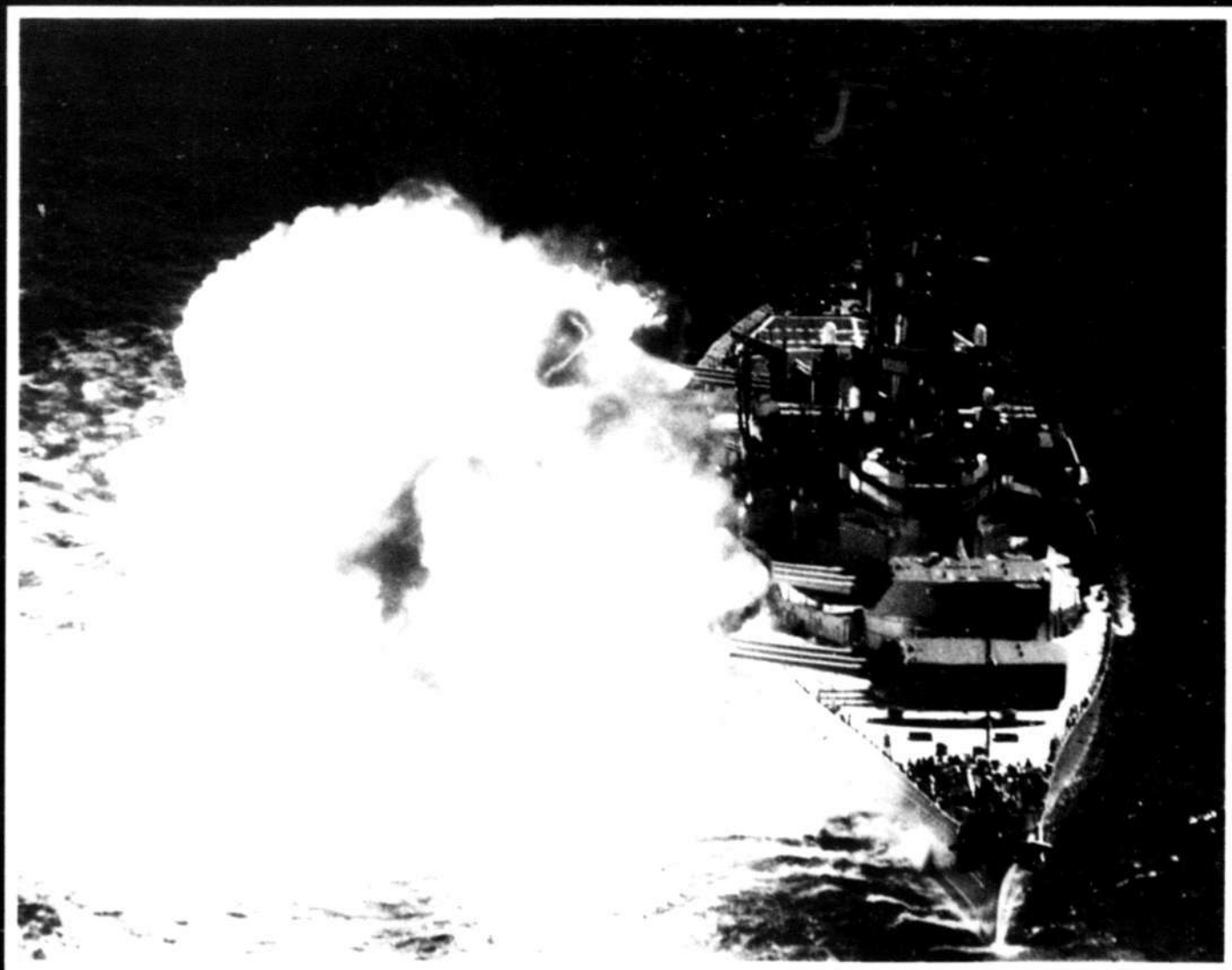


THE NAVY

The magazine of
THE NAVY LEAGUE OF AUSTRALIA

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THE NAVY

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OUR COVER PHOTOGRAPH

USS NEW JERSEY — Firepower demonstration prior to the Bicentennial Naval Salute and International Fleet Review.
(Photo — Courtesy of Naval Photographic Unit.)

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FEDERAL PRESIDENT

THE ARK ROYAL AFFAIR

On 21st October each year the Royal, and Royal Australian Navies commemorate Admiral Nelson's famous victory in 1805 off Cape Trafalgar. October 1988 will be remembered for some time to come in both navies as the time a British warship was denied access to a berth in an Australian port by a group of Australian seamen who happened to disagree with the foreign and defence policies of their country's government.

The disappointment caused to the ship's company of HMS ARK ROYAL and of the Fleet Auxiliary FORT GRANGE, and the thousands of people in Melbourne waiting to welcome them will pass with time. It is important however the spectacularly demonstrated fact that important policies affecting Australia's future can be so easily damaged be remembered.

ARK ROYAL's misfortune was not the only case of government policies being ignored by maritime unions; naval vessels have been unable to dry-dock because of lack of assurance they could get out again, merchant ships and cargoes black-listed for one reason or another contrary to government wishes, the problem has been clear enough for a long time.

The Prime Minister has now promised the RAN facilities to make it less reliant on outside sources. While this will be helpful it is only a part-answer to a problem made more difficult to solve in that an emotional issue is involved — nuclear energy.

Perhaps because of the relative isolations of their countries, Australians and New Zealanders do not appear to have accepted that nuclear-powered and nuclear-capable ships are a product of the age as by-and-large the communities of the northern and western hemispheres have done.

The world may or may not have been a better place if 50 or so years ago man had not discovered that the release of atomic energy could be controlled, thus beginning a new phase in history. The unalterable fact is that the discovery was made and we are still learning to live with the results, many of which have been beneficial, eg: nuclear-generated power which has been a life-saver for countries lacking the natural hydro and fossil fuel resources of countries such as Australia, and some non-beneficial, notably nuclear weapons (although this is debatable as many people believe the existence of such weapons has been, and remains, the greatest deterrent to major conflict).

Man also has a strong instinct to survive and to counter dangers that threaten survival. There can be no doubt the dangers posed by atomic energy are realised and as with other forms of energy, precautions taken to minimise risk.

The governments of the nuclear powers are not foolish enough to send thousands of their sailors to sea in "unsafe" ships, nor to create hazards in the hundreds of ports in which the ships are based or visit. It would be contrary to commonsense and their national aims.

Australia has obligations, formal and moral, to a number of countries not least to Britain and the United States. These obligations include access by friendly navies to our ports and their facilities, but unless they can be honoured, they are of no value.

The Government would be wise if it made an effort to obtain the full support of the Australian people for the maritime commitments which form such an important part of its foreign and defence policies. If the ARK ROYAL affair helps prompt a better understanding of the world in which we live, the unhappy visit to Melbourne will not have been in vain.


GEOFFREY EVANS,
Federal President.

READERS

New Amphibious Ship

Dear Sir,

The small pictorial article on the USN's new WASP (LHD-1) class which appeared in the edition before last, leads me to ask whether more information is available on these interesting ships?

Could your North American correspondent provide material for a more detailed description of the USS WASP for a future issue.

Yours faithfully,

W. CRONIN,

Gosford.

EDITOR: We plan to feature the WASP class in detail in the April-June edition of the "The Navy".

Last Issue

Dear Sir,

I was indeed grateful to receive in the mail my October-December, 1988, edition of "The Navy". Being unable to get to the Bicentennial Naval Salute in Sydney was a great disappointment. However, "The Navy" provided all of the information I needed to help me enjoy the live ABC telecast.

Can we expect to see any of the photos taken of the BNS in your next issue?

On another point, a relative of mine served in HMAS WARRENE when the vessel was serving from Port Adelaide. Can any of your readers put together an article on her career in South Australian waters?

Yours sincerely,

M. SIMON,

Port Melbourne

PS: I enclose a copy of a letter from a Melbourne newspaper which you may wish to reprint in your Sea Mail section.

EDITOR: The article is reprinted hereunder. Pictorial coverage of the BNS is included in this issue.

THE CAME IN PEACE, THEY GO IN REGRET

Captain Joe Lee Frank of the USS INGERSOLL would like the people of Melbourne to know that he cares as much for the future of his children as they do for theirs.

He would also like to apologise to the dozens of children who tried but were unable to tour his ship at Princes Pier yesterday thanks to a large anti-nuclear protest.

Captain Frank, whose ship was to sail from Melbourne at 11 am today, said he regretted that yesterday's demonstration had dominated media reports of the naval visit at the expense of the ships and their crews.

"I just hope people realise that we're not two-horn devil animals attempting to bring about the mass destruction of the world," Captain Frank said in a parting interview aboard his ship early today.

"Actually we're pretty regular guys. One-third of my crew are married with children. I have two boys aged seven and 11, and I don't want any different future for my kids than anyone else."

Captain Frank would not describe yesterday's vocal protest — which saw 20 people arrested — as the worst he had seen. "But it was certainly the loudest," he said.

"Unfortunately, and I'm not sure how they were able to do this, the demonstrators were able to stop people from seeing our ship."

"I'm sorry that they never could get on. After all, they have rights too."

(Continued on page 9)

Naval Spectacular

All photographs courtesy of the Naval Photographic Unit

by ROSS GILLETT

The Bicentennial Naval Salute and the International Naval Review are now part of Australia's Maritime History.

The Naval Tribute began literally with a bang on Sunday, 25th September, when the gunsmoke of 210 gunshots garlanded Sydney Heads as the representatives from 10 nations' fleets paid tribute to the Bicentenary in a formal salute off the Sydney coast.

Accompanying the naval fleet on this picturesque and tranquil Sunday afternoon were thousands of well-wishers embarked in hundreds of smaller motor and sail boats out to witness this unique ceremony. Navies represented in the salute included Australia, France, Greece, India, Italy, Japan, Malaysia, New Zealand, Pakistan, Britain and USA.

Monday, 26th September, dawned. For the citizens of Sydney and especially the coastal suburbs, was the spectacle of Australian and visiting naval vessels entering Port Jackson in six waves from 0700 to the early afternoon. In the water, greeting the men-of-war, were the usual welcoming craft plus the now ever-present group of protestors aboard kayaks, dinghies and surfboards. A Navy spokesman commended the latter's behaviour while some of the visiting Captains expressed both delight and surprise as to the lack of antagonism.

By late afternoon Garden Island and the Woolloomooloo basin resembled more than a home for one fleet, but a home for many.

Echoes of a past era in naval warfare roared across the horizon towards the city on Monday afternoon with the firing of the big 16-inch guns of the battleship USS NEW JERSEY. The firepower demonstration by the dreadnought heralded yet another phase of the BNS, the arrival in Sydney the following



HMAS DARWIN leads the warships of other navies into Sydney for the Bicentennial Naval Salute.



A truly remarkable ship, INS GODAVARI.

NAVAL SPECTACULAR

— CONTINUED

morning of the old battleship, followed close on her stern by the Royal Navy's aircraft carrier HMS ARK ROYAL.

Much of Sydney seemed to have their eyes affixed to events on the harbour.

Light rain which had been falling overnight seemed to lift sufficiently to allow a good view of these final arrivals. However all of the action was not confined to the waterways. As well as the peace protestors more than a 100 'warship welcomers' heralded the arrival of the ships by staging a small but impressive gathering at Mrs Macquarie's Chair.

Welcomes for the visiting ships and personnel were not confined to the harbour front. The Dial-A-Sailor organisation was in full swing and by Thursday was forced to close its books, having run out of sailors! About 8000 hosts were linked with guests including the 80 or so female sailors serving onboard the Dutch ships.

In a statement to the media, RADM Tony Horton said 'The magnificent response by the citizens of Sydney is heart-warming'.

Greetings were again experienced on Thursday during the march through Sydney's streets by 3000 representatives of the visiting navies. In abnormally high temperatures, thousands of

city workers, some standing up to eight deep watched the BNS parade. The march attracted little opposition from the usual people with the massive Navy cheers drowning out any jeers.

As one columnist in the *Daily Telegraph* said, 'the anti-nuclear protestors are getting up my nose — and, I suspect, the noses of a whole lot of people. . . . I was enraged on Tuesday to see on my television screen a chubby chap in a canoe, bobbing about on Sydney Harbour and complaining in angry tones that the British aircraft carrier HMS ARK ROYAL had entered and proceeded down the harbour at a speed (I think of 12 knots) which was dangerous to him and his lot who were trying to paddle across its bows. For these self-elected "protectors" of our society to assume the role of the all-knowing and the all-wise is a demonstration of breathtaking arrogance.'

One of the more unusual ships to visit for the BNS was the Indian frigate INS GODAVARI, not because she was the first Indian ship in Sydney since the mid-1960s, but for her Soviet weapons, carried into an Australian port for the first time.

GODAVARI was built in Bombay, India, to an earlier British design, carried Soviet-made weapons — including anti-ship missiles, anti-aircraft missiles and electronic equipment, and as well flew both British and French helicopters; a sort of United Nations frigate.

The highlight of the BNS was fast approaching — Saturday's INR.

Under the clear blue skies of a Sydney spring day, the Duke of York took the salute from 17,000 officers and sailors onboard



The Italian training cruiser CAIO DUULO.

NAVAL SPECTACULAR

— CONTINUED

60 ships, some static and some in moving reviews, the largest armada seen since the close of the Second World War.

HMAS HOBART led the parade of seapower, firing a 21-gun salute as it passed abeam of HMAS COOK across from the Opera House. Meanwhile in the skies above, the Fleet Air Arm, together with RAAF aircraft staged a spectacular display of military hardware. Later in the day, and after two more moving lines of warships, the review would end with a flypast by a number of civilian and vintage Fleet Air Arm aircraft.

With the Duke for the Review was the Duchess of York, also embarked in the shiny white-hulled HMAS COOK. As the ship proceeded into the Review and past USS BERKELEY, the crew of the American ship waved their hats and shouted as one 'Three cheers for the Duke of New York'.

Tens of thousands of spectators along with numerous small craft and larger ferries provided the public backdrop as the Royals made their way around the Review.

Like clockwork the day passed into night for the largest fireworks display ever mounted in the nation. From the outset when three F111 aircraft roared across the night skies to illuminate the whole of the harbour, the ships and their crews plus the citizens afloat and ashore had witnessed a day and night of naval grandeur.

All of the ships were moved to berths in Garden Island and Woolloomooloo on Sunday morning, in preparation for two days when they would be open for public inspection. Queues wound around the dockyard as families waited patiently for their turn to board the ship of their choice. USS NEW JERSEY attracted about 12,000 on her first day while HMS EDINBURGH catered for a massive 7000. In Circular Quay was HMS ARK ROYAL.

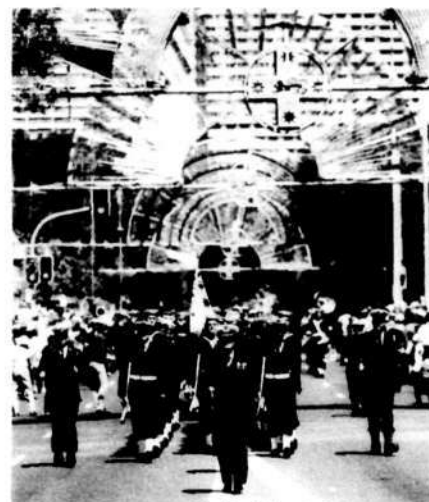
Flags were flown at half-mast on Monday in respect to Captain Willem Vogt, Commanding Officer of HNLMS ZUIDERKRUIS, who passed away onboard his ship on Sunday evening. A ceremony, with full naval honours was performed at the northern tip of Garden Island.

On Tuesday morning, 30 Australian and visiting warships slipped their berths for exercises and/or return to their homelands. Further ships would leave over the next week, but for nine Pakistanis their time in Sydney was too good; they missed their ships.

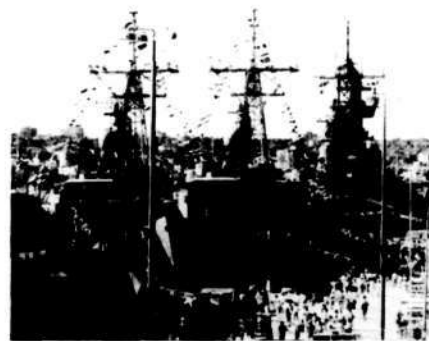
Large crowds of well-wishers gathered for many of the sailings as the Woolloomooloo basin regained its former status.

What of the future? The opportunity to stage another naval review of such proportions is not likely for many years.

However, Sydney and its harbour have indeed been fortunate to have been the focus of activity for both the 75th and Bicentennial Naval Salutes.



The March through Sydney's streets.



Open for inspection.

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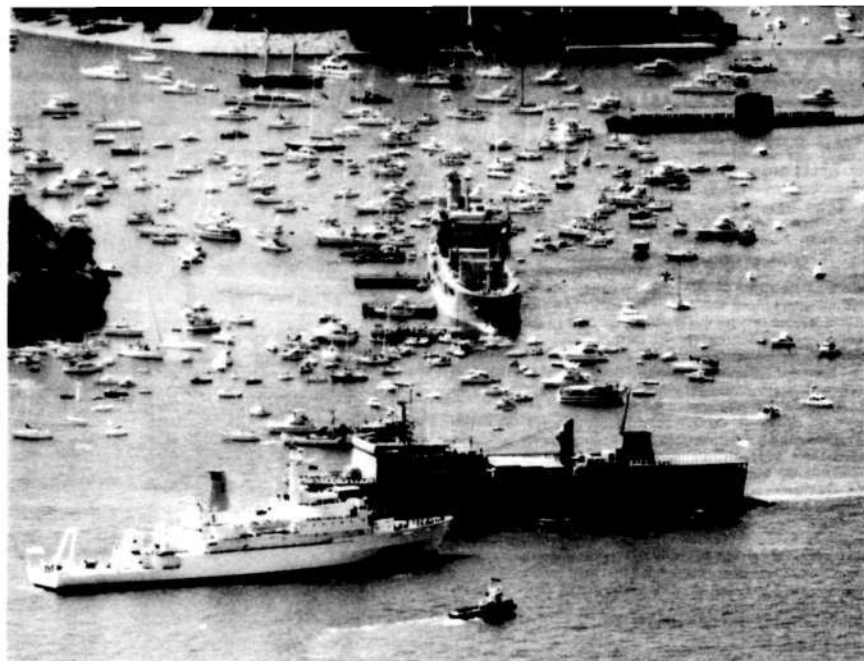
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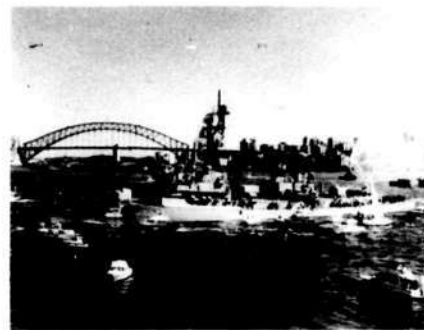
HMAS COOK with other INR participants.

NAVAL SPECTACULAR

— CONTINUED



Pakistani naval units alongside Garden Island.



What a welcome! Police, protestors, and well-wishers alike:
USS BERKELEY.



HMS ARK ROYAL in Sydney Cove.



Garden Island, the Fleet Base and Wollomoolloo after the arrival of all the major units.



Some of the visiting ships.



One of the four Dutch participants, HNLMS WITTE DE WIT.



Some of the foreshore crowd.

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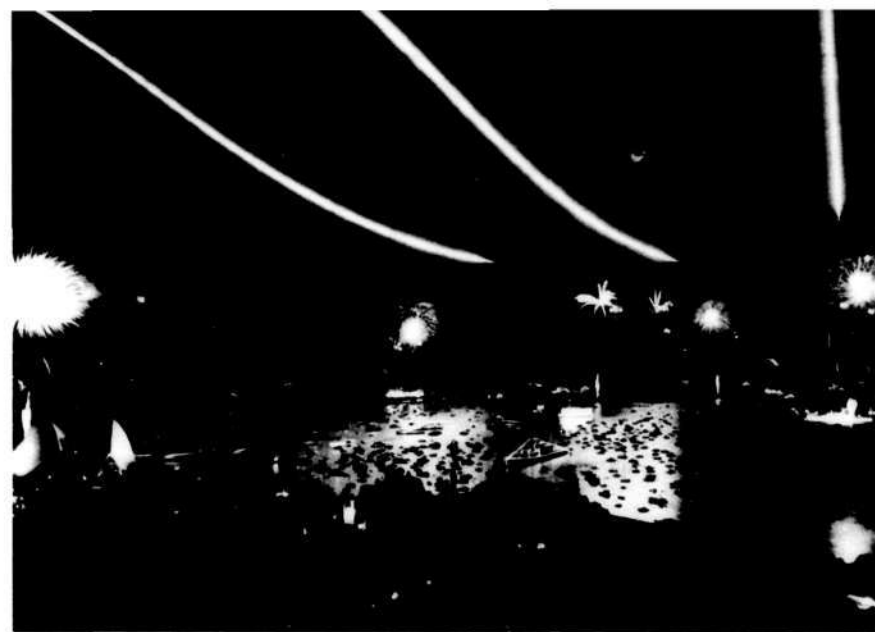
However, the process of developing a more competitive and efficient Australian maritime industry has begun. In recent years the Australian Shipping Industry has made significant strides - in industrial relations, the application of modern technology, market specialization and overall efficiency, to name but a few areas. As a result, the number of Australian overseas flag vessels has increased 65% in the six years between 1980 and 1986.

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Fireworks in the evening.

THEY CAME IN PEACE, THEY GO IN REGRET (Continued from page 2)

Captain Frank said he welcomed the demonstrators' right to freedom of speech but he stressed his disappointment at their treatment of children who had been brought to Port Melbourne to see the travelling warships.

"I don't think scaring children really fits in with what they're trying to do," Captain Frank said.

"There were people yelling and banging on cars and there is a fine line as to where their rights stop and where others' rights start.

"In Newcastle the demonstrators handed me flowers and a peace flag. This was a little different."

Captain Frank said he suspected that the demonstrators yesterday were spurred on by the mass presence of the media. "I'm not saying that I'm blaming the press but it certainly gave the demonstrators

someone to yell for and I was only sorry that no one attempted to speak to me or my men and give the other side of the story.

"As far as the newspapers and the TV were concerned it was the demonstrators' day and we and our cause were virtually ignored."

Captain Frank stressed that the Seamen's Union, which last week prevented tugs from assisting HMS ARK ROYAL, had been spreading untruths about US nuclear capable ships.

"I've seen several reports where Seamen's Union spokesmen have said that US nuclear powered ships are not allowed in US ports," he said.

"It's a total lie. I myself was aboard a battleship in the port of New York City and recently there were six ships including an aircraft carrier in San Francisco harbour. In fact to ban US ships from US ports would be contrary to US law."

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HMAS AWARE BICENTENNIAL CIRCUMNAVIGATION CRUISE

HMAS AWARE returned to her home port, Adelaide on Saturday, 15th October, having completed a 10-week circumnavigation patrol, the first Attack Class Patrol Boat to circumnavigate Australia in the west-about (clockwise) direction. In fact, this feat had been conducted only once previously in the preferred counter-clockwise direction — the conventional wisdom being to keep prevailing seas astern.

The Bicentennial Circumnavigation Cruise (BCC-88) was the major RANR contribution to the RAN's Bicentenary activities. The ship was manned by Reservists from all Port Divisions, the crews changing every two weeks in Perth, Darwin, Cairns, and Sydney. During each of the five legs, AWARE conducted normal patrol duties, and every opportunity was taken to join other Fleet Units for passage exercises. This ensured that Reservists gained a wide range of operational experience, in addition to the unique opportunity to visit ports distant from their home waters. A secondary, but no less important objective of BCC-88, was to show the flag in the many ports visited, particularly as a high



The Duke of York returns the salute during the International Naval Review.

profile public relations exercise for the Reserve.

BCC-88 was the inspiration of LCDR Bob Miles, Staff Officer (Reserves), Adelaide Port Division, and the exercise was planned and co-ordinated within the APD. Some Reservists completed more than one leg, the prize for endurance going to LSQMG Wiggins of Sydney Port Division, who completed all six legs of the cruise.

AWARE departed Adelaide on Sunday, 7th August, in a blaze of TV

coverage. A large crowd cheered the ship away from the HMAS ENCOUNTER wharf, supported by a musical send-off by the SA Navy band. Under the command of LCDR Roger Priest of Brisbane Port Division, the ship visited Port Lincoln, Waterloo Bay, Thevenard, Esperance, and Albany during passage to Perth. The weather pundits were confounded when the ship crossed the Bight in calm conditions, alas to experience a few bumpy days in the west before arrival at HMAS STIRLING. Never missing a chance to indulge in his professional expertise in hydrography, the CO surveyed and reported observations of significant chart errors.

Under the command of LCDR Phyl Jacobs of Hobart Port Division, AWARE departed HMAS STIRLING on 22nd August for passage to Darwin. Visits were made to Geraldton and Broome, where the Shinju Matsuri Festival was in full swing, before rendezvous was made with HMAS CESSNOCK and WOLLONGONG for passage exercises enroute to Darwin. The Leg 2 crew enjoyed smooth seas for all but a few hours of the fortnight Fisheries Surveillance Patrol. After arrival at Darwin Naval Base the ship was slipped and the crew turned to with willing to complete hull maintenance and boot topping in preparation for the forthcoming participation in the Bicentennial Naval Salute in Sydney. This enthusiasm to support other crews, together with hosting by local Port Divisions, was a feature of all legs of BCC-88, and helped to ensure the overall success of the exercise.



HMAS AWARE sails from HMAS Stirling during her around Australia voyage.

AWARE departed Darwin on Tuesday, 6th September to conduct a Fisheries Surveillance Patrol in conjunction with RAAF and Coastwatch aircraft. Under the command of CMDR Ian Gibson, Commanding Officer (Reserves), Darwin Port Division, the ship visited Gove and Weipa during passage to Cairns. Whilst at Gove the crew assisted in the medivac of an injured trawler seaman. After completing an eventful patrol, at one stage disappearing off the AWARE watchers' maps down south, the ship buffeted southwards in unseasonal reef weather, arriving in Cairns on 16th September.

After handover to the Leg 4 crew, AWARE departed HMAS CAIRNS on Sunday, 18th September, under the command of CMDR Kevin Liddiard, Commanding Officer (Reserves), Adelaide Port Division. Sailing in company with HMAS WHYALLA, rendezvous was made with HMS ARK ROYAL and EDINBURGH on the same day to participate in passage exercises.

The following morning the ship was stationed abeam of ARK at a range of 400 yards to witness Sea Harrier operations. Then followed an Air Defence exercise against RAAF F-111 aircraft, and Officer of the Watch manoeuvres before detaching to Hamilton Island for a well-earned rest.

AWARE visited Mackay and Brisbane, most of the crew taking the opportunity to visit Expo, before sailing in company with HMAS GEELONG for passage to Sydney. After arrival in Sydney, the crew turned to with willing to prepare the ship for the Bicentennial Naval Salute. After a hectic period of BNS activities, AWARE joined the Small Ship Steamship and Review by His Royal Highness the Duke of York on Saturday, 1st October.

The ship departed Sydney on Monday, 3rd October for the final Leg 5 of the cruise, under the command of LCDR Keiran McGregor of Sydney Port Division. The fine weather experienced for most of BCC-88 finally departed, and a bumpy ride was endured with stoicism

for passage back to Adelaide. The ship visited Hobart, Launceston and Melbourne during passage to Adelaide. A warm welcome was afforded in Launceston where the crew participated in the Navy Week Commemoration. The opportunity was again taken to conduct in-company exercises, in this case with HMAS WURNAMBOOL. The ship arrived in Adelaide on 15th October, being placed alongside by the SA Navy band, and welcomed by a large crowd from APD and HMAS ENCOUNTER.

AWARE completed a total distance of some 7000 nautical miles during the circumnavigation, and was manned by 93 Reservists from all Port Divisions, the 21-year-old ship performed magnificently throughout the cruise. BCC-88 was a clear demonstration of Reserve professionalism, showing the ability to man ships at any suitable port around Australia, and bring their ship to operational status after a few days of workup.

Author
CMDR KEVIN LIDDIARD.



HMAS AWARE, fourth in line, passes Fort Denison on 1st October, 1988.

NAVAL MATTERS

MONEY FOR DEFENCE

by A. W. GRAZEBROOK

In my last article, I quoted Minister of Defence Beazley (writing in *The Australian*, 13th May) "No matter how high it is on the Government's list of priorities, defence — in peacetime — cannot be insulated from economic realities."

All these adverse developments were not included in the financing plans for defence that were developed at the time of the Dobb Report . . .

The fact that this thinking is widely accepted, and articulated by others with authority in defence affairs, must not be allowed to obscure the fact that it is fundamentally wrong.

This thinking is wrong in that if you wish to avoid war, the best method is to deter war. To deter war, you must have military strength. To have that strength we must spend money before war — in peacetime. If we leave spending until there is a war, the deterrent strategy has failed.

The second point is that there is not necessarily a sudden transition from peace to war. Indeed, since 1945 there have been far more instances of nations being involved in fighting without a full scale war than of full scale wars.

Strategic positions can deteriorate gradually, perhaps with distinct steps highlighting the deterioration.

That has happened in Australia's case. Our strategic situation has deteriorated since the Dobb Report was published in 1986.

Specifically, three adverse developments illustrate this:

- The instability of the South Pacific region has been demonstrated by the militarily instigated change of government in Fiji, the military and terrorist violence in French governed territories and the growing political instability in other mini-States.
- The need for increased deployments of our naval and air forces to our north.
- India's acquisition of the first of a series of nuclear powered submarines.

The first development has been recognised by the Prime Ministers of both Australia and New Zealand, both of

whom have stated publicly on more than one occasion that Australia must be prepared for a stabilising role in the South Pacific. That means a capability to deploy and support a force — perhaps as small as a few hundred men — in the South Pacific.

The need for this capability was not included in the strategic deliberations or financial calculations of the Dobb Report.

The Australian Government have announced plans for longer and more frequent deployments of naval surface forces in the waters of South East Asia. These additional deployments, which are welcomed by nations of the region, do not lessen the need for operations in other waters in which we have an interest — the Indian Ocean, the patrol areas of our EEZ, and waters to the east of Australia.

Although the possibility has been widely forecast for several years, India's acquisition of a nuclear powered submarine was not mentioned in the Dobb Report. Indeed, India's growing naval power projection capability was virtually ignored in the Dobb Report.

Now, however, the potential impact of an Indian nuclear powered submarine, let alone the squadron she will acquire over the next few years, is recognised. It reinforces the importance of long-term

plans to move half of the Navy to the Indian Ocean.

All these adverse developments were not included in the financing plans for defence that were developed at the time of the Dobb Report and the Government approval that was implicit in the subsequent Defence White Paper.

These adverse strategic developments have imposed on the Australian Defence Force a need for more equipment than was considered necessary at the time the Dobb Report was prepared.

More money must be found to pay for that additional equipment. Naval items are an army support ship primarily oriented to vertical lift, two additional submarines of the Type 471 class and retrofitting of two earlier submarines with air independent propulsion.

This money cannot be found by deleting other naval equipment items previously accepted — such as the second under way replenishment ship or the medium hydrographic ships. There has been no strategic improvement to permit such a deletion. On the contrary, the deterioration mentioned earlier re-emphasises the need for these items.

Nor can the money be found at the expense of the Army or RAAF (who themselves may have additional requirements arising from the strategic deterioration).

The time has come for Australia to recognise the financial consequences of adverse strategic developments that are accepted as such by the Governments of Australia and New Zealand and by the Australian Federal Opposition.

There must be a quantum increase in the money allocated for defence.

THE LAST SURVEY

IN 1985 HMAS BRUNEI, a heavy landing craft (LCH), was re-classified as Interim Survey Ship (ISS) to work with the small survey vessel HMAS FLINDERS from Cairns in northern Queensland.

Since her programming as an ISS began in August 1985, BRUNEI successfully completed or assisted in nine major surveys, provided disaster relief in the Solomons in the wake of Cyclone NAMU and participated in five amphibious exercises.

To accomplish these missions she steamed 46,655 miles, 20% of the total distance travelled since first commissioning in January 1973.

The following is an account of BRUNEI's last survey as an ISS.

During late August BRUNEI returned to Australia from northern Papua New Guinea following the completion of the Wewak to Madang survey. In Cairns, BRUNEI concluded her role as an Interim Survey Ship, reclassified for Diving Training duties. The ship was



Sepik River operations.

slipped and a subsequent intermediate docking began at NQEA.

Monday, 1st August, found BRUNEI on passage sounding along the northern coast of PNG. During the afternoon and evening of Tuesday 2nd, Raven Channel and China Strait were cleared, and over the following two days the decks were kept awash by a 2.5 metre quartering sea along the south coast of PNG.

A 200-mile shipping route between Wewak and Madang was surveyed. This route is one of the busiest in PNG and more vessels are expected as natural

resources are developed in the headwaters of the Sepik River.

This region had never been systematically charted. It is strewn with active volcanic islands one of which, Manam Island, smouldered continuously.

The Sepik River discharges into the middle of the area carrying out to sea large floating islands of grass and huge trees from the jungle highlands.

Wherever BRUNEI beached to land her surveying equipment, hundreds of smiling faces would soon appear to lend a hand. On one occasion enthusiastic villagers dug up and moved a survey mark to a safer place because it was threatened by erosion — they insisted that it was otherwise undisturbed.

Shoals and offshore vigia's were investigated and BRUNEI and BETANO set up the geodetic framework for further surveys off Manus Island.

BRUNEI also conducted inshore surveys of anchorages, jetties and port facilities on the coast, up the Sepik River and on the offshore islands.

While operating in the Sepik, oceanographic liaison was provided to the research vessel CALYPSO of the Cousteau Society in the study of sediment transport in the river.

THURSDAY Island Customs personnel boarded the ship at 0630 Friday, 5th August, and clearance was completed one hour later. The ship was beached on Bamaga Hard at 1040 to embark empty BMSS containers, and at midday she commenced her passage to Cairns. Heavy seas were encountered in Adolphus Channel that afternoon requiring a series of tacks to gain ground to windward. BRUNEI berthed in Cairns at 2030 Sunday 7th, and on arrival ceased her ISS role.

Over the next seven days the ship was destored and all survey equipment landed. Departmental inspections were conducted as part of the intended role and home port change.

With her return to Cairns, BRUNEI had spent 79 of the previous 112 days at sea, and had steamed 10,500 miles. The loss of the LCH as an ISS will be more than compensated with the introduction of the new Survey Motor Launch (SML) class in 1989.

With her square bow and consequent poor capability to weather, the LCH hull form was never an ideal sounding platform. However, it will not be surpassed in the survey support role due to its cargo carrying and beaching capacity, particularly when the requirement exists to place equipment ashore.

The vessel and her sister ISS, HMAS BETANO, also provided valuable insight and hands-on experience in operating small hydrographic ships. Yet another benefit was the exposing of hydrographic specialists to general naval and amphibious operations, thus increasing the range of skills and experience within the branch.

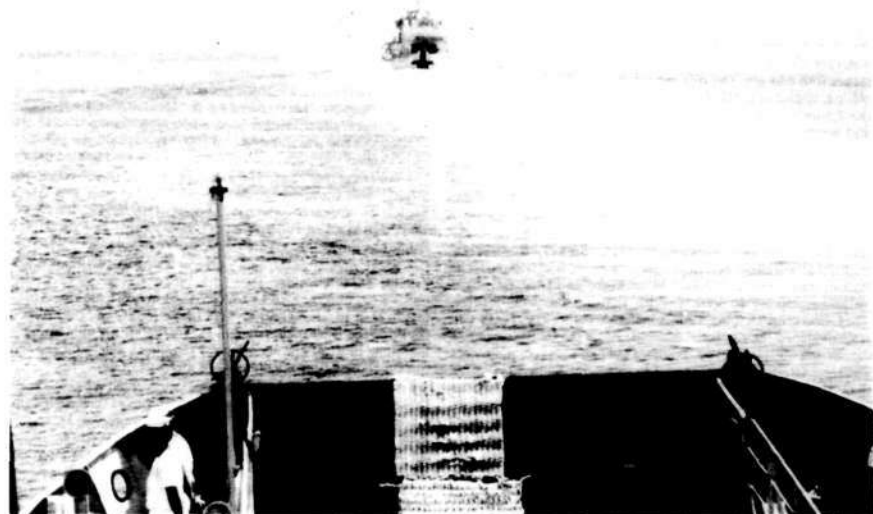
BRUNEI with BETANO sailed to Sydney, arriving on 27th October and 16th December, 1988 respectively to be



End of an era.

utilised as Diving Training Vessels from HMAS WATERHEN. The LCHs replaced the mid-1950s vintage former

inshore minesweeper SEAL and PORPOISE, which were "paid off" last September and December.



Cairns hydrographic squadron enters Wewak.



HMAS BRUNEI at rest.

AVEROFF

by GEOFFREY BEWLEY

ABOUT 80 years ago, the Greek Navy was short of modern heavy fighting units, but the Greek Government was too short of money to help. But a public-spirited Greek millionaire, Giorgios Averoff, put up a million pounds sterling to help, and the naval staff looked round to see what they could afford.

The great naval powers then were concentrating on dreadnought battleships and battlecruisers, light cruisers, destroyers and submarines. The Greeks wanted a powerful ship, but they still couldn't afford a dreadnought. Large cruisers were now outclassed by battlecruisers in speed and gunpower, but finally they decided a big armoured cruiser would give the best balance of fighting qualities.

The Italians were successful builders of armoured cruisers for export. Ten years earlier, they had sold three Garibaldi class ships to Argentina, one to Spain and two to Japan. Now they had just completed their Navy's last pair, Pisa and Amalfi. The Greeks ordered another of the Pisa class from the Orlando yard at Livorno.

The GIORGIOS AVEROFF was launched in 1910, and completed in 1911. She cost £1,100,000, about £600,000 less than her contemporary, the battlecruiser HMAS AUSTRALIA. From keel to upper deck she was a replica of the Italian pair, but she wore two sturdy tripods in place of their single pole mast.

She was heavily armed for her size. On a listed displacement of 9956 tons, she carried four 9.2-inch guns in twin turrets fore and aft, and eight 7.5-inch in two twin turrets aside. There were sixteen 3-inch guns for defence against torpedo craft, and three submerged 18-inch torpedo tubes.

For an armoured cruiser she was very stoutly protected. The waterline armour belt was 8 inches thick amidships, thinning to 3 inches fore and aft. The side amidships was protected by 7-inch plating, angled in to the 9.2-inch turret trunks, with 6-inch above the 7.5-inch turrets. All turrets had 7-inch and 6-inch armour, and her protective deck below the waterline was 2 inches thick.

Her 22 boilers produced 19,000hp, and twin reciprocating engines drove her at an alleged 24 knots. Comparisons with contemporary cruisers suggest this speed listed may have been a little optimistic. Her bunkers held 1600 tons of coal at deep load, giving a very adequate range for operations in Greek waters.

A year after the AVEROFF was delivered to Greece, she was put to the test. In October 1912, Turkey, the Greeks' traditional enemies, had just lost a war to the Italians. The Balkan states, Greece, Serbia, Montenegro and Bulgaria, made an alliance to try to seize Turkish territory on their borders. They struck on October 12th, nine days before the Turks and Italians signed their peace.

Serbia was landlocked, Montenegro had no navy, Bulgaria's was tiny. Greece had three small French-built battleships, more than 20 years old, a few old gunboats and about a dozen torpedo craft besides the modern AVEROFF. The Turks had two old German battleships bought in 1910, three very old, reconstructed, steam-and-sail ironclads, a couple of modern cruisers and a dozen or so torpedo boats.

Both navies had British officers advising. But the Turkish Navy had been neglected for years, and in the recent war it had been helpless against the powerful Italian fleet. The Greeks looked keener and better trained. The Turks had an edge in



View aft from the AVEROFF's bow, showing forward 9.2-inch turret, forward 7.5-inch turrets, conning tower, bridge and tripod.

weight of broadside, but the AVEROFF was the only big modern unit on either side. It looked like a close match.

At the start of the war, the Greek battleships, the AVEROFF and torpedo craft blockaded the Dardanelles. At first the Turks used their fleet in the Black Sea, supporting their army on the Bulgarian front. On December 4th they made an armistice with the Bulgarians, Serbs and Montenegrins, and then they moved their ships south to threaten the Aegean.

On December 14th, the Turkish cruiser MEHDIEH engaged Greek torpedo craft south of Gallipoli. On December 16th, the Turkish fleet made a full-strength sortie. The two battleships and two old ironclads came out of the Dardanelles, and steered west and north past Gallipoli. Rear-Admiral Condouriotis led the four heavy Greek ships to intercept them.

The AVEROFF played what might be called the battlecruiser role. She was first into action, with the battleships HYDRA, PSARA and SPETSAI following in line abeam. The Turks opened fire at 15,000 yards, long range for their battleships' old 11-inch guns. The AVEROFF held her fire until the range was down to 8000 yards. She scored hits on the Turkish ships, and she took minor damage from their shellfire. She fired a torpedo, which missed.

Before the Greek battleships could close, the Turks turned away in disorder. They retired up the Dardanelles, under cover of the shore guns. Neither side was much damaged, and the Greek blockade was unbroken. British reports said the shooting on both sides was poor, but the Greek ships were handled better.

On December 22nd, Turkish ships showed themselves in the Straits, but withdrew when the AVEROFF and the Greek battleships appeared. But on January 18th, 1913, the Turks came out again in full strength. Greek patrols saw them, and Admiral Condouriotis steamed to engage them.

Shooting started at long range at 11.25 am, without much damage to either side. The Turks soon turned away to the north-west, and the Greeks followed. At about 1 pm, the Turks lost interest in whatever they were trying to do, and they turned back for the Dardanelles again. The AVEROFF's modern guns had done most of the shooting on the Greek side, and she left the Greek battleships behind as she steamed in pursuit.

She closed to 5000 yards, and she scored hits on both Turkish battleships. Both of them were on fire as they passed up the Straits. By then the AVEROFF was turning back, as she came in range of the big guns in the Turkish forts there. Later the midships 11-inch turret of the TURGUT REIS was reported to be disabled with all the turret crew casualties.

Later that day the Turks showed themselves again, but after exchanging shots at long range they turned back again. Naval observers said in that day's actions, the Greek ships were again



GIORGIOS AVEROFF tied up in the lee of the sea wall around the headland south-east of Piraeus.

better handled. Their shooting looked better and they weren't much damaged.

"The GIORGIOS AVEROFF was excellently manoeuvred and fought," Brassey's Annual reported, "and considering that the Fleet had constantly been at work day and night, with steam up, since the beginning of October, it speaks well for all departments."

The actions off Gallipoli have been overshadowed in history by the battles of the great war following soon after. Nearly all the ships involved were obsolete, and there were no technical lessons to learn. Neither side managed to do the other much injury. But the AVEROFF did enough to turn back the Turks, and win the naval side of the war. It was the peak of her career.

She had a long career afterwards. Greece tried to stay neutral in the First World War, and saw no action. But at the war's end, she did get to Constantinople, when she steamed up the Dardanelles with a British and French fleet after the armistice with Turkey.

In the 1920s, AVEROFF was sent to France for modernisation. The main additions were a new fire control system, with a director top on a heavier tripod foremast. Between the wars most heavy warships took on additional anti-aircraft guns, but not much could be done for her in that department. The four 7.5-inch turrets amidships didn't leave much room anywhere. She was about 10 knots slower than modern heavy cruisers.

When Italy and Germany attacked Greece in the Second World War, most of the Greek fleet was sunk by bombers. But the AVEROFF got away, and she was put at the disposal of the Allies. With her puny air defences and low speed, she couldn't be taken seriously as a front-line fighting unit. But she found a job in the Indian Ocean, escorting convoys east of the Suez Canal.

This zone was well out of enemy air striking range, and it was a long haul for submarines. The main threat was from German surface raiders, disguised, armed merchantmen like the PINGUIN and the KORMORAN. Their 5.9-inch guns and thin

sides would have been no match for the AVEROFF's big guns and armour. Even a pocket battleship might have thought twice about tackling her. This work made the most of her assets, sidestepped her disadvantages, and freed a more modern ship for service in an active theatre.

The AVEROFF didn't meet any raiders, and when she returned to Greece after the war, she was hopelessly obsolete. Still, the Greeks couldn't bear to get rid of her. When she retired from the fighting fleet, she was tied up as an accommodation ship off the Naval Academy at Poros. She was shifted to Piraeus, the port of Athens, after it was decided to preserve her as a museum ship. She remains there today.

When I visited her she was in the hands of a guard and maintenance party of bluejackets commanded by a middle-aged sub-lieutenant. All seemed to speak some English, and they were all friendly and helpful. Only the decks and bridges were open, apart from one cabin in the superstructure. This displayed models and photos of the AVEROFF and other Greek warships.

At close quarters she gives an impression of great force and strength, a lot of striking power packed in a little space. All the turrets have wide arcs of fire. Light platforms above and inboard of the after 7.5-inch turrets show where she eventually carried three small anti-aircraft guns aside. On her gun barrels and turret armour, you can see scars left by Turkish shell splinters 75 years ago.

She still looks in good shape, with no signs of rust or neglect. But the sub-lieutenant said her underwater condition is doubtful, after so long afloat at Poros without docking. There's been talk of putting her in a dry dock, like the CUTTY SARK in England.

"Little altered from new, she is a ship of great interest," says one international catalogue of historic ships. I think the battleship MIKASA in Japan, the protected cruiser OLYMPIA in the United States and the cruiser AURORA in Russia are the only other major warships surviving from her era. She's an impressive survivor. We should wish her well.

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RIVER CLASS FRIGATES

by TIM RYAN



HMAS GASCOYNE, Balikpapan, September, 1945.

A HISTORY THESIS

IN all, 12 River Class Frigates were completed, although 22 vessels were actually ordered. However, only six ships of this class, including the sole survivors DIAMANTINA and LACHLAN, commissioned for service during the 1939-45 hostilities.

The origin of the 'Rivers' can be traced back to April 1941, when Acting Prime Minister, the Rt Hon A. Fadden, requested the Minister for the Navy, the Rt Hon W. M. Hughes, after consultations with the Naval Board, to furnish views upon a new type of warship for Australian trade defence for consideration by War Cabinet. The Prime Minister, the Rt Hon R. G. Menzies, was at the time touring Britain, and after holding discussions with the Admiralty, he requested that this possibility be reviewed by the Minister for the Navy. Mr Menzies had provided a summary on the type of ship as suggested by the First Sea Lord:

- (1) The ship should have both anti-aircraft and anti-submarine capabilities;
- (2) Experience from the war indicated the need for good endurance and also speed (but destroyer performance was not required);
- (3) Tonnage 1325, speed 20½ knots, endurance at 10 knots — 5000 miles, armament — 2 by 4 inch mounts;
- (4) This amounted to a cor-ette (frigate) type of vessel proving to be the most economical means of meeting Australia's needs.

In an addendum to War Cabinet in May 1941, the Minister for the Navy outlined that the future naval programme would be governed by:

- (a) the amount of merchant ships to be built;
- (b) the extent to which Marine Engine production capacity could be enlarged.

After consultations with the Naval Board, the Minister mentioned that the Navy was short of dual purpose



HMAS BARWON, Williamstown, May, 1950.



HAWKESBURY, laid up alongside PLATYPUS.

RIVER CLASS FRIGATES — CONTINUED

Minesweeping and anti-submarine vessels (AMS Vessels), and also frigates for ocean work and convoy protection. At the time, the Naval Programme provided for 48 AMS ships, of which 20 were allocated to the RN, 24 to the RAN, and 4 to the RIN. A need still existed for further AMS ships but also the construction of a frigate type of vessel.

In a later submission to War Cabinet, the Minister expressed concern that the present planned programme was falling far short of what was previously considered necessary to give security to the country. Coupled with this, the programme did not make any allowance for losses. However, in spite of a shortage of AMS vessels, there was an even greater need for frigates. The construction of frigates would require a large addition to the Marine Engineering production in the Commonwealth, but this in turn depended upon the availability of large machine tools which needed to be imported. Hence engine production would limit the number of ships to be built. This problem resulted in the recommendation of the Naval Board being limited to six frigates and 12 AMS vessels with the following funds being required:

	CAPITAL (£000)	ANNUAL MAINTENANCE (£000)
6 Frigates (£450,000 ea)	£2,700,000	£456,000
12 AMS (£250,000 ea)	£3,000,000	£473,000
vessels	£5,700,000	£929,000

This recommendation of the Naval Board was endorsed by the Minister, and also by the War Cabinet. Originally 20 AMS vessels and 12 frigates were projected, but the Naval Board were forced to reduce this number to 12 AMS vessels and six frigates. If the building of frigates was to be undertaken, reciprocating steam engines of a large size would be required for both frigates and merchant ships. Twenty per annum were needed, but the actual capacity in Australia was eight per annum. The Board complained that unless greater priority was given to marine

engines, there would be a deficiency in Australia's shipbuilding programme.

In January 1942, the Naval Board recommended the construction of a further nine frigates. The new Minister for the Navy, the Rt Hon Norman J. O. Makin, endorsed this in a submission to the War Cabinet in February, 1942. This need was due mainly to the entry of Japan into the war. The approval for more escort vessels was vital and the frigate was the most advanced type of Naval Escort vessel suitable for general production from Australian resources and by Australian shipyards. The capital cost of the programme was estimated at £4,050,000 with an eventual annual maintenance cost of £684,000. Funds to this extent were required. The additional order was also required since the Broken Hill Pty Co normally delivered steel four to six months after an order was placed. In order to produce ships as expeditiously as possible, the steel would need to be ordered immediately, particularly as two shipyards, Evans Deakin and Co, Brisbane, and the Melbourne Harbour Trust dock at Williamstown (Melbourne), each had two building berths becoming available. The construction of engines at the Commonwealth Engine Shops at both Melbourne and Brisbane were well under way.

However, the decision by Cabinet to build the nine extra vessels was deferred until the Minister had obtained the views of the Australian Shipbuilding Board regarding the allocation of shipways and also the effect on the construction of merchant ships. The ASB considered that five factors were important in weighing up the need for more frigates as against less merchant ships:

- the availability of shipbuilding berths;
- the capacity to produce engines;
- the amount of steel available for shipbuilding;
- the extent of additional skilled labour required;
- unforeseen circumstances, eg, enemy action.

The ASB considered that in spite of the need for extra frigates, the Merchant Ship Construction Programme would be unduly hampered. Accordingly, the Board recommended that seven frigates be built and not nine as previously planned.

The Naval Board decided to accept the decision of the ASB that seven frigates only should be built. Besides the ASB report, the need for ship repairs, particularly with the likely fall of Singapore, would only delay progress in naval construction.



HMS HAWKESBURY.



HMS BARCOO, in a bit of trouble, April, 1948. She was later rescued with little damage.

Also the Naval Board wished to place orders for small tenders to help service the fleet. It was proposed that the construction of the total of 13 vessels be undertaken as follows:

FRIGATE	BUILDER	LOCATION
1	Cockatoo Docks and Engineering Co Ltd	Sydney, NSW
2	Cockatoo	
3	Walkers Ltd	Maryborough, Qld
4	Walkers	
5	Morris Dock & Engineering Co Ltd	Balmann, Sydney, NSW
6	Morris Dock	
7	Morris Dock	
8	Morris Dock	
9	Melbourne Harbour Trust Commissioners	Williamstown, Melbourne, Vic
10	Melbourne Harbour Trust	
11	Evans Deakin & Co Ltd	Brisbane, Qld
12	Evans Deakin	
13	Walkers	

The Naval Board wished to stress the desirability of the programme being approved by Cabinet for the following reasons:

- Japanese expansion would lead to greater urgency for ocean patrols;
- materials could be ordered in advance thereby avoiding delays in deliveries;
- a certain amount of prefabrication could be made before the keel was laid;
- considerable savings in both time and costs could be achieved through thoughtful planning at the outset.

The Naval Board's recommendations were endorsed by the Minister, but he considered that first of all the priorities of naval

and merchant shipbuilding must be worked out. Nevertheless the factors considered by the ASB would be taken into consideration and also the suggestion that greater machine tool allocation be given to the ASB, otherwise engine production would be retarded. The construction of seven extra frigates on top of the original six ordered was approved by War Cabinet. A request for the cost of the seven extra frigates was submitted by the Department of the Treasury to which the Department of the Navy replied that £450,000 for each ship must be authorised immediately.

As 13 frigates had been ordered, names would have to be allocated to each vessel. Since the frigates which were being built in Australia for the RAN were of the same construction as the 'River' class being built in Britain, Canada and the United States, it was appropriate that the Australian ships be named after Australian Rivers. The following rivers were suggested: Barcoo, Barwon, Burdekin, Campaspe, Condamine, Culgoa, Diamantina, Finke, Flinders, Gascoyne, Gordon, Huon, Hawkesbury, Hunter, Lachlan, Loddon, Macquarie, Murray, Murchison, Murrumbidgee, Roper, Shoalhaven, Sturt, Snowy, Tambo and Warburton. Loddon and Sturt were rejected since they could be confused with the names of two RN and RAN ships, HMS LONDON (a RN heavy cruiser), and HMS STUART (a destroyer serving in the RAN). Murray and Roper were rejected for similar reasons since two United States Navy Ships already possessed those names. The Admiralty felt it would be inadvisable if the RAN ships carried those names particularly if these ships operated with the American ships in the Pacific. Accordingly, the Naval Board decided to recommend the following names for the 13 ships ordered: Barcoo, Barwon, Burdekin, Culgoa, Diamantina, Gascoyne, Hawkesbury, Lachlan, Macquarie, Murrumbidgee, Murchison, Shoalhaven and Warburton.

However the realities of the Pacific war were causing great concern and owing to the submarine threat, coastal convoys for ships of 8-12 knots were organised for parts of the Australian

THE ROYAL AUSTRALIAN NAVY NEVER CROSSES THE OCEANS WITHOUT KIW SHOE POLISH.



PROTECTOR 1.301-June 1924	OTWAY I 15.6.27-9.4.42	BURNIE 15.4.41-10.7.46	LAUNCESTON 9.4.42-1946	HORSHAM 18.11.42-17.12.45	BATAAN 25.5.45-18.10.54	DERWENT 30.4.64
PARRAMATTA I 10.9.10-20.4.28	AUSTRALIA I 24.4.28-31.8.54	BENDIGO 10.5.41-27.9.46	NAPAI 11.5.42-22.10.45	WARRAMUNGA 23.11.42-17.12.59	QUADRANT 15.10.45-16.8.57	DUCHESS 8.5.64-24.10.77
YARRA I 10.9.10-19.27	CANBERRA I 9.2.28-9.8.42	MARYBOROUGH 12.6.41-10.9.45	CAIRNS 12.5.42-17.1.46	WAGGA 18.12.42-28.10.60	QUEENBOROUGH 29.10.45-7.7.72	PERTH II 17.7.65
WARRIGO I 1.6.12-19.4.28	ALBATROSS 23.1.29-26.4.33	LITHGOW 14.6.41-8.6.48	ARMIDALE 11.6.42-11.12.42	BUNBURY 31.4.3.26-8.4.46	QUALITY 28.11.45-25.1.46	HOBART II 18.12.65
ENCOUNTER 1.7.12-15.8.39	STUART I 11.10.33-27.4.46	MILDURA 23.7.41-11.9.53	IPSWICH 13.6.42-10.5.46	SHIRPARTON 1.2.43-10.5.46	MACQUARIE 7.12.45-17.3.54	OXLEY II 21.3.67
MELBOURNE I 18.1.13-23.4.28	WATERLOO 11.10.33-30.6.41	BAL LARAI 30.8.41-27.9.46	CANTERBURY 17.6.42-14.12.45	GLADSTONE 22.3.43-June 1956	BARROW 10.12.45-31.3.47	BRISBANE II 16.12.67
PIONEER 1.13.7-11.16	VENDETTE I 11.10.33-27.11.45	NORMAN 15.9.41-Oct 1945	QUEENSLAND 6.7.42-26.6.64	FREMANTLE 24.3.43-22.6.59	MURCHISON 17.12.45-30.6.59	STALWART II 9.2.68
AUSTRALIA I 21.6.13-12.12.21	VAMPIRE I 11.10.33-9.4.42	WARRAMUNGA 23.9.41-11.9.47	WALLAROO 15.7.42-11.6.43	SHIRSHIRE 20.4.43-31.8.49	CONDAMINE 22.2.46-2.12.55	OTWAY II 23.4.68
SYDNEY I 26.6.13-8.5.28	VYAGER I 11.10.33-25.9.42	TOWOOMBA 9.10.41-11.4.46	BROOME 29.7.42-24.8.46	BENALLA 27.4.43-28.1.46	SHOALHAVEN 2.5.46-19.55	OVENS 18.4.69
PSYCHE 1.7.15-26.3.18	SYDNEY II 24.9.35-19.11.41	WOLLONGONG 23.10.41-11.2.46	DUBBO 31.7.42-7.2.47	ARARAT 16.6.43-11.4.46	CULGOA 1.4.47-15.4.54	ONSLow 22.12.69
TORRENS I 3.7.16-12.5.26	YARRA II 21.1.36-4.3.42	DELORAIN 22.11.41-30.6.48	TAMWORTH 8.8.42-30.4.46	STAWELL 7.8.43-26.3.46	SYDNEY III 16.12.48-12.11.73	SWAN III 20.1.70
SWAN I 16.8.16-15.5.28	SWAN II 11.1.37-20.9.62	KATOOMBA 17.12.41-2.8.48	GAWLER 14.8.42-5.4.46	COWRA 8.10.43-26.6.53	TOBRUK 8.5.50-29.10.60	TORRENS II 19.1.71
BRISBANE I 31.10.16-24.9.35	HOBART I 28.9.38-20.12.47	TOWNSVILLE 19.12.41-5.8.46	ELCHUA 7.9.42-29.12.48	GASCOYNE 18.11.43-1.2.66	ANZAC II 14.3.51-4.10.74	FLINDERS 27.4.73
PLATYPUS 13.3.19-13.5.46	PERTH I 29.6.39-1.3.42	COLAC 6.1.42-31.1.53	BUNDEBERG 12.9.42-26.3.46	BARCOO 17.1.44-21.2.64	VENGEANCE 13.11.52-25.10.55	COOK 28.10.80
ANZAC I 27.1.20-30.7.33	PARRAMATTA II 8.4.40-27.11.41	COOTAMUNDRA 14.9.42-26.4.63	QUICKMATCH 14.9.42-26.4.63	KIAMA 26.1.44-3.4.46	MELBOURNE II 28.10.55-30.6.82	ADELAIDE II 15.11.80
SWORDSMAN 27.1.20-21.12.29	WARRIGO II 22.8.40-15.8.63	WHYALLA 8.1.42-16.5.46	INVERELL 17.9.42-14.6.46	STRAHAN 14.3.44-25.1.46	VYAGER II 12.2.57-10.2.64	CANBERRA II 21.3.81
SUCCESS I 27.1.20-21.5.31	NAPIER 28.11.40-25.10.45	GEELONG 16.1.42-18.10.44	PIRE 10.10.42-5.4.46	JUNE 11.4.44-21.8.57	VENDETTE II 26.11.58-9.10.79	TOBRUK II 23.4.81
TASMANIA 27.1.20-9.1.28	BATHURST 6.12.40-27.9.46	ROCKHAMPTON 21.1.42-5.8.46	KAPUNDA 21.10.42-14.1.46	PARKES 25.5.44-17.12.45	VAMPIRE II 23.6.59-13.8.86	SUPPLY 15.6.82-16.12.85
TATTOO 27.1.20-6.10.21	NIZAM 8.1.41-17.10.45	CESSNOCK 26.1.42-12.7.46	GYMPIE 4.11.42-23.5.46	BURDEKIN 27.6.44-18.4.46	PARRAMATTA III 4.7.61	SYDNEY IV 28.1.83
STALWART I 27.1.20-1.12.25	LISMORE 24.1.41-1.6.46	ARUNTA 30.3.42-21.12.56	LATHOBE 6.11.42-13.3.53	HAWKESBURY 5.7.44-14.2.55	YARRA III 27.7.61-22.11.85	DARWIN 21.7.84
ADELAIDE I 5.8.22-13.5.46	NISTOR 3.2.41-16.6.42	GERALDTON 6.4.42-14.6.46	BOWEN 9.11.42-17.1.46	LACHLAN 14.2.45-5.10.49	STUART II 28.6.63	SUCCESS II 23.4.86
OXLEY I 14.2.7-9.4.31	GOULBURN 28.2.41-27.9.46	KALGOORLIE 17.4.42-8.5.46	GLENEIL 16.11.42-14.1.46	DIAMANTINA 27.4.45-29.2.80	MORESBY 6.3.64	

KIW SHOE POLISHES ARE PROUD TO HAVE SERVED R.A.N. SHIPS SINCE 1906.

RIVER CLASS FRIGATES

— CONTINUED —

coast and New Guinea. As enemy action was expected to increase, it was felt that the number of escort vessels should also be increased. The River Class Frigates were ideal for the escort role particularly due to their anti-aircraft and anti-submarine qualities and also due to their good endurance and speed. The AMS vessels being smaller did not possess these advantages and were better suited to local defence and mine-sweeping patrol. By December 1943, it was expected that RAN strength would comprise five destroyers, 13 frigates, 36 AMS vessels (RAN), 7 AMS vessels (RN — on loan), six submarine chasers (USN — on loan) and some auxiliary anti-submarine vessels. However, no account had been taken for any losses and a further building programme was desirable comprising another order for nine further frigates.

The Minister for the Navy agreed to the Naval Board decision and when submitting the proposal to Cabinet, he stressed that the frigate was the most advanced type of naval vessel suitable for general production by Australian shipyards. Any larger vessels such as cruisers and destroyers could not be efficiently or economically produced in Australian yards. Also, it was anticipated that as Japan consolidated its new possessions, additional forces would be released and attacks on trade were expected to be much more severe. Hence the necessity for increasing the number of frigates would only increase particularly as the need for ocean convoys would also increase. The frigates were considered ideal for convoy protection with their strong AA and AS armament. Their speed and endurance being greatly superior to that of the AMS vessels, it was decided that no more AMS vessels be ordered. Accordingly approval was necessary for the construction of a further nine frigates, making the total order 22 vessels in all, the orders being placed with the following shipyards:

No of FRIGATE	BUILDER	LOCATION
14	Morris Dock	Sydney
15	Morris Dock	Sydney
16	Cockatoo	Sydney
17	Cockatoo	
18	Cockatoo	
19	Cockatoo	
20	HMA Naval Dockyard	Williamstown
21	NSW Govt Dockyard	Newcastle
22	NSW Govt Dockyard	

Approval was given or the immediate placing of orders for nine frigates at a cost of £4,050,000.

The third order of frigates was to be also allocated 'River' names, the following being those suggested: Bogan, Campaspe, Condamine, Gwydir, Maranoa, Namoi, Nepean, Wimmera and Wollondilly. However the names Williamstown and Balmain were approved while Gwydir and Maranoa were rejected. Balmain and Williamstown were the towns where two of the ships concerned were being built and strong local representations had been made to this effect to the Minister.

Accordingly the final disposition of names for the three batches of frigates were as follows:

No of FRIGATE	NAME	BUILDER
1	Barcoo	Cockatoo
2	Barwon	Cockatoo
3	Burdekin	Walkers
4	Diamantina	Walkers
5	Gascoyne	Morris Dock
6	Hawkesbury	Morris Dock
7	Lachlan	Morris Dock
8	Macquarie	Morris Dock
9	Culgoa	HMA Naval Dockyard
10	Murrumbidgee	HMA Naval Dockyard
11	Murchison	Evans Deakin
12	Warburton	Evans Deakin



HMAS GASCOYNE, converted to an oceanographic and survey ship.

RIVER CLASS FRIGATES

— CONTINUED

No of FRIGATE	NAME	BUILDER
13	Shoalhaven	Walkers
14	Nepean	Morris Dock
15	Balmain	Morris Dock
16	Wollondilly	Cockatoo
17	Namoi	Cockatoo
18	Wimmera	Cockatoo
19	Campaspe	Cockatoo
20	Williamstown	HMA Naval dockyard
21	Condamine	NSW Govt Dockyard
22	Bogan	NSW Govt Dockyard

However a review of escort requirements in October 1943, still indicated a deficiency, for overall 139 vessels were needed. This figure comprised 39 AMS vessels, four destroyers, 22 frigates and 48 vessels to be loaned from the USA (which vessels never materialised). The balance of 26 vessels would need to be built in Australia. It was suggested that this number be bridged by building further 'River' class frigates and also 'Hunt' class destroyers. 'Hunt' class destroyers were preferable to the 'River' class since they had superior AA equipment, speed, fire control, and also radar installation. However if 'Hunt' class destroyers were to be built, valuable time would have elapsed before the plans appeared from Britain. Also estimates and Cabinet agenda would waste even further time. Accordingly, the Naval Board directed that a War Cabinet agenda be drawn up so that the immediate construction of four extra frigates could be considered. The ASB was consulted as to whether its merchant ship construction programme would be affected if the Naval Board placed orders for two further frigates at Evans Deakin and one each at Morris Dock and Walkers. The ASB did not want further frigates ordered since:

- Due to the already slow building of merchant ships, measures were needed first of all to quicken the construction of merchant ships at Cockatoo, Morris Dock, Evans Deakin and Williamstown; only the Whyalla yard was progressing satisfactorily;
- A great shortage of manpower existed particularly in relation to repair work. Merchant shipbuilding simply would not progress if further orders were placed, particularly in yards where naval and repair work was being undertaken.

The ASB, in retrospect, preferred that the Naval programme be deferred. In light of this opinion, there seemed doubtful value in ordering more vessels since it would have taken two years from the date of order for completion. Accordingly, the ASB was advised that the Naval Board would not pursue the order for a further four frigates.

However at this stage of the war, the construction of naval ships in Britain and America was catching up with demand and with amazing efficiency in these countries, great progress was made. Coupled with this the outlook of the European war was becoming more favourable to the Allies with the result that more vessels could be spared for operations in the Pacific. Accordingly, the Admiralty was notified that since world requirements for escort vessels were expected to be met, the cancellation of 10 Australian orders was being considered. It was officially announced in July 1944, that due to altered conditions, the construction of frigates numbered 14 to 22 would be cancelled, with the exception of No 21, CONDA-MINE. The construction of frigate No 10, MURKINBIDGE and frigate No 12, WARBURTON, was also cancelled.

The design of the 'River' class frigates was based upon British plans and the technical details for the ships built in Britain, Canada, the United States and Australia were almost

identical. The only real difference lay in the armament of each vessel, and even a significant difference between the armament of the 12 completed Australian ships was apparent. A brief summary of the chief features of each ship follows:

Length overall: 301'4"
 Beam: 36'6"
 Standard Displacement: 1,325 tons
 Propulsion: Two sets of four cylinder, triple-expansion engines, each of 2250 IHP.
 Speed: 20.5 knots.
 Endurance: 5000 miles at 10 knots.
 Complement: 101 officers and men (original estimate).

Armament (original estimate):
 2x4" HA/LA guns.
 2x2 pounder guns.
 2 Oerlikon guns, 20mm.
 8 depth charge throwers, 100 depth charges.

Boats:
 1x27' whaler, 1x25' diesel motor boat,
 1x16' trawler type dinghy

However, this armament was changed several times before and after completion. It was decided that the first eight frigates (Barcoo, Barwon, Burdekin, Diamantina, Gascoyne, Hawkesbury, Lachlan and Macquarie), would all be fitted with the following armaments:

- 2x4" quick firing Mark XVI in single mountings.
 - 8 x single Oerlikons.
 - 1 Hedgehog (an anti-submarine device similar to depth charges).
 - 4 depth charge throwers and 116 depth charges.
- The remaining 14 vessels were to carry:
- 4x4" QF guns in twin mountings.
 - 1 x twin Bofors 40mm guns.
 - 2 x twin Oerlikon 20mm guns.
 - 2 x single Oerlikon 20mm guns.
 - 2 depth charge throwers and 70 depth charges.
 - 1 Hedgehog.

However only CONDA-MINE, CULGOA, MURCHISON and SHOALHAVEN were completed to carry this armament. The old Mk XIX mountings had a range of only 9500 yards with a ceiling of 7794 feet, inadequate for anti-aircraft and anti-submarine warfare. The new guns would provide a range of 19,500 yards and a ceiling of 30,000 feet. The new armament was boosted with the addition of superior AA fire control, radar fire detectors and radar fire control systems.

The first three vessels commissioned, GASCOYNE, BARCOO and BURDEKIN, were fitted with four single .303" Vickers mountings and four twin .303" Bren mountings in addition to the eight single Oerlikons. This armament comprised the anti-aircraft strength of the ships and were positioned fore and aft and also on the bridge. However, the arc of fire for some of the guns was discovered to be unsatisfactory in the gun trials of HMAS GASCOYNE. It was then decided that a revised AA armament be fitted to BARCOO, BURDEKIN, GASCOYNE and HAWKESBURY as follows:

- two single Oerlikons on the bridge be retained;
 - two twin MkV Oerlikons replace the four single Oerlikon mountings amidships, port and starboard;
 - two 40mm Bofors Mk1 guns replace the single Oerlikons, port and starboard;
 - two twin .303" Bren mountings on the lower bridge be retained;
 - two single .303" Vickers mountings on the forecastle, deck, port and starboard abreast the forward 4" gun be retained.
- It was also decided that two single .303" twin Bren guns from the bridge and the two single Vickers guns from the quarterdeck be landed. (NB: The other 4" turret was mounted aft as well as all the anti-submarine equipment which was mounted on the quarterdeck.)



Paying off cruise, HMAS DIAMANTINA enters Sydney Harbour for the final time on 1st October, 1980.



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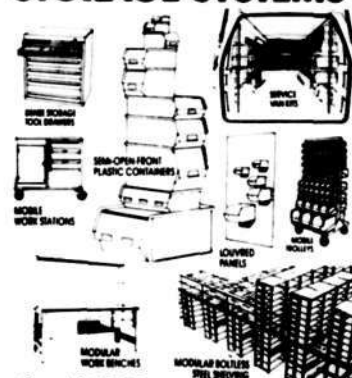
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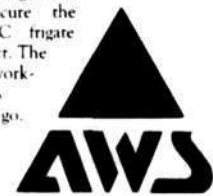
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By Scot MacDonald



RAM launcher.

FOR a decade and a half, the United States Navy has been improving its capability to defend against incoming anti-ship missiles. Navy designers now are developing a lightweight, low cost, high firepower system to fill the need for a missile of shorter range than the NATO Seaparrow but longer than the 20mm Phalanx, and that can function either as part of a layered defence or a stand-alone system. The system is RAM (Rolling Airframe Missile), scheduled for introduction in the fleet in 1991.

RAM was originally part of the Anti-Ship Missile Defence (ASMD) programme. Two methods for launching the missile were conceived — a stand-alone system for those ships that had no other self-defence except Phalanx; and RAM launcher inserts, each containing five RAMs for two of the eight NATO Seaparrow cells.

"The major effort now," said Capt Jim Howard, NAVSEA programme

manager for RAM, "is the stand-alone launching system. The modification to NATO Seaparrow is planned for later in this decade. Its development and fielding will be a joint effort between the NATO Seaparrow office and this one."

A critical feature is target designation from installed radars and electronic support measures equipment — the AN SI Q-32. "The idea here," said Capt Howard, "was that the Navy would not have to install new equipment to support RAM, but would use equipment that are in place or planned to be aboard."

"It's a passive missile, so there are no fire control illuminators — such as are required for NATO Seaparrow and Standard missiles."

Another criterion of the system's Operational Requirement was the use of existing in-service components. "We do that in several ways," said Capt Howard. "There's a lot of Sidewinder in the missile — the fuse, warhead and rocket motor — and some Stinger (IR seeker) in

the front end of the missile. In the launcher, we use certain Phalanx components."

The last major requirement was that the system be designed to permit block changes to meet the changing threat.

"The Federal Republic of Germany (FRG) had an interest in something like RAM for use on a number of their ships. They entered into a Memorandum of Understanding (MOU) with the United States. The MOU established a co-operative development programme, up to production. Development costs were to be shared. It established a flag-level steering committee, with the US member, currently RADM George R. Meinig, NAVSEA's Assistant Deputy Commander for Surface and Anti-Air Warfare."

Full-scale engineering began in 1979. A combined development operational test phase was recently completed and limited production will begin next year. Full-scale production is expected in 1990.

System operation involves a passive missile, using a wide field-of-view ARM seeker, homing on an incoming target. It also uses a narrow field-of-view IR terminal guidance for precise terminal guidance. Installed sensors, both radar and ESM, determine if the target is threatening, give it a ranking and assigns the launcher. The launcher initially programmes and fires the missile. Once



fired, the missile is on its own and does not require assistance from the firing ship.

The missile launching system is a 21-cell launcher, with missiles loaded in a canister to provide environmental protection. A control panel for built-in testing is located in CIC.

One engineering development model stand-alone launching system is installed in USS DAVID R. RAY (DD 971) and one is in the FRG fast patrol boat PUMA.

Shipboard location of the launcher will depend on the class of ship. Aboard DAVID R. RAY, the launcher is located on the fantail. "That is probably not the final location for production installation," said Capt Howard. On amphibious ships, two each would be installed in LCCs, LHAs and LPHs — one on the port side, the other on the starboard, to provide 360° coverage.

"The first shipboard firing was from the DAVID R. RAY last December," said Capt Howard. "We had six shipboard firings during the Development Test Operational Test (DT OT), with seven more from land-based sites. Overall, we have fired more than 50 missiles. Prior to full production, there must be successful completion of TECHEVAL OPEVAL."

Navy's plan is to install the stand-alone launcher in the two LCCs, the five

LHAs, and the seven LPHs. Later, RAM will be installed as an ORDALT to the NATO Seasparrow system aboard CVs, AORs, AOE's, LHDs and the DD 963-class destroyers.

"We've demonstrated very low altitude intercepts against targets simulating anti-ship missiles — at both maximum range and close-in — against supersonic and manoeuvring targets," said Capt Howard. "The system is not designed to go after a crossing target, only incoming missiles. We've demonstrated the dual-mode guidance and we've also demonstrated that we can shoot in bad weather with only RF guidance."

"IR seeker fuse and warhead effectiveness have been proven. The IR seeker is effective in a high infrared background, such as the sun or a heavy cloud banklit with the sun. The missile has the capability to reject these distractions and still go after the proper target. The warhead and fuse have been tested in an operational environment and were found to be very effective."

"The launching system is fully automatic, and has a real-time operability test built into the system. The system interrogates itself and provides real-time information to the operator who determines if there is a problem so that steps can be taken to correct it."

Since RAM was installed in DAVID R. RAY and the FRG PUMA, maintenance

of the system offered few, if any, problems. The missile itself is delivered to the ship as a "wooden" round and that obviates shipboard maintenance. When missiles are off-loaded from the ship, they go through a test procedure. Should any defect show up, the missile is sent to a depot for repair and reissue.

An extensive built-in maintenance test for the launching system is aboard each ship. The maintenance is module level and faults are isolated to replaceable cards. Structural components of the launching systems are large mechanical pieces that are not expected to deteriorate.

"We have a very extensive integrated logistics support programme in RAM," said Capt Howard, "both in the US and in Germany."

The navy is accelerating its efforts to move into full production. "The RAM production programme is unique," continued Capt Howard. "In 1985, a joint agreement stipulated a prime US contractor with a German producer as a second source. I don't know of any allied programme with that kind of acquisition plan."

The first installation of a production model RAM is scheduled for a US ship in 1991.



HMS HOOD

OUT OF THE PAST

Drawings courtesy ALAN MORGAN



HMAS VAMPIRE
January-March, 1989

THE NAVY

Page Twenty-nine

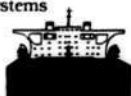


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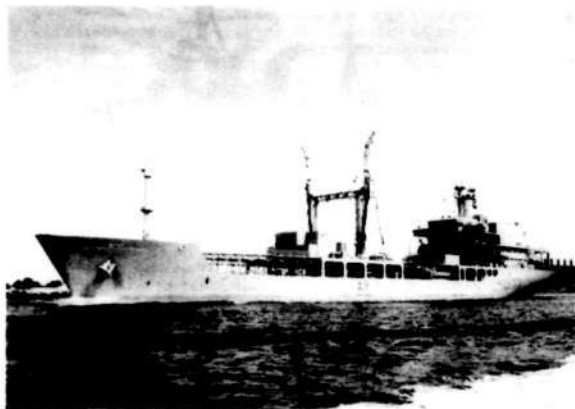
HMNZS ENDEAVOUR

THE replenishment tanker HMNZS ENDEAVOUR is the third ship to bear the name in the Royal New Zealand Navy. The first two, both ex-US Naval vessels originally, were used in support of the New Zealand Antarctic programme from 1956 to 1962 and 1962 to 1971 respectively. Unlike those predecessors however, the present ENDEAVOUR has been built specifically for the RNZN and although built essentially to a commercial tanker design and standards, she has been fitted with a variety of specialised equipment to permit the naval role to be fulfilled.

The long-standing requirement for an integral capacity to replenish other RNZN Fleet units at sea was to draw to fruition in April of 1985 when the Government of the day authorised a detailed investigation to be undertaken for the acquisition of a suitable vessel to meet the need. The ultimate outcome was the awarding of a contract on 28th July, 1986, to the Special and Naval Division of Hyundai Heavy Industries of the Republic of Korea to build a tanker for the RNZN. This was to be the first new ship built for the RNZN outside the United Kingdom and the first warship built by Hyundai for a foreign navy. The first steel was cut at the Hyundai shipyard, Ulsan on 4th February, 1987.

Delivery of the ship was expected to occur during December 1987. An unexpected delay was caused however through error in the care of the Main Engine during some period of its installation. The outcome was to be a delay in delivery until 1988. Formal hand-over on 7th April was preceded by a colourful naming ceremony on 6th April at which time Mrs Janet Lean, wife of the Mayor of New Plymouth officially named the ship. On 8th April, ENDEAVOUR was commissioned for service in the RNZN, and departed Ulsan on her delivery voyage on 14th April. The delivery voyage included a visit to Singapore where a full cargo of naval specification DIESO and AVCAT was uplifted. (And the New Plymouth connection? — The City of New Plymouth has sought approval to adopt ENDEAVOUR, and it is expected that formal adoption will occur during a visit to New Plymouth.

The approximate cost of the project was NZ\$27 million which allowed the acquisition of a ship even more able to carry out its role than had been originally anticipated. The all-welded steel hull has a fo'c'sle and poop with an elevated RAS

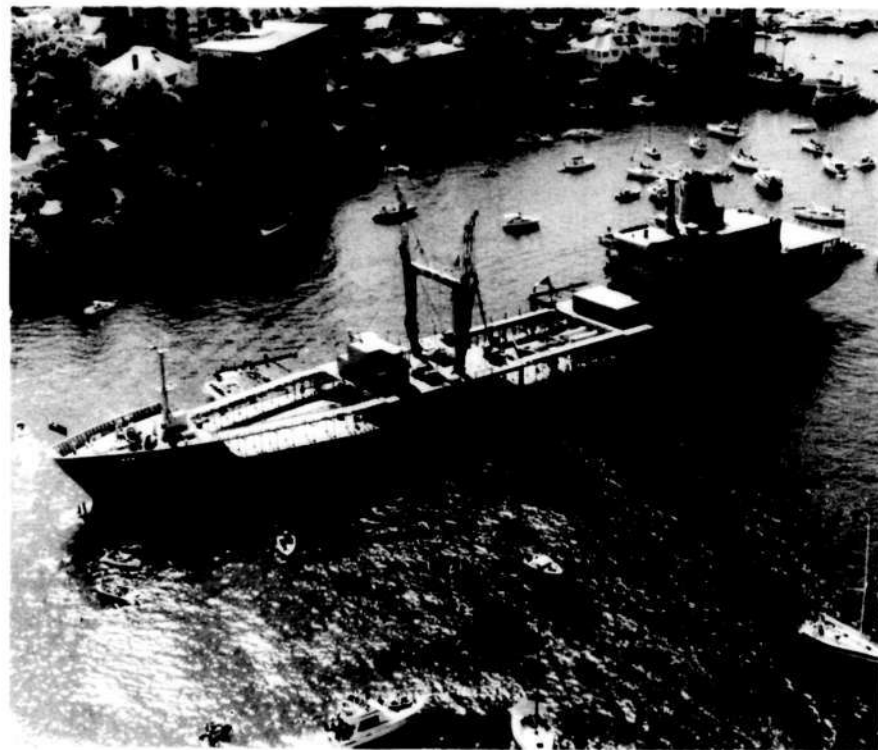


Arriving Port Adelaide. (Photo — R. Le Maitre)

(Replenishment at Sea) Deck forward of amidships connected to the poop and fo'c'sle by catwalks. The ship has a raked stem with bulbous forefoot, a transom stern, and the bridge, machinery, hangar, helo-deck and all accommodation arranged aft. On the RAS deck is a deckhouse for RAS control and a set of Sampson Posts supporting the abeam replenishment derricks.

Below the upper deck the hull is transversely divided by eight main

bulkheads, with a cofferdam at the after end of the tank space. Stowage is provided in four wing and four centre-line tanks for 7500 tonnes of cargo fuel, and up to four standard 20ft containers can be carried for'd of the superstructure on a half-deck above the tank deck. The two abeam liquid replenishment hose rigs are suspended from lattice derricks at the RAS deck and employ couplings common to RNZN and other allied naval units. Light rope jackstay positions are also fitted port and



At rest during the International Naval Review, 1st October, 1988.

starboard of the RAS deck to allow the transfer of small quantities of stores, provisions or personnel when under way. At the stern a reelable refuelling hose allows yet another method of fuel transfer when under way and above, the helo-deck and hangar gives further scope to transfer both stores and personnel.

The ship meets all current international standards for safety and pollution prevention, including segregated ballast. ENDEAVOUR is classed "100A1 OIL TANKER, FP above 60 degrees Celsius, UMS, +LMC" by Lloyds Register of Shipping and it is intended that she will be kept in class during her life. Being of modern commercial design ENDEAVOUR is also manned to minimum levels by normal naval standards. The main engine and auxiliary plant are designed to be operated in the UMS (Unmanned Machinery Spaces) condition outside the normal hours for routine maintenance.

PARTICULARS

Length (OA)	138.5m
Length (BP)	128.0m
Beam	18.4m
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Draught (Laden)	7.2m
Depth	10.0m
Displacement (Full)	12,300t
Displacement (Ballast)	7,300t
Deadweight	8,400t
Gross RT	6,990t

Complement:	
Officers	6
Senior Ranks	7
Junior Ranks	17
	30

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COMBAT FLEETS OF THE WORLD

Edited by: A. D. BAKER III

Published by:
United States Naval Institute/
Conway Maritime Press

Reviewed by:
ROSS GILLETT

STEP aside "Janes", "Combat Fleets of the World" has assumed your throne. The new 1988-89 edition of this biannual publication is now available in the bookshops. Spanning a massive number of pages, an increase of 120 over 1986-87, the size and thoroughness of the book is a naval enthusiast's delight.

But what makes this volume of Combat Fleets better than its predecessor? Firstly, the book contains within its covers (this year green and gold), a total of 3700 photographs from the largest warships down to such vessels as US Coast Guard runabouts; small craft but still part of that force.

Line drawings abound within Combat Fleets, most of these being fully indexed to identify electronic, armament and other points of interest. In some cases drawings depict different units of the class or highlight minor variations between each ship.

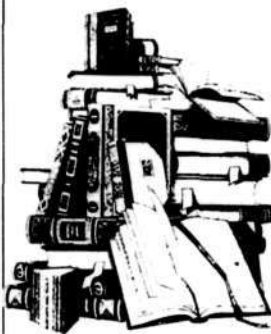
Another advantage of the book is that it provides, where appropriate, a handy table of naval aircraft, details of the main armaments, and electronics of the country of origin and a list of ships in service or under construction for that particular navy.

Unlike other publications, whose photographs are 'shrunk' down to fit into the smallest of areas, Combat Fleets proudly highlights its best pics without any care for the cost and number of pages to be used. This trend is evident



Page Thirty-two

BOOK



REVIEWS

throughout the book and even continues into the addenda, which in itself spans 24 pages, updated to March 1988.

As with previous columns, the Soviet Section increases in significance via numerous new and more importantly, clear photographs of recent construction. But alas, as yet, none of the new Soviet aircraft carrier.

Combat Fleets is a large book, spanning 26mm by 31mm, and is protected by a glossy cover, this year featuring the new Aegis class guided missile cruiser USS LEYTE GULF.

Some of the more innovative sections in "Combat Fleets of the World" include details of the Army and Air Force 'fleets' which are all too often completely ignored, and for the USA a complete narrative and photo description of the ships of the ever-growing Ready Reserve Force. Appearing for the first time are photographs of Italy's new carrier GIUSEPPE GARIBALDI and its two new 'carrier' like amphibious ships, the British Aviation Training Ship RFA ARGUS and some new French

combatants. But these are only a few of the numerous new entries this reviewer could mention. The book must be viewed overall as the most comprehensive naval reference work available on the current market.

It is less expensive, yet larger than its main rival, while the paper quality is much superior. For an outlay of \$165 the reader will secure in "Combat Fleets of the World", many hours of informative reading and the all-important enjoyable browsing which is the hallmark of this great type of naval publication.



DESTROYERS OF WORLD WAR TWO An International Encyclopaedia

By: M. J. WHITLEY

Published by:
Arms & Armour Press

Review Copy from:
Capricorn Link, Australia

Price: \$105

Reviewed by:
ROSS GILLETT

THIS impressive volume, spanning some 320 pages, is the author's third major literary work, after his well-documented "German Destroyers of World War II" and "German Cruisers of World War II".

"Destroyers of World War II" is an invaluable reference work describing and illustrating more than 2500 destroyers which participated in the conflict. The book has placed together in one volume all of the specifications, modifications, design and in-service data of the destroyers of the period, extant, completed or laid down by all of the world's navies.

Illustrating the very complete text are 480 photographs and line drawings, the latter drawn by the author as both plans and side elevations.

Each navy in the book is introduced by a brief historical piece, describing the destroyers in that force from the creation of the navy until the end of the war in 1945. Australia is no exception, with details of HMAS STUART, the Vs and Ws, Tribal class and the five N class destroyers transferred from the Royal Navy.

Well written and illustrated, this encyclopaedia will provide in the one volume a massive amount of detail which previously needed a small library to satisfy.

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In 1950, encouraged by the Australian Commonwealth Naval Board, the Navy League of Australia was established as a means of facilitating the development of the Australian Sea Cadet Corps.

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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.

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The principal objectives of The Navy League of Australia are:

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- To promote, sponsor and encourage the interest of Australian youth in the sea and sea services, and support practical sea training measures
- To co-operate with other Navy Leagues and sponsor the exchange of cadets for training purposes

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- By including in its membership leading representatives of the many elements which form the maritime community.
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- 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, ships' visits and various other functions of maritime interest throughout the year

Member participation is encouraged in all these activities.

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To become a Member of The League, simply complete the Application Form below, and post it, together with your first annual subscription of \$12.00 (twelve dollars) (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:

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

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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.

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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.

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OUR COVER PHOTOGRAPH

HMAS HOBART, the Australian Fleet's most efficient ship in 1988. Throughout the year, the DDG maintained a high profile in the bicentennial year from the Tall Ships Race in January to her leading role in the Naval Review in October. During the year HMAS HOBART sailed over 30,000 miles. In March 1989 the ship began a major modernisation.

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AUSTRALIANS AND DEFENCE — ARE WE BECOMING TOO COMPLACENT?

Defence has not been a major issue in Australia for such a long time that it is hard to remember when the community last felt it to be of great importance; probably not since the early 1940s, when the military activities of Japan caused Australians to contemplate the future with very serious misgivings. But those days are long past and remembered by a decreasing number of citizens.

Australia has, of course, been involved in so-called "limited" wars since World War II, but while disastrous to many of those who took part in them, they did not impose a direct threat to Australia or impinge on the well-being of most Australians.

To say defence has not been a major issue for nearly 50 years is not to suggest the subject has been ignored: Debates in Parliament, discussion at privately arranged seminars, defence supplements published by some newspapers — the matter of national security has been kept alive, but barely so. When all is said and done, repeated re-assuring statements by Governments and above all, the absence of a clearly perceived threat to Australian sovereignty and its citizens' way of life, have created an atmosphere of complacency in the community that must be cause for concern.

Too often complacency leads to, among other things, careless thinking. Despite recent attempts to reduce tension between the major powers, particularly between the Soviet Union and the United States, the world is still bedevilled by ideological, racial, economic and cultural problems unlikely to be resolved in the foreseeable future. Australia cannot remain aloof from all this.

Complacency is a significant problem in any democracy for those responsible for national defence. Money is harder to obtain and morale can be affected. In Australia the difficulties are compounded by the increasingly diverse make-up of the population and the need for this diversity to be proportionate in the composition of the armed forces; this does not appear to have happened so far. In excess of one million residents have not become Australian citizens — what would their position be in an emergency? In what circumstances would the community wholeheartedly support Australian military action? Bearing in mind the divisions caused by the Vietnam involvement, one can only speculate.

Primarily a political problem, but not without military connotations, is the possibility of pressure, let us say by the United Nations, on Australia to accept more immigrants than it wants. While the capacity of the country to maintain a larger population than the present 16 million is arguable — about 60 million at an acceptable living standard has been suggested — this is but a drop in the ocean of world population growth, but to any country bursting at the seams any relief must seem attractive.

Some time ago a Defence Chief remarked to me "we will have defence problems until our people receive a real fright — but by then it will probably be too late". Only if we anticipate the future in a realistic way will he be proved wrong.

Geoffrey Evans

GEOFFREY EVANS
Federal President

READERS

The Editor
"The Navy"
PO Box 663
Dee Why, NSW, 2099

Dear Sir,

The Seamen's Union of Australia is currently running the "Expand Australia's Merchant Fleet Campaign". As shipboard spokesman, I'm writing on behalf of SUA members, seeking permission to reproduce articles from your excellent publication. The purpose of such, is of course to assist us in our campaign to keep Australian ships, manned by Australian seafarers, on this coast.

Hoping for a favourable reply, I am,

Yours faithfully
LEONARD NICOL, A/B
MT Conus

AUSTRALIAN RIVER AND BAY CLASS FRIGATES — ERATTA

An Admiralty letter dated the 21st January, 1944, recommended that the Australian Frigate programme be curtailed at 14, the number that had been laid down to that date out of a total of 22 that had been planned.

As this letter and Australia's War Cabinet response dated 3rd March, 1944, is historically significant, they are reproduced in full.

ADMIRALTY LETTER 21st JANUARY, 1944

"The course of the U-boat war in the last six months has, however, been most encouraging and whilst we cannot afford to be complacent, yet we have felt justified in re-approaching the situation. We have now come to the conclusion that the British, Canadian and Australian escort vessel strength, which will be reached under existing programmes by October, 1944, should be sufficient to meet all our requirements and leave us with a margin to keep in reserve, uncommitted if necessary. We estimate that including 60% of fleet minesweepers we shall have an Empire strength of some 880 vessels suited to ocean-going A/B work by October, 1944, and those which include 99 Frigates assigned to the United Kingdom from the United States, show an increase of about 30% on our present strength. We may not be able to man all these vessels, although after reviewing the requirements we consider that we should endeavour to man sufficient to keep the total at 800 until Germany is out of the war.

The Australian Commonwealth Naval Board Building Programme Progress Report, corrected to the 23rd November, shows that 14 Frigates will have been laid down by the end of 1943, and of this number 11 would have been completed by the end of 1944. Further vessels to a total of 22 have been approved but not yet laid down.

In the circumstances the Admiralty feel that the Australian Commonwealth Naval Board should know that by the end of 1944 our own, Canadian and US Escort Forces should be, in our opinion, sufficient to meet the requirements throughout the world and if Germany is defeated there will be considerable surplus.

If the cancellation of these vessels is acceptable, it should provide a welcome relief to the manning difficulties of the RAN. Recommend building of LSTs, as there is a general shortage."

War Cabinet Agenda, Supplement No 18/1944, dated 31/3/44 Norman Makin, Minister for Navy, recommendation.

"I concur in the recommendation of the Defence Committee to construct one cruiser and one destroyer, and endorse the recommendation of the Naval Board to cancel 10 Frigates, complete 12 Frigates and one additional set of machinery and requisite equipment, and to construct 3 LSTs.

These recommendations are submitted for consideration by the War Cabinet. I would, at the same time, stress the urgency of the matter, and urge that War Cabinet approval be given to these proposals without delay."

The "Squid" an advanced performance anti-submarine mortar and associated handling and control equipment, was not initially fitted to the Australian River Class Frigates, as it was not known (Continued on page 13)

NAVAL MATTERS

MINE COUNTERMEASURES — Navy League Submission

Submission by the Navy League of Australia to the Joint Parliamentary Committee of Foreign Affairs, Defence and Trade (Defence Sub-Committee) on priorities for Australia's Mine Countermeasure needs.

THE Navy League appreciates the opportunity provided by the sub-committee to comment on Australia's mine countermeasure (MCM) needs. While many of the League's members have a naval background (either in the RAN, RANR or Commonwealth Navies) and some have held high office in the Australian Defence Force, technology does not stand still, perhaps least of all in the development of weaponry. The following comments therefore relate in the main to matters of principle, rather than technical detail.

It is appropriate to commence the submission by re-stating a fact not as widely appreciated in the Australian community as it should be — the vital importance to the country's wellbeing of its maritime lines of communication and their extent and vulnerability to hostile action.

The importance of the sea links, both overseas and local, is unlikely to change in the foreseeable future due to three major factors:

- The dependence of the economy on exports and imports, the vast bulk of which must move by sea.
- The reliance of steel, petroleum and aluminium industries at such places as Port Kembla, Newcastle, Gladstone, Bell Bay and Portland on sea transport around the coast, from the North-West/Groote Eylandt and Weipa, or from overseas, for feedstock. Detailed studies by major companies have demonstrated incontrovertibly that the sheer bulk of these minerals makes movement by any other means impracticable.
- The dependence of Australia's internal transport — road, rail and air — on petroleum, most of which comes from local sea areas off the North-West Coast or Bass Strait, or from overseas (about 30-40%). Serious interruption to tanker traffic, whether coastal or from overseas would have a disastrous effect on the economy and our ability to defend the nation.

MINING

A logical way for anyone wishing to disrupt Australia's sea links or harass shipping, merchant or naval, would be to

mine the approaches to ports and geographically constricted shipping routes, such as Torres and Bass Straits (both were lightly mined during World War II, causing shipping losses and considerable inconvenience).

Mining is generally considered to be a cost-effective form of attack which even relatively unsophisticated powers can mount. Large stocks of mines are maintained by some nations — a few years ago it was authoritatively assessed that the Soviet Union alone possessed some 400,000 — and there is little doubt substantial quantities could be made available by the stockpiles to their countries, including countries in our own region, should it be deemed expedient to do so.

mine warfare would require careful planning, knowledge of our coastal waters and vital ports, and involve the use of submarines (even obsolescent types have the necessary range) and/or merchant ships, perhaps flying neutral flags. There would also have to be a motive and in the League's opinion, a more threatening international climate than exists at the present time. Although a major attempt to cripple Australia may seem unlikely at the moment, international relationships, like the weather, can change quite quickly and the need for a substantial MCM effort has to be taken into account, along with other defence measures.

It is also possible that mines could be used against Australia on a lesser scale



Earlier times; six Ton class Mine Warfare ships.

Mines can be laid by aircraft, surface ships large or small (even fishing vessels) and submarines. Due to a large number of factors, including a very long coastline, numerous ports and constricting geographical features, such as those mentioned above, Australia is particularly vulnerable to a strategy of "disproportionate response". Even a mere statement to the effect that mines had been laid by a country with the evident capability to do so would require a considerable effort and deployment of resources to verify and counteract the threat.

It is likely that a major, systematic attempt to disrupt Australia's sea links by

than that mentioned above. An unfriendly power might wish to "harass" Australia without engaging in full-scale warfare and mining coastal waters in northern Australia would not be too difficult: Even a temporary disruption or a series of disruptions, of the traffic that flows through this area would have a serious effect on the Australian economy. It is not unreasonable to assume that even the threat of mining may result in the diversion of vessels (particularly foreign-owned vessels) carrying urgently needed supplies.

MINE COUNTERMEASURES

It is quite clear that measures to cope with full-scale mine warfare would be considerable and costly in terms of human and material resources. The Navy League believes it would be economically impracticable to maintain in a time of low threat forces capable of keeping open simultaneously all 60 or so Australian ports able to take ships of 1,000 dwt and larger. Nevertheless, the League is of the opinion that given the time required to acquire and equip vessels, train crews and establish the necessary support facilities, a core force able to be expanded rapidly should be maintained in peacetime.

The size of the core force, its composition and priority *viz-viz* other defence needs would appear to depend on a number of factors including:

- The type of threat and the speed at which it could arise.
 - Developments in technology, including the various types of mine, hull form, helicopters, etc., and mine hunting/sweeping equipment.
 - The availability of vessels/aircraft from non-government sources, of technical equipment, and the effort and time needed to modify the platform and fit the equipment.
 - The availability and training of crews.
- The League does not have access to the necessary information to enable firm judgments to be made on these matters and many aspects would require detailed study by the RAN. It is, however, possible to make certain broad deductions from information available to the public.

CORE FORCE

In the event of pressure of the kind referred to in the 1987 Defence White Paper (2.68; 3.5 through 3.14 and others) and in 4.5 above, pressure which could be exerted against us at fairly short notice and which would have to be met by forces-in-being, laying mines in the coastal water stretching from the vicinity of North-West Cape to Torres Strait would be an attractive proposition for an opponent. In this vast area there are some 14 ports through which pass essential commodities and vital raw materials, including bauxite, iron ore, manganese, oil and natural gas. While in some places geographic proximity would allow, at some risk, for one MCM force to cover several major assets, and some sources of supply could be abandoned, it is difficult to envisage a successful overall defence of the area unless at least five port areas and three coastal zones, including Torres Strait, could be kept open.

Current technology appears to be moving towards the development of specialised or different types of vessels for inshore and port minehunting, for mine-sweeping and for coastal and ocean mine countermeasures. A minimum of two of each type would be required to keep open

NAVAL MATTERS

each port and to sweep certain constricted ocean-approach areas. It would be desirable to make an allowance for vessels under maintenance or repair.

Based on the foregoing, requirements would be in the order of:

Cleanse Task	Inshore Hunters	Coastal Sweepers	Ocean Coastal Hunters-Sweepers
Port Areas (5)	10	10	
Coastal Zones Strips (5)			6
(Maintenance Repair)	12	12	2
Minimum Requirement	10	10	8
Desirable Requirement	12	12	8

Assuming technology can be developed to permit use of vessels taken from non-government sources (the COOP System) and that there would be time and equipment available to do this, a rough judgment would indicate that a core force of 10 mine hunters, 10 coastal sweepers and 6 ocean hunter/sweepers should be able to keep open initially 4 ports and 2 ocean-approach areas against a low-scale mining attack.



The new and the old.

Timescales for availability on task would be greatly reduced if MCM forces were based in peacetime near likely operational areas, eg, at Darwin, Fremantle or Port Hedland, or possibly Cairns. The establishment of an MCM headquarters in Sydney, however, and the desirability of exercising in southern, as well as northern, waters and the need to train RAN and RANR personnel, may require part of the force to be based in Sydney or Melbourne.

It would appear desirable, and could prove cost-effective, to develop a small force of MCM helicopters to augment the surface force, possibly using machines no longer of sufficient performance to be suitable for their major ASW and other roles. It is understood that currently there are no such aircraft available and the League considers that a thorough study

of the control and administrative aspects of manning civil registered aircraft with naval personnel and using them for naval purposes should be undertaken as soon as possible.

Similarly, the equipping, when building, of Australian-owned and registered merchant ships with facilities to enable them to be fitted with certain MCM equipment in an emergency should be investigated. This was an earlier policy thought to have been dropped some years ago.

RAN Reserve

It has been stated that Reserve personnel would have a significant, indeed a major role in MCM activities. This would certainly be so in the event that a substantial MCM effort had to be mounted and the core force expanded. However, in peacetime the League is of the opinion that permanent naval force (PNF) personnel would have to carry the main burden, including manning the core force ships. Many RANR members give a considerable amount of time to the Navy, but when all is said and done, the amount of time they can give is limited by their normal civilian responsibilities. The MCM core force needs to be very professional if it is to be effective and available at short notice.

The League envisages Reservists engaging in the planning process, supplementing PNF crews, keeping abreast of MCM technology as far as possible and preparing to play a major part in expansion, particularly of the COOP scheme. It must be remembered too, that the "active" RANR is quite small, some 1,268 members, according to the 1988 Defence Report, a large proportion of whom live in New South Wales and Victoria. The League applauds the concept, but has reservations about the feasibility unless much effort is devoted to increasing the size and capability of the Reserve. Reservists should be encouraged to spend periods of continuous training with permanent forces to increase their efficiency.

INDUSTRY PARTICIPATION

The Navy League is not in a position to comment on the capability of local industry to meet MCM needs, except to say there should be no difficulty in

NAVAL MATTERS



Tons being broken up in Sydney.

acquiring vessels in an emergency and the electronic industry should be able to supply detection and other apparatus needed. We have some reservations about the latter, due to the tendency for already large corporations (some owned overseas) to grow even larger (and fewer in number) and to spread their activities over a number of countries. Various plants become component makers, assemblers, etc, rather than doing the whole job from design to completion. This is, of course, a worldwide trend and has implications so far as the independence of many nations is concerned.

We suggest that if the need arose, it would be easier to obtain the platforms than the equipment with which they would have to be fitted and some thought could be given to stockpiling a quantity of equipment "packages".



Auxiliary Minesweeper BROLGA.

MCM PRIORITY

The Sub-Committee will no doubt be in a position to make a judgment on the need for and scope of mine countermeasures when it has examined the submissions placed before it, and to make an appropriate recommendation to the government.

So far as the Navy League is concerned, we believe the mine is a weapon that could be used against Australia in a variety of circumstances, and that the ease with which it could be used related to the damage that could result makes a significant MCM capability essential.

At the present time our ability to counter a mine threat is very limited. In the matter of defence preparedness it could be likened to Achilles' heel and we all know what happened to Achilles.

AN "OFFENSIVE" CAPABILITY

The Navy League believes that in considering mine countermeasures — and other defence preparations — thinking should not become entirely "defensive".

We are of the opinion that Australia itself should have a mining capability, both to protect our own ports and vital passages, or those of a country seeking our assistance, and as a way of discouraging a possible opponent from engaging in this form of activity. Similarly, other elements of the Defence Force should be prepared to strike at the opponent's production and storage facilities. The likelihood of retaliation can have a very calming effect on those with aggressive intent.

ROYAL AUSTRALIAN NAVY TUGS

by G. K. ANDREWS

"The Federal Government will speed up the acquisition of Navy tugs because of the debacle in which two British warships were prevented from berthing in Melbourne by union bans and poor weather.

The Prime Minister, Mr Hawke, said yesterday that legislation enforcing berthing rights, as proposed by the Fraser Government in 1982 with Labor support, was inappropriate. "But what we will do is to accelerate the acquisition of RAN tug vessels so that as far as Australia is concerned, the Navy will have the capacity to provide the facilities which in some areas it already does provide."

The Navy had planned anyway to buy a tug as a support and recovery vessel for submarine trials in Adelaide, and a number of tugs for Jervis Bay, if and when the fleet is moved there from Sydney. The tugs will be big enough to reach other ports under their own power. The Navy has tugs in Western Australia.

MELBOURNE AGE, 18 OCT 86

WITH limited assets and resources the Australian Armed Forces have given little priority to purpose-built tugs in the 80-odd years since Federation.

Tugs used by the Army and Navy have generally been seconded from other duties, although two colonial Navies had tugs on their fleet lists. Queensland bought a twin-screw tug in 1885, although the amount of extra superstructure carried suggests she was more tender than tug. Victoria had the auxiliary armed paddle-steamer GANNET from 1884. She seems to have been sold to Western Australia as a commercial tug in the last few years of the last century before working on Port Jackson from early in the 1900s. GANNET, although not apparently commissioned, was to be armed with a 6 in gun if needed.

The two Victorian Navy gunboats, VICTORIA and ALBERT, although not intended as tugs by their original owners, were used as such later in their civilian careers. VICTORIA worked as a tug for the Victorian Public Works Department. ALBERT worked as a tug for Fenwicks and is reported as having travelled as far as New Caledonia.

Three large harbour and coastal tugs were requisitioned for Naval use during WWI. CECIL RHODES, later a unit of the NSW Maritime Services Board fleet, was used as an auxiliary minesweeper in the latter part of the war, clearing mines laid off Gabo Island. The big sea-going tug CHAMPION (1895/307 tons) also worked in the Gabo area after CECIL RHODES, while the famous two-funnelled Port Phillip tug JAMES PATTERSON (1902/247 tons) swept for mines off the Victorian coast.

While not designated as a harbour tug, it is likely that the water tender RIPPLE (1904/200 tons) carried out barge and other towing for the RAN during her more than 30 years of naval use in Port Jackson.

On the West Coast the large steam tug ALACRITY (ex JEAN BART) (1893/353 tons) was used as a coastal patrol vessel and minesweeper in 1917 and 1918.

Between the World Wars any tugging required by the RAN was carried out by commercial tugs and it was not until Cockatoo Dockyard built the steam tug WATTLE as a project to keep apprentices busy during the Depression, that the RAN gained its first dedicated tug. WATTLE served as a non-commissioned harbour tug, with some trips to sea for target

towing (which the writer did not enjoy on his one and only involvement) from 1934 until she was laid up in 1970 after the arrival of the new diesel harbour tugs of the 50 ft type. After some years in use by steam tug enthusiasts on Port Jackson, WATTLE was towed to Port Phillip, where she is now in regular use as a museum ship.

The Pacific War brought maritime action closer to the shores of the Great South Land than ever before. Our merchant seamen and our naval seamen battled a naval adversary that was, initially, well-equipped and with the wind in its favour. Ships were damaged around the Australian coastline in numbers greater than in World War I. Our war effort to the north needed barges and stores ships and work vessels, some of them too small to make sea passages unescorted. Tugs were needed and the converted harbour tugs of the Depression years, many of them veterans of WWI and earlier, were inadequate. Australia's neglected shipbuilding industry worked miracles producing and repairing naval vessels. There was little capacity left for the valuable but unsung big tugs.



The 1933 vintage dockyard tug WATTLE.

Tugs to be used for or by the RAN in WWII came from civilian sources and from the amazing shipbuilding capacity of the United States of America. Commercial tugs taken up by the RAN were: ELWING (1942-7), FORCEFUL (1942-3), HEROS (1941-6), ST GILES (as required from time-to-time), WAREE (1942-6), WATO (1941-6), JAMES WALLACE (1945-7) and GEORGE DINSDALE (1945).

Tugs from non-commercial sources came directly or indirectly from the USA. Those that served as commissioned RAN ships were HMASs RESERVE and SPRIGHTLY with a third sister TANCRED, being used by the RAN as required, but not as a commissioned ship. Two large salvage ships were used by the RAN on behalf of the Royal Navy. CAMBRIAN SALVOR and CALEDONIAN SALVOR (ex US BARS II and BARS I) were used, together with TANCRED, by the Commonwealth Salvage Board on salvage and rescue work in the South Pacific. It is interesting to note that all five of these big, quickly-built American deep-sea tugs had working lives of more than 30 years, with at least two — SPRIGHTLY and TANCRED — still afloat. SPRIGHTLY served with the RAN until 1969, when she was sold. She worked on charter to the CSIRO until recently. RESERVE was sold out in 1961 and became PACIFIC RESERVE and then POLARIS. As POLARIS she was involved in the unsuccessful attempt to tow the Sydney showboat and three Newcastle car ferries to the Philippines in 1972. TANCRED became a commercial vessel in 1947 and worked for the South Australian ports authorities until the mid-1980s. The two Salvor class rescue tugs worked on in the northern hemisphere for many years. CAMBRIAN SALVOR became CARIBSCHE ZEE and her sister was later known as SUDBURY II in Canada.



The former HMAS SPRIGHTLY, arriving in Sydney in 1983.

Towards the end of the war, Australian boat and ship-building capacity caught up with demand and a considerable number of harbour tugs and short coastal tugs were built. Of these, the biggest were the 98 footers. Three served in the RAN as BRONZEWING, EMU and MOLLYMAWK. None were available during hostilities.



HTS 504, later named MOLLYMAWK.

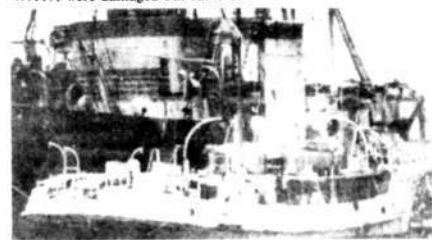


BRONZEWING, late in her career.

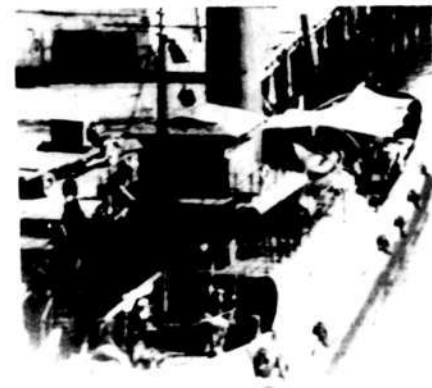
Tugs are, by nature, peaceable vessels, fulfilling their roles, generally out of sight and the public gaze. So it was with those tugs during the war. RESERVE was involved in the Mindoro Landing in December 1944, having earlier saved a damaged landing ship off the NSW coast. Perhaps the saddest duty of any of the RAN tugs came to HMAS ST GILES. Sent north of Fremantle to search for clues as to the fate of cruiser HMAS SYDNEY, ST GILES located life-rafts and lifejackets some eight days after the sea-battle. There were no survivors.

The oldest commissioned RAN ship of WWII was HMAS WATO (1904). When the Japanese attacked Darwin, WATO was in steam and working and managed to remove a loaded oil barge from alongside SS BAROSSA and was then clearing BAROSSA from alongside the burning SS NEPTUNIA when

that ship's load of depth charges went up. Both BAROSSA and WATO were damaged but survived.



HMAS ST GILES.



HMAS WATO.

The Australian Army, which had little need of watercraft before WWII, found itself with almost 1,000 vessels of many types on its fleet list by the end of the war. Many of these, indeed most, were requisitioned with a number of harbour and coastal tugs being taken over. The Army's tugs were used all around the Australian coast and in the area to the immediate north of Australia. At the end of the war the Army tug list included the following: AT71 ACME (45 ft), AT80 ACTIVE (54ft), AT99 ALEXANDRA (80ft), AT139 MERE (67ft), AT167 BUCRA (86ft), AT174 SHELL 24 (75ft), AT193 MINAH (77ft), AT197 VICTORY II (51ft), AT433 PLOVER (84ft), AT440 KEERA (85ft), AT434 ALEC (77ft). Purpose-built Army tugs were mainly of the 45ft class with numbers AT1503-1557, 1817, 2010-2015, 2239-2241, a total of 64 vessels. Most of them carried official and unofficial names, as well as their numbers. These ships were very durable, with several of them still in use in Australian ports and one, now TB1536, ex AT1536 DOOEN, is in naval use at base HMAS Cerberus in Victoria. Twelve of the type served in the RAN from 1945 with SARDIUS, the last of the naval units laying up in 1988 after about 30 years as an ammunition barge tug on Port Jackson.

The Army used a number of 75ft tugs (20) in the AT 2196-2215, 2223-2232 series. I am unable to ascertain their appearance, but they may have been US type YTM40 class.

Since WWII, the Army has operated three coastal tugs. The first of these was ex RAN MOLLYMAWK, which more recently

was the KALLISTA of Hobart. Two smaller tugs, JOE MANN and THE LUKE, were built in 1962 and in 1989 were still in harbour and coastal use. During the same period the RAN used the three tugs of the Mollymawk class and the old steam tug WATTLE. Replacement of these early diesel tugs and steamer was by the new steel 50ft harbour tugs 501, 502, 503 and 504. These ships were built in two groups, in 1969 and 1971, with 503 being transferred to the PNG Navy in 1974. They have recently been given names, 501 is BRONZEWING (2), 502 CURRAWONG and 504 MOLLYMAWK (2). The development of the base at HMAS Stirling in WA produced a requirement for two larger, naval-manned tugs, able to cope with large ships at times when civilian tugs were not available. The results were DT1801 QUOKKA (1983) of 110 tonnes and 18m and the larger DT 2601 TAMMAR (1984) 265 tonnes and almost 26m.



QUOKKA, homeported to HMAS Stirling in Western Australia.

Industrial action in Melbourne which stopped some visiting naval vessels berthing during the Bicentennial celebrations, caused an announcement by the Minister of Defence that more naval tugs will be acquired, but of this nothing more has been announced. When the depleted state of naval people resources is considered, manning such craft may well become another responsibility of the Naval Reserve.

Details of tugs used/commissioned by the RAN/Army.
OTTER, 271 gross, 1884-1946, orig Queensland Navy.
GANNET, 346 gross, 1884- (c) 1930s(?), Victorian Navy.
ALACRITY, 353 gross, 1893-1929, WWI Patrol vessel.
RIPPLE, 200 gross, 1904-1951. Water boat/probable harbour tug.

CECIL RHODES, 160 gross, 1894-?, RAN.
CHAMPION, 307 gross, 1895-1920s (c), RAN.
JAMES PATTERSON, 247 gross, 1902-1966, RAN.
WATTLE, 99 tons, std, 1934-?, RAN.
ELWING, 47 gross, 1933-?, RAN.
FORCEFUL, 288 gross, 1925- in use, RAN.
HEROS, 382 gross, 1919-1966, ex HMS ST ERTHE, RAN.
ST GILES, 380 gross, 1919-1956, RAN.
JAMES WALLACE, 188 gross, 1924-?.
GEORGE DINSDALE, 105 gross, 1913-?.
WAREE, 233 gross, 1939-46, RAN.
WATO, 292 gross, 1904-1955, RAN.
RESERVE, 570 tons std, 1942-?, RAN.
SPRIGHTLY, 570 tons std, 1942- in use, RAN.
TANCRED, 570 tons std, 1943- extant ?
CALEDONIAN SALVOR, 998 gross, 1942-?.
CAMBRIAN SALVOR, 998 gross, 1942-?.
BRONZEWING, 250 tons std, 1946- sold 1977, RAN.
EMUE, 250 tons std, 1946- sold 1967 as TENAX, RAN.
MOLLYMAWK (1), 250 tons std, 1946- to Army, then civilian.
RAN.

Other tugs chartered or in short-term naval use to 1946 include: BEAVER 222 gross, 1886; CARLOCK, 301 gross, 1929; TOORONGA, 246 gross (1922); UCO 386 gross (1919); UTA, 89 gross (1927). All the above were in use for short periods only.

RAN TB class, (c) 30 tons, 1944 onwards. Twelve in RAN support.

(Some names: SARDIUS, CERBERUS, etc.)
BRONZEWING (2), 48 tons disp 1969-. RAN.
CURRAWONG, 48 tons disp 1969-. RAN.
MOLLYMAWK (2), 48 tons disp 1972-. RAN.
DT503, 48 tons disp 1972-. Trs. PNG 1974. RAN.
QUOKKA, 110 tons disp 1983-. RAN.
TAMMAR, 265 tons disp 1984-. RAN.

Army: In Army service number order.

ACME, AT71, 45ft. Army.
ACTIVE, AT80, 54ft. Army.
ALEXANDRA, AT99, 80ft. Army.
MERE, AT139, 67ft. Army.
BUCRA, AT167, 86ft. Army.
SHELL 24, AT174, 75ft. Army.
MINAH, AT193, 90ft? Army.
VICTORY II, AT197, 51ft. Army.
PLOVER, AT433, 84ft. Army. Now rigged as S/V GOLDEN PLOVER.

KEERA (AT440), 100 gross, 1926- mid 1960s. Army.



The former Army tug AT 1536, in Naval service since the late 1950s.

AT 45ft towboat class:

AT 1503-1557, 1817, 2010-2015, 2239-2241, = 64 vessels.

Ocean tugs:

AT 2196-2215 = 20 vessels. 75ft by 18ft. Names:

CONSTANCE, CATHERINE, CAROLINE, CHRISTINA, CAMILLA, CARMEN, CLARISSA, CECILIA, CARLOTTA, CHARLOTTE, CLAIRE, CLAUDIA, CORDELIA, CYNTHIA, CLEOPATRA, COLUMBINE, CHLOE, CECILY, COLLEEN and CORALIE.

I have no other details, particularly of appearance of the Army "C" class tugs and would appreciate being enlightened. Perhaps they were ex US YTM40 class, whose dimensions are similar and of which a number worked commercially in Australia post-war?

MOLLYMAWK (1), see RAN entry above.

JOE MANN, 60 tons disp 1962-.

THE LUKE, 60 tons disp 1962-.

As always, I would appreciate contact with anyone who can improve my knowledge on the subject. Photographs on loan are particularly invited. I have reports of "tugs" used by the RAN, BENDIGO and PHAROS. I cannot trace these as tugs.

NEW SOVIET CARRIER

Satellite photographs of the new Soviet carrier TBILISI provide a starting point for a detailed analysis of the air group the ship is designed to operate.

The drawings, based on the satellite photographs and assessments made by United States Naval Intelligence, reveal a flight deck broadly similar to that of current US Navy carriers, but with two major differences.

The first is the provision of a ski-jump above the bow. The second is that there appears to be no deck-edge lifts to port, and only two to starboard.

Previous artists' impressions have always shown a third lift inboard of the island, and there is certainly sufficient space for one between the island and the angled deck.

However, the lift-well might have been expected to show up as a dark shadow on the photograph at this stage of construction.

The number of lifts installed in a carrier is generally related to the size of the air group. If the Soviets persist with their previous policy of carrying only as many aircraft as can be accommodated in the hangar, TBILISI's air group will be significantly smaller than that of US super-

carriers, which operate with a permanent deck park.

Since a centre-line lift would encroach on both the hangars, reducing the number of aircraft which could be carried topside, two deck-edge lifts would appear to constitute a neat and elegant solution.

The deck-edge lifts, at approximately 22m long and 14m wide, appear to have been sized to accommodate the Su-27 "Flanker", the largest of the aircraft under consideration to operate from the carrier.

The forward lift is well-placed to support flying operations from the axial flight deck, and the after-lift to support operations from the angled deck.

Both lifts probably have small weapon lifts in close proximity, and there may be additional lifts close to the superstructure, the magazine hoists running between the hangar and the sides of the ship.

The hangar itself would measure 180-185m x 30m, and would be broadly rectangular.

With a length of approximately 21m (excluding probe) and a wingspan of 14.5m, the "Flanker" is comparable in size to the United States Navy's F-14

Tomcat, though the "Flanker's" span could be reduced to approximately 10m (as in the hangar view) by the adoption of a folding wing.

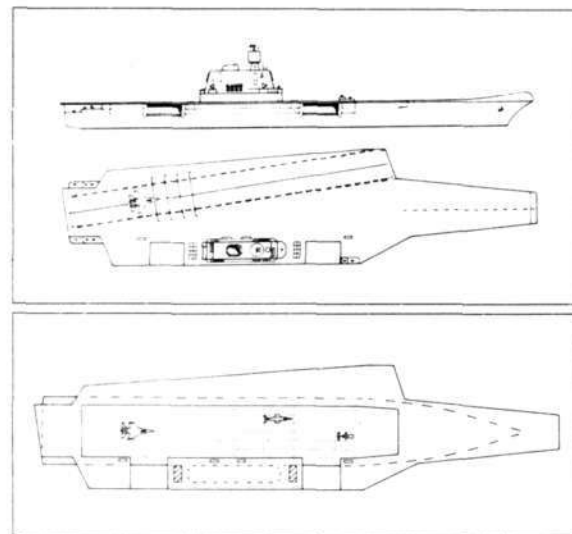
Even though the schematic representation shown in the drawing is not the most economical way of stowing this aircraft, it would appear that two vertical take-off/landing (VTOL) Yak-41 "Forger" derivatives (or three Ka-27 "Helix" helicopters) could be accommodated in place of one Su-27.

A single squadron of 12 "Flankers" would take up 45 per cent of available hangar space, making it unlikely that more than 12 "Flankers" could be carried without resorting to a permanent deck park.

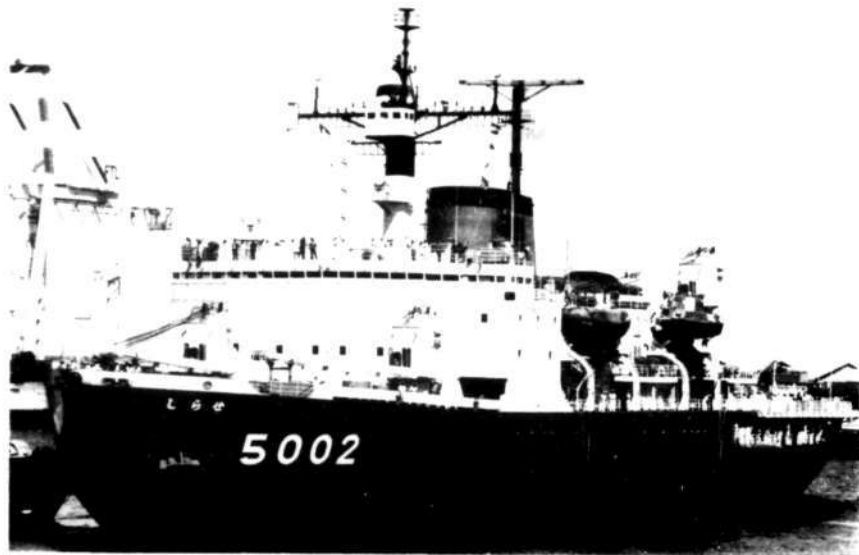
The lower of the three drawings gives a schematic representation of the sort of air group which might be accommodated in the hangar.

The most likely peacetime complement, assuming that TBILISI has a conventional take-off/landing (CTOL) capability, would be a squadron of 12 "Flankers", a squadron of 12 Yak-41 VTOL aircraft, a squadron of 15-18 Ka-27 "Helix A" anti-submarine helicopters, plus a handful of other, general purpose helicopters.

Profile and plan of the Soviet carrier.



▲ Conjectural profile and plan views of the new Soviet carrier. The bottom drawing shows "Flanker" rear. Ka-41 in the middle, and Ka-27



Japanese Icebreaker "SHIRASE", Fremantle 28/11/88.



Papua-New Guinea Patrol boat HMPNGS SEEADLER departing HMAS Stirling on her delivery voyage 30/11/88.



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The PLA Navy's 'Luda' Class Destroyers

by ANTHONY PRESTON

The PLA Navy operates 16 Type 051 destroyers, forming the main strength of the surface fleet. Known as the "Luda" class from the parent shipyard in the twin cities of Lushun-Dalian, the first, No 105, was commissioned in 1971 and the last, No 165 four years ago.

The design is very similar to the Soviet "Kotlin", with two twin 130mm guns (one forward and one aft), four twin 57mm AA and four twin 37mm AA mountings. However, the "Ludas" differ from the Russian ships in having two triple rotating sets of CSS-N-2 anti-ship missile-launchers, one forward and one abaft the second funnel. The CSS-N-2 missile is more correctly known as HY-2, and is derived from the Soviet SS-N-2 Styx.

The first ships were built at Luda, but production was then allocated to Guangzhou and Chunghua, near Shang-hai. The 105-112 serve with the North and East Sea Fleets, Nos 131-133 are with the East Sea Fleet, and Nos 160-165 are with the South Sea Fleet (less No 162, lost by an explosion in 1978).

Eight years ago the PLA Navy was negotiating with British companies to put together a modernisation package. This would have included a complete rebuild to accommodate modern electronics and the canister-launched version of the Sea Dart GWS.30 area defence SAM. Shortage of foreign exchange and a political shuffle which cut back naval expenditure put an end to what would have been a most interesting retrofit. However, in 1987 the first of class, No 105 completed a local modernisation. The after twin 130mm mounting was replaced by a helicopter flight deck and hangar for a SA-365N Dauphin helicopter. The triple HY-2 missiles were replaced by quadruple C.801 anti-ship missiles, and the forward 130mm mounting has given way to a twin 100mm gun of newer design. Reports suggest that the French Naval Crotale short-range air defence missile may be added to later ships as they come up for modernisation to the same standard.



A PLA Navy Luda class destroyer.

A number of ILAS-3 triple anti-submarine torpedo-launchers bought in 1985 may be destined for these ships.

PARTICULARS

Displacement: 3900 tons (full load)

Dimensions: 131 x 13.7 x 4.6m

Machinery: 2-shaft geared steam turbines, 60,000 shp

Speed: 32kn

Missiles: 6 HY-2 SSMs (2 x 3)

Guns: 4 130mm L/58 (x 2)

8 57mm L/70 AA (4 x 2)

8 37mm L/63 AA (4 x 2)

ASW weapons: 2/4 DC projectors

2 FQF 2500 rocket-launchers

Fuel: 850 tons/5000nm @ 14 kn.

Complement: 350

Mystery Ship — HMAS ADELAIDE

The "mystery" ship of the Australian Navy is (says the Sydney "Daily Telegraph" the cruiser ADELAIDE, now being finished at Cockatoo Dock. For many months the finishing-off process has occupied the attention of the highly-paid mechanics, and so comfortable is the job that it is expected that many more months will pass before the ADELAIDE speeds away on her trial run down the coast.

The story of the ADELAIDE's construction is a wonderful example of how not to build a cruiser quickly. She left the slips and entered Cockatoo Dockyard in 1918. Early in 1919 was the time set down for the trial spin. The mechanics went to work in the usual way, but as the months slipped by the ADELAIDE somehow did not take on the finished aspect her builders had hoped to see. The joke of the yard came to be: "When will the ADELAIDE be completed?" Reputations were lost on this gamble in guessing, and the cruiser was put in the same class as the South Australian capital; it was nicknamed "The Slow". But it was no joking matter, all the same, as the piling costs showed. Original estimates were exceeded, and the ultimate cost was a thing not to be thought of — it was too dreadful.

The date of the trial was changed once, twice, thrice, until eventually it was set down for March 1921. But while all these extensions of time were being granted, and the construction of the vessel was being prosecuted with the velocity characteristic of the snail, the cruiser had become obsolete. That is, it would be no use in a war. It has become a naval dead-beat.

But that was a mere detail. There was money to burn, and

so it was burnt. The banknotes are at present "burning" at the dockyard on the creation of the ADELAIDE, and only the optimists in that busy believe the vessel will ever be finished. The pessimists reckon it will never do its trials.

The job is reputed to be so fascinating that the workers do not wish to leave it. They have grown to love their dear old ADELAIDE, and the parting would be too sad. So they tap her gently, and cease labour in order to contemplate the future of this thing of iron. This personal regard for a thing of such impersonality would be an affecting contemplation. The ultimate cost will, with tyrannical certitude, climb high upon £1,000,000. One million pounds for a cruiser which, when completed (if ever), will be obsolete, is a record hard to beat in naval construction.

Laid down — January 1915.

Completed — August 1922.

Cost to build — £1,271,782.

Extract from "The Mercury" (Hobart), 27/12/20



HMAS ADELAIDE, in Farm Cove, before her completion.

NEW ERA OPENS FOR SYDNEY SAILORS' HOME

Nearly 125 years of service by the Sydney Sailors' Home to the Port of Sydney, to shipping companies and to succeeding generations of seafarers of all nationalities begins a new phase next year with the expected completion of a retirement complex for ex-seafarers at Woolloomooloo.

The development, to be known as "Mariners Court", will occupy a site between McElhone and Brougham Streets.

It will be a low-rise, landscaped three-storey complex with accommodation for 40 residents in serviced single rooms with private facilities attached and each "pair" of rooms will have provision for an interconnecting door, if required.

All meals will be provided and served in a separate communal dining room and there will also be a lounge, a library and other residents' amenities, including telephone points and TV aerial outlets in every room, optional security car parking and a resident warden.

To be eligible for allotment of accommodation in "Mariners Court", applicants must be over the age of 55, male or female, and have had Merchant Navy or naval service.

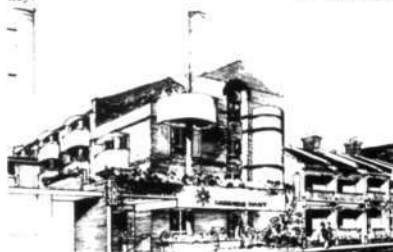
Subject to the views of the Trustees, successful applicants will make a "base payment" and this amount will be

refunded when the applicant leaves "Mariners Court", less a deduction as a management fee.

There will also be a weekly maintenance fee payable by all tenants and, in the case of old-age pensioners, this amount will not exceed 85% of that pension.

HISTORY:

The Sydney Sailors' Home is an integral part of the maritime history of Sydney.



In 1860, following representations by a citizens' committee, the New South Wales Government promised a site at Circular Quay on which could be built a sailors' home where seamen could, at

reasonable cost, obtain comfortable board and lodging.

A successful public appeal raised the necessary funds and the home was opened in 1864.

This building, now vested in the Sydney Cove Redevelopment Authority, still stands to this day.

In 1919, the Sydney Sailors' Home was incorporated in New South Wales as a limited company and four years later title

to the land on which the home stood was given, by Crown Grant, to the company.

Having for more than a century provided accommodation for ships' crews, progress finally caught up with the Sailors' Home in 1972, when the land was resumed by the Sydney Cove Redevelopment Authority and the Sailors' Home was suddenly in danger itself of becoming homeless.

Fortunately, after leasing some temporary accommodation for the

residents of the Circular Quay property, a small residential in Paddington was acquired.

These events, however, coincided with rapid and widespread change in the shipping industry, one effect being that there was now little demand for the type of

accommodation the Sailors' Home traditionally had offered.

After much research and enquiry, the directors decided that the most appropriate avenue for their efforts and resources would be to provide long-term accommodation for retired seafarers and their dependants.

"Mariners Court" at Woolloomooloo is the outcome.

Enquiries from prospective tenants are welcome and may be made by contacting the Chief Executive of the Sydney Sailors' Home, Mr Bryan Rowland, on Sydney telephone (02) 419 4362.

Readers continued

until October, 1944, that it could actually be fitted to them. As it turned out, the early introduction of the "Squid" would have caused unacceptable delays to the RAN building programme.

This decision was made in part as it was initially not known if the Australian ships would have been suitable without major modification to fit the equipment, lack of suitable installation drawings and expected delays in delivery of the prime equipment.

The "Hedgehog" anti-submarine weapon was fitted on RAN "Bay" class, consisting of Cullgoa, Condamine, Murchison and Shoalhaven. It was a vast improvement over the use of depth charges alone as an anti-submarine weapon, as it was an ahead throwing weapon, hence submarine could be kept "in contact" with the ship's Asdic (sonar) during an attack. It fired a large pattern of small projectiles that exploded on contact with the target's hull.

With the introduction of the "Squid" it provided a quantum improvement in effective kill range and performance over the "Hedgehog". The "Squid" fired a pattern of three large mortar projectiles ahead of the ship that detonated at a pre-determined range and depth. This weapon was to prove itself in the latter days in the Battle of the Atlantic.

An initial order of nine "Squids" was placed for the eight "River" class, with the ninth being a Reserve outfit. These were fitted by the early post-war period.

Yours sincerely
TREVOR WEAVER
Garden Island

Dear Sir,

I happened to pick up a copy of "The Navy" (Oct-Dec '87) recently at my local library.

What attracted me was the cover photo of the Williamstown Naval Dockyard, which was where I served my Instrument Making Apprenticeship in the late 1960s. Thinking there was an article on the Yard inside, I flicked through it and much to my delight and surprise, I saw the article on the "Galloping Green Ghosts" of 32 Small Ships Squadron, which is where I spent my National Service period in '70-'71.

I sailed on the "Clive Steel" on her last trip to Vung Tan, as a deckhand, and which was, as reported, an eventful trip!

Although we lost the stern anchor on the Darwin Vung Tan leg and not after leaving Vung Tan, as stated, this article was of great interest to me, especially since I have practically no pictures of the ships or the Unit and had not come across any published record of them either.

I also sailed as a deckhand on "John Monash" on two trips to Vung Tan, although she was more of a coastal trader in appearance, but served the same job of ferrying supplies, etc. Have you recorded anything of her in your publication?

Now to get to the point of my letter. I would be most grateful if you could send me two copies of this edition to the below address.

Many thanks,
STEVE MONK
Crystal Creek
via Murwillumbah
NSW, 2484

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WASP (LHD 1) CLASS AMPHIBIOUS ASSAULT SHIP

WASP is the lead ship of the all-new LHD 1 class of multipurpose amphibious assault ships — the Navy/Marine Corps team's newest class of amphibious support warships. The class has as its primary mission the embarkation, deployment, landing and support of a Marine landing force.

In carrying out this mission, LHD 1 will mount an assault of helicopters, landing craft and other amphibious vehicles in various combinations. The WASP class is the first specifically designed to accommodate the air cushion landing craft (LCAC) and Harrier II (AV-8B) STO/VL (Short TakeOff/Vertical Landing) jets, which will provide close-in air support of the assault force. The ship will also accommodate the full range of Navy and Marine Corps helicopters, conventional landing craft and amphibious vehicles.

Outfitted for her primary mission, WASP will carry a mix of assault helicopters, plus six to eight Harriers. The ship's design provides for a full intermediate and organisational aircraft maintenance capability for the aircraft intermediate maintenance department and the embarked landing force squadron. Additionally, flight deck optical and visual landing aids have been integrated to optimise the requirements of both rotary wing and jet aircraft.

WASP class ships are 844 feet long, with a beam of 106 feet. Two steam propulsion plants, developing a combined 70,000 horsepower, will drive the 40,500-ton ship to speeds in excess of 20 knots.

LHD 1 will have more than 22,000 square feet of vehicle space, and 100,000 cubic feet of cargo space. Accommodations for nearly 3,000 troops and crewmembers (the crew numbers 98 officers and 983 enlisted personnel) are provided in the ship's living areas. For combat support, as well as humanitarian missions, LHD 1 will have six fully-equipped operating rooms and a 600-bed hospital.

On February 28, 1984, the US Navy awarded a construction contract for WASP (LHD 1) to Ingalls Shipbuilding division of Litton in Pascagoula, Mississippi. LHD 1 will join the fleet in early 1989.

On September 11, 1986, Ingalls won the competition for the first three follow-on ships of the class, ESSEX (LHD 2), KEARSARGE (LHD 3) and the as yet unnamed LHD 4.

Ingalls and the Navy actually began preparing for the construction of LHD 1 in 1981. Along with Navy and Marine Corps fleet and staff personnel, Ingalls

representatives participated in a team effort to develop the preliminary and contract designs of the new ship class. This unique teaming of military operations experts with industrial engineering technology early in the design has greatly enhanced the amphibious operations potential of this new class of ships.

The new class is the sixth amphibious assault ship programme in which Ingalls has been involved since the early 1950s. Most recently, the five ships of the TARAWA (LHA 1) class were delivered to the Navy by Ingalls between 1976-80. The TARAWA class provided much of the baseline from which the design of the all-new WASP class was developed.

Major highlights of the WASP (LHD 1) class ship design include:

THE ASSAULT SYSTEM

The development of air cushion landing craft technology, as embodied in the LCAC, introduces high speed and long-range capabilities into surface amphibious assault, significantly improving the match between the helicopter and surface-borne assault. The LCAC provides high-speed (40 knots), heavy-lift (60 tons) means for ship-to-shore movement of cargo, equipment and personnel. The new craft operates on a cushion of pressurised air, and can deliver its cargo to points above the high-water mark — unaffected by beach features and surf conditions. The craft can clear obstacles as high as four feet.

The LCACs are 87 feet, 11 inches long, with a beam of 47 feet. The cargo area is

67 feet by 27 feet. A crew of five is required to operate the craft. Main propulsion is provided by four gas turbine engines.

The LCAC's range allows over-the-horizon launch and delivery of assault forces and equipment. Additionally, weather, sea and surf conditions are much less a factor in LCAC operations than in operations of conventional landing craft.

The well deck, designed specifically for the "fly in/fly out" capabilities of the LCAC, features an LSD/LPD type stern gate, utilising LSD 41 hydraulic systems, lower doors and well deck width, and an LPD upper door. The 50-foot wide well deck will accommodate three embarked LCACs, and can be ballasted down for operations with conventional landing craft/assault vehicles.

Six shipboard cargo elevators will transport supplies and material from storage areas throughout the ship to the well deck, hangar deck and flight deck for offload onto landing craft or helicopters for transport to the assault area. Both flight deck and well deck operations may be conducted simultaneously.

The unprecedented quick-strike capability of the Harrier II provides the assault force with close-air support with maximum firepower available. With the basing flexibility of a helicopter, the Harrier II is a logical choice to support LHD 1's embarked assault team.

ARMAMENT

The LHD 1 armament system includes

the NATO Sea Sparrow Surface Missile System (NSSMS) for anti-air warfare protection, three Phalanx Close In Weapon System (CIWS) mounts to counter threats from low-flying aircraft and anti-ship missiles and eight 50-calibre machine guns for defence against close-in small craft. Four missile decoy launchers provide anti-ship missile defence. Miscellaneous armament provisions include lockers for storage of ordnance, which have been upgraded to the latest high-

security requirements. This configuration reflects the LHD's over-the-horizon capabilities and mission support.

COMMAND, CONTROL, COMMUNICATIONS AND INTELLIGENCE (C/I)

The Command, Control, Communications and Intelligence (C/I) functions are located in the hull (rather than inside the superstructure) of LHD 1, greatly enhancing ballistic protection by sur-

rounding C/I spaces with structural steel bulkheads, decks and shell plate. LHD 1's C/I capabilities are greatly enhanced over other amphibious assault ships, with new systems installed to support the embarked flag during amphibious operations, as well as secondary mission roles. A sophisticated intelligence system and a data display system for strategic data display and processing are included.

Large screen displays are located in CIC, Landing Force Operations Centre



Moving towards her launch, July 1987.

The first of the new LHDs, USS WASP prior to her launch.



Fitting out.

Under way for the first time.



First construction of the USS ESSEX, second of the class.

(LFOC), and a flag plot to enhance tactical operation. Other planned automated C/I systems include the Marine Tactical Amphibious Command Control System (MTACCS) dedicated to support the landing force commander in the Landing Force Operations Centre (LFOC). MTACCS will provide real-time displays of the operations ashore and in the air during amphibious operations.

The air traffic control capability of the WASP class has been specifically assembled to support simultaneous Harrier II/helicopter operations. Special displays are installed to monitor air control functions. A general upgrading of capability is provided by the addition of various computer-driven subsystems, automated status boards and improved displays. The addition of high-data-rate, low-probability-of-intercept communications, and the installation of the Joint Tactical Information Distribution Systems (JTIDS), will enhance this capability.

The LHD 1 exterior communication system features the first US Navy installation of broadband HF transmitters and receivers that provide a frequency-hopping capability in the 2-30 MHz range and greatly reduce the required number of transmitting antennas.

SURVEILLANCE

The LHD 1 surveillance systems provide integrated automated detection and tracking. This capability provides a single highly accurate radar presentation for high confidence threat assessment. Radar equipment located within the superstructure will be protected with composite ballistic protection to achieve maximum fragmentation protection.

FACTS AND FIGURES

WASP (LHD 1):

WASP designed utilising computer-generated detail design drawings created for each ship section. These state-of-the-art design drawings, used in concert with the revolutionary modular construction techniques pioneered by Ingalls, produced a ship that was approximately 70 per cent complete when launched. Modular construction of the ship in five sections featured extensive pre-outfitting of machinery, hardware and equipment prior to those sections being joined and the hull closed.

WASP built utilising more than 21,000 tons of steel, 400 tons of aluminium, 400 miles of electrical/electronic cable, 80 miles of piping and tubing of various types and sizes, and 10 miles of ventilation ducting. In preparation for LHD 1's launch, more than 16,200 gallons of paint were applied to the ship's exterior hull.

WEIGHED more than 29,500 tons when moved onto Ingalls' floating drydock on July 30, 1987, for launch on August 4, 1987, becoming the largest man-made object ever tolled across land.

IS 788 feet long at the waterline, 819 feet long at the flight deck, and 844 feet (almost three football fields) long overall; has a beam of 106 feet (just three feet less than the narrowest point in the Panama Canal); and displaces 40,500 tons when fully loaded. The ship has 2.2 acres of usable flight deck area.

IS the first ship specifically designed and built to accommodate the Harrier II Short TakeOff/Vertical Landing (STO/VL) jet aircraft and the newly-designed air cushion landing craft (LCAC).

IS designed to transport, put ashore and support a Marine landing force, as well as its combat and support equipment, utilising the unique capabilities of the LCAC and Harrier II, as well as the full range of Navy/Marine Corps helicopters and landing craft.

IS equipped with highly automated war-fighting capabilities, arrayed in three closely-related systems: The combat system, which includes air- and surface-search and fire control radars and computer systems, electronic warfare systems; the Integrated Tactical Amphibious Warfare Data Systems (ITAWDS), and a unique, computer-controlled internal/external communications system.

HAS an internal communications systems consisting of 800 telephones, 78 sound-powered telephone systems, 16 intercommunication and announcing systems, an internal radio system, three video recorders, 54 receivers, 179 TV outlets, and a complete audio-visual system with 16mm film, slide display and video recording equipment for shipboard distribution of live or taped broadcasts.

HAS an exterior communications system which includes 27 transmitting channels, 42 receiving channels and 43 transmitting or receiving channels — in frequency ranges from below broadcast band to ultra-high frequency. High-power transmission reaches about 36 kilowatts — the equivalent of an average-size commercial FM radio station.

HAS 24 antennas for interior and exterior communications controlled by a computer for circuit designation and channel assignments.

HAS the capability to perform as the command ship for an Amphibious Task Force (ATF). Living quarters for the Landing Force Commander (LFC) and his staff are immediately accessible to all Command and Control centres.

HAS the first Combat Simulation Test Set which, utilising fibre-optics technology, rapidly tests elements of the combat system and provides continuous crew training capabilities.

HAS an assault support system that synchronises the simultaneous horizontal and vertical flow of troops, cargo and vehicles throughout the ship. Two aircraft elevators service the hangar and

flight decks. Six cargo elevators, each 12 by 25 feet, are utilised to transport material and supplies from cargo holds throughout the ship to staging areas on the flight, hangar and vehicle storage decks. Cargo is transported to waiting landing craft docked within the ship's well deck via a monorail system. Helicopters in the hangar or on the flight deck are loaded by forklift.

CAN ballast over 15,000 tons of seawater for trimming the ship during landing craft launch/recovery operations in the well deck. Has 1,500 compartments, ranging in size from six sq ft well deck and 15,000 sq ft hangar deck.

HAS medical and dental facilities capable of providing intensive medical assistance to 600 casualties, whether combat-incurred or brought aboard ship during humanitarian missions, while providing routine medical/dental care to all embarked ship and troop personnel. Major medical facilities include four main and two emergency operating rooms, four dental operating rooms, X-ray rooms, a blood bank, laboratories, and patient wards. In addition, three battle dressing stations are located throughout the ship, as well as a casualty collecting area at the flight deck level. Medical elevators rapidly transfer casualties from both the flight and hangar decks to the medical facilities.

HAS crew and troop berthing on the same deck level, with galleys and mess facilities nearby. Berthing areas are subdivided to provide semi-private spaces, without adversely affecting efficiency. Deck and wall coverings are decorative, but also serviceable and easy to maintain. Mess facilities facilitate rapid feeding in a restaurant atmosphere.

IS equipped with on-board recreational facilities, such as a library, recreation room, hobby shops, and closed circuit television facilities located throughout crew and troop quarters.

HAS two propulsion boilers — the largest currently in operation in the US Navy — generating a total of 400 tons of steam per hour. The propulsion system develops 70,000 shaft horsepower, powering the ship to speeds in excess of 20 knots. If the energy of the two boilers were converted to electrical power, that energy could supply a city of 160,000. Has a fuel distribution system capable of receiving/transferring 360,000 gallons per hour.

HAS electrical power sub-system developing 16,500 kilowatts to provide electric power for the ship — adequate electrical power to light 13,500 homes.

HAS 1,500 tons of air-conditioning equipment — sufficient to environmentally control a 32-storey office building or 500 average size homes.

HAS the capability to create enough fresh water each day to supply the normal needs of 7,800 people.

'AUSTRALIAN DEFENCE FORCE STRUCTURE' A Procurement Philosophy for the RAN

By Peter Scott-Maxwell, DSC & Bar

The following article is the gist of a paper prepared by Mr Peter Scott-Maxwell and considered by the Federal Council of the Navy League at a meeting in late 1988.

The paper was accepted by the Council and passed to the Navy for study. Peter Scott-Maxwell is a professional engineer. He is a former Royal Navy submarine officer, twice decorated in World War II, a builder of naval vessels and former Managing Director of a major Australian engineering and shipbuilding company.

Though the Defence of Australia White Paper, dated March 1987, describes itself as a "policy information paper", there is no mention of a procurement policy. By that, I mean quality versus quantity, and how much is enough?

According to the UK Maritime Strategist Rear Admiral J. R. Hill, the UK defence force is typical of a medium power, therefore the ADF is either a small power or at best an aspiring medium power.

If you are a large or medium power, you can afford to have more specialised units in all branches of the service through procurement diversification. It is more a matter of economics than strategy. If one cannot afford to diversify as much as one would wish, one must endeavour to make each unit as versatile and capable as possible.

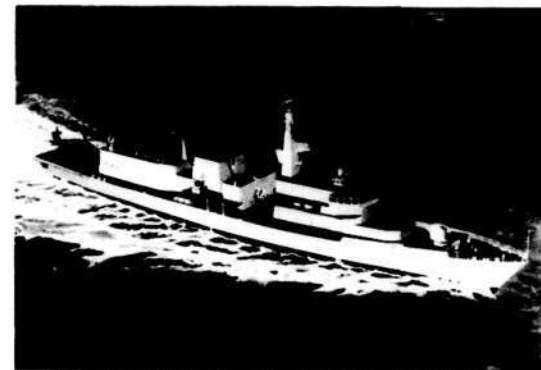
Has the Department of Defence got a rationale to guide its procurement policy and still keep within a diminishing budget? Dibs had a shot at a rationale which was subsequently overtaken by events, and we are now a regional power. This changes the procurement scenario more than somewhat — how to give the ADF a regionally adequate range or reach, by sea and air. Does the three-tiered concept still apply or has it too been overtaken by events?

The so-called three-tiered concept is a convenience to cover the status quo. I am proposing a two-tiered Navy, comprising patrol boats of different sizes, as required, and one other class of surface warship to replace all the older destroyers, and the DDGs and the FFGs. These US Navy designs must be very expensive to run and many by modern standards and need not be replaced — even if we could afford to do so.

The logistic advantages of concentrating on a one class replacement warship, quite regardless of whether the New Zealand Navy comes to the party or not, are almost limitless. The future wellbeing of the RAN in a budget sense, will come

COPTER CARRIER CONCEPT

There are so many essential roles helicopters can satisfy these days — ASW and AEW, to mention only two — that to limit the flight deck capacity to only one of any sort, is dangerously restrictive. Which does one choose when you need both? The only answer is to provide flight deck space for two and without being specific about actual dimensions, let us say this can be achieved by increasing the displacement by about 500 dwt, or 17%. The total cost does not increase by this amount, as the hull of a



Type 23 Variant; 3600 dwt, two Seahawk helicopters and RAST system.

of over 3000 dwt standard displacement. But is this displacement adequate to meet all the known and yet unknown demands likely to be made on them over the next 30 years or more? Granted, weapon fits and allied electronic equipment can be updated during the life of the ship, but one cannot readily enlarge the hull to take TWO helicopters when originally, only one was provided for. Warships have been stretched under special circumstances, but I am sure most naval architects would not approve!

warship of this class represents only about 15% of total cost, including allied services. If this figure is increased to say 20%, to include additional services, and this is being generous, the total cost increase is only about 3%. In a surface warship, the cost of the complete weapon system and the complete main machinery installation equals about 70% of the total cost. This 3% is less than one year's inflation if the Treasurer gets it right, or about four months if he gets it wrong! Even if it comes out at about 5%, that is

not excessive for the extra capability made available.

ASW ROLE

The ASW role of future general-purpose warships will be a very important one. I do not think anybody will deny that and the future ASW weapon system will be shipborne helicopters carrying active sonar and light-weight torpedoes. 3000 dwt or thereabouts, seems barely adequate considering the vital importance which is going to be placed on shipborne helicopters.

The US Navy have stated that the future of passive sonar as an ASW measure is very much in doubt, as the latest Soviet nuclear submarines are now very much quieter than they were and will no doubt continue to get quieter. They also have stated that because of this, the possible demise of their hunter-killer nuclear submarines must be considered, as they were most dependent on passive sonar. This is a staggering statement considering the billions of dollars that have been expended on the SSNs by both the US Navy and the RN.

Likewise, towed arrays which feature a passive sonar can no longer be depended upon as an ASW measure, unless an active transmitter is somehow added. The solution to this problem is in-hand apparently. Rapid communications between surface, sub-surface and air will be the order of the day and here again, helicopters using dipping active sonar buoys will be the essential link when attacking enemy submarines with aerial torpedoes, or communicating with our own submarines during their attack.

The future ASW scenario has completely changed for a navy operating in comparative isolation in the vast stretches

of the Pacific and Indian Oceans, such as the RAN. It cannot possibly rely on surface warships, which can only carry ONE helicopter. Availability of one, YES! Only one, NO!

Whether one likes it or not, submarines will **always** be a potential threat. The lessons of two World Wars should have taught everybody that lesson. We have no land-bridges with any of our essential sources of supply and so, our sea lanes and harbours will always be at risk.

THINK AGAIN!

It is still not too late for the Department of Defence and the RAN to reconsider exactly where they are going and what sort of surface Navy they will require in the not too distant future. Prevailing concepts for the weapon platforms seem to favour hindsight, rather than foresight. Perhaps they need a new crystal ball, which I will be pleased to supply!

The issue is so important, that it merits a *special design*. Warships designed for NATO requirements are most unlikely to be equally suitable for our vast ocean expanses. They are just not big enough, as I have endeavoured to argue to satisfy my versatility requirements. A great deal of work has been put into the design that I am advocating by a well-known warship builder on the Clyde. It was a special variant of the Yarrow type 23. It seems more than just a pity to let all this expense and effort go by the board, just because it was not "an existing design".

ELECTRIC PROPULSION — CODLAG

With the possibility of a rethink — I hope — it is maddening to have to refer to another American Admiral Tross to

support of electric propulsion. This is already a reality in the Type 23 Frigate, as illustrated, building in Scotland by Yarrow Shipbuilders for the RN. The flexibility of the CODLAG configuration (combined diesel electric and gas turbine) has everything to commend it, both operationally and from an installation point of view. Be with it!

CONCLUSION

What is the logic in procuring the latest and best helicopters if you cannot take them to sea in the right mix? An enormous amount of effort is being put into developing vertical take-off aircraft, both in the USA and Europe, for every conceivable role. Yet the RAN are apparently prepared to restrict themselves to the choice of one helicopter per ship, when we will never have many warships in one place at one time.

The Department of Defence is in effect buying NATO warships where they can combine to put every type of helicopter to sea at any one time. All we have here is one powerful ally and a few, we hope, friendly neighbours, no NATO equivalent as yet and maybe not for a long time. We are on our own.

I would like to conclude with a quote from Admiral Hill's recent address in Canberra, as published in the journal of the ANI, May 1988.

"If I have a criticism of Australian maritime policy, it is not on the strategic side, but on the implementation of the strategy in material terms. *Is that well-judged area of interest covered by a force that can be sufficiently brought to bear?*"

I take this to be a polite way of saying that the ADF is inadequate, without being specific! It would have been most informative if he had chosen to be much more definitive.

HMAS DERWENT — Keeping Busy



Firing the .5 inch 50 cal machine gun.



Communications, an essential ingredient in any modern fleet.



Fixing the ship's position off the coast.



A Seacat Aimer directing a Seacat Sam onto its target.



After commissioning: HMAS PALUMA on trials, February 1989.



After gunnery practice: OFL 1202 sinking, 7th February, 1989.



Practising a medical emergency during a ship's work-up.

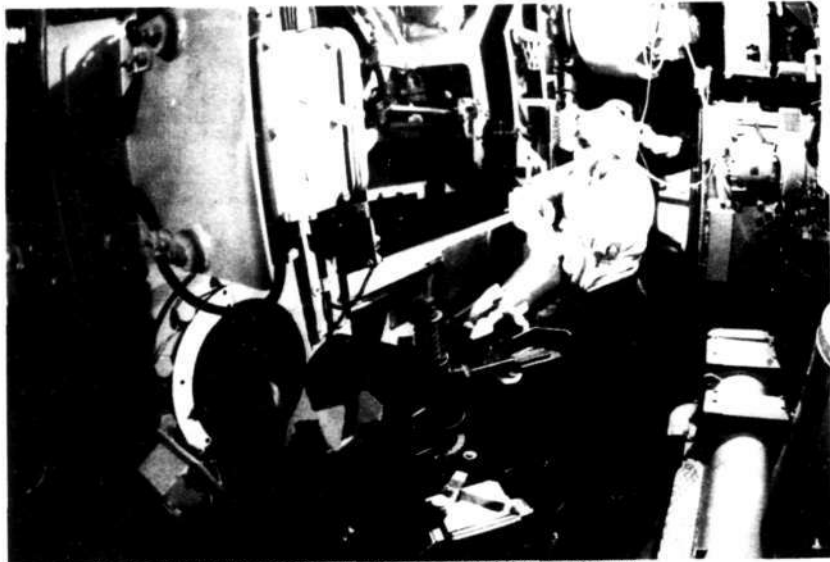


There are some things you just can't practise.

HMAS DERWENT — Keeping Busy



Two junior sailors working in the gunbay of a 4.5 inch gun mount.



Loading the shell hoist with 4.5 inch ammunition prior to being hoisted into the turret.

HMNZS MANAWANUI Diving Support Vessel for Navy

A replacement for the Royal New Zealand Navy's diving tender (HMNZ DT), MANAWANUI, has now entered service.

She is the former STAR PERSEUS, renamed HMNZS MANAWANUI, a purpose-built diving support vessel for North Sea operations.

The cost of the vessel, including delivery voyage expenses, was \$1.6 million, a saving of \$400,000 on the original budgeted cost.

The earlier MANAWANUI was built in New Zealand and entered service in 1978. Since then, the support requirements of diving have changed considerably, with the expansion of the roles of the Navy's Operational Diving Team.

The vessel's design meant that deeper diving could not be undertaken without the presence of another vessel carrying additional compression chambers and associated equipment. She was also unable to deep moor and therefore could not safely support deeper diving and recovery operations.

In response to a registration of interest to select a consultant to assist with the introduction of a diving support vessel, over 100 replies were received worldwide.

A tender was then issued to a short-list of six companies — two in New Zealand, three in the United Kingdom and one in Sweden — from which Ocean Fleet (UK) Ltd was chosen. A number of potential vessels were investigated and four were identified for subsequent detailed inspection.

The Minister approved the purchase of the new MANAWANUI on 5th November, 1987. After looking at ships in Dundee, Leith and Glasgow, the STAR PERSEUS, owned by Star Offshore Services UK, was selected. She was built in 1979 by Cochrane Shipbuilders Ltd, of Selby, Yorkshire, operating principally from the port of Lowestoft in support of diving operations in the North Sea. With the changing nature of underwater operations associated with the oil industry the ship was laid up in October 1987 and made available for sale in early 1988.

Brief Details:

Length overall: 43.96 metres.
Beam: 9.50 metres.
Draft: 3.30 metres.
Gross Registered Tonnage: 498.7 tonnes.
Net Registered Tonnage: 153.0 tonnes.
Displacement: 911.0 tonnes.
Main Engines: Two 565 BHP 8 cylinder Caterpillar Diesels.
Propulsion: Two variable pitch propellers and two rudders. The ship also has a Bow Thruster unit.
Power Supplies: Three alternators are fitted with a total capacity of 394 kW.

Speed: The ship has a service speed of 10 knots and a range in excess of 5,000 nautical miles.

Navigation: Sperry Gyro and automatic pilot, satellite Navigation system, two radars, echo sounder, and various radios.

Cargo: The after deck has space to carry up to 150 tonnes of cargo and tie-down points for securing containers.

Although small, the ship is remarkably well fitted out. The air-conditioned accommodation for 24 is of a high standard, the food storage area and galley are more than adequate, and the diving faci-



Arriving in Auckland, June, 1988.



HMNZS MANAWANUI, in October, 1988.

lities are well-suited for the vessel's purpose. To this end a triple-lock decompression chamber is permanently fitted, a gantry for a diving bell is mounted on the starboard and compressed air supplies are available at various points on the working deck. There are also several air compressors and a specialised workshop. The ship can maintain her position over the seabed by using the four-point mooring system and there is a 13 tonne capacity deck crane for the loading and unloading of cargo or stores.

The Purchase

The purchase was an interesting evolution on its own. The original asking price was £600,000, down from about £1,000,000 a month or so previously. Commencing at 1030, our first offer was for £480,000, which included all spares, fuel and onboard equipment. Shortly after the owners responded with £550,000, but exclusive of the "extras". We then counter-offered with £540,000, but insisted on the inclusion of the "extras". An hour or so later the reply agreed to both the price and the inclusion

of the fuel (40 tonnes), food (half a sizeable dry-provision room of dry goods), all spares, lube oil, equipment and accessories. So by 1615, with a saving of NZ\$400,000 against that budgeted, the RNZN owned a Diving Support Vessel, subject to various conditions, such as passing a Lloyds docking inspection, Norwegian sales agreement and the concurrence of our Defence Contracts Officer, who was to join us in Liverpool later.

It had already been decided that the DSV would retain the name of MANAWANUI, which had been associated with the Diving Branch for many years. She would also be commissioned, thus for the first time we had an HMNZS MANAWANUI. To confuse matters even further, she was allocated the pennant number and international call sign of HMNZDT MANAWANUI, while the latter was given new ones. So now the RNZN had a HMNZS MANAWANUI and a HMNZDT MANAWANUI which, of course, was later renamed HMNZS KAHU. (There was good reason for all this at the time, if only I could remember what it was.)

MANAWANUI slipped and proceeded on Thursday, April 7, 1988, to commence a voyage of nearly three months to New Zealand. That afternoon, various emergency drills and evolutions were undertaken to familiarise all on board with the various safety procedures and good time was made through the North Sea.

Throughout the passage, considerable interest in the ship had been shown by the diving branch of the Royal Australian Navy, which went as far as to send a team up to Cairns from Sydney while the ship was alongside.

On arrival in Auckland, the delivery voyage of the RNZN's new Diving Support Vessel was complete. Some 14,500 nautical miles were steamed with 14 days alongside during the three month period. While at times it has been a testing passage, it has also been a highly enjoyable one, a maiden voyage which all the Ship's Company will remember with pride.

The ship proved to be a challenge in many ways, the crew continually discovered how things worked, where hydraulic and air lines go, and became accustomed to Merchant Navy equipment. There is no doubt that it is a fine little vessel that should serve the RNZN very well.

The next phase of the project was a commercial refit in NZ from October 25 to December 16, 1988.

By Christmas the Navy had a very versatile and capable Diving Support Vessel, thus bringing to a close a very satisfying project. (From New Zealand Navy News)

AUSTRALIAN AIR POWER TODAY

By: GREG MEGGS

Published by:
Kookaburra Technical Publications
PO Box 648
Dandenong, Vic. 3175

Reviewed by:
ROSS GILLET

FOR the first time ever, a book is now available describing the nation's air power in the late 1980s. More than just a localised version of "Jones", the Kookaburra-produced "Australian Air Power Today" is a complete narrative and photographic coverage of the flying, training, tactics and equipment of the RAAF, Fleet Air Arm and Army Aviation.

The book spans 104 pages, including 24 in colour and measures 292mm x 216mm, hard-bound.

Chapter One highlights the role of RAAF training and is followed by Fighters, Heavy Lifters, Helicopters, Maritime Operations, Australia's Deterrent, the VIP Fleet and finally, Support Command. The last two chapters describe Army and Navy Aviation.

For the naval aviation buff, the Fleet Air Arm Chapter includes Squirrel Operations at sea, the land-based sub-hunters, the (venerable) Wessex and the other aviation assets, such as the HS 748s, Bell 206B-1s and the surviving Iroquois.

One thing lacking in the book is the normal tables of aircraft data, all such information being buried in the narrative. Conversely, the detailed captions provide unusual facts and figures, plus additional technical information. Personnel are not overlooked, with the role of many branches of the three services well-illustrated and/or described.

The book is available from the publishers at \$45.00, including postage.

U-BOATS OF WORLD WAR TWO — Volume 1

By: R. C. STERN

Published by:
Arms & Armour Press

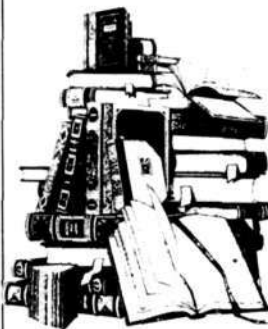
Review copy from:
Capricorn Link

Reviewed by:
ROSS GILLET

THE story of Germany's U-Boats and their crews is one which continues to occupy the time of authors. In this book, the latest in the Warships Illustrated series, more than 120 photographs have been selected to illustrate the operations of the U-Boat force from the mid-1930s to late 1941.

The boats, their crews and their victories are all ably covered, illustrating

BOOK



REVIEWS

something between the allied view of them as the ultimate menace and the German view as patriotic sailors following orders to fight the strong enemy.

Produced with the assistance of a large number of U-Boat veterans, the book is an authentic pictorial history of these famous boats.

TONKIN GULF YACHT CLUB

US Carrier Operations Off Vietnam

By: J. FRANCILLON

Published by:
Conway Maritime Press

Reviewed by:
ROSS GILLET

THIS book is a combination of both a naval and aviation history, spanning the period of carrier warfare in the Vietnam War from 1964 to 1973.

During this 10-year period the USN undertook carrier war cruises by 17 attack and four anti-submarine aircraft carriers. All of the ships were deployed in the Gulf of Tonkin, flying aircraft from the venerable piston-engined Douglas

Skyraider, which first flew in 1945, and the outstanding Douglas Skyhawk, to the heavy attack Vigilante bomber and ubiquitous Phantom fighter bomber.

"Tonkin Gulf Yacht Club" is a 212-page book which describes all of the ships and aircraft of the war, with special attention focused upon the USS CORAL SEA. The latter, with 875 days on the line, accounted for almost 10% of the total number of days spent by the 21 carriers deployed to the Gulf of Tonkin. The ship, being the first, as well as the last on station, suffered 69 aircraft lost in combat missions and another 26 lost in operational accidents. CORAL SEA's seven war cruises are described in detail, plus air strikes conducted in 1975 on the Cambodian mainland.

To complete the history, tables at the rear of the book cover such items as aircraft characteristics, carrier deployments and air combat victories and losses.

ANATOMY OF THE SHIP

The Destroyer — The Sullivans

By: AL ROSS

Published by:

Conway Maritime Press

THE latest in this well-established series is devoted to a "Fletcher" class destroyer, the most numerous type of DD ever built for the US Navy. Described by one of their most famous Commanders as "the perfect fighting destroyer", they formed the backbone of the Pacific Fleet's screening forces, and saw much action in the last three years of the war. "The Sullivans" had a particularly active career in the Pacific and during the Korean War, and is now preserved as a memorial at Buffalo, New Jersey.

AUSTRALIANS AT WAR

Royal Australian Navy

By: Cdr ALUN EVANS, RAN

Reviewed by:
J. MEISTER

In association with John Ferguson Pty Ltd, Sydney, and with the help of the staff of the Australian War Memorial, Canberra, and Paul Kemp from the Imperial War Museum, London.

THIS work was partially funded by the Australian Bicentennial Authority, that is with the taxpayers' money...

To resume, this is certainly the worst book about naval history I have read in the last 50 years, and I read something like 5,000 books and articles dealing mostly with naval affairs, and wrote myself six books and over 50 articles dealing with naval and military history.

I limit myself to quoting just some of the most stupid and flagrant errors, lies and omissions:

- p.7 von Müller, not Muller, SYDNEY had 152mm guns, not 150mm.
- p.15 Herbertshöhe, not Herbersthohe.
- p.17 The two British "ships" sunk at Coronel were armoured cruisers, a fact which should have been stated.
- p.18 In the battle of the Falklands is, four German cruisers were sunk, not three, and two auxiliaries were lost. The worst blunder of Evans' statement is, that Admiral Graf von Spee survived, while he was killed, together with his two sons. Stating that von Spee survived is like writing that Nelson survived Trafalgar. As there exists no written or oral source which claims that von Spee survived (there were no survivors from his ship), I presume that the author has invented this story.
- p.22 No Turkish cruiser was ever sunk by AE-2 in the Seas of Marmora, or elsewhere.
- p.26 To state that 6 RAN destroyers bottled up the Austrian Navy in the Adriatic Sea during WWI is a bold overstatement.
- p.12 The author writes about "heavy German cruisers" in WWI, which is a false, misleading and non-professional term, as "heavy cruisers" were introduced by the Washington Treaty after 1924. The correct term would be "armoured cruisers".
- p.29 The author writes about German commerce in the Western Atlantic 1915, which is a stupid overstatement. And which German cruisers were lost through internment up to mid-1916? None. DRESDEN was sunk at Mas a Tierra (Chile) before she was properly interned.
- p.44 The "considerable numerical superiority" of the Italian Navy on 10th June, 1940, is open to debate. Italy had then only two modernised battleships in service, and only 7 heavy cruisers, while England and France had then 10 battleships, 2 aircraft carriers, 7 heavy cruisers, 17 light cruisers, 69 destroyers, 6 torpedo boats and 54 submarines available in the Mediterranean.
- p.52 "When Italy struck through Abyssinia and French Somaliland into the British Colony (Somaliland)." Sheer nonsense, the Italians came directly from Ethiopia without violating the neutrality of French Somaliland, which was then neutral under Vichy-control.
- p.54 HMAS HOBART carried 152mm guns, not 200mm, as the author writes.
- p.54 HMAS AUSTRALIA was NOT hit by 200mm shells off Dakar, as the French did not have such guns, or of 203mm then and there.

BOOK REVIEWS

- p.54 Gen Bergonzoli was only a Corps Cdr, while C.I.C. of the Italian Army in North Africa was Marshal Rodolfo Graziani.
- p.63 50,672 men were evacuated, not 51,000...
- p.62 HMS WARSPITE had 381mm guns, not 375mm.
- p.66 "German convoy utterly destroyed." Nonsense, 4,000 men killed. Only 10 caiques were sunk, and of 2,331 German soldiers aboard only 297 were lost.
- p.70 The sinking of BABB was sheer murder and a war crime, as there was no provocation, no declaration of war, and no warning whatsoever. The Iranian sailors were killed in their sleep. Nothing to be proud about.
- p.70 The two German ships sunk in the Indian Ocean were probably KETTY BROVIG and COBURG, and at least one of them was scuttled by her own crew. Salum should probably read Sullum?
- p.72 Which two merchantships were sunk off the Victorian coast in November 1939 by mines? Then were there no German raiders? All that is sheer nonsense.
- p.75 KORMORAN had no 6-inch guns, but 150mm guns, while SYDNEY was armed with 152mm guns, not 150mm.
- p.87 The author's statement, that the Japanese Navy was in 1941 at least equal in numbers and power to those of its potential enemies (GB, USA, Netherlands) is also open to debate.
- p.90 "Both sides suffered great damage and loss of life" in the battle of 27/2/42. Nonsense. The Japanese cruiser ASAGUMO was somewhat damaged, while on the 28/2 the Japs lost two transports sunk and two damaged. The combined allied losses were much heavier.
- p.94 This picture shows a cruiser, probably HMS EXETER sinking, but certainly not a carrier. Even a child can see that this photo shows no carrier. Why qualify this photo as a "Japanese propaganda photo"?
- p.101 Here Evans is almost funny, when he writes that the ashes of the Japanese sailors who committed suicide on 1st June, 1942, in Sydney, were flown some two months later to Japan... by QANTAS or

by special plane, courtesy of the Australian Government! Of course, with flowers and apologies...

p.117 Of 6,900 Japanese soldiers, 2,734 were picked up by Jap destroyers and submarines.

p.29 Novorsisk should probably read Novorossisk? a.s.o., a.s.o.

This is really a bungled and botched job, a typical downunder affair, a shame for the RAN, the publishers, and the Bicentennial Authority, as well as for the War Memorial. I feel misled and cheated, as I have spent money to purchase this work, which fully deserves the qualification of the worst book on naval history ever written. Of course, the incompetent publishers share the responsibility for this insult to the RAN and the reader's intelligence. When I phoned Messrs Ferguson, someone told me on the phone, they couldn't care less about my criticisms.

COMBAT FLEETS OF THE WORLD 1988/89: THEIR SHIPS, AIRCRAFT AND ARMAMENT

Edited by:

JEAN LABAYLE COUHART
and BERNARD PREZELIN/
A. D. BAKER III

Published by:

Conway Maritime Press, London/
United States Naval Institute

Reviewed by:

JOE STRACZEK

THE current edition of "Combat Fleets of the World", weighing in at some 900 pages and 160 national entries, is the largest and most comprehensive edition yet to be published. Contained within its pages is a wealth of knowledge concerning the naval forces, coast guards and major paramilitary maritime forces around the world.

The book starts with a resumé and assessment of the Navies of the United States, Great Britain, the Soviet Union, France and certain selected medium powers. This resumé highlights the strengths and weaknesses of the selected navies. Following this section is the main body of the book, which describes the warships and naval craft of countries from Albania to Zimbabwe. This is then followed by a comprehensive index listing all ships described within the book. Because of the time taken to compile and edit a reference book as substantial as this, an Addendum has been included at the back. This Addendum contains information which has come to hand following the commencement of publishing the book and was considered important enough to include within this current edition. As a consequence, "Combat

BOOK REVIEWS

Fleets of the World" is as accurate and up-to-date as can possibly be.

The most impressive aspect of this edition of "Combat Fleets of the World" is the vastness of its coverage. No other publication available today can provide the reader with the same coverage of the world's navies — both in terms of nations covered and the technical information provided on the various ships. The real heart of this magnificent publication is in fact the technical data provided for each ship or class of ships. This data is presented in an easy-to-read and understand format. Where variations occur within a class or group of ships, these are presented in such a manner so as to readily identify the ship and the variations. This is very useful with respect to the major powers and their larger warship classes.

In reviewing a book of this nature, every effort has been made in attempting to find an error; and one has been found! The artist's rendering of the new French aircraft carrier CHARLES DE GAULLE still has an earlier proposed name on it — a small reward for what was a substantial effort. Also disappointing is the lack of any recent drawings of the new Soviet carriers, the first of which is currently fitting out.

Closer to home, Combat Fleets provides excellent coverage of all local naval forces, as well as the continued build-up of the Indian Navy. This increasingly powerful navy is destined to play a large role in events in the Indian Ocean region in the future. The build-up of the Indian Navy clearly shows what can be achieved if a Government is willing to expend the required resources to acquire such a navy.

The smaller island States of the Pacific are also listed, many for the first time. Though many of these nations operate small unarmed patrol craft, their potential as weapons platforms armed with small bolt-on systems should not be overlooked.

In summary, the 1988/89 edition of "Combat Fleets of the World" is by far the most impressive book of its type currently available and should be an automatic selection for any naval enthusiast or professional who needs accurate and up-to-date information of the world's combat fleets.

US SMALL COMBATANTS An Illustrated Design History

By: NORMAN FRIEDMAN

Published by:

The Naval Institute Press

Reviewed by:

ROSS GILLET

THIS present work, the fifth in a series covering aircraft carriers, battleships, cruisers and destroyers of the United States Navy, continues the excellent style of research, writing and illustrations of the earlier books.

"US Small Combatants" begins with the early sub-chasers and Eagle Boats of the Great War and then progresses into the first and wartime generations of PT Boats, post-1945 craft, the Vietnam era and the Patrol Hydrofoil Missile boats.

As with the earlier volumes, the author has relied heavily on a large selection of well-composed scale-line drawings to provide the best coverage of this much-neglected area. The drawings include plans and profiles with numerous keyed diagrams to indicate internal arrangements. As well as the completed small combatants, the author discusses and illustrates the numerous planned vessels throughout the narrative, captions and tables of data.

Special appendices describe gunboats, minor patrol craft, crash boats, weapons, vessels for export and finally, a huge 40-page list of dates and other roles for all of the Navy's small combatants.

This reviewer hopes that the author will continue the series covering ship types as amphibious warfare, mine countermeasures and submarines.

The book is available direct from the USNI, Marketing Dept., Annapolis, Maryland, 21402, for US\$48.95. An excellent purchase spanning 330 pages of great reading and browsing.

WINGS ACROSS THE SEA

By: ROSS GILLET

Published by:

Aerospace Publications

Reviewed by:

Air Cdre C. R. TAYLOR,
CBE, RAAF Ret

THE front cover of this book proclaims that it is "the first ever complete history of Australian Naval Aviation, from the first world war to the present" and the contents certainly live up to this claim.

Starting with an incident in November 1861, when the American Confederate Army attempted aerial observations of the enemy using a balloon anchored to a ship, Ross Gillett diligently traces the his-

tory of naval aviation, with particular reference to the RAN, until the close of writing this book in February 1988.

In relating early aircraft operations, he tells how Australian developments began during 1913, when the Navy and the Army became interested in the aeroplane as an elevated observation platform, as well as a possible adjunct to conventional armament of that time. Early experiments leading up to the first successful launchings of shipborne aircraft are described and illustrated with reference to the Royal Navy and the part played by RAN ships, such as the first HMAS AUSTRALIA and the first HMAS SYDNEY.

With the end of the Great War, the RAN continued its interest in acquiring a naval air arm and during 1920 orders were placed for six seaplanes. However, with the approaching formation of an Australian Air Force, the Government finally determined that military and naval aircraft would be controlled by an Air Board with the Air Force responsible for the actual operation and maintenance of naval aircraft to meet all RAN operational plans. This position was to remain until the end of WWII, when the Federal Cabinet finally approved the formation of an RAN Fleet Air Arm with the right to operate and maintain its own seaborne and land-based aircraft.

Throughout the eight comprehensive chapters of fascinating narrative — which are supported with unique tabulated information, detailed specifications, and magnificent coloured and B&W photographs — the author proceeds from the days of early RAAF seaplanes and amphibians to the more sophisticated conventional aircraft and helicopters of today's RAN Air Arm.

Special features are the chapters dealing with the first RAN aircraft carrier/tender HMAS ALBATROSS, which operated during the period January 1929 to April 1933, and the light fleet carriers HMAS SYDNEY, VENGEANCE and MELBOURNE, which operated for varying periods between 1948 and 1982.

The book provides a feast of interesting reading and technical detail for all serving and retired RAN and RAAF personnel, as well as civilian aviation enthusiasts and model-makers. Its 162 pages bear witness to Ross Gillett's own enthusiasm, patience and perseverance in compiling a book of considerable historical and reference value. The result is so good that he deserves to be congratulated.

"Wings Across the Sea" — by Ross Gillett. First published in 1988. ISBN 0 958797 0 3. Available from all leading booksellers or from Aerospace Publications, PO Box 105, Weston Creek, 2611. Price: \$21.95 plus postage, etc.



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