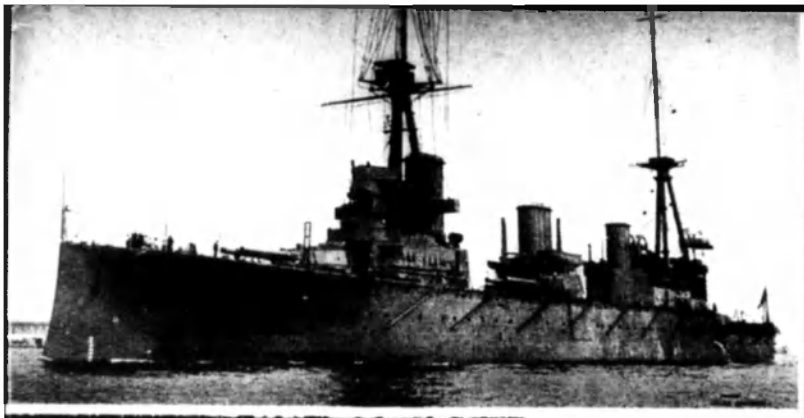

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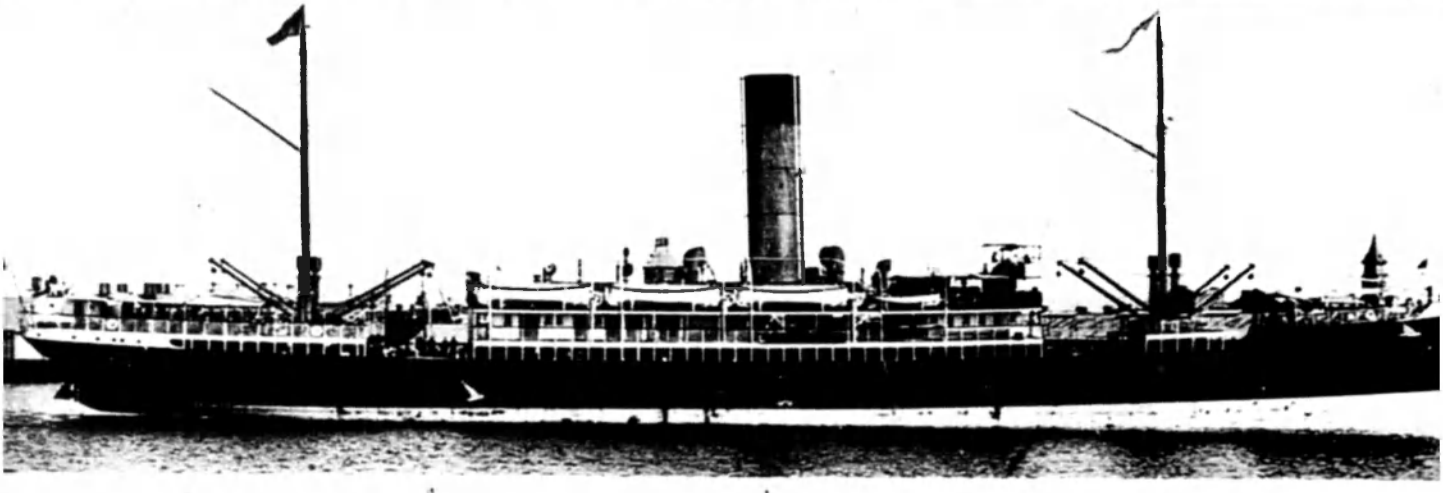

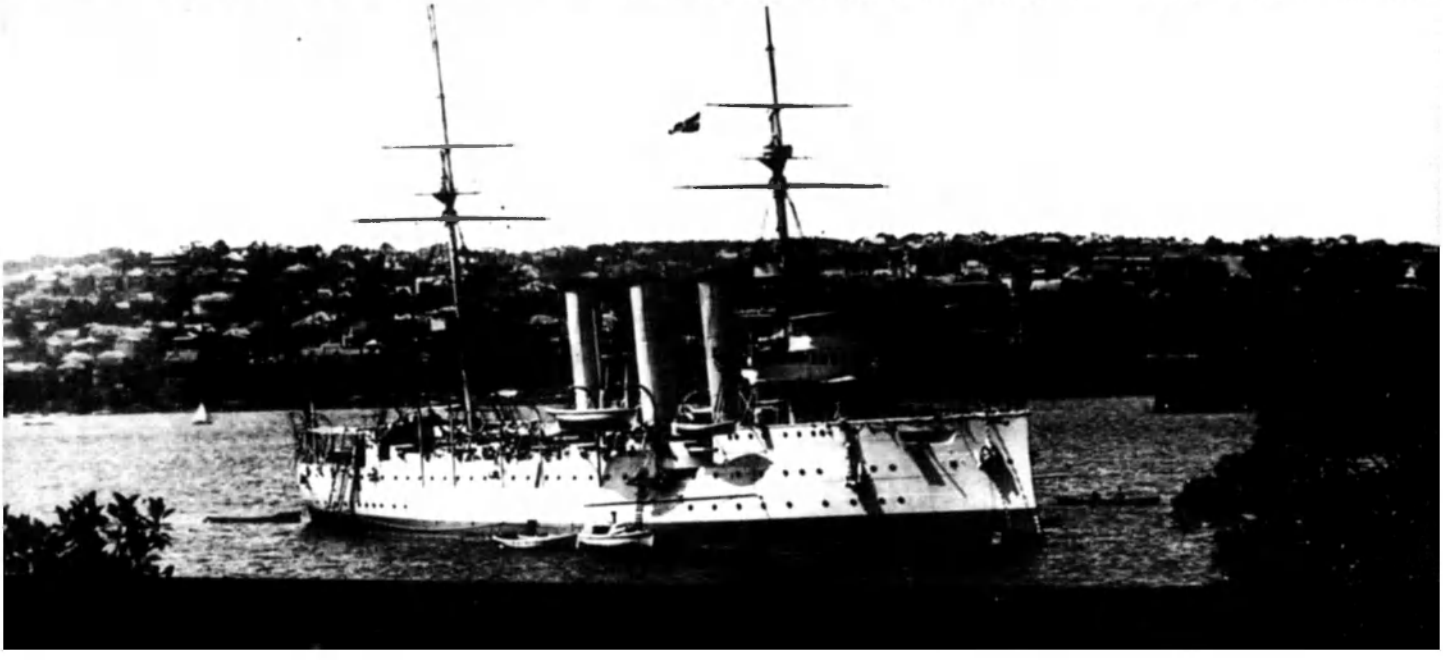

THE NAVY

EDITOR
ROSS GILLETT
PO BOX 653
DEE WHY, NSW 2099

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Royal Australian Navy Sea Kings, led by the 75th Anniversary helicopter (Photo: — HMAS Albatross)

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Our Cover Photographs

The 75th Anniversary Year — Early RAN and Royal Navy units of the Australia Station:

First Flagship of the Royal Australian Navy, the battlecruiser HMAS AUSTRALIA, Garden Island, early 1900s, the RAN's first hospital ship, GRANTALA (shown in the livery of the Adelaide Steamship Company), and HMS CHALLENGER on station, 1904 to 1912

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viewpoint

THE DIBB REPORT

Mr Paul Dibb's review of Australian defence capabilities and force structure proposals were released too close to the copy deadline for this issue of THE NAVY to allow a detailed analysis to be included: However some sections of the report relating to maritime matters are reprinted in the following pages and Viewpoint contains the writer's "first reading" impressions of the report.

It must be said first that the report is comprehensive, contains much detailed information concerning present and proposed defence arrangements, and it is written in easily understood language. Mr Dibb and his small staff must have worked very hard indeed during the twelve months it took to complete the report.

By and large Mr Dibb's views on Australian defence are very similar to those expressed by Labor Party defence spokesmen and ministers during the past decade, that is to say a "defensive" rather than a "deterrent" posture is favoured and this no doubt will be argued during the next few months.

The report contains a number of observations which cannot be restated too often, for example, it is made clear that Australia is not and cannot be completely self-reliant in defence. Our greatesig reliance is on the United States for a variety of reasons ranging from intelligence collection (to which Mr Dibb attaches great importance) to technology transfer and the supply of equipment.

ANZUS or a bilateral arrangement between the United States and Australia is therefore fundamental to Mr Dibb's plans. However his contention that "the pressure of the joint facilities" (one could emphasise the word "joint") "together with the access we provide to visits by US warships and the staging through Australia of the B52 bombers, are a sufficient tangible contribution to the Alliance", and his refusal to accept that Australia has any part to play in US contingency planning for global war, is unlikely to be well-received by the Americans, not that they are likely to publicly disagree!

On the assumption there is no real threat to Australian security in sight, Mr Dibb has recommended that force planning be directed towards an Australian Defence Force (ADF) able to cope with harassment and raids in the north and north-west (particularly) of the country, with some capacity for expansion in the at present unlikely event of a major attack or attempted invasion by a neighbouring country. Some might suggest a well equipped Coastguard could deal with small-scale incursions, indeed that might well be the end result if the pall of gloom hanging over the national exchequer does not lift.

Mr Dibb rightly regards Indonesia as Australia's most important neighbour in defence terms and stresses the need for a stable relationship with that country. One suspects there have been some excisions from this part of the report but to the writer any armed clash between Indonesia and Australia could not be regarded as a minor affair, rather it would be of considerable concern to a number of countries including the other ASEAN countries, Japan and of course the United States.

Leaving aside Indonesia the only regional country likely tgo be interested in upsetting Australia is the militarily powerful Vietnam and then only as part of a larger strategy to weaken United States dominance in the Pacific Basin and elsewhere. Vietnam with USSR maritime assistance could cause a few headaches in our part of the world!

Mr Dibb discounts the importance of trade to Australia and the need to protect shipping at "considerable distances" from the mainland. His proposed structure for the Navy reflects this view and in the opinion of many closely associated with maritime affairs it is a major weakness in the report. Australians in general are not maritime-conscious and it remains to be seen whether the proponents of a versatile and capable Australian Navy can argue their case strongly enough to get anywhere.

The writer believes Mr Dibb's proposals to strengthen our local defence capabilities are in the main sound and probably overdue. One must however express concern at the essentially defensive nature of the proposals — in many ways waiting for something unpleasant to happen rather than trying to prevent the happening — and what seems to a very selfish outlook — let's look after ourselves and to blazes with anyone else. This does not appear to be a sensible approach in an increasingly interdependent world, and not one likely to win friends we might need one day.

DEADLINE

The deadline for the July 1986 issue of The Navy is AUGUST 1, 1986

GEOFFREY EVANS
Federal President
The Navy League of Australia

This is part of the text of Mr Paul Dibb's Executive Summary and Force Structure Proposals for the RAN

ISSUED ON 3rd JUNE, 1986

Submarines

Australia operates six Oberon class submarines, which were commissioned into the RAN from 1967 onwards. With updating of their sensors and weapons they have developed into the most formidable sub-surface strike force in our region. The potential of submarines derives from their ability to conduct covert operations at low risk in areas where an adversary may have a degree of sea and air control. They can contribute to covert intelligence collection and surveillance, the transport of special forces, blockade, mining, ASW and strike missions.

The Oberon submarines are expected to be paid off during the 1990s, and the Government is planning to build new submarines in Australia. The first stage of this procurement involves funding two European shipbuilders to develop detailed proposals within guidelines endorsed by the Government.

Improvements in new submarine performance, together with improvements expected in boat availability, mean that six of the new type of submarine will be broadly equivalent in overall capability to nine or ten submarines of the Oberon type. The estimated project cost for six new submarines a currently about $2.6 billion, or six percent of the anticipated capital procurement program over the next 15 years.

This Review considers that this level of sub-surface warfare capability can be justified by the long-term strategic value of a capable submarine force. Nevertheless our minimum submarine requirement is generally met by the current Oberon fleet, and the increased capability of a fleet of six new submarines represents a desirable rather than an essential increment. Should cost pressures require re-examination of the project, the extra margin of capability could be subject to scrutiny on the basis of comparison with higher-priority capability requirements, particularly those relevant to more credible contingencies, for example mine countermeasures forces and ground force mobility.

In May 1985 the Defence Force Development Committee (DFDC) proposed the establishment of a financial ceiling for the submarine project. This Review considers that a ceiling should be established as a matter of some priority. Should there be predictions of a substantial cost escalation in the submarine project due to local construction problems, then options involving some lesser capabilities could be considered.

These could include a reduction in submarine numbers, the fitting of less capable and less costly equipment, the fitting for but not with certain equipments or tenders or a reduction in the extent of Australian industry involvement, particularly in areas involving high cost premiums. With regard to possible reductions in numbers, even in low-level contingencies, Australia might wish to have the option of maintaining submarines on station in more than one operational area: if only to ensure that an opponent, having detected the presence of one of our submarines in one area, could not count on the absence of a submarine threat in another area. Six new submarines of the capability proposed should be able to provide a sustained presence in three separate areas simultaneously, a major improvement over that available from the existing Oberons.

A related issue is the desirable basing arrangements for our submarine fleet. The need for proximity to priority operational areas suggests that the effectiveness of our submarine fleet would be enhanced by basing the fleet at Cockburn Sound in Western Australia, with secondary basing on the east coast to provide a Pacific Ocean presence and for ASW training purposes. Cockburn Sound already has well established submarine base facilities, which, following a Ministerial statement in 1985, will be used for the home-porting of some of the Oberons. The introduction of new submarines, together with the move of RAN facilities out of Sydney Harbour, provides a suitable opportunity to make the change to west-coast basing of our submarine fleet. The estimated cost of this move is $112 million.

MARITIME DEFENCE

In Part 3 we observed that in a wide range of credible contingencies there would be an important requirement for maritime defence forces. It was also noted that surface naval forces have particular value because of their flexibility, endurance and sustained military presence, but that the requirement for high-capability destroyers is limited.

The focus of our concern here is the need for surface naval forces and naval helicopters. Requirements for submarines, maritime air defence and strike aircraft, maritime surveillance and reconnaissance aircraft, and afloat support are addressed elsewhere in this Part of the Review.

Size of the force

At present our surface naval fleet consists of 12 destroyers (three guided missile destroyers (DDG); four guided missile frigates (FFG) and five destroyer escorts (DE)) and 20 patrol boats (15 Fremantle class and five Attack class).[11] In addition there are seven amphibious ships (one landing ship heavy and six landing craft heavy)[12]; one mine countermeasures vessel; two afloat support ships (one destroyer tender and one underway-replenishment ship); three marine science vessels (one oceanographic research vessel and two survey ships), as well as sea training ships and a large number of small support craft. There are 37 naval helicopters, comprising 8 Sea King ASW helicopters, 16 Wessex utility helicopters of which 10 are kept operational for counter-terrorist tasks, and 13 smaller helicopters. The latter are used for interim FFG support flights, training, survey and utility tasks. Eight helicopters are normally in extended maintenance or storage.

In recent years, there has been no overall strategic review of the desirable size of Australia's naval forces, and specifically no review of destroyer numbers. The number of destroyer-type ships has been sustained more because no clear argument has emerged for variation in the size of the fleet than because of any positive force structure judgements based on strategic guidance or enduring geographic factors. The Government's decision in 1983 not to replace the aircraft carrier HMAS Melbourne, which marked a fundamental change in the composition of the fleet, has not yet led to any reconsideration of destroyer numbers, although Departmental studies are now in hand to address this matter. Thus the number of destroyers and frigates in the fleet is much the same as it was 15 years ago. Similarly, Navy now has about the same number of patrol boats as it had in 1970, although the requirement for patrol activities has greatly increased.

In the same period, there has been a marked fall in mine countermeasures forces (from three vessels in 1970 to one ship today), despite the high strategic priority consistently accorded to this capability. By contrast there has been a growth in the Navy's amphibious transport capability. In 1970 we had no ship capable of operational beaching, whereas now we have a heavy amphibious transport ship and six LCHs. These trends in mine countermeasures and amphibious capabilities are contrary to priorities for the defence of Australia.

Naval aviation forces in recent times have been determined by perceived needs for air defence of task groups at sea, organic maritime strike and ASW. These forces centred on the Navy's aircraft carrier capability. With the disposal of Skyhawk and Tracker aircraft, Navy's aviation activities now largely reside in ASW helicopters and the helicopter support of offshore counter-terrorist operations. The latter is a task imposed on the Defence Force by government decision. The requirement for ASW helicopters has been extensively analysed, including possible uses for the Sea King helicopters, in the context of the disposal of HMAS Melbourne and the purchase of Seahawk helicopters that will be with the fleet by the late 1980s.

Until recently, Navy had planned to introduce six new surface combatants, beginning in 1996, at a cost of some $4000 million to replace the DDGs and later DEs. Navy also proposed a $315 million program to replace the Fremantle class patrol boats, beginning in the mid-1990s. These proposals are being reassessed.

Mine countermeasures

The most important deficiency in the naval force structure is the absence of an operational mine countermeasures capability. Navy acknowledges that at present Australia has only a token mine countermeasures vessel. This is an unacceptable deficiency in our force structure. There are risks of our port entries and coastal focal points being mined, especially in northern waters, even in low-level contingencies.

Australia has a potentially difficult mine-warfare problem in terms of the large extent of minable waters and the extensive areas of relatively shallow water around some important Australian ports. Modern mine technology is such that the specialized mine countermeasures ships and aircraft used in many Western navies are very expensive (a minesweeper/hunter vessel can cost up to $150 million and a minesweeping helicopter $70 million).

As a result of poor planning and procrastination, the development of mine countermeasures forces has been under consideration in the Defence community for over 15 years. Initially, Navy proposed the acquisition of the Royal Navy Hunt class, with a combined hunting/sweeping capability. The cost of this ship increased significantly and the production program slipped. In 1972, the DFDC directed Navy to seek alternative solutions. This resulted in a proposal that a future mine countermeasures force should comprise the French Circe class minehunters, minesweeping boats and ocean minesweepers. In 1975, the DFDC accepted an alternative lower-cost but higher-risk option, comprising an Australian-developed catamaran for inshore minehunting (MHI), and agreed that the minesweeping capability should be developed as a separate but parallel project.[13]

The 1976 *Defence White Paper* stated that it was planned to have new operational minehunting craft enter service 'during the first half of the 1980s'. In fact, the first prototype Australian designed and built minehunter catamaran is not expected to be delivered until July 1986, with trials to be completed by December 1987.

The minesweeping requirement remained without significant progress until 1977. Since that time, a number of minesweeping options have been considered, including in 1981 the resurrection of the Hunt class proposal. This was due to an 'opportunity buy' arising from British defence reductions. The DFDC noted, in *Defence Force Capabilities 1981*, that progress in developing mine countermeasures systems had been extremely slow and much greater attention was required to overcome existing deficiencies. The Committee stated that it was proposed 'to acquire shortly' the two Hunt class mine countermeasures vessels. Government approved in principle the acquisition of two mine countermeasures vessels, based on the Hunt class, but support was withdrawn in 1982 partly because other proposals—including further ASW helicopters—were seen to have priority. Navy was then directed to seek simpler single-role minesweeper alternatives to the Hunts.

Navy's present position on the need for an Australian mine countermeasures force is as follows. For inshore minehunting, it is intended that Navy acquire two prototype MHIs and four follow-on craft. This would give a fleet of four for the east coast, which is more suitable for minehunting, and two for the west coast. This size force would allow two MHIs on the east coast and one MHI on the west coast to be maintained on task continuously.

Navy proposes to have a minesweeping capability based on leasing suitable commercial vessels ('craft of opportunity'). Technological breakthroughs by the RAN Research Laboratory (RANRL) are claimed to have achieved a radically different concept in minesweeping. These involve Australian-developed towed magnetic and acoustic sweeps, which do not require electrical power down the towing cable. A new degaussing system has also been developed which it is hoped will solve the magnetic influence problem for the towing vessel. The significance of not having to construct purpose-built magnetically and acoustically clean minesweeping hulls is that it may be possible to adapt suitable commercial craft (such as fishing trawlers) for minesweeping with great cost savings and the potential for rapid force expansion. Navy envisages 10 craft of opportunity for this task (five on each coast).[14] Precursor sweeping would be required, however, to counter mines designed to sink mine countermeasures vessels. For this important task, Navy proposes the use of 'helicopters of opportunity'.

The force planned by Navy is small and will enable only the highest-priority ports (two ports simultaneously, one on the east coast and one on the west coast) to be cleared and kept open. Other mined or suspected mined ports would remain closed for a period, although the force expansion facilitated by the craft-of-opportunity approach, if properly developed, could be expected to contribute significantly. This is acceptable as a shorter-term objective, but in the longer term we should increase this capability to allow simultaneous operations in three dispersed areas.

There are, however, substantial technical risks and other uncertainties in Navy's proposed program. The acceptability of the minehunters is subject to the success of the two prototypes, which are built of glass reinforced plastic that introduces new concepts and technology into the RAN. They can be used only for inshore work because of their limited sea-keeping abilities. The minesweeping program is a long-term project and depends on the success of RANRL technological and scientific breakthroughs. This program is also heavily dependent on gaining access to suitable craft of opportunity and helicopters of opportunity. Although the problem of the magnetic signature of the towing vessel seems likely to be solved, there remains risk as regards its acoustic signature. Furthermore, the construction of production minehunters is expected to absorb skilled project and technical manpower in Navy until the early 1990s. This may disadvantage the minesweeper project until that time.

This is not a satisfactory situation and the Review recommends that additional resources should be allocated to Australia's mine countermeasures requirements, until this capability gap is redressed. No avoidable factor should be allowed to delay still further the completion, and testing and evaluation, of the two prototype MHIs.[15] As soon as it seems reasonably prudent, approval should be given for the construction of the four additional craft. The Defence Program has provision for these four additional MHIs in FY 1987-88 at a cost of $211 million. The need for further MHIs should then be reviewed.

The proposed Mine Warfare Systems Centre, which will provide a training and support facility for the mine-warfare force, should receive high priority. The Defence Program has provision for a decision in FY 1987-88, at an estimated cost of $46 million.

The minesweeping program also needs greater attention. Mine countermeasures cannot be effective without minesweeping. The development and trial of the Australian-designed influence and mechanical sweeps requires early resolution. If the project proves successful, provision should be made for the acquisition of at least four suitable commercially-based vessels using this technology at a cost of $37 million. They would be manned mainly by the Permanent Naval Force, and two vessels would be based on the east coast and two on the west coast. They would be in addition to the lease of craft of opportunity that Navy already proposes.

This would provide some essential Permanent Navy skills, which could then be used as a training base for Reserve personnel with local knowledge of their port areas. The Reserves will thus have an important role to play in Australia's future minesweeping force, based on the experience of local fishermen, tug operations and the like. The central element would, however, be Permanent Navy and accordingly additional manpower of 180 will be required to build up this force over a period of four years.

Navy's programmed spending for minesweeping is about $100 million and is dependent on the technological breakthroughs mentioned earlier. The concept of craft of opportunity is an attractive one, but it must be proved quickly and to the satisfaction of the Government. If these techniques do not prove satisfactory an urgent decision will need to be taken on purchasing a minimum of three minesweepers from overseas at an estimated cost of some $300 million.

This Review has some serious doubts about Navy's expectations of using helicopters of opportunity for precursor sweeping. An alternative, which Navy has also proposed, is to use Sea Kings in this role. If successful, all capable in-service helicopters would gain the additional role of precursor minesweeping. But helicopters of opportunity would still be required on force expansion. It will be important also to explore other methods for precursor sweeping.

Destroyers and patrol vessels

Over the years, the high unit cost of destroyer-type vessels has been a major concern and has drawn attention to the somewhat arbitrary basis on which the '12-destroyer' fleet has been founded.[16] Navy studied concepts for wartime destroyer strength in detail in 1971 and 1980. These RANRL reports, using widely disparate scenarios, identified the need for about 17 destroyers to fill wartime requirements. They did not address the numbers required in the force in the absence of a threat and they have not been endorsed by the central Defence committee system.

The 1976 *Defence White Paper* made provision for 12 destroyers, but it did not articulate the reasons for this size force other than to suggest that it allowed for eight to nine destroyers to be available at any one time. In 1977, in the context of the proposal to acquire the third FFG, Navy advised that in its judgement 'a minimum of 12 ships is required in the minimum destroyer force, and any future requirement to deploy destroyers permanently in the north or west of Australia would tend to indicate a greater number in inventory'. This point of view has not been adopted as a Departmental position, although Navy argues in its Naval Medium Range Plan (*Plan Green*) that a destroyer force of 12 has been accepted by higher Defence committees as an appropriate number.

The most recent centrally considered study of destroyer force characteristics was the *Report of the Defence Naval Destroyer Group* in June 1980. It did not address the total destroyer force, but discussed the need for greater or fewer numbers depending on the threat level. The study envisaged destroyers operating singly or in small numbers for surveillance and patrol, in groups of three or four as a 'surface action group' or as a convoy area air defence escort, or in lesser numbers for anti-submarine protection alone. Other studies, in the context of Navy's proposal for new surface combatants, are now under way, but are not sufficiently advanced to offer an agreed position to this Review.

Of the roles for which groups of destroyers may be employed, surface strike, area air defence and ASW are not given strong weight by this Review. Navy acknowledges that maritime operations by RAN forces in a hostile air environment will be inhibited where RAAF land-based aircraft and/or allied carrier aircraft are unable to contribute to air defence. It also observes, and this Review agrees, that in the absence of fixed wing organic air support the preferred force elements for strategic maritime surveillance and strike are submarines and land-based aircraft.

Navy advice provided earlier to this Review envisaged up to a maximum of 20 destroyers being required for low-level contingencies, as well as up to 36 other surface units. This was based on assumptions about concurrent maritime operations all around Australia's coast, including southern ports, that are clearly not relevant to credible contingencies. Navy's calculations that 6 to 10 destroyers (and 12 to 20 other ships including patrol boats) might be required for operations in northern focal areas are more in accordance with the views of this Review.

During the early 1990s, Navy's destroyer force is planned to comprise three DDGs, six FFGs and three DEs. Of these 12 ships the first to be retired will be the DEs, by the mid-1990s, and the DDGs by the late 1990s. The essential needs for ASW, area air defence and maritime strike, so much as destroyers will contribute, seem likely to be met by the FFGs which could provide a minimum protective capability, especially in northern focal areas. The availability of underway replenishment can increase the time on station of destroyers (and other ships) being used for operations in these areas, and hence in some cases could decrease the numbers needed. The FFGs are capable ships by regional standards and will be made even more capable by the provision of the Seahawk helicopter. They will be in the fleet until at least the year 2010.

The DDGs are in a somewhat different category. They are 20 years old and are expensive to run (their crew is almost double that of an FFG). In some areas they are more capable than the FFGs (such as better command and control, two 5-inch (127 mm) guns rather than a single 76 mm gun, a three-dimension as well as a two-dimension radar, and a twin rather than a single fire-control channel for the area air defence missile system). To the extent that destroyers are expected to operate in less complex battle environments than those for which they were designed, and in smaller numbers, their command requirements would not be the same as for a 'task group'. This consideration, and the high operating cost and age of the DDGs, leads this Review to have some concerns about their continuing relevance to the fleet.

However, an expensive modernization program, costing $300 million, is already under way and is planned to be complete for all three ships between 1987 and 1990. It is too late now to change this program, with the possible exception of cancelling the modernization of the third ship (HMAS Hobart) and paying it off. The ship could be paid off early, but it might be more appropriate to keep it in service until the early 1990s when the fifth or sixth FFG is commissioned. The savings would be about $32 million in capital costs and $8 million in average annual operating costs, and 330 crew would be available for higher-priority tasks.[17]

If the Government decides—as an alternative to paying off HMAS Hobart—to keep all three DDGs in the fleet, the destroyer force of nine ships would be operational to about the end of the century. The main implications of this for the Review's recommendations would be to increase the pressures for more personnel in the Navy (see Part 9).

11 Minehunting is based on determining the presence of individual mines and concentrating countermeasures on those positions. Sweeping techniques are directed at the more extensive area suspected of containing mines. Minesweeping is slow and hazardous and requires a range of specialized systems if the presence and/or the exact location of mines is not known. Minehunting is generally preferred, but cannot be undertaken in areas where the nature of the bottom can obscure the mine. In these areas (typically to the north and north-west of Australia), minesweeping is required to complement the hunter.

12 These would comprise four larger vessels and four smaller vessels in minesweepers of opportunity, and two vessels with side-scan sonar to complement the MHIs in mine surveillance.

13 This excludes the proposed move of Navy facilities from Sydney Harbour. There are strong reasons for retaining the base for mine warfare assets in one of our most important ports.

14 Two more frigates are being built at Williamstown Naval Dockyard to replace two of the destroyer escorts.

15 Three of these landing craft are laid up in storage.

16 The direct operating and manpower costs of the 17 destroyer force are $170 m per year. (This excludes indirect costs of support and allowances.)

17 There could also be savings resulting from the transfer of HMAS Hobart's warfare or defence munitions to the fifth FFG ($33 m a programmed for the latter's missile outfit), although this would depend on discussions yet to be taken on missile options. The estimated saving of $32 m in capital costs is net of expensive expenditure programs of some $100 m, and other work would have to be undertaken back into Garden Island Dockyard to maintain a complete annual workload of 1.4 m man hours.

Taking all these factors into account, the Review considers that the number of destroyers needed in the fleet, as an essential core force, is eight to nine. The Review therefore supports Navy's proposal to reassess the direction of its New Surface Combatant Project, which had previously sought retention of the 12-destroyer fleet.

On the basis of 10 years of operations after modernisation, the DDGs will start to pay off from about 1998. A final decision on whether to replace them is not needed until the early 1990s. But preliminary studies should continue now, with a view to funded studies being placed with industry in the later 1980s to refine procurement options. A government decision on source selection would probably be sought in the early 1990s.

Fundamental considerations in the final decision on whether and how to replace the DDGs will be trends in the survivability of destroyer-type vessels against stand-off missile attack, as well as further progress in the development of capability priorities for our maritime strategy. The latter will be influenced by the direction of military capabilities in our region.

Other decisions are required, however, about the need for lower-capability warships in the fleet. A requirement is seen for a ship that is less capable than a destroyer, but considerably more capable than the Fremantle class patrol boats. To fulfil the kinds of maritime tasks envisaged in Part 3, there is a need for an intermediate class of ship that is capable of sustained patrols in our key maritime areas and focal points in all sea states.

For peacetime tasks, there is a need to be seen to be demonstrating sovereignty over our extensive resource and fishing zones, important offshore installations and territories, coastal areas and focal points.[18] Larger ocean patrol ships, perhaps to be known as light patrol frigates, are required to provide an effective presence in more exposed or distant waters. They will have the sea-keeping, endurance and reconnaissance capabilities that patrol boats do not have and yet they will not be as expensive to acquire or maintain as destroyers.

In low-level contingencies, we would want to operate naval forces dispersed over broad areas of our northern and north-western approaches and to take protective measures in other maritime areas. In conjunction with the operations of other assets, such as maritime-patrol aircraft, intensified reconnaissance and patrol operations could be undertaken by the new class of warship in disputed or threatened areas, but within range of our land-based fighter aircraft. Their most valuable characteristics would be endurance and good reconnaissance and communications capabilities and their ability for intercept and arrest.

Against the threat of escalation, the light patrol frigates would be joined by destroyers with their more capable weapons and sensor systems. The new class of ship could also undertake important national tasks in more southerly waters protecting our shipping and focal areas. In summary, these warships would primarily be for ocean patrol and sovereignty tasks, but with the ability also in some circumstances to relieve more capable destroyer type vessels for more demanding duties in higher-level contingencies.

It is not the purpose of this Review to suggest a particular design, but it would be considerably larger (about 2000 tonnes standard displacement) than the missile-equipped fast attack craft in many other navies. The most valuable characteristics would be range, sea-keeping, endurance, good surveillance and local command, control and communications capabilities, rather than advanced or complex weapons and high speed. It would have a helicopter deck and a hangar for a reconnaissance helicopter, but desirably would also be able to operate the Seahawk ASW helicopter being acquired for the FFGs. It would be equipped with a gun and an air defence system for self-protection. Weight and space should be reserved for other capabilities such as surface-to-surface missiles and, if shown to be technically feasible, the ability to operate towed acoustic surveillance arrays.

It is recommended that consideration be given to building these ships in Australia. Local modification of an existing design would appear practicable. They could be introduced during the early-to-mid-1990s as we phase out the first five of the Fremantle class and the three remaining DEs. The cost of eight such vessels might be in the order of $2000 million. Reducing the destroyer force from 12 to 8 or 9 and the patrol boat force from 15 to 10 would release some 1000 personnel to crew the new class of ship and to reduce the manpower pressures in other areas such as the mine countermeasures force. Construction should be subject to open tender, possibly in more than one yard. Consideration could be given to constructing additional units, depending on the cost-effectiveness of the initial eight ships.

On this base, the Navy's major surface units would eventually comprise 10 patrol boats, of Fremantle or equivalent size, at least 8 light patrol frigates and 8 to 9 capable destroyers (depending on decisions to be taken later on whether to replace the DDGs).[19]

Navy helicopters

Navy helicopters specially designed for ASW work have come under close scrutiny. The DFDC and the Chiefs of Staff Committee (COSC) have several times in recent years reaffirmed these as being an essential force element. Following the aircraft carrier decision, the DFDC has favoured the use of 'dispersed small platforms' (that is, destroyers and the like) rather than a helicopter carrier as a basis for ASW helicopter operations at sea. The recent government decision to acquire eight capable Seahawk ASW/anti-surface surveillance targeting (ASST) helicopters at a cost of $424 million for the FFGs is consistent with that judgement.[20]

At present, Navy aims to provide at short notice four Sea King ASW helicopters for shore-based focal area operations on the east coast of Australia and to increase the aircraft committed to six within 30 days, for operations from more general locations on the Australian mainland. At up to six months' notice, Navy plans to deploy six Sea Kings to sea on a chartered merchant ship, but planning for this has not proceeded beyond the feasibility study stage. This is acceptable in current strategic circumstances.

The six FFGs are capable of carrying two Seahawk helicopters each. There is little priority for further ASW capability beyond the eight Seahawk helicopters already on order, given the low submarine threat and that we have capable LRMP aircraft and are developing towed arrays. Further, this Review does not give much weight to the role of escort vessels equipped with ASW helicopters for anti-submarine protection of shipping in wider ocean areas, where evasive routing can be undertaken.

Nevertheless, there is a need for additional helicopters to enter service with the two new FFGs, and for a peacetime attrition reserve. The timing of this acquisition should take account of any benefits of production continuity with the initial helicopters. The Defence Program makes provision for a total of eight additional helicopters, including four for attrition, at a cost of $193 million. There would then be 12 Seahawk helicopters available to the fleet - for embarked operations on the six FFGs, shore-based training, and maintenance support.

An ASW helicopter specifically to replace the Sea King helicopter is not required in view of the capabilities and potential of the Seahawk. The Review earlier recommended that, as Navy intends, at least some of the Sea Kings be used for precursor minesweeping, instead of planning just for extensive use of helicopters of opportunity. The Sea King's life of type is currently 1995. The need for dedicated precursor minesweeping helicopters will need to be reviewed before then so that, if necessary, steps can be taken to continue the capability. The time-scale is such that no financial provision need be made in the present Defence Program. These helicopters would need to be capable of towing only light precursor sweeps, and they should not be a high-cost military minesweeping helicopter designed for more extensive sweeping.

If helicopters are required for offshore counter-terrorist operations after the Wessex helicopters are withdrawn from service in 1989, it is suggested that the Government purchase utility helicopters from funds other than the Defence Vote. These operations already account for an unreasonable proportion (over one-third) of Navy's limited helicopter flying hours. Only if the Sea King is found to be unsuitable for precursor minesweeping or other defence tasks should it be considered for offshore counter-terrorist operations.

Consideration will need to be given to the purchase of appropriate reconnaissance helicopters for the new light patrol frigates. It is estimated that an initial purchase of 12 such helicopters (one for each of the eight light patrol frigates plus four attrition and maintenance support helicopters) might cost in the region of $200 million. This would be a less capable helicopter than the Seahawk.

Navy also proposes the phased acquisition of 15 utility helicopters (including four attrition aircraft) for decision in FY 1989-90 at a cost of $340 million. The Review does not support the scope or timing of this proposal. The 6 Squirrel light helicopters, the 8 Sea King helicopters, the 16 Seahawks and the 12 reconnaissance helicopters should provide an adequate level of capability through to at least the mid-1990s.

Afloat support

Navy's afloat support consists of a destroyer tender (HMAS Stalwart), and an underway-replenishment ship (HMAS Success). These vessels, together with the development of Cockburn Sound on the west coast, the naval bases at Cairns and Darwin and the proposed development of a limited naval facility on the north-west coast, should provide the Fleet with a good level of forward support in likely operational areas. In a developing situation, the basic capability represented by the destroyer tender and the underway-replenishment ship could be augmented if necessary by the use of appropriate civil vessels. The use of Australian-flag tankers for replenishment is already practised periodically.

Whether the destroyer tender should eventually be replaced will depend in part on the continued development of naval infrastructure in the north and north-west. However, some consideration might be given to the purchase of a low-cost tanker (of 6000 to 7000 tonnes) to allow the support of naval operations in more than one ocean area. The Defence Program has provision for a decision in FY 1990-91 on such a ship, at a cost of $20 million, and this seems appropriate. The Review does not support a second ship of the same class as HMAS Success, at a cost of $266 million.

Ground force transport support

Our requirement for amphibious lift is limited and the Navy's amphibious capabilities are being run down.[21] HMAS Tobruk, together with HMAS Jervis Bay, would be sufficient to support any modest deployments of ground forces or their equipment that could not be handled by aircraft or land transport. Any additional sea transport required could be by civil vessel on charter.

The six LCHs have an expected life of type of FY 1996-97. In the meantime, they can continue to be used for coastal hydrographic work or maintained in the operational reserve. There is no requirement to plan now for their replacement, nor is there any need for additional LCHs of the Tobruk class.

Army operates a truck fleet to provide transport support in combat areas. In peacetime these assets are used for unit training and general transport tasks.[22] A study of transport needs for northern deployments is at present being undertaken within Defence, but this will not be available until late 1986. Subject to further consideration of the results of that study, present surface-transport assets seem generally adequate for the needs of credible contingencies. Their expansion is a relatively short-term task, and supplementation of service assets is readily available from the civil sector if required.

Air Force operates a fleet of four B707 aircraft, 24 Hercules aircraft, 22 Caribou aircraft and 12 Chinook helicopters as an airlift capability, and to support Army operations and the forward deployment of air and naval assets. (These can be readily supplemented by civil assets, mainly for the movement of troops.) While this fleet is considered generally adequate in current circumstances some enhancement may be desirable as part of the program to improve ground force mobility. The Caribou is due for replacement by 1990 and the twelve older E-model Hercules may need replacement in the early 1990s. Present plans provide for some $590 million to replace the Caribou and the older Hercules, but a decision is not required until the early 1990s.

18 Australia has one of the longest coastlines in the world, our fishing zone makes us responsible for seven million square kilometres of ocean, and our Exclusive Economic Zone, when it is proclaimed, will be the fourth largest in the world. Our sovereign rights at sea are extended further by Australia's continental shelf, which in some areas extends beyond the 150 nautical miles which is the geographic limit allowed by the 1982 U.N. Convention on the Law of the Sea.

19 On 1 March 1986, the Chief of Naval Staff announced a revised Force Structuring Policy relating to surface combatants. The Policy set out that Navy is to plan on there being three types within the surface fleet: high-capability vessels for ocean operations; vessels with lesser capabilities suitable for operations in the Exclusive Economic Zone and proximate waters and for dealing with contingencies credible in the shorter term; and vessels suitable for coastal operations with primarily defensive capabilities. The Policy states that the New Surface Combatant Project is to be directed at the second level of the tiered force. This revised policy is generally consistent with the approach recommended in this Review.

20 The helicopters will be fitted with sonobuoys, magnetic anomaly detection, radar, data link, communications, and a navigation system.

Compiled by NAVAL ROUNDUP "GAYUNDAH"

Launch of New Minehunter

The first of the RAN's revolutionary new minehunters was launched at Newcastle on Saturday, May 3.

The minehunter, named Rushcutter, was launched by Lady Bennett, wife of Australia's Chief of the Defence Force.

RUSHCUTTER, a 31 metre glass reinforced plastic catamaran, was the first of its kind in the world. "This is a new and revolutionary design, with new materials, a new concept in the use of a catamaran hull, and new construction techniques," Mr Beazley, Minister for Defence, said. "It makes Australia a world leader in the specialised field of mine countermeasure vessels."

Mr Beazley added that the construction of these vessels in Australia contributed significantly to the policy of defence self-reliance.

"Mine countermeasures has been a weak link in Australia's defence preparedness, and the Navy is determined to overcome this," Mr Beazley said.

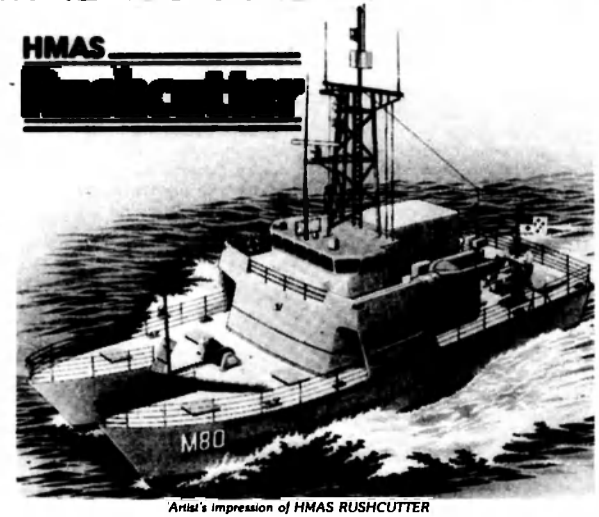
Rushcutter is designed to hunt mines in harbours, estuaries, channels and other comparatively shallow waters. It has been built by Carrington Slipway Fibreglass Division of Newcastle. A sister ship, SHOALWATER, is due to be launched next year.

RUSHCUTTER will undergo extensive trials lasting about eighteen months. Following evaluations of the trials, the Government would consider a follow-on order of four additional minehunters for the RAN.

* * *

RUSHCUTTER holds special significance for the RAN.

This was the message from Deputy Chief of Naval Staff, Rear Admiral Neil Ralph, at the RUSHCUTTER launching.



Artist's impression of HMAS RUSHCUTTER

"Before us, we see the only vessel that will be launched during this our diamond anniversary year," he said.

Although the only launching scheduled for this 75th anniversary year, the Navy gained two hulls with the minehunters catamaran configuration.

RUSHCUTTER was lowered into a specially-built channel off the Hunter River after being named by Lady Bennett, wife of the Chief of Defence Force, General Sir Phillip Bennett.

The launching ceremony took place in driving rain, about 100m from the Carrington Slipways building where she was built, and where sister ship SHOALWATER is taking shape.

The uniqueness of the event — from the type of launch to the revolutionary design of the ship — figured prominently during launching speeches.

But the mine-hunting task ahead of RUSHCUTTER, is a well-established role in the RAN.

RADM Ralph said the launching marked the resurgence of a capability, much needed, to balance our maritime defence.

The RAN, has for many years, maintained expertise in mine countermeasures," he said.

"Six years to the day, after the Royal Australian Navy was established, several tugs and trawlers were commissioned to form the mine-sweeping section of the fleet.

"The highlight of this branch of the Navy, apart from today, of course, was the Australian Bathurst class ocean minesweeper project.

"Sixty of these vessels served Australia with honour during World War II, in all of the theatres of conflict, and they served not only the RAN, but the Royal New Zealand Navy and the Royal Indian Navy.

"Our other generation of mine countermeasure vessels has been the six ex-Royal Navy ton class minesweepers.

"These ships served Australia and the rest of the nations during the Malaysian confrontation, keeping the Malacca, Singapore and Jahore Straits open for international shipping.

"The last of these vessels, HMAS CURLEW, is now nearing the end of her useful life."

Following launching, Carringtons continue to fit the ship out in preparation for harbour and sea trials before RUSHCUTTER is handed over to the Navy and commissioned, probably in September.

Launch of RUSHCUTTER, May 3, 1986 (Photo — LSPH Shaun Hibbs)

Compiled by **NAVAL ROUNDUP** "GAYUNDAH"

SUCCESS ACCEPTED THEN COMMISSIONED

The Royal Australian Navy's new Fleet Replenishment ship, SUCCESS, began acceptance sea trials off Sydney on Thursday, April 10, and was handed over to the Navy on Tuesday, April 15, 1986.

The contract for construction of SUCCESS, which was based on the French Durance class Replenishment ship, was awarded in October, 1979. In December, 1985, she successfully completed two weeks of contractor sea trials, and since then had been completing machinery inspections and final fitting out.

SUCCESS on trials. (Photo — Navy & Marine Corps Museum)

During sea acceptance trials, SUCCESS was manned by her naval crew under the Commanding Officer designate, Captain J. G. Longden. The ship then began several months on trials and evaluation of replenishment systems with other units of the RAN, including first of class flying trials for RAN helicopter types. Eight days after the handover, SUCCESS was officially commissioned into the Royal Australian Navy at a ceremony at No 12 Pyrmont in Sydney Harbour.

Attending the ceremony were their Excellencies, the Governor General and Lady Stephen, the Chief of Naval Staff, Vice Admiral Michael Hudson, the RAN Deputy Fleet Commander, Commodore Matt Taylor and Mr John Jeremy, Managing Director of Cockatoo Dockyard Pty Ltd.

The commissioning ceremony began at 10.30 am with the arrival of the Governor General. Following the inspection of the guard, the Commanding Officer of HMAS SUCCESS, read the Commissioning Order. This was followed by a short service, the hoisting of colours and breaking the commissioning pendant.

New Helicopters

The Australian Defence Force is to acquire 22 new helicopters — 14 Sikorsky S70-A-9 Black Hawks for the RAAF and eight Sikorsky Seahawks for the RAN's guided missile frigates.

The Black Hawk utility helicopters will supplement and ultimately replace the Bell Iroquois UH-1H "Huey", which served as the workhorse of the Australian Army in the Vietnam conflict. The Black Hawk has been evolved through the operational and technical experience gained in Vietnam.

The aircraft can deploy quickly over long distances to operational areas, fully crewed and ready for combat. For the first time, the Australian Army will be able to move a full section of ten combat troops in one utility helicopter over a range of 160 km, in most of the operating conditions likely to be encountered.

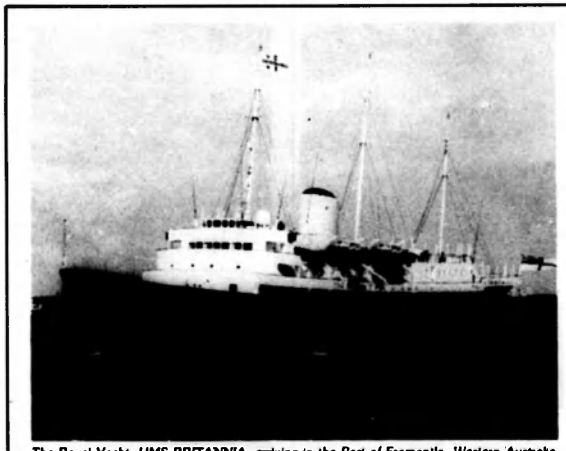
The purchase of the additional eight Sikorsky Seahawk aircraft (which, when combined with their sensors, weapon systems and associated equipment, are worth $187.51m at December 1985 prices), will bring to 16, the number of RAN helicopters purchased for its FFG-7 frigates.

Four of the frigates are already in service and the final two are under construction at Williamstown Dockyard, Melbourne.

Mr Beazley said the additional helicopters would greatly enhance the RAN's capabilities for anti-shipping and anti-submarine warfare.

The Navy helicopters were being purchased 12 months earlier than anticipated, to meet the needs of the two frigates being built at Williamstown.

"This will reduce the cost of the aircraft by enabling continuity of production, both in the US and with Australian industry, and will ensure the same aircraft configuration as the initial helicopters," the Minister said.



The Royal Yacht, HMS BRITANNIA, arriving in the Port of Fremantle, Western Australia, March 21, 1986. (Photo — ABPH P. Boyd)

HMAS VAMPIRE TO BE DECOMMISSIONED

The last of the Royal Australian Navy's purpose-built gunnery ships, the 27-year-old Daring-class destroyer, HMAS VAMPIRE, is to be decommissioned in mid-1986 and put up for disposal. The possibility of her being transferred to the National Maritime Museum as a major exhibit is being examined.

Announcing this the Minister for Defence, Mr Kim Beazley, said HMAS VAMPIRE was one of three Daring class destroyers built in Australia — the others were HMAS VOYAGER and HMAS VENDETTA. She had an armament of six 4.5 in. dual purpose guns, in twin mountings; six 40/60 Bofors guns, a triple barrel anti submarine mortar, and a quintuple torpedo tube mounting.

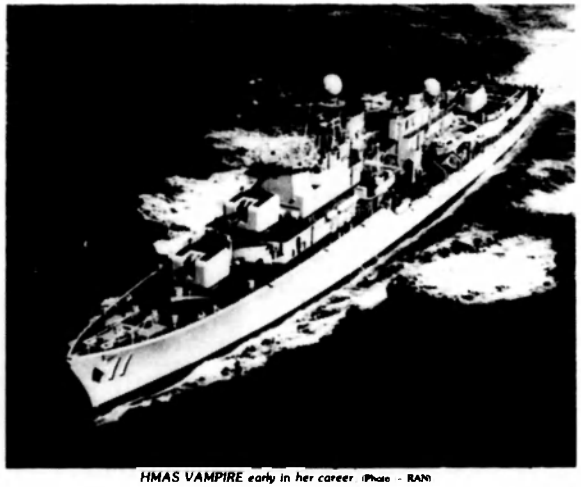
The 3,670 tonne destroyer, built at the Cockatoo Island Dockyard in Sydney, was commissioned into the RAN in June, 1959, and was converted from an operational to a training role in 1980.

During her time in service with the RAN, HMAS VAMPIRE had spent 56,000 hours underway at sea, and in that time had steamed 800,000 nautical miles.

"As the oldest commissioned ship in the Navy, the ship has played a valuable role in both her operational and training capacities," Mr Beazley said. "In the early stages of her commission she won the prestigious Gloucester Cup on three separate occasions as the most efficient ship in the Fleet, and over the years has won other important awards. She has served Australia well."

A rare event: the FFG HMAS CANBERRA, berthed in the Australian Army operated Woolwich Dock, for repairs, March, 1986. (Photo – RAN)

HMAS VAMPIRE after modification to a training ship. (Photo – RAN)



HMAS VAMPIRE early in her career. (Photo – RAN)

BOARD OF INQUIRY

The Chief of Naval Staff, Vice Admiral M. W. Hudson, has stated that the Naval Board of Inquiry into the gassing of personnel on board HMAS STALWART last year had found that the deaths and injuries were caused by hydrogen sulphide poisoning.

VADM Hudson released a detailed report on the cause of the accident and a narrative of events as they occured. The report showed that the hydrogen sulphide gas was formed in Stalwart's waste tank by the interaction of oil, chemicals and salt water, together with sulphate reducing bacteria.

The Board concluded that while one sailor was transferring waste from the tank to the sea, another sailor in a nearby stern gland compartment was pumping bilge water to the sea. Both sailors were using the same pump.

The Board said the use of the same pump, together with a valve deficiency in the ship's system, led to cross connection of the suctions lines and allowed waste to discharge into the stern gland compartment. This resulted in heavy and lethal concentrations of hydrogen sulphide gas being generated in the compartment.

The sailor in the compartment was overcome by the gas, as were five others who went to his aid. Three of the sailors died.

Measures to prevent recurrence have been taken.

HMNZS TAKAPU, survey vessel of the RNZN, and a likely design contender. (Photo – RNZN)

Tenders are being called for four modern survey launches for the Royal Australian Navy to be used to update existing nautical charts of northern Australian waters.

"This is a high priority task. Except for the recognised shipping routes, Australia's northern waters are inadequately charted. Much of the information on which current charts are based, came from surveys carried out in the last century," Mr Beatley said.

"Accurate, updated charts will greatly increase the safety of all who use these waters — fishermen, yachtsmen, tourists and merchant seamen, as well as the RAN."

Each of the new survey launches will be about 35 metres long, and have a crew of two officers and ten sailors. They will be fitted with the latest maritime survey equipment and will work in conjunction with the existing hydrographic ships, HMAS MORESBY and HMAS FLINDERS.

Tenders have been called from Australian and New Zealand shipyards and the RAN expects to commission the four launches in 1988/89. After commissioning, the launches will be based at Cairns. Their first task will be to help update charts of the Great Barrier reef.

Protection of Merchant Shipping Exercise

An international exercise designed to test procedures for the control of merchant shipping in times of tension was conducted from April 7 to 18.

The Minister for Defence said that the exercise, named Expanded Sea 86, involved 185 Royal Australian Naval Reservists in all capital cities, and the ports of Newcastle, Port Kembla, Port Hedland and Cairns.

During the exercise, Reserve officers boarded merchant ships of participating nations to brief ships' masters on plans and procedures to control the movement of merchant ships in times of tension. Helicopters were used to board selected ships at sea.

Similar exercises were conducted simultaneously in many parts of the world, including North and South America, Europe, the Pacific and Asia.

French Naval ship JEANNE D'ARC, arriving at HMAS Stirling for a four-day visit. Accompanied by the frigate FNS COMMANDANT BOURDAIS, the ships were the first French warships to visit the facility. (Photo – LSPH Eric Pinson)

THE GREAT PATROL BOAT RACE

"Gentlemen, start your patrol boats . . ." Well, that wasn't quite the way it started, but the first Great Patrol Boat Race had all the ingredients of more conventional tests of speed and skill.

by Leut J. STRACZEK and Leut N. WYATT.

The inaugural race for the Fremantle boats was on May 2, involving HMA Ships WHYALLA, GEELONG, GAWLER and TOWNSVILLE.

The latter two boats were Darwin and Townsville based respectively, and were out to show their southern sisters how things should be done.

Assisting in the race were DTV SEAL and TRV TREVALLY.

Aim of the race was to take the opportunity, while four boats were together, to conduct full power trials concurrently, and to see who was the fastest.

The opportunity was also taken to show the media and invited guests what life on a patrol boat is like. To this end, each boat carried a media crew as well as two schoolchildren who were winners in an essay contest held in conjunction with Radio 2BL.

After embarking guests, all boats sailed from HMAS WATERHEN and proceeded down Sydney Harbour and, once clear of the heads, the ships shaped a course for Broken Bay.

Enroute to Broken Bay, engine trials, using the port main engine, were conducted to compare performance of boats with and without a wedge.

After entering Broken Bay, the patrol boats carried out a formation anchorage on a line of bearing from HMAS WHYALLA.

Then at 1045, a green flare was fired to start the first part of the race.

This first stage involved a rubber ducky and foot race from each patrol boat to a marker ashore, and then a dash up the beach to obtain the navigation instructions for the second part of the race.

During the navigation phase of the race, points were gained or deducted for time of arrival at selected points, as well as for accuracy of navigation.

While heading south for Botany Bay, the boats came across DTV SEAL, cleverly disguised as a merchant ship in distress. All boats were then required to send a medical team across to SEAL to render assistance to an injured crewman.

During this phase, the most spectacular zodiac launch and recovery was conducted by GAWLER, who, with fine seamanship, safely launched and recovered her boat while under way.

After rendering assistance to SEAL, which at one stage looked like a covered wagon surrounded by Indians, the boats continued on their way to Botany Bay.

Unfortunately, at this stage, GEELONG developed an engine defect and was unable to proceed to Botany Bay for the full power run. This was doubly unfortunate, as GEELONG had maintained a record of trouble free operations for many months, that would be the envy of all RAN ships.

At the end of the final full power run, TOWNSVILLE led the remaining three ships through the heads and the high speed run back up harbour.

On arrival back at WATERHEN, the winner was announced by Commander Australian Mine Warfare and Patrol Boat Forces, CMDR R. G. Dagworthy, and the prize was presented by John Woods, from Radio 2BL, to LCDR Denis Collyer Commanding Officer of TOWNSVILLE, the winning boat and the fastest boat in the high speed run.

CMDR Dagworthy thanked participants, especially Radio Station 2BL and John Woods for the great assistance in promoting the event given by the breakfast program team.

COMAUSMINPAB also congratulated all crews and the organisers for the healthy spirit and outstanding success of the day. He declared that the patrol boat force and the RAN's 75th Anniversary were the real winners on the day.

HMAS GAWLER leads HMAS Townsville (right) and HMAS Geelong (left).
(Photo — POPH Steve Given)

HMAS GAWLER flying the flags of the Northern Territory and Seven National News.
(Photo — POPH Steve Given)

HMAS TOWNSVILLE, eventual winner of the Great Patrol Boat Race. (Photo — POPH Steve Given)

SAVE THE CERBERUS

During March, 1985, the Sandringham City Council commissioned A. R. Colquhoun & Associates Pty Ltd to investigate and report on the feasibility of refloating the former HMVS CERBERUS, and transporting her to a site adjacent to the currently restored POLLY WOODSIDE for preservation and restoration. After receipt of the report by A. R. Colquhoun & Associates, the Council commissioned R. J. Herd & Associates to prepare detailed proposals for the restoration of CERBERUS.

After receipt of these two reports, the Sandringham City Council prepared a detailed submission, entitled Save The CERBERUS, for the raising and restoration of the monitor. Basically, the plan envisaged refloating and relocating CERBERUS to the old Duke and Orr dry dock next to the POLLY WOODSIDE. Once in situ, the ship would be restored to display condition, using as much original material as can be located. Where it is not possible to obtain original equipment, then these spaces will be used to display technical equipment of a contemporary nature or photographic exhibits depicting CERBERUS and her career.

Once fully restored, and opened to the public, CERBERUS would be a historical attraction to rival the best that the world has to offer and a fitting monument to the men of Australia's colonial naval forces.

INTRODUCTION

The City of Sandringham believes that the preservation and restoration of HMVS CERBERUS provides an opportunity for local, state and federal governments to work together to create a bi-centennial memorial of national and international significance.

The proposal to restore this now unique warship gains further significance, as 1986 also marks the 75th Anniversary of the Royal Australian Navy.

The City of Sandringham has already invested considerable time, effort and some $25,000 expenditure to assess the feasibility of raising, moving and restoring HMVS CERBERUS. Since the City became beneficial owners of the ship in 1926, there has been a growing number of enquiries which highlight the fact that HMVS CERBERUS is an historic vessel by Australian and world standards.

Expert reports indicate that the ship is still salvagable, although there has clearly been some deterioration. It appears that unless some prompt action is taken, the alternative is for this piece of Australian history to be allowed to rust and rot, until the hulk becomes hazardous and collapses beyond redemption.

The City of Sandringham strongly recommends that the Federal Government should allocate special bi-centennial funding to salvage and restore the CERBERUS.

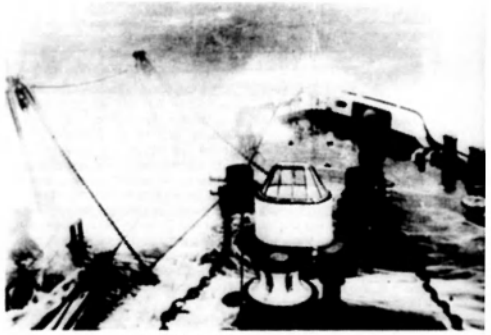
The City of Sandringham proposal and supporting documents provide detailed costings and recommendations.

The City of Sandringham estimates that the total cost of the proposal will not exceed $3.6 million, and earnestly commends the proposal for State and Federal Government consideration.

The City believes it has played a proper local government role in researching and presenting this submission and confirms that the City of Sandringham is prepared to relinquish its ownership of HMVS CERBERUS to ensure that she can be restored and preserved for the benefit of future generations of Australians and of overseas visitors.

The Melbourne Maritime Museum has indicated that it not only supports this project, but would also be pleased to take over the management and maintenance of HMVS CERBERUS once it has been restored and placed in situ. The Museum has indicated that the project would also incorporate the restoration of one of the Port of Melbourne's oldest dry docks — another significant piece of maritime history.

The City of Sandringham is pleased, therefore, that this request for Federal Government funding has a concluding point at which visitors to the CERBERUS will become largely responsible for the future.



HMVS CERBERUS in a seaway.

THE HISTORICAL IMPORTANCE OF HMVS CERBERUS

HMVS CERBERUS is one of the most historically important naval vessels in existence.

During the 1860s, the question of colonial defence played a major role in Britain. The Victorian government of the day was also greatly concerned about the defence of Melbourne. An attack from foreign warships was considered a possible threat.

With clouds of fear over the colony, the British government commissioned the eminent naval architect, E. J. Reed, chief constructor — Admiralty, to design the CERBERUS.

The CERBERUS was no ordinary warship. Her design was a complete break from established tradition.

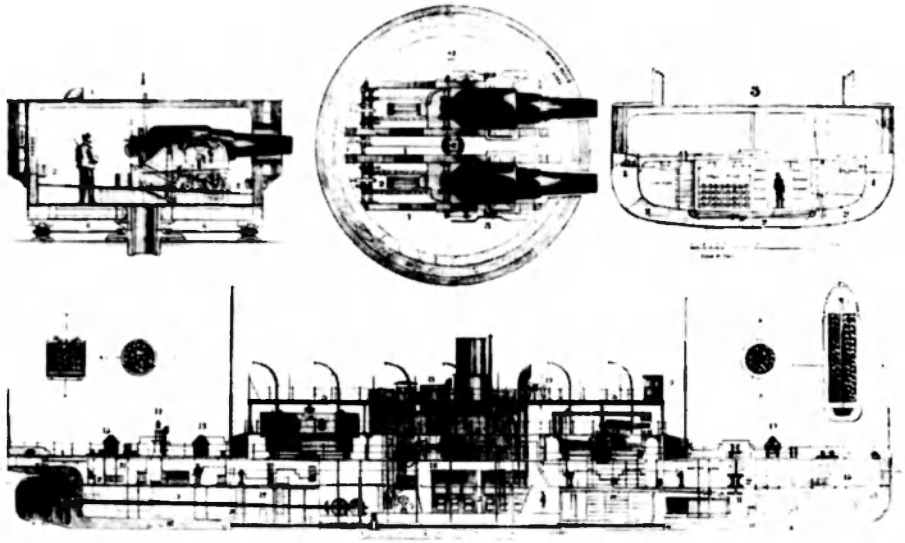
Known as a turret ship, or breastwork monitor, it became the prototype of a new class of warship.

The design of the CERBERUS was the prototype upon which all major battleships, from 1885 to 1905, were based.

She was the first armoured fighting ship built for service in Australia, and the first designed to operate without sails.

The CERBERUS is therefore of prime importance, because it has worldwide significance in the history of naval architecture.

The first breastwork monitor built, she commenced the development of the ironclad battleship, and is now the only surviving vessel of her type in the world.



Original plans for HMVS CERBERUS

Age alone makes the ship significant. By comparison, the sailing ship POLLY WOODSIDE, now restored by the National Trust, was launched seventeen years after the launching of the CERBERUS.

The CERBERUS was an even greater departure from ships of her day.

Special compartments in the hull could be filled with 500 tons of water to reduce the freeboard, making the ship a smaller target for attack.

Heavy armour plating, from six to 10 inches in thickness, protected the hull, citadel and guns. The main armament was four 10-inch MLR 18 ton guns, two in each turret.

The principal dimensions of the CERBERUS were length, 225 feet, overall beam, 45 feet, draught 15 feet 6 inches, and displacement, 3,340 tons.

The CERBERUS was laid down in 1867, launched in 1868, and completed in September 1870. CERBERUS came to Melbourne under her own power and the voyage took 123 days. She arrived in Port Phillip Bay on April 9, 1871, to a great welcome.

CERBERUS was the flagship part of the Victorian Navy, and in 1911, following Federation, became part of the newly formed Royal Australian Navy.

Between 1871 and 1911, she was a familiar sight of Williamstown.

Manned by well trained crewmen, the CERBERUS played a key role in the numerous naval mock battles and exercises with the shore forts at Queenscliff and the Heads.

She was used as a floating store for explosives during World War One, and in 1921, was renamed HMAS PLATYPUS II, and was used as a submarine depot ship.

The CERBERUS history of service was such that the Royal Australian Navy named its base at Flinders after the ship.

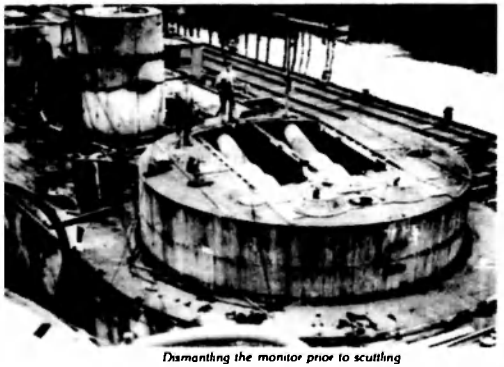
By 1924, there seemed to be no practical use for the CERBERUS and she was sold as scrap. Much of the valuable parts were stripped from the ship, and in 1926 the Black Rock Yacht Club became interested in the hull for use as a breakwater in Half Moon Bay.

The City of Sandringham then decided to purchase the hull, together with turrets, guns and anchors.

The purchase of the CERBERUS was typical of the enterprising spirit of the Sandringham community, who prided themselves on having a premier seaside resort. The CERBERUS was towed to its current location and scuttled at high tide on a sandbank.

The hull still serves as a breakwater, but after nearly 60 years of battering from the waves there has been some obvious deterioration which concerns both historians and the community in general.

There have been recent inspections by Royal Australian Navy diving teams, the results of which are not publicly available, but it is the considered opinion of naval architects that the CERBERUS is still capable of being salvaged, although this may not be the case for very much longer.



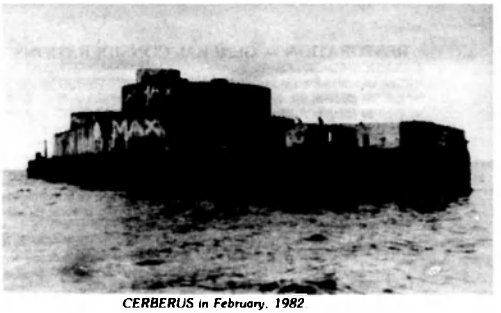
Dismantling the monitor prior to scuttling

RESTORATION PROPOSALS

In April 1985, Naval Architects, A. R. Colquhoun & Associates Pty Ltd investigated the preservation and restoration of the CERBERUS and prepared an extensive report.

The architects recommended that the CERBERUS be refloated by sealing and pumping out and then transported to an exhibition site.

Being scuttled at Black Rock, 1926



CERBERUS in February, 1982

The preferred site to locate the warship for permanent exhibition is the old Wright and Orr Dock* on the Yarra River, opposite the World Trade Centre, and just east of the location of the historic POLLY WOODSIDE barque.

The CERBERUS would be permanently moored, resting on a prepared bed.

The Port of Melbourne Authority is landscaping the nearby area, and a small craft landing and walkway across the dock has been constructed recently.

*The Wright & Orr Dock itself represents one of the Port of Melbourne's oldest dry docks, and its restoration also has historical significance.

COSTINGS OF THE PROJECT

	$
Refloat CERBERUS, and transport to the exhibition site adjacent to the POLLY WOODSIDE	737,000
Restoration of the shell plating	528,000
Provision of a suitable exhibition site	421,000
Additional work may be essential at the exhibition site	120,000
Concrete filling of the double bottom compartments of the vessel	85,000
Replacement breakwater	525,500
Basic restoration of the vessel	1,000,000
TOTAL	3,516,000

HMVS CERBERUS

RESTORATION PROPOSALS

The City of Sandringham, with the assistance of Public Relations Consultant, Consolidated Royce, is preparing a submission seeking Federal Government Funding for preservation and restoration of the HMVS CERBERUS, as a project celebrating Australia's Bicentennial and the Royal Australian Navy's 75th Anniversary.

The submission will address four areas of activity:

1. Preparation of an exhibition area.
2. Method and cost of transportation of HMVS CERBERUS from Half Moon Bay, Black Rock, to the exhibition area.
3. Construction of a replacement breakwater at Half Moon Bay.
4. Restoration.

R. J. Herd and Associates Pty Ltd, have been invited by the City of Sandringham to advise on Area 4, ie. the Restoration.

THE BRIEF

The brief provided by the city is expressed in the following terms:

"the vessel is to be reassembled/repaired and restored to a sufficient standard for exhibition. Complete restoration and fitting out is not envisaged, but would be undertaken on a long term basis by volunteers, etc, under the guidance of the National Trust.

(a) Description of extent and method of restoration.
(b) Possible sketch or section plan.
(c) Cost estimate."

THE VESSEL AS IS

The vessel has been examined on site in Half Moon Bay and checked against construction plans, mainly above the upper deck. Access below the upper deck was not attempted at this stage, partly due to the level of water within the vessel, and partly because of the evident magnitude of the task of restoration at upper deck level and above.

The present condition of the vessel in these areas may be summarised:

1. **FLYING DECK**
   This deck has been removed completely.
2. **DECK OVER BREASTWORK**
   With the exception of the conning tower, which still stands, the vessel has generally been razed to the level of the turret tops and the deck over the breastwork.
   The top of the forward turret has a substantial amount of plating remaining. The closures, by way of gratings, hatches, etc, are generally missing. The after turret has the central area of plating missing. The openings remaining in both turrets lack the means of closure.
   The deck between and around the turret tops remains, but the openings, ventilators, ladderways, coal chutes, ash chutes, funnel casing, etc, have lost their means of closure. The funnel structure above this deck has been completely removed.
3. **UPPER DECK**
   The upper deck and the greater proportion of its sheathing remain. Little equipment is left. The underside of the structure has not been examined for integrity, though this aspect has been covered as part of the consideration of relocation.
   The majority of the deck closures have gone, leaving a profusion of open holes which were provided for various purposes. It is understood that the majority of these closing devices were of gunmetal and while some have been removed and scrapped, it has been suggested that some remain loose within the hull, below the water level.
   The visible openings in the upper deck do not agree in all respects with those shown on the as-fitted general arrangement drawing produced.

CERBERUS

CERBERUS is described in her bulding specification as "a twin-screw iron armour-clad turret ship of 2,107 tons, with monitor deck and raised breastwork for Melbourne".

The main characteristics of the "Monitor" type of vessel, so named after the MONITOR, designed and built in the USA by John Ericsson in 1861-62, are a low, armoured hull on which are mounted armoured guns situated in revolving gun turrets.

The success of the "Monitor" type of vessel in the US Civil War, led to the concept being taken up in the United Kingdom by Captain Cowper Coles, RN, who designed the revolving turret.

When the Government of Victoria appealed to the UK Government for assistance in defending the Port of Melbourne against enemy incursions, E. J. Reed, then Chief Constructor of the Navy, designed CERBERUS, the first of a class known as "Breastwork Monitors". These were built on the "Monitor" principle of having an armoured deck close to the waterline. The turrets were given clear operation axially, and were surrounded by an armoured citadel, or breastwork. In the case of the CERBERUS, the breastwork is 112 ft 6 in long, and 36 ft wide, and provides protection to the turrets and to the crew.

The vessel was the first of its type to be designed without masts, sails and rigging. CERBERUS was followed by DEVASTATION, a large, seagoing monitor built entirely without masts.

This line of development in naval design, led to the development of the battleship, a class of warship significant in both world wars.

CERBERUS is thus the sole surviving example of this important stage of naval design.

On the local scene, CERBERUS was a major unit of the Victorian Navy, being transferred to the Royal Australian Navy in 1911.

RESTORATION — GENERAL CONSIDERATIONS

1 BASIC PRINCIPLES

The two different aspects of the importance of CERBERUS, ie.

(a) its place in the development of naval design and

(b) its place in Australian history,

must be emphasised in determining the manner in which restoration, display and maintenance are carried out

2 SCOPE OF RESTORATION

The CERBERUS was in service for some 50 years. This period covered the introduction of many changes in engineering technology as expressed in the design of naval vessels and in the armaments used in naval offence and defence.

There are a number of plans available, which show CERBERUS as fitted in 1870. Also, the specification prepared for her construction and dated July 1, 1867, is available (4). Many items in this Specification are required to be in accordance with Naval practice of the time. Information on these is being sought from the Admiralty.

In addition to as fitted plans, a plan of the single mast, which was fitted in place of the original two masts, and a plan, "Additions and Alterations to HMCS CERBERUS" dated and signed on 16.9.94(?), showing five alterations made or to be made, exist.

This information was made available through the Maritime Trust. It is not known what similar information is retained by the Victorian State Archivist.

Various references to alterations, additions and changes in usage are recorded in accounts of the CERBERUS.

Ingleton (1) reports:

Page 24 Steam steering gear installed, 1877.

Page 25 Electrical director fitted about 1880.

Page 26 Torpedo nets added, 1877; two 14-pounder and ten 6 pounder, quick firing guns added, 1890s.

Page 27-28 A few years after 1880, the CERBERUS was refitted and modified. New boilers were installed and extensive alterations made to her upper works and armament.

Evans (2) reports:

Page 63 The square box pattern boilers were removed in 1883, and replaced by cylindrical boilers.

Page 64 CERBERUS was an explosives store ship for three decades, prior to 1921. In 1921, she became a submarine depot ship at Geelong.

Page 71 A gun split into three pieces.

Page 179 HMVS CERBERUS modernised, 1892.

Gillett (3) reports:

Page 106 Torpedo netting and spars fitted in 1887, and first test in July, 1887.

Page 107 The torpedo nets were improved for easier operation.

Page 113 During World War I, CERBERUS served as an ammunition storage vessel.

Page 113 From 1921, CERBERUS served as a Submarine depot ship.

Page 114 2 x 6 pounder guns were mounted, 1892-93.

Without doubt, some of the differences evident between CERBERUS as is, and the as-fitted plans, are due to the above changes in machinery, equipment, fittings and service. No record exists to explain some of these differences, eg. the wide, but short hatch on the foredeck.

Two approaches to restoration can be made.

(a) To restore CERBERUS to her "as built" condition, or

(b) to restore CERBERUS to a condition representative of her usage at some later stage in her history.

In part, because of the availability of more information, but also because of a desire to restore CERBERUS to show her place in the history of naval design, it is recommended that restoration be carried out towards achieving the "as-built" condition, but with the single mast configuration. (It is believed the two masts originally fitted were erected largely because of the decision to sail CERBERUS to Australia!)

3 EXHIBITION AREA

It is proposed that the small deck area beside the POLLY WOODSIDE, east of Phayer Street, be extended and reconstructed with a concrete base upon which the CERBERUS would be placed. The dock would be filled with 2m to 3m of water, although it is not proposed that the vessel actually float.

The designed load draught for the vessel was 15 feet 6 inches (4.72m), giving a freeboard of approximately one metre. The load draught for the ship, operating as a "Monitor" was 15 feet 2¾ inches (4.64m).

In its present position at Black Rock, the high water level approximates to these draughts. Since the average tidal range in Port Phillip is 0.8 metres, the vessel has been immersed beyond its light waterline, for some 60 years.

The reason for proposing that the vessel be surrounded by some 2m to 3m of water are appreciated. *Nonetheless, it is felt that placing the vessel in a dry basin has a number of significant advantages:*

(a) The vessel's exterior can be sandblasted to remove scale and a protective paint scheme applied.

(b) Once the exterior has been cleaned and protected, deterioration will be limited to that induced by wind, sun and rain. The problem of wind and water strakes, will not exist.

(c) A draught of 2m to 3m will not be representative of the operating draught of a "Monitor". A completely false impression of the purpose of the design and its application in practice will be given.

(d) If the hull is exposed to view, then the form of construction used, which is of significant interest, can be highlighted.

4 SCHEME OF RESTORATION

It is proposed that restoration proceed in two stages:

(1) Upper deck level upwards.

(2) Below decks.

Completion of Stage 1 would enable the vessel to be opened for public exhibition, while Stage 2 proceeds.

The nature of the design of the vessel lends itself to the above dichotomy. Access from the upper deck, outside the breastwork to below deck spaces, is by way of four armoured escape hatches. Access otherwise is via ladderways located in the breastwork deck leading down to the upper deck within the breastwork and then below.

The upper deck thus effectively forms a barrier between the two main zones of the vessel.

Before the vessel could be made ready for inspection above the upper deck level, two major tasks must be completed:

(a) restoration of the turrets, and

(b) reconstruction of the flying deck.

Restoration of the turrets is closely associated with the plans for relocation of the vessel in the Yarra.

In order that CERBERUS be able to pass under "Charles Grimes" Bridge, the conning tower and turrets must be removed.

The conning tower repositioning will form part of the restoration scheme.

In the case of the turrets, it is understood that two approaches can be made:

(1) to jack the turrets down to a suitable level after cutting the upper deck in way, or

(2) by removing the turrets completely.

Since the turrets are resting on rollers, it will be necessary, in any case, to remove the turrets to restore the roller gear.

It is proposed that the second option be adopted. The guns and carriages could be lifted from the turrets, then the turrets lifted from the ship, and all be landed at Williamstown Dockyard, prior to the up river voyage. The guns, carriages, turrets and associated gear, when restored, could then be returned to the vessel by land, at an appropriate time for lifting back into place by mobile crane.

It has been noted that one gun has been partly cut up and that one section of turret armour has been cut away. In the case of the gun, the muzzle could be left "as-is", with an explanatory notice. The turret armour could probably be replaced by falsework.

RESTORATION — DETAILED PROPOSALS

A HULL

1 Weaknesses in hull structure remaining after delivery to site to be restored.

2 Wood sheathing to be removed to expose iron deck plating.

3 Decks to be restored where necessary.

4 Hull, decks, breastwork and turrets to be sandblasted, inside and out, and given a protective coating.

B UPPER DECK

1 Turrets, guns and gun carriages to be removed ashore for restoration, and then repositioned.

2 Elevating gear, running in and out gear and turning gear to be restored.

3 Wood sheathing to be renewed or replaced.

4 Bulky items of equipment, representative machinery, etc. proposed for location below the upper deck, to be placed below before closure of Upper Deck and Deck over Breastwork and construction of Flying Deck.

5 All upper deck openings to be closed with appropriate closing appliance.

6 Small items of upper deck equipment can be replaced, eg. eye bolts, ring bolts, etc.

7 Replacement of equipment such as anchors, which do not interfere with other aspects of restoration or public viewing, to be progressed as time and funds permit.

8 Capstan to be made mobile.

9 Fore and aft toilet spaces (at ends of breastwork) to be restored.

10 Pumping services to be replaced.

11 Guard rails and ladders to be replaced.

12 Cable to be cleaned and ranged (some said to be remaining in cable lockers).

13 Navigation equipment, wheel, binnacle, etc, in breastwork to be restored.

14 Galleys to be restored.

15 Other items shown on as-fitted Upper Deck plan to be provided and fitted.

C DECK OVER BREASTWORK

Openings in this deck need appropriate means of closure. The ventilator shaft serves as the base for the single pole mast. No major fittings or equipment are required. The funnel casing and funnel will require to be replaced, as will the ash shoot/ventilator. This deck was sheathed with 3½ inch oak.

D FLYING DECK

This deck cannot be reconstructed until after the turrets are restored. Due to the non-availability of original iron material, fabrication from steel will be necessary. Ventilators, funnel casing and funnel, ash shoot/ventilator and conning tower, all pierce this deck. Six wooden boats are shown mounted on radial davits. This deck was sheathed with 2½ inch fir. The single pole mast fitted after arrival in Victoria is presently the property of the Victorian Maritime Trust, and is lying on Gem Pier, Williamstown. There are no major items of equipment on this Deck other than steering wheels.

E BELOW DECKS

Three main areas are involved:

(1) Machinery space.

(2) Lower Deck, forward and aft of the machinery spaces.

(3) Hold spaces, forward and aft of the machinery spaces.

As the machinery which forms the bulkiest items of equipment below decks has been removed, it has been suggested that some representative pieces of machinery and equipment should form part of a museum display in these spaces.

As indicated under B. Upper Deck, above, equipment or exhibition pieces which cannot be disassembled should be placed below before the Upper Deck is closed. An overhead hoist could be fitted in the funnel casing in conjunction with a bolted or hinged plates, to permit small items of equipment to be lowered below, once the Flying Deck is in position.

The below deck items, other than machinery, do not represent a great problem in terms of either mass or dimensions, and progressive installation could be carried out without difficulty.

COST CONSIDERATIONS

It is considered that a budget figure of $1,000,000 should be adopted for initial restoration.

It is not considered that any more precise costing is possible at this stage for reasons such as the following:

1 The division of labour between contractors and volunteers cannot be forecast. Execution of hull preparation and preservation by sandblasting and protective coatings, can be carried out by volunteers, but it is a lengthy process.

2 Restoration of the gun turrets, guns, gear for turret turning, elevating and depressing guns, and running the guns in an out could be best be carried out by Williamstown Dockyard, either on contract, reduced cost or as part of a Commonwealth contribution. Until the turrets are dismembered, close examination of mechanical systems is not possible.

3 Availability of plans of equipment, fittings, etc, for manufacture from suitable materials, is unknown. (Different cost criteria will apply, as between anchors and signal lockers, for example.)

4 Condition of the upper deck underneath the existing wood sheathing, is unknown. The fact that the sheathing is still there, suggests that removal is difficult, and considerable protection of the upper deck may still be present.

5 The possibility of recovery of some items not yet destroyed.

REFERENCES

1 Ingleton, G. C., Watchdogs Infernal and Imperial, Warships Cerberus, Records of Service, Golden Lantern 1938, Adelaide.

2 Evans, Wilson P., Deeds Not Words, The Hawthorn Press, Melbourne, 1971.

3 Gillett, Ross, Warships of Australia, Rigby Limited, Adelaide, 1977.

Limited, Adelaide, 1977.

4 Specification for a Twin Screw Iron Armour Clad Turret Ship of 2,107 Tons, with a Monitor Deck and Raised Breastwork, for Melbourne, Admiralty, July 1, 1867.

Warships for the Royal Australian Navy 1945-85

by Rear Admiral William J. Rourke, AO, RAN, B.Econ., M.Ec. (Fellow)*

Summary

This is an account of the acquisition of warships for the Royal Australian Navy in the forty years since World War II. It describes the main overseas and Australian programmes of the period, with particular emphasis on the choices made between offshore purchase or local construction. Current capability for design and construction of warships is described, and prospects for the next decade are assessed.

Acknowledgements

Many people have helped prepare this paper. I would particularly like to thank Mr F. Shadbolt, Director of Naval Ship Production, and Mr B. Robson, Director of Forward Design, for their substantial assistance. The paper is presented by permission of the former Chief of Naval Staff, Vice Admiral D. W. Leach, AC, CB, LVO, RAN. The views expressed are not necessarily those of the Royal Australian Navy or the Department of Defence, but are the responsibility of the author.

Introduction

Australian governments since Federation have lent some measure of support to naval shipbuilding as a necessary part of defence industrial capacity. However, the shipbuilding capacity built up in times of need has lapsed in periods of low demand. In the last decade this capacity has been built up again and it is now to be determined whether or not it can be successfully maintained, or will lapse again into another period of disuse. Much will depend upon the standards of execution of current programmes.

Before World War II

The Australian Commonwealth Naval Board was established in 1905, but it was not until the Imperial Conference of 1909 that plans were drawn up for acquisition of the first ships of the Australian Fleet. It was decided to order a number of ships from Britain as a precursor to a local construction programme. A battle cruiser, 2 cruisers, 2 destroyers and 2 submarines were built in Britain. A third destroyer WARREGO was built in Britain and knocked down for reassembly at Cockatoo Island dockyard. Three more destroyers, HUON, TORRENS and SWAN and the cruiser BRISBANE, with the greater part of their engines, were built at Cockatoo between 1913 and 1916.

In the early twenties it was decided two more cruisers were needed, and there was extensive debate on the merits of local construction. As local construction costs were assessed at about 50% above British costs it was decided to spend the funds available on two British built cruisers, AUSTRALIA and CANBERRA, and a Cockatoo built seaplane carrier ALBATROSS. During the thirties a policy of some imports and some local building continued. Five V and W class destroyers and the light cruisers SYDNEY, HOBART and PERTH were acquired from the United Kingdom, and the ships YARRA and SWAN were built at Cockatoo.

MARYBOROUGH under construction at Walkers Ltd during the Second World War

World War II

At the outset of the war two more ships PARRAMATTA and WARREGO had been laid down at Cockatoo and orders were placed for two destroyers ARUNTA and WARRAMUNGA, with a third BATAAN ordered in 1942. In 1938, the Naval Staff had decided to proceed with the design of a corvette for anti-submarine and minesweeping duties for use in the approaches to our ports. A total of 60 BATHURST class corvettes were built in Australia during the war, 36 for the RAN, 20 for the Admiralty and 4 for the Royal Indian Navy. Twelve RIVER class frigates were built, two of them at Williamstown, taken over by the Commonwealth in 1942 and remaining a naval shipbuilding yard since.

Early Post War 1945-60

In January 1944 the Australian War Cabinet appointed a committee to review the Australian shipping and shipbuilding industries and to recommend plans for their peacetime development. In August 1945 the Prime Minister, Mr Chifley, announced government decisions that "the maintenance of a peacetime merchant shipbuilding industry is essential accompaniment to a planned merchant programme will be entered upon ... to ensure stability to the industry as a whole."[1]

In January 1946 Mr Chifley expressed the Government's concern at the high cost of Australian shipbuilding, about double the cost per ton of work on the Clyde.[2] Nevertheless on 26 March, 1946, the Prime Minister announced that the Government had approved in principle the building of four additional destroyers (two each at Cockatoo Island, NSW and at Williamstown, Victoria), when the two destroyers of British design then being built (TOBRUK and ANZAC) had sufficiently progressed, so as to avoid the dispersal of the skilled staff and other personnel. Funds were made available to enable new methods of pre-fabricated welded construction to be undertaken.[3]

At the beginning of World War II most material and equipment for ships was imported from Britain but by 1946 about seventy per cent was being made in Australia.[4] It was decided that this development should be continued and extended in the new destroyer design, modified slightly for Australian service. They were the first all welded naval vessels built in Australia. Steam conditions were 650 psi 850°F, in line with USN practice, and they were AC ships operating at 440 volts 60 cycles. Boilers, turbines (including rotor forgings) and major items of auxiliary machinery were all built in Australia. Although the number of ships built was later reduced from four to three as an economy measure the DARING construction programme of VOYAGER, VENDETTA AND VAMPIRE was a successful one, with new engineering capabilities established.

In 1946 discussions had been initiated with the Admiralty on the formation of a Fleet Air Arm, and it was agreed that two MAJESTIC class carriers laid down during the war would be completed and transferred to the RAN. The decision was announced in Parliament on 3 June, 1947, and SYDNEY commissioned in Devonport in December 1948. The British carrier VENGEANCE was lent to the RAN from 1952 until 1955. MELBOURNE commissioned in Barrow in October of that year and incorporated such innovations as the steam catapult, mirror landing sight and angled deck. A substantial modernisation was carried out by Garden Island Dockyard in 1968.

While the DARING's were building in the early fifties ARUNTA and WARRAMUNGA were modernised, and four British built 'Q' class destroyers were converted to Type 15 AS frigates between 1950 and 1957. This involved a considerable redesign effort with extensive use of aluminium steel interface problems.

In August 1950, just after the DARING's had been laid down, the Government announced that six new anti-submarine frigates of the RIVER class would be built, three at Cockatoo and three at Williamstown. The programme was subsequently cut back to four ships with the final two not authorised again until the early sixties. The design of the Australian RIVER class was similar to that of the British LEANDER class. Propulsion plant employed steam plant with double reduction geared turbines. Seacat anti-aircraft guided missiles were installed and STUART received the first installation of the Australian designed and developed IKARA anti-submarine missile in 1963. For the first four ships boilers, turbines and auxiliary machinery were all locally made. The 4.5 turrets were manufactured in Bendigo.

It will be recalled that the announcement of six frigates in August 1950, making ten destroyers on order in Australia at the one time, came soon after the outset of the Korean War in which so many ships and men of the RAN served with distinction. The order book was cut back to 3 DARINGS AND 4 RIVERS in 1954.

During the early sixties the hydrographic ship MORESBY was built at the State Dockyard, Newcastle. This was the first post-war naval vessel designed in Australia.

1960-75

During the early sixties there was increasing military activity in South East Asia. The three DARING class were in commission and the four RIVERS nearing completion. Further orders were necessary, and it was decided in January 1962 to order two ADAMS class guided missile destroyers from the United States. Despite strong criticism by the Labour opposition the Menzies Government went ahead arguing that the construction of these vessels was beyond the skills and experience of Australian shipyards. The shipbuilders did not agree.[5] The government's decision lead to a contract in January 1962 with the Defoe Shipbuilding Company, Michigan, for the ships PERTH and HOBART, with an order for a third ship BRISBANE placed in January 1963. The first two ships commissioned in 1965, and BRISBANE in 1967.

The Australian DDGs followed the USN — Gibbs and Cox design except for modification of accommodation and the installation of the IKARA missile system. They introduced a new era of weapons, weapons control, and propulsion technology to the RAN with the Tartar missile system, 3D electronic scanner radars and 1250 psi 850° steam propulsion systems. It was clearly more economical to order ships from the USA — Defoe had already built four of the class — and most of the equipment would have had to have been imported. However, it is difficult in retrospect to support the view that construction in Australia would have been beyond the capability of local shipbuilders.

In 1961 six TON class minesweepers were purchased from the UK, two of them were converted to minehunters by Garden Island dockyard in the late 60s.

In 1962 it was decided to re-establish a submarine arm of the RAN, and in January 1963 it was announced that four British OBERON class were to be built in Scotland at a cost of 5,000,000 pounds each. OXLEY commissioned in March 1967 and the fourth boat in December 1969.

Meanwhile in Australia, two more RIVER class frigates were ordered, one each at Cockatoo and Williamstown. Although the basic design of the frigates SWAN and TORRENS was that of the LEANDER class as was that of the previous four frigates, the configuration of these ships was very different to the parent design. The reconfigured frigates were designed by the Naval Design Branch of the Department of Navy. During this time the Navy designed destroyer tender STALWART was ordered from Cockatoo. Towards the end of the sixties, 20 ATTACK class patrol boats were ordered. This class of patrol boat was also designed by Navy. The hulls of the patrol boats were made by Commonwealth Engineering and assembled at the shipbuilders Evans Deakin and Walkers. In the words of Dr Hughes, the then General Manager of Walkers:

"In this contract we have the interesting spectacle of sophisticated little vessels being built at prices competitive with those tendered by many overseas builders, without the benefit of any shipbuilding subsidy." *"You might well ask why it is possible to compete directly?"* *"The lessons are clear, the boats have been ordered in sufficient numbers to warrant the application of fullscale methods of batch production, including the extensive use of jigs, the degree of detailed planning which brings its rewards, the advantage of buying in bulk and the opportunity for tradesmen to perform the same type of work on a succession of similar ships."*[6]

Much the same words would apply to the NQEA build of FREMANTLE class some fifteen years later.

The design of the 15,500 ton destroyer tender STALWART provided the naval design branch with the opportunity to carry out a complete design. There was a more substantial task in the design of the modified RIVER's SWAN and TORRENS. Major changes were involved including the integration of the Dutch M22 fire control into the combat system.

In the late sixties, as SWAN and TORRENS neared completion, the Department of Defence focussed its attention on the future of naval shipbuilding. In 1969 an interdepartmental committee was established to examine the needs for naval dockyard development. The capability of Australian shipbuilding yards, both private and government operated, was examined, and consideration was given to the desirability of carrying out naval shipbuilding in private yards. Although support was lent to the benefits of building in private yards, particularly for non-combatant and minor-combatant ships, it was broadly concluded that destroyer construction was only likely to sustain one building yard, and that the skills, experience and investment needed favoured Williamstown for this

HMAS QUIBERON, Type 15 conversion (Photo — Ron Hart)

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* Chief of Naval Material, Royal Australian Navy, 1979-85

(1) Commonwealth of Australia, Digest of Decisions and Announcements, No 106, 12 Aug 45 to 31 Aug 45, p59
(2) DODA No 108, p45
(3) DODA No 112, p32
(4) Hutcheson, GID, "Naval Engineering in Australia", Papers on Engineering Subjects, Admiralty, 1946
(5) See Parker, RG, Cockatoo Island, p59

purpose with Cockatoo providing reserve capacity.

At about the same time after experience of the confrontation campaign in establishment of Malaysia a requirement was developed for a new class of light destroyers. In 1967 there were discussions with the Royal Navy on joint development but it was not practicable to establish a common requirement. In 1969 assessment of increasing air threat led to a revision of the requirement and it was decided to proceed to develop a local design. Some supplementation of local design capacity was necessary and YARD Australia were awarded a preliminary design contract in early, 1970.

The overall design task and particularly that of weapons system integration was a formidable one, and as design concepts were developed there was increasing support for adopting the combat system used in the latest USN frigate known as the Patrol Frigate or PERRY class FFG. The Government announced its intention to order three Australian designed DDL's in the context of the August 1972 budget, but the election led to a change in government. The incoming Minister for Defence, Lance Barnard, ordered a comprehensive review of the project that led to a decision in August, 1973, not to pursue the indigenous DDL design, and in April, 1974 to acquire two FFG's. This decision reflected a realisation that the costs and R&D risks of a specific design were too high, and that it was in Australia's interest to share the overheads of a new class, preferably a large one. In the event we joined the USN in the largest frigate programme since World War II. The FFG class provided a missile system and combat system that met our needs, was close to our overall requirements, and had a simple system of gas turbine propulsion of unequalled efficiency. The order for ADELAIDE and CANBERRA was followed by add-on orders for SYDNEY in October, 1977, and DARWIN in April, 1980. The DARWIN design was significantly modified by the USN to improve helicopter operating and handling arrangements.

Although the decision to purchase FFG's was soundly based, it created two major problems. One was that the destroyer building yard at Williamstown was left without orders. The other was that an initial attempt to establish a design agency support base had foundered. Both consequences had long term effects. In regard to employment at naval yards the government decided that the modernisation of DDG's, that the Navy had planned should take place in the United States should be carried out in Australia. This was a major task for Garden Island that despite initial misgivings was successfully accomplished. Williamstown was given the task of RIVER class modernisation but nevertheless problems with imbalance of trades, and policies of no retrenchment, lead to non-productive employment in the form of 'idle time'. The termination of the attempt to design a DDL within Australia signified a general conclusion that such a task would not normally be appropriate, at least when similar capability ships were being designed with heavy investment, by our allies.

Launching of DERWENT, 17th April, 1961

The Past Decade 1975-85

In the last ten years the programmes of purchase of submarines from the UK and frigates from the US, have been continued and extended, but at the same time there has been a renewed emphasis on the merits of local construction. In 1974 an order was placed on Williamstown for the oceanographic ship COOK to a design produced by the Naval Design Branch. The order was placed in haste, to fill the void of the cancellation of the DDL programme, and suffered many difficulties, but the ship was satisfactorily commissioned in 1980, and is proving most effective in its oceanographic role. In November, 1977, an order was placed for an amphibious landing ship TOBRUK, constructed at Carrington's Slipway in Tomago. This was a local adaption of an earlier British design. For some time Navy had planned to replace the ageing British built underway replenishment ship SUPPLY with a ship that would replenish all the needs of an escort – fuel, stores and munitions – at the same time. A design for this vessel was produced by the Naval Design Branch but was shelved on the grounds of expense. Overseas designs were then evaluated, and a French design selected with the initial expectation that the ship would be ordered in that country. However, the Government decided in March, 1978, that the construction should be open to Australian bids, and Cockatoo were awarded the contract in October, 1979.

The specification and the construction tasks proved significantly more complex than the contractor or the Commonwealth had expected, and it proved necessary to renegotiate the contract price and delivery schedule. A great deal of difficulty was experienced by the builder in the re-establishment of shipbuilding skills not used since the completion of TORRENS in 1971.

It became clear during the seventies that HMAS MELBOURNE was reaching the end of her economic life, and if the capability she provided was to be maintained, another aircraft carrier was needed. An aircraft carrier, together with its fixed wing and rotary wing aircraft, represented a substantial investment, and the need for a carrier was analysed and discussed at length over a period of several years. In 1980 the Government decided that an aircraft carrier should be acquired to provide a capability for operating ASW helicopters, and to have potential for operating STOVL aircraft.

Various overseas designs were investigated including particularly those of the INVINCIBLE class building for the Royal Navy, the GARIBALDI class building for the Italian Navy, the Sea Patrol Ship to Gibbs and Cox design building for the Spanish Navy, and a Littons designed base on the US Navy LPH. Attention had narrowed to the two latter alternatives when the UK government indicated that INVINCIBLE was available for sale, and further investigations led to acceptance of that offer. In the event the Falklands War led to a withdrawal of the UK offer, and a change of government in Australia in early 1983 was followed by a decision not to proceed with an aircraft carrier acquisition.

A requirement was established in the late seventies for a new class of patrol boat, and after international competition it was decided the lead boat should be built by Brooke Marine to their design, with fourteen follow boats to be built by North Queensland Engineers and Agents of Cairns. After some initial difficulties the programme has been an outstanding success with boats delivered ahead of schedule, within budget, and to a very high standard. Dr Hughes' prescription for a successful programme has been confirmed again.

A major Naval Design Branch effort has been the development of a unique concept for mine countermeasures involving the design of a glass reinforced plastic catamaran hull carrying an advanced digital processor based combat system for mine detection identification, and destruction. A unique solution has been produced to meet a most demanding requirement. A contract has been awarded to Ramsay Fibreglass of Tomago, NSW, who have two prototype ships under construction in a special group facility. New facilities have been established for evaluating the magnetic, shock and noise characteristics of the ships and systems. The new vessels are planned to undergo their operational evaluation in 1986-87. Progress to date has given encouraging confirmation of the feasibility of the concept, and the merits of the solution. There are good expectations that successful prototype trials will be followed by a production run of at least four more vessels for the RAN in 1986. There are good prospects of export orders.

The largest of several current naval construction programmes is that to build two more of the FFG-7 class, at Williamstown Naval Dockyard. The ships are to the same design configuration as DARWIN, except they will have the Australian designed and built MULLOKA sonar. This programme increases the numbers of the FFG class in the RAN and enhances the advantages of class maintenance and support, including particularly the successful system of a rotatable pool of refurbished equipments. It also provided Williamstown with an established design, well developed for production, that should provide a good vehicle for the re-establishment of naval shipbuilding skills. Given the need to maintain capacity at Williamstown, it was agreed that construction there should cost the Commonwealth no more than would further orders on Todd in the United States.

Since SWAN commissioned in January 1970, Williamstown's principal tasks have been the construction of the oceanographic ship COOK, and the modernisation of the RIVER class frigates. Difficulties encountered in each of these tasks were attributed in part to an inadequate preparation for and definition of the task. In the case of the new frigates a great deal of effort has been applied to establishing a clear contract between the General Manager of the Dockyard and the Australian Frigate Project Director. Contract amendments will be made only with the agreement of both parties and will include variations in time and cost. It should be noted that Williamstown have let a support contract to Todd that should help with the transfer of production technology and production planning, and allow the Australian yard to reap much of the learning benefit obtainable from the fifty and more ships of the class already built.

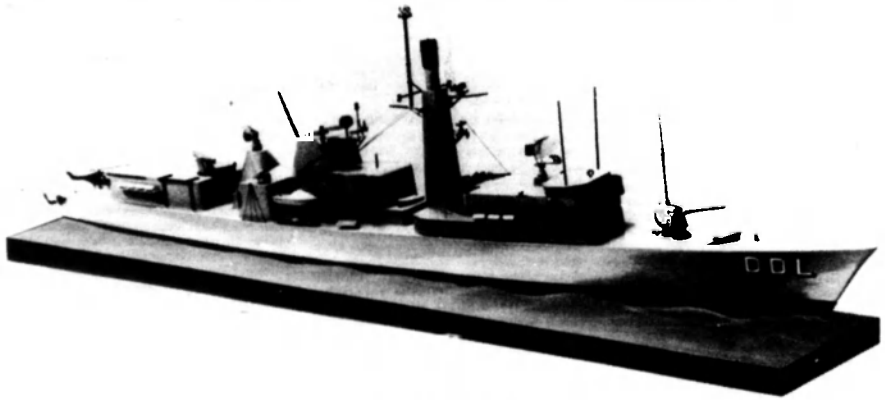
The other naval dockyard, at Garden Island in Sydney, has the refit of the Fleet as its primary mission, but has undertaken substantial modernisations, particularly of the DDGs. The largest modernisation to date is to commence in 1986 at a total cost of about $250 million in current dollar terms. It will include upgrading of communications, gun and missile fire control systems, and the ships central command and control system and will allow the ships to attain a total useful service life of thirty-five years. Other modernisation work of note is the recently completed programme at Cockatoo to install updated sensors and combat systems in the OBERON submarines. This Australian managed design development has brought the OBERONS to the forefront of diesel powered submarine capability, able to exploit to the full the capability of such modern weapons as the MK 48 torpedo and the submarine launched HARPOON missile.

The RAN's first two FFGs, ADELAIDE and CANBERRA, under construction in the USA

Australian Design and Construction Capabilities

Australia's defence and contribution to regional stability will continue to require the maintenance of a modern, capable and effective fleet. This in turn requires the ability to assess, select, acquire and bring into service, and modernise as necessary, ships incorporating advance technology, close to the limits of our national engineering capability. Our ability to perform this task well is interdependent with the scope of our endeavours. Although it would not be economical to design ourselves all the ships we need, we cannot afford not to be deeply involved in shipbuilding. We must of course be involved in modernisation as well as in repair. Each one of these activities reinforces our competence in the other. In each we must try and avoid the excessive costs of discontinuity.

Our insularity, and our modest and fluctuating levels of activity, pose particular problems for the maintenance of design capability and competence, and yet such capability and competence is a necessary foundation for our acquisition management, construction, modernisation and repair skills. The wide range of our equipment introduces further problems of spreading the available expertise. I believe it necessary that we foster development of our design capability amongst our naval engineers, our civilian engineers and scientists in the Department of Defence, and in industry. Our engineers in the naval design branch need to be employed principally in assessment and design



The Australian designed DDL

1 Yarrow Admiralty Research Department had been established by the Royal Navy, in 1949 to act as design agent particularly in the propulsion field. YARD Australia was established with a more comprehensive role and was supplemented by temporary attachments of Royal Navy design staff.

management, but to allow them to discharge that responsibility effectively they must participate in design activities particularly in industry. We must enlarge the opportunities for this by increasing our complementary activities with industry here and abroad.

Designers need to be associated with production, and we need to develop arrangements where not only our younger engineers, but those at higher levels of responsibility, can increase their experience and interaction with shipbuilders here and overseas. We need to enlarge the level and competence of design support to industry. We need to assume as a public duty the task of developing and enlarging the self sufficiency of industry, and need to encourage industry to take on tasks they have not taken on before. This needs to be a gradual and sustained process if the costs of learning are to be kept within reasonable bounds. Such an approach should sit well with a philosophy of giving the shipbuilder a broader specification than has been common in the past, and encouraging him to develop a detailed design that is production oriented.

We have a whole new field of increasing importance in the design, development and maintenance of system software. Again it is an area where the partnership of naval analyst and civil analyst is essential. Again it is a field where we need to develop further an industry support capability. Australia has already made large advances in this area and has achieved high standards of combat system support for surface warships and for submarines.

Industry Assistance

Naval shipbuilding capabilities are interdependent with the capabilities of the shipbuilding and repair industry as a whole, which in turn are interdependent with our overall industrial capabilities. These capabilities are influenced by Government policies of industry assistance. Although a comprehensive account of policy changes and their effects is outside the scope of this paper, some brief references should be made to the emphasis accorded to naval shipbuilding.

In 1959 the Tariff Board Report on the Shipbuilding Industry said:

> "For reasons of broad national interest it is the policy of the Government to maintain an efficient shipbuilding industry in Australia."
>
> "The board understands that the principal consideration underlying the Government's policy is the defence significance of the industry in that its operation in peacetime would provide a nucleus of skilled technologists and tradesmen."

The 1971 Tariff Board Report stated:

> "The primary defence requirement is for facilities for dockings and repair and for building small vessels such as minesweepers, patrol vessels and landing barges. Capacity for the production of larger ships is regarded as a secondary requirement likely to be of importance only in the event of an extended conflict."

In 1976, defence considerations were reported as substantially the same: "Naval dockyards undertake routine refits, repairs and modernisations and possess the necessary skills to construct warships. Commercial yards are used mainly for repair refits and docking and for constructing smaller vessels such as patrol boats. Given major contingencies greater demand for these services would be placed in commercial yards. As well as for the replacement of various cargo carriers. Such conditions would have significant warning time, and the ability to produce items such as engines, electronic equipment and weapons systems would be as important as hull construction."

Reductions in industry assistance and the lifting of restrictions in imports have led to the cessation of local construction of large commercial vessels. The assistance provided for construction of smaller vessels, including the extension of assistance to vessels for export, is a significant factor and may help Australian builders establish themselves as suppliers to the region.

A Look to the Future

What of future orders? An order for patrol boats for South Pacific nations is to be placed shortly, and within a few years we will need to start work on the design of the FREMANTLE replacements. Project Definition Studies for submarines will begin this year, with associated studies of the appropriate level of Australian participation. If all goes well a construction contract should be placed in 1987, and it seems likely that most or all of the submarines in the programme will be locally built. The Government's decision will be based upon the assessed performance of Australian builders, and that in turn will be based on the realised performance of the last few years, and of the immediate future.

During the nineties there will be a need not only to replace the OBERONS, but the RIVERS as well, and the surface combatant to follow the Australian Frigate programme needs to be selected within the next one or two years. There seems to be no reason why these ships should not be built in Australia, and it is to be hoped that the capability so recently restored will be maintained and developed in the years to come. It is to be hoped that capability will be built up not only at the shipyard, but in the many supporting industrial activities.

We have some difficulties in that the number of yards looking for naval and commercial work seems to be greater than the forecast workload that could sustain them. If we are to have the needed continuity of employment it seems inevitable that we must see some reduction in the number of yards. Although Williamstown has made great advances in its industrial relations and in its organisation in order to re-establish its shipbuilding capacity, I do not believe Government yards are best suited to ship building tasks. Shipbuilding often needs an entrepreneurial approach that does not sit well with departmental procedures. Perhaps opportunities may arise in the years to come, to privatise the naval building activity, and for two or three of the competing builders to become the recognised naval building yards. It will be necessary, however that they remain cost competitive both in Australia and overseas, so as to earn a right to a continuing workload.

Conclusion

It adds significantly to our capability to support our defence force if the warships we need can be built in Australia with reasonable economy. Start up costs will often be such that single ships might not provide an economical programme, but our industry has shown that if we can order a number of similar ships, they can be built here to standards of quality and cost that are competitive so that this capability is further developed and maintained. If we do these things, we will have an efficient shipbuilding industry, and will have made a significant contribution to the defence and security of this country.

HMS INVINCIBLE

	Builder	Laid Down	Launched	Commissioned
SYDNEY	Devonport UK	APR 43	30. 9.44	16.12.48
MELBOURNE	Vickers UK	APR 43	28. 2.45	26.10.55
TOBRUK	Cockatoo	AUG 46	20.12.47	8. 5.50
ANZAC	Williamstown	SEP 46	20. 8.48	14. 3.51
VENDETTA	Williamstown	JUL 49	3. 5.54	26.11.58
VOYAGER	Cockatoo	OCT 49	1. 3.52	12. 2.57
VAMPIRE	Cockatoo	JUL 52	27.10.56	23. 6.59
SUPPLY	Harland UK	AUG 52	1 9.54	15. 8.62
PARRAMATTA	Cockatoo	JAN 57	31. 1.59	14. 7.61
YARRA	Williamstown	APR 57	30. 9.58	27. 7.61
DERWENT	Williamstown	JUN 58	17. 4.61	20. 4.64
STUART	Cockatoo	MAR 59	8. 4.61	28. 7.63
MORESBY	State Dockyard	JUN 61	7. 9.63	6. 3.64
PERTH	Defoe USA	SEP 62	26. 9.63	17. 7.65
HOBART	Defoe USA	OCT 62	9. 1.64	18.12.65
STALWART	Cockatoo	JUN 64	7.10.66	9. 2.68
OXLEY	Scotts UK	JUL 64	24. 9.65	21. 3.67
BRISBANE	Defoe USA	FEB 65	5. 5.66	16.12.67
OTWAY	Scotts UK	JUN 65	29.11.66	23. 4.68
SWAN	Williamstown	AUG 65	16.12.67	20. 1.70
TORRENS	Cockatoo	AUG 65	20. 9.68	19. 1.71
OVENS	Scotts UK	JUN 66	4.12.67	15. 4.69
ATTACK	Evans Deakin	SEP 66	8. 4.67	17.11.67
AITAPE	Walkers	NOV 66	6. 7.67	13.11.67
SAMARAI	Evans Deakin	DEC 66	14. 7.67	1. 3.68
ACUTE	Evans Deakin	APR 67	26. 8.67	26. 4.68
ADVANCE	Walkers	MAY 67	5.10.67	3. 4.68
LAE	Walkers	MAY 67	5.10.67	3. 4.68
ONSLOW	Scotts UK	MAY 67	3.12.68	22.12.69
ARCHER	Walkers	JUL 67	2.12.67	15. 5.68
AWARE	Evans Deakin	JUL 67	7.10.67	21. 6.68
ASSAIL	Evans Deakin	AUG 67	18.11.67	12. 7.68
ADROIT	Evans Deakin	AUG 67	3. 2.68	17. 8.86
ARROW	Walkers	SEP 67	17. 2.68	3. 7.68
ARDENT	Evans Deakin	OCT 67	27. 4.68	26.10.68
BARBETTE	Walkers	NOV 67	10. 4.68	16. 8.68
BARRICADE	Evans Deakin	DEC 67	29. 6.68	26.10.68
LADAVA	Walkers	FEB 68	11. 5.68	21.10.68
MADANG	Evans Deakin	MAR 68	10. 8.68	29.11.68
BOMBARD	Walkers	APR 68	6. 7.68	5.11.68
BUCCANNEER	Evans Deakin	JUN 68	14. 9.68	11. 1.69
BANDOLIER	Walkers	JUL 68	2.10.68	14.12.68
BAYONET	Walkers	OCT 68	6.11.68	22. 2.69
BALIKPAPAN	Walkers	MAY 71	15. 8.71	27. 9.74
FLINDERS	Williamstown	JUN 71	29. 7.72	27. 4.73
BRUNEI	Walkers	JUL 71	15.10.71	5. 1.73
LABUAN	Walkers	OCT 71	29.12.71	9. 3.73
TARAKAN	Walkers	DEC 71	16. 3.71	15. 6.73
WEWAK	Walkers	MAR 72	18. 5.72	10. 8.74
BETANO	Walkers	SEP 72	5.12.72	8. 2.74
ORION	Scotts UK	OCT 72	16. 9.74	15. 6.77
OTAMA	Scotts UK	MAY 73	3.12.75	27. 4.78
COOK	Williamstown	SEP 74	27. 8.77	28.10.80
ADELAIDE	Todd USA	JUL 77	21. 6.78	15.10.80
FREMANTLE	Brooke Marine UK	NOV 77	2.2.79	17.3.80
CANBERRA	Todd USA	MAR 78	1.12.78	24. 3.81
WARRNAMBOOL	NQEA	SEP 78	15.10.80	14. 3.81
TOBRUK	Carrington	FEB 79	1. 3.80	23. 4.81
TOWNSVILLE	NQEA	MAR 79	16. 5.81	18. 7.81
WOLLONGONG	NQEA	SEP 79	17.10.81	28.11.81
LAUNCESTON	NQEA	NOV 79	23. 1.82	6. 3.82
SYDNEY	Todd USA	JAN 80	26. 9.80	20. 1.83
WHYALLA	NQEA	JUN 80	22. 5.82	3. 7.82
IPSWICH	NQEA	OCT 80	25. 9.82	13.11.82
CESSNOCK	NQEA	FEB 81	15. 1.83	5. 3.83
DARWIN	Todd USA	JUN 81	31. 3.82	12. 7.84
BENDIGO	NQEA	JUL 81	9. 4.83	28. 5.83
GAWLER	NQEA	JAN 82	9. 7.83	27. 8.83
GERALDTON	NQEA	MAY 82	22.10.83	10.12.83
DUBBO	NQEA	AUG 82	21. 1.84	10. 3.84
GEELONG	NQEA	NOV 82	14. 4.84	2. 6.84
GLADSTONE	NQEA	MAR 83	28. 7.84	8. 9.84
BUNBURY	NQEA	JUN 83	3.11.84	15.12.84
RUSHCUTTER	Ramsay	AUG 84		

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HMAS JERVIS BAY, escorted by the naval tug TAMMAR, arriving at HMAS STIRLING on MARCH 5, 1986 (Photo — LSPH Eric Pitman)

"The flag of the Soviet Navy flies over the oceans of the world. Sooner or later, the US will have to understand it no longer has mastery of the seas."

– Sergei G Gorshkov, Commander in Chief of the Soviet Navy

THE Soviet Union, a country that once condemned the US Navy's large-deck aircraft carriers as obsolete and too expensive, will launch its own 65 to 75,000-ton behemoth by the end of the decade, according to Naval Intelligence.

The Soviet's first steam catapult-equipped, conventional takeoff and landing "supercarrier", presumably called KREMLIN, has been under construction at the Nikolayev shipyard on the Black Sea since 1979. It is expected to undergo sea trials as early as 1988 and become fully operational by 1990.

"In the past six months, construction of the carrier has continued steadily," said Rear Admiral John L. Butts, who retired as Director of Naval Intelligence on September 30. "While there are many uncertainties as to its final (flight deck) configuration, we believe it is about 1,000 feet long and should displace 65 to 75,000 tons (or about equal in size to USS MIDWAY). We continue to estimate it will incorporate nuclear power along with fossil-fuel supplementary power, and will embark 35 to 60 aircraft."

The aircraft carrier, MINSK, during operations with KA-25 Hormone helicopters

Although Naval Intelligence is uncertain of the mix of aircraft the Soviets will use, expects KREMLIN's air wing to consist of fighter-interceptor (or fighter-attack), airborne early warning, antisubmarine warfare, reconnaissance and utility aircraft.

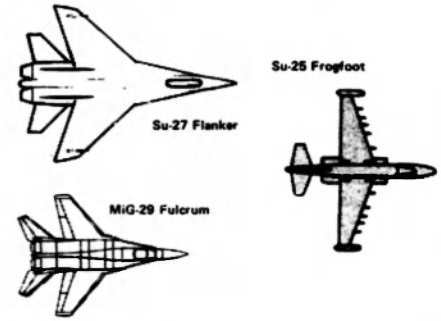
Likely candidates for the fighter-interceptor role are the new all-weather Su-27 *Flanker* and the MiG-29 *Fulcrum*, which possess true look-down/shoot-down capabilities enabling them to destroy low-flying targets like cruise missiles.

According to *Soviet Military Power*, a US Department of Defence (DoD) yearly publication, the *Fulcrum* is a single-seat, twin-engined fighter, similar in size to the US Air Force F-16 *Falcon*. It is estimated to reach speeds up to Mach 2 and have an operating radius of about 500 miles. In addition to being a fighter-interceptor, however, the *Fulcrum* may be configured for ground attack missions. According to DoD, more than 30 MiG-29s are already operational in the Soviet air force.

Compared to the *Fulcrum*, the Su-27 *Flanker* is a larger single seat, twin-engine fighter interceptor similar in size to the US Air Force F-15 *Eagle*. It is estimated to reach speeds up to Mach 2 and have an operating radius of about 715 miles.

The *Flanker* and *Fulcrum* are thought to be highly manoeuvrable aircraft capable of being equipped with six to eight much improved AA-10 air-to-air radar medium range (30 to 50 miles) missiles. However, the Su-27 may also be configured to carry up to 12,500-pound bombs.

In addition to the *Flanker* and *Fulcrum*, the Su-25 *Frogfoot* may also be a candidate for KREMLIN's air wing. As a single-seat attack aircraft, similar to the US Air Force A-10 *Thunderbolt*, the Su-25 has been used extensively in Afghanistan to support Soviet ground troops. The *Frogfoot* is estimated to carry a payload exceeding 8,800 pounds, fly some 500 miles per hour, and include a combat radius of more than 300 miles.



In order to prepare the Soviets for operating off their first catapult and arresting gear-capable aircraft carrier, they have been actively involved in a test and evaluation program at Saki naval air base near the Black Sea. There, the Su-27, MiG-29 and the Su-25 are supposedly practicing carrier operations on an outlined 975-foot training flight deck. Included at this facility are two ski-jump ramps (a possible flight deck option), arresting gear and aircraft barricades. The catapults, however, remain under construction.

In addition to the potential carrier takeoff and landing aircraft, Naval Intelligence believes an upgraded version of the vertical takeoff and landing (VTOL) Yak-36 *Forger* may augment the ship's air arm.

"The upgraded *Forger* (which is expected to become operational in the next two years) will probably have increased performance, payload, endurance and Soviet state-of-the-art avionics," said RAdm Butts, who was appointed Director of Naval Intelligence in 1982. "This may include a combat air-to-air capability with new missiles."

Currently, the *Forger* is used aboard all three of the Soviet's 900-foot, 37,000-ton KIEV-class tactical aircraft-carrying cruisers. A ship-ground attack, daylight interceptor, the Yak-36, is supposed to have an operational radius of 125 nautical miles, reach speeds in excess of Mach 1, and carry an assortment of bombs, rockets and missiles. But since its arrival to the Soviet fleet in 1976, the *Forger* seems to have fallen short of fulfilling these expectations. Nevertheless, it has provided the Soviets a fixed-wing capability that they lacked prior to 1976.

"Although its performance and endurance are limited, the *Forger* does pose a serious threat to Western maritime patrol aircraft operating in range – about 100 miles – of a KIEV-class carrier," according to RAdm Butts. "When you consider it was the Soviet Union's first carrier-borne airplane, the *Forger* markedly enhances Soviet war-fighting potential at sea. However, it still is no match for our carriers' tactical aircraft, and has a very limited strike capability."

According to Naval Intelligence, KREMLIN will use variants of the Ka-27 *Helix* helicopter to provide airborne early warning, antisubmarine warfare, reconnaissance and utility missions.

Primarily, an antisubmarine warfare aircraft, the *Helix* is an advanced replacement for the Ka-25 *Hormone*, the Soviet navy's first shipboard helicopter. Aside from having superior speed and endurance, the Ka-27 has a better airframe and more modern avionics than the Ka-25. And, in addition to augmenting KREMLIN's air wing, the *Helix* will probably replace the *Hormone* aboard the KIEV-class carriers, MOSKVA-class helicopter cruisers and other surface vessels. Naval Intelligence estimates that more than 50 Ka-27s are already operational.

In addition to its high-performance aircraft, KREMLIN will be adorned with air defence gatling guns, surface-to-air missiles and possible antiship cruise missiles, according to RAdm Buts. "We just don't have enough information yet to evaluate the full complement of weapons systems," he said.

When asked to compare the potential mix of Soviet carrier aircraft to the air arm aboard American flat-tops, RAdm Buts remarked that Russia

has considerable ground to make up in both carrier hardware and operating procedures

"After all, we've had a four decade head start in shipborne aviation," he said. "Also, we've employed our aircraft carriers in combat experience the Soviets still don't have."

Buns added that Russia's lack of experience in carrier construction, air wing deployment and battle group operations will delay their achieving "any reasonable standard of proficiency with their new carrier until at least the mid 1990s."

Unlike US Naval Aviation, which gained its proficiency gradually, beginning with flying a 50-horsepower Curtiss biplane off the bow of an anchored ship in 1910, the Soviets are attempting to conquer carrier aviation with high performance aircraft. Because of this, RAdm Butts envisions KREMLIN's growing pains to be severe and prolonged. "I am sure there will be personnel and material failures, some serious," he said.

According to Rear Admiral Jerry O. Tuttle, Naval Inspector General, one of the most difficult obstacles the Soviets must overcome is the use of the catapult.

"Catapults and arresting gears are large, rough, complex and simultaneously delicate mechanical systems which present operational and training challenges that will take the Soviet navy years to master," he said. "No less a problem in breadth, depth and time, will be the development, testing and operation of multimission capable, fixed-wing aircraft for Soviet naval aviation. This is a monumental development, training and doctrinal problem, which will take the remainder of this century at a minimum for them to solve."

". . . the political impact of a Soviet carrier battle group . . . is a disturbing prospect." — RAdm John L. Butts

Admiral James L. Holloway III, USN(Ret), a Naval Aviator who served as Chief of Naval Operations from 1974 to 1978, said that another demanding obstacle for the Soviets will be training flight deck crews who must manoeuvre 25-ton aircraft on grease-soaked decks, with 35-plus knot winds, while avoiding searing jet blasts. "Although they may have written instructions on just how to do it, and watch detailed movies of US flight deck operations, they will still have no experienced petty officers who have actually hooked up a jet fighter on the catapults, or chocked up a tactical bomber on the bow of a heaving deck," he remarked. "No amount of book learning or simulation is going to make up for their lack of experience among their enlisted people."

However, Admiral Holloway said, the Soviet navy's one advantage in transitioning to conventional deck operations is that it has closely observed US Navy carrier flight operations for years. "The Soviet navy trawlers that maintained a presence in the Gulf of Tonkin in the vicinity of Yankee Station over the entire period of our Vietnam carrier operations, recorded both optically, and electronically, every aspect of our carrier operations. This included the conversations among flight deck crews on the 'Mickey Mouse' communication devices," he added. "The Soviet navy will be relatively up to date on the latest and most modern operating procedures for air operations around the carrier."

Unlike the other admirals, Admiral Thomas B. Hayward, USN(Ret), said there is no reason to forecast that the USSR will have any unusual growing pains learning how to operate from a catapult and arresting gear-equipped aircraft carrier.

"Since they are starting from scratch, except for the level of experience gained with the KIEV class carrier, one can anticipate that they (the Soviets) will proceed with discretion and safety," added Hayward, a Naval Aviator who served as Chief of Naval Operations from 1978 to 1982. "If their learning experience with the KIEV carrier is any measure, the initial operations will appear basic and rudimentary to us, as they seek to put into practice that which they have learned watching the US Navy for so many years."

He said that there is no reason to anticipate a Soviet breakthrough in operational doctrine or procedures, and that their all-weather night operations will evolve slowly. But Admiral Hayward added that "it would be wishful thinking to assume the USSR will experience difficulty training their pilots in large-deck carrier operations. "It will take time, but they will do it," he said.

Despite the problems which may befall them in perfecting their largest and most expensive warship, the Soviets eventual ability to operate high-performance aircraft at sea will have many rewards. In addition to the increased capability of protecting their 79 precious ballistic submarines from antisubmarine warfare forces, the Soviets will be able to expand their wartime operating area beyond the range of friendly land-based aircraft, and will further threaten US maritime forces.

"Additionally, the peacetime utility of the Soviet fleet in the 1990s will enhance Moscow's opportunities for spreading its influence and engaging in coercive diplomacy," said RAdm Buns. "Moscow will continue to probe for additional access to overseas facilities (and) successes in this endeavour will enable the Soviets to more easily sustain distant naval deployments, place them within striking range of additional Western sea lanes and facilities, and create new opportunities to destabilise key nations in the third world."

He added that KREMLIN — together with other military improvements — will give the Soviets a better capability to project power ashore against all but the most well armed regional power by the early 1990s.

"No successful amphibious operation can be conducted without local air superiority," said Adm Holloway. "The Soviets have a growing amphibious force and increasing opportunities to deploy their naval infantry (some 16,000 troops) outside the conventional boundaries of Soviet influence. Such operations require air support and their large-deck carrier can provide this kind of support for contingency operations (ie, assisting the presence of Soviet forces or allies engaged in 'wars of revolution')."

Added RAdm Buns, "Even under relatively benign circumstances, the potential political impact of a Soviet carrier battle group steaming in, say, the Arabian Sea, is a disturbing prospect."

According to Naval Intelligence, KREMLIN will probably be home-ported with the Northern Fleet (headquartered at Severomorsk) and will most likely assist Soviet sea control operations in the Norwegian/Greenland Seas, Sea of Okhotsk, Sea of Japan and the northwestern Pacific. These are areas where, in time of war, the USSR would probably try to hide and protect a majority of its ballistic missile submarines. The carrier will operate with an assortment of the most modern attack submarines and guided missile cruisers/destroyers.

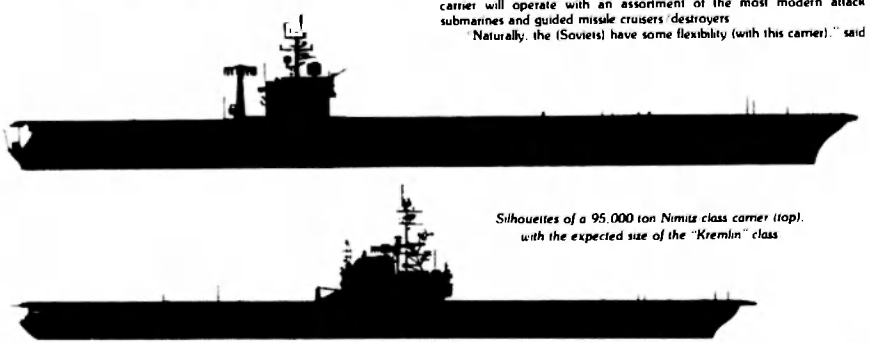
"Naturally, the (Soviets) have some flexibility (with this carrier)," said RAdm Butts, "(like) changing the disposition with the evolving threat, availability of ships, and mission of the battle force. The carrier will also need support ships (ie, oilers), even nuclear carriers need fuel to fly their aircraft."

Adm Hayward remarked that until the Soviets obtain several carrier battle groups, US naval strategy will not be "significantly impacted."

"Unless the Congress of the United States fails to support the US Navy's policy of maintaining a relatively large number of carrier battle groups into the future, (America) will maintain a dominant capability to deal with any surface combatant in any waters worldwide," said Adm Hayward. "However, if the relative superiority among surface battle forces, which the United States presently enjoys, is permitted to erode significantly, US naval tactics and doctrine will undergo dramatic change."

Admiral Thomas H. Moorer, Chief of Naval Operations from 1967 to 1970 and Chairman of the Joint Chiefs of Staff from 1970 to 1974, agreed that the employment of KREMLIN will not change the overall strategy of the US Navy. "However, it will change the priority of surface targets in that the enemy carrier must be destroyed first in any action. From the Soviet standpoint, the employment of the larger carrier will simply give them more flexibility and, in my opinion, tempt them to accelerate their current strategy of expansionism."

However, it is not as important how the Soviets intend to employ KREMLIN, but the potential capabilities it could provide, such as local air superiority, antisubmarine warfare, attacking surface vessels beyond the range of their antiship missiles, providing close air support for troops ashore, conducting mine and mine countermeasures operations, providing interdiction strikes on land installations, etc.



Silhouettes of a 95,000 ton Nimitz class carrier (top), with the expected size of the "Kremlin" class.

"From the Soviet standpoint, (KREMLIN) will give them more flexibility and tempt them to accelerate their strategy of expansionism." — Adm Thomas H. Moorer

"I foresee the Soviet navy continuing to expand the employment of tactical aviation at sea by utilising various classes of ships to operate the different kinds of tactical aircraft — helicopters, jet V/STOL and higher-performance tactical fighters and support aircraft — just as the US Navy does," said Adm Holloway. "We must remind ourselves that there are areas of the US fleet that are not equipped to effectively utilise Naval Aviation."

In the distant future, a force of large-deck Soviet aircraft carriers could threaten the US Navy's maritime supremacy, he added.

Today, our war plans do not have to take into consideration the threat of tactical aviation in areas remote from Russian or Warsaw Pact bases," said Holloway. "With the addition of a sea-based Soviet tactical air capability, a whole new threat area must be considered and defensive measures undertaken. It will drastically complicate the task of US strategic planners, just as the potential of the US Navy's carrier strike force has for years complicated the Soviet's overall war-fighting plans."

RAdm Tuttle, a Naval Aviator, who was Commander Battle Force Sixth Fleet prior to assuming his present position, described the US Navy carrier battle group as an awesome force of massed power necessary for a variety of national purposes. "This is in very large measure due to the long evolution of US aircraft carrier classes, carrier capable multimission aircraft and the dedicated, highly trained crews who man them," he said. "While the US did not invent all of the unique equipment necessary for a variety of fixed-wing aircraft to operate from a seagoing flight deck, our Navy has unquestionably carried the integrated development of a cohesive, orchestrated and very powerful whole to heights undreamed of by the early developers of this hybrid weapon system."

The aircraft carrier's major role in Western tradition has been power projection, according to RAdm Tuttle. "This is in keeping with the US Navy's mission under Title 10 US Code: to conduct prompt and sustained combat operations at sea in support of national policies," he said. "In this sense, and given today's high-tech military capabilities, the aircraft carrier and its main battery, the embarked and versatile (90-plus plane) air wing, is the ultimate integrated weapon system which can bloody an opponent with conventional weapons throughout the world on very short notice."

Aircraft carriers in the Soviet tradition, however, have evolved as a function of strategy and plans, according to Tuttle. "Thus, MOSKVA, KIEV, and follow-on class designs are, and will be, optimised for defence of the Soviet homeland, maritime perimeter defence and ASW protection of the Soviet strategic reserve forces (ie, ballistic submarines)."

The MOSKVA-Class helicopter cruiser, which includes a cruiser configuration forward, and a helicopter deck aft, is considered the Soviet's first aviation ship. Two of these 620-foot long, 17,000-ton vessels, MOSKVA and LENINGRAD, were built in the late 1960s to counter some 41 US POLARIS nuclear submarines. Armed with up to 14 antisubmarine *Hormone* helicopters, capable of carrying bombs and torpedoes, these ships helped prove to the USSR the value of sea-based aviation. Though they recognised the MOSKVA's effective, though limited capabilities, the Soviets took notice of the value of US aircraft carriers. Before the 1970s, Soviet criticism towards American flat-tops waned as carrier participation in Vietnam and scores of other minor successful crisis management situations forced Admiral S. G. Gorshkov, Commander in Chief of the Soviet Navy, to encourage the construction of Russia's first "aircraft carrier."

In May 1975, the first vertical takeoff and landing KIEV-class tactical aircraft-carrying cruiser was placed into service. Today, three of these ships (KIEV, MINSK and NOVOROSSIYSK), which feature a starboard island structure and angled flight deck, are the largest in the Soviet navy. The fourth, and presumably last, KIEV-class vessel (said to be called KHARKOV), is expected to be operational before 1988.

Aside from carrying 14 to 17 *Hormone* and *Helix* helicopters and 12 to 14 Yak-36 *Forgers*, the KIEV's weapon inventory bristles with antiship cruise missiles, more than 100 long and short-range surface-to-air missiles, and air defence gun batteries.

"(Since their development in the mid-1970s), the KIEV-class carriers have provided the Soviets valuable experience to apply to the development of their new (large-deck) aircraft carrier," said RAdm Butts. "Also, KIEV is a much more capable ASW platform, with greater endurance than the earlier MOSKVA-class, a much more capable air defence platform, and a formidable looking ship for naval diplomacy — showing the flag."

Adm Hayward called the KIEV-class ships "excellent. Many navies in the world could use a ship of this category, including the US," he said. "However, to compare it with a US Navy carrier is disingenuous. The KIEV is much more like the Royal Navy INVINCIBLE class, though it contains considerably more overall firepower."

Beside the limitations in aircraft performance, the KIEV-class carriers are inferior in size, steaming endurance and offensive punch when compared to US Navy flat-tops.

"The bow section is clearly the business end of the ship," said RAdm Tuttle. "The (KIEV's) flight deck and aircraft are experiments whose mission and functions are still in the (operation) test and evaluation stages."

Adm Moore agreed. "(The Soviets) are simply following a long-range goal of developing and operating large aircraft carriers and the VTOL (KIEV) was nothing more than a learning step toward the achievement of this goal."

According to Moorer, the Soviets will continue building carriers like KREMLIN because of the lessons learned from the Cuban missile crisis in October 1962. "(That crisis) taught the Soviets that surface ships cannot operate without air cover, and lacking air cover they must remain with the envelope dictated by fighter defence range or be forced to withdraw," he said.

According to Adm Holloway, the Soviets thought KIEV would be adequate for their tactical and strategic needs. Two factors, however, convinced them that it was not. "First, today's technology cannot provide a V/STOL or VTOL tactical fighter that is operationally competitive with conventional designs," he said. "Consequently, the air wings of the KIEV-class ships were useful only in a relatively benign air environment. The second factor is the continuing expansion of Soviet strategic ambitions. No longer is the Soviet military satisfied with merely interdicting US naval capabilities. The Russians want to be able to project their presence overseas into areas more remote from Continental Russia."

Since KIEV can't perform this task adequately, the large-deck carrier is the key to Soviet ambitions, added Adm Holloway.

Although the Soviet navy has been observing US carrier aviation closely since the 1960s, RAdm Tuttle believes that "watching it and doing it well are two entirely different propositions."

Like Adm Moorer, Tuttle thinks that the construction of KREMLIN proves the Soviet Union is committed to possessing a carrier aviation capability that may some day rival the US Navy's prize 95,000-ton NIMITZ-class supercarriers. "But I foresee a long, long time in the process for them to get there," he said. "(That's just an) operation reality which we in Naval Aviation know from long personal experience."

Whether or not the Soviet Union will ever build carriers to equal the deadly versatility of America's flat-tops remains to be seen. But, according to Adm Holloway, one thing is certain. For the Soviet's, a single large-deck aircraft carrier is better than none at all.

HMAS MORESBY
The Last Days

A Contemporary Report

HMAS MORESBY in better days.

Alongside the BHP Newcastle Steel Works prior to scrapping.

THE provision of steel scrap as feed for the open hearth furnaces at the Newcastle Steel Works involves the handling and breaking up of many and varied steel articles. They range from the humble iron bedstead to surplus Army tanks, but perhaps the most ambitious job yet tackled in this respect was the demolition of HMAS MORESBY, recently successfully completed.

THE MORESBY was built originally for the Royal Navy by Barclay Curle Ltd. in 1918, being then known as HMS SILVIO a minesweeper of the "24" Racehorse class. Transferred to the RAN in 1925, she was re named MORESBY, and after conversion into a survey vessel by Pembroke Dockyard was sent in 1925 to North Queensland and New Guinea, to chart new channels in what were previously classed as dangerous waters. Many of the charts of Pacific Ocean areas prepared by the MORESBY were used by the Allied Navies during World War II.

Reconditioned and armed in 1939, this vessel was used as an escort ship for convoys until 1943, when she was converted back to a survey ship, and was engaged again on special chart work. In August 1945 the MORESBY entered Koepang harbour as flagship of the Australian force despatched to accept the surrender of the Japanese in Timor and the Sunda Islands.

The vessel's principal dimensions were 267ft 6in overall length, 35ft beam, and 16ft 6in draught, with a displacement of 1650 tons. She was powered by a four cylinder triple expansion steam engine of 2700ihp, giving a speed of 17 knots. Original boilers were coal fired, but these were later converted to oil firing. They were of the multi tube Scotch type, with a working pressure of 180lbs. Normal armament was one 3 pounder, and total complement was 141 officers and men.

Method of Demolition

The MORESBY was advertised for sale with certain other naval vessels in January, 1947, and was purchased by The BHP Co Ltd. She was towed to Newcastle from Sydney by the tug TANCRED, and moored at No 6 (Ship Repair) Berth. On March 17, the actual work of demolition was commenced, under the supervision of Mr Harry Hughes (assistant to the master mechanic), with Mr C. Sessions as foreman in charge.

For demolition purposes the vessel was moored to two dolphins, and a five ton stiff leg electric crane was set up for the removal of equipment and scrap. This was bolted down to one of the dolphins, and the ship warped along with the tides in order to bring all sections within the operative radius of the crane. This impromptu set up worked well, and enabled 75 per cent of the ship to be successfully demolished. Briefly, the method adopted was to strip the vessel deck by deck. All brass and copper work, timber, electrical and mechanical fittings and salvagable equipment was first removed from the upper decks and stored on shore. These decks were then demolished by the burners and the scrap steel sent direct to the open hearth stockyard. Meanwhile, stripping was continuing on the lower decks.

A LARGE miscellany of stores and equipment was eventually removed, and the economical disposal of this material proved a difficult but interesting task. The main engines proved obsolete, and were scrapped, but much of the auxiliary pump and generator gear was readily resold. Teak and oregon decking was also in keen demand, and found further use in the construction of smaller craft, and, in at least one case, in additions to a home. Much equipment, especially steam and water gauges, were usefully employed in general Steel Works operations.

The main steering engine and telemotor control gear was presented to the Newcastle Technical College, where it was re-conditioned, and is now serving for instructional purposes. Even the engine room skylight was salvaged, and found a use as a hotframe, growing bumper crops of early tomatoes!

Demolition was continued, and the ship was cut down until about two feet above the water level remained. Much care was required to avoid fire, as there was a great deal of scrap timber and waste oil present. Flooding was also a serious risk, and had to be guarded against. All the ship's steel work was covered with a heavy layer of paint, which necessitated the use of military respirators when oxy-burning was carried on in enclosed spaces. Provision was also made for the supply of air under pressure to such places. A pint of milk was supplied daily to each burner to offset the risk of lead or zinc poisoning.

By August 14, the vessel was reduced to a hulk, which was towed up river to the old barge area, near the present scrap drop. There it was beached bow-on, and preparations made to pull the hull, weighing approximately 420 tons, on shore for final demolition. Power was supplied by two locomotive cranes, the falls of an eight and four pass tackle being secured to the drum of each crane. Two heavy disused concrete foundations provided anchorage for the tackles.

The hull was hauled ashore in approximately 30ft stages, and progressively demolished. To prevent flooding, the lower portion of all bulk-heads was left intact to divide the hulk into a number of watertight sections. The final demolition was completed, and the last piece of equipment, the four-ton manganese-bronze propeller, was lifted on shore on September 29, exactly 28 weeks from the date of commencement of the task. In this period, 1000 tons of urgently needed scrap was obtained for the open hearth furnaces.

Cutting up the propellor.

OUR MARITIME DEFENCE
A CASE FOR JUMP JETS

by JOHN BIRD

The author, a former Royal Navy Fleet Air Arm observer is President of the Victoria Division of the Navy League of Australia and a Federal Vice President of The League. The views expressed in the following article are his own, and have not, as yet, been considered by the Federal Council. They are, however, consistent with the League's publicly expressed conviction that the Royal Australian Navy must have a viable air arm.

The Navy League of Australia is seriously concerned about the state of, and projections for, the maritime defence of the nation.

On coming to power in 1982, the present government made a decision regarding the structure of our maritime defence forces that severely affected this country's ability to respond to a variety of possible threats, threats that previously we could have countered.

Shortly, the Dibb Report will recommend on Australia's defence posture, but it is unlikely that it will cover the gap created by the 1982 decision, the absence of a balance maritime force, complete with an appropriate range of organic air power.

This paper addresses in outline, what the Navy League perceives to be our strategic defence needs, particularly as these relate to the maritime scene and a maritime defence structure that would be able, within our limited defence budget of responding to those needs. It addresses also, the question of rapid expansion in an emergency in those areas where for reasons of cost, we are able only to provide a token capability at this time. We see the strategic aims and the proposed structure to be compatible with the philosophy of the present government and within the nation's economic means.

The need is recognised to aim for the collective defence of our region, but realistically, it must be accepted that there are circumstances in which we would not receive the support of allies and this, of course, includes circumstances in which the United States, under ANZUS, would not be in a position to provide assistance.

There is a need, therefore, to develop a maritime defence force that is self sufficient, to the extent that this is economically feasible.

That force requires to be able to respond to situations developing in and around our island home, and in our neighbourhood, embracing at least, New Zealand, Papua New Guinea, our island dependencies, and to a reasonable extent, our sea lines of communications, the loss of which would deny the nation the ability to resist an aggressor for more than a very limited period of time.

Because of severe budgetary restraints we must develop a core force that embraces, as far as is possible, all those technologies that we may require in an emergency and these must be capable of rapid expansion when required.

Because of the unknown nature of any future threat, our defence force must be as flexible as possible.

In operating in our neighbourhood, we must not place our men and equipment at unacceptable risk.

The most flexible and self reliant force we can produce is the carrier air group, but government has decreed that our economy will not support appropriate equipment. The flexibility and the self sufficiency of our maritime force must therefore be achieved by other means.

It was the government's intention that air support for the fleet be provided by land based aircraft, a proposition pursued, despite the failure under operational conditions, of similar attempts at fleet support for the Royal Navy in Britain in the early 1970s. That failuture caused Britain to re-evaluate her position on land based maritime airpower, a position which had accepted the depletion of organic maritime air, a position which nearly cost the people of the Falkland islands their freedom. Fortunately for them the tide had turned sufficiently for the "jump jet" maritime air capability to have been developed and for the technology to be brought to bear in the defence of that tiny member of the Commonwealth.

At times, we are slow to learn, and it seems we are determined to tread the path of land based maritime air, despite precedent and despite the fact that some senior officers of the RAAF accept that expectations of its support for all except close range maritime operations are unrealistic. The force required to bear the brunt of maritime support would be the FA18 squadrons and it would be worth considering the effect of that support on the continental defence of this nation.

It would be realistic to believe that about 60 FA18 aircraft would be available at any one time under operational conditions, a pitifully small number to defend this massive island. To support continuously a fleet operating at say, 1,000 miles from the land base, and this may be significantly less than 1,000 miles from our coastline, in excess of half of the FA18 force would require to be committed, leaving less than 30 aircraft for the defence of Australia, a proposition likely to be viewed by operational commanders with concern.

In order to minimise this concern, it is likely at best, that the Tactical Fighter Force would be available for fleet support only as and when required, in which event, it is likely that a delay of at least two hours could be expected between a call for such support and the arrival of any assistance, a delay that could be disastrous for the operation in hand, disastrous for the fleet itself.

The strategic and economic implications of the above are such as to require, albeit belatedly, our own re-evaluation of our maritime needs, and the interim or "core force" solution lies within our grasp, economically and technically. It lies with embracing the technology of the jump jet aircraft, the technology without which the Falklands conflict would not have been resolved, without which the defence of those islands could not even have been contemplated.

At this point, the relevance to our needs, of this new generation aircraft requires to be stated.

It is doubtful that any thinking Australian, regardless of political persuasion, would deny that budgetary restrains aside, our ideal maritime force would contain an integral capability to defend itself against all forms of attack and to strike an aggressor at some point before he is able to launch weapons in an attack on our mainland. To achieve this, we must place a range of aircraft in the fleet, a range with the capabilities to defend, to search, and to destroy hostile equipment aimed aggressively at our nation.

If we accept the economic unpalatability of providing a conventional fixed wing carrier, then we must consider the unconventional fixed wing alternative, one that can be borne by existing ships in the Australian fleet. In short we must consider the jump jet, or VSTOL aircraft, a piece of equipment that is within our economic means, and that has a range of capabilities that will, in the short term, fill one gap in our maritime defence and incidentally offer some very useful back-up in our continental defence.

These capabilities include, as mentioned, the ability to operate from existing fleet units, to operate in emergency situations from merchant ships in the defence of our trade routes, or providing ground cover to our land

forces in numerous situations, of operating from improvised forward bases in support of ground forces anywhere in Australia or elsewhere in our neighbourhood, or from airfields which have been put out of action for conventional fixed wing aircraft operations.

The VSTOL aircraft is probably the most flexible, the most versatile piece of equipment the nation could possess. If further proof is required of its value, it can be perceived in the acceptance by the Royal Navy as its sole fixed wing support, by the acceptance as a major support unit, by the Marines in the United States, where billions of dollars are being spent on production, research and development, and of the acceptance by other nations who are looking to VSTOL as their fleet support aircraft, such nations as Italy, India, Spain.

In our own case, a small force of, say 10 aircraft, would be a major step forward into this technology of the future, not a large investment, but provided that a significantly larger number of crews were trained to fly them they would form a core which could be expanded rapidly in an emergency. They could be carried now with minor modifications in HMA Ships, Stalwart, Success, Tobruk and Jervis Bay; in an emergency additional aircraft could be carried in converted merchant hulls fitted with adequate self-defence systems, and as previously mentioned, they could be carried in active merchant ships for the protection of themselves and others sailing with them.

In the very near future, earlier generation VSTOL aircraft will be available from Britain, and the United States, and whilst they would not represent the latest state of the art, they would enable us to enter this vitally important new field of technology at modest cost.

Another gap which exists in our maritime capability is in the area of operation where government appears anxious to concentrate its maritime effort, our coastal environs. We have a significant patrol boat force, but the ships are very lightly armed and would have a very limited role. If confronted by an armed opponent they would probably be placed at significant risk. Hence, we lag behind other small nations in the arming of these units, nations like Israel, which has proved the efficacy of missile carrying coastal craft in combat conditions.

Again, budgetary restraints determine that we cannot fit all out patrol craft with missile equipment, but again, it is important that we develop the expertise in the utilisation of this technology to test their capabilities during leisurely days of peace rather than discover all the problems under stressful conditions in time of conflict. We do know that our Fremantle-class ships are capable of being fitted with missiles.

We should, therefore, fit one or two patrol boats with missiles and ensure that our naval personnel achieve maximum exposure to the utilisation of this particular mix of equipment.

And finally, we have a need for air early warning capability as part of the fleet. In the absence of a conventional carrier, we cannot operate the sophisticated units used by the United States, but the disastrous effects of being without that capability suffered by the Royal Navy in the Falklands, must alert us to the need for this technology. The British, like us, are unable to carry large, sophisticated early warning equipment at sea, and they are developing the next best alternative, the AEW helicopter, in the form of converted Sea Kings, we must do the same.

What, then, would be the composition of a maritime core force for the Royal Australian Navy, additionally, that is, to the capability which the Air Force can bring to bear in the maritime scene.

It is desirable to the extent that it is economically possible to have a comprehensive maritime group on both east and west coasts, bearing in mind the vast intervening distance.

We require then, two maritime groups, each with the following capability

- Surface ships, large and small, with appropriate support units.
- A submarine group.
- At least one missile equipped patrol boat.
- Mine warfare ships.
- Army support, survey and miscellaneous units.
- Maximum helicopter support.
- An AEW helicopter.
- At least minimal VSTOL support carried in existing fleet units.

It is not suggested that these groups would be immediately self-sufficient and fully operational to face a conflict situation, but they would contain the comprehensive range of technology in a core capable of expansion. Given less than adequate warning time, they would be better placed than would our presently projected force, to reach a state of readiness against an aggressor.

It will not be possible, at this time, given the magnitude of projected equipment levels to produce two complete maritime groups, east and west, and it is not suggested that, given our present fiscal problems, we increase significantly our currently projected maritime expenditure. Modest additional expenditure only, would be required to realise what we believe to be a balanced minimum core force.

The magnitude of equipment recommended is:

• Major Surface Combatants	Maintain number of existing and presently projected units
• Submarines	Maintain projected numbers
• Support Ships (Tenders)	Maintain existing number of units, but aim in the longer term to duplicate these
• Patrol Boats	Maintain number of existing and presently projected units. *Two to be fitted with missiles
• Mine Warfare Ships	Develop and maintain projected units
• Army Support, Survey and Miscellaneous units	Maintain existing units, but aim in the longer term to duplicate Army support units
• Helicopters	Maintain number of existing and projected units. *Additionally provide two AEW units, by converting two Sea Kings
• VSTOL	*Provide 10 second-hand units

It can be seen that little requires to be added to existing and projected equipment to achieve a balanced core force; in fact, only those items marked *.

All, or none, of the three types of equipment recommended would be beyond the means of our defence vote, nor would they conflict with the present government's defence philosophy, that of non-commitment of our forces in an offensive role. They would, however, enhance our Defence Force's self reliance and its ability to deal with a regional aggressor.

Without them, our maritime service will not be able, with an acceptable degree of security, to carry out an effective defensive role within our neighbourhood. Without them, we place our ships, and the men who sail in them, at unacceptable risk.

BOOK REVIEWS

by ROSS GILLETT

ROYAL NAVY AIRCRAFT CARRIERS, 1945-1990

by LEO MARRIOTT
Published by Ian Allan
Review Copy from Lothian Books

This book is a well written and informative description of the "flat-tops" of the Royal Navy in service since the end of the Second World War. As well as the remaining wartime ships, the author traces the carrier in the Royal Navy through the light fleet and post-war fleet carriers, the commando and helicopter carriers and into the VTOL era and the future.

Some of the more unusual ships featured include the assault vessels HMS FEARLESS and HMS INTREPID, the Tiger class helicopter cruisers, as well as helicopter support ships HMS LOFOTEN, RFA ENGADINE, to the present RFA RELIANT. The latest addition to the club, the Aviation Training Ship RFA ARGUS, is described, together with a selection of futuristic carrier designs.

The book, spanning over 140 pages, is very well illustrated and equally well written. Thoroughly recommended.

PS: HMA Ships SYDNEY, VENGEANCE, MELBOURNE and (AUSTRALIA) are included.

NAVAL WEAPONS OF WORLD WAR II

by JOHN CAMPBELL
Published by Conway Maritime Press
Review Copy from Conway Maritime Press

Like many books published by Conway during the past decade, "Naval Weapons of World War II" will undoubtedly become the ultimate reference work for all students of naval weaponry of the 1939-45 period.

Packed within its 416 pages are 350 photographs, plus 300 line drawings, most, if not all, fully tabulated for easy reference and identification. The first chapters are devoted to the seven major wartime powers followed by chapter number eight describing the other nations.

For the principal powers, each section is normally presented via an introduction, followed by naval guns, torpedoes, anti-submarine weapons, mines and finally bombs, rockets and missiles.

The Royal Australian Navy is well represented in the Great Britain chapter, through its numerous British-built ships in service during the war. Typical entries include, tabular specifications, a design history, numbers built, how the weapon was employed (ship or aircraft) and their performance in the war.

"Naval Weapons of World War II" will not be a cheap book, but considering its massive coverage, is indeed a great investment. Strongly recommended.

SHIPS OF THE PANAMA CANAL

by JAMES L. SHAW
Published by Naval Institute Press
Review Copy from Lothian Books

Distributed in Australia by Thomas C. Lothian, of 11 Munro Street, Port Melbourne, Vic 3207, this 270 page, $70 book is a superb collection of photographs depicting Naval and Military ships, passenger ships and yachts and cargo ships and work craft.

Each vessel is illustrated as a full-page photograph with her career provided on the opposite page. As regards the naval ships, 36 are represented from a variety of navies. Some of the more impressive include the USN battleships OHIO and PENNSYLVANIA, and the monitor USS TALLAHASSE.

Preceding the three main sections is the introduction, featuring a superb collection of photographs depicting the construction of the canal during the early years of this century.

Recommended to all ship lovers as one of those "coffee table" type books.

SUBMARINES WITH WINGS

by TERRY C. TREADWELL
Published by Ian Allan
Review Copy from Lothian Books

Sub-titled, "The Past, Present and Future of Aircraft-Carrying Submarines", this 144-page book provides an interesting description of the more unusual schemes to embark aircraft in submarines at sea.

Essentially a pictorial work, with many rare views, the book concentrates on the post-1945 era, a period in which the United States Navy took much interest in submarine aviation. However, to mention only a few, the Royal Navy's M-class submarine monitors, converted to carry one seaplane during the late 1920s, and the even earlier (1916) HMS E-22 carrier of two Sopwith Schneiders (surfaced only) are described.

Looking to the future, the author describes possible innovations for the employment of VTOL aircraft, some using the Skyhook launch and recovery system.

"Submarines with Wings" is illustrated by 110 photographs and 10 line drawings. Interesting reading at an affordable price of approximately $35.

CONWAYS MODERN NAVAL POWER, 1986

by HUGH W. COWIN
Published by Conway Maritime Press
Review Copy from Princeton Books, Victoria

During the past few years I've had the immense pleasure of reviewing Conways excellent "All the World's Fighting Ships" series and anticipated with much interest their new "Modern Naval Power, 1986". However, I must admit that this new book, is a poor relation of the earlier publications.

"Combat Fleets of the World" and "Janes' Fighting Ships" have little to worry about in this new rival. As the book is arranged by ship type, it is very difficult to obtain a true idea, of any one Navy, except for the brief introduction preceding the main warship, naval aircraft and naval missile and gun sections. For instance the RAN is described in June, 1984, as a force of six submarines, three DDGs, one destroyer, nine missile armed frigates, four "gun only" corvettes? and eight patrol craft?, etc.

On the credit side, "Modern Naval Power" will be cheaper than its two rivals, is well illustrated, and boasts five separate indexes. The author has attempted to produce a different type of reference book, but I hope he will reconsider the layout and, when re-published, adopt the style of the well-respected "All the World's Fighting Ships" series.

US BATTLESHIPS

An Illustrated Design History

by NORMAN FRIEDMAN
Published by Arms & Armour Press
Review Copy from Capricorn Link Australia Pty Ltd

This book, the fourth in a series which has already described the Destroyers, Cruisers and Aircraft Carriers of the United States Navy, is a mammoth 460-page work.

"US Battleships" describes the development of the American capital ships from USS MAINE and USS TEXAS of 1886, through to the Montana-class, cancelled in the Second World War, then up to the resurrection of the Iowa's in the post-war fleet. Like the earlier volumes, this book is lavishly illustrated with black and white photographs, plus, literally "hundreds" of line drawings, provided by Alan Raven and A. D. Baker III.

Special sections are devoted to the battleships at war in World Wars One and Two, including details of the modifications made to the ships because of war experience.

As well as ships commissioned, "US Battleships" describes the projects for new designs or proposed conversions of vessels already in service.

One is soon impressed as to the American's resolute efforts to keep their four Iowas, whether in reserve, or for possible use in some combined combatant/ancillary role. Fortunately for us in Australia, we will be able to view one of the Iowas, USS MISSOURI, in October this year, when the ship is scheduled to visit Sydney.

"US Battleships" retails for $75 per copy. It is essential reading for naval historians with an interest in the battleships of the United States Navy.

US NAVAL VESSELS, 1943

Published by Arms & Armour Press
Review Copy from Capricorn Link Australia Pty Ltd

In a recent issue of "The Navy" we featured a spread of scale line drawings and characteristics of Allied Landing Craft, originally published in the Second World War.

Now a companion volume, "US Naval Vessels, 1943" has appeared in the bookshops, depicting the strength of the United States Navy at the height of the conflict. The now hard cover version is a comprehensive survey of the fleet with more than 900 illustrations, including 679 photographs and 227 line drawings. Many of the classes are illustrated from two, three and sometimes four different views to enable the wartime users to recognise as friendly, hundreds of US Navy ships from almost any angle.

Each class, or ship entry, is supported by some basic data and notes on salient recognition features, as well as differences between units of the same class.

"US Naval Vessels, 1943" retails for $27.95. All classes from 800-foot battleships to quarter-ton amphibious jeeps are included. Well worth a read.

BOB NICHOLLS

AUSTRALIA'S NAVAL EXPEDITION TO THE BOXER UPRISING
BLUEJACKETS AND BOXERS

by BOB NICHOLL
Published by Allen & Unwin Australia

In recent years, much has been written about the exploits of the various colonial military contingents to the Sudan and South Africa. But very little has been written about the two colonial naval expeditions. The first to New Zealand and the second to China.

The publishing of Bob Nicholls' book "Bluejackets and Boxers" goes half way to removing this neglect. "Bluejackets and Boxers" is the story of Australia's involvement in China during the Boxer uprising.

In writing this book on the Boxer Rebellion, Bob Nicholl has produced a highly readable and informative work. It is well illustrated by a large number of rarely published photographs, but unfortunately the standard of reproduction of some is fairly low, though this is mainly due to the source.

Perhaps the most disappointing aspect of the book, even more so considering the authors previous employment as an intelligence analyst, is the number of errors associated with the various weapons used by the naval forces despatched to China. These include the description of the Victorian contingent's 14-pounders as having come from CERBERUS. CERBERUS was armed with 12-pounder QF guns, and not with 14-pounder QFs. The revolver issued to the Victorian contingent were Enfield Mk IIs, as illustrated in Appendix VII of the book, and not Mk I as stated in the text. An example of one of these revolvers is in the HMAS CERBERUS Museum. Notwithstanding these errors, Mr Nicholl's book is a welcome addition to those already published, dealing with Australian Naval history, in particular that it deals with a so far neglected area. On reading Mr Nicholl's book one can understand why there has been no massive flow of books dealing with Australia's naval involvement in China for there was no glorious battle fought, nor any sterling deeds of Empire performed. What emerges is a story of monotonous police duties, interspersed with a little pillaging and plundering. However, the crew of PROTECTOR were not engaged in these activities.

Overall, Mr Nicholl has written a very readable and informative book which would be a worthwhile inclusion in any library.

JOE STRACZEK

The RN's Aviation Training Ship — an aircraft carrier in all but name

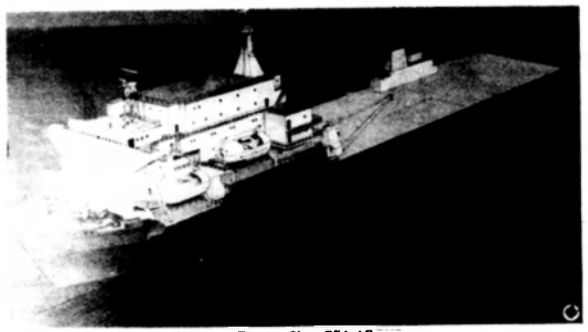
The Bellast yard, Harland & Wolff, is well into a contract to convert the container ship CONTENDER BEZANT into what is euphemistically described as an Aviation Training Ship for the RN.

The contract was awarded in late 1984 and the ship, renamed RFA ARGUS, is due to be handed over in late 1986.

Although ostensibly intended to provide at-sea training for both helicopter and Harrier crews, the ship is, at £40 million, one-sixth the price of an Invincible Class carrier.

Once the conversion contract for the RN has been completed, Harland & Wolff is expected to offer the design as a cut price aircraft carrier on the export market, presumably with modifications to reduce noise levels.

Under the RN conversion contract, a 30m section is being added amidships, bringing the displacement up to about 20,000t. The ship's original bridge superstructure block forward is being retained and a second, larger block added immediately aft of it, leaving the rest of the main deck clear for flight operations.



Aviation Training Ship, RFA ARGUS

The original container ship had two funnels, one each side, near the stern. The port funnel is being removed and the exhaust gases from the Pielstick diesels ducted over below the flight deck to the starboard funnel. The hangar will extend almost from one end of the ship to the other, permitting the ship to carry more aircraft than the ARK ROYAL, the third Invincible Class carrier. The flight deck will have two lifts, one half-way down the deck on the port side, the other (not visible in Photo) on the starboard side, just aft of the superstructure.

The ship will have extensive workshops and magazines, although it is not known whether the latter will be sized simply for the training role or also for wartime operations.

Working for Harland & Wolff as the principal contractor for the combat system is Racal, leading a team including Plessey (for the radars) and Marconi (for the communications equipment). Racal itself is supplying the action information equipment, based on the company's low-cost Cane DP system. The ship will be fitted with chaff launchers. It will also be fitted for, but not with, a cheap, comprehensive ESM system (the one-stop replenishment vessel will have a similar, or even the same, one). The artist's impression shows the ship armed with gun mounts only, although according to some sources it is designed to be fitted with a containerised Seawolf system in time of war.

The first HMS ARGUS

The National Naval Memorial

by ANDREW ROBERTSON, RADM (Rtd), Vice President, Navy League of Australia

THEY say that old soldiers never die, they merely fade away. No one appears to have coined a phrase to cover old sailors. Perhaps they merely salt away. Certainly, they appeared in Canberra from all corners of the continent, on Monday, March 3.

There were governors and gardeners, farmers and financiers, tutors and truckies, all united with serving naval men and women, to see the Queen of Australia dedicate the National Naval Memorial to the RAN, past and present in its 75th Anniversary Year.

In bright, but overcast weather, led by its massed bands, the Naval Royal Guard escorting the Royal Colour marched down Anzac Parade with impeccable precision, followed by serried ranks of sailors. The light reflected strongly from the white uniforms against the blue background of Lake Burley Griffin, the red of the gravel road edges, and the olive green of the surrounding trees. The sailors of yesteryear followed proudly behind, marching behind the many colourful banners bearing the battle honours of ships and units which formed the traditions of our navy.

As they waited, all eyes fastened on the huge memorial by the sculptor Mr Ante Dabro, a Yugoslav migrant who has achieved some fame by his numerous works of portrait busts and figurative sculpture, to be found in the national capital.

The Memorial itself doesn't immediately strike most casual passers-by as a naval one. It is a rather heavy work, somewhat in the eastern European style. Detailed close examination is needed to unravel its somewhat allegorical message. However, particularly against the background of the rush and tumble of the waters of its fountain system, it is a powerful work. The stances and movement of the figures, and the angles and block shapes of the ship's bows, cables and equipment, convey strongly, as the sculptor intended, the theme of "Sailors and Ships — Interaction and Interdependence".

Contemplation of this work was abruptly ended as the Queen arrived. Right on time, in the true spirit of inter-service co-operation, forged so strongly in time of war, Army cannon boomed out a 21-gun salute from the heights of Mt Ainslie. Between the blasts, flocks of galahs rose screeching their surprise as they wheeled and sped off.

The Prime Minister, standing before the huge bronze Memorial, welcomed Her Majesty, and spoke stirringly of the role of the Navy in our national defence. He seemed to emphasise the defence of our coastline itself. Maybe this wasn't intended, but for many present, whose chests blazed with the evidence of past successful defence of Australia, in the deep oceans, far from our shores, it smacked a little of a last-ditch philosophy. Dealing with any threat far from our shores, before the bombs and missiles hit our coastal cities, or even our shining Canberra, and using our huge geographical advantage of defence in depth is much more the stuff of maritime defence understood by sailors.

The Queen, unveiling the memorial plaque, replied, noting the central role of the navy in the discovery, founding and protection of Australia, through the last two centuries.

Vice-Admiral Hudson, the Chief of Naval Staff, replied on behalf of the Navy, thanking the nation for the gift of the Memorial, and noting the role of the service in the preservation of peace, so relevant in this particular international year.

Then came the reading of the historic naval prayer, which has been recited down the centuries wherever navies of the Empire or Commonwealth have assembled.

The thumping sound of approaching helicopters gradually drowned out the words of the chaplain. Eyes turned skywards, as 13 helicopters, trailing red and blue smoke, passed slowly overhead, their highly-trained pilots maintaining perfect formation.

Most missed the familiar roar of the former jet aircraft of the Fleet Air Arm. Sharp eyes and intellects registered the message in the sky, for only three of the thirteen were combat helicopters — Sea Kings — the remainder being training and support aircraft.

Many present realised that, while some new helicopters are to be purchased for our new frigates, there is still no deck from which the superb anti-submarine Sea Kings can operate with full effectiveness at sea, and this, some four years after the demise of the carrier HMAS Melbourne.

The Queen, followed by the Duke of Edinburgh, who was resplendent in the uniform of an Admiral of the Fleet, then inspected the sailors, and in her usual charming, informal manner, chatted with the old salts, arraigned somewhat haphazardly behind their banners.

A young blonde woman, clutching a baby and a basket of roses, pleaded with the veterans for a place beside them at the barrier. After a precautionary inspection of the contents of the basket, her winning ways and persistence, ensured her a place and a word with the Queen as she made her presentation.

Our popular and affable Prime Minister was somewhat taken aback, when one ex-sailor, his shining medals testifying to his past painful experience at sea without air cover, unable to contain himself despite the illustrious company, bellowed out "When are you going to give us an aircraft carrier, Bob".

Unencumbered by such painful sea experience, but mindful of the realities of budgets and politics, the PM gave a dusty and somewhat tetchy reply.

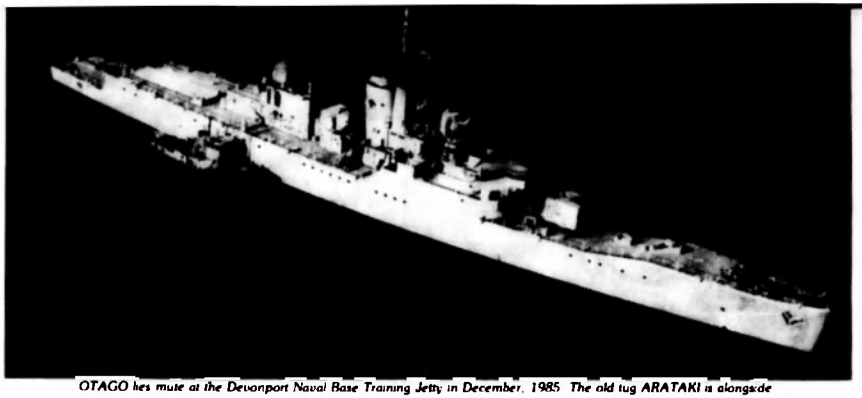
And when it was all over, the VIPs departed, and "Hearts of Oak", the stirring march-past of the Navy thundered out as the band struck up and the sailors marched off.

The magpies and galahs winged their way back leisurely, and silence descended on the Memorial.

Some, as they left, wondered would it be yet another forgotten memorial hidden in Anzac Parade, far from the madding crowds of our great cities, its message largely out of mind, perhaps like the defence of the nation itself, or would a spirit of nationalism and new realism in defence gradually emerge as 1988 approaches?

Maybe our energetic and intelligent Minister of Defence will be able to do something about the plaintive bellow of the veteran sailor on behalf of his highly-trained and motivated, but no so well-equipped successors. For, as that arch, but perceptive, Niccolo Machiavelli, once said in another context, but with some long-term relevance to us:

"When princes think more of luxury than of arms, they lose their state".



OTAGO lies mute at the Devonport Naval Base Training Jetty in December, 1985. The old tug ARATAKI is alongside

NEW ZEALAND NEWS

The frigate OTAGO is entering her third year, moored at the Devonport naval base, ignored, but not forgotten.

Another year may yet pass before anyone decides whether she is to end up as reinforcing steel on construction sites or as an attraction for divers under the waters of the Bay of Islands.

A group, once headed by the late Kelly Tarlton, wanted the Government to donate the OTAGO so that she could be used as a diving attraction.

The committee has been told that it will have to compete with those who want her as scrap.

That means a fundraising effort of at least $60,000 — the figure that the last frigate to be scrapped, the TARANAKI, was sold for — but near $100,000, to cover the costs of sinking her.

The OTAGO was decommissioned towards the end of 1983, and Devonport dockyard staff began cannibalising her for parts for naval use. Little has been taken off recently, however, because of manpower shortages.

Stripping the OTAGO of non-essential equipment is the last priority of a dockyard which is months behind on refit work on the frigate WELLINGTON.

The annual refit of the survey ship MONOWAI was let out to a private company because of the delays caused by the manpower shortage.

Most of the equipment being taken out — furniture, bunks, light switches — will be used on other vessels. Other equipment — mechanical, electrical and operational — will be used for on-shore training.

Historical societies and museums want the more visually attractive items such as the ship's wheel, anchor and porthole surrounds.

The gun barrels have gone, and will be refurbished, as will the torpedo tubes.

The turret will stay and also the outdated weapons control system.

Sailors have mixed emotions about the future of the OTAGO. There is an emotional attachment by some who have served on her. They would rather she were not sunk and left to rust away.

They would prefer a quick end. That way, she disappears, but stays in the memory as a ship.

Others, however, are against cutting her up as scrap.

One of these is the first executive officer on the OTAGO during her delivery voyage from Britain in 1960, the now-retired Rear Admiral K. M. Sault. He is patron of the group wanting to sink her as a diving attraction.

"I would rather see it continue to be useful, instead of ending up as razor blades," he says.

Other sailors were worried that, eventually, a diver would manage to enter the sunken ship, placing is life in peril.

Sinking the OTAGO is the real problem. The Navy, strangely enough, is not used to sinking ships. The last one it sank was probably a North Korean gunboat, during the Korean War of the 1950s.

Earlier, it gave the job to the Air Force, which used old merchant ships as target practice after they had been towed out into Cook Strait during the late 1940s.

To be of any use as a diving attraction, the OTAGO would need to be sunk so that she settled upright on her keel.

The sinking operation would have to ensure that water entered her many compartments at an even rate. The OTAGO has about 40 underwater openings — for cooling, fire pumps, flooding ammunition, for discharge systems. They would all need to be sealed.

The new holes would need to be made by explosive which would need to detonate simultaneously.

Far simpler, many sailors say, and safer, to send her to the scrapyard.

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NAVY LEAGUE AND CADET NEWS

NAVY LEAGUE AWARDS PRESENTED

TWO annual Navy League awards — the Efficiency Trophy for the most efficient Naval Reserve Cadet unit and the Community Award for service rendered to the civilian community by RAN ships and establishments — were presented at the end of 1985 and early this year.

The Efficiency Trophy was presented to TS BUNDABERG by the Chief of Naval Staff (Vice Admiral Michael Hudson) at an impressive ceremony in Bundaberg on Saturday, 7 December. The ceremony, which took place in very hot conditions (at least to the "southerners" present), was attended by over 300 cadets from Queensland units and observed by Parliamentary representatives, civic dignitaries, Navy and Navy League representatives, and a large crowd which included the families of cadets.

The Community Award was presented to HMAS NIRIMBA, the Navy's Trade Training establishment, by His Excellency the Governor of New South Wales (Air Marshal Sir James Rowland) on Thursday, 16 January. Wet weather caused the ceremony to be held under cover but the parade by some 700 members of NIRIMBA's Ships Company was no less impressive for that. As at Bundaberg, local authorities were well-represented and indicate the close links the Navy and the NRC form with the communities in their area.

At both ceremonies the Federal President of the Navy League (Commander Geoff Evans) formally invited the Guest of Honour to make the presentations. The Federal President was accompanied by the President of the Queensland Division of the League (Dr Athol Robertson) at Bundaberg, and by the Federal Vice-President (Rear Admiral Andrew Robertson) and the acting NSW President (Lieutenant-Commander Ted Bryden Brown) at HMAS NIRIMBA.

NAVY LEAGUE OF AUSTRALIA
A Brief History

by GEOFF EVANS
FEDERAL PRESIDENT

The Navy League had its origin in the United Kingdom in 1895. It was formed by a group of citizens who were worried about the state of the Royal Navy at the time; they felt it was inadequate to defend Britain's interests, which of course at that time were spread all over the world.

This group went around the country and at public meetings and so on expressed their concern, and those members who were in the House of Commons used the Parliament as their forum. This is one of the advantages of the Parliamentary system, although I suspect the Parliament is not as influential as it was in those times.

In the event, the Royal Navy was strengthened in the following years, fortunately for Britain, by the outbreak of the First World War. Also during this period — the early part of this century — the Navy League spread and branches were formed in what were then the British Dominions, and a Navy League was formed in the United States. I will return to this one later.

Although the Navy League started as what might be termed a "Defence, or Navy Lobby", it soon developed into a Sea Cadet training organisation and, so far as I have been able to ascertain, the Dominion branches were involved mainly with Cadet Training right from the start.

As far as we know, the first Australian Branch of the Navy League was formed in Victoria in 1915, and later branches were formed in New South Wales (not later than 1928 and probably earlier), and in northern Tasmania. Sub-branches were formed in Geelong in 1932 and in Portland at about the same time. All these branches and sub-branches were devoted to Cadet Training — mainly boys in the 14 to 18-year age group, who at the time were known as Navy League Sea Cadets and were the Naval equivalent of the Army's School Cadets and later the Air Training Corps.

Until 1946 the Sea Cadet organisation was financed by the Navy League. In that year Naval support was sought. The Naval administration of the day quite properly said . . . yes, we're willing to talk but not with an organisation with Headquarters 12,000 miles away, and that marked the beginning of an independent Australian Navy League.

BY 1949 we had severed our Colonial ties, the Navy League of Australia had been formed and its Cadet Corps "recognised" by the Navy. It was not until 1952 however, by which time the Corps had been renamed the Australian Sea Cadet Corps, that the Naval Defence Act was amended to allow the Navy to provide worthwhile support. (This renaming, incidentally, caused all sorts of problems for the Geelong Sea Cadet unit!) The support took the form of uniforms and equipment and Navy also assumed responsibility for training. The Navy League (and I am now talking about the Navy League of Australia) "owned" the ASCC and was responsible for providing buildings, finding the instructors, and administration.

Divisions of the League were formed in all States, and the ACT and Northern Territory, and a Sea Cadet council consisting of both Naval and Navy League members was formed to advise the Naval Board and the Federal council of the League on Sea Cadet matters.

The fact that the Sea Cadet Council was an advisory body and lacked Executive authority — Navy and Navy League members were responsible to their own Authorities — was a weakness as, in effect, the Sea Cadet Corps had two "masters" and this is seldom a satisfactory arrangement in any organisation.

However, the ASCC grew rapidly — from 9 units and about 430 members in 1948/49, to 18 Units and 883 Cadets in 1953, and to 38 Units and 2,500 Cadets in 1963. At this stage a halt was called by the Commonwealth, which had not bargained for such an expansion, and it is fair to say the growth had outstripped the Navy League's ability to provide the buildings and handle the administration.

I don't propose to say much more about the Cadet side of Navy League activities. In 1966 the Director of Naval Reserves and I (in my capacity as a member of the Sea Cadet Council and as Senior Officer of the Victorian Division of the ASCC) put in separate reports of the future of the ASCC and our conclusions were much the same. Basically, we felt the roles would have to be reversed, with the Commonwealth through the Navy "owning" the Cadet organisation and the Navy League supporting it. This change in fact took place on 1 January, 1973, when members of the ASCC were transferred to a new organisation called the Naval

Reserve Cadets. This is the Cadet organisation we support today, although Western Australia does have some ASCC units for girls and for 12-14 year old youngsters.

A little earlier, I mentioned the Navy League of the United States. Unlike the Navy Leagues in Britain, Canada, New Zealand, South Africa and Australia, the American Navy League remained very much an educational organisation orientated towards Defence and Maritime Affairs. It has a Sea Cadet Corps which it finances to a much greater extent than almost any other country — most Sea Cadet Corps these days are heavily subsidised by their Governments — but the emphasis is very much on America's Maritime Affairs.

Circumstances caused the Australian Navy League to become more like the United States Navy League in the late sixties. The sixties were something of a disaster for the RAN — the MELBOURNE/VOYAGER collision, the loss of a number of midshipmen from HMAS SYDNEY, and several other accidents; the Navy was receiving a very bad press and not unnaturally, morale was suffering. Some of us in the League felt we would have to give much more attention to our wider objectives.

It so happened that the then Chief of Naval Staff, Admiral Sir Victor Smith, was thinking along the same lines and to his great credit he approached a number of groups in the Naval community and sought their support. One of the problems though was that we did not know what was happening in the Navy — why things were going wrong — and without this knowledge it was very difficult to know what we could do.

To cut a long story short, we in the Navy League agreed to help provided we were "put in the picture", at the same time we reserved the right to be critical and made it clear we had no intention of becoming a kind of public relations adjunct to the Navy. This was agreed. In the event, a very close "working" relationship developed between the Naval staff and the Federal Executive of the Navy League and I am happy to say it continues to this day.

HOW DO WE GO ABOUT OUR BUSINESS?

For a start we have to keep ourselves up-to-date with what is going on around the world, not only in relation to Naval matters but Foreign Affairs generally. It is absolutely essential if we are to make a positive contribution to discussion in Australia, to take the widest possible view of the world because never before have countries been so interdependent. Events in, say, the Middle East, have a bearing on Japan. Japan's affairs affect us.

We in the Navy League are fortunate in that we have good links with other countries through other Navy Leagues and so on, and there is a wealth of experience in the Navy League membership — members associated with the shipping companies, shipbuilders, Naval architects, traders, a number of distinguished Naval leaders — all people who are accustomed to thinking in "international" rather than "local" terms.

This experience within the Navy League has enabled me, as Federal President, to form small groups to look at particular issues and to come up with advice and suggestions. Currently we have a study group completing its report on Naval Air problems. A group has looked at the advantages or otherwise of nuclear powered submarines for Australia. We are considering ways of becoming more closely associated with the ASEAN countries, in particular with Indonesia.

My colleagues and I have appeared before a number of Parliamentary Inquiries, ranging from the Carrier Inquiry (obviously we were unsuccessful!) to the organisation of the Defence Department which, I must admit, has been a matter of particular interest to me since 1972 and I don't regard the time spent as wasted.

The writers among us, and we have some very good writers, have articles published in Australian and overseas newspapers and journals.

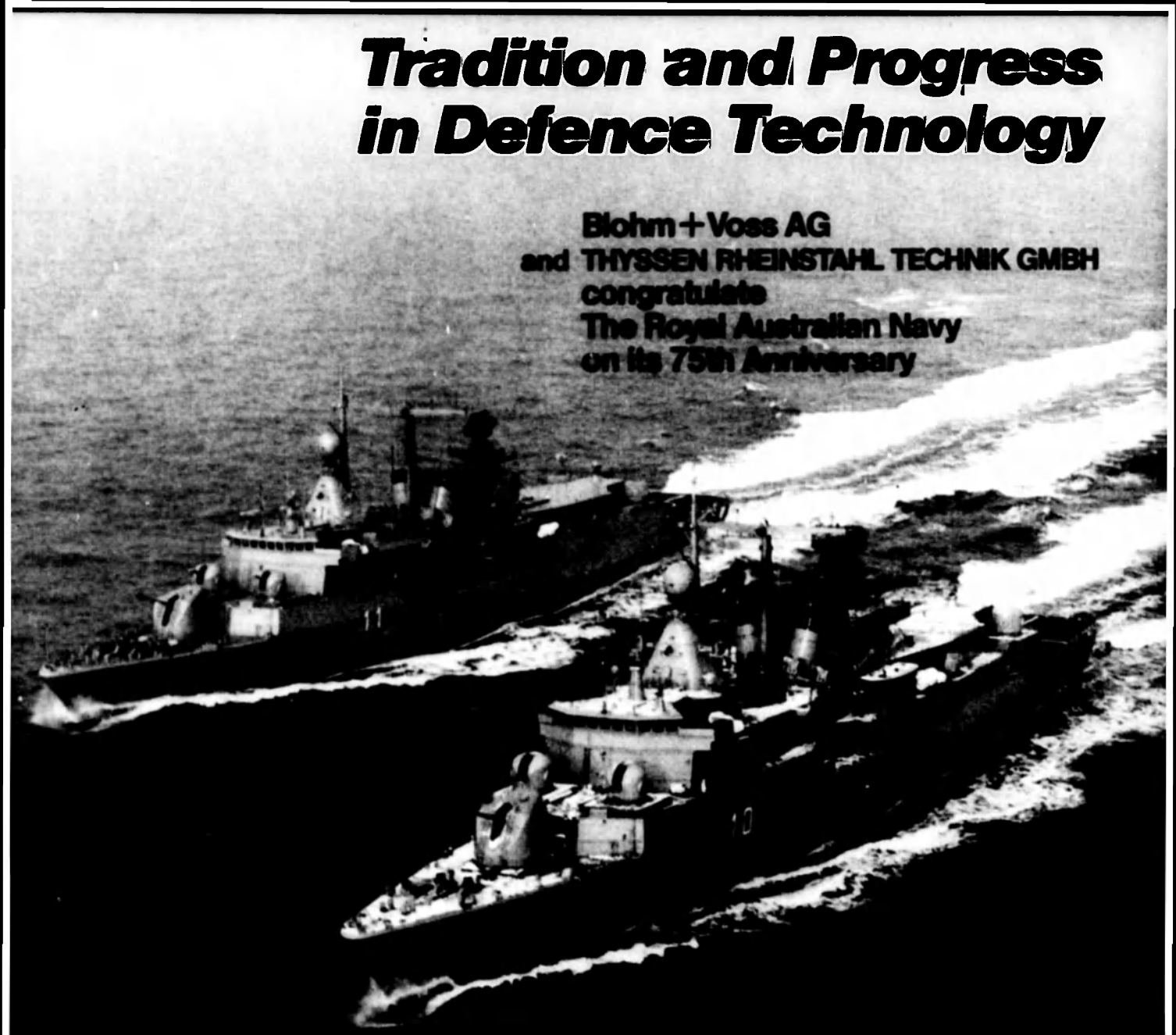
It has been my lot as President of the League and its spokesman, to be interviewed on television on a number of occasions to express the Navy League's view.

The Navy League was largely responsible for preventing the Soviet Union from establishing a fishing base in Tasmania, although I am not sure we have heard the last of this matter. You will all, however, have read or heard during the last two or three days of the integration of the Soviet Navy, merchant service and fishing industry. This is not to say that we don't support communication and trade with the Russians. The Soviet Ambassador has been one of our distinguished guests, and I think this is more than most defence orientated organisations can say.

Despite all these efforts — and something is happening all the time — I am afraid the majority of Australians continue to be pre-occupied with their own affairs and insular in outlook. Our maritime problems are understood well enough by those who realise that Australia's well being — indeed its survival — depend upon unimpeded sea lines of communication with the rest of the world and a healthy national maritime base, but not by the community generally.

I believe that our foreign policy takes this into account and is, by and large, outward looking. Our defence policy on the other hand is, I fear, inward looking, indeed, I am well aware that our friends overseas think it is quite unreal. They don't understand, for instance, why a country — one of the very few — with an effective fleet air arm and good fixed wing aircraft, should deliberately pull it to pieces. It is beyond their comprehension, as it is mine.

Tradition and Progress in Defence Technology



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THE NAVY LEAGUE OF AUSTRALIA

THE NAVY

EDITOR
ROSS GILLETT
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ADELAIDE
26 Currie St, Adelaide, 5000
Phone 51 6225

PERTH
2nd Floor, Kings Old Office Tower
517 Hay Street, Perth, 6000
Phone 22 1623

MELBOURNE
388 Bourke Street Phone 67 1461

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123 Murray St, Hobart, 7000
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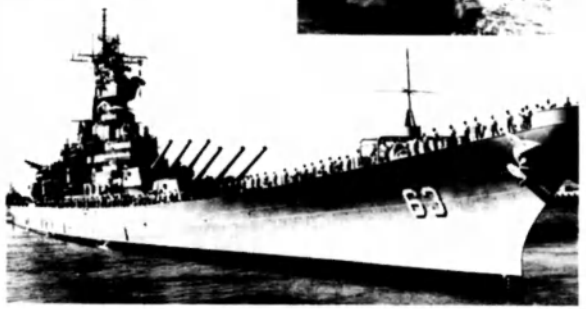
Our Cover Photographs

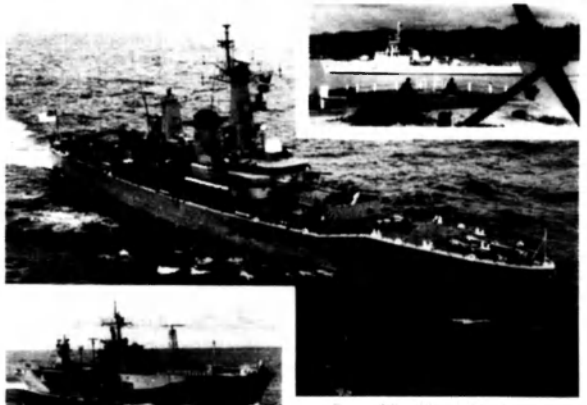
Top Left The Official 75th Anniversary Book

Centre HMAS WHYALLA during the Great Patrol Boat Race
(Photo LSPH Shaun Hebbl)

Bottom Left The Sydney L Z White pages

Bottom Right Australia Post's 75th Anniversary Commemorative Envelope





Some of the ships visiting Australia for the 75th Anniversary.

viewpoint

75 YEARS ON

ON Thursday 10th July, 1986, our Navy formally celebrated its 75th birthday, the anniversary of the day King George the Fifth assented to the designation *"Royal Australian Navy"* and for the ships of the Navy to receive the prefix *"His Majesty's Australian Ship"*. Fittingly the first event on the 75th anniversary was a Thanksgiving Service held simultaneously in every RAN ship and establishment: Sailors have a very healthy respect for the Being who controls the elements with which they are so closely associated!

It is interesting to recall that within four years of the RAN's creation in 1911 and of the 25th and 50th anniversaries of this event HMA ships were involved in wars each of which significantly influenced the course of Australian history -- World War I, World War II and Vietnam. One can only hope enough has been learned from past mistakes to ensure 1990 is reached and negotiated safely.

From World War I to Korea, Confrontation and Vietnam the RAN has served the country well. Too often in peacetime it has had to struggle, along with its sister Services, for equipment and funds. From 1920 for over a decade the naval forces languished so that at the outbreak of World War II in 1939 naval tonnage was only slightly greater than in 1914.

Money of course ceased to be a problem once the war started -- little consolation to sailors serving in elderly destroyers in the Mediterranean and in an assortment of hastily converted merchant vessels -- and there can be no doubt the RAN contributed much to the allied cause and eventual victory.

After World War II the Chifley Labor Government to its great credit ensured the continued viability of the RAN by authorising a substantial naval programme that included the formation of a Fleet Air Arm and the acquisition of two aircraft carriers; the Royal Navy as in the past helped greatly with the RAN's new venture. It is in some ways ironical that a defence-conscious Liberal Prime Minister, perhaps unintentionally, changed the whole naval scene in 1982 by not proceeding with an arrangement to acquire HMS INVINCIBLE, paving the way for another Labor Government to close the chapter on Australia's conventional aircraft carriers the following year. It is an important chapter in the history of our naval forces, recording as it does the period the Navy achieved good balance in its force structure and a degree of self sufficiency previously lacking.

What lies ahead for the Navy? All the signs point to a difficult period as the publication of a defence review which sees no discernible threat to Australia's security and proposes a somewhat localised role for the RAN, has coincided with severe national economic problems; this following several years of financial restraints on the Armed Forces, not in itself unusual in peacetime but made more difficult by the great and increasing cost of maintaining national defence forces in the present age.

Clearly the next few years will impose considerable strains on naval personnel from the Chief of Naval Staff to the most junior sailor, but other naval leaders and sailors have met challenges which must have seemed equally daunting in their day. One has no doubt the present generation will rise to the occasion just as others have done in the past, and with the support of the whole naval community will win through in the end.

The Navy League, as part of the naval community, will continue to press for a Royal Australian Navy with a capability commensurate with its responsibilities to the country's security and wellbeing.

Federal President
The Navy League of Australia

THE NAVY LEAGUE OF AUSTRALIA

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Greetings from Canada

The Federal President, Geoffrey Evans, has received a letter from the National President of the Navy League of Canada, Mr Fraser McKee, which reads:

"Having in 1985 just been through our Canadian Navy's 75th Anniversary, may I, through you, bring the heartiest of congratulations to the RAN 75th Anniversary. While we may be a long way apart physically we are very close spiritually with the same national heritages, the same naval backgrounds, and I am sure the same problems and successes.

The Navy League of Canada, indeed many of our Naval Associations and even our naval staffs have often looked to Australia as a "similar case in point". Our Sea Cadets have had a happy relationship whenever funds have allowed exchanges, such as just last year. Your maritime defence problems and challenges exercise your attention towards their improvement, as do ours. Your Navy has also progressed towards modernisation and expanded competence, just as ours has, and rather more swiftly too!

A 75th Anniversary, we found, gave us many opportunities to show our somewhat negligent population some naval "Pride and Committment" through travelling tattoos, TV, radio, parades and ship visits by widespread participation in such events by our regular Navy, Reserves and Cadets. I am sure your Navy will likewise take this chance to show Australians they have an RAN to be proud of — of its past, its present and its future capabilities."

DEADLINE

The deadline for the January, 1987 issue of The Navy is

NOVEMBER 1, 1986

HMAS COOK with HMAS MORESBY (rear).

THE first recorded Royal Review was staged in 1415 for King Henry V who reviewed his ships prior to their sailing to battle against France in the 100 Years War.

Since then many reviews have been staged. In the earliest of times the Review was in fact the mobilisation of the nation's navy but nowadays is more of a display or ceremonial event. Such a ceremonial review was held in England in 1887 to celebrate the Golden Jubilee of Queen Victoria, and in more recent times for the Silver Jubilee of Queen Elizabeth II in 1977.

For the Royal Australian Navy a number of Fleet Reviews have been held since its inception in 1911. In Port Phillip in 1920 His Royal Highness, the Prince of Wales reviewed a massed Australian Fleet of some 30 warships and auxiliaries while in 1938 an impressive naval demonstration entitled 'Fleet Week' was staged. Later in 1961 for the Navy's Golden Jubilee, Fleet units sailed into Sydney Harbour in an impressive display of the naval tradition.

For the 75th Anniversary Naval Review, His Royal Highness Prince Philip, the Duke of Edinburgh is the Reviewing Officer for the ships of the Royal Australian and six Allied Navies.

A highlight of the day will be the two mobile lines of warships, consisting of the Flag Line (with one unit from each nation with their

senior visiting officer embarked) and the Small Ships Line, comprising six minor Royal Australian Navy units. Both lines will steam past the Reviewing Officer in HMAS COOK while overhead aviation groups comprising Naval fixed and rotary wing aircraft and maritime patrol aircraft of the RAAF flypast as part of the Review.

The static review comprising 25 warships and auxiliaries are all located at alongside berths, anchored or secured to buoys in the area between Bradley's Head to the east and the Sydney Harbour Bridge to the west.

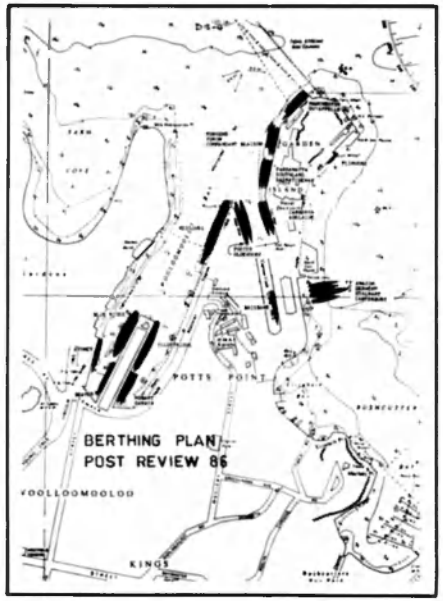
All of the participating ships, plus personnel from the Naval Support Command, lining the 'battlements' of Fort Denison will 'man and cheer ship' as the Reviewing Officer steams past. The custom is a traditional mark of respect as the decks are manned by the Ships' Officers and crew.

HMAS COOK, commanded by Commander A. Cook, RAN has been given the honour and privilege to serve as the Review ship for his Royal Highness, Prince Philip, the Duke of Edinburgh. Sailing with HMAS COOK will be her escort, the patrol boat HMAS GEELONG, commanded by Lieutenant Commander P. E. Cole, RAN.

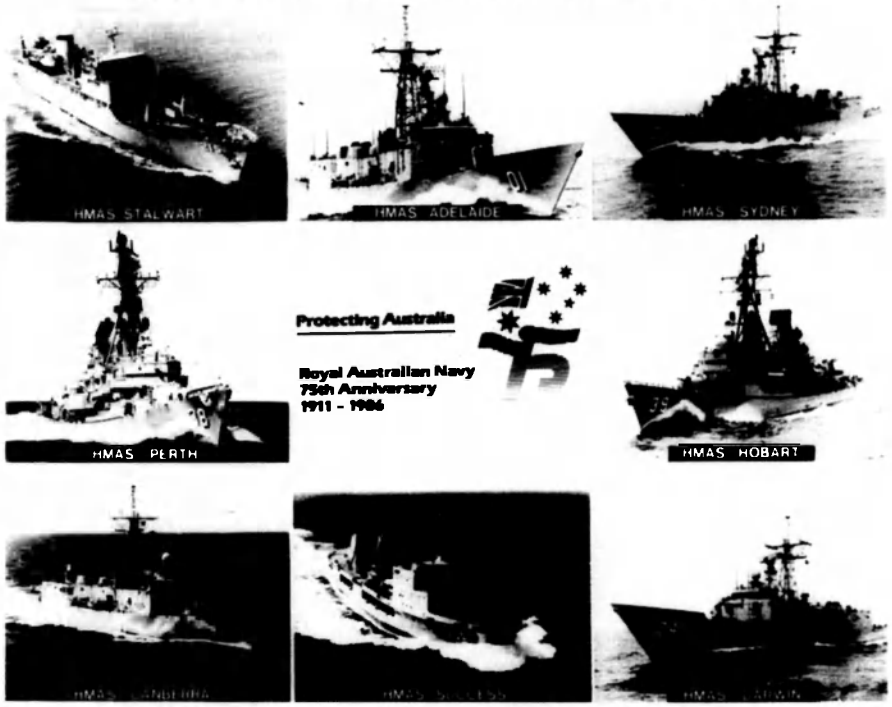
HMAS COOK assumes her position for the start of the 75th Anniversary Naval Review at 1200, north-east of Bennelong Point, near Sydney's magnificent Opera House. At the same time the Flag Line Review, led by HMAS PERTH will proceed towards HMAS COOK and fire a 21 gun Royal Salute followed immediately by 'cheer ship'. Each unit of the line also 'cheers ship' as they pass the Reviewing Vessel.

As the final ship of the Flag Line Review passes, HMAS COOK and her escort commence reviewing the major units lying off the northern shores of Sydney Harbour. HMAS COOK later stops in a position south of Bradley's Head as the second Review, the Small Ships Line begins its steam past. During the Review of the 'Small Ships' of flypast of RAAF Orion P3C maritime patrol aircraft commences. Following the Small Ships Line, HMAS COOK returns to review the remaining static units. When she returns to Sydney Cove at approximately 1323 a flypast of RAN helicopter squadrons and visiting navies' aircraft will fill the skies. On completion, HMAS GEELONG steams past and 'cheers ship'. HMAS COOK will then proceed to Walsh Bay where His Royal Highness the Duke of Edinburgh disembarks.

Port Jackson, the 'finest harbour in the world' will witness the most impressive display ever staged by the Royal Australian Navy.



THE PARTICIPATING SHIPS



Fleet Flagship HMAS STALWART

HMAS STALWART has earned for herself the reputation of 'Maid of all Work'. As well as satisfying her primary responsibilities as a destroyer tender, HMAS STALWART has combined this function with that of Fleet Flagship since 1982.

In recent years she has visited Japan, Korea, China and numerous other ports in South East Asia, sailed to Macquarie Island (half way to the Antarctic), and in May, 1986 acted as a relief and resupply ship following the destruction caused by Cyclone NAMU in the Solomon Islands.

For the Naval Review, HMAS STALWART will be berthed at the Oil Wharf at the northern extremity of the Garden Island Naval Dockyard.

Fleet Auxiliary Oiler Replenishment — HMAS SUCCESS

HMAS SUCCESS entered service with the Royal Australian Navy in April, 1986. A Fleet underway replenishment ship, she was built in Australia by Cockatoo Dockyard Pty Ltd of Sydney. She is both the largest ship built in Australia for the Royal Australian Navy and also the largest ship ever built in the Port of Sydney.

The ship's role is to replenish Fleet units at sea by the underway transfer of liquid fuels, distilled water, dry and frozen victuals, ammunition, and spare parts and stores items.

HMAS SUCCESS enables Fleet units to operate with a greater degree of independence from shore support than had previously been possible.

During the Naval Review, HMAS SUCCESS will be located at the dolphins at Kirribilli Point, adjacent to Admiralty House and Kirribilli House.

Guided Missile Destroyers — HMA Ships PERTH and HOBART

The Royal Australian Navy's Charles F. Adams class Guided Missile Destroyers are generally considered the Fleet's most versatile front line units. Two of these American built ships are part of the Naval Review.

In addition to their extensive deployments to Vietnam during the 1960s and early 1970s the DDGs are involved in all major Royal Australian Navy exercises as well as deployments to South East Asia, the Pacific and Indian Oceans.

To further improve their effectiveness, the three DDGs, beginning with BRISBANE (modernising at present at Garden Island), have begun an extensive modernisation/refit which will see them fitted with new sensors, improved computer, gun and missile systems, plus new mess decks and cafeteria facilities.

With their high technology and proud history the Royal Australian Navy's DDGs will continue to provide the front line of the nation's naval defences through to the turn of the century.

For the Naval Review HMAS PERTH will lead a group of seven warships of seven nationalities between the lines of other ships, passing HMAS COOK off the Opera House at 1200. Embarked in HMAS PERTH will be Fleet Commander, Rear Admiral I.W. Knox, AO, RAN.

HMAS HOBART will be moored in Farm Cove.

Guided Missile Frigates — HMA Ships DARWIN, SYDNEY, ADELAIDE and CANBERRA

The FFG is a long range escort ship designed to satisfy area air defence, anti-submarine warfare, surveillance, reconnaissance and interdiction roles.

Like the guided missile destroyers, the FFGs are armed with both Standard anti-air and Harpoon anti-surface missiles. For anti-submarine warfare the FFG will embark two Sikorsky Seahawk S-70B-2 helicopters to provide long range cover for the Fleet.

The FFGs are the first RAN ships to be driven by gas turbines for main propulsion, allowing them to get underway in less than 45 minutes. Each vessel is a "high tech" ship, designed for maximum performance and operations with minimum manning. The ships also introduced to the Fleet the Phalanx close-in-weapon-system - a rapid fire gun designed to destroy incoming missiles with a shower of 20 mm rounds.

The FFGs are becoming the backbone of the Royal Australian Navy. They are ideally suited to complement the other Fleet units, to protect Australia's sea lanes, merchant and military convoys and to contribute to effective naval task force operations.

Protecting Australia

Royal Australian Navy
75th Anniversary
1911 - 1986

Destroyer Escorts — HMA Ships, DERWENT, PARRAMATTA and TORRENS

Three of the Royal Australian Navy's five River Class destroyer escorts will be present at the Naval Review.

Designed primarily as anti-submarine ships, the destroyer escorts were commissioned into the Fleet between 1961 and 1971. Like the DDGs, the River class are armed with the Australian designed Ikara anti-submarine missile system and in recent years have been fitted with the Mulloka Sonar System, also developed in Australia.

From 1977 to 1985, HMA Ships PARRMATTA, STUART and DERWENT received half-life modernisations. Since then, the two youngest ships, HMAS SWAN and HMAS TORRENS have also been extensively refitted.

For self defence each ship is armed with the Seacat missile system and a twin 4.5 inch gun, which can be used against air or surface targets. Each ship is also fitted with two sets of torpedo tubes.

Two of the DEs, HMAS STUART and HMAS SWAN are now permanently homeported to HMAS STIRLING in Western Australia as part of the two ocean navy concept. The former was the first major RAN Fleet unit so based since the creation of the RAN in 1911!

The River class DEs are expected to be replaced in the active Fleet from the early to mid 1990s, initially by two new FFGs now building in Victoria and then by a new generation of frigates.

Submarines — HMA Submarines OTAMA and OVENS

Six Oberon class submarines (HMA Submarines OXLEY, OTWAY, OVENS, ONSLOW, ORION and OTAMA) were commissioned into the Royal Australian Navy between 1967 and 1978 and are operated from HMAS PLATYPUS in Sydney Harbour. The boats' main roles are to provide anti-submarine and anti-surface ship defence for the Fleet.

In 1987 HMAS STIRLING in Western Australia will also become the home port for an Oberon class submarine.

For the Naval Review HMAS OTAMA will be located near the mouth of Rushcutters Bay between Garden Island and Clark Island, and HMAS OVENS near Kurraba Point.

Fleet Training Ship — HMAS JERVIS BAY

One of the largest RAN ships participating in the Naval Review is the 8,915 ton training ship, HMAS JERVIS BAY, responsible for navigational training for junior seamen and junior officers, both male and female.

The ship was purchased for the RAN in 1977, having been originally built for the Australian National Line as the MV AUSTRALIAN TRADER.

HMAS JERVIS BAY normally undertakes four training cruises every twelve months.

During the Review she will be moored in Double Bay between Point Piper and Darling Point.

Oceanographic Research Ship — HMAS COOK

Fulfilling the role of Reviewing Vessel for HRH Prince Philip, the Duke of Edinburgh, HMAS COOK will review over 40 warships and auxiliaries during the period from 1200 to 1330.

Originally commissioned in 1980, HMAS COOK is primarily responsible for military as well as civilian oceanographic and hydrographic research.

Hydrographic Survey Ship — HMAS FLINDERS

A rare visitor to Sydney, especially for a unit of the Royal Australian Navy, HMAS FLINDERS is home-ported to Cairns in northern Queensland. HMAS FLINDERS will lead the second column of reviewing ships past Bradleys Head at 1230.

Protecting Australia

Royal Australian Navy
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Patrol Boats — HMA Ships GEELONG, DUBBO, WOLLONGONG and ADVANCE

Three Fremantle and one Attack Class patrol boats are to participate in the Naval Review. HMA Ships DUBBO and WOLLONGONG (Fremantle Class) will sail up the harbour and through the lines of the other ships at 1230 as part of the second 'moving' review. Also included in this second column will be the Sydney Port Division, RANR, patrol boat HMAS ADVANCE.

Fremantle Class patrol boats are deployed around the Australian continent to satisfy a multitude of roles, from oil rig surveillance in Bass Strait to fishery patrols in northern waters. The 15 boats entered service between 1980 and 1985 as replacements for the smaller Attack Class patrol boats which have been allotted to the Naval Reserves or paid off for transfer under Defence Co-operation Programmes.

The lead boat, HMAS FREMANTLE, was constructed in the UK and the remainder at Cairns in northern Queensland. All boats carry the names of Second World War Bathurst Class Minesweeping Corvettes.

Supporting the rear of the second column will the diving tender (DTV 1001) SEAL, and the torpedo recovery vessel (TRV 802) TREVALLY.

The patrol boat HMAS GEELONG will act as escort for the Reviewing Officer in HMAS COOK.

Amphibious Heavy Lift Ship — HMAS TOBRUK

The most versatile ship in the Fleet, HMAS TOBRUK is an amphibious heavy lift ship designed for joint RAN/Army operations. During her five years in commission the ship has operated around the continent and into the Pacific Ocean, satisfying the requirements of both the Navy and Army.

HMAS TOBRUK is capable of carrying a squadron of the Army's Leopard tanks, large numbers of wheeled vehicles and up to 550 troops. With bow and stern ramps, her own cranes and a 70 tonne derrick, the ship is capable of taking on and discharging her own cargo in any established port.

In remote areas, troops, stores and vehicles can be landed in a variety of ways. The ship can be beached and unloaded through the bow doors, and, if required, pontoons carried on the ship's side can be used to bridge any water gap between ship and shore. Other means of unloading are by use of landing craft and the ship's helicopters.

FLEET AIR ARM

A major part of the 75th Anniversary celebrations during all of 1986 has been the involvement of the Fleet Air Arm and especially the Sea King in 75th livery.

Today is no exception with thirteen Royal Australian Navy Fleet Air Arm helicopters, representing three different types, undertaking a flypast at 1323. This group will be followed by a Royal Navy/International Navy flypast. Preceeding the helicopters are four Orion patrol aircraft at 1232.

The RAN has more than 35 aircraft comprising five different types of helicopters and one fixed wing aircraft type to satisfy Fleet requirements, both afloat and ashore. Home for the FAA is HMAS Albatross at Nowra, NSW.

Eight Westland Sea Kings are the principle anti-submarine helicopters and have operated from various ships including STALWART and TOBRUK. For FFG operations, sixteen Sikorsky Seahawks are due to begin flying from 1988 with a maximum of two embarked in each frigate.

Light utility, search and rescue, survey suppon and training is performed by six Aerospatiale Squirrel light helicopters. Four Bell Kiowas are used for communications and survey work. The Bell Iroquois and Westland Wessex helicopters satisfy utility flying as well as search and rescue responsibilities.

Two HS748 electronic warfare training aircraft are flown by the Fleet Air Arm from HMAS Albatross. Each HS 748 can be reconfigured for the VIP or transport role.


HMS BEAVER


HMS ILLUSTRIOUS


HMS MANCHESTER


HMNZS CANTERBURY


HMNZS SOUTHLAND


HMS AMAZON


RFA FORT GRANGE


RFA BAYLEAF

Royal Navy

Leading the British Squadron of warships and auxiliaries for the 75th Anniversary Naval Review will be the 19,960 ton aircraft carrier, HMS ILLUSTRIOUS. Flag Officer 1st Flotillas, Rear Admiral RIT Hogg, Royal Navy, arrived in Sydney with his seven ships on Monday, 29 September.

For HM Ships ILLUSTRIOUS, BEAVER, MANCHESTER, AMAZON and RFA BAYLEAF the stopover in Port Jackson is their first visit to Sydney. HMS ILLUSTRIOUS is carrying embarked squadrons of Sea Harrier 'jump jets' and Sea King helicopters, some of which will partake in the Naval Review Flypast. With the exception of RFA OLMEDA (completed in 1965) all of the Royal Navy and Royal Fleet Auxiliary ships entered service in the period from 1974 to 1984. Two of the types, HMS MANCHESTER, a Type 42 destroyer and HMS BEAVER a Type 22 frigate now form the backbone of the present day Royal Navy with twenty-six units of both classes in service or on order.

HMS BEAVER is fitted with the combat proven Sea Wolf defensive system, an anti-aircraft and anti-missile weapon which protected many of the British ships during the Falklands conflict.

During the Naval Review HMS ILLUSTRIOUS and her consorts will be at buoys or anchored in the harbour, HMS ILLUSTRIOUS laying off Cremorne Point immediately in front of the battleship USS MISSOURI and command ship USS BLUE RIDGE, HMS BEAVER will follow HMAS PERTH, the second ship in the Moving Flag Line Review.

Royal New Zealand Navy

Two of the Royal New Zealand Navy's four operational frigates will participate in the Naval Review, these being HMNZ Ships SOUTHLAND and CANTERBURY.

Like all of New Zealand's major Naval units both frigates are regular visitors to Sydney for training, operational and goodwill visits and often join Royal Australian Navy Ships during major exercises.

HMNZS SOUTHLAND is of particular interest for the Royal Australian Navy insofar that she was modified in England prior to her sale to New Zealand in 1983 to carry the Australian designed Ikara anti-submarine missile system. The launcher is located forward of the bridge surrounded by a large semi-tuoular structure.


USS PAUL F FOSTER


USS MISSOURI


USS OLDENDORF

Protecting Australia

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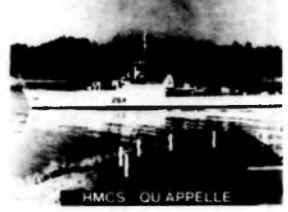
HMCS SASKATCHEWAN


F793
FNS COMMANDANT BLAISON


HMCS QU'APPELLE


HMCS YUKON


P84
FNCS AITAPE


USS BLUE RIDGE

HMNZS CANTERBURY commissioned into the Royal New Zealand Navy in 1971 and like HMNZS SOUTHLAND carries a Westland Wasp helicopter for anti submanne and general duties. The former will be moored just south-east of Bradleys Head while the latter will form part of the Flag Line Review.

United States Navy

One of the mightiest men-of-war to ever sail the high seas and without doubt one of the most famous will sail into the world's finest harbour on 1 October as the centre piece of the American presence during the 75th Anniversary Naval Review.

The ship, the battleship USS MISSOURI, is the largest warship to visit Sydney since the aircraft carrier USS AMERICA in 1966. Carrying a crew of more than 1500 officers and men MISSOURI recommissioned into the US Fleet only last May after some 20 years laid up in the reserve Fleet. She was originally completed for war service in 1944.

With USS MISSOURI are the seventh Fleet flagship, USS BLUE RIDGE (with RADM P.F. McCarthy embarked) and the Spruance class destroyers USS PAUL F. FOSTER and USS OLDENDORF.

USS BLUE RIDGE is a command and control ship, commissioned on 14 November, 1970. Utilising her 'main battery' of computers, communications gear and other electronic facilities the ship fulfills the roles of both Fleet Flagship and as a command ship for Amphibious operations. Both destroyers are the largest of their type ever built for the USN and were commissioned 1976-1978. USS PAUL F. FOSTER was the first of her class to be assigned to the Pacific Fleet.

Each destroyer is a multi-mission surface warfare platform incorporating the most recent concepts in shipboard electronic combat systems. At 7,800 tons the two destroyers are larger than most cruisers in other world navies.

The presence in Sydney Harbour of USS MISSOURI has provided a most spectacular backdrop to the events.

Canadian Defence Forces Navy

Normally based at Vancouver on the Canadian west coast the three Mackenzie class frigates, HMC Ships YUKON, QU'APPELLE and SASKATCHEWAN form part of the Canadian Navy's training squadron. All three ships were completed in 1963 and from 1984 to 1986 underwent DELEX or Destroyer Life Extension. Now all of the class are scheduled to remain in service until 1990-1993.

Along with their sistership HMCS MACKENZIE (now under DELEX) the trio visited Australia in the early 1980s.

During the Naval Review two of the Canadian Frigates will be moored east of Garden Island with HMCS YUKON (with Captain Davie embarked) joining in the sail past, led by HMAS PERTH.

France

The French Navy is represented at the Naval Review by the four year old frigate COMMANDANT BLAISON.

COMMANDANT BLAISON displaces 1250 tons and is manned by seven officers, 42 petty officers and 56 men. A small but compact ship, she is designed to satisfy coastal anti-submarine duties, scouting missions and showing the flag.

Sixteen sister-ships were also completed between 1976 and 1984.

Papua New Guinea

HMPNGS AITAPE is one of the four Attack class patrol boats in service with the Papua New Guinea Defence Force. All boats were transferred from the Royal Australian Navy in 1974 after originally commissioning in 1967-1968.

HMPNGS AITAPE will form the rear of the line of seven warships from seven nations during the sailpast HMAS COOK with His Royal Highness, Prince Philip embarked.

PROGRAMME OF EVENTS

RAN 75th ANNIVERSARY NAVAL ASSEMBLY AND REVIEW — OVERALL ACTIVITIES

DATE	*TIME*	*EVENT*
MONDAY, SEPTEMBER 29	AM	27 Major Warships enter Sydney Harbour and Flypast.
	1830-2000	Royal Australian Navy Fleet Reception in HMAS STALWART
	2000-0100	International Sailors' Dance, at the University of NSW Roundhouse
SEPTEMBER 29-OCTOBER 7	DAILY	Sporting programme of representative fixtures/ challenges between Fleet units and local sporting organisations Tours of Sydney and New South Wales by visiting personnel. Organised tours of ships
TUESDAY, SEPTEMBER 30	PM	Royal Navy Reception onboard RN Flagship
WEDNESDAY, OCTOBER 1	0900	USS MISSOURI arrives in Sydney
	PM	United States Navy Reception
	2000-0100	International Sailors' Dance, Galaxy Room, Centrepoint Tower
THURSDAY, OCTOBER 2	1000	Church Service in Garden Island Chapel
	1200-1300	Combined Navies March through Sydney, Governor-General takes salute
	1300-1430	Lord Mayor's Reception — Town Hall
	PM	Ships begin to move to Review positions in Sydney Harbour.
	PM	RNZN Reception and RCN Reception
FRIDAY, OCTOBER 3	AM	Remainder of ships move to Review positions
	1800-1930	NSW State Government Reception at Sydney Opera House
	2000-2300	Opera House Concert by Combined Bands of the RAN
SATURDAY, OCTOBER 4	1200-1335	Naval Review on Sydney Harbour and Flypast Naval Bands on foreshore and headlands Live TV coverage
	1930-2000	Swan Premium Major Fireworks, Display, Beat Retreat and Ceremonial, Sunset, on Sydney Harbour
	1830	Royal Reception in HMAS STALWART
	2000	Royal Dinner at Tresco
SUNDAY, OCTOBER 5	AM/PM	Review Ships return alongside
	1300-1700	Ships open to visitors
	PM	Reception onboard COMMANDANT BLAISON
MONDAY	AM/PM	Public Holiday in New South Wales Sydney at Home for Visiting Sailors NAS NOWRA Open Day Air Show.
	0900	USS MISSOURI sails
	1300-1700	Ships open to Visitors
TUESDAY, OCTOBER 7	AM	Majority of Visiting Ships depart Sydney.
OCTOBER 7-13		Many other sporting/social events Organised tours of remaining ships continue

Royal Australian Navy
75th Anniversary
1911 - 1986

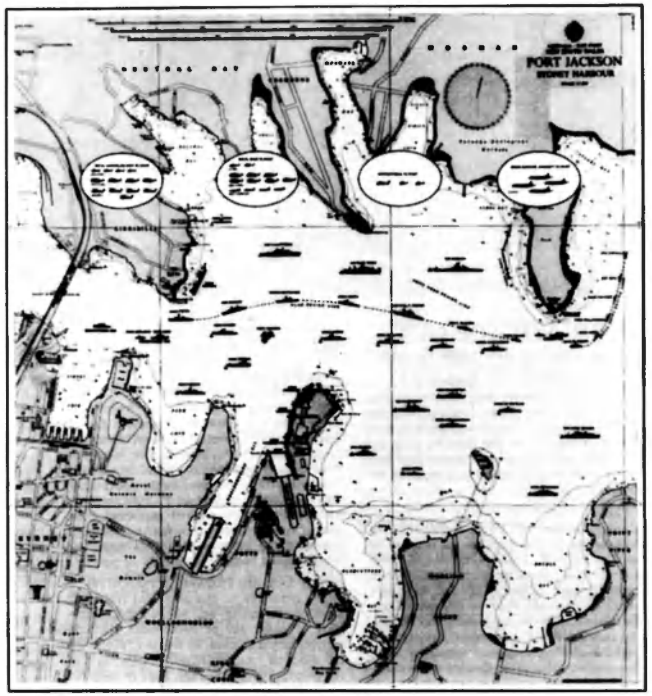
Fleet Review

4 October, 1986

TIME	EVENT
by 1110	CNS and distinguished guests embark in HMAS COOK at Pier One
1130	HRH Prince Philip embarks in HMAS COOK at Pier One
1145	HMAS COOK casts off
by 1145	All hands in all ships to be fallen in for man and cheer ship
1200	HMAS COOK in position 033° Bennelong Pt 11.25kl metres
1200	Review commences — HMAS PERTH fires 21 gun salute and leads Salute Steam Past
1211	Flag Review complete. HMAS COOK commences Review route (speed six knots)
1229½	HMAS COOK in position 140 metres south of Bradleys Head Light
1230	Small Ships Review Line led by HMAS FLINDERS commences steam past HMAS COOK
1232	RAAF Maritime Patrol aircraft fly past
1233	Small Ships Review Line complete
	HMAS COOK resumes review route (speed six knots)
1323	HMAS COOK returns to position at entrance to Sydney Cove
1323	RAN helicopter squadrons and visiting naval aircraft flypast
1324	HMAS GEELONG steams past HMAS COOK and Cheers Ship. Review Completes
1325	HMAS COOK proceeds to Walsh Bay No 4
1330	Hands fall out
A/R	HRH Prince Philip disembarks from HMAS COOK
A/R	CNS and VIPs disembarks from HMAS COOK

1911 ⚓ 1986

NAVAL REVIEW BY
HRH PRINCE PHILIP, THE DUKE OF EDINBURGH,
AT SYDNEY IN OCTOBER, 1986,
TO COMMEMORATE THE 75th ANNIVERSARY
OF THE ROYAL AUSTRALIAN NAVY



THE FLEET ARRIVAL OCTOBER 4, 1913

Some Contemporary Reports

The first RAN Fleet Unit arrives.

THE VOYAGE OUT

HOW THE SHIP CAME HOME
INCIDENTS ON THE WAY

July 21, 1913, must ever be a memorable date in Australian history, for on that day HMAS Australia, the first locally-owned Dominion flagship in the Empire, with the first Dominion Admiral in Command of her, swung out from Portsmouth Harbour for her Australian home.

The 21st of July! A day of glorious memory. On that very day and near the very same spot as the Australia put out from — on the 21st of July, 1588 — the Royal Navy entered upon the first great fight it ever fought. It was then that Drake and his gallant sailors defeated the Spanish Armada. Every schoolboy knows the story and every schoolboy in future will remember Drake, who established Britain's supremacy at sea, whenever he thinks of the flagship of the Commonwealth Navy.

Drake — and Patey! Rear-Admiral Sir George E. Patey, KCVO, Australia's Admiral, was knighted by the King on his own quarter-deck just before the flagship sailed. The last time such an act was performed was when Drake was knighted in the Thames.

The Australia and the Sydney were officially timed to arrive at Capetown on August 20, and to leave Durban on September 6. On August 20, 1578, Francis Drake, on his voyage of circumnavigation, entered the Magellan Straits; on September 6 he sailed out of the Straits into the Southern Ocean. Three hundred and thirty-five years after Drake the Australia and the Sydney enter the same great ocean from the opposite corner, a symbol of that maritime supremacy which Drake first conceived and helped to establish.

DEPARTURE FROM PORTSMOUTH

The great ship — this armoured cruiser of Dreadnought design, and of the Indefatigable class — sailed out of Portsmouth Harbour with majesty and grace, to the tune, played by the band, of "Rolling Home". With her was the protected cruiser Sydney. Back of them lay the Victory — the old ship of many memories. Before them the future alone can tell. But we know that from henceforth Australia is to have her own navy, and there is a great responsibility in it. It has been called "a great experiment," and there could hardly be a greater.

At the beginning of August the Australia was coaling at St Vincent, Cape Verde Islands. In 20 hours 2200 tons of coal were taken in. English coaling companies are under contract to keep a minimum of 5000 tons of coal at St Vincent for the purposes of the navy. It is the chief island of the Cape Verde group. On it are about 120 Englishmen, 500 Portuguese, 3000 dark-skinned natives, and 6000 half-castes. A quiet little oupost, but a very important one. A navy must have its coaling stations, and St Vincent still possesses its old importance as a maritime strategic point.

ARRIVAL AT CAPETOWN

By arrangement the flagship picked up the Sydney — which called in at St Helena — a couple of days off Capetown, and early in the afternoon of Monday, August 18, the ships entered the roadstead of Table Bay. The bay was practically deserted, for the warships arrived earlier than they were expected — two days ahead of the official programme. A press representative asked a worried-looking officer how it came about that the ships were in so early. The officer was courteous, but brief. "Officially we're not in," he replied; "officially we're in tomorrow."

Capetown, however, soon woke up, and there began a round of festivities which lasted for a week. The people had already seen that other Dreadnought, The New Zealand, and they were anxious to see the Australia and compare them. There was possibly also the thought in their minds of a future day when another Dominion Dreadnought, the South Africa, might anchor in Table Bay — the Dreadnought flagship of their own navy, or failing that, there own gift to the Royal Navy, as in the case of the New Zealand.

HMAS AUSTRALIA with the light cruisers SYDNEY and MELBOURNE in Sydney Harbour — 4 October, 1943.

However, that may have been, the South Africans turned out in big crowds to welcome the Australian ships. And in the crowds were many Australians, who showed their pride in ships and men in unmistakable fashion. A long motor drive, for instance, was arranged — a drive around the Cape Peninsula — and the Australian men-o-warsmen, to their hearts' delight, were driven through groves of wattle and an avenue of eucalyptus trees.

And August 22 was observed by the Australians in Capetown as "Wattle Day". Every Australian in the city wore wattle that day, and the afternoon was reserved on board the Australia and the Sydney for Australian visitors, the ships themselves being decorated with the golden bloom. That was the day on which the local Australian ladies presented the flagship with the two silk flags they had specially worked. In size 12ft by 6ft — the one the Union Jack, the other the starred blue ensign of the Commonwealth. On the following day there was a field gun competition between the crews of the two ships.

To the Australians in South Africa, indeed, this visit of the Commonwealth battleships served to make the map of Australia bigger than it had ever been before. "Australians will be thought more of in South Africa after this," remarked an ex-Sydney man — "see if they aren't!" At all events, it was decided as one result of the visit, that a standing Australian committee should be maintained, and that all good Australians should celebrate "Wattle Day" every year.

Among the chief events arranged in honour of the visit of the ships were a reception and ball given by the Mayor of Capetown; a garden party given by the Administrator, Sir Frederick de Waal, KCMG, in the name of the province of the Cape of Good Hope; the entertainment of the crews at dinner at Groote Schuur estate, and of the officers at dinner at Parliament House, by the Union Government; and a church parade on the Sunday. The theatres and other places of amusement opened their door to the officers and crews.

Every day the ships were thrown open to public inspection, and thousands visited them, including many country residents, who took advantage of the special railway excursions. Special arrangements were made to enable the school children to inspect the ships.

TO SIMON'S TOWN AND DURBAN

To the strains of "Auld Lang Syne" the Australia and the Sydney steamed out of Capetown on August 26, in the same spendid weather as they had had all the time since leaving Portsmouth. Their departure was witnessed by a large crowd of spectators, who waved enthusiastic farewells. On board were many of Capetown's more prominent citizens, who had been invited by Admiral Patey to make the trip to the naval station.

Coaling operations followed at Simon's Town, where the ships were greeted by HM ships Hyacinth and Astrea.

After coaling, the Australia and Sydney proceeded to Durban, where for several days the officers and men were feted in much the same way as those on the New Zealand had been entertained six months before.

HOME!

And then they headed for home — Australia.

Though the ships have a speed of 25 knots, their average on the voyage out was only about half this speed. It was not a racing voyage.

OUR SHIPS COME IN

BRITANNIA: "Congratulations, daughter! It is a proud day for both of us."

A seaman on the Sydney died off the coast of Spain on July 28, and was buried at sea; and whilst the Australia was coaling at St Vincent a petty-officer was killed, owing to the breaking of a derrick, and was buried with honours on the island.

FORTY-SEVEN PER CENT AUSTRALIANS

Forty-seven per cent of the men on the ships are Australians. The fact was commented on by the High Commissioner, Sir George Reid, when he visited the flagship at Portsmouth. "And I look round on the other 53 per cent," he added, "and I can see no difference." Sir George was right. There is very little difference to be noted. And, in any case, Admiral Patey has stated that there will be no difference whatever in their treatment — he will treat them all as if they were on a British battleship in any other waters.

At Simons Town the warships parted company, the Australia proceding to Durban — where officers and men were entertained as those of the New Zealand were some six months before — and the Sydney to Mauritius. The people of Durban presented the flagship with a silver rose bowl and a rough-haired terrier.

The ships, which met again not far from the Leeuwin, reached Albany 57 days after leaving Portsmouth, but of that time 21 days were spent in ports. They had fine weather throughout.

The Australia in her steam trials reached 29.7 knots, but that does not of course represent her economic speed. On the way out she covered something like 350 knots a day on a coal consumption of 190 tonnes.

The warships arrived at Albany on the morning of September 19, after a fine run across the Indian Ocean. The Australia, which had been in direct wireless communication with Australia for over three thousand miles of the latter end of the voyage, arrived slightly ahead of her consort, and waited outside until the Sydney picked her up. The warships anchored in the bay, where they were visited by large crowds of people, including many thousands of school children. The important work of coaling the vessels was also carried out. Aquatic sports and football matches were also arranged, and the Government entertained the men at a luncheon on September 27. The vessels left for Sydney on the same day, and were sighted off Cape Otway at 5.20 pm on September 30. By 4.30 pm next day they had passed Eden, on the New South Wales coast. Shortly afterwards they were joined by HMAS Encounter, and the three vessels arrived at Jervis Bay at 6.15 am yesterday, where other units of the Australian fleet were awaiting them.

THE FLEET
A BUSY DAY

BRILLIANT WATER SCENE
CROWDS ASHORE AND AFLOAT

Nothing untoward marred the holiday festivities yesterday in connection with the welcome of the Australian section of the Royal Navy. There was a general desire manifested to visit the warboats, especially the flagship, the Australia, and from early forenoon till late in the afternoon she was boarded by throngs of visitors. The Australia needed to be a stout ship to carry the surging cargo of humanity that swarmed about her like myriads of bees clustering round a hive, but her great width of beam made her equal to the multitudinous nature of the day's call.

Admiral Patey received some distiguished visitors in the morning. Just before noon Lord Denman paid the Australian Admiral a return visit. The Governor-General was accompanied by Sir Walter Barttelot, Commander Brownlow, and Colonel Wallack, CB (the State Commandant). His Excellency was received by a guard of honour. Having paid his respects to the head of the fleet, his Excellency left the flagship to the accompaniment of a salute of 19 guns.

The State Governor, Sir Gerald Strickland, also paid the Admiral a return call. His Excellency was accompanied by Major-General Finn (Private Secretary), and Captain Talbot, ADC. Sir Gerald inspected the guard of honour, and left the ship amid the Salvos of the customary 17 gun salute. The Minister for Defence, Senator Millen, also paid Admiral Patey an official call. The Minister was accompanied by Rear-Admiral Creswell, first naval member of the Naval Board.

The ship illumination during the evening attracted many thousands. Government House grounds made an ideal amphitheatre, and the spacious reserve was literally alive with people. The scene on the harbour was one of transcendent beauty, which reached a fitting climax when the men-of-war emblazoned foreshores and harbour with the effulgence of their searchlights. The Venetian carnival was quite pretty.

The city illuminations attracted large crowds of pedestrians, Macquarie Street particularly being a favourite thoroughfare. The ornate display of lights on the Customs-house, and the artistic tracery along the tower and facades of the Chief Secretary's office, were especially admired.

During the evening the sailors of the fleet enjoyed themselves at the Royal Naval House, where dancing was kept up till the small hours of the morning.

In the dentists chair, HMAS AUSTRALIA

ON THE FLAGSHIP

CROWDS OF VISITORS

OUT-OF-THE-WAY CORNERS

Thousands of people explored the flagship yesterday. Though all the ships were open for inspection, it was the Australia that everyone wanted to see. A few went over the Sydney, but the Melbourne and the rest of the fleet have hardly any visitors.

Everywhere about the Australia men, women and children strolled and clambered. They climbed every ladder that went upward, and descended every hole that went downwards. They penetrated the very bowels of the ship, 20 feet and more below the water line. It was their battle cruiser, and they inspected it from top to bottom, and came away impressed with its stupendous strength.

Over and over again the Australia has been described, and yet the half has not been told. The tale of her size, her guns, her armour, her engines, must be familiar by now to all ordinary diligent readers of papers. There is no need to ever enter into further details in regard to these features. But there are a lot of little odds and ends of information that have not yet got into print. If you are a tall man you will have in making your way about the recesses of the ship to move about with head bent, for the spaces between decks are designed for men of medium height only. There is plenty of ventilation below. That, indeed, is one of the features of the modern man-o-war. Pumps distribute currents of air along windshafts to every point, and at times the breezes blow fresher than on deck.

OFFICERS AND MEN'S QUARTERS

One of the things that strikes the visitor forcibly is the vast difference between the quarters of the officers and its midshipmen, and the quarters of the men. In the one case there is ample elbow room, not to speak of furnishing and general conveniences; in the other, there is hardly space to move about. There is much murmuring among the men on this account. They point to the sleeping accommodation provided for the 14 midshipmen as an example. This occupies a larger space than that into which the 65 petty officers are jammed. Besides, the midshipmen have a chest room, as well as the gun room. There are various store rooms for food and wines on the deck with port holes. Why, the men ask, are these not turned into living rooms where there would be no ports used for the stores? There is probably good reason for the arrangement, but this is the way the petty officers are talking. The messes of the seamen and stokers are just as crowded as they can be, and as bare of comforts as the cupboard of Old Mother Hubbard was of provisions. The men's reading-room is a reading-room only in name. It is at present crammed full of stores.

THE MIDSHIPMEN

The midshipmen are aristocratic young gentlemen. There are 14 of them, all, as they impress upon one, from "the Royal Navy". Some are disappointed with Sydney Harbour.

"I though you would ask me that", observed one rather pretty boy, with golden curls surmounting a fresh-complexioned face. When a pressman jocularly ventured an inquiry as to his impressions of Sydney. A ripple of boyish laughter had gone around the gunroom. "We've had the beauties of Sydney Harbour dinned into us ever since we joined the ship, and expected it would be a much finer place than it is."

"It what way were you disappointed?"

"We though it would be larger, and generally finer. Then, as first city — well, it looks finer from the outside than the inside!"

They are a nice lot of healthy looking, intelligent boys, the makings of good officers. Just now they take themselves rather seriously, but that is characteristic of the "middy" everywhere. They will grow out of that by and bye. Two chameleons, presented to them at Durban, are the pets of the gunroom.

POLICE AND GAOL

The ship is, when away from port, a separate cosmos with laws unto itself, and the commander acts as a sort of magistrate, the captain, who is in supreme command, hearing the more serious cases, and being the court of appeal. There are no marines on the Australia, but there are ship's police, whose duty it is, amongst other things, to check the lists of men on leave. At their head is a master-at-arms and four corporals. There is a gaol also. It contains five cells, and in each is to be found a Bible, so that an offender may get a little spiritual comfort, if he gets no physical comfort. The cells had two occupants yesterday, and there were two others awaiting trial, who were gazing wistfully through portholes. They were compelled to remain within the precincts of the gaol, being guarded by a sentry. They will answer to the charges preferred against them — whatever they are — today.

TELEPHONE SYSTEM

There are telephones everywhere. In the noisy part of the ship they are in booths. They are on the bridge, in the control stations, the gun turrets, the offices, and even right down in the stokehold. There are 64 of them altogether, and if one lifts a receiver and speaks there comes an immediate answer from the exchange, and connection with the number wanted. It is quite a revelation for an untravelled Sydneyite to have this demonstration that it is possible to conduct a telephone system without the nerve-racking and profanity-producing experiences that happen to those who are compelled to use the city telephones. The common battery system is in operation, a light showing on the switchboard when a call is made. Today connection will be established between the warship and the Sydney exchange by means of a cable from Man-o'-war steps and thus not only will one be able to get into communication with the ship from Sydney and the suburbs, and those centres that are linked up with the city by telephone, but it will be possible to speak to and from Melbourne as well.

SICK BAY

"Sick Bay" is the name by which the hospital of a warship was known in the service. It seems in the case of the Australia to have been put in the noisiest part of the ship — in the after-part, right under the guns. The "Herald" representative happened to drop in yesterday just as a salute was being fired from the little three-pounders, and was satisfied that "Sick Bay" was no place to lie in when big guns were barking. Not a day passes but some portion of the hospital accommodation is occupied by cases of sickness or accident, and as fast as the patients are discharged cured and well they are replaced by others. There are always on the "visiting list" of the ships' surgeons numerous cases of minor ailments and accidents which in themselves do not incapacitate their subjects from duty, but which require consant watching and attendance. The hospital is fitted with ten cots closely but conveniently arranged. An operating table, chests containing fully-equipped cases of all the most modern surgical instruments and appliances, full supplies of bandages, wrappings, surgical dressings, and sterilising appliances are all to be found there. A room off the hospital is used as a dispensary, and here, as in "Sick Bay" itself, everything is right up to date and absolutely spotless.

There is in connection with the hospital a steam disinfector, for the disinfection of the clothing and bedding of all men suffering from infectious diseases. This is a matter of vital importance, of course, in a crowded warship.

POST-OFFICE

There is a post-office, which at present is handling the mails for the whole fleet. It is run just like any ordinary post-office, having three inward and three outward mails a day. Yesterday 19 bags of mail matter, mostly from the old country, representing between 2000 and 3000 letters and newspapers for those on the ships, were sorted and delivered.

THE SHIP'S PRINTER

There is a printing office aboard the ship. It is not a very large affair, but the plant, though small, is a good one. There are a couple of frames, filled with cases of plain and fancy types, a 'stone,' and a treadle machine. The printer and couple of assistants find plenty to do. There are official orders to be put into type, and official forms for the clerical and other staffs and menus to be printed, as well as occasional concert programmes.

OFFICERS' DUTIES AND PAY

At the head of the ship is the Flag Captain. The Admiral is, of course, the supreme head, but not of the Australia alone, and no more of the Australia than of the Melbourne, Sydney, Encounter, or other ships. He happens to live aboard the Australia. That is all. The captain is the king of the Australia; the Admiral is the Emperor of the fleet. The captains pay is £889 per year.

The commander handles the men. His position is no sinecure. Not that the captain's is, but the commander has to be about everywhere, and at all hours. His pay is £593 per annum.

Then there is the senior lieutenant, who is concerned with navigation only. Next to him is the first lieutenant, who is in charge of the men's deck and upper deck. There are three senior lieutenants, who do not keep watches. Each of the remaining lieutenants — the gentlemen one sees walking about with telescopes under their arms, apparently more for ornament than for use — have definite charge of an army of workers, and keep watch in turn. The ordinary lieutenants get £273 per year, their pay rising to £410, with emoluments.

THE WARRANT OFFICERS

There are eight warrant officers — the gunner, torpedo gunner, boatswain, the carpenter, the signal boatswain, are some of them. They are responsible for all the stores of the ship. The carpenter turns his hand to a lot of things. He has to see that the decks, boats, guard rails, and stanchions are kept in repair. He is also the painter. The Australia gets eight coats of paint a year, and he has to provide it. Fourteen hundredweight of white lead is required for each coat. Altogether about 20 tons of paint are used on the Australia alone in a year. He also has to make targets for practice at sea.

The gunner is responsible for the magazines and shell rooms, all the guns and fittings, and hydraulic gear, the signal boatswain for all signals, the torpedo gunner for all the electrical contrivances, motors, dynamos, wireless, and, of course, the torpedos as well. They are all highly trained experts in their particular lines.

Washing Day

Ready for action: The Stokers' Fire Party

SEAMEN AND STOKERS

The seamen are up at 5.30 in the morning and start work at 6 o'clock. They keep the ship clean, they polish up the brasswork, and they drill — drill incessantly. Besides them there is an army of stokers; there are cooks, stewards, electricians, artisans of all kinds, and no end of miscellaneous ratings. There is also a band, which discourses music while the men are at breakfast, and for the officers while they are at dinner. They have little other work to do than to keep their quarters clean, and learn the latest rag-time airs.

THE SEARCHLIGHTS

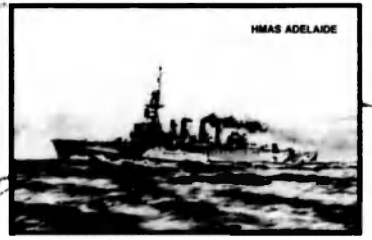
Finally, the searchlights. The Australia carries 16 of them disposed in pairs, and each of about 33,000-candle power. For display purposes they are manipulated on a system designed to give a purely spectacular effect. For serious purposes they are worked differently. Just one more bit of information picked up from an electrician. Fourteen hundred lamps are used for the interior illumination of the ship each night.

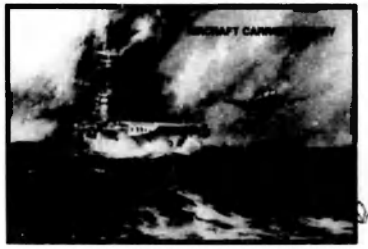
PRESERVING PEACE

Royal Australian Navy 75th Anniversary 1911 - 1986

Royal Australian Navy 75th Anniversary 1911 - 1986

PROTECTING AUSTRALIA





75 YEARS OF HISTORY

by LIEUTENANT JOE STRACZEK, RAN

1. His Majesty King George V signed a proclamation establishing the Royal Australian Navy on July 10, 1911.

2. The Royal Australian Navy's fleet enters Sydney Harbour for the first time on October 4, 1913.

3. On September 11, 1914 members of the Australian Naval and Military Expeditionary Force commenced operations to occupy German New Guinea.

4. The Australian submarine AE 1 was reported lost with all hands on September 14, 1914 off Rabaul.

5. On July 21, 1915, HMAS MELBOURNE lands a party on Fanning Island to help protect the undersea cable station located there.

6. A large troop convoy carrying Australian and New Zealand troops departed Albany, Western Australia in November, 1914 the convoy was escorted by Australian cruisers and ships of the Imperial Japanese Navy.

7. The light cruiser HMAS SYDNEY engaged and destroyed the German light cruiser SMS EMDEN off the Cocos Islands on November 9, 1914.

8. Whilst enroute to the United Kingdom HMAS AUSTRALIA intercepted and destroyed the German auxiliary ELEANORE WOERMANN off the Falkland Islands on January 8, 1915.

9. From February till April, 1915 HMAS SYDNEY carried out patrols off the South American coast.

10. On April 25, 1915 as Australian troops were preparing to land at Gallipoli the Australian submarine AE 2 commenced her penetration of the Dardenelles. She was the first Allied warship to enter the Sea of Marmora.

11. February 6, 1915. HMAS PIONEER commenced operations off the coast of German East Africa. This included blockading the German cruiser SMS KONIGSBERG in the Rufigi River.

12. From April 1915, till September, 1916 the Australian cruisers HMAS SYDNEY and HMAS MELBOURNE patrolled the area from the Caribbean to Nova Scotia.

13. During August 1915, HMAS PIONEER underwent a refit at Simon's Town Naval Base. On completion she returned to operations off German East Africa and in the area of Dar es salaam.

14. HMAS SYDNEY and HMAS MELBOURNE are based out of Bermuda for most of 1916.

15. During the early part of 1916 HMAS PSYCHE carried out patrols in the Bay of Bengal based on the Anderman Islands.

16. Throughout 1916 the Royal Australian Naval Bridging Train erected and maintained bridges across the Suez Canal in support of military operations in Palestine. The Bridging Train had also served at Suvla Bay.

17. From 1916 to the end of hostilities HMA Ships AUSTRALIA, SYDNEY and MELBOURNE served as part of the Grand Fleet.

18. In early 1917, whilst operating out of Colombo HMAS BRISBANE embarked a Sopwith Baby seaplane to help in the search for the German raider WOLF.

19. The Australian destroyer flotilla, consisting of HMA Ships HUON, PARRAMATTA, SWAN, TORRENS, WARREGO and YARRA, commenced anti-submarine operations in the Adriatic based out of Brindisi, Italy.

20. During November 1918 Australian destroyers operated with Allied warships off Constantinople (Istanbul) and in the Black Sea.

21. HMAS AUSTRALIA, HMAS SYDNEY and HMAS MELBOURNE were present at the surrender of the German High Seas Fleet on 21 November, 1918.

22. In December, 1918, HMAS SWAN operated for a brief period in the Sea of Azov.

23. During the 1924 survey season HMAS GERANIUM embarked a Fairey III D seaplane to assist in the surveys of the Barrier Reef.

24. In October, 1927, HMAS ADELAIDE was despatched to the Solomon Islands on a punative expedition.

25. In September, 1936, whilst enroute to England, HMAS ALBATROSS was a witness to a battle between two Spanish warships. Part of ALBATROSS' crew formed the funeral party for the dead after one of the ships limped into Gibraltar.

26. After the outbreak of the Second World War the cruiser HMAS PERTH, which was on her way to Australia, commenced operating in the Caribbean. For a period she was the only Allied warship in the area.

27. In March, 1940, a group of Australian sailors under the command of Lieutenant-Commander Ian Fleming RNVR made an abortive attempt to block the Danude River.

28. HMAS HOBART formed the nucleus of the Royal Navy's Red Sea force during the period April to June, 1940.

29. On the 28 June, 1940 HMAS SYDNEY sank the Italian destroyer ESPERO west of Crete.

30. Australian ships formed part of the British Fleet which engaged the Italian Fleet in the Battle of Calabria on 9 July, 1940.

31. HMAS SYDNEY intercepted the Italian cruisers BARTOLOMEO COLLEONI and GIOVANNI DELLE BANDE NERE. SYDNEY sank the former and damaged the latter.

32. In July 1940, the heavy cruiser HMAS AUSTRALIA took part in an abortive British operation against French warships based at Dakar.

33. During August 1940, HMAS HOBART helped in the evacuation of British forces from British Somalia.

34. HMAS ADELAIDE helped prevent a possible coup by Vichy French supporters in Noumea during September 1940.

35. Australian warships participated in the battle of Matapan on the 28/29 March, 1941.

36. In April 1941, Australian cruisers and destroyers serving in the Mediterranean assist in the evacuation of Greece.

37. From late April to early May, 1941, Australian warships assist in the evacuation of Crete.

38. HMAS YARRA was in action against enemy forces along the Shattel-Arab waterway and at the mouth of the Persian Gulf throughout May 1941.

39. HMAS NESTOR formed part of the British squadron hunting the German battleship BISMARCK in late May 1941.

40. On the night of 29/30 June, 1941, HMAS WATERHEN was sunk whilst trying to take supplies into Tobruk.

41. In late June and early July 1941 Australian warships helped provide support for the occupation of Syria.

42. On the 19 November, 1941 the cruiser HMAS SYDNEY was lost with all hands after sinking the German raider KORMORAN.

43. Darwin suffered the first of many Japanese air raids on the 19 February, 1942. A number of RAN warships were in the port at the time.

44. HMAS PERTH was sunk in the battle of Sunda Strait on 1 March 1942.

45. The sloop HMAS YARRA was sunk on 10 March, 1942 after encountering three Japanese cruisers.

46. Whilst escorting the aircraft carrier HMS HERMES the destroyer HMAS VAMPIRE was sunk in the Bay of Bengal on 9 April, 1942.

47. During the period, 5 to 11 May, 1942, Australian warships formed part of the screening force for United States aircraft carriers taking part in the Battle of the Coral Sea.

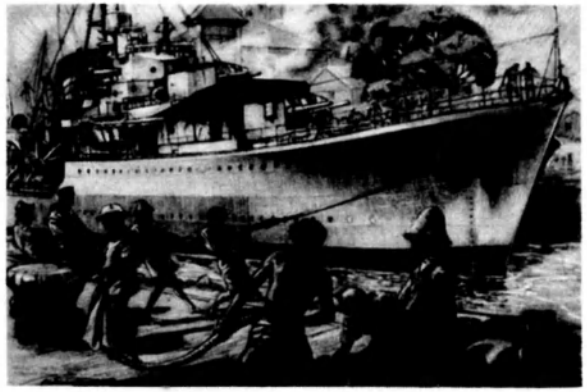
48. Japanese midget submarines attacked Sydney Harbour on the night 31 May-1 June, 1942. Two of the submarines were sunk by boats of the Naval Auxiliary Patrol.

49. On 15 June, 1942, HMAS NESTOR was sunk by German aircraft north of Tobruk.

50. The heavy cruiser HMAS CANBERRA was sunk off Savo Island on 9 August, 1942 after a night action against Japanese cruisers.

51. Men of the Royal Australian Navy's Coastwatching Service provided invaluable warnings of Japanese shipping and aircraft movements throughout 1942 till 1943.

52. HMAS VOYAGER went aground on 16 September, 1942 whilst taking supplies to Australian commandoes on Timor Island. She was destroyed by Japanese aircraft the next day.



53. During September 1942, the Australian N Class destroyers participate in British operations to occupy Madigascar.

54. Ships of the Royal Australian Navy operated in support of Australian Army operations along the New Guinea coast from late 1942 to the end of hostilities.

55. Q class destroyers of the Royal Australian Navy formed part of the screening force for the Allied invasion of North Africa on 8 November, 1942.

56. During May 1943, Australian ships participate in Operation Husky, the invasion of Sicily.

57. From June till August 1943, Australian destroyers participate in patrols into the South Atlantic.

58. During September 1943, members of the Royal Australian Navy participate in an attack on Japanese shipping in Singapore harbour using the captured vessel KRAIT. A second, and unsuccessful attack was carried out in September 1944.

59. On 22 September, 1943, Lieutenant Henty-Greer RANVR commanded the midget submarine X-5 during an attack on the German battleship TIRPITZ which was hiding in a Norwegian fjord.

60. From April 1943, the British Eastern Fleet, which included a number of Australian warships, commenced operations against Japanese held oilfields on the island of Sumatra.

61. Units of the Royal Australian Navy participate in amphibious assaults on Biak, Morotai and Dutch New Guinea.

62. D-Day, 6 June, 1944. A large number of Australian naval personnel served onboard Royal Navy warships.

63. Numerous Australian ships participated in the American landings at Leyte Gulf on the 20 October, 1944. Most prominent were the three Landing Ship Infantry and Task Force 74 under the command of Commodore J A Collins RAN.

64. 25 October, 1944, Australian warships took part in the Battle of Surigao Straits.

65. American landings at Lingayen Gulf are supported by ships of the Royal Australian Navy. During this operation HMAS AUSTRALIA was hit numerous times by Japanese kamikaze aircraft.

66. Australian destroyers supported the British landings at Akyab on the 3 January, 1945.

67. Ships of the Royal Australian Navy covered the amphibious assault by Australian troops at Balikpapan and Tarakan during May and June, 1945. The landings at Balikpapan were the last amphibious assaults carried out against the Japanese during the Second World War.

68. Australian destroyers made up part of the screening force for British aircraft carriers during their attacks on Formosa (Taiwan) during April 1945.

69. During March and July 1945 Australian destroyers participated in attacks on the Japanese island of Okinawa.

70. HMAS QUIBERON and HMAS QUICK MATCH bombarded Japanese installations north of Tokyo during May 1945.

71. A large contingent of Australian warships were present in Tokyo Bay at the signing of the Japanese surrender on 2 September 1945.

72. Officers of the Royal Australian Navy Reserve served with the Rendering Mines Safe Section of HMS VERNON in England. From this group came the Royal Australian Navy's highest decorated officers.

73. Officers and men of the Royal Australian Navy and the various branches of the Reserves served in numerous ships of the Royal Navy in all theatres ranging from Russian convoys to the tropics.

74. Ships and men of the Royal Australian Navy formed part of the British Commonwealth Occupation Force in Japan after the Second World War.

75. Frigates of the Royal Australian Navy carried out extensive survey work in the Bass Strait area during 1947.

76. Commencing in 1947 ships of the Royal Australian Navy carried personnel and supplies in support of Australian research at Heard and Macquarie Islands until the early 1950s.

77. From 1 July 1950 till the end of hostilities ships of the Royal Australian Navy were actively engaged in combat operations along the Korean peninsula.

78. Ships of the Royal Australian Navy supported Commonwealth Forces during the Malay emergency and the period of Confrontation with Indonesia commencing in June 1948.

79. During the period 1946 to 1947 ships of the Royal Australian Navy were involved in intense minesweeping operations around the Australian coast clearing wartime fields. HMAS WARRNAMBOOL was sunk off the north Queensland coast during these operations on 13 September, 1947.

80. In July 1950 HMAS AUSTRALIA made an emergency dash to Heard Island to pick up and transport a critically ill doctor to Fremantle.

81. Helicopters of the Royal Australian Navy Fleet Air Arm rendered invaluable assistance during the floods in Maitland and the Hunter Valley in February, 1955.

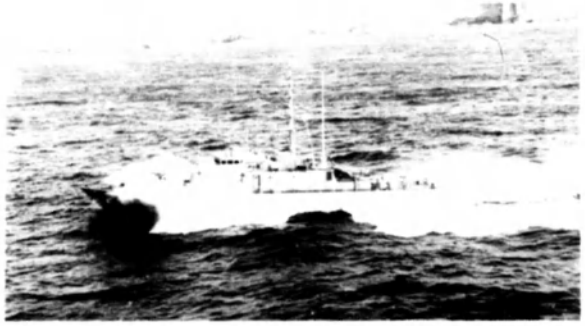
82. Clearance Divers of the Royal Australian Navy cleared debris away from inlet tubes on the Snowy Mountains Scheme during the 1960s.

83. The Royal Australian Navy's involvement in the Vietnam War commenced with the despatch of HMAS SYDNEY in 1965. One year later first of the Royal Australian Navy's guided missile destroyers was despatched to Vietnamese waters.

84. Royal Australian Navy helicopter pilots and Clearance Divers commenced operating in support of Allied forces in Vietnam during the late 1960s.

85. The Royal Australian Navy mounts its largest peace time relief operation after Cyclone Tracy devastated Darwin on 25 December, 1974.

86. Royal Australian Navy Clearance Divers provide assistance during salvage operations after the Tasman Bridge disaster in Hobart during February, 1976.



87. Sailors from HMAS PARRAMATTA rendered assistance during relief operations after an earthquake hit Bali in July 1976.

88. Since the mid-1970s patrol boats of the Royal Australian Navy have been carrying out regular security patrols around the Bass Strait oil and gas platforms.

89. During the 1970s and 1980s members of the Royal Australian Navy served with peace keeping forces in the Middle East.

90. Throughout the early 1980s Australian warships rendered assistance to boat loads of Vietnamese refugees fleeing the communist regime in Vietnam.

91. Sailors from naval shore establishments regularly render assistance to civil authorities fighting bushfires.

92. A Royal Australian Navy Task Group lead by HMAS STALWART visited Shanghai in September 1984. This was the first visit to China by an RAN Task Group.

93. HMAS STALWART takes relief supplies to Macquarie Island after the regular supply ship became stuck in ice in December 1985.

94. Three guided missile destroyers were built for the Royal Australian Navy by the Defoe Shipbuilding Company of Bay City, Michigan from 1963 to 1967.

95. Ships of the Royal Australian Navy regularly exercise with American warships based out of Pearl Harbour.

96. Ships of the Royal Australian Navy have been regular visitors to Hong Kong since the Great War. Occasionally Australian Warships were based in Hong Kong.

97. Four guided missile frigates were built for the Royal Australian Navy by Todd Shipbuilders at Seattle.

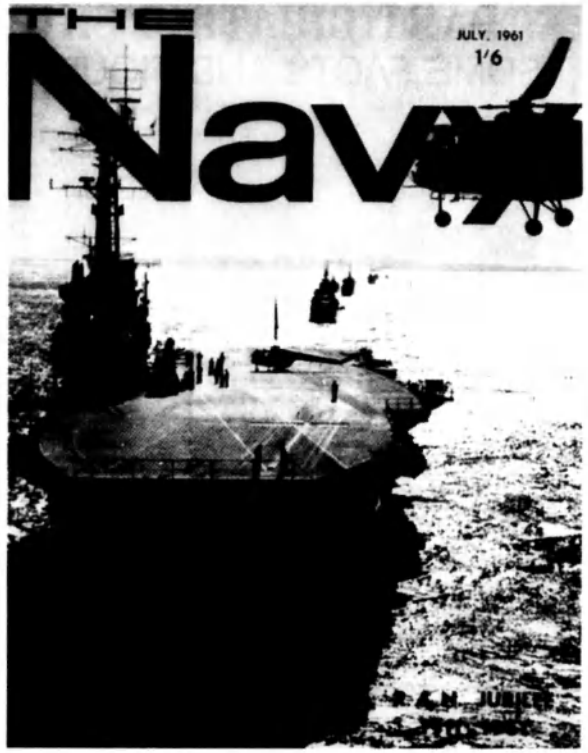
98. Ships of the Royal Australian Navy are responsible for the charting of waters around Australia.

99. An Australian Task Group provides assistance to the Solomons after the devastation rendered by Cyclone Namu in May, 1986.

100. An international fleet review was held in Sydney on 4 October, 1986 to celebrate the Royal Australian Navy's 75th Anniversary.

GOLDEN JUBILEE
1911-1961

Ceremonial "Fleet Entry"



A highlight of the Jubilee Year of the Royal Australian Navy was the ceremonial "Fleet Entry" into Sydney Harbour on the June 15.

The ships entered the heads in column in the order:
SDB 1321. The RANR Training Ship, HM Submarines, TAPIR and TRUMP, who are part of the 4th Submarine squadron which is based in Sydney. HMAS MELBOURNE "DARING" Destroyers, VOYAGER and VAMPIRE, Fast A/S Frigates, QUIBERON and QUICKMATCH A/S Frigate PARRAMATTA, who was wearing the Red Ensign, since she will not commission until July; Training Ship SWAN; Survey Ships, WARREGO and BARCOO; Boom Defence Ship, KIMBLA.

Two SAR craft kept station at the head of the column as the ships entered the Harbour, and three helicopters flew up and down the column as the ships proceeded up harbour.

HMAS MELBOURNE, wearing the Flag of the Flag Officer Commanding the Fleet, Rear Admiral W.H. Harrington, fired a salute to the Naval Board, who saw the review from Garden Island.

Shortly after rounding Bradleys Head, MELBOURNE came to a stop and HMA Ships passed her in review order. The Minister of State for the Navy, Senator J.G. Gorton, who was accompanied by Rear Admiral Harrington, took the salute as the ships passed.

The ships entered the Heads at noon and thousands of people lined the foreshores as the ships proceeded up the Harbour to Cockatoo Island before returning to berths at Garden Island.

Forty "Pioneer Sailors" were Guests of Honour at the review and proceeded to sea in HMAS BARCOO. Before going ashore, the "pioneers" were given a chicken luncheon, causing one old salt to remark "Ye Gods! Even admirals didn't eat like this in my day."

Several retired Rear Admirals of the RAN also took part in the review in VAMPIRE. No record is available of what they had for lunch.

HMAS VOYAGER leads the 1961 'Fleet Entry'

PARTICIPATING SHIPS — RAN

SOME FACTS AND FIGURES 1911 to 1986

HMAS ADELAIDE (I) during the Second World War

ADELAIDE LIGHT CRUISER 1922
Last cruiser to be built in Australia for the Royal Australian Navy.

ADELAIDE GUIDED MISSILE FRIGATE 1980
The first guided missile frigate to be commissioned into the Royal Australian Navy.

ADVANCE PATROL BOAT 1968
Last Attack Class Patrol boat operating from HMAS Waterhen.

BRISBANE LIGHT CRUISER 1916
First cruiser built in Australia for the Royal Australian Navy.

BRISBANE GUIDED MISSILE DESTROYER 1967
Last of the Royal Australian Navy's American built guided missile destroyers.

CANBERRA CRUISER 1928
Third Australian cruiser to be lost during the Second World War and the largest single loss of the Royal Australian Navy.

CANBERRA GUIDED MISSILE FRIGATE 1981
First Australian warship to launch a surface to surface missile.

COOK OCEANOGRAPHIC RESEARCH SHIP 1980
First Oceanographic research ship to be designed and built in Australia.

DARWIN GUIDED MISSILE FRIGATE 1984
Last major surface combatant to be commissioned into the Royal Australian Navy.

DERWENT DESTROYER ESCORT 1964
First ship of the Royal Australian Navy to be armed with guided missiles.

DUBBO CORVETTE 1942
Was involved in the final stages of the liberation of New Guinea.

DUBBO PATROL BOAT 1984
First Fremantle Class Patrol Boat to be involved in a Home Port rotation programme.

FLINDERS HYDROGRAPHIC SURVEY SHIP 1973
First hydrographic survey ship to be built at the Williamstown Naval Dockyard.

GEELONG CORVETTE 1942
Last major loss of the Royal Australian Navy during the Second World War.

GEELONG PATROL BOAT 1984
Last Fremantle class patrol boat to be permanently based at HMAS Cerberus, Westernport, Victoria.

HOBART CRUISER 1936
Last Royal Australian Navy cruiser afloat.

HOBART GUIDED MISSILE DESTROYER 1965
First ship to wear the white ensign at sea on March 1, 1967. First warship of the Royal Australian Navy to serve operationally in Vietnam.

JERVIS BAY TRAINING SHIP 1977
First ship of the Royal Australian Navy to embark females as part of her permanent crew.

ONSLOW SUBMARINE 1969
Last of the Royal Australian Navy's first group of four Oberon class submarines.

OTAMA SUBMARINE 1978
Last Oberon class submarine to be commissioned into the Royal Australian Navy.

OVENS SUBMARINE 1969
First Royal Australian Navy submarine to serve with ANZUK forces in the far east.

PARRAMATTA TORPEDO BOAT DESTROYER 1910
First ship of the Royal Australian Navy to attack, and probably destroy, a submarine. First ship built for the Commonwealth Naval Forces.

PARRAMATTA SLOOP 1940
First ship of the Royal Australian Navy to be torpedoed and sunk by a submarine.

PARRAMATTA DESTROYER ESCORT 1961
First Type 12 frigate to be built at Cockatoo Island Dockyard for the Royal Australian Navy. The only ship of the Royal Australian Navy to participate in a ceremonial fleet entry whilst wearing a Red Ensign.

PERTH CRUISER 1936
Last cruiser purchased by the Royal Australian Navy.

HMAS DERWENT early in her life.

HMAS PARRAMATTA (I) on trials.

PERTH GUIDED MISSILE DESTROYER 1965
First major warship of American design to serve in the Royal Australian Navy.

SEAL DIVING TENDER VESSEL 1968
A member of the last group of vessels transferred from the Royal Navy to the Royal Australian Navy.

STALWART DESTROYER TENDER 1968
Largest warship wholely designed and built in Australia. The only destroyer Tender to be wholely designed and built in Australia.

SUCCESS FLEET SUPPLY SHIP 1986
Latest ship built at Cockatoo Island Dockyard for the Royal Australian Navy.

HMAS SYDNEY (I) in action.

SYDNEY CRUISER 1913
Fought the first cruiser action of the Great War. First Royal Australian Navy warship to be attacked from the air. First Royal Australian Navy warship to lauch an aircraft on a combat sortie.

SYDNEY CRUISER 1935
Engaged in the first cruiser dual of the Second World War. First Royal Australian Navy cruiser to be lost in action.

SYDNEY AIRCRAFT CARRIER 1948
First aircraft carrier commissioned into the Royal Australian Navy. Last ship to be commissioned as His Majesty's Australian Ship.

SYDNEY GUIDED MISSILE FRIGATE 1983
First warship of the Royal Australian Navy to be equiped with the Phalanx automatic gunnery system.

TOBRUK BATTLE CLASS DESTROYER 1950
First Battle Class destroyer laid down in an Australian shipyard.

TOBRUK LANDING SHIP HEAVY 1981
First Warship built by Carrington Slipways Pty Ltd for the Royal Australian Navy.

TORRENS TORPEDO BOAT DESTROYER 1916
The only ship of the Royal Australian Navy to be in action against a ship of the Austro-Hungarian Empire.

TORRENS DESTROYER ESCORT 1971
Last major surface combatant to be built in Australia for the Royal Australian Navy.

TREVALLY TORPEDO RECOVERY VESSEL 1970
Member of the last class of seagoing vessels built at Williamstown Naval Dockyard for the Royal Australian Navy.

WOLLONGONG CORVETTE 1941
Last Royal Australian Navy ship to leave Singapore before its fall to the Japanese.

WOLLONGONG PATROL BOAT 1981
First Fremantle Class Patrol Boat to be involved in a major peacetime accident.

HMAS PERTH (I), 1942

HMAS PARRAMATTA *Silver Jubilee*

1961-1986

[All photos courtesy JOHN JEREMY, Cockatoo Island Pty Ltd]

On July 4, 1986 HMAS PARRAMATTA celebrated her Silver Jubilee — 25 years service preserving the peace.

The keel of the third warship to bear the name of the cradle city of Australia was laid down at Vickers Cockatoo Island Dockyard on January 13, 1957.

PARRAMATTA III was launched on January 31, 1959 by Lady Dowling, wife of the then CNS, VADM R. Dowling.

Launching.

PARRAMATTA was commissioned into the RAN under the command of CMDR G. R. Griffiths RAN on July 4, 1961. Twenty five years later the ship has been instrumental in creating one-third of the history of the RAN.

PARRAMATTA represents the RAN of the 60s and 70s and her story illustrates the meaning of Sea Power.

In the mid 1950s the Australian Liberal Government, in reflection of the 'forward defence' principle of Australian strategic policy and in recognition of the rapid development of a serious Soviet submarine threat, announced the acquisition of a new warship class to be built in Australia — anti-submarine frigates.

PARRAMATTA, the first of six ships of the class, was constructed to the British 'Type 12' design modified for Australian conditions.

Building time was 4½ years and the cost seven million pounds.

During the 1960s PARRAMATTA ranked among the world's most modern anti-submarine escorts.

This is mirrored in the ship's motto 'Strike Deep'.

Between 1962 and 1977, the ship's pendant number — initially F05, later DE46 — was a familiar sight in South East Asian waters 'showing the flag' on deployments and in SEATO exercises.

Next Step — fitting out.

Tilt Tests, 1960

UPDATE

In the mid 1960s PARRAMATTA's weapon suite was updated with installation of the SEACAT anti-aircraft missile system and the Australian-designed and built IKARA anti-submarine missile system.

On trials.

After an extensive period of refit and unscheduled maintenance, PARRAMATTA has rejoined the Fleet as a fully operational unit following a successful Final Battle Problem on Friday, June 13.

The ship is currently deployed as part of an RAN Task Group to South East Asia for her 13th Tnp 'up top'.

Since 1961, PARRAMATTA has spent 43,000 hours underway and has steamed 580,000 miles.

The story of PARRAMATTA is, in the final analysis, the story of her people.

The many successes of F05/DE46 are the result of hard work, dedication and loyalty.

Commissioning — 4 July, 1961.

The ship decommissioned on May 10, 1977, re-commissioning on August 26, 1981 after undergoing extensive overhaul at Williamstown Naval Dockyard.

During the ensuing four years PARRAMATTA was again kept busy, providing an RAN presence overseas.

Despite modernisation PARRAMATTA now has limitations of age and design.

The ship is manpower-intensive through lack of automated systems.

Fighting co-ordination with younger NCDS fitted units is difficult and the ship is not air capable.

Notwithstanding such drawbacks PARRAMATTA continues to render valuable service to the RAN.

Fitted with the advanced Australian sonar MULLOKA in 1985, the ship still performs a vital ASW role and acquits herself well in exercises.

Full power trial — 14 December, 1960.

Ship and equipment shortcomings are largely overcome by the professionalism and commitment of all onboard.

Self-reliance is the cornerstone of pride and competitive spirit.

The quality of Ship's Companies over 25 years augurs well for the future.

The story of HMAS PARRAMATTA does not end with her Silver Jubilee.

The ship will continue to serve Australia well until the early 1990s.

There will almost certainly be a fourth PARRAMATTA to carry on a proud tradition.

Her role will be identical to that of the first three PARRAMATTAs — to preserve the peace.

Flying the Red Ensign.

In Commission.

Letter to the Editor

75th ANNIVERSARY CALENDAR

"In June of this year the break even point in the Calendar Project was reached and a sigh of relief expressed by the organisers. Any income from that point will be directed towards support for Naval Reserve Cadets and other maritime projects. The surplus will not be the significant sum aimed for, despite the strenuous efforts of the Calendar Committee over a period of 9 months.

It is still hoped to increase the surplus by the sale of the revised product, that is sets of 12 excellent prints of ships of the RAN through the ages, Voyager (I), Fremantle, Tingira, Sydney (I), Perth (II), Melbourne (II), Kanimbla, Bathurst, Oberon, Australia (I), and Canberra (II) together with Wings Over the Navy. The prints are now trimmed and ready for mounting and are available for a mere $8 per set (plus postage if applicable), or they can be obtained from your State Navy League Secretary.

I take this opportunity of thanking those people in Navy, Navy League and others who have assisted in the project. My thanks particularly to Commander Jim Speed and his wife Natalie who gave instintingly of their time towards the completion of a project of some magnitude; the product cost alone was approximately $52,000."

JOHN BIRD
FEDERAL VICE-PRESIDENT
NAVY LEAGUE OF AUSTRALIA

USS MISSOURI *World's Greatest Warship*

USS MISSOURI in Japanese waters, 1945.

THE year 1944 saw the aggregation of American workers add many ships of destroyer size or larger to the formidable and growing US Navy. USS Missouri (BB 63) was added to this list when she was christened by Margaret Truman, daughter of the then junior Senator from Missouri, Harry S. Truman.

The *New York Times* heralded the arrival of America's newest battleship with the headline, "World's Greatest Warship Is Launched in Brooklyn". The date was January 29, 1944.

Fourth of the Navy's biggest battleships of the Iowa class, Missouri was destined to assume an enduring place in the history of the United States.

Seven months after commissioning, Missouri received her baptism of battle. On the night of February 19, 1945, Missouri, operating in the Iwo Jima, Okinawa and Tokyo offensive as part of the famed Task Force 58, shot down a radar detected enemy aircraft. To her crew the ship became the "Mighty Mo".

Four days later another suicide plane crashed on the starboard quarter, exploding violently and throwing debris aboard main deck areas. Only superficial damage was incurred and the Japanese pilot was the only fatality.

Admiral William F. "Bull" Halsey, Commander of the Third Fleet, moved his flag aboard in May 1945, assuring the ship her share of historical fame. As flagship for Admiral Halsey, Missouri, at anchor in Tokyo Bay, was the scene of the signing of the Japanese Instrument of Surrender on September 2, 1945. This brought to a close the hostilities of World War II.

Following the close of the war, the "Mighty Mo" remained the only US battleship on active duty, as one by one, her sister dreadnoughts joined the mothball fleet.

For five years Missouri operated with reduced crews on special missions to Turkey and Brazil and on numerous midshipmen and reserve training cruises. One such mission was to return the body of the deceased Turkish Ambassador to Istanbul, another carried President Truman and his family home from a special hemispheric conference in Rio de Janeiro. In effect, the nation's most historic battleship became a floating "White House."

Two months after the outbreak of hostilities in Korea, on August 13, 1950, Missouri interrupted her midshipmen cruise and sailed for Korean waters where she joined Task Force 77.

IN December 1950, United Nations armies walked into one of the biggest ambushes in history and began running for their lives. On December 23, exhausted Marine Corps leathernecks, carrying their sick and wounded, stumbled onto the beach at Hungnam and found "Mighty Mo" and a force of cruisers and destroyers waiting to enfold them in protecting arms of fire. Missouri's guns roared a curtain of steel around the beachhead through which the enemy could not penetrate.

In the weeks that followed, Missouri cruised unchallenged up and down the coastline, demolishing bridges, trains, tanks and troops. Generals began calling her "the best infantry weapon the Army ever had."

During the time Missouri spent in Korean waters, she steamed more than 80,000 miles and fired 7,300 tons of ammunition at North Korean installations.

Missouri was decommissioned and carefully preserved in February 1955 to rest at the Puget Sound Naval Shipyard in Bremerton, Wash. for three decades.

During her inactive years, Missouri continued to serve the nation — some 180,000 visitors toured the battleship to view the surrender deck each year.

In May 1984, Missouri was ordered to once again join the Navy's active fleet. The battleship was delivered to Long Beach Naval Shipyard for a two-year programme for modernisation to the needs of today.

WEAPONS PLATFORM FOR THE NEXT CENTURY

The nation's most historic battleship has been modernised as a fully capable weapons platform prepared to sail across the threshold of the next century.

USS Missouri (BB 63), as a result of her modernisation at the Long Beach Naval Shipyard, can perform a number of urgently needed roles in the US Navy of the 80s.

USS MISSOURI, October, 1944.

San Francisco Bay . . . Crew members man the rails as tugs assist.

The Iowa class battleship can operate offensively with carrier battle groups in areas of highest air threat, adding a new dimension of sustained firepower.

With appropriate escort, she can serve as the predominant unit of a battleship group in areas of lesser air threat. This serves to extend the reach of the Navy's battle groups.

In addition, the 58,000 ton dreadnought can operate offensively in support of amphibious operations, provide self-defense operations against surface and shore targets and provide naval gunfire support and shore strikes.

Missouri's aviation facilities include an operating station for a helicopter and stowage space for three additional units. The battleship can refuel helicopters from its aviation fuel tank with a 30,000 gallon capacity.

The ship's main fuel tanks have a 2.5 million gallon capacity which allows the "Mighty Mo" to establish a US naval presence anywhere in the world.

The main armor belt is 13.5 inches thick and the faces of the turrets have 17 inches of armor.

Reactivation of the ship's three 16-inch turrets and six 5-inch twin mounts took place during sea trials in March, 1986.

Four Phalanx close-in weapon systems have been installed. Each system is capable of firing 20 mm ammunition at a rate of 50-rounds-per-second for self defense against missiles and aircraft.

MISSOURI can carry two types of missiles. Eight armoured box launchers for Tomahawk cruise missiles have been installed giving it the capacity to launch 32 of these land attack or anti-ship missiles. There are also four quad-canister launchers for 16 anti-ship Harpoon missiles.

When Missouri was first commissioned in 1944, she had a crew of 134 officers and 2,400 enlisted. Today the crew number 64 officers and 1,500 enlisted with an additional two officers and 38 enlisted personnel from the US Marine Corps.

The battleship Missouri became the centre of the world's attention when the deadliest conflict in the history of mankind ended upon her deck September 2, 1945.

When the Foreign Minister of Japan stepped forward to affix his signature to the Instrument of Surrender, the fighting between Japan and the Allied Nations was formally ended.

The historic scene was staged on the deck of the "Mighty Mo" is Tokyo Bay. Never before in all the history of the US Navy had such an event taken place aboard a ship of war.

The ceremony was carried around the world via radio. Top newspaper correspondents and photographers were there to carry news and pictures of the event around the globe.

It was not possible for all the men of Missouri to actually view the ceremony; the necessity for orderliness befitting the solemnity and dignity of such a world-important event having been impressed upon them.

Even so, the motion picture films and newspaper still shots showed the ceremony taking place in a setting that was typically American. Every spot on Missouri that offered a vantage point for a "white hat" spectator was occupied.

It was early morning on Missouri in Tokyo Bay; it was early evening back home in the States. The radio was suddenly the focal point of American life as families tuned in to catch the world broadcast of the event.

This was the first time in history that the average civilian had been able to sit in on the details of war.

Despite careful rehearsals, some hitches developed at the actual ceremony aboard Missouri.

The Russian delegation persisted in wandering around the ship until Fleet Admiral Chester W. Nimitz told them to say put or get off.

A Japanese signatory who had a wooden leg had to be hoisted aboard.

One of the allied representatives inevitably signed on the wrong line.

It was rumoured that some hard-core kamikaze pilots intended to crash the ship in a last suicidal protest. Throughout the ceremony, every anti-aircraft gun on Missouri was trained skyward, fully manned.

ONE of the Japanese foreign office delegation, Toshikazu Kase, recorded that the delegation was "subjected to the torture of the pillory. A million eyes seemed to beat on us with the million shafts of a rattling storm of arrows barbed with fire."

Kase informed Emperor Hirohito that the speech delivered by General Douglas MacArthur, Supreme Allied Commander, transformed the Missouri's deck into an altar of peace.

At the conclusion of the ceremony, General MacArthur spoke a final word.

"Let us pray that peace be now restored to the world and that God will preserve it always. These proceedings are now closed."

As the dignitaries prepared to leave the ship, a massed flight of 450 allied aircraft roared over Missouri as a symbol of victory in the Pacific.

Long Beach, 1986, prior to commissioning.

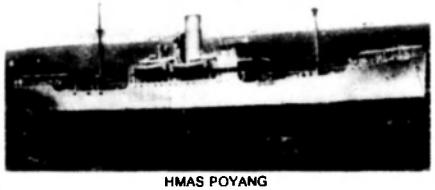
The China Connection

Calling all crew members of the "China Fleet" of World War II. Report to a national reunion in Adelaide on November 8.

That's the message being spread by two former crew members, Kevin "Fletch" Fletcher and Alan "Doc" Proleta. They have planned a national reunion for all crew members who worked in the China Fleet, but are having trouble contacting former comrades.

The China Fleet consisted of four ships — Ping Wo, Whang Pu, Po Yang and Yunnan which were borrowed by the Royal Australian Navy from the Chinese when World War II broke out.

Thankfully the ungainly looking vessels did not encounter violent action throughout the war. The crews sailed about New Guinea and the South Pacific, mooring wherever depots had to be built, installations repaired, or ships assisted. The following article describes the ships of the China Fleet.



HMAS POYANG

HMAS POYANG

Type:	Armament Store Issuing Ship
Tonnage (gross):	2873 tons
Length:	298 feet
Beam:	44 feet
Draught:	17 feet, 6 inches
Depth:	23 feet, 1 inch
Builders:	Taikoo Docks and Engineering Company, Hong Kong (1941)
Owners:	China Navigation Company Limited
Machinery:	Single screw triple expansion, 175 NHP
Fuel:	Coal
Cargo capacity:	4139 tons
Refrigerated capacity:	120 cubic feet
Speed:	13 knots (maximum) 11 knots (economical)
Armament:	1 x 4 inch gun 1 x 20 mm Oerlikon 2 x 303 inch Vickers guns

The cargo/passenger steamship POYANG was taken over at Sydney for RAN service on 12 May, 1942. The ship initially served in the RAN as a non-commissioned vessel, mainly on the Australian east coast. However, the ship was at Noumea, location of the headquarters of the Commander of the South Pacific Area, from 22 August, 1942 to 10 September, 1942. From 7 July, 1943 to 20 October, 1943 POYANG was at Milne Bay. During a ship's non-commissioned service she was operated with a civilian crew.

On 6 December, 1943, POYANG commissioned at Sydney under the command of Lieutenant John W. Edwards, RANVR. The ship served in the New Guinea area from January 1944 until October of that year. On 20 October, United States troops landed at Leyte Gulf in the Philippines. The Leyte Gulf Unit of the Service Force Seventh Fleet included HMAS POYANG and two other RAN ships, RAFA BISHOPDALE and RAFA MERKUR. Apart from a brief period in Australian waters in late 1944 — early 1945, the remainder of POYANG's wartime service was in the New Guinea and Morotai areas. She was at Morotai when hostilities ended on 15 August, 1945. On 22 September, 1945 the 33rd Australian Infantry Brigade was landed on Ambon. The naval force of 12 RAN ships included POYANG. After further service in northern areas and in the Solomon Islands the ships returned to Sydney on 22 January, 1946.

On 6 March, 1946 POYANG paid off to Reserve at Sydney.

After the ship was taken over for RAN Service she was held under sub-charter from the British Ministry of War Transport. (POYANG had been taken over in Melbourne on behalf of the British Admiralty in February, 1942 but was never used by the Royal Navy.) On 19 August, 1946, at Sydney, the ship was handed over to a representative of the British Ministry of War Transport.

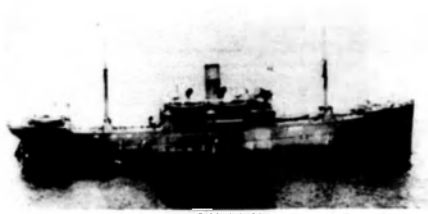
HMAS PING WO

PING WO

Type:	Repair Ship
Displacement:	3,105 tons
Length:	300 feet
Beam:	48 feet
Draught:	13 feet, 6 inches
Speed:	11 knots
Armament:	1 12-pdr 2 Oerlikons
Owners:	Indo-China Steam Navigation Co
Built:	1922

Built as a Chinese river steamer, PING WO was originally requisitioned by the RN, but paid off at Melbourne on 19th May, 1942.

During PING WOs service in The RN (as HMS PING WO) she was one of five ships which took part at various stages in the towing of HMAS VENDETTA from Singapore to Melbourne between 2 February and 1st April, 1942. VENDETTA was immobilised at Singapore undergoing a major refit when Japan entered the war and with the rapid Japanese advance on Singapore she could not be made seaworthy before the situation deteriorated. It was clear that the ship would be lost if she could not be removed. PING WO handled the tow from Batavia to King George Sound (17 February to 24 March). As a result VENDETTA completed the refit at Melbourne and survived the war.



HMAS YUNNAN

HMAS YUNNAN

Type:	Armament Store Issuing Ship
Tonnage (gross):	2,812 tons
Length:	299 feet, 10 inches
Breadth:	44 feet, 2 inches
Depth:	21 feet, 8 inches
Builders:	Scott Shipbuilding and Engineering Company Limited, Greenock, Scotland (1934)
Owners:	China Navigation Company Limited
Machinery:	5 Cylinder engine, 425 NHP
Fuel:	Oil
Refrigerated capacity:	980 cubic feet
Speed:	11 knots (maximum) 6 knots (economical)
Armament:	1 x 4 inch gun 1 x 40 mm Bofors 2 x 20 mm Oerlikons

The passenger motor vessel YUNNAN was taken over at Sydney for RAN service on 22 June, 1942. The ship initially served in the RAN as a non-commissioned vessel, operating in North Queensand and New Guinea waters. During the ship's non-commissioned naval service she was operating with a civilian crew.

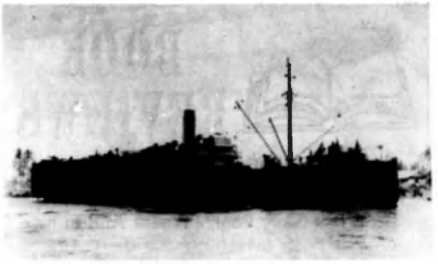
On September, 1944, YUNNAN commissioned at Sydney under the command of Lieutenant Thomas T. M. Hehir, RANR(S). After commissioning the vessel served briefly in North Queensland and New Guinea waters before proceeding to Leyte Gulf with the large force assembled for the landing in January 1945 at Lingayen Gulf in the Philippines. However, YUNNAN was not present at the landing. She remained at Leyte from late December, 1944 to early May, 1945, when she sailed for Hollandia. The ship operated in the next three months in New Guinea, the Admiralty Group, Morotai and at Tawi Tawi in the Sulu Archipelago, where she was based for some weeks. A few days after the end of hostilities on 15 August, 1945, YUNNAN returned to the Philippines where she operated until October, 1945. In that month the ship sailed for Sydney to pay off.

On 31 January, 1946, YUNNAN paid off to Reserve at Sydney.

After the ship was taken over for RAN service she was held under sub charter from the British Ministry of War Transport. (YUNNAN had been taken over in Melbourne on behalf of the British Admiralty in February, 1941, but was never used by the Royal Navy.) On 9 May, 1946, at Sydney, the ship was handed over to a representative of the British Ministry of War Transport.

WHANGPU

Type:	Depot Ship and Stores Issuing Ship. Previously Twin-Screw Steamer
Displacement:	3204 tons (gross)
Length:	338 feet
Breadth:	46 feet
Draught:	11 feet, 6 inches
Speed:	11½ knots (maximum)
Armament:	1 Bofors 3 Oerlikons 2 Twin .5 Colt M.G.'s
Built:	Hong Kong 1920
Owners:	China Navigation Co Ltd
Commissioned	RAN 1st October, 1943



HMAS WHANGPU

WHANGPU was requisitioned by the Admiralty on 13th December, 1941, and was in Singapore being converted to a submarine depot ship when the imminent fall of Singapore forced her to leave. She left Singapore on 2nd February, 1942, and proceeded to Fremantle via Palembang and Batavia, arriving on 1st March, 1942.

In Fremantle, WHANGPU was used as an accommodation ship for Dutch submarine and minesweeper crews until commissioned in the RAN on 1st October, 1943. She then sailed to Melbourne for fitting out as a mobile repair ship.

On completion of fitting out WHANGPU proceeded to New Guinea arriving in May, 1944. She assisted in the construction of the RAN base at Madang as well as carrying out her duties as repair ship.

Early in 1945 she was converted to a Naval Stores Issuing Ship and proceeded to Morotai to carry out these duties.

She proceeded to Hong Kong in February, 1946, and after de-storing, was paid off to the Ministry of War Transport on 22nd April, 1946.

BOOK REVIEWS

by JOE STRACZEK

Australia's Navy Past, Present And Future

Published by CHILD & HENRY

The RAN celebrates its 75th Anniversary this year. In celebration of this great event Child & Henry have put together an all-embracing history of Australia's sea defence.

No naval history is complete without reference to the beginning and this is covered in a study of the Royal Navy and the development of the colonial navies.

The Navy's role in both World Wars as well as Korea and Vietnam, is detailed with a concise list of its losses. The book includes a complete Fleet List of warships and major support vessels since 1911 and introduces us to the personalities, past and present who helped form the Navy into the modern force it is today. Other chapters are devoted to the Fleet Air Arm. The price of Admiralty, other anniversaries and the Navy of the future. Illustrated with over 120 black and white photographs this informative book provides a greater insight into the Navy's role on the sea through a thorough understanding of its first seventy-five years.

At only $12.95 it will form a very valuable addition to your library. Thoroughly recommended.

Combat Fleets Of The World 1986-87

Published by ARMS & ARMOUR PRESS/USNI
Review copy from CAPRICORN LINK AUST. PTY. LTD
Edited by A. D. BAKER III

Fred T step aside. Combat Fleets of the World has arrived!

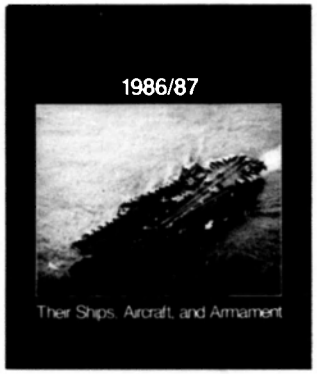
For many years Combat Fleets Of The World has promised to be a serious challenger to Janes Fighting Ships but until this current edition it has never really been considered as such. What has made the major difference is the changed format of the book. This current edition of Combat Fleets of the World has been published in the more conventional, and easier to handle, format with the spine slightly larger than the width.

The 1986/87 edition of Combat Fleets containes over 750 pages of detailed technical information. Because of the size of the publication it has been bound using heavy duty boards. this robust construction will ensure that the book does not easily fall apart. As with most books of this type Combat Fleets is organised by country. For each country details of its naval forces are given and this is followed by information on the various weapons and electronic systems used by the naval forces. For the major navies this information is supported by numerous photographs. Technical details are then given for the nation's warships. All sections are well illustrated with numerous high quality photographs and in some cases line drawings of major warships. Each warship entry is presented in a concise and easy to understand manner. Another plus for Combat Fleets is that there are no advertisements to wade through before reaching the contents of what can only be described as the best book of its type in the world.

Of particular interest to Australians, especially in light of the Dibb Report, are some of the frigates in the 2000 to 3000 tonne range. Some of the more impressive ships in this class are the German Bremen and Meko class frigates. One other ship which may fit into Mr Dibb's navy is the Italian Stromboli class underway replenishment ship. Another area of interest to Australians in this edition of Combat Fleets is the size and nature of the Indonesian navy. This navy now operates a number of highly capable and sophisticated warships with more on order. As well as these ships there are a number of support ships ranging from oilers to a fleet command ship. Overall a very impressive navy.

Not only are the world's major navies listed but so are the ships of the world's smaller navies, such as Benin, Comoros and Surinam. Also well covered are the emerging nations of the Pacific, though the size of these entries is not as large as those of the major powers.

Combat Fleets of the World is an essential reference for the professional, or hobbyist, who requires detailed information on the warships that go to make up todays navies. Furthermore when considering the competition Combat Fleets is also the more economical as it is



published biennially. The publishing of Combat Fleets on a biennial basis is not a disadvantage as there would be no drastic changes in the composition of a nation's navy in a two year period.

All in all Combat Fleets of the World 1986/87 is a very impressive and professionally produced publication which would be an invaluable work in any naval library.

Australia's Armed Forces Of The Eighties

Published by CHILD & HENRY
Edited by ROSS GILLETT

Australia's Armed Forces Of The Eighties is a comprehensive, well illustrated book giving details of all the major equipments used by Australia's Armed Forces. The book is organised into three separate sections, one dealing with each of the services. Each of the sections starts with an introduction giving brief details on the organisation and major units of each service.

Unfortunately, in the case of the Royal Australian Navy and Royal Australian Air Force, there is no information given about the various types of missiles and bombs which are in service use. This does detract a little from what is otherwise an excellent indepth coverage of combat equipments. The information contained in each of the sections is supported by current manpower statistics and details as to badges of rank within the Armed Forces.

Each section is illustrated by a large number of high quality black and white and colour photographs. These photographs have obviously been selected to best illustrate an individual weapon or to highlight some of the capabilities of the weapons and equipments.

Overall, Australia's Armed Forces Of The Eighties is 158 pages jam packed with information on all major equipments of Australia's Armed Forces and is an excellent reference work useful not only to the professional but also to the hobbyist and the enthusiast and represents good value for money.

The Royal Australian Navy
75th Anniversary Tankard & Plate

A LIMITED EDITION TRIBUTE IN SILVER—POLISHED PEWTER
TO A GREAT FIGHTING SERVICE

The Royal Australian Navy this year celebrates 75 years of memorable service to the Nation.

Their Battle Honours so proudly won by the dedication of generations of Australian sailors are a triumphant roll call of glorious —

The sinking of the German raider *Emden* by *HMAS Sydney* in 1914, and the penetration of the Dardanelles by Submarine AE 2 (still a legendary exploit among submariners) were two of the earliest Allied successes in this War To End Wars.

World War II saw the earliest exploits of Australian men and ships in the Mediterranean where names such as *Waterhen, Voyager, Sydney, Stuart, Lambert, Hobart, Vendetta, Nestor, Parramatta, Vampire, Perth, Australia, Canberra* and many others added to the Navy's proud history of service and heroism.

The mortal battle against Japan where the RAN played an integral and pivotal roll in the defence of Australia and the ultimate defeat of the enemy. Ships such as *Perth, Yarra, Canberra, Voyager* and *Lampere* with many of their fighting men paid the full price for this great victory.

Then on to a new and troubled age where service at Malaya, Korea and Vietnam added to the great reputation of a remarkable fighting force which is this year honoured at their 75th Anniversary.

International Historical Foundation is proud to have been authorised to produce two outstanding commemoratives to celebrate this great occasion. Permission has been granted to present the historic RAN Crest — sculpted here for the first time as a high relief centrepiece.

THE 75th ANNIVERSARY PLATE

The Plates are grand show pieces measuring 10" across with a beautifully matted polished surface that perfectly displays the sculpture of the RAN Crest here embellished with 24ct gold.

Limited to just **2000** examples, each 75th Anniversary Plate is hand crafted by a master jeweller with and bears its edition number inscribed on the back, together with the touch marks that certify it as genuine pewter.

Each Plate will be supplied in a fine presentation case with a display stand.

THE 75th ANNIVERSARY TANKARD

The tankards are also hand-made to exacting standards. Silver polished to a high gloss each is engraved with the Battle Honours won by the RAN during its first 75 years and features as a high relief medallion the honoured Royal Australian Navy Crest.

Limited to **5000** examples, each tankard weighs 18oz—more than twice the weight of normal commemoratives available—and they have a capacity of 1 imperial pint, a traditional glass bottom and are designed so that as a superb display piece and practical drinking tavern pot.

As with the plates the edition limit and pewter touch marks are inscribed on their base and the high quality of the concept and the excellence of the workmanship involved means that, with care, these outstanding commemoratives will last indefinitely.

THE EDITION VALUE

As pewter, after platinum, gold and silver, is the world's fourth most valuable metal the 75th Anniversary Plate and Tankard are exceptional value at just $225 and $120 respectively, inclusive of all charges (Serving and ex RAN personnel are offered a discount from this public price to $190 and $95 respectively).

Because of the ingenuity in the 75th Anniversary these outstanding commemoratives will be issued not only to those who have served and who honour the RAN, but by generations to come. They are designed to be worn with pride and hand on with pride.

Demand for these authorised editions is bound to be considerable — not only in Australia but among serious collectors across the world. Reservations may be placed only with International Historical Foundation* as indicated below. Orders received after the edition limits are exhausted will be returned immediately with their payments.

Successful applicants should allow 3 to 6 weeks for delivery.

*A division of The Crown Clothing Company Pty. Ltd.

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