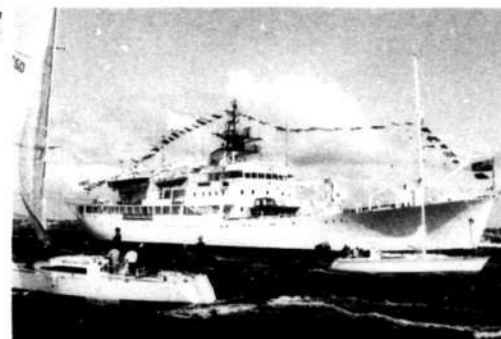


Singaporean landing ship on the move.
(Photo - B. Morrison)



Kiwi small ships at Queens Wharf.

HMNZS MONOWAI on
Review Day.



Various ships from various
nations.



Review ship HMNZS TUI and
friends.



HMNZS WAKAKURA.



Canadian frigate moves to her
Review position.





HMCS PROVIDER berths after the Review.



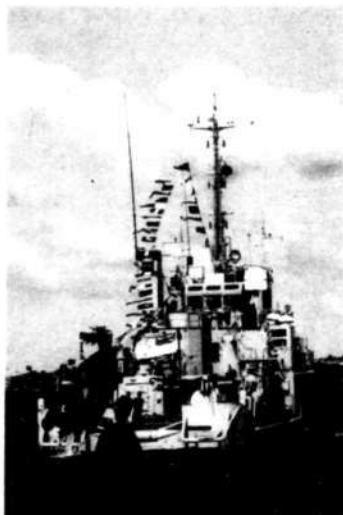
RNZVR training vessels.



Former Fairmile B, converted to passenger launch NGAROMA.



Reft barge, ex LACHLAN, moored up harbour.



The diving tender HMNZS MANWANUI, dressed overall, recovers her boat.

Remains of a Maori War gunboat at Hamilton. (Photo - B. Morrison)



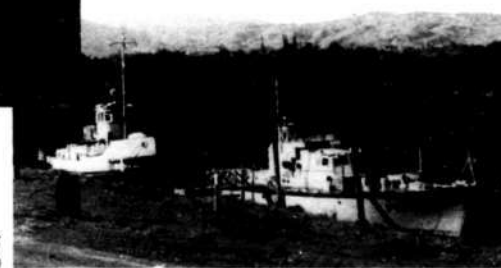
Ready for preservation at the Naval Museum, Devonport. (Photo - B. Morrison)



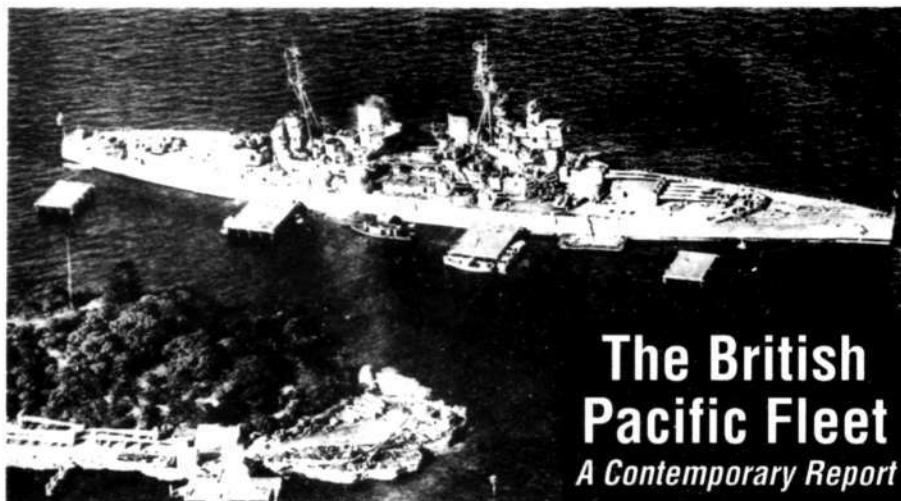
Lake class patrol boats, laid up in reserve. (Photo - B. Morrison)



Six inch guns and director from the former HMNZS ACHILLES, at Aircraft Park, Auckland. (Photo - B. Morrison)



Paeroa Maritime Museum, with its two former naval vessels. (Photo - B. Morrison)



The British Pacific Fleet

A Contemporary Report

LYING at the dolphins off Clark Island (see big picture, pages 16, 17) is HMS Duke of York, flagship of the British Pacific Fleet, under command of Admiral Sir Bruce Fraser. Of the King George V class, vessel is one of Britain's four mightiest

battleships, all of which have been in Sydney Harbor during the past year. The others are Anson and Howe. Their tonnage is 35,000, length 740ft, beam 103ft, draught 28ft. Their speed is 30 knots.

SYDNEY HARBOR

Australia's Finest Port Is Huge Base For The Royal Navy

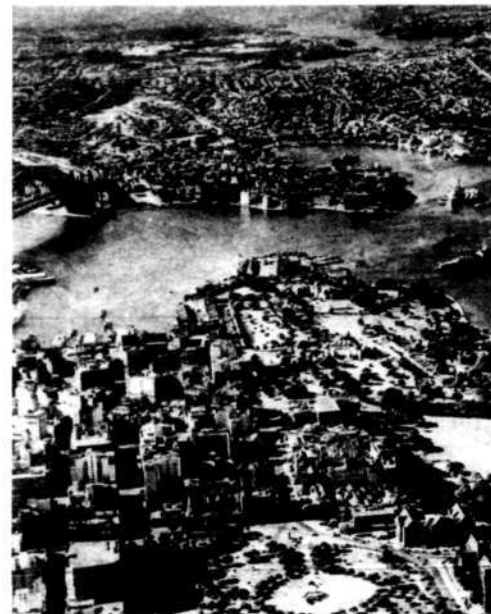
SINCE the British Pacific Fleet was formed to help finish off the war against Japan, Sydneysiders have never known a day when their harbor hasn't been crammed with shipping. As one of the finest anchorages in the world, Sydney Harbor (Port Jackson is its correct name) has become one of the major RN bases in the Pacific. It is not uncommon to see two of the world's biggest battleships and two of the world's biggest aircraft-carriers in Sydney Harbor at the same time and there are always dozens of smaller craft. Because Sydney's wharf space is not entirely adequate, many of the vessels, including some of the largest, tie up at small wooden stagings called dolphins, dozens of which have been erected in the harbor. Britain's huge fleet also makes almost constant use of the new Captain Cook dry-dock, capable of taking the world's biggest ships. About 20 warships were in port on the day the aerial shots in the series were taken.



ANOTHER of Britain's largest and latest battleships, HMS King George V, in Sydney Harbor. Armament of these ships includes 10 14-inch guns, which fire shells weighing three-quarters of a ton each, 16 5.25-inch guns, many small guns.



VICTORIOUS, one of Britain's three largest (26,000-tons) and most modern aircraft-carriers. The others, Illustrious and Formidable, as well as 23,000-tonners Indefatigable, Indomitable, Implacable, have visited Sydney.



NORTHERN end of the city from Hyde Park to Circular Quay is shown in foreground of this angle on Sydney Harbor. HMS Newfoundland, HMS Tyne with two destroyers and HMAS Adelaide (behind Kirribilli Point) can be seen. Note Middle Harbor in background.

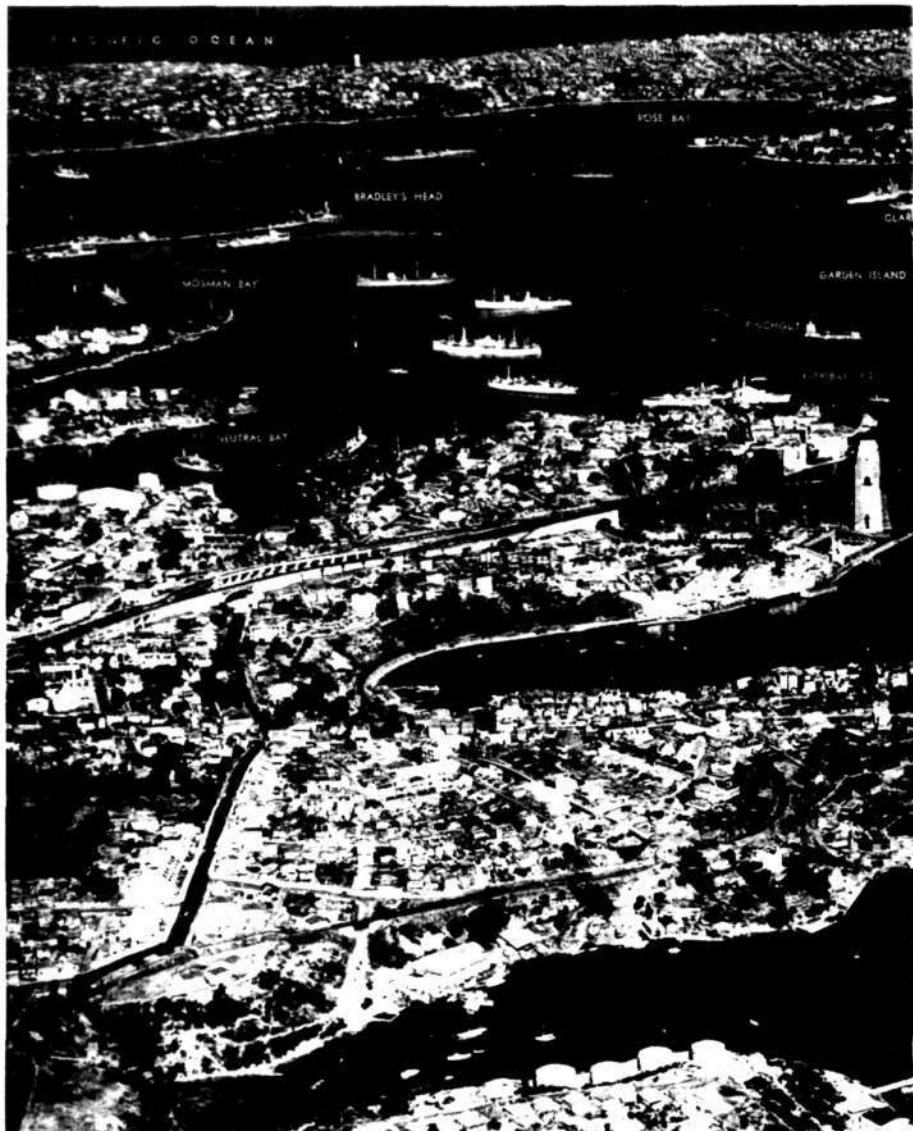


WINDJAMMER Lawhill is in foreground, a Q class destroyer near HMS Newfoundland (centre) and just behind the bridge approach is one of Britain's 46-knot mine-laying cruisers.



FINAL angle on Sydney Harbor is this shot looking south-east across Kirribilli and showing the northern approach to the bridge. Several of the warships already

described are shown, including HMAS Adelaide in Neutral Bay (foreground). Groups of tiny vessels on both sides of harbor are yachts, launches.



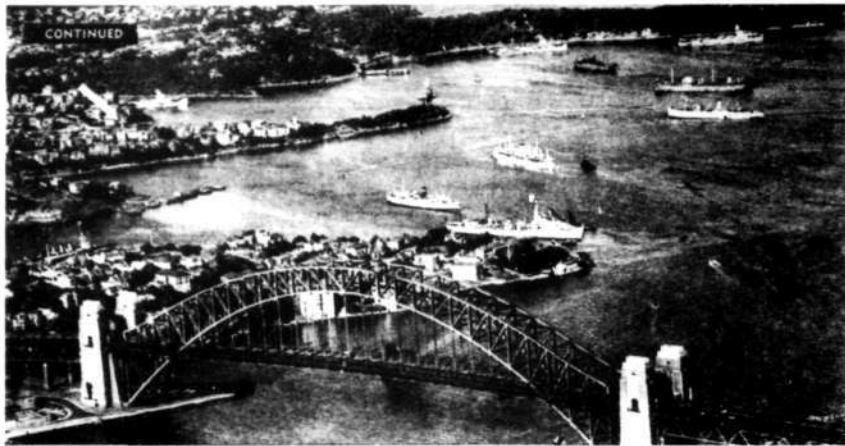
NAVAL BASE THEY COULDN'T CAPTURE

THE enemy knew they would have to capture Sydney Harbor before they could win the Pacific war, but they were never able to get anywhere near it, except for sending a few ill-fated midget submarines into the port. Huge American and British fleets were safe there throughout the war. In the picture above two vast fleets lie at anchor, one a war fleet, the other a merchant fleet. Yet the area shown is only about one-third of the port area. Sydney Heads lie away north (upper left corner) and vast



icking areas lie up the Parramatta River direction (lower right). Apart from a huge number of merchant ships which are not identified, this picture shows many interesting vessels. At Dawes Point is the four-masted barque *Laurel*, one of the last of the windjammers. In Farm Cove are HMS *Newfoundland* and two destroyers side by side. They are the *Queensborough*, one of the Q class destroyers being transferred to the RAN, and the *Norman* one of the N class vessels being transferred

to the RN. In Woolloomooloo Bay are ships identified on previous pages and moored off Clark Island is HMS *Duke of York* (see page 14). Beyond Garden Island are four destroyers lying in pairs. At Kirribilli Point is the fleet repair ship HMS *Tyne* and well to its left the old Australian cruiser *Adelaide* (three funnels). Land visible in foreground and left of picture is part of North Shore. At top South Head Lighthouse is visible towards left.



LOOKING across Kirribilli Point the North Shore appears like this. The four escort carriers (three of which were shown on previous pages) are seen more clearly, with the exception of HMS Fencer in Mosman Bay (indicated by arrow). Others are (from left): HMS Chaser, HMS Speaker, and HMS Striker.



FOUR carriers appear like this from North Shore looking south. Striker and Speaker are in Athol Bight (left), Chaser is in Little Sirius Cove and Fencer can be



clearly seen in Mosman Bay (right). On opposite side (right) are Garden Island, Capt. Cook Dock and Duke of York off Clark Island (left)



CLOSE-UP of HMS Fencer gives an interesting indication of the scale of the big picture on previous pages. Like the other escort carriers it is a converted merchantman, looks puny and disreputable compared with big carriers. The tower of its simple control "island" can be seen at arrow point in top picture.



EIGHTEEN warships appear in this picture taken from the air above King's Cross (right foreground). In Woolloomooloo Bay (centre foreground) are HMS King George V, Devonshire (cruiser), Indomitable (carrier), HMAS Nizam (destroyer). This picture shows how the new Captain Cook drydock links Garden Island with the mainland at Pott's Point. In the dock is the carrier Indefatigable. Alongside left hand side of Garden Island are the cruiser HMAS Hobart and destroyer Vendetta (see picture below) and to right of island are two destroyers together. In bays in opposite shore are three escort carriers, and a fourth - in harbor at same time - is shown in other pictures. In midstream left of picture is HMS Newfoundland (cruiser) and above it, off Kirribilli Point, is fleet repair ship HMS Tyne with two destroyers. Behind point is three-funnelled cruiser HMAS Adelaide.



CLOSER view of dock area shows cruiser HMAS Hobart (foreground) alongside Garden Island and HMAS Vendetta (right of island) moored outside another vessel. Indefatigable also can be seen in the dry-dock.



DOCKED for overhaul in the Captain Cook graving dock is HMS Anson, one of the KGV class battleships, which cost \$25,000,000 each. Note 16-inch armor plating at waterline.

NAVAL MATTERS

by A. W. GRAZEBROOK

Peace "Dividend" Spurs Defence Export Drive

Writing in the October, 1991, issue of Asia-Pacific Defence Reporter magazine, Professor Desmond Ball, recently retired head of the Strategic and Defence Studies Centre at the Australian National University, stated that "In Asia, the reduction in the superpower presence, the growth of major regional powers, the availability of economic resources, the desire for new technology and concern about increasing political uncertainty are all factors pointing to significant increases in regional defence expenditure."

The broad thrust of Professor Ball's statement is in line with statements made over the past year or so by the Minister for Foreign Affairs (Senator Gareth Evans), the Leader of the Opposition (Dr John Hewson), the Minister for Defence (Senator Robert Ray), the Opposition Spokesman on Defence (Senator Peter Durach) the Chief of the Defence Force (General Peter Gration) and the Secretary of the Department of Defence (Mr Tony Ayers).

Professor Ball went on to quote an estimate that defence spending in Asia, including Japan and China around through South East Asia to India and Pakistan, could rise from the 1990/91 figure of US\$70billion to US\$130billion by the mid-1990s.

Four further factors will fuel this very substantial increase in regional defence expenditure.

- * The economic problems of the Soviet Union and newly emancipated nations of the former Soviet bloc will press them to seek defence equipment exports to raise hard currency foreign exchange.
- * The peace "dividend" reductions in defence expenditure in Europe and the United States will lead to export sales drives by equipment manufacturers in those areas.
- * Surplus defence equipment will be for sale from both NATO and the Soviet Union.
- * The larger regional powers will themselves drive to boost export sales of defence equipment and their own defence industries.

Specific instances of these trends are already appearing.

China is continuing her drive for defence export sales of naval, air and army equipment. Examples include the sale of frigates to Thailand and Bangla Desh, her efforts to sell frigates and frigate building capacity to Indonesia, the sale of fighters to Pakistan, army equipment to Thailand and a range of naval, military and air equipment to Burma (Myanmar).

India, so far not a big defence equipment exporter, has plans to quadruple her exports. Specific items proposed include 105mm artillery to Malaysia and Indonesia.

Very large quantities of surplus army and air defence equipment are already available from Europe. Much of that from Warsaw pact countries is obsolete or worn out. Even some of the newer equipment compares unfavourably with the best equipment in service in the West.

The unification of the East and West German armed forces has provided an excellent opportunity to compare modern Soviet and Western equipment not only in fighting capability but also operational availability - time required in maintenance against time available for operational service.

Former East German warships were found to be a decade or more technologically behind those in service in the Bundesmarine. The Mig-29 Fulcrum fighters have much lower operational availability than their modern western counterparts.

NAVAL MATTERS - CONTINUED

Nevertheless, much equipment of Soviet origin is very capable indeed. It would be a major improvement on some of the older equipment in regional service.

Turning to the west, we hear that the Pakistan Navy is to acquire former US Navy Charles F. Adams class guided missile destroyers (of the same basic design as those in service with the RAN).

There are reports that three Dutch Kortenaer class frigates, only half way through their operational lives, are to be offered for sale. Indonesia has been mentioned as a possible buyer. There are stronger reports that Indonesia is interested in purchasing the two Dutch Tromp class anti-aircraft frigates.

Turning to new western equipment, we find the complete major surface forces of both the South Korean and Taiwanese Navies being re-equipped with frigates either of western design themselves or armed with western type weapons and sensors. Modern western mine counter measures equipment, naval helicopters and weapons are being bought in the region. In many cases, these are at least as modern as corresponding equipment in the RAN.

Recognising the re-emergence of ancient tensions amongst themselves, the newly emancipated nations of Eastern Europe are less than keen to reduce their defence forces. None the less, their equipment industries will be keen to export.

The kind of difficulties that may arise in the region are well exemplified by the reports that the Soviet Union is to engender a competition between India and China for a competition for a joint development project for the Yak-141 short take off and vertical landing combat aircraft for aircraft carriers. This aircraft, still in development in the Soviet Union, is their attempt to "leapfrog" the latest British/US Sea Harrier/AV8B type.

Neither India nor China, each profoundly suspicious of the motives of the other, can afford to let the other improve both their naval air capability and their high technology defence support capacity by concluding a joint development project with the Soviet Union. By concluding such an agreement with India, the Soviets themselves would gain access to India's experience of operating and maintaining their British built Sea Harriers.

Another example is the Soviet proposal to sell to China the Su27 Flanker long range air combat fighter - much more capable than the Mig-29 Fulcrums of the Indian Air Force. The published unrefuelled combat radius of the Su-27 is 932nm, that of the Mig-29 500nm and the F/A-18 460nm.

All these examples must not obscure the fact that regional nations are developing their own defence equipment industries. Some of these are already far more capable than that of Australia.

Nor must it be assumed that all of these developments are adverse from Australia's viewpoint. On the contrary, it is very much in Australia's interests that (for example) nations bordering the Straits of Malacca are capable of ensuring that those straits remain open to international maritime commerce, and that Japan (our biggest customer) is capable of defending herself and her vitally important maritime trade.

Nevertheless, the facts in terms of hardware support the regional security prognoses of Australia's national political and Defence Force leaders.

It is encouraging that our national political leadership recognises the regional security development. What is still needed is a readiness to recognise that Australia must increase her defence expenditure to ensure that we have the Defence Force required to defend Australia and her interests.

MAGIC NISSAN

Proud to be appointed service contractors to the Navy Fleet of Nissan Vehicles

The Navy and Magic Nissan
- the top service teams in W.A.

Sales • Spare Parts • Service Department

164 Leach Highway, Melville WA 6156

Telephone:
317 1463

Facsimile: 317 2544



INGERSOLL-RAND

Engineered Equipment Sector
Leading Australian Manufacturer and
Supplier of
Shipboard Pumps, High Pressure and Low
Pressure Air Compressors and Complete
through life support

Head Office:
**FRANKSTON ROAD,
DANDENONG 3175**

Phone: (03) 794 1611

Fax: (03) 794 9659

CORPORATE MEMBERS

Computer Sciences of Australia
Pty. Ltd.

Dunlop Aerospace Australia

Hawker de Havilland Limited
NQE Australia Pty. Ltd.

Rockwell Electronics (Australasia)
Pty. Ltd.

Rockwell Ship Systems Australia
Pty. Ltd.

NESTLE FOODS

(A Division of Nestle Australia Ltd)

Appreciate their Long Association as Suppliers of Quality Food Products to the
Royal Australian Navy

277-289 WOODPARK ROAD, SMITHFIELD, NSW, 2164
Telephone: (02) 609 7599. Facsimile: (02) 725 1804



WELCOMES YOU TO YOUR NEW BASE

Helping the Navy to Serve Australia

DAS Removals has been arranging removals for the Defence Force for over 40 years – we understand your requirements and are proud to offer our services.

We set the Standards

All our contractors must meet DAS Removals standards – the industry's benchmark.

We Arrange

- Pre-removal visits.
- Insurance cover which is more comprehensive than any available from the private sector.
- Regular meetings with the Spouses' Working Party – your consultative group which conducts regular storehouse visits.

We Also

- Provide removals quality controllers who are constantly on the road to monitor removals in progress.
- Have direct contact with your Removals Clerk and Administrative Officer to provide a more personalised service to members.
- Carry out regular inspections of furniture storehouses to ensure proper care is being taken of your goods.
- Meet regularly with the removals industry to improve removals and storage standards.

We Can

- Assist with a diverse range of additional services for families and members including transport, accommodation, freight and storage

DAS Removals

Department of Administrative Services

A Quality Service Team

National Office • (06) 295 4946 • NSW (02) 699 4900 • VIC (03) 320 4172 • QLD (07) 252 1127
• TOWNSVILLE (077) 79 5888 • WA (09) 425 5611 • SA (08) 347 4301 • NT (089) 81 2746
• TAS (002) 73 2588 • ACT (06) 280 1511

Service is Our Business



Address to the 44th Conference of the Navy League of New Zealand

Auckland, 12 October

by GEOFFREY EVANS

President, Ladies and Gentlemen,

It was a great surprise to me to learn, only a few months ago, that changes had been made to sea cadet arrangements in New Zealand and that the Navy League had lost the considerable responsibilities it had for the Sea Cadet Corps.

It may surprise you to know that I had always regarded the division of responsibilities between government and the Navy League of New Zealand as a model for other countries. Indeed, when the future of Service cadet training was under consideration in Australia in 1976, I recommended to our Defence Minister that he should take a good look at your arrangements before he decided on the system to be adopted in Australia. But more of that later.

Separating the Navy League and its cadets is a painful business. We in Australia have been through it all and it is clear that it has been for you too. It is not however the end of the world for the Navy League as some of you seem to think, but a challenge to get on with the task which led to the formation of a Navy League in the first place.

Can I remind you that the Navy League of New Zealand had its origin in the Navy League formed in Britain at the end of the 19th century and which is described in my concise Oxford dictionary as, and I quote:

"A body formed in 1895 with the object of arousing interest in the British Navy"

The League was born out of concern for the state of Royal Navy at the time and who is to say, nearly 100 years later, that the security of nations is no longer a matter for concern?

Encouraging youngsters to take an interest in the sea and nautical matters is certainly one way of arousing interest in navies and the formation of a sea cadet organisation by the British Navy League was a very forward-looking move.

When Navy Leagues were established in the British Dominions early in the 20th century, Sea Cadet Corps were formed and became their main preoccupation. A Navy League was also established in the United States and while it has a Sea Cadet Corps, the promotion of national defence, in particular naval defence, has from the start been the primary objective of the American League.

The first branch of the British Navy League was established in Australia in 1901 and others followed over the years. The main purpose of the Branches was to support what we called "Navy League Cadet" units and believe it or not, they continued as branches responsible to the British parent until after the Second World War.

After the war the Branches – there were not very many of them – formed a loose coalition and sought assistance from the Navy. The Commonwealth Naval Board, not surprisingly, declined to negotiate with a London-based organisation (we had grown-up since 1900) and it was not until 1950, that the Navy League of Australia came into being as an autonomous body, governed by a Federal Council which included the representatives of each State and Territory of the Commonwealth.

Our Naval Defence Act (this was in the days when the Navy, Army and Air Force were separate Departments of State and had their own rules and regulations) limited the assistance Navy could provide but it was invaluable nevertheless. It included the provision of uniforms, responsibility for training and the supply of some training equipment; the Navy League was responsible for everything else including accommodation (drill halls) and administration.

In the event the ASCC prospered and expanded from less than 500 cadets in 3 states in 1948/49 to 1700 in 1958 and 2500 in 1963. As growth continued unabated, Navy no doubt prompted by the treasury became concerned about the escalating cost, while the Navy League had major problems in funding the buildings required for new Units. Moreover the size of Australia and vast distances caused administrative problems. In practice each Division of the Sea Cadet Corps virtually ran itself.

In 1966 a small sub-committee of the Sea Cadet Council was formed to advise on the future of the ASCC. There were only 3 members – the Director of Naval Reserves who was chairman of the Council, the Federal President of the League and myself as Vice-President.

We travelled all over the country and it soon became apparent that separating the Navy League and Sea Cadet organisations, which had already been proposed would cause a good deal of unhappiness even though it was generally seen as inevitable.

Given the legal limits placed on naval assistance to what was regarded as a private organisation, as well as the financial strain on the Navy League, the sub-committee recommended that the Sea Cadet Corps be made the responsibility of the Navy and brought into line with the Army's school cadets and the Air Training Corps. The recommendation was accepted by the Naval Board and the Federal Council of the Navy League and the League lost its cadet organisation on 1st January 1973.

I should perhaps mention the renaming of Australian Sea Cadets. A clause in the Naval Defence Act enabled the Naval Board to finance "Naval Reserve Cadets" – an underage section of the RANR which had not existed for some time. Rather than amend the Naval Defence Act, which was a lengthy process, it was decided to call Sea Cadets "Naval Reserve Cadets" although they were not part of the Reserve nor liable for service with the defence forces. A misnomer if ever there was one and regretted by many including myself.

In August 1975 the Minister of Defence in the then Labor Government announced the abolition of Service-financed cadet training. There was an outcry as there had been in your country when a similar decision was made, but nevertheless disbandment commenced and was to be completed by the end of the year.

Fortunately, in the course of discussions leading to the transfer of the ASCC to the RAN, the Federal President at the time, Admiral Showers, had foreseen the possibility of disbandment and had obtained from the Naval Board and undertaking to give the League time to resume control of the cadets. As Federal President in 1975 I invoked this undertaking with the support of the Naval Board and it was honoured by the Government. In the event the Government fell in rather dramatic circumstances and the incoming government revoked the decision of its predecessor to abolish cadet training.

The Sea Cadets, or rather, Naval Reserve Cadets, sailed untroubled through all these events although I must say the league was a bit worried about resuming control of what by then had become a much more expensive organisation!

However, while the future of the ASCC was being discussed, other more worrying events were taking place. The nineteen-sixties were unhappy years for the Royal Australian Navy – it had been a period of accidents – the MELBOURNE/VOYAGER collision and the drowning of a number of HMAS SYDNEY's midshipmen to mention but two.

ADDRESS TO 44TH CONFERENCE

Continued

Naturally, the Navy's reputation was suffering.

It seemed to some of us in the League that we should take more interest in the naval situation. The Chief of Naval Staff, Sir Victor Smith, was obviously thinking along the same lines as at the end of the sixties we were approached about the matter.

So far as the league was concerned, one of the problems was our lack of knowledge of what was happening in the Navy other than what we learned from the media. The net result after discussion was a tacit understanding that the Navy and Navy League would keep in close touch and that we in the League would do what we could to support the Navy.

We also found that the more deeply we became involved in naval affairs, a need to think more broadly and to embrace not only the role of the other Services – the Army and Air Force – but foreign affairs and defence policies and not least, the commercial shipping industry. It was very stimulating – and it also took a lot of time.

These wider interests had a big effect on the composition of our membership. People interested in youth training are not necessarily interested in national security issues and vice versa. Quite often however, the interest do coincide and that's good.

We realised at an early stage that if we were to achieve any of our wider aims, we would need a much more diverse membership. It proved not as difficult to do this as one might expect – there are lots of people about who are interested in maritime affairs and in their country's well being, but who lack a way of focussing their interest. Today, the Navy League in Australia is fairly representative of the maritime community:

- The ship industry – both management and seagoing elements
- The shipbuilding industry – including engineers and naval architects
- The professional Navy is well represented, in the main by retired officers (one Divisional President, an RANR Commander, had 4 Admirals on his Committee, an interesting experience for all concerned)
- The Reserve is also well represented by both active list and retired members. The Reserve of course represents many professions and occupations and many of our executive committee members are businessmen. There are quite a few lawyers also and their advice is often sought.
- At the State level, most Executive Committees include members who hold office or are experienced in sea cadet affairs. These committees also include members representing other organisations with similar aims – the Naval Association, the Company of Master Mariners and so on.

Harnessing and using to best advantage the talent and experience available in the League is not easy but it is important to make the attempt in order to retain the interest of the members. We do from time to time form small "study groups" to examine particular problems or issues and come up with a plan or recommendation. Several issues which were rather controversial and required close study come to mind:

- The fiercely argued proposal to replace HMAS MELBOURNE with another carrier. (That debate went on for several years and the Navy League's contribution was widely recognised. Perhaps I should say we supported the proposal but in the event lost the battle.)
- Proposals to move the Navy out of Sydney and base it at Jervis Bay.
- The place of Reserves in today's sophisticated navies.

What are our activities today?

- We publish a quarterly magazine, THE NAVY, which all members receive as part of their subscription, and which is sold on the bookstalls. There are also a few subscribers who are not members of the League but we are trying to get them all in. We attach great importance to the magazine and its content; without the magazine I hesitate to think what would happen to membership.

- We arrange seminars – or mini-seminars as I call them because they are not day-long affairs, but rather meetings of 2, 3 or 4 hours duration, usually held in the evening with a meal provided. There are so many seminars now, lengthy and increasingly expensive. Subjects covered by our minis range from Shipping industry reforms to Gulf War experiences.
- We co-operate with other organisations, in particular the Australian

Naval Institute, when prominent naval persons visit Australia.

- Preparing submissions for Parliamentary and Government-sponsored inquiries into matters which interest us is another activity, and sometimes appearing before the inquiry to answer questions.

The largest and certainly the most expensive project undertaken by the League in Australia (it cost over \$200,000 and could not have been completed without the aid of a generous benefactor) is an educational video titled "The Sea and Australia". This is a two and a half hour video – six self-contained episodes on a single tape and it covers:

- Episode 1 The Voyage of the first Fleet
A Tour of Sydney Cove and Port Jackson
The Exploration and Early Settlement of Australia
- Episode 2 The Nature of the Sea
- Episode 3 The Resources of the Sea
- Episode 4 Commercial Shipping, Ports and Harbours
- Episode 5 Navigation and Safety at Sea
- Episode 6 Protection and Conservation (including a short history of the birth and development of the RAN)

The video has been distributed free of charge to over 2,500 secondary schools in Australia, happily with the co-operation of six separate State educational authorities.

If you think these activities take up a lot of time, you are quite right, they do. We endeavour to spread the burden as much as possible but as is the case with most organisations, a relatively small number of people contribute a disproportionate amount of effort. Even so, without backing of the membership it would be of little avail. This means good communication with members and we in Australia still have a long way to go before we can be satisfied.

What does the Navy think about the Navy League? This of course is not a question I can answer directly but I can quote from an article written by a former Chief of Naval Staff and Chairman of the Chiefs of Staff Committee, Admiral Sir Victor Smith who, you may recall, I mentioned earlier is the person who was largely responsible for bringing the Navy and the Navy League closer together. In an article published in the September 1987 edition of THE NAVY, Sir Victor said:

"It was suggested that I should write this perspective in view of my comparatively long association with the Navy League. This association has been of two types; Firstly as a member of RAN and later as a member of the League.

When I became a member of the Naval Board in 1962 and in my various rear-admirals' appointments I realised increasingly the amount of support and advice which was available within the League. As CNS in 1968 I took steps to increase substantially, communication between the two and this proved beneficial to the RAN and also I believe to the League.

It might be asked in what manner did these benefits occur. From a Service aspect, we were of course familiar with policy, financial, personnel, technical objectives and so on, and also the desirability of having good public relations. Nevertheless, there were two deficiencies – one, that at times our view might have been limited to an extent by our profession, and, secondly, that by the nature of our work we did not have the opportunity to obtain a wider public reaction to the various and widespread naval activities whereas the League, by diversity of



*Delicious
Bakehouse
Products*

- FRUIT CAKES
- PUDDINGS
- GLACE CHERRIES
- SPECIALITY XMAS LINES

BIG SISTER FOODS LIMITED

44A WHARF RD ERMINGTON, NSW 2115

Telephone: 804 6111

Facsimile: 804 6703

ADDRESS TO 44TH CONFERENCE

Continued

members, their experience, knowledge and contacts could help the Navy in its tasks.

From the League's point of view, better communication would enable members, who were obviously interested in naval and maritime matters, to have much better appreciation of the Navy's aims, their implementation and associated problems.

Naturally, if there is a common understanding and rapport between the two bodies, with each effectively playing its own role, then the result must lead towards a better maritime defence for Australia and a wider general knowledge concerning this defence.

The League's policy has been comprehensively stated in the April-June 1987 issue of "The Navy". I believe it to be realistic and well worth studying. The League should never hesitate to further its policy. For instance, in 1982 the League forcefully entered the aircraft carrier discussion. The RAN no longer has a carrier but that certainly does not mean that the League's views were wrong. The essence of this example is that the League had a policy on this matter, it had opinions to express and it did proclaim those views.

I did not wish to omit mentioning the League's close involvement with the Naval Reserve Cadets, who had their origin in the Sea Cadet youth training movement founded by the League many years ago. The League's work in this area has been of great value to the Navy and to the community generally.

This perspective has been brief, but I hope I have been able to make my point regarding the value of the Navy League concerning itself in relevant matters which affect the well-being of Australia.

To sum up our experiences in Australia, the loss of the Sea Cadet arm was painful and marked the end of a chapter in the long history of our Navy League. It was not the end of the book however, rather the beginning of a new chapter.

The transition from a sea cadet orientated organisation to one involved in the nation's affairs, even in a small way, takes time – changes cannot be accomplished overnight. Looking back over the past twenty years I am conscious of failures and things we should have done better. One simply has to keep on trying.

In New Zealand, Australia and most Western nations we live in challenging times. For several years now the word "uncertain" has been used whenever reference is made to the future and it seems to me to become more uncertain and unpredictable every day. Our communities know this and they know the world is a pretty turbulent place at the present time. They also have a natural and understandable disinclination to become involved in wars, and a tendency to hope for the best and that everything will turn out all right in the long run. It is up to organisations such as ours to remind our fellow citizens that no nation today can take its security for granted, that armed forces exist and will continue to exist as part of virtually every nation's make-up. Too often in the past communities like ours have put their heads in the sand and paid a terrible price for not wanting to see what was happening about them.

From what I have read in statements by some of your members I believe you are willing to take up the challenge and I hope that in some way I have encouraged you to do so.

"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**

THE SHELL CO OF AUST. LTD

**STATE BUSINESS CENTRE
22 Bracks Street
North Fremantle
West Australia 6159**

*Contractors to the Department of
Defence Contracting Office*

*Proud Suppliers of
TOP QUALITY FUEL TO THE
ROYAL AUSTRALIAN NAVY IN WA*

**TELEPHONE:
(09) 432 1222**

JOHN CRANE AUSTRALIA PTY LTD

**PO BOX 200,
BANKSTOWN, NSW, 2200**

*Contractors to the Department of
Defence for Shaft Seals and Seats*

**Phone: (02) 709 2288.
Facsimile: (02) 707 4646**

TRUMPed UP BETTER LATE THAN NEVER

(FROM CANADIAN MILITARY THEN AND NOW)

Last December, under clear winter skies, an unfamiliar warship sailed into Halifax Harbour. Unknown to most, HMCS ALGONQUIN was returning home, after three years in a Quebec shipyard. Most could be forgiven in not recognising the destroyer. Gone were the Tribal-class trademark V-funnels, known as "bunny ears", replaced by one clean box-like funnel. Its deck gun was further back too, and the mast was a little higher. And although it carried an additional 250 tonnes, the ALGONQUIN looked sleeker. Apparently, it was not the same ship.

The ALGONQUIN had been Trumped.

Over the next three years, Canada's four Tribal-class destroyers - ALGONQUIN, ATHABASKAN, IROQUOIS, and HURON - will sail into the 21st Century as part of the Tribal Up-date and Modernisation Project, TRUMP. Under the \$1.2 billion programme, the four will not only receive modern sensors, electronics and weapons, but change their 20-year mission from anti-submarine warfare (ASW) to area defence and task group command and control.

When done, the TRUMPed Tribals will be able to do something they have never done before - sail outside the protective cover of their NATO allies, namely the United States Navy. For the last 40 years of the Cold War, Canada's maritime doctrine was predicated on its ASW role in the North Atlantic. As part of the alliance, it expected to be part of a larger allied armada, the centrepiece of which was the USN aircraft carrier battle group. But that cosy view of naval warfare changed in 1982 with the Falklands War. High technology scored a bullseye when determined Argentine pilots in Mirage fighters hit British shipping with French-built Exocet missiles. The lessons were quickly learned by most navies.

In 1983, the same year the Canadian navy launched its Patrol Frigate Programme (CPF), the federal government awarded Litton

by Patrick I. McManus

Systems of Canada Ltd. the project definition contract for TRUMP. Toronto-based Litton was expected to pull together a \$650 million package for a mid-life refit on the navy's four Tribals.

Commissioned between July 1972 and September 1973, the ships were at the half-way point in their service life. But the Department of National Defence wanted more than just a refurbishing. The change in the destroyers

estimates placed the TRUMP programme at a possible price range of \$2 billion, too rich for Ottawa's blood. Options were discussed. It was thought a cost-saving measure might be to TRUMP only two destroyers and put the other two through standard refit. At one point it was seriously considered to drop the project all together.

Finally in May 1986, the Department of National Defence and Supply and Services awarded Litton the \$1.2 billion contract for all four destroyers. Litton did not know what it was in for. The original plan projected an 18-month refit with all ships through the system by 1991. But the prime contractor soon found it was easier to build a new warship from the keel up than to reconfigure an old one. Despite the radical change in its surface appearance, the ALGONQUIN's structure remains the same. From the bridge and helicopter hangar and keel, Litton planners had to figure out where to string the wires and bolt on the new machinery. That task, coupled with a lack of home-grown expertise, saw the project miss deadline after the deadline.

But for all the delays, the navy is

getting plenty of warship for the taxpayers dollars. With reconfiguration, ALGONQUIN is no longer a sitting target. Hidden out of sight, imbedded in three forward decks, is its most lethal hardware - the Martin Marietta Mk 41 Vertical Launch System (VLS). Designed for the USN's Ticonderoga-class destroyer, the VLS will turn the tribals into floating missile silos. The system consists of four eight-cell modules which will hold a total of 29 missiles. Versatility is its key selling point. The VLS is a basic launch tube system adaptable to a wide range of missiles. Future variations with the USN will see the VLS with AMRAAM anti-war and ASROC/ASW missile launch capability.

For now, the Canadian navy missile of choice is the General Dynamics Standard MR2.



HMCS ALGONQUIN during her TRUMP refit.

TRUMPed UP - Continued

Block 2 surface-to-air missile. The Standard has an operating range of 30 kilometres with a ceiling of 65,000 feet. Once out of the tube it can hit a top speed of Mach 2.5.

Just above the VLS and underneath the bridge, is the OTO Melara 76/62 Super Rapid deck gun. Primarily an anti-missile weapon, the 76 mm gun can also engage shore and surface targets, firing such rounds as a warning shot across the bow. Its rate of fire adjusts to between 30 and 120 round per minute. The ship's last line of defence is the Phalanx Mk 15 Block 1 Close-In Weapons System (CIWS). This 20mm chain gun with six rotating barrels is cousin to the gatling mounted on the

Sperry of Winnipeg, SHINPADS is common to both TRUMP and CPF. Through the standardised AN/UUK-505 mini-computer, information from sensors, radar and additional sensors on warships and helicopters within a task group, allow the ship's captain and the group commander to watch the battle environment around them from one console.

Not surprisingly, such high tech complexity has carried a stiff price. TRUMP is already two years behind schedule. The projected 18-month refit period is now stretched out to a more realistic 36 months. Last year Litton and MIL Davie, whose Lauzon yard outside Quebec City handles most of the refit, gained approval for a new contract schedule from DND and DSS. Despite that, DSS has withheld contract payments due to delivery date slippage. As a result, in April Litton launched a \$750 million

years, long after the talent from the last such programme has disappeared.

(Supply and Services Minister Paul Dick announced on 17 July 1991 that Litton Systems Canada Limited and the federal government have signed a Memorandum of Understanding to restructure the TRUMP.)

With this agreement, all issues and claims between Litton and MIL have been resolved and Litton has dropped its lawsuit against MIL and the federal government. The government will deal directly with the subcontractors responsible for the ship systems. This includes MIL Davie, MSEI and Pratt and Whitney. Litton will retain responsibility for the combat systems integration - ed.)

Nevertheless, TRUMP is back on track. The ALGONQUIN arrived in Halifax last



Post TRUMP.

Fairchild A-10 Thunderbolt which recently tore apart Iraqi T-72 tanks in the Gulf War. The Phalanx fires 2,000 rounds per minute with radar guidance, literally sending up a wall of metal at an incoming missile.

The eyes of the TRUMPs are long. Medium range radar and the STIR 1.8 Fire Control radar are all built by Signaalapparaten of Holland. These systems create a 120-kilometre electronic cordon sanitaire around the ship. For additional defence, the Canadian Navy Electronics Warfare System (CANEWS) gives the destroyers new electronic counter measures (ECM) and electronic counter-counter measures (ECCM) to jam enemy radar, and stop being jammed.

The tie that binds all these systems is SHINPADS - Shipboard Integrated Processing and Display System. Developed by Computing Devices Company (CDC) of Ottawa and

lawsuit against the Crown.

There is plenty of finger pointing in TRUMP. Who is really responsible for the endless delays is lost somewhere within the murky bureaucracy of Ottawa. But in its lawsuit statement of claim, Litton clearly lays the blame at the federal government's door. Litton says MIL Davie was forced on it early in the programme as a requirement of the contract. Not long after, MIL won the contract to build three patrol frigates, and shortly after that two Department of Transport ferries, the Joseph and Clare Smallwood. In the resulting shipyard bottleneck, the two bigger contracts took priority and TRUMP was pushed further back.

Industry observers say the fault rests squarely with Ottawa planners. Like with CPF, industry is hobbled when DND only puts out contracts for new naval ships once every 20

December, one week earlier than its reworked schedule planned. In May and June, the Harbour and Contractor Sea Trials went on time without a hitch. In fact, ALGONQUIN reportedly exceeded specifications and expectations. Over 90 per cent of its platform machinery trials - testing the engines and steering gear among other items - were completed in June. A second series of trials are slated for late August when the combat systems of software will get a run-through on non-firing tests. Provisional handover to the navy is expected by late September or early October. HMCS IROQUOIS should be in Halifax by late November to begin the final acceptance work, with possibly contractor trials by mid-1992.

From there, the navy will decide which of the two Gulf War veterans - ATHABASKAN or HURON - will go next in line.

New warships from overseas

A Family of Corvettes

Vosper Thornycroft pioneered the development of the modern corvette in 1964 with its Mk 1 Corvette.

The Corvette was then a new concept recognising that the traditional patrol craft, although capable of high speeds and being heavily armed and ideal for rapid strike missions, were not suited for long arduous ocean patrol duties.

The solution was a longer ship for good seakeeping, good accommodation for crew comfort, low maintenance and high automation for low crew numbers, effective surveillance sensors and communications, and a comprehensive weapon system for self-protection and for dealing with infringements.

This is the policeman of the oceans – the eyes and ears of a navy patrolling the oceans, watching, listening and reporting the movements of other ships, aircraft and submarines threatening sovereign territorial waters.

Over the years the concept has been developed, by evolution from the Mk 1, in its two forms, to the Mk 3 and to the Mk 9. The Mk 9 has been developed into the 77m Vigilance Class Offshore Patrol Vessel.



VIGILANCE.

Operational Capabilities

The Vigilance Class OPV is the policeman of a Navy – watching, listening and reporting the movements of other ships.

For watching – a high grade surveillance radar is fitted. This can be either E/F, G or I Band, depending on requirements.

For Listening – an ESM equipment is fitted to detect radar emissions, plus MF/HF/VHF/UHF ESM to detect radio emissions.

For reporting – a Data Link communications system is fitted.

Once the Vigilance has detected, identified and reported, the Shore Station assesses that threat and either:

- directs the Vigilance Class to intercept, investigate and action; or
- mobilises ground forces, aircraft, helicopters or other naval units to take action under direction of the Vigilance OPV as required.

Should the Vigilance OPV be attacked either from the air or the surface it is well able to defend itself using its own weapon systems.

Additionally, the Vigilance OPV has space to train naval personnel, or to accommodate 24 marines should the need for an amphibious assault arise. In this event an effective assault can be launched under cover of naval gunfire support from the medium calibre gun, by using the helicopter and two Avon Sealanders to land the marines.

Design Priorities

The Vigilance Class is designed to patrol the oceans with long arduous periods of watching and listening, yet remaining on the alert at all times. To achieve this capability, priority has been given to:

- good comfortable accommodation
- Seakindliness with good seakeeping and low motions
- High level automatic monitoring and control of machinery and equipment

- detailed consideration of ergonomics in the operation and maintenance of the ship
- low maintenance yet high reliability
- low crew numbers

These are the lessons learnt by the Royal Navy in the Falklands Campaign – conducting operations 8000nm away from base for up to three months at a time.

1500 Tonne corvette from Yarrow DESIGNED FOR THE 1990s

The 1500 tonne corvette provides a well-balanced and effective capability against air surface and submarine targets in a compact, high performance hull. The vessel can carry sufficient fuel, stores and ammunition to sustain independent operations at considerable distance from operating bases. Operational performance in severe weather is excellent for a ship of its size.

A modern electronic machinery control and surveillance system allows engineering watch-keeping complements to be minimised. This together with the sophisticated weapons command and control system allows the complement to be kept below 80.

1500 Tonne Corvette

25 Senior Ratings
45 Junior Ratings
81 Total

MAIN MACHINERY

2 Shafts
2 Rolls Royce Spey SM1C Gas Turbines
2 Paxman Valenta 16 RP200 CM
Mk 2 Diesels
or
2 MTU 16V 396 TB 84 Diesels
2 Controllable pitch propellers

PERFORMANCE

Maximum speed 31kt
Cruise speed 18kt
Cruising range 4000NM

WEAPONS

1 57mm Bofors Mk. 2 gun
16 BAe SeaWolf SAM
8 McDonnell-Douglas Harpoon SSGW
2 Twin 30mm Oerlikon guns
2 10 Barrel Dagaia decoy launchers
2 J and S Marine tube launchers for Stingray and Mk. 46 torpedoes

SENSORS

1 BAe ATAS Active towed array sonar
1 Marconi S1820 Surveillance Radar with IFF
1 Marconi 1802 SW Tracker
1 Kelvin Hughes Type 1007 Radar with RRB
1 Marconi Mento "A" ESM
1 Radamec Electro-Optical Director
1 Data link "Y"
Ferranti Modular Command System

AVIATION FACILITIES

Flight deck, hangar and air weapons handling facilities are provided for a helicopter up to Lynx size.

DESIGN OPTIONS

Considerable flexibility exists in this design for alternative weapon, sensor and propulsion packages to suit particular requirements.

Optional alternative weapon fits can include, for example, a 76mm gun, Sea Eagle missiles, Sea Cobra CIWS, 20mm gun and Super Barricade decoy. The sensor fit is equally flexible and can include additional directors.

LOW SIGNATURES

The 1500 tonne corvette design takes account of the need to reduce ship signatures, particularly in respect of underwater noise and radar cross sections.

MODERN TECHNOLOGY

The design benefits from the long experience of Yarrow Shipbuilders in designing and building warships, in particular, the latest RN Type 23 Frigate, and from operational experience gained by the Royal Navy.

OFFSHORE PATROL

The design flexibility is such that a weapon and propulsion package ideally suited to the offshore patrol role can be provided. The ship is therefore also available as an OPV option which provides the necessary endurance and seakeeping standards. A flight deck for helicopters up to Sea King size is included.

Vigilance Principal Characteristics

Length overall	77.7 metres
Beam	11.5 metres
Draught	3.3 metres
Displacement (Deep)	1135 tonnes
Speed	31 knots
Range	In excess of 5500 nautical miles at 12 knots
Main Engines	– four MTU 16v 1163 TB93 diesels
Diesel Generators	– three (or four) 400 kW AC generators
Sensors	– G-Band, frequency agile surveillance radar – I-Band navigation radar – Radar ESM covering 1-18 GHz – LF-HF – HR-VHF
Weapons	– two medium calibre guns – two small calibre guns – surface to surface missile launching system
Command Facilities	– two radar/optronic fire control directors with integrated command and control system
Passive ECM	– Chaf (EM) and infra-red decoy launching system
Communications	– 1 MF, 2 HF transmitters – 3 LF-HF receivers – 1 UHF, 2 VHF transceivers – data link
Accommodation	– commanding officer – 6 officers – 18 senior ratings – 30 junior ratings – 24 marines – 6 training berths

The combat suite has been restricted to that required for offshore patrol, EEZ protection, and general policing duties, with potential for upgrading at a later date. The OPV configuration could comprise main gun, secondary guns and decoy launchers, with an electro-optical director, twin pedestal sights, Type 1007 radar and Marconi 1810(A) radar.

A machinery package of four diesel engines on twin shafts would provide a maximum speed of over 26 knots.

1500 TONNE CORVETTE CODOG MACHINERY CONFIGURATION

The top speed of over 30 knots (tropical) is provided by two Marine Spey Turbines in a twin shaft CODOG configuration. The propulsion system also includes two diesels for fuel economy at cruising speed and slow speed drive by means of electric motors. Astern power is provided by controllable pitch propellers.

WARSHIP 1991

Edited by ROBERT GARDNER

Published by Conway Maritime Press

The current edition of *Warship*, marks the third anniversary since the change in publication schedule from quarterly to the annual format. As always the editor has selected a wide variety of articles, covering as many aspects of naval ships, service and national navies as possible within its 250 pages.

Twelve feature articles, are arranged chronologically from the Last Manila Galleon in the late 18th century to the 1950s vintage futuristic submarine USS ALBACORE. Each article is supported by high quality black and white photographs, with the pick included in the contribution on the armoured cruiser USS BROOKLYN and the mid war submarines of the French Navy. Two of the more unusual topics covered include the Soviet Leningrad class destroyers of the Second World War and a description of Romanian Minelaying operations of the same period.

Warship 1991 also features a fifty page Review section at the close of the book, with its annual survey of new warship construction, disposals, naval events and weapons systems, plus a brief description of the more notable naval/maritime books for 1991. These sections are all well illustrated, including the waterborne activities in the recent Gulf conflict.

The book is hard bound with an attractive dusk jacket, measures 270mm by 200mm and includes 200 photographs and 85 line drawings. At about \$60.00 retail *Warship 1991*

BOOK REVIEWS



provides a wide and interesting variety of reading, covering the history of the world's fighting ships as only Conway is able to present.

The German Navy at War 1939-1945

Volumes 1 and 2

By Siegfried Breyer and Gerhard Koop

Published by Schiffer Publishing Co

The first volume of this current series



describes and illustrates all of the German battleships, cruisers and lone aircraft carrier to be built and/or manned by the navy in the Second World War. Number two, describes in similar format, the U-Boat. The latter also features naval aircraft and land forces, harbours, shipyards, uniforms and sinkings of warships in the 1939 to 1945 period.

With both books, the highlight for all historians is the collection of new and varied photography used to illustrate each book. Mostly in black and white, but some colour, each chapter includes large scale views of the ships, their equipment and personnel aboard.

Definitive captions accompany each photograph with well researched introductions to each chapter or section, covering both the historical and technical.

The two German Navy Books are available direct from the publisher, Schiffer Publishing Ltd., 1469 Morstein Road, West Chester, Pennsylvania 19380, USA

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. 090 019 817

Innovation House West,
First Avenue
Technology Park
The Levels, SA 5095
Telephone: (08) 260 8252
Facsimile: (08) 260 8251



Proud to be Associated with the
Department of Defence

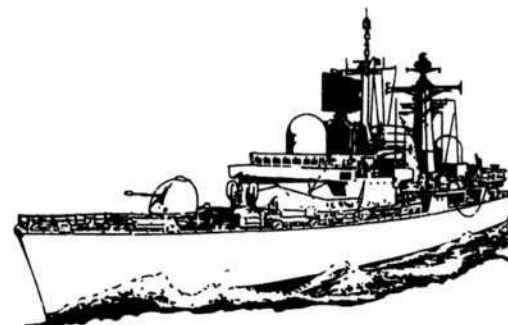
NSW EGG PRODUCERS CO-OPERATIVE LTD

Suppliers of:
'THE GOOD EGG' AND EGG PRODUCTS

**71 Seven Hills Road
Seven Hills,
NSW 2147**

WORMALD

ADVANCED SYSTEMS ENGINEERING



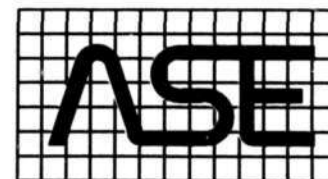
Who else would you turn to when you are looking for safety that has to work, every time?

Wormald has lead the world in damage management and fire protection for over 100 years and today Wormald ASE, the Australian specialist electronic and fire systems house leads the world in the total management of shift safety. Wormald ASE, the company to turn to for:

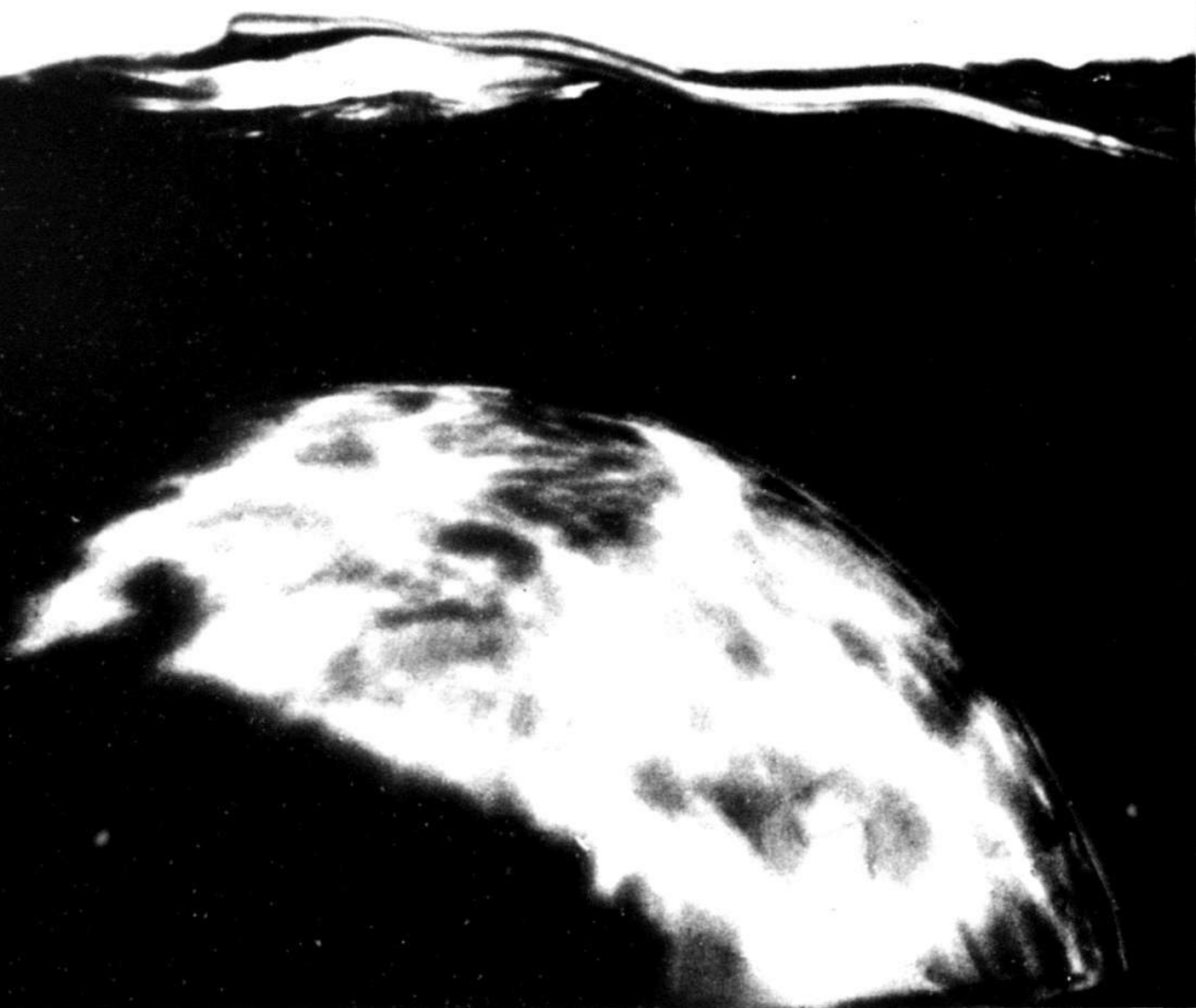
- Platform Control Systems;
- Fire Detection Systems;
- Fire Protection Systems;
- Damage Management Systems;
- Control System Validation; and
- Training and Simulation Aids

Why take chances when the best is on your doorstep.

WORMALD
ADVANCED SYSTEMS ENGINEERING
176 South Creek Rd Dee Why
N.S.W. Australia
Phone: +61 2 981 0611
Fax: +61 2 971 1759



TAKING THOMSON TECHNOLOGY TO THE PACIFIC



SYSTEM ENGINEERING AND SOFTWARE DEVELOPMENT
ADVANCED RESEARCH AND DEVELOPMENT
SHIP CALIBRATION RANGES
SUBMARINE SYSTEMS
SURFACE SHIP SYSTEMS
MINE HUNTING SYSTEMS



THOMSON SINTRA PACIFIC

UNIT 18 - 112/118 TALAVERA ROAD - NORTH RYDE - AUSTRALIA
PO BOX 326 NORTH RYDE NSW 2113
TELEPHONE: (02) 805 0755 - TELEX: 121354 - FAX: (02) 805 0698



The Navy League of Australia

APPLICATION FOR MEMBERSHIP

HISTORICAL

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

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

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

MEMBERSHIP

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

OBJECTIVES

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

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

ACTIVITIES

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

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

Member participation is encouraged in all these activities.

JOINING THE LEAGUE

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

NEW SOUTH WALES DIVISION: GPO Box 1719, Sydney, NSW, 2001.
VICTORIAN DIVISION: CA 4 Eleanor Court, Donvale, Vic, 3111
QUEENSLAND DIVISION: CA 42 Gilgandra Street, Indooroopilly, Qld, 4068.
AUSTRALIAN CAPITAL TERRITORY DIVISION: CA 45 Skinner Street, Cook, ACT, 2614.
SOUTH AUSTRALIAN DIVISION: GPO Box 1529, Adelaide, SA, 5001.
TASMANIAN DIVISION: CA 42 Amy Road, Launceston, Tas, 7250.
WEST AUSTRALIAN DIVISION: CA 23 Lawlor Road, Attadale, WA, 6156.
NORTHERN TERRITORY DIVISION: GPO Box 2612, Darwin, NT, 5794.

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

THE NAVY LEAGUE OF AUSTRALIA *Application for Membership*

To: The Hon. Secretary
The Navy League of Australia

..... Division

Sir or Madam,

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

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

Street Suburb

State Postcode

Signature Date

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

JOIN THE NAVAL RESERVE CADETS

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

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

Uniforms are supplied free of charge.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

"THE NAVY"

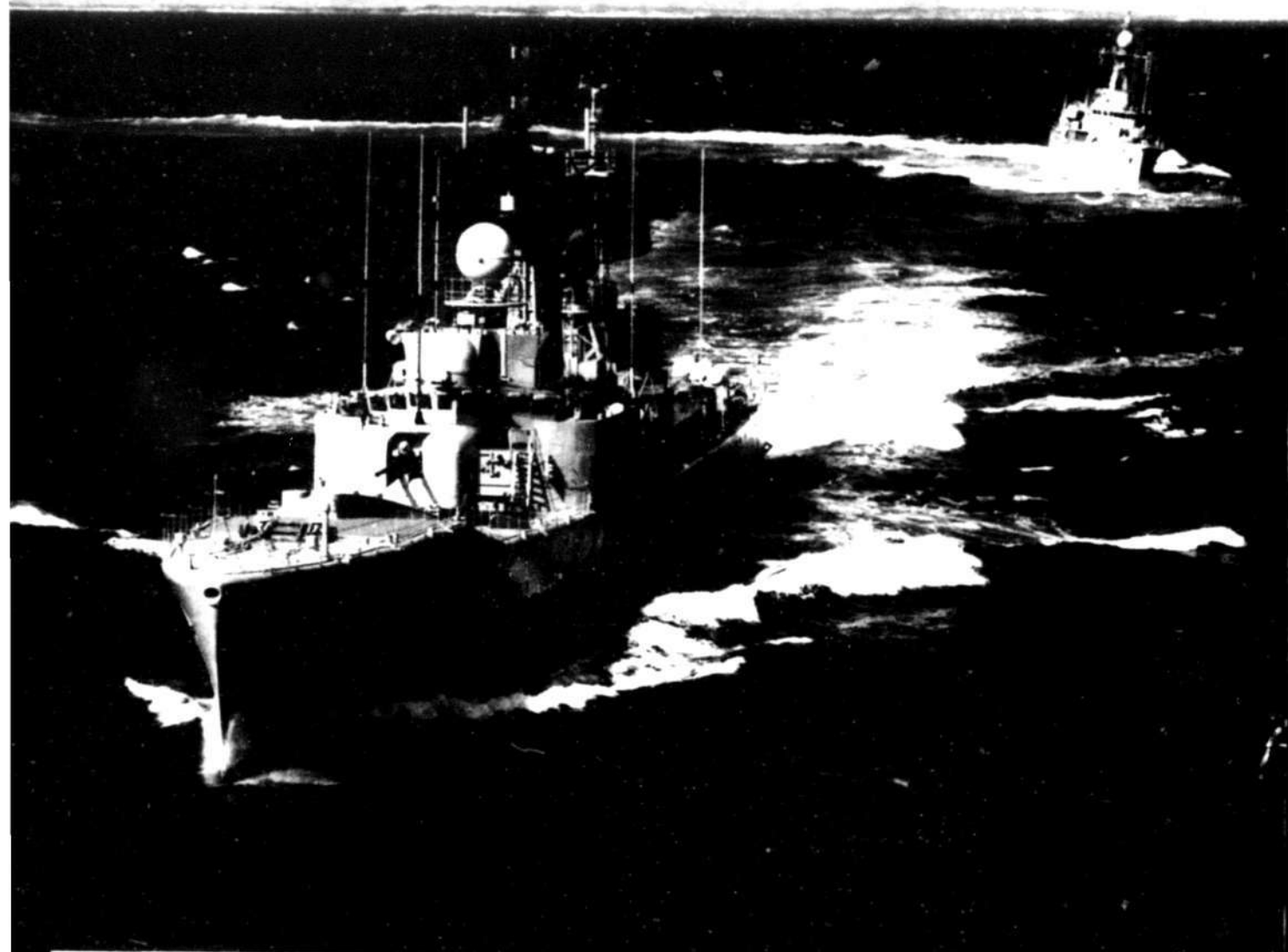
All enquiries regarding the Navy Magazine, subscriptions and editorial matters should be sent to:

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

THE NAVY

The magazine of
THE NAVY LEAGUE OF AUSTRALIA

\$3.50



- VIEWPOINT
- NAVAL MATTERS
- BATTLE OF THE CORAL SEA
- BUYING THE DDGS
- BOOK REVIEWS
- NAVAL NEWS UPDATE



"BP Oil" Kwinana Refinery proudly supports
The Royal Australian Navy

PO BOX 131, KWINANA, WA, 6167
Telephone: (09) 419 0222. Facsimile: (09) 439 2003



Manufacturers and Distributors of a
Full Range of:

- Energy • Mining • Communications
- Data Cables • Aerial Conductors
(Bare & Insulated) Leads

Telephone: (02) 600 0777

1 HEATHCOTE ROAD
LIVERPOOL, NSW, 2170

Facsimile: (02) 600 0966

BRANCHES THROUGHOUT AUSTRALIA
TOTAL CABLE SERVICE



4/16 TITAN DRIVE
CARRUM DOWNS, VIC, 3201

WELDING SUPPLY SPECIALIST

- * Esab • Alloy Rods • L-Tec • W.I.A. • Binzel
- * Arc Welding Equipment & Accessories
- * MIG/MAG Equipment & Consumables
- * TIG Machines Square Wave & Pulse Orbital
- TIG Units • Plasma Welding and Cutting Machines
- * Training Video's • Hire Equipment • Safety Equipment
- * Specialised Protective Clothing • Fume Extractors
- * Technical Service and Information Available

ARCTECH SALES
PTY LTD

Telephone: (03) 785 2033
Facsimile: (03) 785 3389

Official Contractors to the Navy

LOVELOCK LUKE PTY LTD

Suppliers of Refrigeration and Air Conditioning

42 Teddington St, Victoria Park, 6100. Telephone: (09) 362 2033
58 Guthrie St, Osborne Park, 6017. Telephone: (09) 446 9055
Unit 2, 362 South St, O'Connor, 6163. Telephone: (09) 314 1322

THE NAVY

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

The magazine of THE NAVY LEAGUE OF AUSTRALIA

Vol 54

APRIL-JUNE 1992

No. 2

COVER PRICE INCREASE

We regret that it has been necessary to increase our cover price due to substantial increases in printing and distribution costs. This is our first increase for 5 years although our costs have more than doubled in that time.

THE NAVY LEAGUE OF AUSTRALIA

FEDERAL COUNCIL

Patron in Chief: His Excellency, The Governor General.

President: F. Geoffrey Evans, OBE, VRD

Vice-Presidents: Rear Admiral A. J. Robertson, AO, DSC, RAN (Rtd), John Bird,

L. F. W. Vickridge, OBE, VRD

Hon. Secretary: John Wilkins, PO Box 269, Burwood, Vic 3125

Phone: 805 2559 (W) Fax 888 8075

NEW SOUTH WALES DIVISION

Patron: His Excellency, The Governor of New South Wales.

President: R. O. Albert, RFD, RD

Hon. Secretary: J. C. J. Jeppesen, OAM, RFD, GPO Box 1719, Sydney, NSW, 2001.

Phone: 570 8425

VICTORIAN DIVISION

Patron: His Excellency, The Governor of Victoria.

President: John Bird

Hon. Secretary: Neil Madden, 4 Eleanor Court, Donvale, Vic 3111. Phone: 842 3158

QUEENSLAND DIVISION

Patron: His Excellency, The Governor of Queensland.

President: A. H. Robertson, OAM, VRD, 42 Gilgandra Street, Indooroopilly,

Qld 4068. Phone: 870 1272

Hon. Treasurer: Alan Rymann, 13 Hubbard Street, Wavell Heights, Qld 4012.

Phone: 266 3683

AUSTRALIAN CAPITAL TERRITORY DIVISION

Patron: Admiral Sir Victor Smith, AC, KBE, CB, DSC, RAN (Rtd)

President: H. A. Josephs, AM

Hon. Secretary: E. M. Mahoney, 45 Skinner Street, Cook, ACT, 2614.

Phone: 251 1833

SOUTH AUSTRALIAN DIVISION

Patron: Her Excellency, The Governor of South Australia.

President: D. M. Schragel

Hon. Secretary: Miss J. E. Gill, GPO Box 1529, Adelaide, SA 5001. Phone: 347 1985

TASMANIAN DIVISION

Patron: His Excellency, The Governor of Tasmania.

President: M. J. Cooper

Hon. Secretary: Mrs J. M. Cooper, 42 Amy Road, Launceston, Tas, 7250.

Phone: 44 1531

WEST AUSTRALIAN DIVISION

Patron: His Excellency, The Governor of Western Australia.

President: L. F. W. Vickridge, OBE, VRD

Hon. Secretary: Mrs G. Hewitt, 23 Lawler Road, Attadale, WA, 6156.

Phone: 330 3600

NORTHERN TERRITORY DIVISION

Patron: His Honour, The Administrator

President: Don Milford. Phone: 819 332

Hon. Secretary: Dave Mallon, GPO Box 2612, Darwin NT 0801. Phone: 22 3636

FEDERAL ADVISORY COUNCIL

Wm. Bostine, AM, Chairman ANMA

Vice Admiral David Leach AC, CBE, LVO, RANEM

Vice Admiral Sir Richard Peck, KBE, CB, DSC, RAN (Rtd)

Admiral Sir Victor Smith, AC, KBE, CB, DSC, RAN (Rtd)

ADVERTISING AND PUBLICATION

Percival Publishing Co. Pty Ltd.

(Incorporated in NSW)

SYDNEY

862 Elizabeth Street, Waterloo, NSW 2017. Phone: (02) 319 6231

MELBOURNE

370 Little Bourke Street, Melbourne, 3000.

Phone: (03) 670 4321

ADELAIDE

2nd Floor, 97 Currie Street, Adelaide 5000. Phone: (08) 231 6225

PERTH

2 Walcott Street, Mt Lawley, 6060

Phone: (09) 370 1500 Fax: (09) 370 1581

BRISBANE

3rd Floor, 480 Ann Street, Brisbane 4000. Phone: (07) 832 2531

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.

OUR FRONT COVER PHOTOGRAPH

HMA Ships DERWENT and SWAN off the Western Australian coast.
(Inset) HMAS CANBERRA, January 1992, after her long refit

CONTENTS

	Page
Viewpoint.....	2
Battle of the Coral Sea.....	4
Buying the DDGs.....	10
Maritime Change.....	17
Naval News.....	18
RAN Eyes Helicopters.....	22
Prepositioning Ships for US.....	23
PERTH and YARRA - 50th Anniversaries.....	24
Naval Matters.....	27
NRC News.....	29
Book Reviews.....	31



CORPORATE MEMBERS

COMPUTER SCIENCES OF AUSTRALIA PTY. LTD.
DUNLOP AEROSPACE AUSTRALIA
HAWKER de HAVILLAND LIMITED
ROCKWELL SYSTEMS AUSTRALIA PTY. LTD.

FOREIGN RELATIONS AND THE ARMED FORCES

The further we move into the nineteen-nineties, the easier it is to gain the impression that the capability of our Defence Force is no longer a matter of particular importance; indeed, some misguided people even query the need for armed forces at all, regarding them as provocative as we head towards Utopia

There are of course reasons for the prevailing and widespread disinterest in defence, notably the country's economic plight, currently engaging the attention of the larger part of the community including its political leaders, and a sense of relief following the break-up of the Soviet Union, relief that would seem to be misplaced given the strife in Europe and elsewhere at the present time.

It is not the purpose of the writer to speculate on Australia's economic future despite the vital importance of extricating ourselves from the hole into which we have fallen; rather it is to urge the need for a better balance between preoccupation with our internal problems and an understanding of the events taking place all around us. Treasurers deserve some sympathy (although some may doubt it) but few appear to think of the enormous pressures on Foreign Affairs and Defence Ministers at the present time.

Thinking about these matters the writer recalled two reports concerning Australia's relations with other countries that he had read with great interest when they appeared; the first, a lengthy statement on Australia's foreign policy objectives issued by Foreign Affairs Minister Gareth Evans in December 1989 and the second, the text of an address by the Governor-General (and former Foreign Affairs Minister), Mr Hayden on the occasion of Amnesty International Human Rights Day in December 1991.

Senator Evans' statement and wide-ranging survey of the international scene came at a time when the economic stability of the Soviet Union was very much in doubt; it was perceptive even if the speed and completeness of the Union's collapse was not foreseen, nor the scale and complexity of the problems that would be created by that event. In most other respects the statement would be quite valid today.

Senator Evans did not dwell unduly on national armed forces but the following appeared in the section of his statement dealing with constants in Australia's security environment:

"Military Power. The possession of military power will always remain of major importance in international affairs. There is, as outlined earlier, a generally more positive international environment, and in that environment economic considerations are growing more influential. But there is no reason to assume that the habits of millennia will disappear in our lifetime, or that there will be any forswearing by states of the use of military power and influence in pursuit of their objectives. The importance of this for Australia is that we cannot assume that in the future, states either in the region or outside it will not use military capability to see to achieve goals contrary to our security interests. We must develop our policy responses accordingly."

Later, in a somewhat ambivalent comment on the deterrent value of Australia's existing defence force, the Foreign Minister said:

"While there will be significant constraints on the use of strategic strike capabilities in lower levels of conflict, their possession is a major factor in Australia's ability to control the rate and level of escalation of hostilities; our strategy remains in the broad sense defensive, but this does not preclude the use, as appropriate, of offensive tactics to achieve defensive goals. Australia does have long-range strike capabilities in its F-111s and submarines but our offensive capacity should not be exaggerated; we have no aircraft carriers and only limited amphibious troop-lift capacity."

(The Navy League is of the opinion that the deterrent value of our defence force is an important factor; what the League regards as deficiencies in the present force will be the subject of comment in a future edition of THE NAVY.)

In other words, Foreign Minister Evans was stating the facts of international life and the influence national armed forces have on the practice of diplomacy.

The Governor-General's recent address also concerned foreign relations but in a different context - he was speaking about human rights and the care needed in conducting relations with those countries wherein Australians might feel they were being abused.

The essence of the address was the failure of many of our community to recognise the complexity of the "global village" of which we form a part, and a tendency for sections of the community to try to force their own ideas and professed standards on other people without stopping to think that those others may, for very good reasons, have quite different views and ways of conducting their affairs.

Mr Hayden pointed out that Australia's own record was far from flawless; he reminded his audience of the continuing divide between the standards of health, life expectancy, employment, housing and education enjoyed by most Australians and those of the Aborigines; and among other things, to the plight of homeless children and racist violence in our country.

Mr Hayden also made the very valid point:

"If a country makes threats, seeks to intimidate or duress, and proclaims reprisals if certain things are not done - but discovers when the time comes to put beef into the bluster, that it can only brandish a feather with which to lash the miscreant - then it embarrasses itself."

Mr Hayden was not, as far as the writer is aware, referring to the capabilities of the Australian or any other defence force, in fact no foreign country was mentioned at all in the text of his address, but his meaning was quite clear - it is sensible to determine what is ideally desirable and what is practically achievable.

At the beginning of this Viewpoint the writer referred to the need for a better balance between preoccupation with internal problems on the one hand and recognition of external happenings on the other.

happenings from which we cannot divorce ourselves.

Both the Foreign Minister and the Governor-General have referred directly and indirectly, to the influence armed forces have on the affairs of nations: Neither man could ever be regarded as a bloodthirsty individual or warmonger - from experience they simply recognise facts and one could wish that more of our leaders would do the same.

It is doubtful if at the present time the Australian Defence Force could be brushed aside as a feather might, but if we fail to maintain a credible military capability we will be seen as a lightweight by those nations - and unfortunately, there are many of them - who view the world much more realistically than many Australians appear to do.

Naviges, armies and air forces are not for war alone; every day and

particularly when serving abroad - for example taking part in a peace-keeping operation or undertaking a community assistance project - our servicemen and women are actively supporting our diplomats and helping to keep the peace which so many of us in Australia take for granted.

To take anything for granted in this day and age is to take a considerable risk.

Geoffrey Evans
Federal President

From our

Readers

Dear Sir,

It was with the greatest of interest and emotion that I was able to look back those 47 years, upon pictures and scenes of the British Pacific Fleet visiting Sydney Harbour (Port Jackson) which you so generously displayed in your (The Navy) magazine Jan - March 1991 Vol. 54 No. 1 publication.

I being a crew member of HMS King George V remember well our arrival in Sydney, the welcome we received that particular day and on subsequent visits for supplies and R&R. We were first berthed in the Captain Cook Dock for repairs to a damaged propeller, striking a submerged object whilst passing through the Suez Canal en route to Australia but under the excellent care and attention we were soon back to sea.

Should you be able to publish more of these pictures of those dark times I, speaking for many, would appreciate your cooperation.

Yours sincerely,

E.E. OXLEE

Nth Richmond NSW 2754

Dear Sir,

I was particularly interested in the Jan/March 1992 issue of "The Navy" and the superb air photos of Sydney Harbour and its then warship involvement and the various pictures of the ships. As I was on one of these warships during this period, your photos bring back many memories to me of this period.

I enjoy very much your magazine.

Yours sincerely,

HAROLD JACKSON

Dapto NSW 2530

Dear Sir,

The attached, from the Brisbane Courier-Mail, seems an interesting and intriguing sidelight on President Bush's recent visit. Does anyone have the 'full' story?

Yours sincerely,

GAVAN BURN

Lower Templestowe Vic 3107

Brisbane Courier-Mail - Tuesday, December 31, 1991

Day by Day

with DES PARTRIDGE

Legal eagles cross the Missouri

A group of Brisbane lawyers swears the world's mightiest battleship, the USS Missouri, sailed through Moreton Bay on December 19.

Despite repeated denials from US authorities and naval and

maritime experts the lawyers are sticking to their 16-inch guns.

A series of still photographs snapped by the lawyers while they partied aboard a charter boat should clinch their case, they believe. The lawyers assumed the appearance of the battleship coincided with the new year visit to Australia by US President George Bush.

The picture was taken late afternoon near the East Knoll mark on the main shipping channel on the eastern side of Moreton Island.

Only clue to the veracity of the Missouri's presence was the refusal of a defence spokeswoman at the US Embassy in Canberra to discuss the sighting.

"Ring the Brisbane Consulate," she insisted.

But US Consul Patricia Wazer said she did not know anything about the Missouri in Moreton Bay.

"I would be the first to know," she said.

A log check by maritime pilots and the Brisbane Harbour Master for the seven days preceding Christmas did not record an entry for Missouri or any other warship.

The Missouri, which draws 11m, would need a maritime pilot to follow the tricky channel through the Bay.

The Missouri, launched in 1944, is one of the most celebrated ships in US history with action in World War II and the Korean War. Missouri was also the scene of the final Japanese surrender in 1945.

She pounded Iraq in the Gulf war after being refitted in 1981 at a cost of \$500 million.

The Courier-Mail's David Bray, an experienced yachtsman with many hours on Moreton Bay, believes the picture may be authentic.

"I saw USS Missouri in Hobart last April when she was on her way back from the Gulf war. This looks like her."

But a Royal Australian Navy spokesman was not so sure.

"The last warship in Brisbane was a US nuclear submarine from December 4 to 9. A US battleship has not visited Queensland waters since the visit from the USS New Jersey (sister ship to the Missouri) in 1988.

"If the picture was taken December 7 you might be able to say it was a ghost battleship... perhaps the USS Arizona, sunk at Pearl Harbor 50 years before."

"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

BATTLE OF THE CORAL SEA

In early 1942 as the list of military defeats and reversals for the Australian, British, American and Dutch military and naval forces began to mount the feeling in the general populace of Australia was one of depression and a general expectation that the Japanese would invade at any moment.

Almost as if aware of these fears the Japanese were, by April 1942, examining the possibility of capturing Port Moresby, Tulagi, New Caledonia, Fiji and Samoa. The object of this plan was to extend and strengthen the Japanese defensive perimeter as well as cutting the lines of communication between Australia and the United States. The occupation of Port Moresby, designated Operation MO, would not only cut off the eastern sea approaches to Darwin but provide the Imperial Japanese Navy with a secure operating base on Australia's northern doorstep.

At the same time that the Naval Staff were examining options for further operations the planning staff of the Combined Fleet were doing the same. Though their objectives were different. In Early April 1942 the staff of the Combined Fleet had presented the Naval Staff with a proposal for the invasion and capture of Midway Island. By this action it was hoped that the American Fleet would be enticed "into an ambush where they [the American Fleet] could be annihilated by overwhelming numbers". In essence Admiral Yamamoto was hoping to repeat Admiral Togo Heihachiro's victory over the Russians at the Straits of Tsushima in 1905. After much haggling the two staffs agreed to go ahead with the Midway operation after the capture of Port Moresby. However, planning progressed slowly until the 18 April when American B25 bombers led by Lieutenant Colonel James H. Doolittle attacked targets in the Japanese Home Islands.

The military value of this raid was minimal, "but its psychological effect on the Japanese was all that might have been desired. The army and navy had failed in their duty to safeguard the homeland and the Emperor from attack. Admiral Yamamoto

regarded the raid as a mortifying personal defeat." As a result of this first air raid on Japan the Midway operation took on greater importance and Admiral Inouye, at Rabaul, was instructed that the Port Moresby operation was to take place in early May with the Midway operation planned for the following month. "The generals and admirals had suffered a tremendous loss of face, and their angry over-reaction eventually brought a succession of strategic disasters".

Had the Doolittle raid not occurred there is the real possibility that the majority of the

Deboyne off the east coast of New Guinea. The intent was to use both islands as bases for flying boats which would then conduct patrols into the Coral Sea in order to protect the flank of the Moresby invasion force. The Japanese also believed that they would be denying the Americans the use of these islands for the same purpose. The Moresby occupation force would sail after the capture of Tulagi on 3 May. As the Moresby occupation force entered the Coral Sea from the north it would be covered by the Carrier Striking Force which had entered the Coral Sea from the direction of the Solomon Islands. Prior to implementation, the operation was expanded to include the seizure of Ocean Island and Nauru after the capture of Port Moresby.

Admiral Inouye, Commander of the Fourth Fleet, based at Rabaul, had overall command of Operation MO. His forces were divided into several major groups:

- Tulagi Invasion Group.** Commanded by Rear Admiral Kiyohide Shima, consisting of minelayers OKINOSHIMA and KOIE MARU, two destroyers

KIKUZUKI and YUZUKI, the transport AZUMASAN MARU, submarine chasers TOSHI MARU No 3 and TAMA MARU No 8 and the mine-sweepers No. 1, No. 2, HAGOROMO MARU, NOSHIRO MARU No 2 and TAMA MARU. This force was to capture the island of Tulagi.

Support Group. Commanded by Rear Admiral Kuninori Marumo, consisting of the light cruisers TENRYU and TATSUTA, a seaplane transport KAMIKAWA MARU and the gunboats KEIJO MATU, SEIKAI MARU and NIKKAI MARU. This group was to establish a seaplane base in the Louisiade Archipelago.



HMA Ships AUSTRALIA and HOBART after the Battle of the Coral Sea.

Japanese aircraft carriers may have been involved in Operation MO, the aircraft carrier KAGA (72 combat planes) was originally allocated to take part in the operation but with the advancement of the timetable she had to be omitted as she was in dockyard hands till late April 1942. As it was Admiral Inouye still had the aircraft carriers SHOHU, SHOKAKU and ZUIKAKU. After completion of Operation MO the latter two carriers were to rejoin the rest of the fleet and take part in the planned operations against Midway Island.

The Japanese Plan

The Japanese plan was to seize the islands of Tulagi in the Solomons and

- Carrier Striking Force.** Commanded by Vice Admiral Takeo Takagi, consisting of the aircraft carriers ZUIKAKU and SHOKAKU, heavy cruisers MYOKO and HAGURO, the destroyers ARIAKE, YUGURE, SHIRATSUYU, SHIGURE, USHIO and AKEBONO, and the oiler TOHO MARU. This group was intended to provide long range cover for the

commander 25th Air Flotilla, operating out of Japanese airfields in New Guinea and Truk as well as the newly established seaplane bases were also allocated to support the operation.

American Intelligence On Japanese Intentions

Prior to the fall of the Philippines the

arrival at - further orders will be issued, but if no further orders are received they are to proceed to "RBX" (Tulagi). If air search is required in the southern sectors, the 5th Carrier Division is to send aircraft to "RBX" (Tulagi) at dawn."

Armed with this information the Allies were able to concentrate much of their



HMAS HOBART

operation by intercepting and destroying Allied warships.

- Attack Force.** Commanded by Rear Admiral Sadamichi Kajioka, consisting of the light cruiser YUBARI and the destroyers OITE, ASANAGI, UZUKI, MUSUKI, MOCHIZUKI and YAYOI. This group was to deny the Transport Group and command the assault phase of the operation at Port Moresby.
- Transport Group.** Commanded by Rear Admiral Katsuo Abe, consisting of 5 Navy and 6 Army transports, the repair ship OSHIMA, the oilers GOYO MARU, HOYO MARU and IRO (at anchor at Shortland Is). These ships were escorted by the minelayer TSUGARU, Fleet Mine-sweeper No 20 and mine-sweepers HAGOROMO MARU, NOSHIRO MARU No 2 and FUMI MARU No 2. The Moresby invasion troops were in this group.
- Main Body Support Force.** Commanded by Rear Admiral Arimoto Goto, consisting of the light carrier SHOHU, heavy cruisers AOBA, KAKO, KINUGASA and FURUTAKA, and the destroyer SAZANAMI. This force was to provide protection for the Attack Force and Transport Group.
- Submarine Force.** Commanded by Captain Noboru Ishizaki and consisting of the submarines I21, I22, I24, I28, I29, RO 33 and RO 34. This group was to provide warning of the movement of Allied warships in the Southern Coral Sea. Land based aircraft, under the command of Rear Admiral Sadayoshi Yamada

USN's signals intelligence unit at Corregidor had been transferred to Melbourne and became a joint USN/RAN unit known as Fleet Radio Unit Melbourne (FRUMEL). This organisation was to play "an important part in the Battle of Coral Sea and in the Battle of Midway."

On 28 March U.S. Naval Intelligence decoded a message that stated "THE OBJECTIVE OF MO WILL BE FIRST TO RESTRICT THE ENEMY FLEET MOVEMENTS AND WILL BE ACCOMPLISHED BY MEANS OF ATTACKS ON THE NORTH COAST OF AUSTRALIA". As a consequence of the ability to read Japanese naval communications traffic the Americans were almost as well informed on what was planned as the Japanese commanders.

The extent of the advance knowledge of Japanese operations is shown by the following extracts from FRUMEL records:

"9th April 1942 3. C-in-C Combined Fleet today asked for a report on progress of repairs to KAGA. He requires her services as soon as possible since she is due to take part in the "RZP" campaign. (Comments 1. "RZP" is the place designator for Moresby.)"

"4th May 1942 7. Message to 5th Cruiser Division and 5th Carrier Squadron gives the following programme for the "MO" Striking Force: On X-minus 2 or 3 day they are to - to the SE of Moresby and attack bases in the Moresby area. If the Allied Striking Force is found in -, the "MO" Striking Force is to proceed via NNE of "RX" (Solomons) and then proceed south. At 0600 on 6th May after

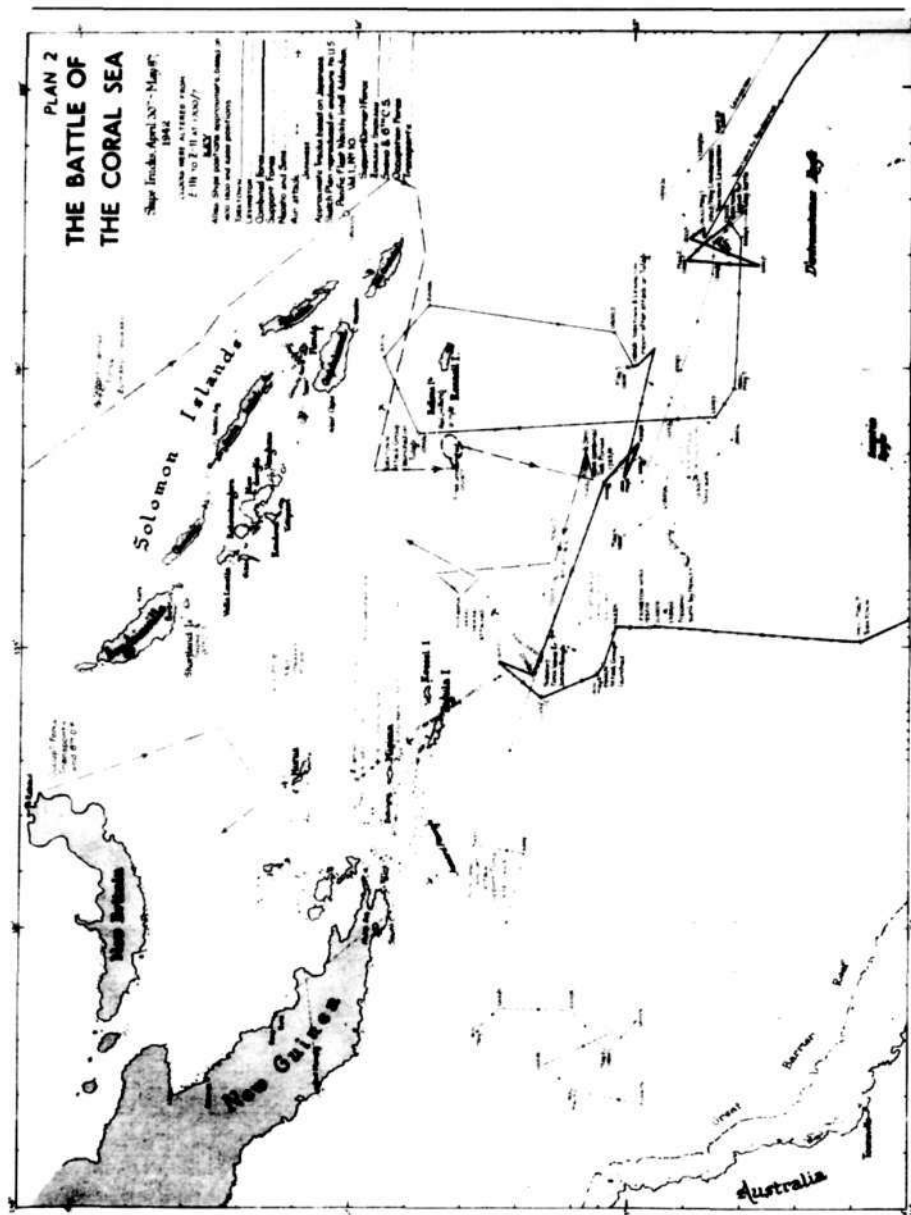
available striking forces in the Coral Sea area.

American Response

As the picture of the intended Japanese plans began to develop Admiral Chester Nimitz, Commander-in-Chief of the Pacific Fleet, deployed his two available carrier groups. Rear Admiral Aubrey Fitch commander of TF11 centred on the USS LEXINGTON was ordered to sail and join Rear Admiral Frank Jack Fletcher's TF17, centred on the USS YORKTOWN, in the Coral Sea. The YORKTOWN group was returning to the Coral Sea after replenishing and conducting a short maintenance period at Tongatabu in the Tonga Islands. From the south was deployed the cruiser force, TF44, commanded by Rear Admiral John Crace RN.

This combined force, under the command of Rear Admiral Fletcher, was designated Task Force 17 and organised as follows:

- Attack Group.** Commanded by Rear Admiral T.C. Kinkaid consisting of the cruisers USS MINNEAPOLIS (flagship), NEW ORLEANS, ASTORIA, CHESTER and PORTLAND. Supported by the destroyers PHELPS, DEWEY, FARRAGUT, AYLWIN and MONAGHAN.
- Support Group.** Commanded by Rear Admiral J.G. Crace RN and consisting of the cruisers HMA Ships AUSTRALIA (flagship), HOBART and USS CHICAGO supported by the destroyers USS PERKINS and WALKER.
- Air Group.** Commanded by Rear Admiral A.W. Fitch and consisting of the aircraft carriers USS LEXINGTON



At the same time as Crace had been spotted the Japanese had commenced to launch, from the SHOKAKU and ZUIKAKU, a 78 plane strike against a reported American carrier and cruiser sighted to the south. About an hour later a second report arrived advising the Japanese that an American carrier and about ten other ships were sighted 280 miles to his north

west. As it was too late to recall the strike all that Rear Admiral Tadaichi Hara, commander of the 5th Carrier Division, could do was wait for the return of his aircraft. The two American ships were located at 0954 and the Japanese immediately realised their error. They were about to attack the oiler NEOSHO and the destroyer SIMS. During the course of the attacks that followed the SIMS was reduced to a wreck, and sunk, whilst the NEOSHO was severely damaged. She was later sunk by torpedoes and gunfire from the USS HENLEY.

Whilst the Japanese were shadowing Crace and preparing to attack the NEOSHO and SIMS the Americans were attempting to locate the Japanese carriers. At 0815 a sighting report was received indicating that a force of two carriers and four cruisers were 235 miles northwest of the Americans. This report was, unfortunately, inaccurate as what had been sighted were two cruisers and some minor craft. However, acting on this report Fletcher immediately commenced to launch a strike of some 90 aircraft from both carriers. It was after the last of the aircraft were launched that the error was realised. However, Fletcher decided to let the strike continue. At 1022 a message was received that land based aircraft had spotted a carrier, SHOHO, and other ships a few miles north of Misima Island. The outbound strike was then re-directed to the location of the SHOHO.

When sighted by the American aircraft, at around 1100, SHOHO and her consorts were in an area of clear weather with excellent visibility. SHOHO could not launch any aircraft at this stage because she was in the process of refuelling her fighters which had been flying reconnaissance

missions. As SHOHO was turning into the wind to launch her aircraft the main American attack, which was delayed whilst the slower torpedo bombers arrived, started. LEXINGTON's dive bombers and torpedo bombers made a co-ordinated attack followed almost immediately by YORKTOWN's dive bombers. By the time YORKTOWN's torpedo aircraft arrived SHOHO was already doomed. Unfortunately, instead of attacking the other Japanese ships they continued the attack on SHOHO, which eventually received approximately 13 bomb and seven torpedo hits. Not one other Japanese ship in the group was damaged.

By 1335 the Americans had recovered their aircraft and Fletcher was debating whether to launch another strike against the remaining Japanese ships. However, he decided against this on the grounds that the other Japanese carriers still had not been located. Later in the afternoon Fletcher learnt of the attack on the NEOSHO. But again an incorrect position had been given. Meanwhile Admiral Tagaki on learning of the attack on the SHOHO was powerless to act because of his earlier decision in attacking the incorrectly reported aircraft carrier and cruiser, NEOSHO and SIMS. However, once his aircraft returned Tagaki decided to launch a later afternoon strike against the American carriers, though he had no firm idea as to their position.

For this attempted strike Tagaki selected his most experienced aircrew, mainly as the aircraft would be returning in the dark. The 12 dive bombers and 15 torpedo bombers launched in three groups at 1630 hoping to locate and attack the Americans at dusk. As it was they could not locate the Americans and jettisoned their ordnance for the return

flight. On the return flight one group of Japanese almost flew over the top of the Americans, and failed to see them. Unfortunately, the American carriers were using their radar to good effect and intercepted the returning Japanese. In the ensuing melee eight Japanese were shot down for the loss of three Americans. But more importantly from the Japanese side Tagaki had lost eight (almost 10%) of his most experienced aircrew. Two other groups arrived at where they thought their carriers were and commenced a search. When three aircraft saw a carrier and attempted to land after giving the correct recognition signals YORKTOWN's gunners opened fire and the aircraft retired. All in all only 18 aircraft returned to the Japanese carriers. Later that night both commanders contemplated sending their surface ships out to attack the opposing carrier force, and both rejected the idea because they expected attacks the next morning and needed the ships to provide additional anti-aircraft firepower.

On the morning of the 8th both sides were to locate their opponents almost simultaneously. At 0900 the Americans commenced to launch their aircraft whilst the Japanese commenced at 0915. Both the Japanese and Americans passed each other as they headed for their respective targets. The heavy cloud, which had dogged the entire operation prevented any sightings.

The first American aircraft, dive bombers from YORKTOWN, arrived over the two Japanese carriers, which were operating separate groups, at 1030. They had to wait another ten minutes for the arrival of the slower torpedo bombers before commencing an attack. At 1057 YORKTOWN's aircraft attacked the SHOKAKU, the ZUIKAKU had managed in the meantime to hide in a

rain squall. Again the inexperience of the American aircrew showed, with bombs and torpedoes generally being released too far away. SHOKAKU managed to avoid all the torpedoes that were fired at her but she was hit by a number of bombs. The damage done and fires started prevented her from launching aircraft. Only part of LEXINGTON's strike arrived due to difficulties in locating the targets in the squally weather. After they arrived they commenced to attack the Japanese carrier.

Whilst the American aircraft were commencing their attack on SHOKAKU the Japanese were detected by LEXINGTON's radar at 70 miles and closing. At this stage there were only eight fighters in the air, all short on fuel, with a further nine aircraft having just landed on LEXINGTON and in the process of being refuelled. Perhaps because of the fuel problem, or inexperience, the fighter direction officer on LEXINGTON placed his combat air patrol too close to the ships and at such an altitude that they were below the dive bombers and above the torpedo bombers. In either case, they could do little to break up the Japanese attack which commenced at 1118. Two minutes later LEXINGTON was hit on the port side forward by a torpedo and then a second hit opposite the bridge. After the torpedo bombers came the dive bombers which scored at least two hits and several near misses. As a result of these attacks fuel tanks were ruptured and the ship was on fire in at least four places and developed a 6 degrees list to port.

YORKTOWN was also attacked by the Japanese but managed to avoid the torpedoes, which were launched from only one side, but was hit by one bomb. This bomb hit reduced YORKTOWN's speed to 24 knots. At about 1230 the American strike group began to return and as LEXINGTON's aircraft lifts were jammed in the upright position she could retrieve her aircraft. Shortly after this the ship was rocked by a large internal explosion caused by the build up of petrol fumes. This explosion started new fires which were fed by oil and other flammables. This fire gradually spread and at 1707 the order was given to abandon ship. LEXINGTON was finally sunk by torpedo from the destroyer PHELPS. With the last of LEXINGTON's aircraft onboard YORKTOWN the remainder of the force withdrew to the south and thence to Pearl Harbor.

Fortunately for the Americans the Japanese were not in a position to take advantage of the loss of the LEXINGTON. SHOKAKU was so badly damaged that she had to return to Truk for repairs before going onto Japan. An entry in the FRUMEL records for the 10th gives her intended itinerary for the return voyage with the comment "Looks like a reasonable submarine target". A warning of what was to come for the

Japanese merchant fleet. The second carrier, ZUIKAKU, was low on fuel and had less than forty serviceable aircraft left. As a consequence of this Admiral Inouye ordered the Moresby invasion postponed and the ships to retire. Admiral Yamamoto however, ordered Tagaki and Goto to pursue the Americans. The Japanese broke off the search on the 11 May, due to the allocation of insufficient forces Yamamoto had missed his chance to destroy a large proportion of the US Pacific Fleet.

Admiral Fletcher returned with YORKTOWN to Pearl Harbor where battle damage was made good and the carrier prepared for the forthcoming battle of Midway. Admiral Crace, who had spent the last few days blocking the approaches to Port Moresby, was apparently not advised of the end of the battle nor of Fletcher's departure from the area. Crace departed the area on the 10 May and sailed for Cid Harbor to refuel from HMAS KURUMBA. Shortly after arriving at Cid Harbour he received a signal from Fletcher acknowledging his services in the battle.

The Aftermath

Both the Japanese and the Allies have portrayed the Battle of the Coral Sea as a victory. In a sense they are both right. On the Japanese part they managed to sink more American ships than they lost. Whilst the Allies prevented the Japanese from achieving their objective, the occupation of Port Moresby, as well as reducing the forces available for the forthcoming Midway operation.

Against this, on the part of the Americans, must be weighed the fact that the Japanese assault forces remained intact and all that had stood in the way of the Japanese and Port Moresby were Crace's cruisers. Fletcher's carriers, which were engaged in trying to locate and destroy the Japanese carriers, were too far away and too busy to provide any opposition or support if required. The decision by Fletcher to weaken his forces by detaching Crace had proved to be the correct one, even though this may have contributed to the loss of the LEXINGTON. Whilst many Australians today may scoff at the fears of a Japanese invasion during 1942 the fact is that for many Australians during the 1940s that fear was a real as space travel is today.

Notwithstanding its inconclusive nature, the battle of the Coral Sea's place in history has been assured. For the first time two fleets had fought a naval engagement and the constituent naval units never saw each other. When coupled with the attacks on Taranto, Pearl Harbor and finally the Battle of Midway it marked the end of the battleship as the major striking unit of modern fleets. Subsequent naval operations, whilst demonstrating the need for a well balanced and highly trained naval force, were to highlight the flexibility of carrier borne airpower.

¹ Barnett, Correll, *Engage The Enemy More Closely - The Royal Navy in The Second World War*, Hodder & Stoughton, London, 1991, p. 861

² Spector, Ronald, *Eagle Against the Sun - The American War With Japan*, Viking Penguin Ltd, New York, 1985, p. 155

³ Costello, John, *The Pacific War*, William Collins Sons and Co Ltd, London, 1981, p. 336

⁴ Ibid, p. 4

⁵ Costello, op cit, p. 247

⁶ Australian Archives CRS B5555 File 3 FRUMEL records (unpublished) Communications Intelligence Relating to the Battle of the Coral Sea APR 42 - MAY 42, p. 1

⁷ Ibid, p. 4

⁸ Orange was the colour used by the Americans to designate Japan in their war plans. War Plan Orange was first completed in 1914 and then continuously updated. The 'colour' war plans were replaced by a new series of war plans numbered Rainbow 1 to Rainbow 5 during 1939

⁹ Morison, S.E. *History of United States Naval Operations in World War II: Volume IV Coral Sea Midway and Submarine May 1942 - August 1942*, Little Brown and Company, Boston, 1950, p. 30

¹⁰ Admiralty, op cit, p. 57

¹¹ Australian Archives CRS B5555, op cit, p. 6

BIBLIOGRAPHY

- Admiralty, *Naval Staff History - Second World War Battle Summaries Nos 4-6: Battle of the Coral Sea and Midway*, Historical Section Admiralty Naval Staff, London 1952
- Australian Archives CRS B5555 File 3 FRUMEL Records (incomplete) of Communications Intelligence Relating to the Coral Sea Battle APR 42 - MAY 42
- Barnett, Correll, *Engage The Enemy More Closely - The Royal Navy in The Second World War*, Hodder & Stoughton, London, 1991
- Chapman, John W.M. (ed), *The Price of Admiralty - The War Diary of the German Naval Attache in Japan, 1939-1943: Volume IV 10 September 1941 - 31 January 1942*, Saltire Press, Ripe (E. Sussex), 1985
- CinCPac-CinCPAQ Bulletin 5-45, *Japanese Radio Communications and Radio Intelligence*, Pacific Intelligence Centre, Pearl Harbour, 1945
- Costello, John, *The Pacific War*, William Collins Sons and Co Ltd, London, 1981
- Coutman-Clark, Chris *Aviation Stations Coral Sea: The Australian Commander's Story*, Allen & Unwin, Sydney, 1991
- Department of Defence (Navy), - *Naval Historical Section File 82 - Coral Sea Battle*
- Dull, Paul S. A *Battle History of the Imperial Japanese Navy (1841-1945)* Naval Institute Press 1978
- Griess, Thomas E. (Ed), *The Second World War - Asia and the Pacific*, Avery Publishing Group Inc, New Jersey, 1984
- Marder, Arthur J. *Old Friends New Enemies - The Royal Navy and the Imperial Japanese Navy Strategic Illusions 1936-1941*, Oxford University Press, Oxford, 1981
- Marder, Arthur J. with Mark Jacobsen and John Horsfield, *Old Friends New Enemies - The Royal Navy and the Imperial Japanese Navy The Pacific War 1942-1945*, Oxford University Press, Oxford, 1980
- Morison, S.E. *History of United States Naval Operations in World War II: Volume IV Coral Sea Midway and Submarine May 1942 - August 1942*, Little Brown and Company, Boston 1950
- Spector, Ronald, *Eagle Against the Sun - The American War With Japan*, Viking Penguin Ltd, New York, 1985
- Spector, Ronald H. *Listening to the Enemy: Key Documents on the Role of Communications Intelligence in the War With Japan*, Scholarly Resources Inc, Wilmington, 1988
- Stephen, Martin (edited by Eric Grove), *Sea Battles in Close-up: World War 2*, Ian Allen, London, 1988
- United States Strategic Bombing Survey (Pacific), *The Campaigns of the Pacific War*, Washington, 1946
- Willmott, H.P. *Empires In The Balance - Japanese and Allied Pacific Strategies to April 1942*, Orbis Publishing, London, 1982



American personnel abandon USS LEXINGTON on 8 May 1942

In late 1991 the Australian Naval Institute honoured the longest serving Minister for the Navy (and former Prime Minister) Sir John Gorton for his part in introducing to the RAN, the three Charles F Adams class guided missile destroyers. The following article by LCDR Peter Jones describes the acquisition of these fine warships.

The acquisition by the RAN of three Charles F Adams (CFA) class guided-missile destroyers (DDG) from the United States in the 1960s has been seen by many as one of the most successful acquisitions in post-war RAN history. These ships introduced into the RAN new technologies that had a significant impact both on operations and capability.

This subject may be approached from a number of levels and the pioneering work on the DDG acquisition was undertaken by Dr Roy Wallace with his 1980 PhD thesis entitled "The Australian Purchase of Three United States Guided Missile Destroyers: A Study of the Defence Aspect of Australian-American Relations." As the title of this work suggests, it examined primarily the implications of the sale on Australian-US relations. This article concentrates on the effect these ships had on the RAN.

Before discussing the impact the CFA class destroyers had on the RAN it is important to look at the state of the RAN in the late 1950s and examine the reasons for their acquisition. In 1960 the RAN consisted of the following operational major fleet units:

- The light aircraft carrier *Melbourne* with the 21st Carrier Air Group consisting of Sea Venom fighters and Gannet ASW aircraft.
- Three *Daring* class destroyers.
- Two older *Battle* class destroyers.
- Three *Q* class ASW frigates (ex-WWII destroyers).

A modest building program of four Type 12 ASW frigates was underway. These ships were to introduce the Ikara anti-submarine (ASW) missile and the Seacat short range surface-to-air missile.



Three of a class

BUYING THE DDGs

by LCDR Peter JONES

Looking forward to the 1960s, Australia faced a major defence re-equipment programme. Amongst the individual projects were the RAAF's Canberra bomber replacement, the US F-111 (TXF) and, for the RAN, replacements for the present generation carrier aircraft. The Chief of Naval Staff at the time was Vice Admiral Sir Henry Burrell. Sir Henry enjoyed a good working relationship with his American counterpart the Chief of Naval Operations (CNO) Admiral Arleigh Burke. This relationship was an important factor not only for the DDG acquisition but for the immediate future of the Fleet Air Arm (FAA). In May 1959 Burrell wrote to Burke and stated:

We in Australia are having to face up to the need for a big re-equipment programme and the number one problem from the Navy's point of view is whether our Fleet Air Arm continues after 1963-



PERTH, prior to commissioning

64 when our Sea Venoms and Gannets reach the end of their road. The first question which has to be answered is "can we afford it?" and that is being thrashed out at present. If the answer, which I hope to have from the government in July is that we can, then we hope to find a suitable aircraft (at a price we can pay) and a carrier to put it in as our MELBOURNE won't be able to take any new generation aircraft.

The appreciation at the time was that the aircraft replacement also involved a replacement for the *Melbourne*. This made the re-equipment program even more of a fiscal burden. In December 1959 the Menzies Government announced that the FAA would be disbanded in 1963. Even before the official decision Admiral Burrell had initiated informal enquiries with the RN and the USN about Surface-to-Air Guided Weapon Escorts. Following the FAA decision Admiral Burrell wrote a confidential minute to the Secretary of the Department of the Navy, Mr Thomas Hawkins, which stated: "the need for S.A.G.W. ships in the RAN is urgent as we will have no effective air defence for the Fleet, other than close range weapons, from the time our fighters phase out in 1963".



HMA Ships PERTH and BRISBANE at Garden Island

The effective replacement of the Sea Venoms by SAGW ships was ultimately represented in a requirement for 50% of all escorts to be fitted with SAGW.

On 8 January 1960 Admiral Burrell and the Third Naval Member, Rear Admiral H.E. Urquhart, left Australia and visited the United Kingdom, Canada and the United States to study possible designs. In an interview with the *Sydney Morning Herald*, Admiral Burrell stated his belief that the SAGW ships should be built in Australia

and cited the success of the *Daring* class program as proof of Australia's capabilities. The primary aim of the Canadian leg was to be briefed on RCN progress with helicopter operations from frigates. In 1957 the Canadians began helicopter trials off the frigate HMCS *Buckingham*. The RAN was interested in the feasibility of operating helicopters from the new destroyers because, although the primary mission of the new destroyers was to provide air defence to the fleet, these ships would also operate in a



Re-storing ammunition during the Vietnam War

navy without a carrier.

The Contenders

The three contenders for the contract were the Royal Navy's 6,000 ton *Hampshire* class, the US Navy's 4,500 ton CFA class destroyer and the smaller 3,400 ton *Brooke* class frigate. The main features of these three classes will now be reviewed.

The County Class

At the time of Burrell's fact-finding tour, the lead ship of the *Hampshire* class, the *Devonshire*, was still six months from launch. The *Hampshires* were the Royal Navy's first purpose-built missile ships and were designed around the Seaslug surface-to-air missile. This large beam riding missile had its genesis as far back as October 1945. Serious design work on this missile did not begin, however, until 1950 and was to continue through to the start of the next decade. The main features of the *Hampshire* design were:

- The Seaslug missile system with one channel of fire.
- Secondary surface-to-air missile armament of two quad Seacat.
- Gun armament of two twin 4.5-inch Mk. 6 semi-automatic mounts.
- A first-generation automated combat data system (ADA).
- Flight deck and hanger for one Wessex helicopter.
- Combination gas turbine and steam propulsion.
- Flagship facilities.



HMAS PERTH in the Great Australian Bight, 1980

The Charles F. Adams Class

The lead ship of this American class was commissioned in September of 1960. These ships were the first guided-missile destroyers purpose-built by the USN and attracted considerable priority in the naval building program. The primary armament of this class was the Tartar semi-active missile. Norman Friedman relates that: "The need for missile ships was so urgent that Tartar DDGs were ordered before Tartar itself had flown in any form". The main features of the CFA class design were:

- The Tartar SAM missile which had two channels of fire.



Aboard HMS HOBART, "on the gunline"

- The radar suite which included the AN/SPS-52 three-dimensional radar.
- The gun armament of two 5-inch Mark 42 automatic guns.
- A two-tier anti-submarine armament of the medium-range ASROC missile and close-range torpedoes.

Brooke Class

The US Navy also offered the RAN the Tartar equipped Brooke class. A major drawback of this class was that the lead ship was not to be laid down until December 1962. The main features of the Brooke design were:

- Tartar system with a lightweight 16-round launcher (vice 40-rounds in CFA) with only a single channel of fire.
- One single 38 calibre 5-inch semi-automatic gun.
- AN/SPS-52 three-dimensional radar.
- Flight deck/hangar for a light helicopter of the DASH ASW drone.
- The new long-range AN/SQS-26 sonar.
- Single-shaft and speed of 27 knots.

Related Matters

Before examining the subsequent



Commissioning of HMS HOBART



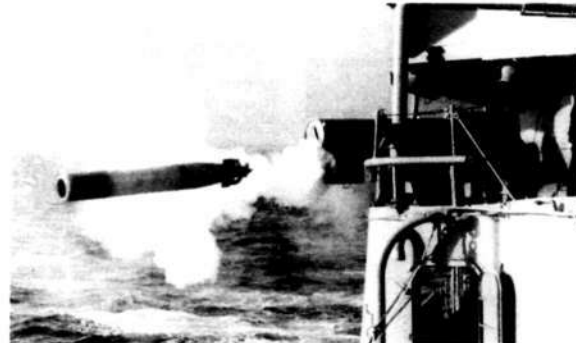
HMS HOBART astern of the carrier HMS MELBOURNE

decision-making process it is relevant to touch on two other related aspects of the US proposal. First, the US government offered an interest free loan for the purchase of the SAGW ships. The eventual price of the CFA was \$US90 million for the initial two ships (including ammunition, spares and training). The initial repayment, however, amounted to only \$US1.5 million with the other repayments paid over eight years. The cost of the Hampshire class ships without the

added advantage of the interest-free loan was still 15% higher than the CFA design.

The second aspect was US Navy's search for a site somewhere in the Indian or Pacific Oceans for a submarine VLF communications station. Admiral Burrell was a keen supporter of an Australian location for this station. The perceived advantages of this siting were:

- The forging of closer defence ties with Australia's major ally.



Firing the torpedo

- SAGW escorts communications benefits for the RAN.
- Financial off-sets for future procurements of US weaponry.

Results of the Inspection Tour

Admiral Burrell's inspection tour showed the superiority of the Tartar missile over Seaslug, and the 5-inch/54 gun system over the 4.5-inch gun. The RAN subsequently approached the RN to incorporate Tartar, Ikara, Variable Depth Sonar (VDS) and hangar for up to three helicopters into the Hampshire design. The First Lord of the Admiralty, Lord Jellicoe, told the House of Lords: "Unfortunately, the design effort required of the Admiralty would have caused an unacceptable delay of two or three years in the development of the Royal Navy projects".

This manpower shortage is discussed by Eric Grove's treatise on British naval policy since the Second World War, *Vanguard to Trident*. The British contender for the RAN SAGW ship therefore was to be the standard Seaslug Hampshire.

The Missile Comparison

The relative effectiveness of Tartar and Seaslug was of central importance to the destroyer selection process. With the benefit of hindsight it can be seen that the RAN made the right decision. Seaslug was succeeded by a Mark II version which received only limited modernisation throughout its operational

life. The increasingly scarce British research and development (R&D) resources were diverted to the succeeding Seadart system which entered service in 1973. Tartar on the other hand received substantial improvements before being superseded by the Standard SM-1 MR missile which importantly was compatible with the Tartar launcher.

The RAN's selection of the Tartar missile was by present standards based on



BRISBANE is launched

incomplete if not sketchy information. The Australian Naval Attaché in Washington was furnished with a hit probability "of 85% for a single missile". Within some quarters of the RAN this figure, without provision of

any trials data, was regarded "with great scepticism."

Tartar in fact was experiencing serious performance and serviceability problems. In February 1961 USS *Charles F. Adams* completed the Tartar technical evaluation but failed the subsequent operational evaluation in November of that year. In 1962 a sample of six CFA ships reported a Tartar serviceability of only 30%. Finally a 1963 draft Presidential Memorandum on Fleet Air Defence listed the single-shot capabilities of Tartar as only 0.40.

The reasons for these problems go back to Tartar's origin. Development of Tartar commenced in 1955 to meet an urgent USN requirement for a SAM suitable for destroyers and frigates. In May 1957 work began on an improved Tartar; this was 15 months before the first Tartar missile was even fired at China Lake test range. In 1959 the USN approved a Tartar Reliability Improvement Program or TRIP to increase Tartar's range.

Although such a rapid development program was outwardly impressive when combined with the other "T" missiles, Terrier and Talos, not to mention the future Typhon, the overall picture was one of a myriad of expensive and complicated projects which could not be properly managed. In 1962 Admiral Burke declared a "holiday" from all performance extension programs and a "get well" program was instigated. The TRIP program was to eventually form the basis of the Standard SM-1MR missile.

Although the RAN may not have been aware of the Tartar's problems, they were no doubt very much aware of the sheer scale of the US Navy's missile program. Norman Friedman estimates that by 1962 the United States investment, in 1962 dollars, was \$4.4 billion in ship and missile construction and another \$2 billion in associated R&D. This, if for no other reason, should be sufficient grounds to select Tartar over Seaslug.

The Decision

On 29 June 1961 the Minister for Defence, Mr. A.G. Townley, announced the selection of the CFA class for the RAN's new SAGW destroyers. The details of the

RAN variant of the CFA class was still to be finalised. Indeed Cabinet gave the Minister of Defence discretion to amend the order to include major modifications to the design. This modification was known as Suggestion B and will be covered shortly. From examination of relevant files it is apparent that Navy Office was preoccupied from at least December 1960 on what CFA variant would be sought. Before examining the possible CFA options the reasons for the class's selection will be examined.

Following the public announcement of the Cabinet decision the Minister of the Navy, Senator John Gordon, stated: "The main reason we bought from the United States was that Britain has no guided missile destroyers of this kind developed to this stage."

This comment was valid in two ways. Firstly, the CFA were destined to enter service two years and two months ahead of HMS *Devonshire*, and second, the missile technology of the Tartar system was superior. The reason given in the accompanying press reports was that the CFA class possessed the range and air-conditioning suitable for Pacific operations. The range of the *Hampshire* in service was in

fact to be greater than the CFA. The elimination of the *Brooke* class was based on:

- The larger outfit of Tartar missiles and additional channel of fire of the CFA.
- The newer propulsion plant of the *Brooke* class and its use of diesel fuel



Bridge of HMAS BRISBANE

posed both a technical risk and an additional logistic burden on the RAN.

- By the time the first RAN ship would enter service the USS *Charles F. Adams* would have been in commission for about five years and most of the inevitable teething problems would have

been addressed.

Variants of the Charles F. Adams Design

One of the most fascinating aspects of the DDG acquisition is the different CFA variants considered. Dr. Wallace in this thesis outlined five proposed variants of the CFA design:

- Version Alpha was the DDG-20 variant with the single arm Mk.13 Tartar launcher and bow mounted sonar.
- Version Bravo was Version Alpha with Ikara replacing ASROC.
- Version Charlie was Version Alpha with Ikara replacing ASROC and the inclusion of the AN/SQS-35 variable depth sonar.
- Version Delta, a more ambitious version, incorporated the following: (1) Ikara instead of ASROC; (2) AN/SQS-35 VDS; and (3) Removal of the aft 5-inch gun mount and provision of a flight deck and single or twin hangar for a Wessex helicopter. The Tartar launcher would be resited in place of the aft 5-inch gun.

incorporated the following: (1) Ikara instead of ASROC; (2) AN/SQS-35 VDS; and (3) Removal of the aft 5-inch gun mount and provision of a flight deck and single or twin hangar for a Wessex helicopter. The Tartar launcher would be resited in place of the aft 5-inch gun.

This version also included something that would have heartened any DDG sailor – stabilisers.

- Version Echo was the most ambitious version which incorporated the systems of Version Delta but involved the removal of one engine and one funnel. This redesign which would have allowed more extensive helicopter handling and stowage arrangements. Recent examination of Navy Office files has shed more light on these proposals.

The Fitting of Ikara

The RAN was naturally keen to fit Ikara in place of ASROC not only in terms of selecting the indigenous system but also because of its potential all-round superiority. This was potential because Ikara in 1960 was still under development and did not go to sea until HMAS *Stuart* commissioned in 1963. This created a dilemma for the RAN and a cut-off date of 22 May 1961 was set for the concept of Ikara to be proved. If a decision on Ikara could not be made then ASROC would then have been selected for the DDGs.

The incorporation of Ikara into the CFA's design received considerable attention in both Australia and the USA. At one stage it was planned to fit Ikara down aft because it was feared that the eventual position between the funnels would not provide sufficient magazine space and top weight margins.

Suggestion B

The helicopter equipped Version Delta, was the popular choice of Navy Office right up to the 29 June 1961. This version had actually two variants: Suggestion A which had a twin hangar but less powerful machinery plant, and Suggestion B, which had only a single hangar. In March 1961



Working with the Squirrel helicopter

Cabinet approved Suggestion B if it was structurally feasible. It was accepted that VDS might have to be excluded. A Navy Office study was initiated to ascertain the feasibility of Wessex operations off the CFA.

The final selection of Version Bravo was effectively settled on 29 June 1961. On that day Admiral Burrell wrote a minute to the Minister of the Navy Senator Gordon which recommended that the Bravo Version be accepted rather than Suggestion B. Before examining Burrell's rationale it is relevant to quote part of the Defence Minister's

statement on purchasing the new destroyers. The CFA "can guard against air attacks, is equipped with the latest devices for detecting and destroying submarines, and is equally effective in surface engagements and shore bombardment."

Admiral Burrell's reasons for recommending against Suggestion B were:

- The "strategic situation had worsened".
- This situation made it necessary to retain the second 5-inch gun.
- The inevitable construction delays with Suggestion B were unacceptable.

The strategic situation mentioned was, according to Wallace, the Confrontation crisis with Indonesia. At the time of the DDG decision the Soviet Navy was training an Indonesian crew to man the *Sverdlov* class cruiser *Irian*. This ship arrived in Indonesia in October 1962 to join a navy that included five *Skory* class destroyers. While the validity of Burrell's recommendation is not questioned, it is interesting to consider the important implications the selection of Suggestion B would have had. Some of the effects would have been:

- The RAN would not have been deprived of anti-submarine helicopters at sea from the loss of the *Melbourne* in 1982 until the introduction of the Seahawk helicopter.
- The RAN's anti-submarine capability would have been further enhanced by the introduction of a modern variable depth sonar in the form of the SQS-35.
- The RAN FFG-7 class ships would have been most likely modified in construction to operate the same



Casualty evacuation



Enroute to the Gulf



Artist's impression of the helicopter equipped DDG

helicopter as the DDG and would not have spent up to one third of their operational lives without an anti-submarine helicopter.

The effect on the RAN's current operational capability would have been nothing short of profound.

The Third DDG

On 22 January 1963 it was announced that a third DDG would be built. The purchase of a third ship allowed for one DDG to be always fully operational and also was another step towards the goal of 50% of escorts being fitted with a medium range SAGW. In order to meet the 50% figure it was planned that HMAS *Voyager* would be fitted with Tartar. Following her tragic loss, among the options were a fourth CFA or a Brooke class. The eventual replacement were two additional River class frigates (*Swan* and *Torrens*) with HMS *Duchess* as an interim replacement. A fourth DDG was subsequently sought in 1965 to boost escort numbers with the projected return of HMAS *Duchess* as in 1968, but this proposal was rejected by cabinet.

The Impact of the DDGs

The impact of the DDGs on the RAN has been considerable and is a large subject in itself. Relevant to their impact was the change of fortunes of the Fleet Air Arm. The Sea Venom fighters were retained in service until 1967 when they were replaced by the Skyhawk fighter. In operational terms the CFA class ships:

- Provided the Fleet with a viable defence against jet aircraft and the first generation of anti-ship missiles.
- Introduced modern long-range radars essential for anti-air warfare. This considerably increased the capabilities of organic air-defence provided by HMAS

Melbourne.

- Increased the operational efficiency of the RAN by the exposure to USN exercise and training facilities, tactics and procedures. It should be noted here that the RAN did not adopt USN practices wholesale but rather modified those appropriate to suit the RAN's British derived organisation.
- Introduced a myriad of modern communications, damage control, gunnery and ASW equipment.
- Introduced the concept of a modern computer-based logistic support system to the RAN.

Other effects of the DDGs on the RAN are slightly less tangible. As has been the Indian experience with the introduction of Soviet ships into a British originated Fleet, there developed in the RAN almost two navies. On one side were the DDGs known as the "upperware ships" with their crews conversant not only in USN procedures but also the considerable jargon needed to crew a US-built ship. On the other side was the rest of the Fleet or the "steel ships". It would be wrong to overemphasise this split, but it was evident. The division disappeared slowly with crew changes and personnel acceptance of the DDG as a vital element of the Fleet.

The DDGs - Negative Aspects

Although the DDGs have been extremely successful ships in service there have been a number of longer term penalties incurred with their acquisition. This is a largely unexplored area of academic research and evidence is largely circumstantial. For that reason this article will only flag the following points worthy of future exploration:

- The DDGs ended the post-war practice

of building destroyers in Australia. In so doing this introduced a boom or bust cycle into Australian shipbuilding.

- The DDG increased the number of overseas weapon systems in the RAN.
- From the time of the DDGs' commissioning Australia did not produce another naval weapons system, despite Ikara's success.
- The DDGs introduced a second (albeit superior) logistic support system which added considerably to Fleet operating costs.

That announcement that the DDGs would be constructed outside Australia was adversely received by some sections of the Australian community and, of course, the trade unions. Senator Gorton defended the decision by pointing to the construction period of over nine years for one of the *Daring* class destroyers and estimated that construction of a DDG in Australia would take over ten years.

In 1960 Australia was faced with the requirement to rebuild the RAN to operate in the missile age with scarce fiscal resources. The situation which faced Senator Gorton and his naval staff can be compared with that faced by the RAN today. The acquisition of the three DDGs was achieved through a combination of high-level consultations, personal connections, and a pervasive sense of urgency. The small band of senior officers involved in the project, strongly supported by Senator Gorton, relied on their professional judgment supplemented by "a feeling in the water" where the former fell short. The well-intentioned hindrances of large project offices, exhaustive evaluations and the committee system, were but a feature of future construction programs.

Maritime Change

The new Resort Hotel, Brighton Beach on Botany Bay was recently the venue of a major conference on "Maritime Change, Issues for Asia" held from 20 to 22 November 1991.

Against the background of a rapidly changing world scene following the end of the Cold War and the collapse of the USSR; the general reductions in NATO and Russian armaments; the pending withdrawal of the US from the Philippines; and the rejuvenation of the security functions of the UN as a result of the Gulf War, the gathering of eminent maritime authorities was indeed timely.

The Conference was arranged by the RAN and ADI (Australian Defence Industries Ltd) and drew together defence experts from almost all South, South East and East Asian countries and representatives of Australia and New Zealand.

Admiral R.J. Kelly, the CInC of the US Pacific Fleet gave us his perception that the Soviet Navy was now pulling back to the contiguous waters of the Soviet East coast. It had pulled out of the Indian Ocean, and the base at Cam Ranh Bay in Vietnam was being drawn down.

While a robust navy was still a national priority, the poor economies of the former members of the Soviet Union would make the sustaining of the present level of activity very difficult. He would not be surprised if, when the Russian Republic recovered, it looked to the East more than to the West and claimed allegiance to the community of nations of the Pacific rim.

In his opinion Soviet naval power in the Pacific bore watching. Even if current modernisation ceased, they would continue to have a powerful blue water-navy for some time.

The US cold war strategy which emphasised global conflict with the Soviets has now been totally discarded in favour of a new strategy designed to deal with regional instability. "Forward Presence" was an essential pillar of this strategy.

This new strategy enables the US to reduce its fleet from 600 to the order of 450 vessels based on 12 reduced Carrier Battle Groups.

The USN would be spread thinner, but there should be no doubt that the US intended to stay engaged, particularly in the Pacific. The US was a Pacific nation, and its trade with Asia surpassed that with Europe over a decade ago.

While the loss of facilities in the Philippines would impact on the USN logistically in the short term, the combination of a smaller fleet, innovative scheduling, and judicious use of alternative ports will allow the US to continue to be an active player in the region.

Admiral Kelly went on to state that all tactical nuclear weapons were being removed from the Pacific Fleet as expeditiously as possible. The US remained absolutely opposed to any arms control agreement which would either limit the types of ship the US may have, or where, or how, the US may deploy them on the high seas. The Navy was vital to a maritime trading nation like the US.

The US Navy would continue to be the centre piece armed force in the Pacific, a predominantly maritime area, and would remain in Asia despite the withdrawal of the Soviets.

Professor S. Kondo of the National Institute of Defence Studies, Japan, gave an interesting insight of his view of the maritime priorities of Japan.

He began by outlining the tremendous importance of the sea to resource-deficient Japan, and its consequent interests in the development of the resources of the sea and the sea bed and in the safety of the sea lanes for the transport of its trade, particularly vital oil imports.

While there were a number of favourable developments in the Asia Pacific region such as the solution to the Cambodian problem, and improved relations between a number of countries, there were also many uncertainties.

The danger of nuclear development by North Korea loomed over the region; there were doubts over future Chinese leadership; many countries were afraid that China would react if India extended its power projection capability; and with 6 countries competing in territorial claims over the Spratly Islands in the South China Sea this area is feared to be Asia's next flash point.

For Japan, the future deployment of Soviet forces, particularly its Pacific Fleet remained a cause of concern, and the Northern Islands problem was still not resolved.

Overall the basis of perceived common interests in the region did not yet exist. Therefore there could not be a multinational regional security framework, rather the present arrangements should continue.

Many countries were concerned about the future of the US commitment to regional security, and that the reduction of the US military presence may result in a power vacuum. Deteriorating US Japanese relations, particularly over trade, also caused concern Japan was not yet confident enough to assume security responsibilities commensurate with its economic power. Japan was contributing to the security of the region in an indirect way by supporting the US presence both in the provision of bases and in their financial support.

A number of speakers covered burgeoning mercantile developments in the region. India, with a merchant fleet of over 6 million tonnes, now carries 35% of its own trade (Australia carries only about 5% of its trade in Australian ships). Malaysia is privatising its port functions and expanding its merchant marine which earns valuable foreign exchange and already carries 15% of

by RADM. Andrew ROBERTSON

Malaysian trade.

Port development was increasing rapidly particularly in Malaysia, Thailand, Pakistan and the Philippines (Manila), as well as the major hub ports of Hong Kong, Singapore, and Koushiung (Taiwan).

Schemes for regional co-operation particularly in the maritime area were also outlined. Maritime boundaries were being delineated; a consultative organisation, "MARICONSULT", had been proposed for all those with an interest in the South China Sea; ASEAN - a grouping of nations was drawing closer together, was moving to manage economic issues, and could develop into a free trade area within 15 years. Meetings had also taken place to discuss the possibility of new security arrangements in the ASEAN region.

Tensions in some areas remain, however. Malaysian representative expressed concern over the Indian naval expansion.

The Indian representative explained his country's naval programme outlining India's extensive maritime interests and concerns over Pakistan and China.

The representative of Pakistan outlined the areas of conflict and tension with India; his country's links with the Gulf states and its growing interest in its ocean areas.

The extent of piracy; oil pollution; illegal boat immigration; and smuggling, were common concerns for most countries. The considerable offshore oil and other resource developments in the region; the expanding fishing industries; the ramifications of The Law of The Sea, and possible operational arms control measures were also matters of interest to most nations.

The conference proved a useful forum not only for its illumination of the strategic and international concerns of the nations of the area in the rapidly changing world environment, but also for its examination of the major maritime developments in the region.

As the dynamic economies of an increasing number of Asian nations get into gear, so the whole maritime scene is rapidly changing.

In port development, the concentration of container tonnage in the region and the intensity of operations are significant in global terms. Not only is the magnitude impressive (for instance Hong Kong's yearly throughput of containers is roughly 6 times that of all Australian ports added together), but it is also the way in which the ports, with their rapid development, are linked together into global and regional networks. Large flows of containers and ships concentrate in a number of very efficient ports from which further distribution to smaller ports takes place.

This close linking of commercial maritime operations together with the general common maritime interests already outlined must be important factors for co operation and stability in relations between the nations of the region. Against this however must be weighed the uncertainties now appearing in the general strategic background as the reduction in US power appears to open the possibility for the greater flexing of muscles by medium powers, particularly in Asia.



November, 1991

The Navy, April-June, 1992 19

and Viking, employed on coast watching and mine clearance duties in northern waters.

- Selected Aboriginal people who participated in the defence of Groote Eylandt's airfield.

Governor-General awards battle honours to Navy Units involved in Gulf War duties

The Governor-General, the Honourable Mr Bill Hayden, has awarded battle honours to seven RAN units involved in the Kuwait Theatre during the period of hostilities in the Gulf.

The units awarded the Battle Honour Kuwait include:

- The two supply vessels, HMA Ships SUCCESS and WESTRALIA
- The guided missile frigate (FFG), HMAS SYDNEY, and guided missile destroyer (DDG), HMAS BRISBANE
- Clearance Diving Team 3 (CDT3); and
- The Seahawk Introduction and Training Unit.

The Battle Honour Kuwait 1991 for CDT3 will be carried by CDT1, CDT2 and CDT4 whose members formed CDT3, a unit which is only raised for operational clearance diving work.

The Battle Honour to the Seahawk Introduction and Training Unit will be carried by HS 816 Squadron when it recommissions as the operational Sikorsky S-70B-2 Seahawk helicopter squadron this year.

Navy Female Commander appointed

The Royal Australian Navy has officially appointed Commander Carolyn Brand, the first female officer to take charge of an operational establishment and its fourteen warships at HMAS WATERHEN.



Three destroyer escorts at HMAS STIRLING in December, 1991. DERWENT and TORRENS had returned from a south-east Asian deployment



Solomons Island patrol boat RSIPV AUK1, the last of 15 Pacific Patrol Boats built by ASI

Commander Brand, who specialises in mine-warfare has assumed the position of COMAUSMINFOR (Commander Australian Mine Warfare Force), its ships and personnel from Commander Ken Green.

Commander Brand who graduated as a Mine Warfare Officer in June 1988, later served as the executive officer HMAS NIRMBA at Quakers Hill during 1989-90. In July 1991 she was posted overseas to the Royal Navy's Second Mine Countermeasures Squadron, serving with the squadron on exercises and deployments prior to passing the Advanced Mine Warfare Course in November 1991.

Navy to combat sun

The Royal Australian Navy has

recently begun the distribution of 52,000 'digger style' hats to its sailors. The move comes in line with growing public awareness to the dangers of over-exposure to the sun.

The new head gear has already been issued to officers serving in Darwin and Cairns where they are proving to be very popular.

Rear Admiral Holthouse, who personally selected the new head gear, said that they would offer considerably greater protection from the sun than the traditional Navy head gear.

The contracts for the new hats, worth more than \$2 million, were awarded to a number of companies around Australia including Akubra in Kempsey, the John Bardsley company in Picton NSW and Mountcastle in Queensland.

In addition, the Navy will also distribute 52,000 baseball style caps, complete with a legionnaire's style flap at the back for added protection. This contract was awarded to Workin Gear, a Canberra company and is worth \$67,725.

Navy Helicopter Airlifts elderly bush-walkers off mountain

A Navy Sea King helicopter has successfully rescued all the remaining elderly bushwalkers who were stranded in the Snowy Mountains.

Nine survivors were taken by helicopter to Thredbo on 11 February.

Heavy rain and dense fog prevented the helicopter from landing in the rugged mountains and all the survivors had to be separately winched aboard.



HMAS OXLEY arrives at HMAS STIRLING for the last time, prior to decommissioning on 7 February

Earlier, three of the bushwalkers suffering from severe cases of hypothermia were airlifted to hospital at Cooma for treatment.

The captain of the Sea King, Lieutenant Rohan Armstrong, reported that visibility was so bad in the mountains that it took 45 minutes to relocate the remaining nine bushwalkers who were being assisted on the ground by a medical team.

The Sea King is based at the Naval Air Station, HMAS ALBATROSS at Nowra.

First submarine to retire after 25 years service

HMAS OXLEY, the first Royal Australian Navy submarine to be homeported in Western Australia, was retired in a Decommissioning Ceremony at HMAS STIRLING on Thursday 13 February.

Active until the end, HMAS OXLEY recently completed several days of hectic exercises with RAAF P3C Orion aircraft off the WA coast. She proudly streamed her paying-off pendant as she entered Cockburn Sound for the last time under way on the morning of Friday, 7 February before berthing at HMAS STIRLING. Garden Island was a welcome sight for the skipper, Lieutenant Commander Neil Wallace who in the previous two days had grabbed three hours of sleep during exercises.

Commissioned at Scott's Shipbuilding & Engineering Co., Greenock, Scotland on March 17, 1967, HMAS OXLEY was the RAN's first postwar submarine and the first of six OBERON-class to be constructed for the RAN. During her 25 year career she "steamed" 403,056 nautical miles, or nearly 650,000 kms.

Among those attending the Decommissioning Ceremony was the Chief of

Naval Staff, Vice Admiral Ian McDougall who was HMAS OXLEY's first Executive Officer on her delivery voyage from the UK 25 years ago.

A number of former submariners who served in HMAS OXLEY also attended the Decommissioning Service to farewell their old boat.

After decommissioning OXLEY will be laid-up locally where she will be cannibalised for spares for her five remaining sister submarines. She will be replaced by HMAS ORION at HMAS STIRLING.

Navy Hosts World Cup Cricket Cruise

The Royal Australian Navy guided missile frigate HMAS CANBERRA sailed

from the Fleet Base in Woolloomooloo Bay on 19 February, with 126 players from the nine World Cup Cricket teams embarked.

The players joined the ship for the morning to be officially photographed in their new coloured playing gear, the only day all teams will be together for the five week World Cup.

HMAS CANBERRA was fitted with a special scaffolding structure, erected on the ship's helicopter deck for the overall team photo to be taken, the frigate anchoring in Farm Cove.

After the official photos HMAS CANBERRA proceeded on a short harbour cruise.

Gulf Veterans Changeover

The Royal Australian Navy guided-missile frigate HMAS SYDNEY arrived in the Port of Fremantle on Thursday 20 February on return from the Arabian Gulf after almost six months away.

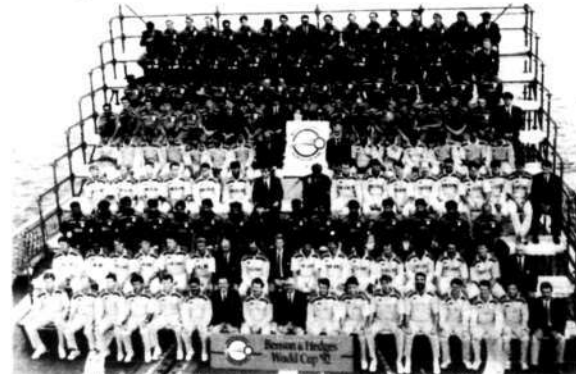
In company with SYDNEY was sister ship HMAS DARWIN which is replacing her as Australia's contribution to the Multi-national Naval Force policing trade sanctions imposed by the United Nations on Iraq.

Commanded by Commander Lee Cordner, HMAS SYDNEY has completed her third deployment to the region, having departed Australia on September 2, 1991.

HMAS DARWIN, Commanded by Commander Martyn Bell has returned to the Red Sea for her third deployment.

The two Commanding Officers participated in a brief Ceremonial Handover onboard HMAS SYDNEY, witnessed by the Maritime Commander, Rear Admiral Rob Walls, AOAN.

HMAS DARWIN, with a complement of 232 officers and sailors sailed enroute for the Gulf region on Saturday, 22 February.



HMAS CANBERRA hosts the nine World Cup Cricket teams, 19 February

RAN EYES DIFFERENT HELO TYPES

from Gregor FERGUSON

The Royal Australian Navy has three separate helicopter programmes coming to fruition during the 1990s. The most visible is that for shipboard aircraft embarked on the new class of ANZAC frigates currently building at AMECON's Williamstown yard. A number of types would be appropriate for the role; the short-list would appear to be shorter than some contractors had hoped, however. The timeframe from a final decision is 1995/6, according to defence sources.

The second contract is for helicopters embarked on the new Helicopter Training Ship which will replace HMAS Jervis Bay during the late 1990s. And the third, which may bear on the second, is for new or updated utility helicopters replacing the seven Westland Sea King Mk50s and 50As based at HMAS Albatross, near Sydney. The latter requirement is not tightly defined at this stage, though a Defence department source expects a selection to be made in 1992/3.

Industry sources have noted that the secondary army sealift role of the new vessel will require helicopters capable of disembarking a tactically worthwhile force in an acceptable period of time (ie getting an infantry rifle company cross the beach in a single wave from a position up to 40 nautical miles out to sea). This would require up to 13 Blackhawk sorties or six sorties by a Sea King. There would be insufficient flight deck space for 13 Blackhawks on a ship of the size envisaged.

There is a body of opinion within the RAN pushing for a dedicated shipboard helicopter for the support ship. "Too many boxes need the required ticks" for any predictions to be made now, according to one source (and a federal election in a couple of years' time might change the RAN's circumstances significantly); but embarking Army Blackhawks does not seem to be the favoured option. Blackhawk's ship compatibility would be a problem - it does not have folding rotors and its airframe and engine are not marinised. Corrosion would take a severe toll. A Utility version of the ASTA-assembled S-70B Seahawk now entering service with the RAN might be an option; but this aircraft (a marinised Blackhawk, in effect) would not have the troop life capacity that some feel is required in the assault/utility role. On the other hand, commonality with in-service S-70Bs would be high.

One workable option would be an upgrade of the RAN's existing Sea King utility helicopters and the purchase of half a dozen more during the mid-1990s. The existing aircraft are equipped with the Bendix AQS-13 dipped sonar and MEL Lightweight Radar; updating the avionics and making minor modifications to the airframe might be more cost-effective than buying brand-new aircraft. Certainly, the RAN is keen to avoid a proliferation of different types of aircraft so the choice would appear to be between the Sea King and Seahawk. A further six Sea Kings would fill the tactical transport role aboard the Helicopter Support Ship. Shore-based Sea Kings could continue to fill the land-based utility role.

The ANZAC frigate requirement, so far as it has been defined, is for something akin to a Seahawk but rather less capable - and it would make a considerable amount of financial sense for the RAN to order more of these aircraft rather than introduce another type into service. Westland and Aerospatiale have targeted the RAN for Navy Lynx and Dauphin, respectively. Both are excellent aircraft but neither are in current inventory and the feeling around Canberra, according to defence sources, is that logic might prevail this time round and an existing, expensively created production line used once more. The Royal New Zealand Navy, however, is believed to favour the Westland Lynx as a replacement for its ageing Wasps. Lynx



S-70B-2. Seahawk helicopter

would be easily compatible with both the ANZAC frigate (of which the RNZN has two on order) and its ex-British Leander-class frigates. How far a RNZN requirement for a Lynx-type aircraft would affect RAN thinking (and how far the RNZN would insist upon having Lynx, given the extra cost of Seahawk) is unclear at present.

The issue of a heli-borne anti-ship missile capability, which it currently lacks, has been addressed by the RAN also. Given the current squeeze on defence spending the missile capability is only now shifting from wish-list to shopping-list. The RAN is keen to acquire such missiles but reluctant to discuss prices and types at this early stage and no decision will be made, it is understood, until after the selection of the ANZAC frigate helicopter. The impression received from Canberra, however, is that compatibility with a proven missile system will not be enough in itself to guarantee a particular helicopter is selected for the ANZACs, which may be good news for those missile manufacturers whose products are claimed to be compatible with a wide range of helicopter types.



Prepositioning ships for US

by Robert HOLZER
Defense News Staff Writer

WASHINGTON - Industry proponents of the Marine Corps prepositioning force are lobbying US Navy officials to build more of the specialized ships, even though Marine officials have defined no need for the vessels.

In a plan submitted to Gerry Cann, the Navy's acquisition chief, the American Overseas Marine Corp., Quincy, Mass., is proposing the construction of an additional three Maritime Prepositioning Ships (MPS) to enhance U.S. ability to quickly respond to regional crises, Letland Bishop, company president, told *Defense News* last Monday. American Overseas is a subsidiary of St. Louis-based General Dynamics Corp.

However, Marine Corps officials responsible for managing the MPS force say they have not identified a need for additional prepositioning ships. With the military's force structure shrinking as a result of the waning Soviet threat, it is not the time to expand the force, Marine Corps officials say.

"We think we have the right balance between prepositioning and amphibious lift capability," a Marine official involved in MPS issues said last Tuesday. "We have not identified a need for any more MPS."

The Marine Corps fleet of 13 MPS ships proved vital in the early deployment stage of Desert Shield, when the equipment they carry, such as tanks, light armoured vehicles and supplies, enabled Marines to quickly establish a defensive presence in Saudi Arabia following Iraq's August 1990 invasion of Kuwait.

Divided into three squadrons, each squadron carries equipment to support a 16,000-troop Marine Expeditionary Brigade.

Funding for new MPS ships will come from the nearly \$2 billion Congress has appropriated for sealift over the last several years but which the Pentagon has yet to spend, Bishop says. The funding is also earmarked for construction of new Strategic Sealift Ships over the next decade, which has been identified in the Navy's "Strategic Sealift Implementation Plan" that was released in September.

Under the proposal submitted by American Overseas Marine Corp., the company would provide the ship design to the US Navy

free of charge, Bishop says, in return for a 15-year agreement to provide the operation and maintenance support for the ships. The cost to maintain each ship averages \$12.5 million per year, according to charts supplied by Bishop.

Industry and congressional proponents of new MPS ships argue that with US forces being withdrawn from forward locations around the globe, having a sea-based capability to rapidly reinforce US troops responding to regional contingencies is assuming greater importance. It is more important to possess the capability to deploy forces in the first 30 days of a conflict, which MPS addresses, rather than beyond that timeframe, they said.

"If you don't spend anything on (sealift) forces for the first 30 days (of a conflict), then there may not be anything to reinforce afterward," Bishop says. A critical lesson that Third World nations have learned from the Persian Gulf war "is don't give us time to deploy. Try to (attack) us in the first 30 days" before heavy forces can arrive, Bishop notes.

Congress is also interested in augmenting the MPS force. The Senate Armed Services Committee in its July report on the Pentagon's 1992 budget noted that buying more MPS ships would be an acceptable use of the funding appropriated for sealift.

"I think (the new MPS proposal) ought to be looked at, as well as all other ship design concepts" to meet the nation's sealift needs, a source on the Senate Armed Services Committee said last Wednesday.

Bishop maintains that the new MPS ships can be built for about \$180 million apiece, compared with the estimated \$220 million to \$280 million cost to build proposed Strategic Sealift Ships. Moreover, since the design of the MPS ships already exists, construction can begin in 1992 and they can be deployed up to two years ahead of the Strategic Sealift Ships, which the Navy envisions sending to sea between 1996 and 1997.

Much of the future debate over whether the Navy should build more MPS or strategic sealift ships hinges on the recommendations contained in the Pentagon's Mobility Requirements Study that is under development by the Joint Chiefs of Staff.

PERTH and YARRA

50th Anniversary

It was the time of Australia's gravest peril. Little stood between us and a ruthlessly-efficient foe.

We had placed much faith in the power of our own and Allied navies to keep the enemy at bay but even our best ships were being swept aside in a saga of disasters.

Our men fought heroically but the enemy was much more efficient and much better armed than we had imagined. Australians had already learned the cruelties of a war at sea which we waged on every ocean. Even amid the welter of tragedies on all fronts by land, sea and air, the names WATERHEN, PARRAMATTA and above all SYDNEY, were still associated with disaster and remained a grim reminder of the cost we had to pay for freedom. There was worse to come.

On March 1, 1942, the light cruiser, HMAS PERTH, was battered to death by the enormous firepower of the main Japanese invasion fleet which she and her consort, USS HOUSTON, had accidentally encountered as they attempted to clear Sunda Strait after the awful tragedy of the battle of the Java Sea which left the enemy undisputed master of the waters to our north.

Trapped between superior forces the RAN and USN cruisers fought with a determination which aroused the admiration even of a pitiless enemy.

PERTH in particular took the brunt of the initial attack because one of HOUSTON's turrets was out of service due to earlier battle damage. It was a hopeless task and the gallant RAN warship went down under the relentless hammering.

Alone, the HOUSTON fought it out, survivors from the PERTH despite their own travails in the debris-cluttered waters watching in

by Naval Historical Section

admiration as the US cruiser slashed defiantly at her tormentors even as they tore her apart, before she slipped beneath the waves.

To this day there is an affinity between survivors of the Australian and the US warship which has persisted throughout the half century since their common tragedy.

Four days later, even as next-of-kin of the men aboard PERTH were being notified news came through that the sloop, HMAS YARRA was also lost to the marauding Japanese.

Early on March 4 as she escorted a convoy trying to escape from Java to

compared with the 30 eight-inch guns the enemy cruisers could bring to bear from their main batteries alone.

YARRA fought as long as she could and did her best to protect her charges which were systematically destroyed by the enemy after he had smashed the little RAN escort. She was the last to go.

It was the grimmest period the RAN ever faced. Half a century on the Navy remembers.

LOSS OF HMAS PERTH 1 MARCH 1942

HMAS PERTH was built at Portsmouth Naval Dockyard and commissioned into the Royal Navy as HMS AMPHION on 15 June 1936. Purchased by the Australian Government, she was commissioned into the

RAN on 29 June 1939. The light cruiser displaced 6830 tons, was 169 metres long and had a beam of 17.3 metres. Her armament consisted of eight 6-inch guns, eight 4-inch dual purpose guns, a number of automatic anti aircraft weapons and eight 21-inch torpedo tubes. She also carried a Seagull V aircraft for reconnaissance and spotting duties. Her speed was 32 knots and she carried a complement of 681.

Her early war service was in the Caribbean and the Pacific and she did not reach Australia until 31 March 1940. Until November 1940 the ship was engaged on patrol and escort duties in Australian waters. She then departed for the Mediterranean where she played a minor part in the Battle of Matapan and was involved in the evacuations of Crete

and Greece in April and May 1941 in the course of which she was badly damaged by bombing. After repairs the cruiser was



HMAS PERTH

Australia YARRA encountered a major Japanese force of three heavy cruisers and attendant escorts. Her armament was puny

PERTH AND YARRA — 50th ANNIVERSARIES

engaged in operations off the coast of Syria before proceeding to Australia for an extended refit. She arrived in Sydney on 12 August.

While the ship was refitting Captain H.M.L. Waller, DSO and Bar, RAN, took command on 24 October 1941. After completion of her refit the PERTH operated off eastern Australia on patrol and escort work, visiting New Caledonia and New Guinea. On 14 February 1942 the PERTH sailed for the Netherlands East Indies, arriving at Batavia (now Jakarta) on 24 February where she was attacked by Japanese aircraft that day and the next without sustaining any damage. The PERTH sailed on 25 February in company with four Royal Navy ships for Surabaya. On 26 February the ship departed Surabaya in company with the Dutch light cruisers DE RUYTER and JAVA and the heavy cruisers USS HOUSTON and HMS EXETER and two Dutch, three British and four US destroyers. The squadron, under the command of the Dutch Rear Admiral Karel Doorman, proceeded along the north coast of Madura Island, searching for a Japanese invasion convoy.

The cruise was unsuccessful but, as the ships were preparing to enter Surabaya and refuel, Admiral Doorman received information that the Japanese forces had been sighted to the north. Accordingly he steamed to intercept. In the ensuing Battle of the Java Sea, fought over the night of 27-28 February the Allied force was soundly defeated by a Japanese force which was able to exploit its superiority in long range gunnery, torpedoes, night fighting, freshness of its crews and its homogeneity compared with the four nation Allied Force. The Dutch cruisers were sunk and the EXETER badly



Captain Hector Waller, in command of HMAS PERTH when she was sunk in the Battle of the Java Sea.

damaged while most of the destroyers were sunk or had withdrawn as their torpedoes were exhausted. The PERTH and HOUSTON were able to break off the action with the Japanese and sailed to Tjilitjap where they refuelled.

Orders were received for the cruisers to sail through Sunda Strait for Tjilitjap on Java's south coast. The cruisers sailed at 7.00pm and set a course to the west for the Strait, the PERTH leading with the HOUSTON five cables astern. At 11.06 a vessel was sighted at about five miles range close to St Nicholas Point. When challenged she proved to be a Japanese destroyer and was immediately engaged. The two cruisers had met the Japanese invasion force assigned to western Java.

Shortly afterwards other destroyers were sighted to the north and the armament shifted to divided control to allow more than one

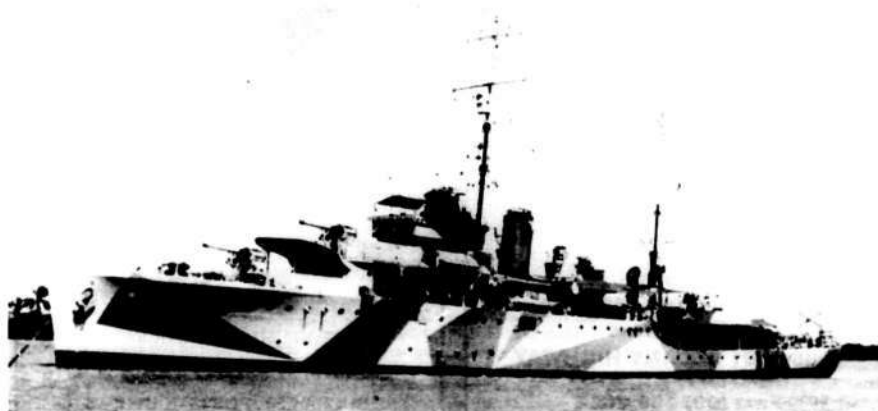
target to be engaged. Despite this the enemy destroyers attacked from all directions during the action making it impossible to engage all targets simultaneously and some were able to close to short range. Nevertheless the PERTH was to suffer only superficial damage in this phase of the action.

At about midnight it was reported that the cruiser had little ammunition left so Captain Waller decided to attempt to force a passage through Sunda Strait. He ordered full speed and turned the ship south for Toppers Island. PERTH had barely steadied on her new course when a torpedo struck her in the starboard side. Captain gave the order to prepare to abandon ship. A few moments later another torpedo struck just forward of the first hit and the Captain gave the order to abandon ship. After five or ten minutes a third hit torpedo struck well aft on the Starboard side followed shortly after by another on the port. PERTH, which had been heeling to starboard, righted herself the heeled to port and sank at about 12.25am on 1 March.

The HOUSTON, still fighting but ablaze, was also hit by torpedoes and sank shortly afterwards.

The Japanese losses were light with one transport and one minesweeper sunk and several vessels seriously damaged.

PERTH's crew abandoned ship between the second and third torpedoes, but it is doubtful if any boats were successfully launched although many rafts and carley floats were. During the abandon ship operation PERTH was under fire from many destroyers at close range and many hits were sustained and casualties caused. Many were killed or wounded in the water by the explosion of the last two torpedoes and by shells exploding in the water.



HMAS YARRA

Of the PERTH's company of 686, which included four civilian canteen staff and six RAAF personnel for operating and servicing her aircraft, only 218 (including one civilian and two RAAF) were eventually repatriated, the remainder having been killed during or soon after the action or died prisoners of war. Captain Waller was lost with the ship.

LOSS OF HMAS YARRA 4 MARCH 1942

The sloop HMAS YARRA was launched at the Cockatoo Dockyard, Sydney, on 28 March 1935 and commissioned on 21 January 1936. Displacing 1080 tons she was 81.1 metres long with a beam of 11 metres. She was armed with three 4-inch anti-aircraft guns, four 3-pounder guns, a quadruple 5 inch anti-aircraft machine gun and depth charges. She had a speed of 16.5 knots and a complement of 151.

The YARRA's initial war service was in Australian waters on patrol and escort duties. She was commanded by Lieutenant Commander W.H. Harrington, RAN, who was eventually to become Vice Admiral Sir Hastings Harrington, CBE, DSO, RAN, Chief of Naval Staff, 1962-65. In August 1940 she left for the Middle East where she was used on patrol and escort duties. In April 1941 she escorted a convoy from Bombay to the Persian Gulf where she took part in campaigns against Iraq and Iran. This was followed by service in the Mediterranean in November-December 1941.

With the outbreak of war with Japan the YARRA left the Mediterranean for Japanese waters arriving in January 1942. She carried out escort and patrol duties and on 5 February she performed a particularly fine piece of rescue work when she took 1800 survivors off the burning troopship EMPRESS OF ASIA. On 11 February Harrington was relieved by Lieutenant Commander R.W. Rankin, RAN.

On 27 February orders were given to clear all remaining British auxiliary craft from Batavia (now Jakarta). About midnight the YARRA and the Indian sloop HMAS JUMNA sailed escorting a convoy to Tjilatjap. Arriving off Tjilatjap at 11am on 2



Lieutenant Commander Robert Rankin of the YARRA

March the ships were warned not to enter the harbour. The YARRA was ordered to take the convoy, which consisted of the depot ship ANKING, the tanker FRANCOL and the motor minesweeper MMS 51, to Fremantle while the JUMNA sailed for Colombo. No time was to be lost as powerful Japanese forces were known to be operating in the waters south of Java.

Steaming steadily south east at an average speed of 8.5 knots the YARRA and her convoy made steady progress during the night of 2/3 March. Expecting a faintly discerned shadowing aircraft sighted in the evening there was no sign of the enemy. On the morning of the third two lifeboats were sighted from which the YARRA took a number of exhausted survivors of the Dutch merchant ship PARIGI, sunk by the Japanese two days earlier.

At 6.30 am on 4 March, as the sun rose the lookout in the YARRA sighted the unmistakable topmasts of a Japanese heavy cruiser squadron to the north east. The squadron consisted of the ATAGO, TAKAO and MAYA, each armed with ten 8-inch guns,

and two destroyers. Immediately Lieutenant Commander Rankin made a sighting report, ordered the ships of convoy to scatter and, placing his ship between them and the enemy, laid smoke and prepared to engage. The YARRA was outgunned and outranged and the enemy ships were faster. Against such odds her task was hopeless, yet she kept fighting even as her convoy was overwhelmed and sunk, ship by ship.

The ANKING, which was carrying many RAN personnel was sunk first. Overwhelmed by many hits she was despatched in ten minutes. The YARRA was then on fire and listing heavily to port but still shooting. MMS 51 was on fire and was put down shortly after by a hail of close automatic gunfire from one of the cruisers. The FRANCOL took more punishment and still remained afloat, finally succumbing at about 7.30. The YARRA, shattered by numerous hits was the last to go. Soon after 8.00 Rankin ordered the ship abandoned. Minutes later he was killed when an 8-inch salvo hit the bridge. Leading Seaman R. Taylor, manning the last remaining gun, kept on firing until he too was killed and the YARRA's guns fell silent. Her end, after close range shelling by the two Japanese destroyers was witnessed by 34 survivors on two rafts. All, except the Dutch captain of the PARIGI were ratings.

When the YARRA sank the Japanese made off to the north east after picking up one boat load of survivors from the FRANCOL. Left scattered over a wide area of sea was a collection of boats, rafts and floats. Towards evening a passing Dutch vessel, the TAWALI, rescued 57 officers and men from the ANKING, in spite of frantic signals, failed to sight two carley floats which held 14 men from MMS 51. For the next two and a half days they drifted about until picked up by the Dutch steamer TJIMANJOEK on 7 March. Meanwhile the YARRA'S men, their numbers being sadly reduced by wounds, exposure, and thirst, continued to drift helplessly. On 9 March thirteen of the sloop's ratings were picked up by the Dutch submarine K11. Of the complement of 151, 138 including the captain and all officers were killed in the action or died subsequently on the raft.

NAVAL MATTERS

by A.W. GRAZEBROOK

Deficiencies Need Rectification

In his Viewpoint article in this issue, the Navy League's Federal President Geoffrey Evans quoted Australia's Minister for Foreign Affairs (Senator Gareth Evans) reference to Air Force's F111s and Navy's submarines as our long range strike capabilities. However, the Minister went on to imply that our offensive capacity is limited because "we have no aircraft carriers and only limited amphibious troop-lift capacity."

The RAN is indeed deficient in both seaborne aircraft and amphibious lift capacity. Significantly, the major limitation on our amphibious lift capacity is in aircraft and the lack of a ship to deploy them.

At present our seaborne aircraft are all helicopters:

- * Sixteen "state of the art" S70B2 Seahawks are all required to operate from the six FFG7 class frigates.
- * Seven Seakings, formerly anti-submarine helicopters, have now been assigned to "utility" duties. One operates from HMAS SUCCESS. The others operate from shore. Although they can land on the amphibious heavy lift ship TOBRUK, the Seakings cannot deploy with the ship as she cannot refuel them.
- * Six AS350B Squirrels have no combat capability and very low payload. They are useful for training and low level surveillance.

More helicopters will be required for the Anzac class frigates and to replace the Seakings when they reach the end of their lives later this decade.

The recent Force Structure Review

allocated provisionally \$230 million to provide a helicopter capable training ship to fill the dual need to replace in 1997 Navy's existing seagoing training ship HMAS JERVIS BAY and to improve the Australian Defence Force's "limited amphibious lift" to which Senator Evans referred.

ADF's amphibious lift weakness

Currently, the ADF's amphibious lift is provided by HMAS TOBRUK, which can embark for ocean transit up to 500 troops and a number of tanks and heavy vehicles. TOBRUK can land these over a suitable beach or by two medium landing craft which

capability away from suitable bases on the Australian mainland.

The remainder of the ADF's amphibious lift is provided by six 310 ton heavy landing craft (LCHs), which can operate (inter alia) with the training ship JERVIS BAY in a logistics over the side (LOTS) role. JERVIS BAY also has a roll-on roll-off vehicle capability.

Thus, in addition to her general naval training role, JERVIS BAY contributes significantly to the ADF's amphibious lift capability. A failure to replace JERVIS BAY with both naval training and at least some amphibious lift capability would actually reduce the ADF's capability, let alone fail to meet an accepted need for an increase.

The amphibious lift capability would be further reduced by the retirement of the six LCHs, which are already approaching 20 years of age.

The need to improve the ADF's amphibious lift was proven when Australia considered means of evacuating endangered Australians from strife torn Fiji at the time of the 1987 coup. As Fiji is out of range of Australian land based aircraft, and we had no ship capable of operating sufficient numbers of suitable helicopters, there was no way that evacuation could be arranged. When it came to rescuing distressed Australian citizens, the

ADF was helpless.

Although similar circumstances could arise in a number of the smaller nation States in our region, the evacuation of distressed civilians is by no means the only foreseeable need for a helicopter capable ship. Disaster relief, support for friendly regional neighbours and deployment of Army units



NEW AND USED

Telephone: (09) 458 7344

DIESEL MOTORS

1089-1091 ALBANY HIGHWAY
BENTLEY, WA, 6102
Fax: (09) 458 2884

CAIRNS FUEL DISTRIBUTORS PTY LTD

LUBRICATION SPECIALISTS

Distributors of:



TECTYL RUSTPROOFING PRODUCTS

Cairns: (070) 31 3229. Fax: (070) 51 9816

92 BUCHAN ST, PORTSMOUTH, 4870

around Australian national territory are a combined basis for the requirement.

A replacement for JERVIS BAY's training and amphibious lift capability is essential anyway. By spending a relatively small additional extra sum, the ADF can be provided with an essential additional helicopter oriented amphibious lift.

The precise capabilities of the ship are currently being determined within Head Quarters Australian Defence Force. However, it is known that the ship (but not necessarily the helicopters) would be operated by Navy as a service to Army (in the amphibious lift role).

Authoritative sources suggest a ship displacing 20,000 tonnes, able to embark numbers equivalent to a battalion of troops, up to 12 utility helicopters, four medium landing craft and an 80 bed hospital should be feasible on the money allocated provisionally. This may be either a converted merchant ship or new construction. The latter is likely to be more expensive initially but more cost effective on a through life basis.

Lack of an aircraft carrier

In the context used by Senator Evans – tactically (but not strategically) offensive maritime operations in Australia's zone of strategic interest – the term aircraft carrier implies a ship capable of operating fixed wing strike fighters and combat capable helicopters.

With the 1983 decision to scrap HMAS MELBOURNE and her fixed wing aircraft, Australia lost the capability to provide fighter cover for her Navy anywhere other than within 500 miles of major RAAF bases. She also lost a most effective means of providing Australian ground forces with airborne ground attack capability in the region and in some Australian territory.

There are no plans to replace this capability. Further, it is not feasible to fit the proposed helicopter capable training ship to fill this function.

The need for combat capable maritime warfare helicopters is being met by the FFG7s' Seahawk S70B2s, although as yet

there is no approval to arm these with the air to surface missiles that proved so effective against fast attack craft in the Gulf War. The Navy League considers that the Anzac frigates should also be equipped with S70B2 Seahawk helicopters.

Unless a new aircraft carrier is acquired, it is possible that the only way to provide Army units with an airborne ground attack capability would be by acquiring helicopter gunships. Although fixed wing ground

the fitting of the very versatile Mark 41 vertical missile launching system in the Anzac frigates and arming those frigates with new Sea Sparrow point defence missiles.

Further measures should include equipping the DDG successors with area defence systems, ensuring that they join the Fleet before age forces the retirement of the DDGs themselves, and upgrading the area defence system of the FFG7s.



attack aircraft are less vulnerable, their need for high grade airfields and low combat radii of action limits their effectiveness in regional and Australian national territorial operations.

Navy is known to be concerned at the lack of a fixed wing defensive fighter capability for the Fleet. To meet this in part, the number of ships with area defence surface to air missile systems will be increased by the commissioning of HMA Ships MELBOURNE and NEWCASTLE.

Other planned measures include acquiring more close in weapons systems,

The cost of some of these measures could be avoided if a new aircraft carrier were to be acquired.

However, Navy is understood to consider that the very substantial cost of a new aircraft carrier and her fixed wing aircraft would divert to an unwise and unacceptable extent the very limited funds required for other projects. These include the Collins class submarines and Anzac frigates.

Therefore, the ADF will have to accept the limitations on areas of operations that the lack of seaborne fixed wing aircraft imposes on the Fleet.

NAVY LEAGUE/RESERVE CADET NEWS

While only one of 60 Naval Reserve Cadet Units, TS STURT at Renmark, South Australia, has a special character all of its own. The Unit is physically located in the old Renmark High School which, while far from the sea, has been converted by its ship's company into a "stone frigate" complete with main mast, quarterdeck and a galley capable of feeding up to 60 cadets.

The unit is commanded by Lieutenant Tom McGuire, a local fruit grower, who has served in both the Royal and Royal Australian navies. Assisting him to train the unit's 39 cadets are four instructors and a very keen body of local parents who assist with everything from transporting cadets to unit activities to the never ending "chipping and painting" that old buildings require.

Owing in no small part to this strong community support, TS STURT was recently honoured by being selected as the winner of the Navy League's "Annual Efficiency Shield for 1991". This award was presented by the Chief of Naval Staff, Vice Admiral I. MacDougall, AO, RAN at a ceremony in Renmark on Saturday 16 November 1991.

(Enclosed are two photographs – one showing Vice Admiral MacDougall congratulating Lieutenant Tim McGuire when presenting him with the Efficiency Shield and the other showing the unit displaying the enthusiastic spirit of the



Riverland while marching through Renmark.)

In appreciation of this award, TS STURT would like to extend their thanks for the support they receive from the Navy League of Australia.

HMAS COONAWARRA wins Navy League Community Award for second time
At a ceremony commencing at 1000

which was conducted in the new gymnasium at HMAS COONAWARRA on Tuesday 21st January this year. The Administrator of the Northern Territory, the Honourable James Muirhead, presented to the Command Officer of HMAS Coonawarra, Commander David Horton RAN, the Navy League Community Award.

The ceremony was attended by about fifty naval personnel, headed by the new Naval Officer Commanding Northern Australia, Captain Ian Watts and about thirty members of the community. The civilian participants included, Mr Warren Snowden MHR, Mr Max Ortmann MLA and the Mayor of Darwin, Mr Alan Markam, plus representatives from Multiple Sclerosis, Red Cross, Wheelchair Sports Association and many others.

This was the second time HMAS Coonawarra has won this prestigious award and only the second Naval unit to have won it twice, the previous occasion was 1986. The other two-time winner is the Darwin-based patrol boat, HMAS Cessnock.

HMAS Coonawarra has continually worked hard to maintain the Navy's high public profile in Northern Australia. The city of Darwin has a long and established history with the Navy in the top end. From WWII (the 5th anniversary is this year), Cyclone Tracey 1974, the FFG that carries the city's name HMAS Darwin, and now today.

Some of the activities that HMAS Coonawarra carried out in 1990-1991 (the year for which the award was presented) include:

- Raising \$35,000 for the Multiple Sclerosis Society by cycling from Ayers



R. Poole Pty. Ltd. Marine Plumbers

WELDING SPECIALISTS ▲ OXY AND ELECTRIC
▲ GENERAL PLUMBING ▲ PIPE BENDING
▲ SHEET METAL ▲ COPPERSMITHS

Office: (09) 335 6004 or 335 3787

Fax: (09) 430 6372

A/H: (09) 332 6970 or 418 4708

Factory: 8 Stack Street, Fremantle, WA 6160

Refrigeration Industries (WA)

(A Division of Executive Building Services Int)

- Air Conditioning, Refrigeration • Design, Install, Service, Maintenance • Central Plant Systems • Commercial and Domestic Air Conditioning • Marine Refrigeration • Computer Rooms • Mechanical Services • Electrical Services and • Energy Management Systems

Phone: (09) 244 2088. Facsimile: (09) 446 8109

UNIT 3/16 GUTHRIE STREET
OSBORNE PARK, WA, 6017



Rock to Darwin.

- Assistance by Navy Fire Fighters to civilian fire services on 49 occasions during the year.
- Charitable assistance to the Red Cross Society, which included the raising of \$5,200 in one function.
- Support for Green Australia and the "Clean Up Darwin Day", (part of clean up Australia).
- Hosting workstudy students and intellectually handicapped students.
- Use of HMAS Coonawarra's sporting facilities by local and interstate sporting associations.
- Assistance to the NT Wheelchair Sports Association to maintain a competition in Darwin.
- Establishment of a Little Athletics Club on Base, involving eighty children of service and civilian families.
- The base gardening staff has won numerous prizes at local shows and is recognised for its efforts toward the beautification of Darwin.

And so the list goes on.

Commander Horton was proud to receive the award on behalf of HMAS Coonawarra and praised the high standard of competition that this award raises from naval units around Australia.

VALE

THE NAVY reports with regret the death of John Hugo Heddle Paterson, MBE, on 22 December 1991, a founding member of the Navy League of Australia and Honorary Secretary 1947-50 and 1980 through 1984.

John Paterson had a long and distinguished career in the Australian shipping industry and as an RANR Officer served in the Royal Australian Navy from 1939 to 1946. He was awarded an MBE in the 1946 New Year's Honours List for his service in New Guinea. Among other interests John was a member of the Board of the Royal Talbot Hospital for many years.

The Navy League has lost an active supporter and many members, a personal friend. The League's sympathy has been expressed to his widow, Sonia, and surviving son John, a serving officer in the Australian Army.

JOHN CRANE AUST PTY LTD

PO BOX 200
BANKSTOWN
NSW, 2200

Contractors to the
Department of Defence
for Shaft Seals and Seats

Phone:
(02) 709 2288

Facsimile:
(02) 707 4646

New Titles from Maritime Books

The British Naval Publishers, Maritime Books have recently released three new titles concerning different aspects of the Royal Navy, both past and present.

Largest of the trio is The Royal Navy in Focus 1920-29. Like the other volumes in the series this current publication features the best naval photography of the renowned Wright and Logan collection and with this book the added pictorial scope of the various Royal Navy ships in Malta. Included in the decade of photography are many of the surviving vessels from the Great War period and the beginnings of new construction including the County class destroyers and new generation submarines. By far the largest number of warships depicted are the V and W class destroyers, including VAMPIRE and VENDETTA. Some of the more unusual ships depicted include HMS VULCAN, formerly a torpedo boat carrier, a seaplane docking lighter, more akin in appearance to today's modern offshore rig support vessels and the decoy ship HMS PC74, built to look like a tramp steamer.

The second book, British Warships and Auxiliaries, 1992-93 edition was published in January. The book is a modern day guide to the Royal Navy, its ships and aircraft, from the largest fleet units down to the dockyard service craft. Each entry comprises a photo of a ship of the class, with relevant technical data and brief notes. A colour section in the centre completes the overall picture of the Royal Navy today. The 104 page book is printed on high quality gloss paper with colour covers.

The third title from Maritime Books is The Fleet Air Arm in Focus. Part One spans the years from the birth of the Royal Naval Air Service until the early fifties. Like the other In Focus books, the Fleet Air Arm is built around a selection of rare and excellent photography, in this instance not only the ships but aircraft and personnel activities on the ships' flight decks. Most of the photos are full page with some spread over two pages. The unattractive aircraft transport HMS ENGADINE is depicted in Sydney Harbour while another regular Australian visitor in latter years, the Sitar liner FAIRSKY is shown as HMS ATTACKER in 1943. Most if not all Royal Navy air capable ships are illustrated chronologically with rare views depicting operations aboard the earliest carriers.

The three Maritime Booklets reviewed above provide excellent reading and browsing. All can be obtained locally in technical bookshops or direct from:

Maritime Books, Lodge Hill,
Liskeard, Cornwall, PL14 4EL
Great Britain

BOOK REVIEWS



AUSTRALIA'S NAVY 1991-1992

Published by A.G.P.S.

Price: \$16.95 (\$29.29 hardcover)

The Royal Australian Navy's annual Australia's Navy 1991-1992 was officially launched by the Chief of Naval Staff, Vice Admiral Ian MacDougall at HMAS Watson on 22 November 1991.

The 96 page glossy colour annual gives full coverage of the Navy's involvement in the Gulf Crisis and ensuing war. For the first time the wide range of Navy's Gulf activities ranging from the operations of the RAN Task Groups to the work of medical teams, logistic support elements, liaison officers and the dangerous work of the clearance diving team are covered in one publication. This coverage includes the often unsung work back in Australia that was so necessary to keep the Navy in the Gulf. One of the most interesting features of the Gulf coverage is the personal accounts by officers and sailors who were in the Gulf.

In addition to the Gulf coverage, Australia's Navy describes the many Navy activities in the year. Special features are articles covering the work of the Paluma Class survey catamarans and patrol boats in northern Australia, HMAS Perth's Mediterranean deployment, the new Submarine Escape Facility and an update on major projects. There are also a number of human interest stories such as "A Day in the Life of a Submarine Captain" and a look at the life of one of the Navy's most famous officers, Admiral Sir Victor Smith.

Australia's Navy is available at all Australian Government Publishing Service Bookshops and other selected bookshops Australia wide. Copies can also be ordered through the AGPS Phone Shop on (008) 020049 or FAX (06) 295 4888. The Recommended Retail Price is \$16.95 for softcover and a hardcover edition is \$29.95.

One dollar from the sale of each copy is donated to the Sir David Martin Foundation.

GERMAN WARSHIPS 1815-1945

Volume II: U-Boats and Mine Warfare Vessels

Erich Gröner, edited by
Dieter Jung and Martin Maass

Review copy from

Conway Maritime Press Ltd., 101 Fleet
Street, London EC4Y 8DR

This is the English translation of the standard work on German naval vessels.

Erich Gröner's highly regarded book is, quite simply, the most detailed and authoritative reference work ever published on the subject. It provides data on the design, construction, dimensions, machinery and armament as well as commenting on more abstract factors like performance seakeeping, and service history, for around 10,000 ships and craft. This, the second volume, covers U-boats, minesweepers and motor minesweepers.

Although Gröner himself died in 1965 his work has been continued, amended and vastly expanded by Dieter Jung and Martin Maass and the illustration, which has been the subject of almost as much original research as the text, consists entirely of constant-scale line drawings of every ship for which sufficient information is available.

EMIGRANT SHIPS TO LUXURY LINERS

Passenger Ships to Australia and
New Zealand 1945-90

by PETER BLOWMAN

Published by

University of New South Wales Press, RRP
\$44.95

This is a magnificent book, it brings back memories of those hazy days of the postwar passenger liners and emigrant ships through to the luxury cruise ships of today.

Within 296 pages the author has managed to include 303 ships which are supported by 293 black and white photographs and 16 colour plates.

One cannot but help feel a tinge of sadness when one glances at the resplendent ships of yesteryear, once household names, and today, but memories.

Who can forget names like: Oriana, Arcadia, Australis, Orontes, Himilaya, Orcaes, Oronsay, Fairisky, Achille Lauro, Southern Cross, Dominion Monarch, and the Straths - Strathaird, Stratheden, Strathmore and Strathnaver?

One ship which caught my eye was the China Hellenic Lines Ltd emigrant ship Hellenic Prince which plied between Naples and Australia in 1949-52. She is of course better known as the former RAN seaplane carrier HMAS Albatross. She was also the only vessel built in this country to bring

BOOK REVIEWS

migrants to our shores.

Every ship is described in great detail. Where and when it was built, tonnage, propulsion, dimensions, speed and method of propulsion, plus a complete history.

The introduction of jet passenger aircraft in 1960, followed a decade later by the jumbo jet, sounded the death knell of passenger shipping on a regular basis. This was indeed, a far cry from the late-1950s when the combined fleets of P & O and the Orient Line were offering weekly departures to Britain, as they had been before World War Two.

It is interesting to note that although Australia is quite a large market for the cruising industry, only seven per cent of the present population have actually made a cruise.

There can be no doubt that this book apart from being an excellent reference, is great to pick-up and simply peruse. Recommended reading for all shiplovers.

VIC JEFFERY

"TYPE VII U-BOATS"

by ROBERT C. STERN

Published by
Arms & Armour Press, London

Distributed in Australia by
Capricorn Link, 20 Barcoo Street, East
Roseville, NSW 2069

Recommended retail price \$60.00

Reviewed by VIC JEFFERY

By far the most numerous type of U-boat employed during World War Two, the Type VII was the nearest the Germans came to the "perfect" submarine which combined the features of both large and small boats - highly manoeuvrable with a fast dive, an effective operational range, excellent communications, heavy armament, and, above all, it had to be easy to build because a great number were needed. Armed with such a weapon, Admiral Donitz was convinced that, given the will, Germany could win any tonnage battle in the Atlantic Ocean.

"TYPE VII U-BOATS" is a chapter-by-chapter account of life aboard these submarines, of which more than 700 examples were constructed. Material used in this book was accumulated over many years, much of it from archives in West Germany, Canada and the United States of America along with interviews and correspondence with U-boat survivors.

The author skillfully traces the development and design of the VII-class U-boat together with the crucial offensive and defensive components it took to sea; torpedo and gun types, radio, hydrophones, radar decoys and sonar countermeasures; mines; and a host of other innovative items used in

its prime role which involved coordinated "wolf pack" attacks on Allied convoys.

This is not an operational history of the Type VII U-boat, though parts of some typical operations are described to illustrate a point. Equally it is not a design history, though many aspects of the evolution of the Type VII design are outlined. Rather this book attempts to present a detailed technical description of the type as a weapon system.

Being a technical history, this book describes in detail the technological war fought by-and-against the Type VII U-boats. This technical thrust-and-parry, fought as much by scientists and engineers as by sailors, had a drama all of its own.

Each side tried desperately to gain the crucial technological advantage that could tip the scales of war in its favour. As the war turned against Germany, this led to experimentation with systems that were often years ahead of their time. Eventually it was the Allies' ability to exploit the weaknesses of the Type VII U-boat which led in good part of the defeat of Nazi Germany in the war at sea.

This most interesting insight into the Type VII U-boat is divided into five sections: 1. Design Characteristics of the System; 2. Weapons and Targeting Systems; 3. Sensor Systems; and 4. Countermeasures. Supported by 160 black and white photographs, several dozen line drawings and maps, with appendices on paint schemes, boats built, and a profile of Admiral Donitz, "TYPE VII U-BOATS" is a most valuable contribution to the study of the World War Two U-boat and gives a deep insight into life onboard. Recommended reading.

THE LAST SAILING BATTLEFLEET

Maintaining Naval Mastery
1815-1850

by ANDREW LAMBERG

Review Copy from
Conway Maritime Press Limited
101 Fleet Street, London EC4Y 1DE

Between 1815 and 1850 the Royal Navy built its last sailing battlefleet. This was by a long margin the most powerful, durable and effective sailing fleet then in existence; it permitted Britain to maintain naval mastery at very low cost and provided her with a powerful voice in international affairs.

Andrew Lamberg's new book examines the strategy, tactics, technology, design history, construction and maintenance of the battlefleet. He also studies its combat history in the interest of British foreign policy, in the defence of British interests in the crises of 1833, 1840, and 1849, and in China

between 1840 and 1843.

With its descriptions of the vessels themselves along with the detailed analyses of technological developments, *The Last Sailing Battlefleet* will be a book of major importance in this much neglected area and will appeal to historians, naval enthusiasts and model makers alike.

PORTRAIT OF THE ROYAL NEW ZEALAND NAVY

A Fiftieth Anniversary Celebration
by GRANT HOWARD.

Paintings by COLIN C. WYNN

Published by Grantham House, P.O. Box 17-
256, Wellington 5, New Zealand

Price: \$NZ\$59.95

The January/March edition of *The Navy* featured the 50th Anniversary of the Royal New Zealand Navy. As part of the celebrations Grantham House in Wellington published the book, *Portrait of the RNZN*, to coincide with the many events.

The book documents not only the fifty years of the RNZN, but all naval activity, both Royal Naval and local efforts, since the discovery of the island nation. Supporting the nineteen chapters and six appendices are 55 colour plates of oil and water colour paintings plus 132 black and white/colour photographs, all in a 160 page landscape format.

Each chapter is highlighted by the various colour prints, with the overall history of the Navy in New Zealand only interrupted by notable naval personnel who shaped the evolution of the senior service. For the Australian reader coverage is devoted to the earliest example of trans-Tasman naval co-operation, the building of the *Whakatere* River gunboats for use in the Maori wars through to the next generation of warships for the RNZN, the ANZAC class frigates.

Portrait of the RNZN examines the wars in which the navy has served, whether hot or cold, the peacetime years and the exploits of *Kiwis* serving in HM Ships in the two World Wars.

The book provides many hours of enjoyable reading with special emphasis not only on the famous naval units like *PHILIPPA*, *DUNDEE*, and *ACHILLES*, but the full range of minor requisitioned craft with such glorious names as *MAIMAI* and *MURITAI*, *BREEZE* and *GALE*.

Portrait of the Royal New Zealand Navy is recommended to readers of *The Navy* for the complete story, narrative and illustrations, of the Navy in New Zealand.

GEC LIGHTING

UNIT 2, 44 BOOREA STREET, LIDCOMBE, NSW, 2141

Proud Suppliers of Lamps and Lighting to the Armed Forces

Telephone: (02) 643 2988. Fax: (02) 643 2983



INGERSOLL-RAND

DEFENCE ASSESSED 3902

Engineered Equipment Sector Leading
Australian Manufacturer and Supplier of
Shipboard Pumps, High Pressure and Low
Pressure Air Compressors and Complete
through Life Support

Head Office:
FRANKSTON ROAD
DANDENONG, 3175

Phone: (03) 794 1611
Fax: (03) 794 9659

ARCADIA-CHEM PTY LTD

(Incorporated in Victoria)

(Aqua-Chem Division)

Suppliers of Distillation Plants to
Department of Navy

39 MALCOLM ROAD
MORDIALLOC, VIC, 3195

Telephone:
(03) 580 1655

Fax: (03) 580 8337

KERR AUSTRALIA PTY LTD

UNIT 2, 11 PACKARD AVE, CASTLE HILL, NSW 2154

Suppliers of . . . Kerr Dental Materials to the Department of Defence

* Impression Materials * Endodontic Products * Filling Materials
- Amalgam, Composite * Cavity Liner

Phone: (02) 634 2999. Fax: (02) 634 4737

Getting Married? You need NHBS.



Families of naval personnel can have the best possible health care at the lowest possible cost. NHBS is your private health fund responsible for making sure your family has the best cover available.

NHBS recognises the needs of Navy people.

Check NHBS costs and benefits, and compare them with civilian funds. You will find we look after your family better.

For brochures and application forms see your pay office or the Australian Defence Credit Union. Or call NHBS toll free (008) 33 3156 or DNATS 8-32-5088 or (03) 282 5088. Waiting periods could apply.



A REGISTERED
HEALTH BENEFITS
ORGANISATION

Exclusive reports in Australia's Navy 1991-92

The Gulf War

from the sharp end



The first 100 telephone buyers

will receive **free** the first annual,

Australia's Navy 1990-91.

Call today to start your collection of

modern RAN history as it happened!

The second edition of Australia's new naval annual could not have a more dramatic subject. For the first time since Vietnam, ships of the RAN were in combat action.

Australia's Navy 1991-92 contains more than a dozen articles covering all aspects of Operation DAMASK. Board the *Ibn Khaldoun* with the crew of HMAS Sydney. Probe for mines with Diving Team 3. Read about the exploits of our medical team aboard USS *Comfort* and our logistics support in Oman.

Order your copy today through any Commonwealth Government Bookshop or leading book retailer.

Cat. No. 91 1808 1 \$16.95

Call AGPS Phone Shop
(008) 02 0049 now to order
Australia's Navy 1991-92

When ordering please quote BR27

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

Innovation House West,
First Avenue
Technology Park
The Levels, SA 5095
Telephone: (08) 260 8252
Facsimile: (08) 260 8251

