

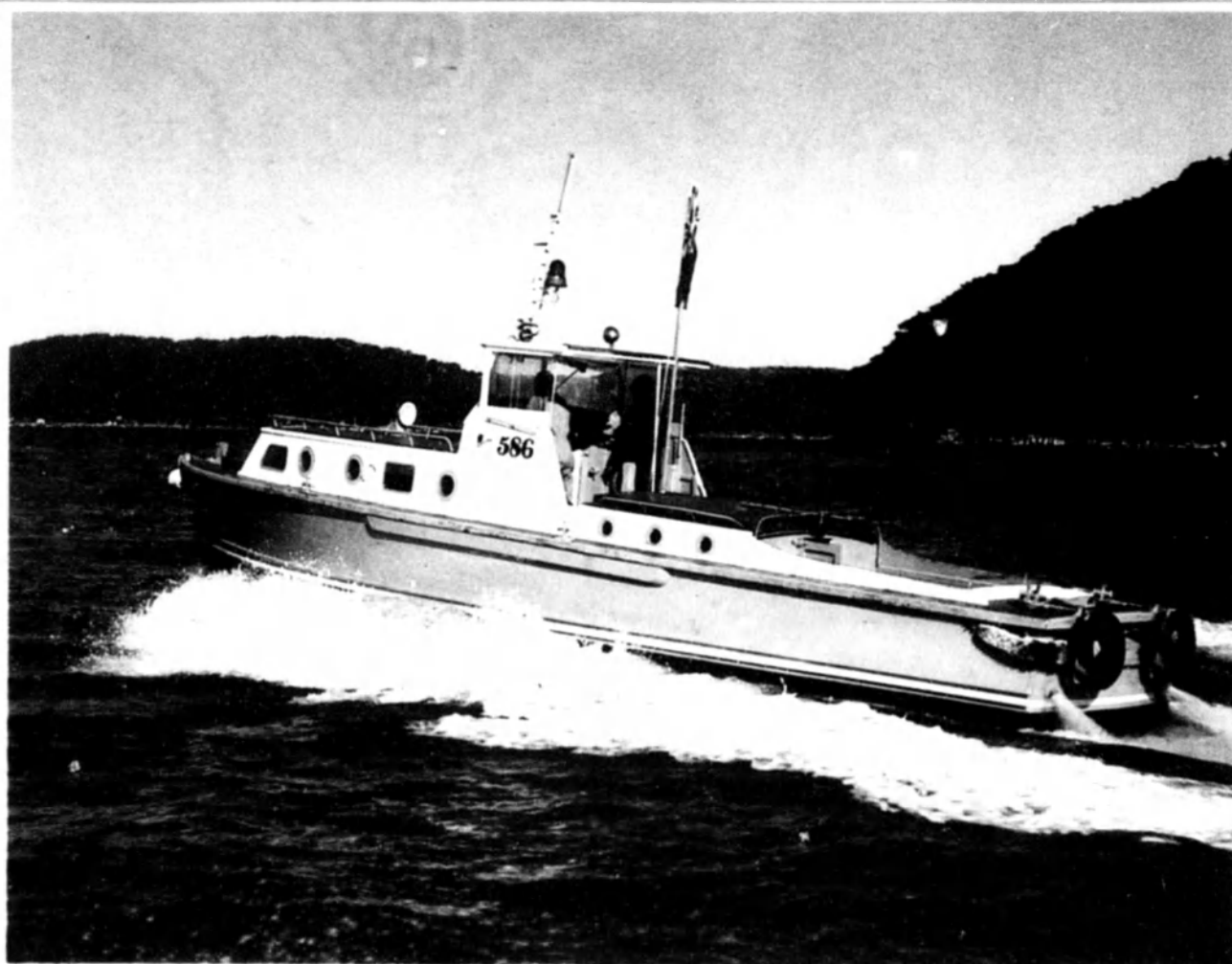
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# THE NAVY

*The Magazine of  
THE NAVY LEAGUE  
OF AUSTRALIA*



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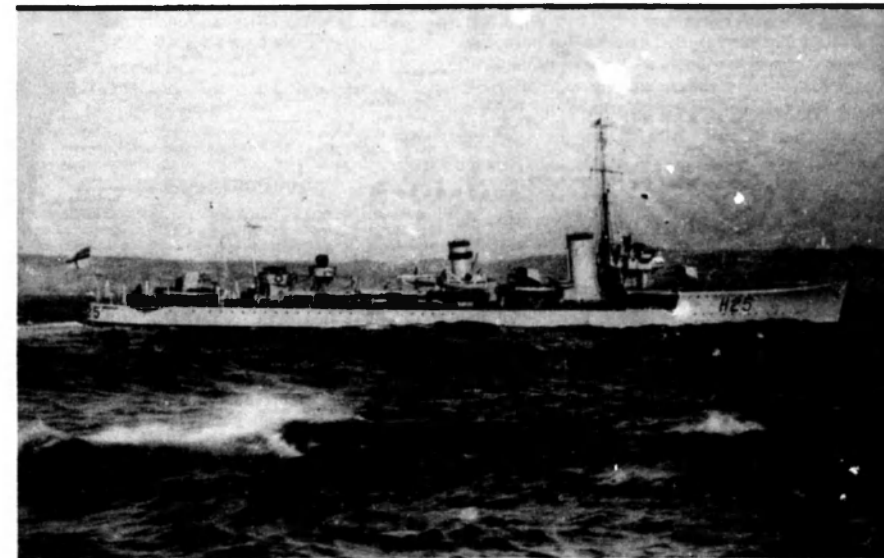
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HMAS TASMANIA (Photo — Harry Adlam)

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## FRONT COVER

Two views of the torpedo recovery boat, BINCLEAVES, based at the torpedo firing range in the Pittwater, north of Sydney. (Photos — Ross Gillett).

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ammunition and personnel

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# THE EDITOR'S COMMENTS

## Viewpoint

"Viewpoint", a new Navy League column, makes its debut in this issue of "The Navy". Each quarter one of the League's leading figures will provide a commentary/editorial type presentation as an official statement to both members and the public.

"Viewpoint" is open for discussion to readers who may wish to expand on any of the comments published.

As a result of the recent cutbacks in defence, particularly naval, the first "Viewpoint" focuses upon this area and the effects on the Navy in the coming years.

## Contributions

Editorial contributions for publication in "The Navy" continue to grow in both number and scope of interest. Occasionally, because of space requirements or the need to include at the last moment special topical pieces, some articles are delayed until the ensuing issue. Others are retained longer to fit into a special issue with a specific theme. In all cases however, preference is given to articles which meet the following conditions:

- (i) Neatly typed;
- (ii) Typing double spaced;
- (iii) Of wide interest, something unusual or new to the reader;
- (iv) With accompanying photos to illustrate the contribution;
- (v) Ships' names in capital letters.

New contributors to join the ranks in this issue include Peter Armstrong, Alan Asquith, Captain Chesserman and Charles Mann.

## October Issue

The deadline for editorial material for the Navy Week Issue is the first week of August.

## VALE HARRY ADLAM

It is with great sadness that I report the loss of one of the magazine's staunchest supporters, Harold Charles Adlam, who passed away on April 30.

Although not a member of the Navy League, Harry was a great believer in its ideals and from the time of my assuming editorship as "The Navy" in November, 1978, gave every assistance in the form of articles, book reviews and expert advice whenever required.

In the eighteen issues in which he contributed Harry wrote 28 articles and 18 book reviews. The regular series describing the RNZN's ships and establishments was begun at the suggestion of Harry as he was a true believer in the "ANZAC" connection. A majority of letters to the editor always included a kind word concerning his contributions.

Of all Harry's articles his most favoured were "Admiralty S Class Destroyers of the RAN" (July 1979), "Colonial Torpedo Boats" (September 1981) and "Cradle of the RNZN" (April 1979).

Despite his untimely loss, a number of Harry's articles have yet to be published. These will appear in future issues.

The Editor was proud to have Harry's name appear within these pages and I have every reason to be.

July, 1983



## The Navy Under Attack

Looking at the defence scene today it is hard to realise that a little over twelve months ago Australia possessed a reasonably well-balanced Defence Force with a good range of capabilities and despite ever-present money problems, a development programme in train which seemed appropriate to the country's strategic and economic circumstances.

The government would display wisdom if it halted the rush to change the Defence Force and exercised the same restraint in the defence area as it has in foreign affairs.

Today the Force is less capable than it was in early 1982 and in the opinion of many there are strong indications that it will soon be quite unsuited to the country's needs.

The reduced defence capability is obvious enough — it would be idle to pretend that a blue-water navy can be deprived of its air support facilities and remain just as effective — but less clear is the reasoning of those responsible at the present time for the nation's security.

It could hardly be denied that the investigations that led to the Fraser government's decision in 1980 to replace HMAS MELBOURNE with a "purpose-built vessel" — a helicopter carrier with STOVL aircraft potential — and in February 1982 to acquire HMS INVINCIBLE were thorough in the extreme. At the same time it is generally accepted that senior members of the Air Force and elements of the civilian establishment opposed the carrier project, although not necessarily for the same reason, and it is well-known the project was opposed by Labor Party spokesmen for reasons that took into account the Party's attraction to self-defence and a disinclination to become involved in "foreign entanglements".

Due in no small measure to a lack of resolution on the part of the Fraser government, a number of high-cost defence projects began to accumulate in a deteriorating economic climate and there can be little doubt that projects intended to be complementary or part of a general build-up of the Defence Force, instead became competitive. Unfortunately for the Navy a series of unrelated events, notably the Argentine invasion of the Falkland Islands on April 2, 1982, changes in the Chiefs of Staff Committee later in the same month, a ministerial change and finally the election of the Hawke government in March this year together were too much for it. The main loser however is the nation, which now has, and will have for some time to come, a seriously weakened maritime security force.

The Hawke government to its credit has so far moved cautiously in the area of foreign relations and it seems likely that Australian foreign policy, which since World War II has developed with broad public agreement, will continue to be based on reality rather than hope. In defence terms it might be expected that Australia will continue to support ANZUS and work towards regional security.

If there is to be a continuity in foreign policy, the drastic changes taking place in the structure of the Defence Force must appear as a hasty and ill-conceived. A defence force without a viable naval element will make it difficult for the government to make a worthwhile contribution to the security of the region and such a force would be quite inappropriate for a maritime nation even if only self-defence is envisaged.

GEOFFREY EVANS  
Federal President  
The Navy League of Australia

THE NAVY

Page Three



H.M.A.S. Oxley Oberon Class Submarine

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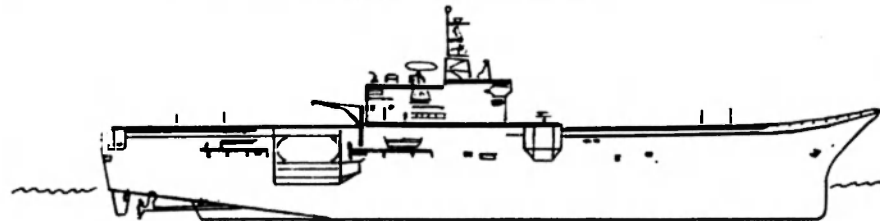


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## The Ships That Never Were

by A. R. ASQUITH



LPH aircraft carrier (Photo — RAN).

Now that the decision on the eventual disposal of HMAS MELBOURNE has been made with no immediate replacement carrier in sight, the LPH and Invincible aircraft carriers now join the list of ships the RAN could have . . . might have had . . .

Ever since World War II, when naval designers in Albert Park Barracks produced the designs of a modified Flower class corvette, to call it the Bathurst class corvette, there have been designs on the board of the RAN design teams. Some of these designs have been built and are now in service in the RAN, whilst others remain as drawings collecting dust in musty archives.

The LPH design as produced by Ingalls of Pascagoula, USA, would have been a ship the RAN could have been proud of and although based on the "Guam" design, it incorporated many state of the art features in gas turbine propulsion packages, aircraft handling arrangements and weapon sensor fits, including a multiple system of close-in defence against aircraft and missiles.

This ship would have been a most capable ship for Australian defence, however cost and changing political climate put an end to the RAN LPH ambitions.

Probably the most significant and costly RAN design that never was was the DDL project, which was the development and building in Australia of a class of destroyer type ships. The saga of the DDL and its

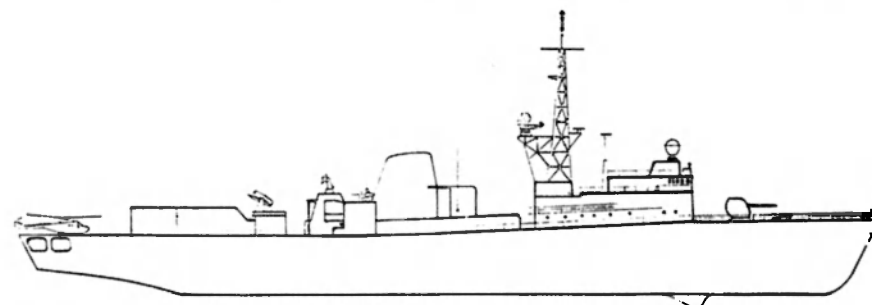
many variants is still painfully remembered by the RAN designers, and although these ships were not built, the lessons learned and procedures developed during actual design and the planning phases has proven of inestimable value to the RAN. The lessons have been applied beneficially to subsequent ship design and acquisition projects.

The DDL was produced mainly by contract to Y-ARD (Australia) who imported engineers and draftsmen of a high calibre for the task. As a result the DDL represented the latest state of the art in European naval destroyer design, with essentially US weapon fits. The fact that the DDL grew from a light frigate of 1,800 tons displacement, to a final all singing, all dancing, 4,400 tons is a matter of history. Lance Barnard finally put the chop on the DDL when he was Minister for Defence, citing as reasons the extensive R&D and proven performance associated with the FFGs, making the FFG a better buy for the RAN.

Hindsight would show that the concept of a basic hull fitted for specific anti-air or anti-submarine or anti-ship role could have been kept within manageable limits. However, when all the requirements, including a new shore bombardment role were placed into the ship, the size and costs escalated significantly, leading to the final coup-de-grace by Minister Barnard.

Another RAN design that reached design development stages was the AOE, Fast Combat Support Ship. This was a fleet oiler, replenishment ship and was to replace the even then ageing HMAS SUPPLY. The AOE was to be a larger ship than the AOR SUCCESS and was an all Australian design effort, including the use of consultants with specific skills.

The heavy landing ship LSM II which was the fore-runner to the LSH TOBRUK, is another design that, although having a well thought out design philosophy, failed to reach building stage. The LSM II was developed under contract by Burness Corlett and Partners of the UK, and was an innovative design approach to beaching a large ship in shallow



DDL EV2 (Photo — RAN)





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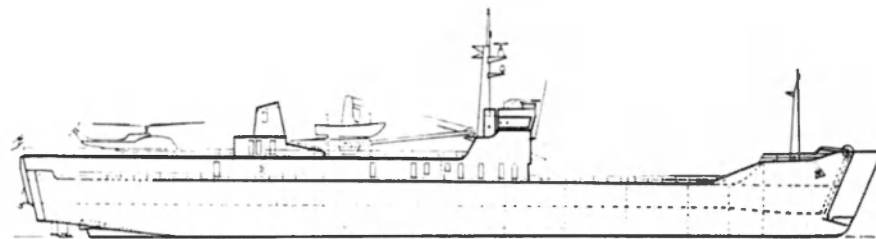
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LSM MKII (Photo — RAN).

beaches. The ship had an extremely shallow draft resulting in the need for quadruple screws running in fixed nozzles with multi-blade rudders behind each screw. Rather advanced and unusual for its day, nevertheless the LSM joined the long list of ship designs that never were.

The Survey Motor Launches as designed by Naval Technical Services, must also now be considered to have joined the "never were" in archives. Although these 80 foot launches will in all probability be built, they will not follow the designs as planned out by the design teams of



Fast Combat Support Ship (Photo — RAN).

W.T.S. The requirement for these vessels was for a simple survey craft for the massive task of coastal survey that will take RAN hydrographers to the turn of the century to complete. It is unfortunate that with the development of LADS (Laser Aided Depth Sounder) and the ability of modern survey equipment to be hull mounted on trawler-type ships, the decision was made not to proceed, due to the untried nature of the design and a change in the requirements.

There are of course many other ship designs put up as concept designs by the Forward Design Branch to meet an envisaged staff objective or staff target. But as these are often of the feasibility study nature they rarely see the light of day as contract or detail design.

Most naval designers do not particularly welcome the nugatory work that is associated with ships that never were, but realise that it is a lot cheaper and helpful for the decision process that paper warships are developed, costed and their viability established well in advance of any construction decisions to be taken. The fact that a number of these designs are not proceeded with is probably disappointing but does build up the designer's knowledge and inventory in preparation for future new designs.

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# New Submarines for the RAN

## BACKGROUND

Submarine history is said to go back for more than two thousand years but it is bedevilled by misunderstanding and exaggeration to the point where a submariner today, with of course the benefit of modern technology and physiological knowledge, has to discount much of what has been written in the past. Even by 1900 acceptance of the submarine as a weapon platform was not favoured and such outbursts as "a damned un-British weapon" were not unusual when submarines began to become an unavoidable fact of sea life.

Despite a short and somewhat unsuccessful flirtation with submarines during the First World War the Royal Australian Navy did not consider submarines a important element of its Order of Battle until quite recently.

## The Oberon Force

The Oberons were initially procured as training platforms with which the surface and air ASW units could practise their skills — "clockwork mice" — a term with which RAN submariners have learned to live but which has little to do with exploiting the full potential of the submarine force as it now is. Fortunately many of the submariners who manned the RAN Oberons in the 1960s and early 1970s had been exposed to operational submarining while serving in Royal Navy boats and began to influence thinking in the RAN as they became more senior. This, together with a realisation by groups largely outside the service and by a few senior RAN officers, that submarines are a relatively cost effective element of a modern navy, has led to the establishment of a Project to replace the Oberons as they reach the end of their effective operational life in the 1990s.

## Project Status

In the context of the 1981 Budget, the Government approved a Project Definition Phase of the acquisition of a new class of diesel electric submarines.

## The Aims of the Project

The aims of the project are:

- To select a design of conventional submarine, coupled with a build proposal, which conforms most closely with the RAN's required ship characteristics and combat system tactical operational requirements at an acceptable price.
- To procure, within funding guidelines, a number (the total is yet undecided) of submarines of the selected design for entry into service from 1991/2 as the Oberon Class submarine, reach their projected end of life.
- To provide for maximum Australian content and industrial participation in the project.
- To develop policy guidelines and implementation procedures for through-life support of the new class of submarines.

A Project Office was established in January 1982 since when there has been measured but significant progress.

## Special Project Features

Certain features separate this from other major Australian Defence Procurement Projects and will probably have a marked influence on the development and progress of the procurement.

Firstly, and probably most importantly, there appears to be a general acceptance of the wisdom of continuing in the submarine "business" and no longer is training surface and air ASW units seen as the only or primary role to be fulfilled. Public opinion (and Political comment), seems to support the maintenance of an effective submarine force. Respected Defence commentators are also quick to promote the submarine cause and to point to the trend towards larger submarine numbers in other navies.

Secondly, there is a consensus on what capability is required to be built into the new class. In large part of this is due to the experience gained over the past 15 years with

the Oberon. In particular, the success of the Submarine Weapon Update Programme (SWUP) has given confidence to the submarine fraternity to take the next technological step in the new class.

Thirdly, the RAN Submarine Arm has developed submarine skills appropriate to the RAN's sphere of influence. This environment is very different operationally, and logistically from that in which the Royal Navy deploys its submarines.

All RAN submariners used to be trained in the RN. The Oberon, of UK origin, was a proven design when Australia placed orders for Oxley and Oway in the 1960s but it was already then becoming dated and in the design sections of the diesel electric submarine builders of Europe, exciting new concepts were developing into hardware. There are several designs from which we can now choose all of which will meet the RAN's operational and technical requirements.

The selection process is being conducted within an extremely competitive environment.

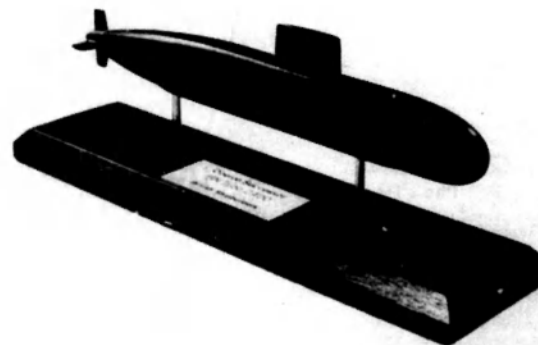
Lastly, a feature of the project which will receive increasing exposure as we learn more is the relative cost of submarines vis a vis other weapon systems. It is a large dollar figure project but many informed commentators agree that the investment is a cost effective one in money and manpower terms. A submarine is a relatively cheap deterrent.

## The Submarine

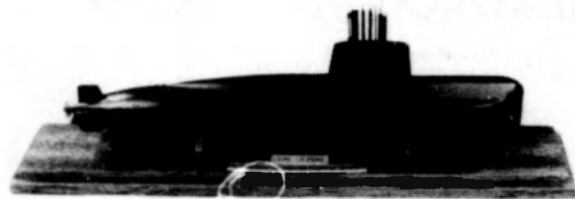
The characteristics of the boat have been determined, and while the new boat will be of a displacement similar to an Oberon its submerged performance will be radically different. The hull will be "tear drop" with a single propeller, dive deeper and operate at higher speeds for longer periods between "snorting" to recharge the battery. Modern technology has produced much improved main batteries and a very much increased battery charging rate from high power to weight ratio diesel generators. The "indiscretion rate", a term to describe the time spent snorting compared with that spent deep on main battery propulsion, has been improved by several times.

Noise emission, a fundamental measure of a submarine's capability is also improved giving an improved acoustic platform on which to mount more effective sensors along with a reduced acoustic target on which the opposition may home.

The combat system in the new class is a far cry from that in the Pre-SWUP Oberon and probably three generations beyond the current SWUP fit. For the first time the Combat System is being considered from the outset as an integrated system, weapon, weapon discharge, weapon control, data handling and processing, data transfer, all sensors (acoustic, optronic, Electronic Warfare, Radar) and navigation as well as tactical external communications. This has led to a concept of standard multi-functional consoles in the control room each with significant computer power, data bussing, distributed processing, and commonality of components throughout. Logistically, this should be a much improved concept compared with the SWUP where, despite the reliability enjoyed, the hardware is from a variety of manufacturers



Type 2400 (Photo — RAN).



INSW 1700A (Photo — RAN)

and there is little commonality of components. Software, a major commitment in a modern combat system will be simplified in the new system and updating will be provided for in the initial system design.

In both platform and combat system design, the fundamental requirement for energy conservation is paramount and it is in this area where the design disciplines of nuclear propelled boat and diesel electric boats have diverged. The availability of abundant power in the nuclear submarine has allowed the designer greater flexibility in power consumption. It may well be, therefore, that experience in the nuclear field could be somewhat counter productive in the development of new designs dependent on diesel electric and battery power sources.

These characteristics are allied to the extensive application of automation of ship control, machinery monitoring and combat system manning functions. The Oberon has a crew of 65, the new boat will have 41 with the provision for trainees above that. The reductions are primarily in the submarine control and machinery watchkeeping billets. There will be increased emphasis on the manning of the combat system.

Reliability is a subject which has received major consideration in the development of this project. The reasons may appear obvious — longer periods of trouble-free operations between overhaul. Of equal importance is the cost of and time spent in maintenance.

Design for reliability and ease of maintenance is not a new concept but there is a surprising difference between products in this regard. Certain designers have devoted very considerable resources to the development of reliable equipment and this aspect will receive due attention in the evaluation of designs being offered. Again our experience with the Oberons will be most useful.

### Logistic Support

Logistic Support has sometimes played a less than primary part in the planning of major defence equipment acquisitions. For this project it covers manning, technical documentation, training, spares support, maintenance and software. Here again our remoteness from the overseas source of supply and the Oberon experience will be fundamental considerations in the development of the project.

Manning has been a problem from time to time in the Oberons. The reasons are varied but overall the expectations of the men who serve in submarines may not always have been

realised. Remuneration, sea to shore ratio demands beyond these expected of the community at large or from other areas of services may have contributed. Partly to overcome these problems and partly to realise the increased availability of the submarines, a concept of multi crewing is being considered. This could be a three crew for two boats ratio. In a small arm of the service, specialised manpower availability is sensitive to small variations in numbers. There are some 530 RAN submariners, approximately 3.0% of the total naval uniform manpower. In the new class, for a force of 6 boats the manpower requirement on a three crew for two boats manning structure, the numbers would be about the same.

### Numbers

The numbers of boats to be procured is of course a major issue for consideration by Navy, Defence and ultimately by Government. Not only will the numbers ordered have a significant impact on unit price but it may well be the major determinant of what contribution is made by Australian Industry in construction and through life support.

### Procurement Strategy

The Procurement Strategy is now defined and the timescales planned to meet an invoice date for 01 of 1990/91. The strategy takes full account of the very competitive environment existing between seven European submarine builders/designers and at least 14 combat system companies from Europe and the USA.

Major milestones are related to the following factors:

1. Operational Commitments
2. Life of Type of the Oberon
3. Defence Budgeting
4. The Government Decision making process
5. Departmental Resources
6. Industry Resources

The Project is scheduled in 6 phases.

### Phase I

Phase I runs from August 1981, when government approval was given to Phase I Project Definition, to May 1986. This is a period of relatively low expenditure, during which the requirement is refined, the design selection is made, the project costs are identified, the part to be played by Australian Industry is determined, contractual arrangements for both production phases are formulated, the equipment acquisition strategy is brought to maturity and the ground work for

Integrated Logistic Support is undertaken. At the end of Phase I we should have a clear understanding with the selection overseas builder.

A Request for Tender to undertake Project Definition Studies and a Request for Proposals for Submarines (RFP), to meet the RAN requirements is scheduled for issue to the 7 contending submarine designers/builders.

The designs under consideration are:

Submarine Country of Origin	
Walrus	The Netherlands
TR1700	Federal Republic of Germany
IK12000	Federal Republic of Germany
C13	France
471	Sweden
2400A	UK
S90	Italy

The extent and detail of subjects covered in the RFP suggest that it will be a comprehensive document and will set the pattern for later phases of the project.

Although there are only 7 overseas conventional submarine builders/designers in the competition, there are numerous potential combat system companies who could become the major subcontractor to the shipbuilder. Therefore the Department of Defence Support issued a world wide invitation to register interest in the supply of equipment, services and/or software for the combat system on January 11, 1983.

### Contractual Arrangements

Firm price contracts are planned for the Phase I project definition study, the duration of which will be approximately nine months. The contract for building the lead ship overseas could be on a fixed price basis.

The viability of building follow-on submarines in Australia and the contractual arrangements which might be reached depend not just on the success the Department has in attracting the right calibre of Australian industry and the premium, but more particularly, on the "up front" commitment on the duration of and number in the production run. The Project Definition studies will address these and other subjects.

### Phase II

Phase II — Project Development — is planned for the period 1986 to 1987. During this phase detail design, contract negotiations, refinement of production arrangements, finalising of the Australian consortium arrangements if applicable, further development of the AIP arrangements and the ordering of long lead items for Submarine 01 are planned to take place.

### Phase III

Phase III relates to the development of facilities both for any Australian construction programme and for refit, base support, training etc. The Commonwealth commitment to an Australian construction facility will of course depend on where it is and who is to own it but at this time the locality of a construction facility is a very open question.

### Phase IV

Phase IV is the building of the lead submarine 01 probably overseas.

### Phase V

Phase V is the building of follow on submarines.

### Phase VI

Phase VI provides for the building of further submarines should they ultimately be required.

### Australian Industry Participation (AIP)

Australian Industry Participation is planned to be an important issue in this Project. It is considered in the Project Office that the industry capability/capacity to support a class of submarines can be developed only if Australian Industry is a major contributor during the construction phase. It is then that the transfer of expertise and information takes place and if the opportunity is missed through arranging a total overseas build programme, it is most unlikely that efforts to purchase the necessary information post delivery will be successful. Almost all material and equipment which goes into the Oberons during routine maintenance is overseas sourced. Any denial of these sources, for whatever reason, could be an embarrassment.

The merits of undertaking project work in

Australia have been addressed in the Project Office where it is considered that there are important strategic, economic, technical and political reasons for doing a large part of the construction and equipment manufacture programme in Australia.

There will probably be a premium to pay and a balance will have to be struck between that premium and the benefits to the submarine force and Australia of local industry involvement. The Project Definition Studies are aimed to provide that information which will support the source selection and Australian Industry Participation recommendation to Government. Self reliance is a much used term in debate on Australia's Defence requirement and capability. Achievements have not always matched expectation. Nor has Australia's self reliance been seriously tested in recent times. The extent of Australian Industry Participation in the New Construction Submarine Project will not be easily resolved but the response by industry to this time has been most encouraging. It is an established objective of the Project that Australian Industry will

continue to be kept informed on project progress so that no opportunity to establish the skills, facilities and organisation in Australia will be missed.

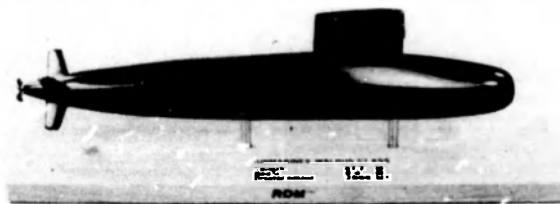
To that end a briefing of Australian Industry was conducted at HMAS WATSON on February 28. As a result, there has developed a dialogue between the overseas builders and their major equipment manufacturers and Australian Industry. It has been particularly encouraging to the Project Team to see an active interest developing in State Government Departments and in Industry Associations. A project of this magnitude and complexity warrants this level of involvement if a significant part of the programme is to be undertaken in Australia.

### Constraints

Despite a widespread acceptance of the requirement for a capable submarine force, there are likely to be several constraints on the development of the Project.

In the short term, funding will be scarce and in the later years of high expenditure, competition will arise with other major Defence procurement programmes, and with other Government projects. The resources to manage a Project of this nature are limited and if Australian Industry is to become heavily involved, much will have to be learned about the business of submarine construction.

Nevertheless, the Project Team remain optimistic that at this early point in the programme have firmly established objectives. If the current momentum can be maintained and funds are made available as currently planned, the RAN can look forward to operating a capable submarine force into the next century.



WALRUS (Photo — RAN)

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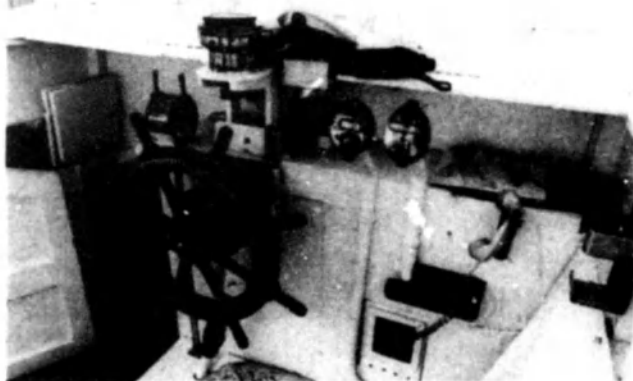
# Last of the Class — *Harbour Defence Motor Launch No 1325*



HDML 1325 as completed. Another launch lies astern (Photo — RAN)



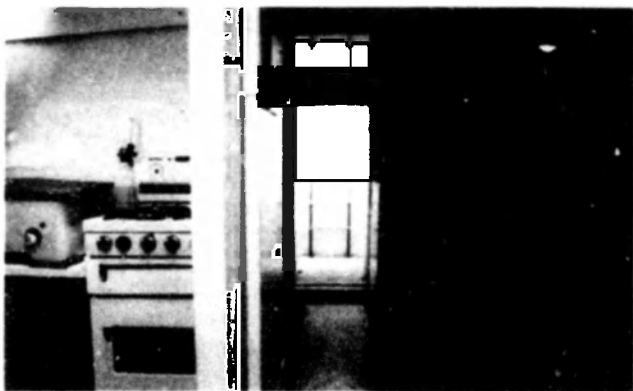
Detailed view of the superstructure of the re-conditioned Seaward Defence Boat 1325 (Photo — LSPH S. Given).



Wheelhouse of SDB 1325 (Photo — LSPH S. Given).



Interior view of SDB 1325 (Photo — LSPH S. Given).



Cooking and accommodation spaces (Photo — LSPH S. Given).



SDB 1325 pictures in Lockburn Sound, Western Australia on 22nd February, 1983 (Photo — LSPH Steve Given)

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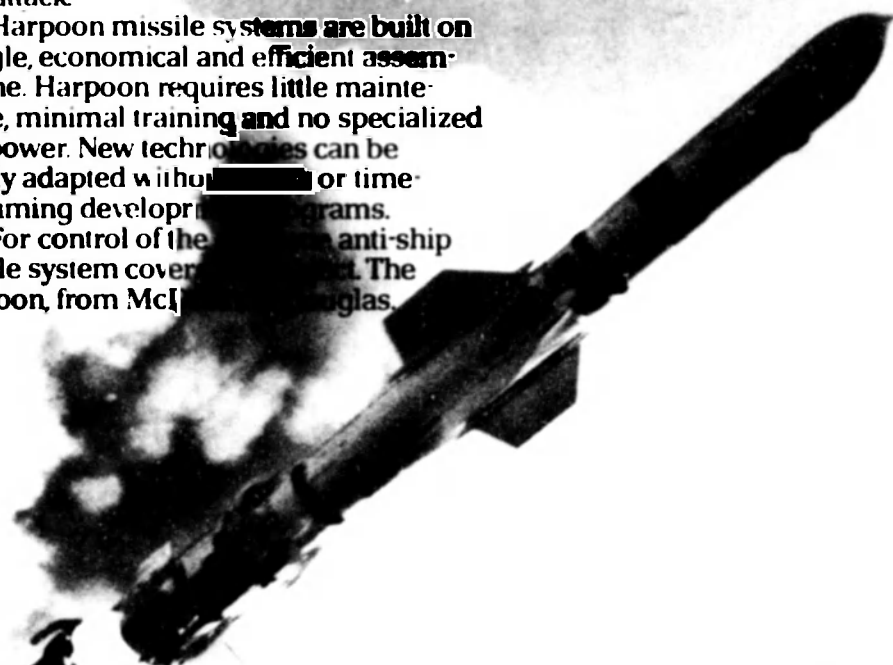
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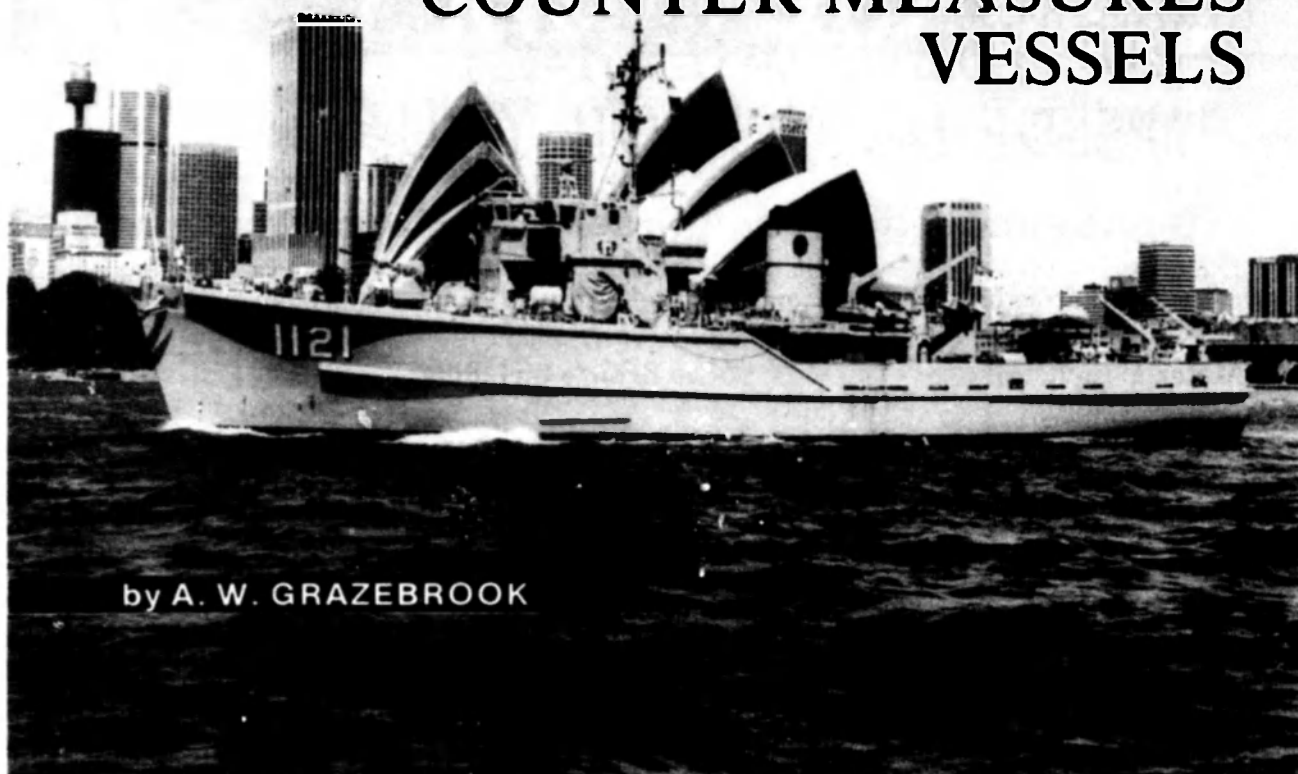


# MCDONNELL DOUGLAS





# THE NEED FOR MORE MINE COUNTER MEASURES VESSELS



by A. W. GRAZEBROOK

***The long delayed final announcement that Carrington Slipways have received a \$23 million contract for the construction of two prototype fibreglass catamaran inshore mine hunters is a welcome, if dangerously late, sign of progress towards the provision of a viable mine counter measures force for the RAN. However, much remains to be done.***

Firstly, the Carringtons' order is for two prototype units only. These small ships are due for delivery in 1985 and 1986. Not until the trials of the first two units are complete will Navy be permitted to proceed with orders for the further eight or so units that are envisaged. Thus, Navy is unlikely to have a significant force of mine hunting catamaran hulled units much before 1990.

These units are designed for estuary work and fill an essential need. However, Navy also needs mine counter measures vessels for the deeper waters around our coasts.

Towards fulfilling this need, Navy developed a proposal to acquire two BRECON class 615 tonne multi-purpose mine counter measures vessels from Great Britain.

These vessels are very capable, being equipped with the clearance equipment necessary to dispose of all types of mine known to be currently in existence. However, they were expensive — a project cost of well over \$60 million for two units was reported. The published sail away cost of HMS LEDBURY, completed in 1981, was nearly \$40 million.

As a result, the project was rejected by the Defence Department.

Once again, this has caused serious delays as the cancellation necessitated the development of new staff requirements, the approval of those requirements and the commencement of a whole new project study.

That study commenced earlier this year.

Thus it can be seen that neither the mine hunting catamarans nor the new larger coastal mine clearance vessels will be available for some time to replace our ageing three wooden hulled coastal mine sweeper and mine hunters of the Ton type.

This leaves a serious gap in Australia's defences. It is a well known fact that mines are cheap and easy to lay. A number of regional powers keep mines in inventory in large numbers.

The clearance of mines requires an effort many times that required of an enemy in laying of mines.

Australia's dependence upon seaborne trade, makes us particularly vulnerable to the mine.

The significance of the mine is recognised by regional powers as is evidenced by Malaysia's recent order for four GRP hulled mine hunters

from Italy, and the interest of Thailand and Indonesia in the acquisition of mine clearance craft.

The effectiveness of the mine in terms of clearance resources required was emphasised in the Falkland Islands campaign. It is of interest to note that, although the Royal Navy is equipped with modern GRP hulled mine clearance vessels, the marine circumstances in the area surrounding the Falkland Islands necessitated the equipment and commissioning of mine clearance vessels markedly larger and more seaworthy than the BRECON class. Steel hulled trawlers were chosen and performed their task satisfactorily.

This selection followed the trial, by the Royal Naval Reserve, of steel hulled stern trawlers as mine sweepers. Subsequent to the Falklands campaign, the British Government has placed orders for a number of steel hulled mine sweepers for manning by the Royal Naval Reserve. It is of particular interest to note that the economics of the steel hull (as compared to the GRP hull) and the successful running of the higher risk of steel hulls in the Falkland Islands have combined to induce the British Government to select steel hulls for further orders.

The manning of this type of vessel by the Royal Naval Reserve highlights another potential economic aspect of the mine clearance role.

It is reported that a number of the mine hunting catamarans will be manned by the RANR. It is apparently envisaged that some mine-hunting catamarans will be deployed to RANR divisions and assigned to mine clearance operations in the areas of those port divisions.

The need for a new generation of mine counter measures vessels for the RAN was first highlighted in these columns by Vice Admiral Sir Richard Peek in 1975.

At that time, Admiral Peek estimated that the first of the new mine counter measures vessels should enter service in the RAN in 1977-78. Five years after that date, and eight years after Admiral Peek's article, the order for the first units has only just been placed. The need to progress rapidly the acquisition of more mine counter measures vessels, including coastal minesweepers, is manifest.

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# NAVAL ROUNDUP

— Compiled by  
"GAYUNDAH"

## MINISTERIAL STATEMENT ON AIRCRAFT CARRIER

The Minister for Defence, Mr Gordon Scholes, announced in early March that Cabinet had decided not to acquire an aircraft carrier to replace HMAS MELBOURNE, which had not been to sea since late 1981 and was formally placed in contingency reserve last June.

He had advised the British Government, which had offered to sell or lease HMS HERMES to Australia and build an Invincible class ship for delivery later in the decade. In this regard, however, no decisions or commitments had been made by the Australian Government.

HMAS MELBOURNE would be passed to the Department of Administrative Services for disposal.

Mr Scholes said: "The Defence Force either has or is programming to acquire weapons systems that can effectively, indeed usually more effectively, discharge the roles in which an aircraft carrier might have contributed. There is, therefore, no justification for spending huge sums of the taxpayers' money on a purchase that is not really necessary, and that would, moreover, also constitute such a high risk investment."

The withdrawal of HMAS MELBOURNE from service reduced Australia's capacity for anti-submarine warfare, but I believe that that was a reasonable risk for the previous Government to take. Australian shipping has not been threatened by submarine attack since World War II and, on present indications, this is still more improbable. However, I am surprised that there are no plans for emergency action should present prospects change and I shall have these urgently prepared. Acquisition of ASW helicopters for our frigates will be pursued as a matter of high priority.

Mr Scholes said that the implications of the carrier decision regarding the Navy's force structure and the Fleet Air Arm would be examined. Decisions would be announced in due course. In order to facilitate this he had asked the Secretary of the Defence Department to have the Defence Force Development Committee consider future maritime force requirements.

Mr Scholes said that he knew there would be those in the Navy who would be disappointed with the decision not to acquire an aircraft carrier. It was an important decision and brought to an end an era in the Navy's history. However, the Government's decision was firm and he was confident that the Navy, as a disciplined Service, would accept it and work to develop new concepts for its important role in Australia's maritime defence.

## COMMISSIONING OF HMAS CESSNOCK

HMAS CESSNOCK, the RAN's newest patrol boat, was commissioned into the Royal Australian Navy, at a ceremony at Cairns, Queensland, on March 5. HMAS CESSNOCK is the eighth of 15 Fremantle class patrol boats being built for the RAN. The lead ship, HMAS FREMANTLE, was built in Britain and North Queensland Engineers and Agents Pty Ltd of Cairns is building the other 14. The commanding officer (designate) is Lieutenant M. J. Taylor of Darwin.

## FLEET AIR ARM DECISION

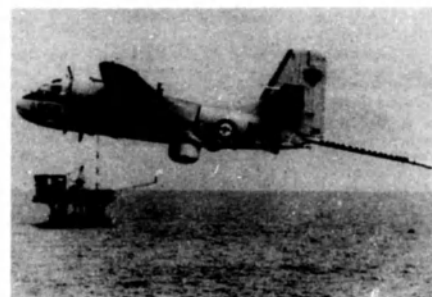
The RAN's Fixed Wing Aircraft are to be phased out.

The decision was announced at HMAS ALBATROSS in early May by Chief of Naval Staff, Vice Admiral David Leach.

VADM Leach said the decision had come after the Federal Government had accepted the recommendation of the Department of Defence to phase out RAN Fixed Wing Aircraft in accordance with the following programme:

- Six Skyhawks to be withdrawn from service by June 30 this year and disposed of as necessary; the remaining four Delmar-modified Skyhawks to be withdrawn from service by June 30, 1984 and disposed of.
- The Tracker fleet to be retained until June 30, 1984 and then disposed of.
- RAN Macchi aircraft to be transferred to the RAAF by July 1 this year.
- Two RAN HS748 aircraft expected to be transferred to the RAAF no later than June 30, 1984.

VADM Leach said the Government had also decided that the RAAF



Tracker on oil rig surveillance patrol (Photo — RAN).

TFF and Macchi aircraft were to take over the above-water warfare support task from July 1, 1983, and the P3 Force was to assume responsibility for, and provide, some Fleet ASW and surveillance support from July 1, 1983.

This programme would be used as the basis of detailed planning. However, phase-out timing would be dependent on:

- Developing satisfactory arrangements for transfer or redeployment of Personnel involved.
- Consideration of the use of Trackers for civil surveillance tasks.
- The providing of an alternative to the Skyhawk/Delmar/Rushion low-level target system.

Detailed plans for the implementation of the Government's decision would be developed by four defence working parties under the overall policy guidance and co-ordination of a defence central steering group.

The working parties would address specifically the areas of manpower, material, facilities and air operations.

## VIETNAMESE REFUGEE BOAT GIVEN AID BY NAVY

Seventy-four Vietnamese refugees who fled Vietnam in a 35-foot wooden boat on April 2, bound for Indonesia, were given assistance by two RAN ships in the South China sea on April 6. The destroyer tender, HMAS STALWART, and the guided missile frigate HMAS ADELAIDE, currently part of a five-ship task group on a three month deployment to Asia, encountered the refugee boat about 240 miles east of Malaysia.

A three man team from HMAS STALWART (the executive officer, medical officer and engineering officer) went by ship's boat to investigate the condition of the boat and its occupants.

The medical officer, Lieutenant Commander Andrew Marsden, checked the condition of the refugees — 32 men, 22 women and 20 children — and reported that all were in good health and no medical treatment was necessary. He reported that the youngest child on board was about two years old. About 10 children were less than three years old, and the oldest refugee was about 70.

The STALWART team reported that the boat was seaworthy and that the refugees had ample supplies of food, water and fuel. However, their compass was suspect and HMAS STALWART provided them with a working compass, together with additional food and water, sweets for the children, a navigational chart and extra fuel.

The captain of the refugee boat, who stated that their destination was Indonesia, was given directions to the nearest Indonesian island, some 110 nautical miles further south. Two hours after the encounter the Vietnamese boat headed south at five knots and HMAS STALWART and HMAS ADELAIDE continued their northward passage to Hong Kong. They later visited Korea and Japan.

## FOURTH PATROL BOAT FOR INDONESIA

The fourth Attack class patrol boat to be given to Indonesia under the Defence Co-operation Programme was handed over on May 6.

At a short ceremony in Darwin in the Indonesian Defence and Naval Attache in Australia, Colonel T D V. Situmeang, took delivery of the vessel from the Naval Officer Commanding North Australia Area, Captain C. M. G. Hole.

The patrol boat, HMAS Acute, was provided to the Indonesian Navy as part of the ongoing Defence Co-operation maritime patrol project aimed at increasing the Indonesian Government's coastal surveillance capability.

The vessel will assist three other ex-RAN Attack Class patrol boats previously provided to Indonesia to deal with smuggling, illegal entry, protection of fishing rights and search and rescue within Indonesia's archipelagic waters.

HMAS ACUTE was commissioned into the RAN in 1968. On entering service with the Indonesian Navy later this month it will be renamed KRISILEA.

## LAUNCHING OF HMAS BENDIGO

Mrs M. C. Lynam, wife of the Chief of Naval Technical Services, Rear Admiral D. F. Lynam, launched the RAN's newest patrol boat, HMAS BENDIGO, at Cairns on April 9, 1983. HMAS BENDIGO is the ninth of 15 Fremantle class.

The original HMAS BENDIGO was a corvette named after the Victorian city and built by Cockatoo Docks and Engineering Company, Sydney. Commissioned into the RAN in 1941, it served in the Pacific Ocean during World War II.

The new HMAS BENDIGO is 42 metres long, displaces 200 tonnes and has a complement of 22. It is armed with an updated Bofors 40mm gun and has a top speed of about 30 knots. HMAS BENDIGO has a patrolling range of more than 3000 nautical miles, making it ideal for surveillance tasks around the Australian coast.

## COOK TO THE WEST

The RAN oceanographic research ship HMAS COOK sailed from Sydney on Tuesday, May 3, for a round-Australia voyage. The deployment is the first for COOK since the vessel completed its post-delivery refit and trials recently. Commanded by Commander Peter Cooke-Russell, the ship will carry out geophysical and oceanographic experiments associated with the lower continental slope. The ship has embarked civilian scientific personnel for the mission — including specialists from the RAN Research Laboratory, Macquarie University, Sydney University, WA University and the WA Institute of Technology.



HMAS COOK leaving for the West (Photo — RAN).

## TWO NEW SEA KING HELICOPTERS FOR THE RAN



The Royal Australian Navy recently took delivery of two new Sea King Mk50A anti-submarine warfare (ASW) helicopters. Both aircraft were formally accepted at the Westland Helicopters Ltd plant at Yeovil, England, by the Australian Assistant Defence Adviser (Navy), Captain R. J. Whitten. The two new helicopters will supplement the RAN's existing fleet of six Sea King helicopters which are used to support the Fleet from ashore at HMAS Albatross, Nowra, NSW. Captain Whitten is pictured receiving the log book of the first Sea King for the RAN from Mr R. Stanton-Jones, Westland Group Director.



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## NEWS FROM THE WEST



Naval Dockyard Fremantle? When a South East Asia bound RAN task group visited the Port of Fremantle on March 21-23, the major west coast was amazingly devoid of merchant ships. Pictured on March 23, 1983, is the fleet oiler HMAS SUPPLY departing with (l to r) HMA Ships SWAN, TORRENS, CANBERRA, ADELAIDE and STALWART behind a small Singaporean freighter. Keeping in mind that the submarine HMAS OTWAY had already left from the berth in the foreground and that the training destroyer HMAS VAMPIRE was alongside at HMAS STIRLING along with the hydrographic survey ship HMAS MORESBY, there was a strong naval presence in Western Australia (Photo — ABPH B. Quinn).

First for Four Years. When two RAN mine warfare vessels, the mine-sweeper HMAS IBIS (1183) and the minehunter HMAS CURLEW, berthed at the HMAS STIRLING naval base on April 12, they were the first ships of this type to visit Western Australia since 1979. They sailed for northern ports on April 20 (Photo — ABPH M. Russell).



USS DRUM Arrives. The USN nuclear-powered Sturgeon class submarine USS DRUM is pictured berthing at the HMAS STIRLING naval base in Western Australia on March 31, 1983 (Photo — ABPH B. Quinn).

The French frigate FNS COMMANDANT RIVIERE pictured arriving in the Port of Fremantle in Western Australia on April 22, 1983 (Photo — ABPH E. Pittman).



## NEW JERSEY RETURNS



Port bow view of NEW JERSEY being towed by the fleet tug USS TAKELMA and civilian tug VHELLY FOSS on her way to Long Beach for refitting and reactivation (Photo — USN).



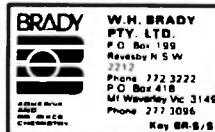
March, 1982, aerial view of NEW JERSEY in dry dock after being in "mothball" for 12 years (Photo USN).



NEW JERSEY, September, 1982, during sea trials prior to recommissioning in January, 1983 (Photo — USN).

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Sea trials in September, 1982. Note the Vulcan Phalanx guns mounted high in the superstructure (Photo — USN).



Another view of the battleship on her journey to Long Beach in July, 1981 (Photo — USN).



Starboard quarter view taken in September, 1982 (Photo — USN).

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# Let's Consider Hydrofoils

## Foreword

Since the Defence Force Development Committee has rejected any form of aircraft carrier for the RAN, it has given itself a much more difficult problem. What should our navy do to meet the requirements of our treaty commitments as well as coast defence?

The British experiences in the Falkland Islands have shown the folly of concentrating naval funding on high-priced, unarmoured, over-equipped, under-defended and slow destroyers and/or frigates. They make expensive casualties.

## Background Data

The modern destroyer and/or frigate is one of the most superb convoy and anti-submarine weapons ever developed. Equipped with appropriate electronics, adequate anti-aircraft and anti-missile defence and a few intermediate range surface to surface missiles, they perform a magnificent role as scouting and defensive vessels in a fleet mode. However, they are not now, nor have they ever been, offensive units.

The "Torpedoboat Destroyer" began its development almost as soon as Whitehead perfected the torpedo. The Perkins turbine enabled the small "coast defence" boats to increase in size to the 250 foot, 3 and 4 stackers of 1914-1918.

The diesel engine, combined with the Turbine, increased the 30 knot speeds of 1918 to 35-39 knots in 1940/41. Improved engineering techniques put the destroyers 4-in and 4.7-in "pop-guns" into turrets that could operate in seas up to Force 6 (Beaufort-12 division scale). With radar and sonar, these vessels wreaked havoc on submarines all over the world. But they were never offensive weapons.

At Port Arthur, 1905, the Japanese learned this when their torpedo boat attack proved totally ineffective. At Tsu Shima torpedo boats played no part whatever — scouting excepted.

At Jutland, 1916, the gallant British destroyers seemed totally intent on suicide. Their valiant efforts to torpedo DER FLINGER and KAISER FRIEDRICH DER GROSSE were admirable. Regrettably, they only succeeded in adding a thousand or so more casualties to the battle.

At the Coral Sea (1941) the Americans showed they had learned their lesson. Their 14 destroyers were used, along with their 6 cruisers, to defend their two aircraft carriers — not too successfully. The Japanese seem to have forgotten Tsu Shima.

Then began the missile era. This, it was thought, spelled the end of the naval mastodon — the battleship. The US retired the New Jersey. The Missouri became a museum — as did the Alabama. Bikini took care of two more and two others are still in "mothballs". In Britain, the breakers took care of Valiant. Enter the modern frigate and cruiser.

There is no need to flay this dead horse. The Falkland Islands War has clearly shown what historians already knew:

- (i) Aircraft carriers are only useful to provide aircover for an invasion. They can no more defend a fleet now than they could in 1941. They are offensive units only.

by CHARLES H. MANN

- (ii) Frigates/destroyers of the modern day must have equally as much A-A defence as they always needed. Their present offensive missile armament is no more useful now than their torpedoes were in 1940 or 1916.

Our own recent experiences with HMAS CANBERRA's propeller is only one more reason to re-evaluate our naval values.

## Criteria and Comments

From time immemorial, naval vessels have needed:

- (i) enough speed to either overtake, or escape from, an enemy vessel;
- (ii) enough armament to successfully engage a vessel of equal size;
- (iii) the ability to cruise to where they are needed and do the job required of them;
- (iv) the quality that, if lost, the loss will not be crippling to the force. This, however, does not mean that the casualties would not be felt or mourned;
- (v) a dollar cost that the nation can meet.

Unfortunately, our own newest frigates and destroyers, at 30+ knots maximum speed, cannot overtake anything. The 38-year-old USS New Jersey can attain speeds in excess of 33 knots. Many countries whose "Discount Navies" include upgraded 1944 DF class frigates have vessels capable of 35-37 knots. Argentina was one such. (The Argentine Flagship was a 35 knot, former US heavy cruiser.) But these comments also apply to the Royal Navy, the US Navy, the Russian Navy and all their allies.

Also obvious is the fact that only one relatively low cost missile, not necessarily an Exocet, can produce millions of dollars loss

and hundreds of casualties. Obsolete "Gabriel" missiles in the Israeli "Yom Kippur War" destroyed the entire Syrian Navy. Not one Syrian missile struck a target due to Israeli Electronic Counter Measures (ECM) techniques.

The Falklands action also proved that ship to ship combat did not occur. One hundred thousand dollar (each) aircraft firing twelve thousand dollar missiles, saw frigates that specialised in attack only. The A-A frigates went untouched.

Then, when lost, the fiscal cries in Parliament were loud and clear. A third rate navy had bloodied the Royal Navy's highlighted nose. Dollar for dollar, casualty for casualty, Argentina came out even. But the Royal Navy did back off out of continental aircraft range.

The above statements show only one thing. The frigates that were destroyed saved the aircraft carriers they were designed to protect. They did their duty and paid the price of the neglect from those who should have balanced the weapons aboard. The losses were victories in defence.

## One Way to Meet Our Needs

One form of economical offensive vessel is the Hydrofoil. This unique contrivance is a marvel of its age because it:

- (i) can achieve speeds that vary from a low of 8 knots (cruising speed) to 50-55 knots maximum speed.
- (ii) can carry 2-4 dual, reloadable, SAM launchers (port and starboard).
- (iii) can carry 2-port reloadable quadruple S/S (antisub) missile launchers.
- (iv) can carry a single or dual mount, robot controlled, radar ranged and aimed, rapid fire, high angle, gun turret of 75-105mm cal. These guns can fire proximity fused (Bofors type) shells.



USS TAURUS, 1961 (Photo — USN)



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USS TAURUS (Photo - USN).

- (v) can carry electronic equipment as follows:
    - (a) I-multi-purpose gun/SAM Radar controller.
    - (b) I-low level search type radar.
    - (c) I-conventional air/sea search or navigational radar.
    - (d) I-missile direction radar control unit working through a computer and item c.
    - (e) I-128 K-RAM (at least) computer with display. This tape-programmed unit can be as cheap as a Tandy, Dick Smith, Apple or even Hitachi home type. The tapes are simple to produce. Code books are no longer required.
    - (f) I-sonar - (optional extra).
    - (g) I-ship to shore radio telephone.
  - (h) electronic counter measure devices and "Jamming" equipment (optional extra).
  - (i) I-sonar jamming devices (optional extra).
  - (j) I-foil window shell projectors (optional extra).
- This is all carried in a single pod and on not more than 4 consoles in a small radio room aft of the bridge. It should be added that if a small electric generator is included the vessel could be totally air and weather conditioned, carry a home type, large freezer for rations, cook by microwave and have a 10 to 20 day range. Electric distillation can easily supply drinking and cooking water.
- Besides the above general characteristics, hydrofoil development has followed three main patterns. These are listed in Table 1.

TABLE 1: HYDROFOIL CHARACTERISTICS BY CLASS

CLASS	TYPE	MANUF BY	LOA		DISPL (Tonnes)	SPEEDS (Knots)				CREW SIZE	NAUT MILES RANGE	
			M	FT		MAX		CRUISE			Min	Cruise
						Foil	Hull	Foil	Hull			
I	Pegasus PHM	NATO Boeing Aircraft USA	35	115	39.6 to 127.2	50	25	40	8	18	500	900
II	Sparviero	NATO Italy	25	81	42.5 (empty)	50	24	42	8	10	400	1200
Helicopter Carrier — One (1) only												
III A	M 300	NATO Italy	31	102	85 to 100	37	?	36	?	10 to 15	500	?
Helicopter carrier — Two (2) only												
III-B	M-60C	NATO Italy	35	115	125 to 147	36	?	37	?	10 to 15	500	?

Most hydrofoil designs are twin screw, twin engine types capable of operating either in the foil down or foil up (Hullborne) mode. In the Hullborne mode, they are very little different from fast patrol boats. However some engineering problems must still be solved in order that the Hullborne lines and a reduced wind resistance shall be preserved.

### Alternatives and Options

The role of the Hydrofoil can, then, be one of many modes. In time of peace, the missile launchers can be removed and the vessel can be operated as a fast coast patrol or air/sea rescue vessel. In the foil down mode it can operate in seas up to, and including, force 8 or 9.

The massive potential of a hydrofoil to operate electronic surveillance equipment at either low or high speeds makes it an ideal vessel for both hydrographic surveying and small craft rescue work. Even in rough weather a foilborne vessel provides a more stable electronic operational platform than any vessel of less than Frigate size. The added potential for the mounting of a hangar and flight deck, for Helicopters, provides a vast extension of the usefulness of these amazing craft.

### Relative Costs

The cost of a hydrofoil is very little different from that of a high speed patrol vessel. The "electronic package" of either one is very much the same. Only the potential of speed and efficiency is different.

Also important is the fact that approximately 5 hydrofoils or MPB's can be procured for much less than the cost of a CANBERRA class frigate. In operation, the costs are even more reduced.

### Relative Risks

The Falkland Islands War has clearly shown that only one hit is required to destroy a frigate or a destroyer. When this happens, casualties occur. Although not confirmed, news media estimated British casualties at 25% to 30%. These estimates agree well with known loss figures of WWII and the admitted Argentine losses.

Thus, when a 3-6 million pound frigate is lost, at least 20 to 30 casualties may readily be expected. However, the loss of a single Hydrofoil, even at 100% casualties, means no more than 10-18 souls.

If the Hydrofoil were part of a 5 vessel flotilla, this rate would represent only 20% in overall terms. Therefore it is necessary to examine a problem on a simulations table in order to determine the relative risks of Hydrofoils vs Frigates supported by Aircraft Carriers.

### Simulations Test

A simple problem was envisaged. A Hermes class carrier, defended by six FFG class frigates formed a basic task force. The force was on a support mission to some destination distant from the interception point. Three flotillas of Hydrofoils were given the mission of intercept and destroy.

Thus, the Hydrofoils left their six support vessels under the protection of three A.S.W., Helicopter equipped hydrofoils 250 nautical miles from the intercept point. The support fleet was to rejoin the assault force 10 hours later. The 15 assault vessels were to proceed, at 50 knots, to the attack. The "enemy" was assumed to be armed as follows:



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- (i) Aircraft Carrier:
  - (a) 14, GP assault aircraft (operational range: 500 nautical miles)
  - (b) 4, GP Helicopters (operational range: 200 nautical miles)
  - (c) 4, twin, SAM Launchers (2-forward and 2-aft).
- (ii) The Frigates:
  - (a) 2, Robot operated, radar ranged, computer controlled, 75mm, rapid fire single gun, turret.
  - (b) 2, twin, reloadable s/s missile launchers (Midships, aft).
  - (c) 6, twin reloadable SAM Launchers (2 midships, 2 forward, 2 aft).
  - (d) ASW equipment — not specified nor part of the simulation.
- (iii) All vessels carry "Scafox" or equivalent decoy systems.

The task force speed was assumed to be 30 knots.

The Hydrofoils were assumed to be supported by aerial observations from a Hercules type aircraft which took no active part in the problem. Discovery of the Hydrofoil force was assumed to be at 200 nautical miles by local patrol aircraft from the task force.

In form one of the problem, the task force sent its 14 strike aircraft against the Hydrofoils. The air attack was to be followed by an s/s missile attack with intermediate range missiles.

The defence was:

- (a) 60 — SAM's against the aircraft.
- (b) 60 — SAM's against the 12 s/s missiles.
- (c) Gunfire when anything ranged in.

The SSM types were assumed to have a range of 120 nautical miles and velocity of Mach 3 (maximum time of flight = 3.5 minutes). A second try presumed the speed to be Mach 1.5 and time of flight 6.10 minutes (maximum). Test 3 assumed a 1.0 Mach speed and flight time = 9.6 minutes (maximum). No specific missile type was noted but all missiles used a Radar/infra-red homing device of some sort.

The aircraft, in each instance, attacked at a range of about 150 nautical miles. The Hydrofoils fired SAM's at 10 miles range in 2 shots of 30 missiles each. Each salvo was separated by 30 seconds of time.

In each test 50% of the aircraft were destroyed in the first salvo and a similar percentage in the second salvo. Of the four aircraft remaining, the following results were recorded:

- Test 1 — all turned back.
- Test 2 and 3 — all attacked.



**HMS SPEEDY (Photo — RN).**

In Test 2, four Hydrofoils were destroyed by aircraft missiles and the AA fire from the guns was ineffective. In Test 3, 2 aircraft were shot down and 3 vessels destroyed.

Following the air attack, the task force fired intermediate range missiles at a range of 100 nautical miles. The assault force defended with SAM's and gunfire. The Task Force could fire 24 such missiles in the time element allowed.

In condition 1, the defence fired 2 salvos of 30 SAM's which destroyed 7 missiles at 20 nautical miles and 10 more at 10 nautical miles. At a range of 7 km (4 nautical miles) gunfire hit 3 more and 4 Hydrofoils were destroyed.

The remaining 11 hydrofoils fired 8 salvos of 22 SSM's /salvo. Each salvo was separated by 30 seconds time.

The task force defended in a manner similar to that of the Hydrofoils. However four frigates were destroyed. The carrier sustained 3 hits and eventually burned and sank. The two frigates on the off-side escaped. The Hydrofoils turned back at 50 nautical miles and returned to rendezvous.

In Tests 2 and 3, the task force lost 4 frigates. The carrier (in Test 2), though damaged, was saved. In Test 3, the carrier was again destroyed. In each instance 2 frigates (on the off side) escaped. In Tests 2 and 3, 8 Hydrofoils were destroyed in each test.

Had there been active air support for the Hydrofoil assault force, it is believed that the losses might have been reduced. However, because the battle was assumed to have occurred at approximately 1000 nautical miles from land, land based aircraft using auxiliary tanks might have been an interesting consideration. This was not tested.

## Test Summary

What the board simulation showed quite clearly is:

- (i) Frigates, as presently armed, are vulnerable to high speed, hit and run, assaults.
- (ii) Small or "pocket" aircraft carriers are not good assault weapons. (An unrecorded test using 50 aircraft, wiped out the Hydrofoil assault force.)
- (iii) Given proper and sufficient defence equipment, ships need not fear the missile. They only need fear naval architects who believe their own side's propaganda.

But regardless of all else, why not give the Hydrofoil a thought? It could prove an interesting speculation.



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# Out of the Past

## Cruisers of the World

by MICHAEL BURGESS

### KAISERIN & KONIGIN MARIA THERESIA

The Austro-Hungarian Navy's executive committee had by the early 1890s seen the high value placed by other navies on the powerful armoured cruiser able to perform some battleship roles and accordingly shopped around in Britain for a builder for such a vessel. However, in the end the construction of this vessel was assigned to their own yard STT (Stabilimento Tecnico Triestino).

K & K MARIA THERESIA was originally designated as "Torpedo Ram Cruiser C" with an armament of 5.9 in and 47mm guns. However during construction it was changed to 2 x 9.5 in, 8 x 5.9 in plus sundry smaller. During a 1909/10 rebuilding the main armament was again changed to 2 x 7.5 in.

Launched in 1893, the vessel had a somewhat uninspiring career, being based on Sebenico from 1914 to 1916. She was disarmed and decommissioned in 1917 to serve as an accommodation ship for German U boat crews. Her guns were used on the Italian front. Finally she was ceded to Britain under war reparations in 1920 and broken up in Italy.

### ASKOLD

Readily recognised by her five tall stacks, ASKOLD was considered the fastest of the larger Russian cruisers to serve in WW I. Early in that war she served in the Mediterranean where the accompanying photograph was taken, but later she transferred to the White Sea where she remained when the Revolution took place.

Taken over about that time by the British and renamed Glory IV, she was possibly the only Russian warship to serve in the British Navy. She was scrapped in 1921.

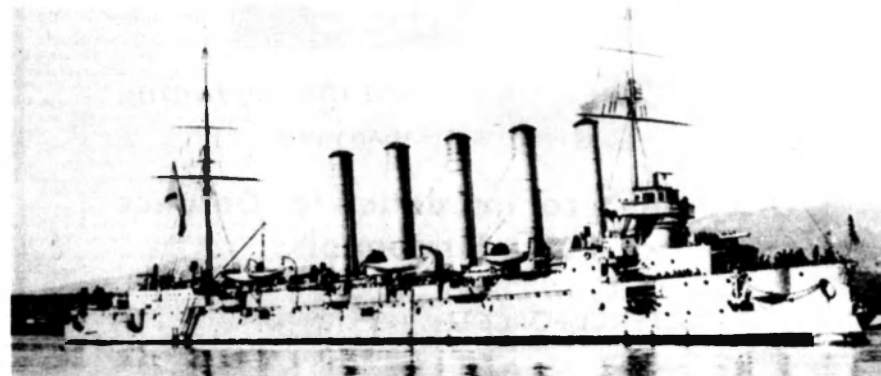


D'ENTRECASTEAUX (Photo — BMS Photo Library)

### D'ENTRECASTEAUX

No one could mistake this interesting-looking vessel for anything but French. The plough bow, not to be confused with a ram bow, was most distinctive. Quite powerful, with a main armament of 9.4 in guns, she was nevertheless still an "old" design because she was sheathed with wood. To combat heat her magazines were equipped with a cooling system.

D'ENTRECASTEAUX does not appear to have excelled herself during WW I, possibly because, like many French vessels of her period she was obsolescent by the time she was completed in 1899. She was given to Belgium as a training ship post-war, but handed back to France on the suppression of the Belgian Navy. In 1927 she was acquired by Poland and renamed KRAI. WLADISLAW IV. She served Poland first as a training ship and then as a hulk until she was scrapped c1935.



ASKOLD (Photo — BMS Photo Library)



KAISERIN and KONIGIN MARIA THERESIA (Photo — BMS Photo Library)

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# PITTWATER TORPEDO RANGE

Story and photos by ROSS GILLETT

**WHEN** it comes to continuous service the Royal Australian Navy's torpedo maintenance firing range in the Pittwater, north of Sydney has reached a milestone.

This year the establishment celebrates forty years since construction first began, just after the commencement of the Pacific war. Although the torpedo range was originally manned by 60 men, nowadays only eleven, including the officer-in-charge, Lieutenant Bruce Vandenpeere are in attendance.

The main role of the range was and still remains, to test practice torpedoes so that they can be placed away into storage for possible future use. The duties of retrieving the torpedoes or "fish" are they are normally known as performed by locals Angus MacInnes, Lloyd Watts and Eric Bush who man the torpedo recovery boat BINCLEAVES.

When originally completed the range boasted five tubes for torpedo firings but now only one is in use. The torpedoes are brought from RANTME at North Sydney and off loaded onto a small railway system employing a small electric truck on a 2 1/4 foot gauge. The railway runs the full length of the 700 foot wharf into the firing point building where the "fish" is offloaded into the tube.



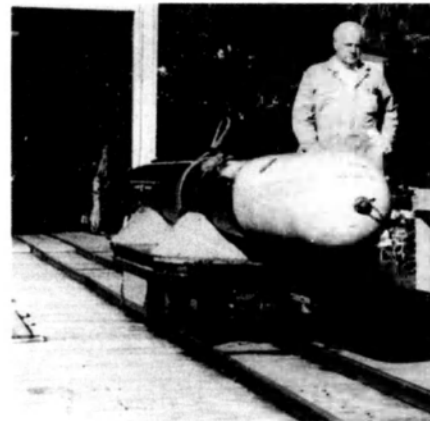
BINCLEAVES.

Most of the current test firings are performed with Mk 8 torpedoes. This pattern will continue well into the late 1980s.

At Pittwater they're quite proud of the establishment and its mini fleet, especially the flagship, BINCLEAVES. Like the range, BINCLEAVES is approaching forty years of valuable service to the Navy and the community. In recent years the fleet has been called upon to assist private boats in distress within the Pittwater and adjoining waterways. BINCLEAVES is immaculately maintained by her crew, who see the boat as a necessity during all the test firings. Most of the men at the range are all long-time employees and all live locally.

As well as its main torpedo functions, the range also provides facilities for naval clearance divers from HMAS PENGUIN in Middle Harbour and a venue for diving courses for both Australian and foreign naval personnel. Every year the diving tenders HMAS PORPOISE and HMAS SEAL make separate visits for periods required by the divers.

The RAN Torpedo Range in the Pittwater is still providing an important service to the defence of the nation just as it has done for the last forty years.



The railway track and torpedo.



Returning to base. Note the torpedo secured alongside.

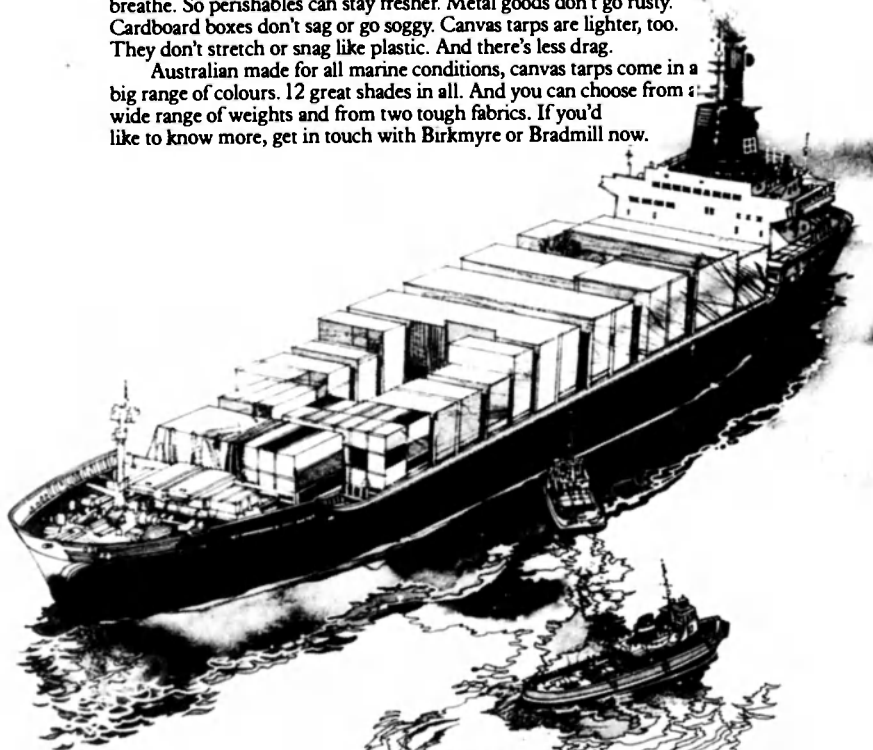


Retrieving the torpedo.

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## PATROL BOAT

— New Series

RELIANCE and Oberon class submarine.

Lieutenant David Keating has received a promotion and a new command in the second series of the ABC-TV's popular television drama *Patrol Boat*.

When HMAS AMBUSH is assigned to the Naval Reserves and its crew posted to other duties, Keating is promoted to Lieutenant Commander and Commanding Officer of HMAS Defiance, one of the Royal Australian Navy's new Fremantle Class patrol boats.

With him are his Executive Officer, Lieutenant Charles Fisher, the swain, Petty Officer Bill Reynolds and Able Seaman Bruno Bonelli, better known to Patrol Boat viewers as "Ethnic".

Four of the original cast return to the new thirteen 50 minute series: Andrew McFarlane and Robert Coleby as Keating and Fisher, Rob Baxter as the swain and Nick Magasic as "Ethnic".

Heading the new cast are Mervyn Drake as the buffer, Petty Officer Peter Brown and Matthew Crosby as the navigator, Sub-Lieutenant Rob Matthews.

*Patrol Boat* was again made with the full co-operation of the Royal Australian Navy, the vital surveillance and search and rescue work, carried out by its patrol boat crews providing most of the action for the series.

*Patrol Boat* was filmed on location in and around Cairns, Newcastle and Sydney; namely HMAS WATSON, PENGUIN and WATERHEN, the Army's Royal School of Artillery and the ABC's studios at French's Forest.

### HMAS DEFIANCE

The big new "star" of ABC-TV's second series of *Patrol Boat* is HMAS DEFIANCE,

one of the Royal Australian Navy's new Fremantle Class patrol boats.

DEFIANCE is a much larger and faster vessel than HMAS AMBUSH, the Attack Class used in the original series.

She can accommodate a ship's company of three officers and 19 crew and averages a speed of over 28 knots.

Built at North Queensland Engineers and Agents in Cairns, the Fremantle Class patrol boats have a displacement of 220 tonnes, are 42 metres in length and have main propulsion of two MTU 538 Series 16 cylinder diesels and auxiliary propulsion of one Dorman 12 cylinder diesel.

Armament includes a 40/60mm Bofors General Purpose Gun, 81 mm mortar and 2 x 0.5 in Browning Machine Guns.

DEFIANCE is also fitted with the most up-to-date electronic equipment including a Satellite Navigation system which enables the ship's position to be determined with great accuracy during patrols of Australia's 200-mile Economic Resources Zone.

### BIOGRAPHIES of the Principal Stars

#### ANDREW MCFARLANE:

Andrew graduated from NIDA in 1973 and immediately joined the regular cast of Crawford Productions' Division 4 where he remained for 12 months. Then followed Behind the Legend and Certain Women, both for ABC-TV. Case for the Defence for Grundy's and The Sullivans in which he starred as the older son, John for 16 months. Such was the popularity of John's character in the television series that Crawford's made a telemovie, The John Sullivan Story. Then came Andrew's first appearance in *Patrol Boat* as Lt David Keating. He has also appeared in ABC-TV's award-winning drama series 1915. Andrew's

stage credits include *The Club*, *The Day After the Affair*, in which he co-starred with Deborah Kerr, and *Cyrano De Bergerac*. His film credits include *Break of Day*, Walt Disney Productions' *Harness Fever* and *Doctors* and *Nurses*.

#### ROBERT COLEBY:

Robert trained at the Central School of Speech and Dramatic Art in London and had already accumulated an impressive list of television credits by the time he arrived here in 1975. These included *Pollyanna*, *Hamlet*, *Black Beauty*, *New Scotland Yard*, *The Persuaders*, *John Halifax Gentleman*, *King Lear* and *Quiller*. His first Australian role was that of Billy in ABC-TV's award winning series *Rush*. Then came *Chopper Squad* and *Young Doctors* for Grundy Productions and Peter Weir's telemovie *The Plumber* which also starred Judy Morris and Ivar Kants. Robert's other credits on ABC-TV include the first series of *Patrol Boat*, the teleplay *Coralie Landowne Says No*, *TimeLapse*, *The Levkas Man* and *Sporting Chance*. Since then he has appeared in *Bellamy*, *Cop Shop* and the mini series, *For the Term of His Natural Life*. Robert's stage credits include the leads in the Sydney Theatre Company's production of *Ivanov* and *Whose Life Is It Anyway?*. His film credits include *Mia*, *The Last Run*, *A Woman in a Lizard Skin*, *Motoway File* and *Now And Forever* which co-stars former *Charles*' Angel Cheryl Ladd and Rod Mullinar. *Now And Forever* is due for release in Australian cinemas in June.

### THE EPISODES

#### 1. Something Old, Something New

When HMAS AMBUSH is relegated to the Reserves, Lt David Keating is promoted to Lt Commander and CO of the new Fremantle Class patrol boat HMAS DEFIANCE where he finds his new XO and crew intent on living up to the ship's name. Meanwhile Lt Charles Fisher, his eyes set on a command of his own, heads off to navigation school where he proves a model student. However a wrong berthing could thwart his plans.

#### 2. Tango Victor

HMAS DEFIANCE is involved in a joint exercise which sees Lt Commander David Keating in a battle of wits with Major Winn, leader of one of the Army's crack commando units. To further complicate the issue, Keating has lost radio contact with his shore party led by his navigator, Sub Lt Rob Matthews. Matthews is having his own private war game, the chief protagonists being the rebellious Able Seaman Vince Walsh and the sadistic Winn who makes it clear from the outset that he believes in playing it rough.



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3. **Nice Day for a Cruise**  
When HMAS DEFIANCÉ calls into Humbolt Bay it gives Keating and Fisher the opportunity to renew acquaintance with Mairon Helen Wylie at the bush hospital. The nurses and patrol boat crew also see it as an ideal opportunity for some fun but suspected bird smugglers and a meddling padre manage to mar most of their planned activities.

4. **Hands to Barke**  
Able Seaman Stan Letich faces a Board of Inquiry following a shooting incident which leaves Keith Dalton, a popular member of the DEFIANCÉ crew, critically wounded. However it is the attitude of the ship's company towards Letich, rather than the possible outcome of the hearing, that gives both him and Keating cause for concern.

5. **Cold Turkey**  
The captain of a captured Taiwanese fishing trawler poses a problem for the Navy when he slips moorings and escapes custody. For the crew of HMAS DEFIANCÉ, the escape means the cancellation of all shore leave and the officers' romantic turkey dinner. The only person unconcerned is Rob Mathews' wife, Judy, who has been looking after a young Taiwanese lad found aboard the vessel when it was first apprehended.

6. **Spells of War**  
HMAS DEFIANCÉ's visit to the Queensland 'army' town of Townsville brings out the age-old rivalry between the two services. After some extravagant souveniring on both sides, the men decide to settle their differences with a



Manning the 50 calibre machine gun.

"friendly" rugby match, the winner taking all the "spoils of war."

7. **All The Nice Girls**  
David Keating appears to have the upper hand as he and Charles Fisher continue to vie for the attention of pretty Anne Kelso, but not for long. Laura Yuill, one of Keating's former girlfriends, is coming to Cairns especially to see him.

8. **Make and Mend**  
When HMAS DEFIANCÉ goes on the slips for repairs after a near disaster at sea, Lt Fisher

decides to organise a rigorous keep fit campaign. But his scheme backfires in a friendly swimming competition with Able Seaman Ray Kirk. The crew are jubilant with the result but their exhilaration turns to dissension when Kirk refuses to accept his trophy.

9. **Operation Christmas**  
The crew of DEFIANCÉ is anxious to pass its Operational Readiness Evaluation so they can spend Christmas in Cairns, but any chance of a festive season is dashed when a yacht, suspected of being involved in a bird smuggling racket, is found drifting in the exercise area.

10. **The Albatross**  
After HMAS DEFIANCÉ answers a distress signal from lone sailor Monty Griffin, Lt Fisher takes a personal interest in the old man. However, the new-found friendship is resented by Monty's daughter who accuses Fisher of interference; of encouraging the old man to kill himself. Griffin also is inadvertently affecting the lives of Walshie and Cans, but only because unscheduled searches for missing yachts are interfering with their romantic ventures.

11. **Par for the Course**  
A dose of food poisoning lands David Keating in the Port Annabel Bush Hospital, much to the chagrin of everyone — Keating, Jill Wilkinson, the sister-in-charge and the townspeople. At first Keating ignores Jill's abrupt manner, but the presence of a healthy young Vietnamese woman in the hospital and the attitude of the local fishing co-op arouses Keating's suspicions. Back on DEFIANCÉ the crew is learning that it is not wise to harass the ship's chef when they are miles away from land and a fast-food outlet.

12. **A Skunk on the Radar**  
While on patrol in the Bass Strait, HMAS DEFIANCÉ's radio operator Neil Evans receives distressing news that his wife has been arrested in Sydney on a charge of possession of drugs. At the same time Keating receives a report of radar contact in a restricted area around one of the rigs and a 24-hour strike by the Maritime Union leaves DEFIANCÉ as the only available crafts in the immediate area to investigate the situation.

13. **Beggar Man, Thief**  
During a brief stop-over in Sydney Charles Fisher renews his relationship with Laura Yuill and there is talk of a wedding. Meanwhile Neil Evans has to face up to the reality that his marriage is over and the rest of the crew has to face the fact that one of them is a thief.



The gun crew aboard RELIANCE.

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# CONVOYS

## — History, Formation and Operation

By Captain H. G. CHESTERMAN, MBE, DSC, RD, RNR (Ret'd)

**T**HE CONVOY system has been in use for hundreds of years although the earliest recorded were in the 12th Century. Originally a convoy comprised a group of armed merchant ships sailing in company for mutual protection against corsairs, pirates or privateers.

During the Revolutionary and Napoleonic wars against France losses of British merchant shipping were so immense that no British ship was allowed to sail out of convoy and the owners and masters of those attempting to do so were liable to a fine of £100.

The first Australian convoys would have been around the middle of last century when ships gathered at the Home Islands in far north Queensland and sailed in company through Torres Strait mutually protecting each other against attacks by the Torres Strait Islanders.

Unfortunately the tragic lessons learned at such enormous cost in ships, lives and material during each successive war are invariably forgotten between the wars and have to be re-learned at even greater cost. During the First World War introduction of the convoy system was delayed until 1917, a delay that very nearly lost the war for the allies. It had been argued that to mass ships in convoy would bring large numbers of vulnerable targets close together thus inviting heavy losses. In fact so great was the destruction of merchant shipping by German U-boats that Britain was brought to the verge of starvation. The introduction of the convoy system gave immediate relief with losses falling to a negligible number.

Although defence of merchant shipping has always been one of the navy's principal roles it was unpopular with naval officers who much preferred the glamour of fleet actions. Young officers passing for lieutenant applied to specialise in gunnery, torpedoes, signals, submarines or fleet air arm; they certainly didn't want the dull unexciting work of herding lumbering merchantmen across the oceans, that mundane job could be safely left to the Reserves. This of course resulted in the less talented officers being pushed into anti-submarine duties for which they had little enthusiasm. Fortunately there were a few brilliant retired officers who returned for war service and played a vital role in the eventual defeat of the U-boats in 1943, men such as Stephenson, Walker and Roberts. Yet history shows that many of the greatest sea battles were fought for the protection of convoys. The Spanish Armada of 1588 was fought against the escort for a Spanish invasion convoy waiting to be escorted across the English Channel. Grenville in the "Revenge" was one of Howard's fleet sent to attack a Spanish treasure-ship convoy. The Glorious First of June was against a French fleet escorting a convoy, and some of us still remember the great battles of the Mediterranean convoys to Malta.

A convoy in modern terms is one or more merchant ships sailing in company to the same

general destination under the protection of one or more naval vessels. The size and composition of each convoy varies according to the situation. The size is limited to what can be conveniently handled both at sea and at the ports of destination, and the formation is designed to get the maximum number of ships past a given point in the shortest possible time with the smallest front and the least number of escorts. Past experience in the Atlantic has shown that 40 to 50 ships in eight or nine columns is the most efficient convoy formation. Special convoys such as troop or fast tanker convoys have slightly different formations.

A convoy escort comprises the close escort group and when necessary a support group and/or a covering force together with land based or carrier borne aircraft. The screening formation of escorts varies considerably according to conditions and the type of attack expected. For example, to protect against conventional submarines with a relatively low submerged speed the rear of a convoy need be only lightly screened and the van reinforced. Against air attack a circular screen is probably the best with the eastern vector reinforced in the early morning and the western vector in the late afternoon — airmen like to attack out of the sun. When attack is expected from heavy surface units the covering force is placed to intercept any such attack before it reaches the convoy. A support group operates outside the close escort and air patrols vary according to the threat. The tactics of convoy protection are extremely complex and is a veritable battle of wits; with the advent of nuclear powered submarines it will be even more complex.

One essential of successful convoy protection is well trained, well coordinated and well led escort groups. Students of World War II convoy battles soon realise that where we had severe losses the escort group concerned was invariably a motley collection of escorts hastily thrown together, unused to each other and not well led; but where we had great success inflicting heavy loss on the enemy with little or no loss to the convoy the escort group in that case had trained together, worked well together with complete trust, and were well led.

### Convoys in World War II

Although the convoy system was practically world-wide people tend to think mainly of convoys crossing the Atlantic, to North Russia, and in the Mediterranean. Thanks to the small number of operational U-boats in 1939 (about 30) sinkings, especially in convoys, were relatively light and created a false sense of security; but the U-boat building programme was seriously under-estimated. To make matters

worse the claim by Bomber Command that they could contain the building programme by bombing the shipyards and mining the training areas was believed. It is now a matter of history that the bombers rarely hit their targets often being as much as 25 miles in error.

For the first 18 months of the war flotilla vessels were incorrectly used hunting U-boats in the vast areas of the ocean under the guise of offensive sweeps. This resulted in convoy escorts being weakened and convoys suffering unnecessary losses while the hunting groups achieved virtually no success. The defensive strategy of letting the enemy come to the reinforced convoy escort was belatedly introduced with an immediate reduction in losses of merchant ships and a corresponding increase in U-boats destroyed. In other words, look for the enemy where he will be, looking for his target — the convoy.

The following quote is from the Official History of the War at Sea:

"In September, 1939, the whole problem had been reviewed by a committee appointed to report to the Admiralty on various aspects of the maritime war; it's Chairman, Vice-Admiral Sir T. H. Binney, expressed the view 'that the best position for anti-submarine vessels is in company with a convoy', and recommended 'that, for the present, every anti-submarine vessel with sufficiently good sea keeping qualities should be employed with convoys rather than dispersed in hunting units'. This report was endorsed by the Vice-Chief of Naval Staff not only expressing his complete agreement but also stating, 'this is the principle adopted'. Yet a study of the anti-submarine operations by the flotilla vessels of the Western Approaches Command in particular shows that at this time many flotillas were employed on hunting for U-boats instead of escorting convoys. That there should have been so wide a difference of opinion on so fundamental a matter is surprising, as is the fact that no clear direction regarding the policy to be followed was issued by the Admiralty to the commands chiefly concerned. Not the least important lesson to be learnt from a study of the early months of the U-boat war is that the enemy would be most easily found in the vicinity of the quarry which he was seeking, that his purpose could best be frustrated by protecting the quarry as strongly as possible and that escorting convoys would therefore produce abundant opportunities for a vigorous offensive against the enemy — once he had shown himself." End of quote.

Aircraft were first used to supplement the work of flotilla vessels but later, much later, played a decisive role in defeating the U-boats; Coastal Command was very much the Cinderella to Bomber and Fighter Commands and suffered accordingly. Fighter aircraft did play an important part in the defence of coastal and Mediterranean convoys and did some good work shooting down or driving off long range reconnaissance aircraft homing U-boat packs on to convoys.





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Early in 1941 Admiral Donitz introduced wolf-pack attacks and we were caught completely unprepared; we had neither the tactical nor technical counter-measures. The wolf-pack attack was conducted by a group of U-boats attacking on the surface at night trimmed down to give a very low silhouette yet maintaining a high surface speed, in other words they became high speed submersibles. Active was useless against surface vessels so the escorts were little more than minor physical barriers relying on visual sighting. The U-boats had little trouble entering a convoy and men like Prien and Krichmer carefully selected their targets. If sighted they dived and escaped in the disturbed water of the convoy wakes.

In June and July, 1941, Mr S. M. Bruce, the accredited representative of the Australian Government in the War Cabinet repeatedly warned of the shortage of maritime aircraft. In August that year he said the Chiefs of Staff were supplying inadequate data for Cabinet to reach a decision, and that it appeared they were providing the bare minimum of aircraft for maritime purposes and experience had shown that most U-boats were destroyed in the vicinity of convoys, very few by air-raids on shipyards. His urging led to the formation of the Cabinet Anti U-boat Warfare Committee with Cabinet Status.

Bomber Command, however, steadfastly refused to transfer long range aircraft to Coastal Command and the convoys suffered accordingly. In the escort force we considered Bomber Command almost as great an enemy as the U-boats. The generous Americans came to our aid in November with the loan of 30 long range Liberators and these immediately proved their worth.

The North Atlantic trade routes were granted a reprieve early in 1942 when America

entered the war. In spite of having complete access to all available information through the American Mission at the Admiralty they were surprisingly slow at putting our experience into practice. The convoy system was not introduced and the cities and towns along the Atlantic seaboard remained fully lighted. A large number of U-boats left the North Atlantic for the happy hunting ground along the American coast where ships sailing independently and silhouetted against the coastal towns' lights were easy targets.

We could not stand by and watch this wholesale destruction and Admiral Noble, C-in-C Western Approaches recommended to the Admiralty that experienced British Escort Groups be loaned to the Americans, so once again Atlantic convoy escorts were weakened. By mid-1942 the situation on the American coast had improved considerably and most of the U-boats returned to the North Atlantic where pack attacks resumed in earnest. In six months the Allies had lost 3½ million tons of shipping.

The battle raged fiercely for the next six months with appalling losses, but new equipment was coming into service. The essential requirements were, more long range aircraft, high frequency radar to detect surfaced U-boats, HF/DF to detect and locate the initial sighting U-boat, and Support Groups — especially those with escort aircraft carriers. Early in 1943 these requirements were being met and there ensued several fierce and protracted battles with the escorts gradually gaining the upper hand.

In May of that year two highly successful escort actions caused Admiral Donitz's staff to complain despondently that, "the enemy holds all the trump cards. Far reaching air cover using location methods against which we have

no warning enabled our convoys to avoid their concentrations, the air menace has curtailed the mobility of the U-boats. The enemy knows all our secrets and we know none of theirs." The U-boats were temporarily withdrawn from the Atlantic and the long, costly, hard fought battle was, to all intents and purposes, over.

What of the future? There have been many changes in the past forty years, particularly in weaponry, we have submarines with high underwater speed and long underwater endurance, missile and anti-missile missiles, improved homing or guided torpedoes, and helicopters. It is to be hoped the hard won lessons of the past will not be forgotten, but alas, all the signs of forgetfulness are in evidence today. This country of ours has a coastline of some forty-thousand kilometres yet we have but one squadron of land based maritime aircraft, and many people claim we don't need a mobile airfield, ie an aircraft carrier. The suggestion that several extra small escort or patrol vessels are more effective than carrier borne aircraft is as dangerously stupid today as it was proved to be in 1941. The nuclear powered submarine is a threat that must not be ignored. If we are to survive, the lessons of the past must not be forgotten.

#### FOOTNOTE:

Allied merchant ship losses — North Atlantic.  
1939 47 ships 249,195 tons  
1940 349 ships 1,805,494 tons  
1941 496 ships 2,421,700 tons  
1942 1006 ships 5,471,222 tons  
1943 284 ships 1,654,379 tons  
1944 31 ships 175,013 tons  
1945 19 ships 122,729 tons  
Total 2232 ships of 11,899,732 tons 55%  
Total allied losses all theatres all causes, 5,150 ships of 21,570,720 tons.

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# THE ROYAL NAVY IN 1983

by ANTONY PRESTON\*



HMS SHEFFIELD on fire, May 4, 1982 (Photo — Royal Navy).

**A**FTER THE TRAUMA of 1981, events in the Falklands might seem almost an anticlimax — massive cuts in the surface fleet, followed by full mobilisation, followed by restoration of much of what had been threatened the year before.

That would be an absurdly over-simplified view of what has happened to the Royal Navy since 1981. And yet it contains a grain of truth. The frigate programme, which was to be cut back at the seventh or eighth Broadsword class, now stands at 13 units, with a promised 12 Type 23s to be built. The first of the long-awaited trawler-minesweepers are ordered, as well as the first of a new small GRP minehunter to supplement the big MCMVs. HMS Invincible, as we know, is not to be sold to the Royal Australian Navy either, and more Sea Harriers and Sea Kings are to be ordered.

On the credit side Operation "Corporate" gave a convincing demonstration of the value of mobility. Sometimes soldiers talk as if "amphibiousness" is a mystique invented by the Royal Marines to justify their existence, but the brilliant success at San Carlos could not have been achieved without a high degree of planning. It is not enough to talk about commandeering shipping in an emergency; yet again we have proof that amphibious warfare doctrines have to be practised constantly.

The Sea Harrier also proved itself in combat, not only in inflicting casualties out of all proportion to its numbers, but in its reliability. The Fleet Air Arm claims that the aircraft were available 80 per cent of the time, a staggering total. However, we should not forget that geography and technology played their part in that victory. The position of the islands was just far enough from the coast of Argentina to put the Mirages and Skyhawks at a disadvantage, and flying one-to-one the Sea Harrier pilots had the benefit of the AIM-9L version of the Sidewinder air-to-air missile, with its all-aspect homing head.

The sale of HMS INVINCIBLE to the RAN would have crippled the Fleet Air Arm, for in effect two carriers would have been axed, rather than one. The plan was to run two Air Groups, in ILLUSTRIOUS and ARK ROYAL, but inevitably one or other would have to be docked for maintenance, reducing the RN to one carrier as often as not. Under post-Falklands plans there will still only be two Air Groups, but one carrier will come out of reserve as a relief. Orders for 14 more Sea Harriers have been placed, with another nine planned, to provide adequate numbers for

training and to allow for attrition. A total of eight AEW Sea Kings are planned, three for each Air Group and two in reserve. These ungainly conversions, with a gigantic starboard-side "dustbin" carrying the Searchwater radar, are only an interim solution to the crucial AEW problem. Whatever else has to be sorted out, the lack of Airborne Early Warning radar can be held responsible for most of the losses to air attack in the Falklands. British Aerospace and the radar manufacturers are investigating the feasibility of an AEW Sea Harrier. Present thinking is for a conformal radar array in the nose, with large drop-tanks to give sufficient endurance, but for the moment it remains no more than a drawing-board concept.

Apart from the carriers HERMES and INVINCIBLE, the ships which acquitted themselves best were undoubtedly the big Type 22 ASW frigates BROADSWORD and BRILLIANT. The Sea Wolf point-defence system functioned extremely well, the combination of Lynx helicopters and Sea Skua missiles provided a useful additional strike capability, and above all they proved more than man enough to cope with the weather conditions. Their elaborate communications fit allowed them to act as fighter-direction ships during the fierce air-sea battles of May 21-30.

It is hardly surprising, therefore, to learn that the four frigates and DDGs sunk are to be replaced by four Type 22s, making 13 in all. They are, however, to be of two distinct types. The basic Batch 1 Type 22 hull has been lengthened and broadened to form Batch 2, of which the BOXER and BEAVER have already been launched. Two more, BRAVE and LONDON (ex-BLOODHOUND) are already under construction, and one more is to be built, to be called SHEFFIELD. The name COVENTRY is to be given to the lead-ship of Batch 3. These four will have the same hull as Batch 2, but their weaponry is greatly improved. They will have a 4.5 inch gun, eight new anti-ship missiles (Harpoon, Sea Eagle or the MM-40 version of Exocet) and three point defence systems, possibly Sea Guard or Goalkeeper. The remaining three ships of the class will have "C" names.

The next class of surface warship, the Type 23, has been the subject of some controversy, but largely because its role has not been made clear. The 1981 Defence White Paper talked of abolishing "long refits" and building "short-life" hulls with greater appeal to export customers. This, it turns out, was a smokescreen to hide the fact that refits of the Batch 3 LEANDER class frigates had proved too expensive — HMS ANDROMEDA's conversion is reputed to have cost £75 million. The conversion of these frigates was to give them the Type 216 long-range passive sonar, the new towed array (Type 2031 or 2038) and the Sea Wolf point-defence missile system, as well as four MM-38 Exocet missiles. To

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use the towed array it is necessary to eliminate much more radiated noise than ever before, and much of the money spent on the Batch 3 LEANDER conversions went on a total re-arrangement of the machinery installation to quieten it.

The Type 23, therefore, is being built as a towed array platform, not as an export frigate, although commercial practices have been used in hull-construction to speed and simplify building. Their main propulsion will be the new Rolls-Royce Marine Spey gas turbine, but with an additional diesel-electric unit for silent running when the towed array is being used. Current plans are to build a dozen ships, all at Yarrow's Scotscoun yard, and they will have "D" names, probably starting with DARING.

Going from surface to sub-surface warships, the first of the new TRAFALGAR class nuclear hunter-killer boats is now at sea; her sister TURBULENT is well advanced, and four more are building or projected. On a surfaced displacement of 4500 tonnes she is armed with 21 inch Spearfish wire-guided torpedoes (at present finishing their development and starting production for delivery early in 1985) and Sub-Harpoon anti-ship missiles. The basic design is similar to the previous SWIFTSURE class, but to achieve greater quietness they have been given a pump-jet unit instead of the conventional seven-bladed propeller. This implies some loss of speed, probably no more than two knots, but the tactical advantages of quiet running far outweigh the extra speed.

Although some years ago the Royal Navy announced that it would go "all-nuclear" in submarines, there has been growing pressure to bring back the conventional diesel-electric boat or SSK. They are much better suited to surveillance and inshore operations than the SSNs, and of course they provide training at much less cost. Starting in June, the UPHOLDER will be the first of the Type 2400 or "Midnight" boats. The hull-form is similar to the SWIFTSURE class SSNs, but roughly a third smaller. The armament is similar to the SSNs', a total of 18 Spearfish torpedoes and Sub-Harpoon missiles. A dozen boats are planned, and they will replace the OBERON class from 1988 onwards.

The mine threat in the Falklands was met by converting five commercial trawlers and sending down two of the new BRECON class GRP mine countermeasures vessels. They swept Port Stanley Harbour and found two fields under somewhat trying conditions. It is ironic, that steel-hulled trawlers have made a comeback after 30 years; their main task is to



QUEEN ELIZABETH II with helicopter platforms (Photo — Royal Navy).

Sea Harrier FRS 1 on HMS HERMES; HM Ships BROADSWORD and INVINCIBLE in the background (Photo — Royal Navy).

sweep deep-laid mines in submarine barriers. The first four of a new class have been ordered, and they will be given River names. To supplement the dozen BRECON class MCMVs a new class of 37 metre GRP minehunters have also been ordered. To distinguish them from the hunter/sweeper MCMVs they are designated single-role minehunters.

The future of the Royal Navy's amphibious warfare forces seems secure for the moment, as the sale of the LPHs FEARLESS and INTREPID has been shelved (particularly the offer of INTREPID to Argentina). The Falklands operations showed up a serious lack of ships capable of moving troops, and it was decided last year to charter or buy a vehicle and passenger ferry. The Danish ferry ENGLAND was looked at but discarded when she was discovered to be only a "one-compartment" ship, and in her place the ST EDMUND was bought for £27 million. Under her new name HMS KEREN she has set sail for the Falklands under a civilian crew.

Although the second of the two LSLs damaged at Bluff Cove, RFA SIR TRISTRAM is still afloat in Port Stanley harbour, it is unlikely that she will ever be repaired. Two Ro-Ro ferries, the Norwegian GREY MASTER and the Canadian LAKESPAN ONTARIO have been chartered, and under their new names SIR CARADOC and SIR LAMORAK are already in service.

After the successful conversion of the container ships ATLANTIC CONVEYOR and ATLANTIC CAUSEWAY for war service much thought is being given to the adaptation of mercantile hulls, particularly as auxiliary aircraft carriers. The loss of the ATLANTIC CONVEYOR should not distract attention from the useful role which she played as a "spare deck" for Sea Harriers and Sea King helicopters, while her sister operated an anti-submarine group of four Sea Kings. The lesson which does emerge is that high-value merchant ships must have some minimal form of defence; even an outfit of chaff-launchers might have been enough to save the CONVEYOR.

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Admiralty to install stiffening, to permit guns to be mounted in wartime, a practice which continued until the early 1950s. There is a case for something similar to be revived today, for merchant ships are under threat in other places besides the Falklands — the Arabian Gulf, for example. The weapons exist and the containerised fit is a reality, so all that needs to be done is to carry out a conversion. The US Navy and the Royal Navy have talked for a long time about the "Arapaho Project", to convert a bulk carrier into an auxiliary helicopter carrier, or even a Harrier carrier, with a light ski-jump. Perhaps last year's experience will hurry the project along.

On the weapons side things look better than they have done. Although the Improved Sea Dart (GWS.31) programme was cancelled the various improvements will probably now be retrofitted to the existing GWS.30 system. It remains to be seen what anti-ship missile will follow the MM.38 Exocet, but clearly the longer-ranged MM.40 variant is a strong contender as it would require minimal changes to the below-decks equipment. The RAF's Nimrods are still using the Harpoon anti-ship missiles acquired last year, so the purchase of the ship-launched version would complement them and the submarines' Sub-Harpoons. A third contender is the PST, a canister-launched version of the new airborne Sea Eagle, which would give the RN a third-generation missile with greater resistance to countermeasures.

The 20mm Vulcan Phalanx was bought last year to equip first HMS ILLUSTRIOUS and then her sister INVINCIBLE when she returned from the Falklands, but the third ship, ARK ROYAL will have a different close-in defensive gun system. Hot contenders are the Oerlikon-Contraves Sea Guard, for which the British Plessey company has already developed a missile-detecting radar, or the Dutch Goalkeeper, which uses a different gun. Each of the new Coventry class frigates will have three of these weapons, and a decision is expected this year.

The Sea Skua lightweight anti-ship missile performed well, despite having been rushed into action before trials were completed. It gives the frigates and DDGs more punch against light surface forces, enabling helicopters to engage targets some way away from the ship.

The Royal Navy's radars are in urgent need of replacement. The long-range air-search radar, Type 965, is simply unable to cope with high-speed, low-flying targets, and the target-indicating Type 9920 radar also needs replacement. Both were to be replaced by the Type 1030 Surveillance and Target-Indicating Radar (STIR) but this was cancelled.



HMS BROADSWORD on her way to the South Atlantic, April, 1982, passing HMS HERMES (Photo — Royal Navy).

The so-called Interim STIR, Type 1022, performed very well in action, and a new competition is to be held for a successor. This time, instead of designing a radar solely to meet the Navy's specification, industry has been asked to submit proposals to match a set of requirements, and the competition is open to overseas companies.

The Royal Navy is not out of the wood yet, for it is only a matter of time before the politicians try to cut back once more. But if the Falklands proved anything, it is that the cuts in naval strength must be matched against cuts in the Navy's commitments. If there is no commitment to send a Task Force 8000 miles to the South Atlantic, or to any other part of the world, then the amphibious ships can all be scrapped, but not otherwise.

\*NAVAL EDITOR, DEFENCE

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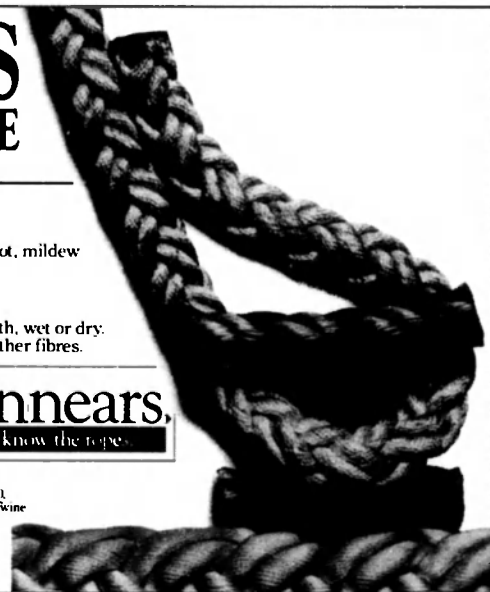
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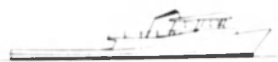
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# THE SERVICES RECONNAISSANCE DEPARTMENT

Most Australians are familiar  
with the exploits of the now  
famous KRAIT, which took  
eleven Australian and three  
British Servicemen from  
Exmouth Gulf to Singapore.

Six men in three canoes entered the Harbour  
and attached limpet mines to enemy vessels,  
sinking some 40,000 tons of Japanese shipping.  
KRAIT was the former Japanese fish carrier  
KOHFUKU MARU which was captured by  
HMAS GOULBURN on December 11, 1941.  
All who have seen her will realise just how  
small she was to undertake this perilous  
Operation Jaywick.

Services Reconnaissance Department (SRD)  
was formed in January, 1944, to carry out  
various missions behind enemy lines. Personnel  
comprised officers and men from the RAN,  
RN, AIF, as well as British and New Zealand  
Army. KRAIT was attached to SRD from its  
inception whilst the 62' ALATNA was  
commissioned on February 2, 1944. Another  
raid was planned on Singapore code named  
Operation Rimau. Eighteen Australian and  
five British personnel were involved under the  
command of Lt Col Ivan Lyons of the Gordon  
Highlanders who had conceived the idea of  
Operation Jaywick. This was to be carried out  
in one man submersibles, known as Sleeping  
Beauties (SBs). Training was carried out at the  
SRD base at Careening Bay on Garden Island,  
WA. Fifteen SBs had been brought out from  
the UK where Lt Col Lyons had carried out  
tests in a prototype. These craft were 3.8m  
long, 66cm wide, weighed 226 kg and had a  
speed of 3.1 knots. They were powered by a  
24v motor and also carried a sail of parachute

by PETER ARMSTRONG

silk as well as a paddle. A magnetic clamp was  
used to hold the SB against the intended victim  
whilst limpets were attached. The operator sat  
in it like a kayak and wore a wet suit. These  
SBs differed considerably from the human tor-  
pedoes where the operators sat astride them.  
Training was particularly strenuous as it took  
considerable time to become used to the  
clammy death suits as the wet suits were called.  
Whilst the whole operation was supposed to be  
secret, one SB surfaced beside HMAS  
ADEL AIDE during training.

Ten SBs were loaded into the mine space of  
HM Submarine PORPOISE which left  
Fremantle on September 11, 1944. On the night  
of September 29/30, 1944, a 100 ton junk  
MUSTIKA was captured, the SBs and stores  
loaded aboard her whilst the crew were taken  
aboard PORPOISE. The junk was to be used  
to get within reach of Singapore. On the  
afternoon of the night planned for the attack  
the junk was challenged by a Malay Police  
Boat Patrol, resulting in a fight causing  
casualties to both sides. As all secrecy was lost  
it was decided, after disengagement, to scuttle  
MUSTIKA so that the SBs would not be  
captured. The plan then was to make for the  
rendezvous Merapuh Island, some 40 miles SE  
of Singapore in the folboats (folding canoes)  
but when HM Submarine TANTALUS called at  
the Island, no trace of the party could be  
found. Of the twenty-three involved in the  
operation, nine were killed in action, one died  
of malaria, three were missing and the  
remaining ten were beheaded by the Japanese  
on July 7, 1945. Three of the men had paddled  
and sailed from Singapore to just north of  
Timor where two were killed and the other  
captured and later beheaded.

Early in 1944, four of the many 66' trawler  
type hulls that were building for the Army were  
taken over by SRD whilst Gray Marine diesel  
engines were obtained from the United States  
Navy. These engines were of the type that had  
proved successful in US landing barges.

On March 27, 1944, an allocation of £2000  
(\$4000) was approved over the contract price of  
each of these vessels to allow for the necessary  
modification for SRD use. Plans were already  
in motion to have the ships, designated  
Country Craft, rigged as native vessels of a  
type all too familiar in the then Dutch East  
Indies.

On May 28, 1944, ACNB decided that all  
SRD vessels, with the exception of 40' work  
boats be commissioned as HMA ships, with  
naval officers and naval crews, as far as poss-  
ible. This was not always practicable because  
of a severe shortage of personnel experienced  
with various engines. KRAIT was the first  
SRD vessel commissioned which was done at  
Darwin on April 5, 1944. Lt W.K. Witt, RANR,  
commanding. This officer was subsequently  
bought to Melbourne to supervise the fitting  
out and trials of the four vessels that were  
building at the Williamstown Yard of J. J.  
Savage and Sons. HMAS TIGER SNAKE was  
the first of the class launched (June, 1944) and  
was commissioned on August 22, with the  
above officer in command. This vessel was  
rated as 78 tons, 70' x 13' x 7½' with a speed of  
9½ knots. The balance were rated at 80 tons,  
66' x 17' x 7½' with a speed of 10 knots. All

were of exceptionally heavy construction and  
carried two single Oerlikon. The author  
has seen a photograph of TIGER SNAKE that  
shows a twin mount of a heavy machine gun.  
Total complement was nine.

The ship sailed from Melbourne on Septem-  
ber 7, 1944, for Fremantle via Adelaide.  
Further trials and camouflaging were carried  
out at Fremantle where it was found the vessel  
handled very well under junk rig, notwith-  
standing the lack of information of such rig.  
Modifications were made which proved valu-  
able in other vessels of the class.



HMAS TIGER SNAKE at Marudi, Borneo,  
on July 20, 1945  
(Photo - AWM Neg No 114177).

HMAS BLACK SNAKE was commissioned  
on December 30, 1944 and sailed from Mel-  
bourne on January 2, 1945, to Morotai, where  
she arrived on April 12. Various tasks were  
allotted her such as carrying stores and fuel to  
US PT Boats to enable them to remain in  
enemy waters instead of them having to return  
to base to restore and refuel. Operatives were  
landed at points to carry out tasks such as  
blowing up Japanese installations, to contact  
friendly agents and to arrange surveillance of  
an area with a view to future landings there.

HMAS SEA SNAKE was launched at  
Williamstown on January 18, 1945. She was  
engineered with a Hercules diesel and rigged as a  
Lombo Keitch, which type of vessel is very  
common in the Celebes, Lesser Sundas and  
Moluccas. This vessel had a range of 2500  
miles, very considerable for her size and like  
her sisters had space for 20 tons of cargo.

During this period SRD personnel were  
augmented by the arrival of several groups  
from the RN, all of whom were experienced,  
with some members being trained SB  
operators. A number of parties of Naval  
Auxiliary Patrol (NAP) were transferred to  
SRD, where their small craft knowledge was  
useful.

Two of the Country Class had been ordered  
from the West Australian shipbuilding yard of



HMAS TIGER SNAKE, February 4, 1945  
(Photo - RAN)



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Millars-Bunning, these were HMAS RIVER SNAKE AND GRASS SNAKE. The former was commissioned on February 17, 1945, and the latter on April 23.

In December, 1944, the RAN captured a Chinese junk "BANDOENG" off the north-west coast of Australia. After she had apparently been blown off course. After repairs, refit and re-engining she was commissioned as HMAS TAI PAN on August 14, 1945. The lugger HEATHER, under requisition to the RAN, was temporarily released to SRD and a photograph shows her armed with a single machine gun on a mount at the bow. Another lugger SWALLOW was acquired by SRD in March, 1945, for use as a training vessel. For some considerable time SRD had been trying to acquire Fairmiles on MTB's but requests to the RN, RAN and USN had been unsuccessful. However the heavily armed HMS EDWARD (MFV2046) arrived at Fremantle from the Mediterranean on January 17, 1945. After refit she proceeded to Balikpapan, via ports, where she was used as a mothership to the smaller units. Three 62' fast supply vessels (similar to ALATNA but with improvements and refinements) were attached to SRD. These were KARINA (commissioned November 27, 1944), NYANJE (commissioned July 6 (or 10), 1945) and MISIMA (commissioned August 2, 1945).

Three of the wooden 300 ton motor cargo vessels (sister ships to HMAS WOOMERA) were allocated to SRD. These were ANACONDA (launched as AV1369 LEGUNTA at Hobart on October 4, 1944) and MOTHER SNAKE (launched as AV1354 MURCHISON at Fremantle on December 5, 1944). AV1358 GREENOUGH was launched at Fremantle on July 15, 1945 and was fitted out for SRD at the end of the war and was not used by the Unit. Considerable trouble was experienced with the caulking in ANACONDA, resulting in delays in Sydney and after arrival at Morotai, her only operation was carrying part of the occupation force 59 Ambo. Upon return to Morotai this vessel was still experiencing trouble with caulking, mainly as a result of green timber being used. She was subsequently towed to Townsville by HMAS QUIBERON and after repair there, to Newcastle by HMAS LISMORE. After disposal, this vessel saw considerable commercial service, finally sinking off the New Zealand coast on June 23, 1967.

MOTHER SNAKE commissioned on June 30, 1945, with Lt R. T. Patterson in command of the total complement of 19. She carried a workshop in the forepart of her hold and unlike the rest of the class, had only single derricks, no doubt for the lifting of heavy engine spares for the smaller craft, a number of which were having machinery problems. She was armed with two single Oerlikons on the forecassle and a Bofors on the boarddeck. Her main task was to act as mothership to the smaller vessels but she played other roles. One was being part of the convoy to Sandakan to release the Allied POW's held there. Two of her crew were the first RAN personnel landing there, having gone ashore upriver in the LCV that MOTHER SNAKE often towed to enable landings to be made. This was before the surrender had been accepted.

On a lighter side the ship played host to members of 200 Squadron, who did a lot of SRD drops and pick-ups of operatives, by taking them on a picnic to a peaceful tropical island. The vessel paid off at Labuan on November 3, 1945 and the crew embarked on an LST for transport to Australia. This was not to be as they were offloaded at Morotai where they stayed for several months. MOTHER SNAKE was handed over to British Borneo Civil Administration Unit.

She later became KINA BATANGAN owned by North Borneo Shipping Company who later sold her to A. B. Donald Ltd of Rarotonga who renamed her CHARLOTTE DONALD. Her end came when she struck a rock in the Marquesas and sank, either on January 31 or February 2, 1963.

As a Service Vessel she carried various cargoes, including Sleeping Beauties, foetuses and quite often deck cargoes of drums of aviation fuel.



KRAIT on the Brisbane River (Photo — RAN).

By the end of the war SRD had grown to a force of some 1500 men and had been in various operations apart from Jaywick and Rimau. Early in the Pacific war a party was landed in Timor which area later became the focus of attention for Commandos.

Five phases of Operation AGAS were carried out in coastal Borneo and also Labuan, Operation SEMUT consisted of four groups landing in inland Borneo, both British and Dutch, as well as Sarawak. Considerable casualties were inflicted on the enemy by both SRD and the native guerrilla forces they had raised.

The political operation Opossum was the release of the Sultan of Ternate and his family. The Sultan was the ruler of Northern Halmahera, including Morotai. After landing from a US PT Boat, the eight SRD personnel achieved their object, regrettably with the loss of two Australian lives.

At the cessation of hostilities a further 66 footer was building at Melbourne. This vessel, CORAL SNAKE, was the subject of a Disposal Commission Auction, where she raised £5,200 (\$10,400). A newspaper report of the auction states that this class cost £80,000 (\$160,000) each. As the writer has the costing figures on the 300 ton vessels, this is doubted.

Two other vessels not required were the 85' wooden cargo vessel NAMBA and the 200 ton steel motor vessel TARNEIT.

Numerous craft were transferred to BBCAU mainly to be used to carry urgently needed supplies around the coast of Borneo.

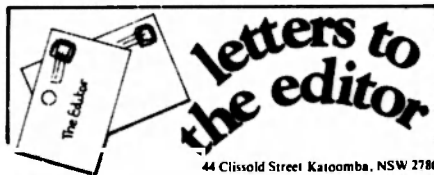
TIGER SNAKE was one vessel so involved with a crew of seven natives, with an Australian supercargo, she carried mainly rice and medical supplies both of which were in short supply in many coastal areas. This shortage was in fact a direct result of SRD activities in getting the inland peoples to withhold supplies as the enemy were concentrated along the coast until after the Allied landings. Only then did they attempt to withdraw to a point in inland Northern Borneo, only to suffer considerable losses from SRD and their native guerrillas.

NOTE: Various sources say 15 SBS were used in Rimau. This was the number brought out from the UK and as 5 were scuttled off Rottnest, this appears to make my 10 the correct figure. Two SBS were carried by British submarine to west coast of Malaya (ex Trincomalee) but were not SRD.



HMS EDUARDO (Photo — RAN).





44 Clissold Street Katoomba, NSW 2780  
Phone: (047) 82 1402

Dear Mr Gillett,

The Honorary Secretary of the Navy League of Australia, NSW Division, LCDR Tyson, has suggested that I write to you as one of a number of possible sources of information on Capt W. W. Beale, OBE (Mil).

Capt Beale was one of the men instrumental in the founding of the Australian Air League in 1934, and as I am researching the background of the League's founders as part of a project to write a history of our organisation's first 50 years of operation, I am seeking information on him.

At the time, Capt Beale was associated with the Navy League, and from information available, Navy League principles appeared to shape the early concepts of the Air League's formation. His rank as Captain, however, could have been an Army one.

It seems likely that the Air League's originator, George H. T. Robey, knew Beale, as both lived in the Manly area, and he probably sought Beale's assistance in the formation of the new youth organisation.

The Air League set up an office in the Royal Exchange Building, at 54a Pitt Street, which, apparently, was also Navy League headquarters. The Navy League's then Hon Secretary (NSW Branch), Commander F. W. Hixon, became the Air League's first President, and Beale himself became the Air League's first General Secretary for a short time.

Beale does not appear to have been associated with the Air League for too long a period, and we therefore know very little about him.

Hopefully, you, or your readers, through the pages of "The Navy" magazine, might be able to add to our limited store of information.

His addresses in 1934 were: Private, Greycliffe Street, Queenscliff; Business, Navy League, Royal Exchange, Sydney.

If you choose to publish this letter, then any information provided by readers can be forwarded to the address below, and will be greatly appreciated. All contributions will, of course, be suitably acknowledged in any subsequent publication.

In addition, any ex-member of the Air League who may read this letter is asked to contact the undersigned, as we need as many sources of information and personal experiences as possible.

Yours faithfully,

G. J. SADLER  
Chairman, History Sub-Committee

33 Cornell Street Burwood, Vic 3125  
April 12, 1983

Dear Sir,

I read with interest the article "The Return of the Big Gun to Blue Water" in which the author advances arguments for the construction of BBLs using the presumably surplus anti-turrets from "IOWA" class battleships. A comparison is then made with the "ROBERTS" class monitors of 1941.

The comparison with the monitors is apt for it is only as a monitor that the BBLs would seem to have any merit although argument could be put that the USN has more pressing needs than reliving the past. When the USN abandoned the MK71 8"/55 MCLWG in 1979 it became clear that the development of new shore bombardment weapons or platforms would not proceed. If a shore bombardment requirement became urgent then it seems reasonable that either an "IOWA" class battleship or a re-activated "DES MOINES" class BB cruiser (of which there are two laid up at Philadelphia) would be used. So a monitor requirement for the BBL seems unlikely enough to preclude their construction for that purpose.

If the monitor role is unlikely then the "ship to ship contest" role is quite fanciful. The author wants us to believe that the raison d'être for the BBL is its armament yet describes the hull as "semi-expendable". What happens to the armament when the hull is expended? Does it fly home for a new hull? On the one hand it is suggested that the "remainder of the vessel is largely conventional" yet on the other hand we are wooed with promises of "Newer armouring techniques involving ceramics and plastics could impart protective qualities that were unknown in the days of purely hard-faced conventional steel armour". Hardly conventional!

To the best of my knowledge the only armour of ceramic is Chobham armour (although we only suspect it is ceramic — its actual composition being unclassified). This AFV armour was developed to defeat kinetic energy rounds (eg APDS) HEAT and HESH rounds fired in anti-tank engagements. No one has suggested that it is suitable for ships. Plastic armour is even more dubious. Some authors such as Friedman have suggested that Kevlar might be useful for preventing fragment damage to wave guides, etc, but not to defeat SSMs or conventional semi-armour piercing rounds.

In passing it might be worth suggesting that the best way to defeat (but not necessarily destroy) a modern warship is by exerting massive over-pressure to crush and mutilate sensors (eg radar aerials, etc) and waveguides. Such massive over-pressures as produced by fuel/air explosives can rival nuclear explosions in energy density (energy per square metre). A warship so blinded is of no tactical value. In such a scenario armour is of no relevance.

Finally the suggestion that nothing in the Soviet Fleet could survive a duel with a BBL is probably true but it is hard to imagine that even an extremely dull Soviet captain would loiter to engage a 22 knot BBL with guns. A "Sovremenny" class cruiser, for example, capable of an estimated 34 knots would simply out-run, stand-off and engage with SS-N-23s!

Perhaps "Shtandart" (who's he?) is having us on. Up the Yuzhny Bug in a breakers' yard at Nikolayev is Q turret from Otkhazkaya — Revolutia. Now on 10,000 tons with some armour and a few SA-N-4s...

Yours faithfully, PETER FARR

In replying to Mr Farr's letter, it should be re-emphasised that the Light Battleship (BBL) concept is, at this stage, little more than a proposal and therefore its entire specification profile is, beyond the main armament fit, open to debate.

Having said that, Mr Farr, in attempting to refute the entire raison d'être of the BBL, would appear to have inflicted upon his own argument almost as many holes as he imagines he sees in the BBL itself.

At the risk of seeming to be repetitious, Mr Farr, in his second paragraph at least, seems to have missed the point of the exercise entirely. When the 8-inch MCLWG failed to materialise beyond the experimental stage (mainly, presumably, through lack of funds) this left a gap in the 8-inch format; assuming for the moment that such a gap was perceived to exist. Quite correctly, Mr Farr states that the only 8-inch mounts left afloat in the US Navy are those nine barrels installed aboard each of the two remaining "Des Moines" — class CA's in three triple mounts. The third unit, "Newport News", has been scrapped. The US Navy has already completed a report which was instigated to study the possibility of reactivating the remaining CA's "Salem" and "Des Moines", both of which have been laid up for more than 20 years.

The report predictably concluded that these units would be useful only "as additional mobilisation resources". They could not carry anything like the same missile armament as the reactivated BB's without severe displacement problems, neither is their armour protection and compartmentalisation as comprehensive as that of the larger ships. They also have less gunfire capability and require crews almost as large. In addition it is questionable whether, at this point of their lives, the hulls of the heavy cruisers have as much potential durability as those of the BB's. Thus the Navy has little or no interest in bringing these ships back into service in the light of the current five-year programme.

Therefore, since at least three out of the remaining four "Iowa" class BB's are returning to service, the following points can be made:

- (1) Phase 2 (if carried out) of the BB reactivation programme will leave possibly three virtually as-new 16-inch complete mounts spare and therefore under-utilised.
  - (2) They may therefore be (a) scrapped, (b) set aside for use as spare equipment for the BB's already returned to commission or (c) returned to sea in the manner under discussion.
  - (3) The two remaining CA's are not likely to return to sea for the foreseeable future.
  - (4) More often than not, it took longer to construct the main armament of a BB than it took to build the hull from the keel up. The classic example here is that of the first "modern" battleship HMS "Dreadnought" of 1906. From keel-laying to completion was only 366 days. She was designed for and fitted with ten 12-inch rifles in five twin turrets. This rate of construction unequalled (especially for a prototype) before or since that time, was achieved only by re-allocating four turrets intended for HMS's "Lord Nelson" and "Agamemnon" (two each) whose completion was, therefore, delayed.
- It logically follows that the spare 16-inch turrets of the "Iowa" class BB's could be cost-effectively put to sea in a suitably strengthened new hull of proven and simple form

utilising uncomplicated diesel propulsion and already proven technology for ancillary equipment, electronics and defence mechanisms. In material/cost terms, such a vessel (main armament included) could indeed be considered as "expendable" under specific circumstances and conditions of risk.

Now to other details. Non-steel armour has been in use since the Second World War when the bridges, etc, of some LST's and CVL's were fitted with experimental examples with varying degrees of success. Aluminium armour, so far, has met with only qualified approval as a ship protectant. A single "Shrike" anti-radiation ASM accidentally released by a USN F-4 "Phantom" during the Vietnam conflict performed as designed and destroyed the principal antennae aboard a DDG of the USN. An interesting technical report of this incident stated that for every single fragment of the missile's warhead, the ship's aluminium structure behaved in such a way as to produce two additional equally damaging fragments. Further research indicated even then that non-metallic armour would not have produced this effect.

New technology in armour protection is proliferating at an astounding rate and, to take but one example, more refined versions of "Kevlar" have exhibited remarkable new qualities. The US pattern steel helmet, some forty years old, is about to be replaced by a helmet made of "Kevlar".

To suggest that material such as this or similar cannot find use as an armouring agent for ships is pessimistic to say the least. Just as it has, probably, not been tried as mass protection medium on an ocean-going hull, who is to say that it could not find employment in this form in the near future? "Chobham" armour is already a principal ingredient in the hull of the new British "Challenger" Main Battle Tank (MBT) and its possible Soviet MBT equivalent, the T-80, also incorporates what is presumed to be a Soviet variant of "Chobham" armour in its construction.

Prior comments on aerial vulnerability notwithstanding, new developments in fixed arms are making naval vessels far less vulnerable to over-pressure assaults than previously was the case. In purely structural terms, even reactivated nuclear blasts cannot be guaranteed to destroy a heavily constructed and armoured warship unless, of course, she is too close to the point of detonation. For example, the First World War BB USS "Nevada" survived not one but two such blasts at Bikini Atoll. After the first blast, she surfaced not only upright but with most of her superstructure intact albeit heavily damaged. She was still afloat after the

second explosion whereupon she was towed back to Pearl Harbour and later disposed of as a target; finally succumbing only after multiple strikes by torpedoes, bombs and shells.

Fuel/Air Explosives (FAE) are not really suitable for anti-ship use. Whilst being an excellent expedient for denying the enemy cover by mass destruction; the critical fuel/air mix must be detonated within a fixed time span, otherwise the explosive will degrade or dissipate because of destruction; the critical fuel/air mix must be detonated within a fixed time span, otherwise the explosive will degrade or dissipate because of unexpected wind or breezes. Finally, a fast-moving ship could move out of the critical area unless detonation occurs almost immediately. Even though it would represent gross mis-use of such a weapon, the 15,000 pound BLU-82/B GP bomb would do the job better, creating in excess of 1,000 psi over-pressure which is almost 700 psi better than most FAE agents. However both these weapons are "free-fall" devices and the aircraft which lays them invites its own destruction by an alert ship which would be hard-put to miss such a close target.

"Harpoon", "Exocet" and similar provenly effective missiles in the NATO arsenal are effective to the horizon and beyond without assistance other than that which might be provided by the launching platform whether the missile is the air or surface-launched variety. Some of the extremely long-ranged Soviet missiles require mid-course correction by an accompanying aircraft. Such a ship could be rather vulnerable, other weapons aside, if such assistance was not available at a critical moment.

In closing, if a 12-inch triple turret from a "Gangut" class BB does indeed exist in a Soviet yard, I see no reason why it might not yet be utilised in a fashion similar to the proposed BBL's. We are talking about a nation which put T-34 tank turrets aboard specially constructed armoured launches for inland waterway use during the Second World War.

The Soviets have a disconcerting habit of successfully adopting into service concepts and hardware that many Western pundits have dismissed as being either moribund or outmoded. The possibility of a new Soviet CVN coming into service when many Western carriers are being scrapped is but one example. Who would have thought that any nation in this age would put into service a surface warship of the size of the "Kirov" that is not an aircraft carrier? Finally, there is the gigantic "Typhoon" class SSBN's. When weaponry, let alone anything else, is concerned, the Soviet Union is full of little surprises. I for one have learned to expect anything from them; most of it rather nasty.

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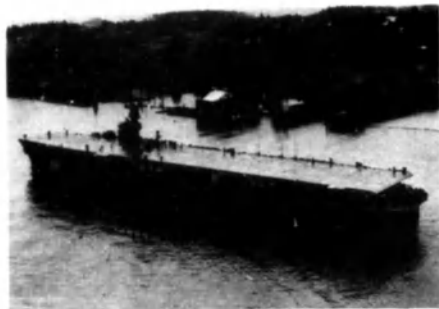
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# Warship Pictorial

## THE ESCORT CARRIERS

(All photographs USN, courtesy A. D. BAKER III.)



Aerial view of the USS KULA GULF, a Commencement Bay class CVE, on May 23, 1945. Between 1965 and 1970 the ship was re-activated as an aircraft ferry for the Military Sea Transport Service for helicopter transport missions to Vietnam.



Built as a tanker, SWANEE was converted to an escort carrier.



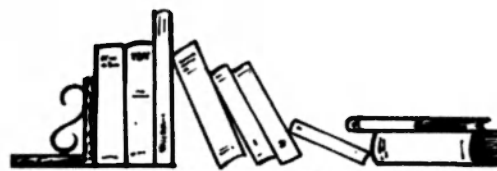
Launching of CVE 121, RABAU, at Portland Oregon on July 21, 1945. Completed and delivered but never commissioned. Not broken up until 1972.



HMS REAPER ex USS WINJAH, October 14, 1944, a Bogue class CVE, probably on her delivery voyage to the Royal Navy. Returned to USN in May, 1946.



USS WAKE ISLAND, after refitting at the Norfolk Navy Yard. Photo taken November 9, 1944. Broken up in 1960.



## "CRUISERS OF THE WORLD 1873-1981"

By: MICHAEL BURGESS  
Published By: Burgess Media Services  
PO Box 2131, Wellington, NZ  
Price: \$11.50

REVIEWED BY: GAYUNDAH

Within this compact 128 page volume Mr Burgess has presented 115 of the most unusual and famous cruisers of the period since 1873. Most nations are represented at least once, some like the RN and USN a great deal more. The RAN also rates a mention through the light cruiser BRISBANE (I) and heavy cruiser AUSTRALIA (II).

The book is primarily a pictorial history supported by the all important ships' data. Varying lengths of general notes highlight other aspects of the ships and/or their careers. Reproduction of all the photographs has been successfully achieved through the use of high grade glossy paper. All photographs are individually captioned, most are dated and all properly accredited.

It is here that the author's persistence in writing to dozens of foreign shipbuilders and navies for cruiser photos has paid dividends; the result a remarkable collection of photographs.

Since receiving "Cruisers of the World" I have taken much time to study the book and can justly recommend it to the naval book buying public.

As regards any notable errors I can find only one. The Greek cruiser AVEROFF was not scrapped in 1945, in fact she survives to this day as a relic 70 years after first commissioning.

A final word from the author: "Cruisers of the World 1873-1981" covers a representative selection from HMS SHAH of 1873 to the Russian KIROV of 1981. It does not presume to be the definitive work, but is intended to show photographically the development of the cruiser from sail and steam to nuclear propulsion".

Highly recommended.

## "JANES NAVAL REVIEW"

Edited by:  
CAPT J. MOORE, RN  
Published by:  
Janes Publishing Co Ltd  
Price: \$22.50

REVIEWED BY: GAYUNDAH

Formerly known as "Janes Naval Annual" and now in its second issue, this publication is a collection of articles prepared by notable naval writers, including Admiral Thomas B. Hayward, USN, John F. Lehman Jr, Secretary of the USN and Captain Frans de Bloec van Kuffeler, RNN.

The articles range in scope far and wide, from the lessons of naval warfare in the Falklands to the use of airships in the naval role. The book spans 160 pages and is well illustrated with a wide selection of photographs from both sides of the "iron curtain". There is no misapprehension about who the enemy is likely to be, the growth of Soviet naval power in recent years is supported by many tables and photographs.

Special attention is also devoted to regional maritime developments, including the Indian Ocean, Australasia, NATO, Japan, China and Latin America. The 22 articles provide the reader with an excellent insight into naval policy both recent and future.

The attack aircraft carriers are not forgotten in "The Case for the Big Carriers" by Admiral Hayward, the former Chief of US Naval Operations. Maybe someone in the new Federal Government should read the piece?

A professionally produced book. Recommended.

## BALTIC EPISODE

By Captain A. W. AGAR, VC  
Published by:  
Conway Maritime Press

Three very topical subjects — the British Intelligence Service, the Royal Navy and the Victoria Cross — combine in Baltic Episode, Captain Agar's personal account of the exploits of a Royal Navy Coastal Motor Boat flotilla in Bolshevik Russia in 1919. Dispatched initially to organise the rescue of the mysterious "ST25", an important British agent, the flotilla ran agents to and from the heart of Leningrad, past the formidable fortress and naval base of Kronstadt.

This is a real life adventure story, 264 pages, culminating in Captain Agar's sinking the Bolshevik cruiser Oleg single-handed, for which he was awarded the Victoria Cross. As a tale of bravery, it is unsurpassed, but it also offers a fascinating glimpse of the Baltic at a turning point in its history. In this respect the book goes a long way towards explaining current Soviet attitudes to the West.

## "BRITAIN'S MARITIME HERITAGE"

By ROBERT SIMPER  
Published by:  
David & Charles, Brunel House, Newton Abbot, Devon, England  
Available in Australia through Australia & New Zealand Book Co Pty Ltd  
Price: \$29.95

REVIEWED BY: VIC JEFFERY

We are all very much aware of the rich maritime history of Britain and its influence on world affairs over the last four centuries.

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## BOOK REVIEW

maritime writer Robert Simper has skillfully compressed these four centuries into 392 pages.

This book is basically divided into two parts. The first includes nine chapters describing all aspects of this proud heritage and includes the following subjects: Britannia's Shield; Exploration of the Sea; Sail Supreme; The Coastal Trade; Passenger Travel and International Trade; Luck at the Fishing; Changing Designs and Achievements; The Shipbuilders and Harbours and Docklands.

The second part of the book is a Gazetteer of historic sites and monuments around the fascinating and history drenched British coast — harbours, maritime museums, warehouses and preserved vessels.

Forty-nine counties and islands are listed in the Gazetteer and they cover 329 ports, fishing villages, small coastal towns, coves, tourist attractions, resorts and estuaries.

Profusely illustrated with eight colour and 123 black and white photographs including full page and double spreads the book also contains eight pages of line drawings and silhouettes.

Some of the photographs are truly fascinating. One that comes readily to mind is the wooden man-of-war HMS ROYAL OAK becoming an "ironclad" with the encasing of the hull by sheets of metal at Chatham in 1862.

Others include a full page colour photo of HMS INVINCIBLE, the launching of her sister ship HMS ARK ROYAL in 1981 and an 1860 photo of the first ironclad HMS WARRIOR on the Thames. Today 123 years later HMS WARRIOR is refitting at West Hartlepool.

The book covers a wide spectrum ranging from the early voyages of Cook and Drake up to the present day North Sea Oil Exploration platforms and missile-age Royal Navy.

Worthy of inclusion on any sea lover's bookshelf. Recommended.

## "WARSHIP"

Edited by:  
JOHN ROBERTS  
Published by:  
Conway Maritime Press

REVIEWED BY: "GAYUNDAH"

Warship No 25 marks the beginning of the journal's seventh year in print.

In this 72 page issue the articles range in interest from a technical piece on Russian cruiser ASKOLD, known as the "packet of Woodbines" because of her five tall thin funnels, to the M class submarine monitors and the new naval Rarden gun developed for use as a close-in weapon system.

Issue No 26 features an interesting piece on the South Australian, later RAN, cruiser PROTECTOR, plus the background to the recent salvage of HOLLAND I, the RN's first submarine. The best photos in the issue depict the aircraft carrier CAMPANIA in the process of sinking after her collision in the North Sea a few days before the Armistice.



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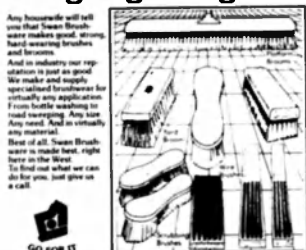
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# What's with Wellington?



HMNZS WELLINGTON (Photo — RNZN).

HMNZS WELLINGTON commenced her major refit on January 10, 1983. A formidable main defect list, a supplementary defect list and a large package of alteration and addition items will keep all sections and departments of the Dockyard busy throughout the two year period.

A walk through the ship reveals that all mess decks have been stripped of bunks, lockers, fittings, and furniture has been removed from cabins, racks and shelves from stores and offices. The main galley and officers' galley are now empty of all machinery and fittings as are the dining halls, sick bay, serveries, bathrooms and heads. Deck coverings have been removed throughout the ship and the bare steel decks are being surveyed for defects.

The 4.5" gun mounting and variable depth sonar with associated winch and equipment has been removed. The VDS is to be overhauled and retained as a spare for HMNZS SOUTHLAND. The structure vacated by the VDS will be reconstructed to provide additional storage space to replace those compartments consumed by the progression of other alterations, such as the provision of additional diesel fuel tanks.

The A/S Mortar Mk10 equipment is to be removed and the flight deck area will be extended and strengthened to facilitate Lynx type helicopter capacity.

The existing officers' galley will become a Weapons and Electrical office, the locations of the Shipwrights' workshop and spirit room will change. As modernisations and modifications of the weapons directional equipment and associated radar systems is anticipated, the siting of applicable compartments will change.

The operational range of the ship will be increased by the conversion of existing furnace fuel oil tanks and other compartments into diesel fuel tanks, providing greater fuel storage.

The whole Port side of the hull plating above the water line has been

grit blasted and preserved, and the Starboard hull plating is now under-going similar treatment.

Survey of the galley and adjacent departments has revealed that major replacement of deck plating is required. These repairs require considerable stripping out of pipework, fittings and wiring, together with deckhead cladding and lagging in the engine room below. It is essential that this be carried out as speedily as possible to allow the engine fitters and electrical fitters sufficient time to commence the examination of the turbines and gear boxes in that compartment. This area has a critical time factor and its success will depend upon the full co-operation of all trades in the department to ensure that the key dates are kept.

The first docking period will commence on April 5, 1983. During this period work will include preparation and abrasive blasting of the underwater area of the hull, blasing and coating of the interior bilge areas of the engine and boiler rooms, further survey works on the hull, shell plate and structure repair work, overhaul of stabilisers, shafts, bearings, rudders and underwater valves. After a critical and work intensive period, the Ship is scheduled for undocking on July 22, 1983.

Further dockings will occur during the refit.

Although there have been a number of problems with the computer programming of the refit, these are being overcome and the position will improve in the near future, benefiting everyone concerned.

The timely delivery of stores and spare parts is critical and NSD will be hard pressed to supply the many requirements during the next critical months.

Some equipment to be installed during this refit is of a type entirely new to the RNZN and to the Dockyard, presenting new fields of technology to both Dockyard technicians and Naval operators. This will result in a more intense and longer period for setting to work and tuning, and the trials period will call upon the full resources of Dockyard and Naval personnel to achieve final and ultimate success.

HMNZS WELLINGTON, updated, modernised and fully refitted, will be ready for trials, which are scheduled for early January, 1985.

(FROM NEW ZEALAND NAVY NEWS.)

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# NAVY LEAGUE DIVISIONAL & CADET NEWS

## NRC CELEBRATE 30 YEARS IN WA BY VIC JEFFERY

*Thirty-nine degree heat did not deter 600 people from attending the Naval Reserve Cadets Foundation Day in Western Australia on Saturday, February 19, 1983.*

The parade commenced at HMAS LEEUWIN at 1510 with Unit Divisions falling in and the March on guard, Band and Colour Party.

At 1525 the Past Senior Officers, Commander J. C. B. Anderson, DSC, OBE, RD; Lieut Commander A. Pearson, VRD and Captain L. F. Vickridge, OBE, VRD arrived. They were immediately followed by the Naval Officer Commanding West Australia Area, Commodore David Orr.

The Governor of Western Australia, Rear Admiral Sir Richard Trowbridge KCVO, K.St.J. then arrived and after the Royal Salute inspected the Guard, Band and Divisions. The guard then marched past and advanced in review order.

Commander Geoffrey Curran, the Senior Officer NRC, WA gave an address of welcome, followed by His Excellency The Governor addressing the large parade before departing for the HMAS LEEUWIN boathouse where the official party embarked on the resplendent



*Members of T. S. MILDURA marching through Mildura on Anzac Day. The unit was led by Lieut H. A. Goodall, NRC, Commanding Officer of the unit (Photo — Don Turvey).*

looking blue and white SDB (Seaward Defence Boat) 1325.

Afternoon tea was served by the HMAS

Perth Memorial Hall and was followed by a Fleet Review by Commodore Orr on the Swan River which included a sail-past, rowing activities, fire fighting display by TS CANNING and precision marching by the girls of TS SWAN.

At 1700 SDB 1325 returned to the HMAS LEEUWIN boathouse and was followed by a welcome address to Past Senior Officers, cutting of the Founders Day Commemorative cake and Evening Prayer.

At 1740 after Sunset a very enjoyable barbecue was held.

In all ten units participated — NRC Training Ships Perth, Anzac, Morrow, Canning,



*Escorted by Lieutenant Gavin Reeves, NRC, the Governor of Western Australia, Sir Richard Trowbridge, inspects the NRC Guard of Honour (Photo — ABPH B. Quinn).*

Gascoyne, Bunbury, Vancouver, Pilbara and the two girls units Swan and Koolinda.

This was a most memorable and well organised function to celebrate 30 years of excellent community service in Western Australia.

## SOUTH AUSTRALIA

### T.S. ADELAIDE

*Friday, December 10, 1982, saw the Commanding Officer of T.S. ADELAIDE, Lt Cdr George Burgess VRD RANR officially pay-off from the Cadet Unit.*

Lt Cdr Burgess commanded TS ADELAIDE for three years after transferring from the Naval Reserve.

The new Commanding Officer of the Unit is Lt Cdr Ron Cocks NRC, who joined TS ADELAIDE in 1974 as a founder member of the Parents and Friends Committee and Administration Officer with the rank of Sub-Lieutenant. He was later promoted to the rank of Lieutenant and served under Lt Cdr Burgess as the Unit's Executive Officer.

TS ADELAIDE commences 1983 with a new Commanding Officer and other new Officers. We wish them every success.



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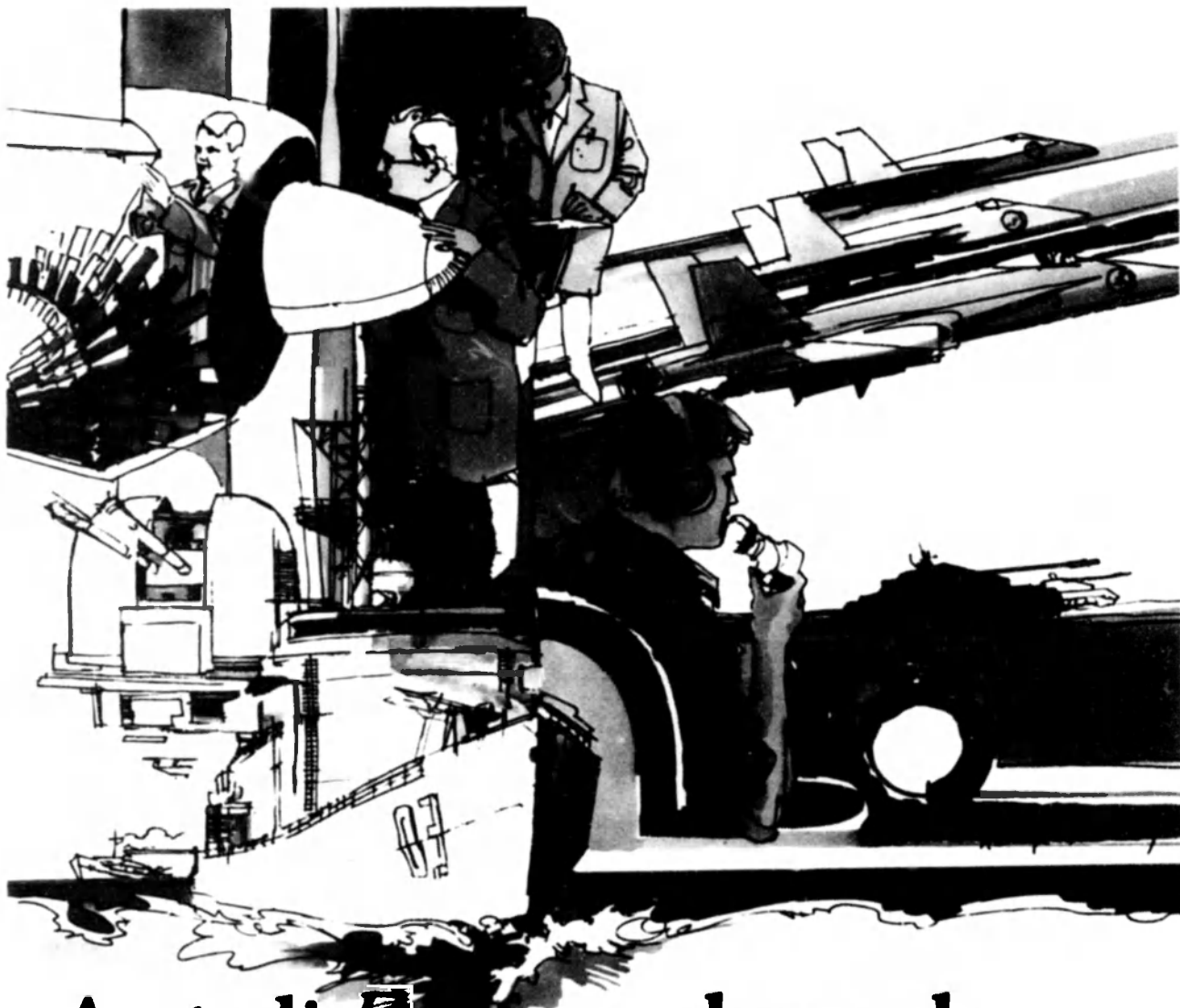
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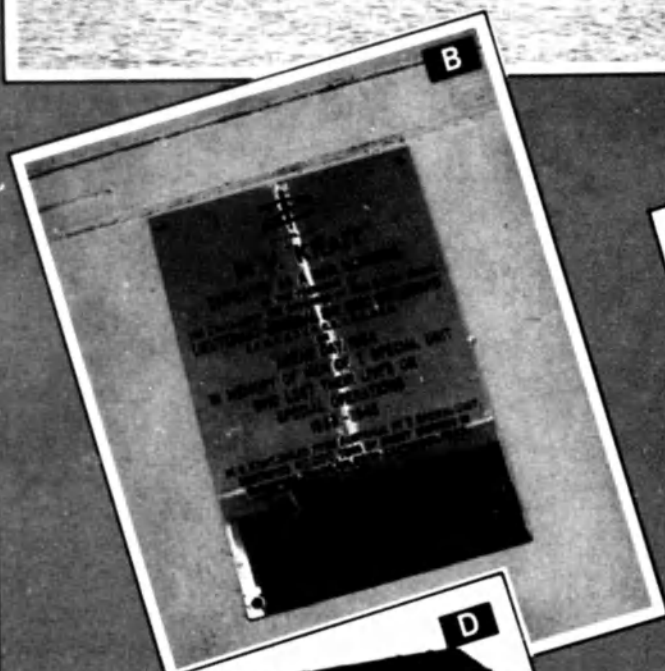
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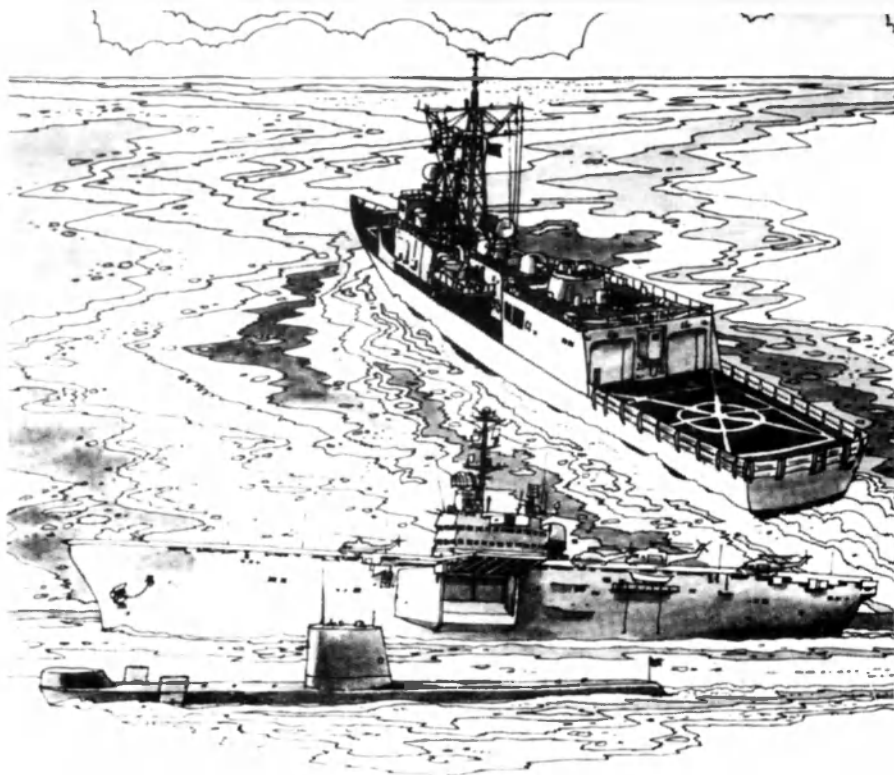
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# THE NAVY



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HMA Ships MELBOURNE and SYDNEY with SUPPLY and a Type 12 Irigate, 24th March, 1988 (Photo — RAN)

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October, 1983

THE NAVY

Page One

# One phone call can lift the lid on the complete Australian Offshore Industry.



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## THE EDITOR'S COMMENTS

While efforts are continuing to convince the Defence Department of the merits of a new platform for naval aviation in Australia, an older Australian man-of-war is being threatened with extinction of another type.

She is the former Services Reconnaissance Department (Special Operations) vessel KRAIT, commissioned by the RAN in the Second World War. KRAIT gained international acclaim when the operatives she carried destroyed two and damaged five other Japanese ships in occupied Singapore Harbour on 26th September, 1943.

Now, 40 years later and after an intensive refit/refurbishment during 1982/83, KRAIT has been earmarked for display in Canberra. This move contradicts an earlier pledge to refit the vessel so she could remain Australia's only dedicated floating war memorial.

The full story of KRAIT and how you can help save her begins on page 5.

Speaking of aircraft carriers, Carrington Slipways have produced an interesting air-capable version of the RAN's logistic landing ship, TOBRUK. The new design features a through-deck, with two elevators and space for approximately six to eight helicopters.

This October also marks the 70th anniversary of the arrival of the first Australian Fleet units, when they entered Sydney Harbour, on 4th October, 1913. The commemorative programme issued for the day has been reproduced in this issue.

### CONTRIBUTORS

This issue of "The Navy" was supported by Harry Adam, HMAS ALBATROSS, Geoff Evans, Tony Gizebrook, Tom Jackson, Vic Jeffery, Greg Johnson, New Zealand Navy News, Rear Admiral A. J. Robertson RAN (Rtd), Lt Col Straczek RAN and numerous "Save the Krait" supporters. Congratulations to all.

### NEXT ISSUE

The deadline for the January, 1984, issue is 4th November, 1983.

### FRONT COVER

- (A) KRAIT in January, 1978
- (B) Dedicated as a war memorial.
- (C) Telegraph.
- (D) Her Gardner diesel.
- (E) At her moorings in the Pittwater, April, 1975.

(All photos courtesy Michael Meier-er-Phelps)



*There have been several significant developments in the defence field since the last edition of this magazine which underline the growing concern, not only amongst the Australian public generally, but also overseas, at the recent serious reduction in the power and capability of the RAN.*

Many readers will have noted the letter to the press by four former Chiefs of Naval Staff, of whom two had also been Chiefs of Defence Force Staff (Admirals Sir Victor Smith and Sir Anthony Synnot, and Vice Admirals Sir Richard Peck and Sir David Stevenson). The concern voiced by these officers was subsequently supported by two other Chiefs of Naval Staff, Vice Admirals Sir Henry Burrell and Sir Alan McNicoll.

This was followed by revelations by a group of retired naval officers in Sydney, supported by a former Federal MP, which indicated clearly that naval views had not been forwarded in full to either the Fraser or Hawke Governments and that the professional head of the Navy — The Chief of Naval Staff — had not been consulted or even informed before decisions of huge import to his service had been taken. This is, of course, of great danger to Ministers, Governments and national security itself, if governments allow themselves to be cut off from the advice of the Chief of Staff of any service on matters of great defence moment, for in the final analysis, the major repository of experience and direct responsibility for operations in the maritime area, on land, and in the air, rests with the service most concerned.

It seems clear that our major ANZUS partner, the US, has now indicated at the recent ANZUS Council Meeting, that, while it will assist us in the event of Global War, we must bear the full responsibility for our own defence in any regional conflict. Our attention as a nation seems also to have been drawn to the relevance of the Guam doctrine, with the implication that the Americans help those who help themselves.

No doubt the attitudes of our allies, together with those of our South East and East Asian friends will receive careful consideration in the context of the development of the defence policy of the Government and the next Federal budget.

Against this background, of the greatest significance to maritime defence, the future of the RAN and our standing as a respected and capable middle power, will be the outcome and Government action on the two major investigations now underway: that on future maritime force requirements; and that on coastal surveillance and protection.

The Navy League, and all those with an interest in maritime affairs, hope that these important investigations will be approached in an open-minded, positive and timely way.

ANDREW ROBERTSON, RAdm (Rtd),  
Vice-President,  
Navy League of Australia

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# SAVE THE KRAIT

by ROSS GILLET

The 5000 mile cruise of KRAIT. One of the longest surface missions of sea warfare.



## IN THE BEGINNING

KRAIT was launched as the KOFUKU MARU for a Singapore-based fishing company. The style of construction suggests she was built by Chinese shipbuilders some time before 1920. About 70 feet long overall and with a 11 foot beam, KRAIT was constructed of Burmese teak and fitted with a 75 hp Deutz engine providing a speed of seven knots.

Until the Japanese declaration of war in December, 1941, the KOFUKU MARU served as a "go-fer" — taking supplies out to the fishing fleet and returning to base with the catch.

For more than 20 years the little vessel roamed about the Rhio Archipelago, leading a fairly low key existence. However, all that changed on 7th December, 1941, when Japan attacked the American naval base at Pearl Harbour.

Back in Singapore KOFUKU MARU, towing two fish barge, and with a crew of 17, began a voyage to Japan. Five days later the vessel was intercepted by a Royal Australian Navy unit, HMAS GOULBURN, and instructed to return to Singapore. The Japanese crew were sent to Bombay as prisoners of war and the vessel impounded.



KRAIT in Refuge Bay (Photo — RAN).

KOFUKU MARU thus became the first enemy ship captured by the Royal Australian Navy in the Pacific war zone of World War Two.

KOFUKU MARU was soon put to good use. During the three weeks preceding the fall of Singapore the boat made ten trips to Sumatra, carrying refugees to short-lived safety from the advancing Japanese military.

On her tenth voyage, with 120 Chinese women and children hospital patients aboard and in the company of nine other refugee ships, she came under heavy aerial attack. Eight of the other vessels were sunk and the ninth ran aground. The unsalvaged KOFUKU MARU picked up as many survivors as possible, but on reaching Sumatra her crew discovered the island had been occupied by the Japanese.

The decision was then made to sail to Trincomalee, Ceylon, a distance of 2700km under the command of a retired naval commander, W. R. Reynolds. The crowded vessel averaged only 3.5 knots on the long journey, arriving three weeks later with no water left and sufficient fuel for just 12 more hours sailing. After disembarking her cargo of passengers, the vessel made for Bombay.

In Bombay when KOFUKU MARU arrived was Captain Ivan Lyon of the Gordon Highlanders, who had escaped to India from Singapore.

## COMMANDO VESSEL

It was to be Lyon who conceived the idea of a raid on Japanese shipping in Singapore, using the KOFUKU MARU to transport commando units to and from the area. He had, at the time, volunteered to join the Special Operations (later Z Force) section. Captain Lyon's scheme of utilising the craft in its old working ground was agreed to.

The failure of the vessel's engine prevented her from sailing to Sydney as planned so she was carried as deck cargo on P & O's steamer BALLARAT. After arrival she underwent repairs at the Holmes Shipyard.

With training of volunteers to carry out the raid already underway the Japanese vessel was re-named KRAIT, after a particularly venomous Ceylonese snake of the cobra family. The Singapore operation was code-named "Jaywick" and KRAIT transferred from Sydney Harbour to Refuge Bay, near the mouth of the Hawkesbury River, about 40km north of the city.

In this restricted military area the commandos and crew underwent intensive and secret training to fit them for the arduous voyage and dangerous attack against the Japanese stronghold.

The chosen few then sailed aboard KRAIT to Cairns. During the voyage the over-worked engine gave more trouble, necessitating KRAIT



A rare photograph of the "Operation Jaywick" SRD crew before the raid voyage. A total of 14 war valour decorations were awarded in operations based around KRAIT. The vessel's original Singapore raid skipper, Lieut Ted Carse, who sailed her to Sydney in 1964, is at far left front row of photograph.

being towed into Brisbane for repairs. Subsequently she was towed into Cairns for further work. The authorities obviously considered that these setbacks boded ill for the raid and there was much talk of the operation being totally abandoned.

The scheme was saved when Commander Long, director of Naval Intelligence, arranged for the requisitioning of a Gardner 6L3 engine he had found which the army had been using for sawmilling in Tasmania's Huon Valley.

Getting the engine to Cairns was now the problem. Eventually a Dakota aircraft managed to lift the heavy load off the Hobart runway and headed for the northern city. Despite the weight loss through fuel consumption the plane's undercarriage still collapsed on landing at Cairns. The fuselage had to be hacked open to retrieve the engine, after which the Gardner was fitted into KRAIT. It is still performing almost as good nearly 40 years later.

From Cairns KRAIT proceeded around the top of Australia to Exmouth Gulf in Western Australia, where she was re-provisioned and refuelled for the assault on Singapore. KRAIT was carrying sufficient fuel for almost 15,000km cruising. KRAIT slipped her moorings but only a minute later the propeller shaft broke. Fortunately the United States submarine repair ship USS CHANTICLEER had entered the Gulf and repairs were quickly effected.

## TOWARDS SINGAPORE

KRAIT, its volunteer crew and commandos, sailed toward Bali through the Lombok Strait on 2nd September, 1943. During the voyage the vessel flew the Japanese ensign. While sailing through enemy waters those onboard dyed their skins in an effort to resemble Malaysians. Strict security ensured that other vessels were seen before the KRAIT herself was detected.

Strong tides in the Lombok Strait plus heavy patrols by Japanese craft, restricted headway to tortoise pace. At one stage KRAIT made only 10km in four hours. She eventually cleared these hazardous waters and continued on her journey, playing a cat-and-mouse game with other shipping.

Not long after midnight on 18th September the little ship dropped anchor off Panjang Island in the Rhio Archipelago, about 30km from Singapore, very near the place where she had been captured by a boarding party from the AMS, HMAS GOULBURN some 19 months earlier.

The three two-man crews were Lyon and Huston, Lieutenant D. M. Davidson and Able Seaman W. G. Falls and Lieutenant R. C. Page and Able Seaman A. W. Jones. All crews made ready their folding canoes with limpet mines, food and other essential gear for the attack and left KRAIT to establish themselves on Panjang Island to rest and watch shipping movements into and out of Singapore's harbour.

With the commandos safely ashore KRAIT retraced her voyage to the southwest coast of Borneo, where she spent the following 14 days waiting to return to retrieve her commandos. The waiting game of avoiding contact with other shipping proved a trying period for the ship's

crew. They had no way of knowing if the operation was going to schedule, whether in fact it had taken place, or whether there would be any survivors at all from the raiding party to collect.

After two days' rest, the commandos paddled to Dongas Island, from where they could better observe activity in the harbour and roads, only a few miles distant.

In darkness on 24th September, the three teams set out to make their attack. However, strong tides forced them to abandon the attempt. They then shifted base to Subar Island, closer to Singapore.

## THE ATTACK

At 1900 on 26th September the six men set off once more in their canoes. By midnight they were bobbing about amidst an armada of enemy merchant ships. Lyon and Huston attached two limpet mines to the engine room of a tanker as a crewman looked on from a porthole just above them. Then they placed another on the propeller shaft.

Davidson and Falls did their work on three ships in the Roads while Page and Jones attacked two ships in Keppel Harbour and one at Bukum Island. The job completed, the three crews paddled toward the safety of the mangrove swamps on nearby islands to await the results of their handiwork. Right on time at 0515, with two crews already back at Dongas Island, the air was rent by explosions. Shipboard fires then spread to the wharves and other installations.

Of the estimated 70,000 tonnes of Japanese shipping in Singapore's Keppel Harbour and the Roads on that night of 26th September, 1943, only 30,000 tonnes escaped the devastation wrought by the three two-man



In Jerusalem Bay with HMAS BOMBARD (AMBUSH), October, 1978, during the Patrol Boat series.

commando parties which had set out from Australia aboard the KRAIT a few weeks before. Two of the fully-laden cargo ships sank and the other five were seriously damaged in the raid.

The Japanese military mounted a major search over the next few days in an attempt to find the saboteurs.

Satisfied with the result, the commandos, taking separate courses, paddled the 32km to the pick-up point at Pompong Island, scheduled for the night of 1st-2nd October. The only problem to affect the operation was a misunderstanding about the exact rendezvous by two of the crews, and they were not gathered up by KRAIT until the following night.

The return journey through hostile waters to Australia then began, but apart from one minor incident in the treacherous Lombok Strait, things went relatively smoothly. Sailing through the Strait in bright moonlight, KRAIT was approached by a Japanese destroyer.

The warship came alongside and paced the Nippon-flag-flying Australian vessel for about five minutes before turning away and sailing into the night. For some unknown reason the Japanese did not hail or challenge KRAIT, nor did they use a searchlight for a clearer view.

The Japanese ensign was finally hauled down on 12th October, shortly before the islands off the West Australian coast were sighted and Exmouth Gulf reached.

## SUBSEQUENT DUTIES

Later KRAIT was engaged as a supply ship for coast watcher units on Timor, moving by night to avoid detection by enemy warships. As the



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Pacific War neared its close, she landed intelligence groups on Ambon and Morotai Islands to search for evidence of atrocities and war criminals. On 5th April, 1944, KRAIT was finally commissioned into the Royal Australian Navy as a special service vessel.

Manned by naval personnel, rather than the volunteers of Z Force, KRAIT sailed with HMAS BUNDABERG to attend the surrender of Japanese forces on Ambon Island.

At war's end, British occupation forces in North Borneo took KRAIT over and then sold her to understandably unknown buyers who during the ensuing years used her for smuggling heroin, hashish, guns and war surplus goods to various outlets in the South China Sea. Interpol eventually caught up with KRAIT and took the innocent victim to Bali, where she became a virtual derelict.

A North Borneo sawmiller named Barrett later purchased the old vessel and used her to haul logs in the rivers and to transfer logging crews around the North Borneo coast, an occupation which lasted some eight years.



At Coal and Candle Creek, October, 1978, dressed as a refugee boat.

## REDISCOVERED

During September, 1962, two Australian timber merchants and former Z Force members were on a buying trip in Borneo. In Sandakan Harbour they saw a vessel closely resembling KRAIT, but carrying the name PENANG.

Steve Stevenson and Max Hayman, both of Sydney, made enquiries and found that the PENANG was, in fact, KRAIT. Its name had been altered because of its unsavoury connection with the drug-running trade.

Following protracted and sometimes difficult negotiations, the vessel was purchased by a specially-convened board of trustees with funds raised by public appeal through "The Sun" newspaper, Sydney. Due to her poor condition, the ship was unable to sail under her own power to Australia. P & O came to the rescue and generously cargoed her to Brisbane free of charge. There the Army Water Transport Squadron, helped by volunteers from the Royal Volunteer Coastal Patrol and the Z Special Unit Association (Z Force), thoroughly cleaned, scraped, painted and mechanically repaired KRAIT in preparation for her voyage to Sydney.

In April, 1964, the vessel, again renamed KRAIT, anchored near Refuge Bay, from where she had set sail on Operation "Jaywick" 21 years before. Her original Australian skipper, Lieut Ted Carse, had sailed her from Brisbane. Other originals on board were Horrie Young and Arthur Jones. Before leaving for Sydney on the final short leg of the trip the ashes of the "Jaywick" engineer, former Leading Stoker Paddy McDowell, were ceremoniously buried at sea.

## FLOATING WAR MEMORIAL

As she entered the Heads, Sydney gave KRAIT the type of marine welcome matched only by the attendance on departing yachts in the Sydney-Hobart race. On arrival at Man-O-War Steps she was dedicated as a war memorial and handed over to the safekeeping of the Royal Volunteer Coastal Patrol.

October, 1983



Filming aboard.

Retirement from "active service" brought KRAIT into probably the busiest period of her life. Since Anzac Day, 1964, when she was handed in trust to the Royal Volunteer Coastal Patrol to administer and operate, the vessel has averaged around 80 trips per year.

Although the vessel was originally solidly built, and its Burmese Teak timbers were in excellent condition despite their age, KRAIT had, by the early 1980s, reached the stage where it was necessary to sail her from Sydney to Ballina, on the NSW north coast for major repairs. During the voyage she began taking water and had to be towed into Coffs Harbour. Eventually she reached Ballina under her own power, riding the bar in fine style.

The only major repair prior to this time was a new keel in 1972, accomplished with timber donated by Hayman and Ellis, the Sydney-based timber merchants.

A target of \$250,000 was set in May, 1981, for the restoration of KRAIT's hull. The New South Wales Government opened the fund with \$25,000. After that the appeal was kept moving by the devotion of Volunteer Coastal Patrol members. The Fraser Government matched the Wran Government's \$25,000 donation and most of the \$250,000 appeal target had been subscribed.



KRAIT

## THE ROLE OF KRAIT

The floating war memorial KRAIT satisfies countless community and official requests in the service of the people of Australia.

Since 1964, KRAIT has been used mainly in the educational field for the public boating community. These duties involve radio training courses, coastal navigation and celestial navigation. Seamanship courses are also demonstrated by instructors from the Royal Volunteer Coastal Patrol.

KRAIT is also well known as a regular participant in all water activities including the Sydney to Hobart yacht race and Great Sydney Ferry Race.

As a television star, KRAIT appeared in the first series of the ABC's "Patrol Boat" (1980) and for the Simon Townsend Group, KRAIT has also steamed in the documentary of her own life in "This is Your Life" and a number of movies.

At all times KRAIT is on stand-by for search and rescue operations.



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She also renders an annual service to the MS Society, the last occasion (in 1981) raising \$28,000. Opportunities for fund raising are given to numerous community service and ex-service groups. As well, the Naval Reserve Cadets have employed KRAIT for annual navigational exercises in the Hawkesbury River and in recent times the vessel has participated in Navy Week displays at Garden Island.

KRAIT continually receives invitations to appear at all manner of public functions, from the Grafton Jacaranda Festival to Kiama Anniversary, to the Festival of Wollongong. Requests as far afield as Adelaide and Esmouth, WA, have unfortunately been turned down due to the excessive distances involved. Three requests have also been made for KRAIT to star in a documentary re-enactment of her famous Singapore raid. Hopefully, remaining afloat, a film can be produced for Australian television.

KRAIT is now approaching 20 years' service to the Australian community. A fine record which must be allowed to continue.

At the Balla Slipway and Engineering Company KRAIT was extensively restored with timber donated by the NSW Country Timber Sawmillers Association. The decks were renewed and extensive restoration effected on the hull and wheelhouse. Total restoration costs came to \$170,000 by the time KRAIT was re-launched in September, 1982. After final fitting-out she sailed to Brisbane to join the escort for the Royal Yacht *BRITANNIA* to the Commonwealth Games.

## SAFE FOR THE FUTURE?

The present condition of KRAIT is excellent. New decks, new hull frames and planks have been fitted where required so the vessel is tight and seaworthy.

A proposal to send KRAIT to Canberra is being pursued by individuals who have very little, if any, knowledge of wooden ships or otherwise. There are no facilities to house KRAIT in the War Memorial, thereby necessitating her being left out in the open with only a temporary cover of some kind.

Expert opinion claims that unless the eighty ton ship is housed in an air conditioned building, the total lack of humidity in the ACT will not only cause the timbers to shrink, but also cause splitting and consequent disintegration of the whole vessel.



**KRAIT crossing the "bar" at Ballina.**

It also seems ironical that without a valid reason KRAIT should prematurely end her days, when only in 1983 her lifetime was extended for further service to the community. It is recognised by many that when her life finally reaches an end KRAIT should eventually have a final resting place, but that the vessel should be allowed to serve the community for at least another fifteen or twenty years. What should be asked is why spend \$170,000 of "p" lic monies just to put her in a museum, when the appeal was to "Restore her to her peacetime role, not just a museum piece". It should be noted that KRAIT is unique, being the only Operational Floating War Memorial in the world.

Now with proposals to set her up in Canberra as a war museum later this year, KRAIT faces the biggest battle of her life. Your assistance in the form of a letter to the Prime Minister, the media and to the KRAIT Trust will help preserve this fine old war veteran. Please help to keep her afloat as a sea-going memorial for all Australians to enjoy. Her history shows she has done all that has been asked of her. Surely there is a better way to end her days!



*Dressed as the TUONG LAI, October, 1978.*

**Return to  
Mr Max Smith, 11 Bungan Place  
Mona Vale, NSW, 2103**

## PETITION

To, the RIGHT HONOURABLE, THE PRIME MINISTER  
OF AUSTRALIA and MEMBERS of the HOUSE OF  
REPRESENTATIVES in PARLIAMENT assembled.

The Petition of certain concerned citizens of Australia,  
Respectfully sheweth:

**THAT:** The Motor Vessel KRAIT remain as a Dedicated Operational War Memorial in the care and maintenance of the Royal Volunteer Coastal Patrol as has been the case for the past nineteen and a half years, on behalf of the people of Australia.

**AND THAT:** Your petitioners consider that the monies raised in the recent public appeal have been so raised for restoration to ensure the continuing seaworthiness of the KRAIT for the purposes of it remaining afloat and continuing to be used in the community service.

AND THAT: The current proposal to remove KRAIT from the care and maintenance of the Royal Volunteer Coastal Patrol to the National War Memorial in Canberra, ACT, would, if implemented, seem to represent a breach of faith upon which the aforesaid monies were raised

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The ship has been designed primarily as an anti-submarine helicopter platform, or to support an army beachhead contingent — the army being landed from shipborne landing craft or from Chinook Helicopters.

As a secondary role, the ship can perform tasks (similar to Tobruk) in disaster relief operations where port facilities have been destroyed or are non-existent.

Deployment around our coastline could conceivably be on the basis of five (5) vessels with four (4) in service with an allowance for the fifth vessel undergoing routine maintenance or refit.

Dependent upon the location of the vessel's home port, there could exist a mobile defence force umbrella or a disaster relief capability within four (4) days' sailing of any point on our coastline.

### Order of Costs

Using a base date of July 1, 1983, we have calculated the Order of Costs for each vessel based on the attached Technical Details:

- (a) The Basic Vessel, \$112,300,000 (one hundred and twelve million three hundred thousand dollars).
- (b) Sensor/Weapons Fit fully installed (as detailed below), \$35,480,000 (fifty five million four hundred and eighty thousand dollars).
- (c) Command and Controls Systems fully installed (as detailed below), \$24,260,000 (twenty four million two hundred and sixty thousand dollars).
- (d) Communication Equipment Systems fully installed (as detailed below), \$7,200,000 (seven million two hundred thousand dollars).

Order of Costs for each vessel including all equipment and systems listed above is \$199,240,000 (one hundred and ninety nine million two hundred and forty thousand dollars).

The rationale and Details of equipment included in (a), (b) and (c) above are as follows:

**1. Rationale**  
The vessel will be developed at a minimum cost in terms of both manpower and resources whilst retaining a significant capability. The Combat System will be configured as a variant of the RAN Modernised DDG Combat System,



Artist's impression of the aircraft capable TOBRUK LSH.

an approach which has the following major advantages:

- (a) Where available and appropriate, use of equipment already in inventory will reduce Integrated Logistic Support requirements including spares holdings, training, maintenance facilities, documentation, etc.
- (b) Design and integration risks and costs will be reduced to low levels since most aspects will have already been proven.
- (c) Modular software which will have already been developed can be adapted for the ship.
- (d) Life cycle software maintenance costs will be minimised.
- (e) Both Government and Contractor resources required will be minimised.

The operational roles assumed for the ship are:

- (a) Provide rotary wing capability to the fleet to satisfy:
  - Anti Submarine Warfare (ASW).
  - Airborne Early Warning (AEW).
  - Search and Rescue (SAR).
  - Transport.
  - Vertical Replenishment.
- (b) Provide facilities for Fleet/Task Group Commander.

### 2.1 Sensor/Weapon Fit —

Order of Cost (b) Above

In order to satisfy these roles the following Sensor/Weapon fit is envisaged:

- (a) Radars
  - Long range air warning AN/SPS-40 as fitted to modernised DDG.
  - Medium range, air/surface warning/navigation AN/SPS-67 as fitted to modernised DDG.
  - Identification Friend/Foe AIMS MK12 fitted to AN/SPS-40.

### (b) Weapons

- Two Close In Weapons Systems, PHALANX as will be fitted to RAN FFGs.
- Decoy launching system MK36 with Super RBQC as fitted to FFGs and Project WINNAN decoys being developed by Defence Research Centre Salisbury.
- Electronic Warfare System AN/SLO-32 (V) 3 with passive active capability. (V) 2 version fitted in FFGs.
- Towed torpedo decoy AN/SLO-25 as fitted in RAN fleet.

### (c) Air Navigation

- TACAN, AN/URN-25 as fitted to FFGs

### (d) Ship Navigation

- Satellite Navigation MX1122 as fitted in RAN Fleet.
- HF and UHF direction finding equipment as required.

### 2.2 Command and Control —

Order of Cost (c) Above

To maximise effectiveness and minimise cost and system software development it is proposed to use AN/UHQ-34 displays internally programmed to emulate the DDG AN/UYA-4 display suite. Each display includes an embedded processor and magnetic tape unit. The display suite would be:

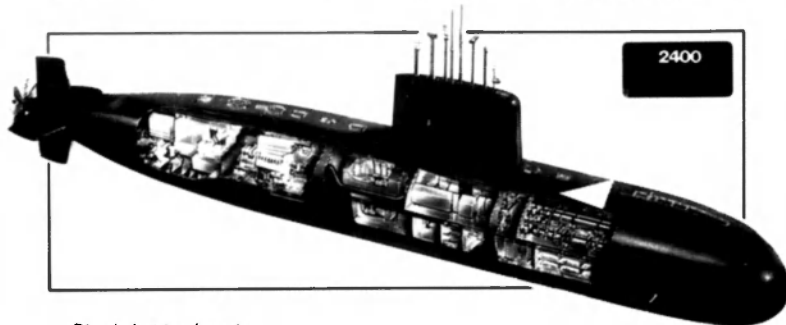
### (a) Ship

- 2 x Radar tracking (AN/SYS-1).
- 2 x Helicopter control.
- 1 x Principal Warfare Officer.
- 1 x Intelligence/General Operations plot.

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submarine programme, combined with the expertise gained from building 316 submarines over a period of 96 years for the British Royal Navy and overseas naval customers. Designed in close association with the Royal Navy, the Type 2400 will have a submerged displacement of 2400 tonnes and, within the confines of its hull, can accept a wide variety of weapon fits, fire control systems and communications equipment. Recent UK Government statements confirm the intention to equip the Royal Navy with their version of the Type 2400 submarine. The design sets new standards in habitability, reliability and operational availability and will, we believe, provide an exceptional patrol submarine facility into the 21st century.

For further information on the 2400 - or smaller submarines in the Vickers range - please contact us at the address below.

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  - 1 x Command (expansion capability).
- (b) Fleet/Task Group Command
- 1 x Local situation.
  - 1 x Intelligence/General maritime surveillance expansion capability is available.
- Additional command and control equipment required is:
- (i) Radar data processing system AN/SYS-1 as for DDG Modernisation.
  - (ii) Data processing system AN/UYSK-7(V) and peripherals.
  - (iii) Link II data exchange equipment.
  - (iv) Switchboards, interface and peripheral equipment.

### 2.3 Communications Equipment — Order of Cost (d) Above

It is anticipated that the communications suite would be configured as required from standard RAN inventory equipments with adequate capability for communication with helicopters and other task force elements.

### TECHNICAL DETAILS

#### 1. Parameters

LOA	128.6 Metres
LBP	124 Metres
Breadth Moulded	18.68 Metres
Breadth at Flight Deck	25 Metres
Depth to Flight Deck	15.25 Metres

Loaded Draft	4.41 Metres
Deadweight	2,333 Tonnes
Displacement Loaded	6,773 Tonnes
Speed	19 Knots at MCR

#### 2. Machinery

2 x Mirreles K9 Major MK3 diesel engines each 6,570 BHP at 600 RPM with controllable pitch propellers.  
Four (4) Generators 450 KW.  
One (1) Emergency Generator 150 KW.

#### 3. Alternative Propulsion

With regard to the fitting of a gas turbine propulsion package, in lieu of the twin diesels, it is believed this alternative to be feasible but costs have not yet been calculated.

#### 4. Tank Capacities

Oil Fuel approx 1,200 Tonnes  
Avcat approx 600 Tonnes  
Fresh Water approx 200 Tonnes  
Range at full service speed — 9,500 nautical miles.

#### 5. Auxiliary Machinery and Equipment

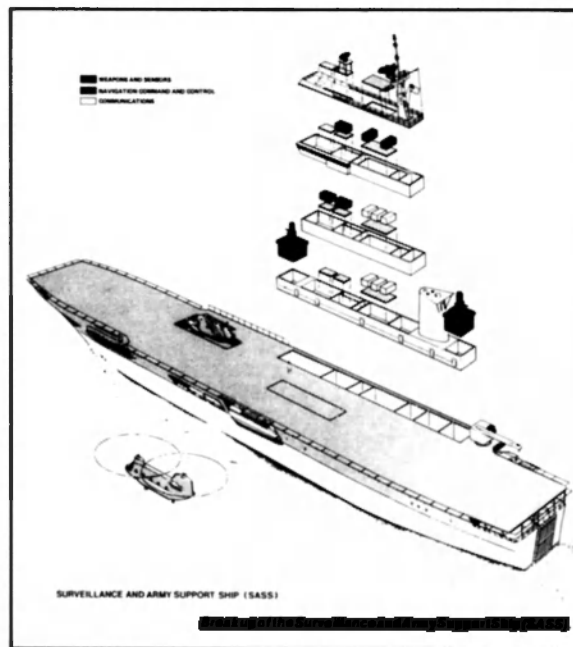
Fin Stabilisers: Brown Brothers.  
Aircraft Lifts: Powerlifts (Wairford England).  
Stern Door and Ramp: McGregor or equal.  
Deck Machinery: Clark Chapman/CSPL.  
Hangar Capstans: Clark Chapman.  
Bow Thruster: Ulstein or equal electric drive.  
Main Compressors: Compair.  
Aux Compressor: Hamworthy.  
Instrumentation: Honeywell.  
Purifiers: Alfa Laval.  
Boilers: Stones.  
Steering Gear: Hatzie.  
Sewage Treatment Equipment: Omnipure.  
Pumps: Weir.  
Air Conditioning, Ventilation and Refrigeration: Coles Industries.  
Major Galley Equipment: Curtin.  
Fire Detection: Honeywell.  
Paint System: Altea Devco.  
Other minor machinery/equipment similar to that fitted to HMAS Tobruk.

#### 6. Habitability

To similar standard as fitted to HMAS TOBRUK.



HMAS TOBRUK, 21st March, 1983 (Photo — RAN).



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ANL 19C

## Garden Island Update



by TOM JACKSON  
Navy Public Relations

*The new carpark and wharf improvements (Photo — ABPHOT, Martin Horan, RAN).*

*The modernisation of the Naval Dockyard and principal Fleet refit/repair facility at Garden Island in Sydney has made steady progress since the implementation of the original proposals in 1976.*

In that year a White Paper on Australian Defence set out this commitment:

"The Government intends that the major Naval base at Garden Island, NSW, should remain, but be modernised and developed in a way which pays careful attention to environmental considerations and improved aesthetics. Efficiency of the Fleet as well as of the dockyard is presently hampered by the poor condition of the wharves and other facilities. A start will be made in the coming years to

refurbish the wharves and to commence modernising the facilities."

The message is clear: the RAN is here to stay in Sydney Harbour — but not at the expense of the residents who justifiably lay claim to the beauty and sweep of one of the world's great natural settings. Garden Island takes in 26 hectares off Potts Point — one of the fingers of foreshore land which stretch out in an arc comprising Mrs Macquarie's Point, Bennelong Point and Bradley's Head.

But because it is an industrial installation, Garden Island has aroused unfavourable comparison with the verdant peninsulas on either side — an unfair comparison, in fact, because much of the base presents a "greener" side, particularly in the area of the northern hill section. Under the \$200 million modernisation scheme, the Navy is excising the old wharves and workshops, many of which dated from the turn of the century.

In the place of these deteriorating facilities, the modernisation planners are putting in new refit berth installations, utilities and amenities buildings of strikingly advanced design.

At the same time, the beautiful old structures like the Marine Barracks and Hospital, the Rigging Shed and Sail Loft (complete with its refurbished Naval Chapel) are to be enhanced and restored so that the full vitality of these colonial buildings is retained. Some new buildings in fact will be constructed to resemble the old where it is felt that a modernistic addition would result in a sorry clash of styles to the eye of the harbour watcher.

Landscaping is an essential part of the development — and a road which will run its course around the eastern side of the base will be framed by a green belt of shrubbery which is already well established.

The dominant feature of the modernisation to the Sydney base actually takes in two locations quite separate from Garden Island itself — the wharves at Woolloomooloo and the car park site opposite these berths.

The wharves, bought from the NSW Government's Maritime Services Board, will incorporate the new Fleet base and will provide full services so that ships alongside do not need to run machinery — a major cause of noise and air pollution in the past.

Opposite the wharves at the 'Loo, the multi-level car park is rising steadily.

Incorporated in the modernisation proposals at the request of the NSW Government, the car park will relieve the congestion of Garden Island (and the Cowper Wharf Roadway which leads to it from the Cahill Expressway) by providing space for 1100 vehicles. The modernisation plan is a concept which its originators see as a fact of foreshore life by the year 2000; on present indications the Navy can expect a better, more efficient Fleet base and dockyard ... and its workforce of around 3500 as well as Sydney's harbour spies will enjoy the benefits of enlightened environmental planning.



*Interior of the Guided Missile Launcher System building (Photo — ABPHOT, Martin Horan, RAN).*

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1942 CAC Boomerang



1953 CAC Avon Sabre



1961 Hara Launcher and handling system



1966 Macchi MB 326



1964 Mirage IIIH SNECMA Atar 9c engine, wings and empennage



1971 Bell 206B Helicopter



Engine components and assembly



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## A NAVY IN TROUBLE

by GEOFF EVANS

### Why is the Navy in trouble?

Basically I believe because the greater part of our community has become, notwithstanding the Korean and Vietnam wars, conditioned by a long period of peace; we have suffered a loss of individual independence due to the advent of the Welfare State and have become increasingly dependent upon the State to meet our needs (which I think have become more selfish); and because the Australian people generally have very little understanding of maritime affairs and don't really care about their Navy. For that matter I am not sure that many Australians think seriously about defence at all.

I know that public opinion polls are carried out from time to time and people usually rank defence fairly high in their list of national priorities. When asked if more or less money should be spent on defence the majority says "more" but I don't think the question has ever been asked "Given the finite resources of Australia, where would you reduce other expenditure so that more could go to defence?"

I wonder what the answer to that would be! I doubt though that welfare, health or education would be popular areas for reductions, and I doubt even more that people would say "tax us more".

Opinion polls are not however really necessary as the actions of governments generally reflect community thinking fairly accurately.

Successive governments over a period of many years — but one need think only of the last ten or so — would not have dared to restrict Australian defence spending to the relatively low level of between 2.6 and 2.8 per cent of the GDP if they felt the community was seriously concerned about national security; nor would so little have been devoted to new equipment for the Defence Force (that is, until the FA-18 came along!).

Our per capita spending on defence — the figures I am about to quote are taken from 1982-83 "Military Balance" analysis of the International Institute for Strategic Studies, and are expressed in terms of US dollars — is in the vicinity of \$300 per annum. Some comparative figures are:—

The United States	\$782
Turkey	\$56
Britain	\$433
Denmark	\$280
France	\$437
West Germany	\$471
East Germany (Warsaw Pact)	\$415
Norway	\$401
Sweden (Neutral)	\$412
Israel, a staggering	\$1,514

Recent USSR defence spending is not known, but in 1975 it was estimated to be 124 billion dollars or \$490 per head. United States

An address presented by the Federal President to the Naval Historical Society of Australia, Victorian Chapter, 6th June, 1983.

spending in the same year was 89 billion dollars or \$417 per head. Our figures in 1975 were \$2.4 million and \$184.

An interesting figure is the defence expenditure of The Netherlands. This country has a comparable population to our own — 14 million plus to Australia's 15 million — and they spend about the same on defence as we do, a little more actually. The area of The Netherlands however is minuscule compared to that of Australia and it is part of a more or less integrated continental defence system. We are alone and an island and one might have thought, given the size of our island, we would be spending more per person on defence than most other countries. Not many people, though, seem to look at it this way.

Looking a little closer to home, to Asia, on a per capita basis we are among the high

- Most of the increase will take place in the developing countries, where overall the population is expected to double (in Africa it is expected to triple).
- There will be a shift from rural to urban living, which means more people will be less self supporting.
- There will be a concentration of urban dwellers in cities.

To give you some idea of the figures involved, in 1980 the world population was 4.4 billion of which about 60% could be described as rural and 40% urban. In the year 2000 — only sixteen years away — it is expected there will be over six billion people, 50% rural and 50% urban with half of the latter in cities of four million or more. Some cities — Mexico



Under-utilised (Photo — RAN).

spenders compared say to India — \$8 and Japan — \$89. But multiply this by the number of people and you find India in 1981 spending 5.2 billions (compared to our 4.7 in that year) and Japan 10.4 billions. Japan's expenditure on its Self-Defence Force, incidentally, is still less than one per cent of GDP, which gives some indication of the country's remarkable economic strength. It has been said that if Japan increased its defence spending to 5%, the forces of the entire Western alliance would be strengthened by 20%!

You must be wondering when I will refer to the troubles of the RAN but I have something else to say first. It concerns the growth of world population and the food situation, matters which we will ignore at our peril if we want a secure future.

According to the Food and Agriculture Organisation of the United Nations which reviewed the situation in 1981:—

- Between 1980 and the year 2025 the world population will increase by 85%.

City for instance — are expected to have 30 million people in them!

What about food for all these people? Between 1966 and 1980 out of 125 developing countries, in nearly half food production increased at a lesser rate than their populations. Fortunately in the more populous countries like India, China and Indonesia food production kept pace with growth, in fact slightly exceeded it and one can only hope this trend continues. Overall however we can anticipate a much more crowded world, and a greatly increased demand for food with proportionately fewer people to produce it. Further, one cannot assume that large concentrations of people will be content to stay hungry and leave things as they are. There will undoubtedly be demands for land and for access to the resources of the sea, in fact they exist already.

I have brought these matters to your attention, as briefly as I could, as one senses in Australia a feeling that we are unlikely to be

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troubled too much by the problems of other countries, and that a major war, which it is generally accepted would concern us, is unlikely; after all, we have been told so often enough.

I think we are fooling ourselves. I believe pressures are building up in what is sometimes referred to as "the global village" and that sooner or later, if some remedial action is not taken in the meantime, something will have to give way. Just how and where I don't pretend to know, but I have a distinct feeling of uneasiness about the future of our country if we go on in our present unconcerned way.

What can we do anyway? I don't think Australia alone can do a great deal but if the developed countries, of which we are one, could apply themselves to ensuring a better distribution of the world's resources instead of just talking about it, something might be achieved. This you will say is wishful thinking and, given the history of man's treatment of his fellow men you are probably right. In any case it would take time, and I am not sure that we have much of that left.

I would suggest that Australia must make every effort to develop regional relationships — and you might remember that our neighbours are a mix of developed, developing and underdeveloped countries — without at any time neglecting our traditional ties with Europe and North America. Like Prime Minister Hawke I regard our relations with the United States as being of fundamental importance to our well being, but apart from that country I don't propose to mention any other by name.

Trade and economic links with our neighbours will not be enough; they must include defence links. As our region is essentially oceanic the links inevitably involve maritime considerations — vital to Australia in any event — whether we "go isolationist" or opt for co-operative defence arrangements. And this at last brings me to the problems besetting our navy.

It would be unfair to blame the present government alone for the present atmosphere of uncertainty shrouding the future of the RAN. When I became Federal President of the Navy League some 12 years ago the then CNS (Admiral Peek) was trying, and had been trying for quite a long time, to obtain a decision from the Coalition Government on the DDL. He failed and the incoming Labor Government for a number of reasons including the passage of time, ordered the FFG instead. I note these are now being criticised for being inadequate but fortunately we have two in our clutches and another two well and truly committed.

The carrier saga needs no elaboration by me — it had already been going for some years before I took up office and life now seems quite empty without it. It is fair to say though, if Mr Fraser's government had got on with the job when they made their belated decision in 1980 to replace MELBOURNE with a purpose-built vessel, our maritime situation would not be nearly so shaky as it is today.

Having said this I believe what might be termed "the maritime element" of the present government's defence policy is quite wrong for this country and the times in which we live. It



Neglected (Photo — R. Gillett)

appears to completely ignore our dependence on trade and on the unfettered movement of ships and their cargoes, and is completely at odds with the co-operative arrangements which have kept the peace in Europe for 37 years. It is also I believe at odds with the thinking of many of our neighbours at the present time.

It is almost incredible that at the moment we have a navy without a single combatant ship with aircraft embarked. Worse, due to recent air arm decisions our principal surface warships, the DDGs and FFGs, have lost much of their effectiveness; they are dependent on air defence in depth and their weapon systems are able to counter only a small number of concurrent air or missile attacks. To restrict these ships to the limitations of land-based air support is a waste of valuable assets and the taxpayers' money.

Our OBERON-class submarines are certainly an offensive weapon and a valuable part of a blue-water navy. However, as Admiral Synnot and other experienced officers have pointed out, submarines (like almost every piece of equipment) have limitations. They are of limited use in convoy protection (conventional submarines are rather slow and hard to position) and on the other hand they are of doubtful value in so-called "limited" wars because their use could easily escalate the situation (they were not used in the Korean and Vietnam campaigns). In other words, the submarine is an "all-out" or major war weapon which would surely also involve the nuclear-powered and armed vessels.

Much has been said about the place of patrol boats in Australian defence. The advocates of "fortress Australia" appear to envisage missile-armed patrol boats dashing about sinking everything that gets in their way. This is nonsense.

Patrol boats of course have their place in the Australian Navy and the type we have are among the busiest in the fleet at the present time. But, like submarines, they too have limitations. Their smallness means they are affected by climatic conditions and it restricts

the amount of equipment they can carry. They are best used in conjunction with aircraft but as Admiral Synnot has said of PGMs, it is better to put the missile in the aircraft.

There are other obvious deficiencies in the navy which I don't propose to go into now, except perhaps to mention the lack of facilities to deal with mines; this I think is a serious shortcoming. Mines are comparatively cheap and a few years ago, according to Lord Hill-Norton, Russia had a stock of 400,000 of them. The Admiral also pointed out that mines in World War 2 caused the loss of 280 HM ships, more than by any other means.

The worst feature of the present situation however is the restriction of our major units to the range of land-based aircraft support. The Sea Kings will continue to provide limited support, the Mirage is fast running out of time and is rarely used for maritime support purposes and even when the FA-18 order is completed some years hence, to suggest that 75 aircraft (including trainers) could simultaneously look after our cities, industrial and defence facilities, and provide support for the Army AND ships at sea, is I believe a quite unreal proposition.

The RAN must devise some way of getting aircraft to sea and I don't mean only helicopters. STOVL (fixed wing) aircraft are I believe essential to provide in-depth support for task forces, and I would have thought the Army would support the introduction of this type of aircraft into the Defence Force.

There would seem to be no immediate prospect of an INVINCIBLE-type carrier, but developments in the British "Protean" and American "Arasphoc" concepts provide room for optimism. I think the navy is prepared to lower its sights a bit, indeed it must do so.

Above all however there must be a change in thinking in our country; not only by governments and in the Defence Department, but in the Australian community. We must start to think like a maritime people and the sooner we start the better.

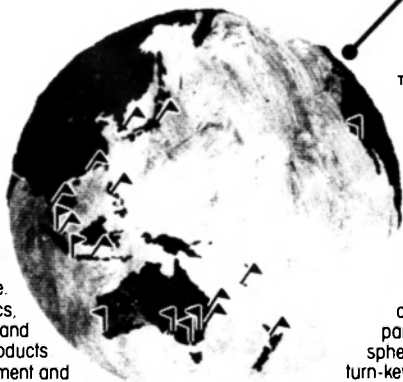


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# NAVAL ROUNDUP

— Compiled by  
"GAYUNDAH"

## HMAS SNIPE LEAVES THE NAVY

The minehunter, HMAS Snipe, "paid off" from the Royal Australian Navy on June 3, ending almost 21 years' continuous service with the Australian Fleet.

A brief ceremony attended by the Fleet Commander, Rear Admiral M. W. Hudson, and the Commanding Officer of the Australian Mine Warfare and Patrol Boat Forces, Commander K. C. Stephen, was held at HMAS Waterhen, Sydney, to mark the end of the ship's operational service.

HMAS Snipe and her two Ton class sister ships, HMAS Curlew and HMAS Ibis, were built in England in the early 1950s. Since HMAS Snipe commissioned into the RAN in 1962 she has logged over 315,000 nautical miles.



HMAS SNIPE, with paying off pendant aloft (Photo — ABPHOT, M. Johnstone, RAN).

HMAS Snipe will be replaced in 1985 by a totally new type of minehunter designed and built in Australia — the inshore minehunter catamaran.

Early this year a contract was let to Carrington Slipways Pty Ltd of Newcastle for the building of two prototype catamarans by the company's subsidiary, Ramsay Fibreglass Australasia.

These vessels, specifically designed for Australian conditions, are unique in both design and construction. The hull of the catamaran is to be constructed from glass reinforced plastic inner and outer skins with a thick layer of rigid foam sandwiched between.

The catamaran concept has been selected because it provides a stable and more spacious working platform compared with a single hull ship of similar displacement. Fibreglass has been chosen as a construction material because of its non-magnetic properties.

The magnetic, noise and shock requirements for the minehunter are very stringent. In fact, they were the principal factors in the choice of the hull concept, hull construction, equipment selection and systems design.

The increased stability inherent in the catamaran permits the siting of the propulsion and power generation machinery high in the vessel, making it more shock resistant.

An invitation to register interest for replacement minesweeping vessels to complement the new minehunters is expected to be issued soon.  
**BACKGROUND**

HMAS Snipe was built by Thornycroft Ltd in the United Kingdom. Laid down in 1952, the ship was commissioned into the Royal Navy as HMS Alcanton in 1953. She was commissioned into the RAN in 1962. The wooden-hulled mine countermeasures ship is non-magnetic and sufficiently silent not to activate acoustic mines. HMAS Snipe has a displacement of 489 tonnes and a crew of 38. During the past year she has undertaken a mine warfare pilot survey of Sydney Harbour to obtain an accurate map of the harbour bottom.

## FIVE NATION MARITIME EXERCISE

Three Australian ships and six RAAF aircraft participated in a Five Power Defence Arrangements maritime exercise held in the South China Sea between June 4-10.

Exercise Starfish 83, the third in the programme of annual Five Power maritime exercises begun in 1981, involved Australia, the United Kingdom, New Zealand, Singapore and Malaysia.

The aim of the exercise was to practise common maritime techniques to enhance co-operation and understanding among the respective navies.

Participating ships and aircraft included frigate, destroyer escort, patrol boats, support ships, maritime reconnaissance aircraft and Mirage, Skyhawk and F5 fighters.

The RAN was represented by the destroyer escort HMAS Yarra, and the Fremantle class patrol boats HMAS Warrnambool and HMAS Ipswich. Air Force participation included four Mirage jet fighters and two Orion P3 maritime reconnaissance aircraft.

The exercise was sponsored by the Royal Malaysian Navy.

## DECS TAKES CONTROL OF THE HARRIER

A new electronic black box has just demonstrated its ability to control automatically the swivelling nozzle engine of the Harrier jump-jet while it is hovering.

This is by far the most difficult phase of engine control as the pilot needs to swivel the thrust nozzles and continually adjust the fuel flow and power output on the Rolls-Royce Pegasus engine in order to slow down to a standstill in mid air and then resume normal forward flight.

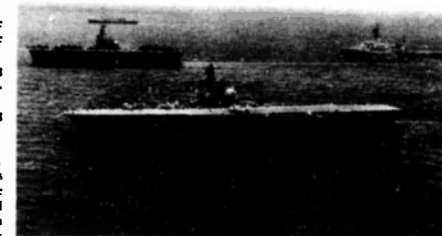
A new digital engine control system just developed for the Harrier by the UK Dowty and Smith Industries group, promises to provide more comprehensive engine control than is achieved currently, while at the same time reducing the aircraft's weight by more than 18 kilograms.

The system has been designed mainly to reduce life cycle costs on the unique vertical take-off engine and to improve further its maintainability and performance.

The first Harrier to hover using the digital engine control system — known as DECS for short — was flown from Bristol in western England by test pilot John Fawcett at the end of April. Originally it was not planned for the system to take over control during hovering at this stage of flight testing but it had shown impressive reliability as the Harrier flew slower and slower. In view of this it was decided to use it over a four-day period of tests with the aircraft undergoing transition from forward flight to the hover position.

## MAJOR DEFENCE FORCE EXERCISE FOR NORTH WEST AUSTRALIA

The Australian Defence Force would face new and demanding challenges during Exercise Kangaroo 83, to be held in



HMAS MELBOURNE with amphibious units of the United States Navy during Kangaroo 81 (Photo — RAN)

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the Pilbara and Kimberley regions of Western Australia during September and October. The exercise has been designed to test the ability of the Defence Force to operate in an environment demanding of the men and equipment involved.

It will be the first time an exercise in the Kangaroo series has been held outside the Shoalwater Bay Training Area in Central Queensland. The principal objective will be to exercise the Defence Force in joint land, sea and air operations in a low level conflict in an area distant from the main sources of supply and support infrastructure, and to exercise Australian, United States and New Zealand forces in combined operations.

During the exercise the Defence Force will have to deal with incidents such as the infiltration of illegal immigrants, small scale politically disruptive activities, threats to lines of communication and offshore installations, harassment of shipping and limited military operations against targets on the mainland by small raiding parties.

Because of the nature of the exercise, operations will, as far as possible, be planned in co-operation with and co-ordinated with civil authorities, particularly the law enforcement authorities.

Exercise Kangaroo 83 is breaking new ground and poses some major operational problems for the participants not the least of which is the tyranny of distance, and the intricacy of low-level military operations which can be more complex than a conventional war.

## US SHIPS VISIT WA

*Ships from a United States Navy battle group, led by the aircraft carrier USS Carl Vinson, exercised off the West Australian coast late in June before making goodwill visits to several West Australian ports. The United States Navy ships later took part in exercise Beacon South 83-2, a USN sponsored maritime exercise, on June 28-30.*

No RAN ships participated in the exercise, but the Lancelin naval gunfire support and air-to-ground weapons ranges were activated for use by the USN ships and aircraft. The RAAF provided one P3C maritime reconnaissance aircraft.

USS Carl Vinson, which was commissioned last year, is the United States' newest aircraft carrier. It displaces about 95,000 tonnes and carries an air wing of more than 80 aircraft, including F14 Tomcat fighters and A6 Intruder and A7 Corsair bombers.

A total of 13 United States Navy ships visited Fremantle, Geraldton, Albany and HMAS Stirling between June 30 and July 7.

The Defence Minister, Mr Scholes, said, "the visits by USS Carl Vinson, USS Phoenix and USS Texas were conditional upon stringent safety and environmental precautions being taken, as had been the case with other nuclear powered warships which had been allowed to visit Australia since 1976."

Beacon South exercises off the West Australian coast are held about three times a year. The first exercise in the series was held in March, 1981.



MELBOURNE entering the Captain Cook Dry Dock, 21st June, 1983, for her final docking prior to sale (Photo — ABPHOT, Martin Horan, RAN).

## INVITATION TO REGISTER INTEREST IN NEW RAN MINESWEEPER

*An invitation to register interest (ITR) in the design and production of a new class of minesweeper for the RAN was issued in early July.*

The Minister for Defence, Mr Gordon Scholes, and the Minister for Defence Support, Mr Brian Howe, said the invitation was aimed at companies interested in designing and producing both the ship and its minesweeping equipment.

Firms from among those responding to the ITR would be invited to tender to undertake project definition studies in 1984-85. These studies would provide further information on the design of the ships and construction proposals.

The Ministers said that initial planning called for a minesweeper capability which would complement the Navy's inshore minehunter catamarans to be built at Carrington Slipways Pty Ltd, Tomago, NSW. Initial planning was for two minesweepers to be built, and construction was planned to begin in the late 1980s.

The Ministers said that the minesweeper project would offer significant opportunities for Australian firms.

## NO EARLY DECISION ON SUBMARINE PROJECT

*The Minister for Defence has announced that no early decision was planned for the design and acquisition of a new class of diesel submarine for the RAN.*

The Minister was commenting on speculation that the RAN's present Oberon class submarines would be replaced by submarines built in Australia.

A request for tender was issued last May to seven European builders to undertake project definition studies. Responses to this request would be evaluated later this year.

The role and extent of Australian Industry Participation in the new submarine project would be examined during the project definition study. An important aim would be to ensure that Australian industry involvement would provide adequate through-life support for the new submarines.

It was expected that two of the seven companies, in association with combat systems suppliers, would be selected to undertake further project definition studies later next year. These studies would also provide detailed information on the design, production, logistic support and costs of the project.

It was planned that the new submarines would replace the RAN's Oberon class submarines from the early 1990s.

## AUSTRALIAN DEFENCE FORCE EMPLOYMENT STATISTICS, MAY, 1983

*The total strength of the Permanent Defence Force was 72,940 at the end of May, 1983, compared with 73,077 at the end of April, 1983.*

The strengths of the individual Services were: Navy 17,218; Army 33,084; and Air Force 22,638.

The Permanent Defence Forces Enlistments for the month totalled 359 comprising 356 male and three female enlistments.

At the end of May, Reserve Forces with training obligations totalled 34,819 of which 30,865 comprised the effective strength of the Citizen Military Forces' component of the Army Reserve.

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INVINCIBLE on her maiden voyage, 1979 (Photo — RAN).

## VISITS TO AUSTRALIAN PORTS BY SHIPS OF RN TASK GROUP

A Royal Navy Task Group being deployed to the Indian and Pacific Oceans, New Zealand and the Far East, will visit Australia later this year.

Announcing this the Acting Minister for Defence, Mr Kim Beazley, said that the visiting ships would be HMS Invincible, the frigates Rotheval and Aurora, and the Royal Fleet Auxiliaries Olmeda, Regent and Appleleaf.

Mr Beazley said that it had been agreed that the ships would undertake goodwill visits to Australian ports between November and the beginning of January. Detailed planning of the port visit programme was in progress.



HMAS WOLLONGONG (Photo — RAN).

## NAVY PLANE IN FLYERS' SEARCH

The RAN patrol boat HMAS WOLLONGONG headed the on-the-spot hunt for two flyers ditched on July 17 in the Bass Strait.

Two Navy Tracker aircraft from the RAN Air Station HMAS Albatross at Nowra also searched for the two men whose twin-engine Aero Commander crashed 45 miles south east of Wilson's Promontory.

WOLLONGONG was joined later by the Attack class patrol boat HMAS BAYONET from HMAS Cerberus in Westernport Bay. The sea search was also assisted by the hulk carrier Goliath.

## WESTLAND SEA KINGS FOR INDIA

Westland has announced the purchase of Westland Sea King helicopters by the Indian Government for operation by the Indian Navy.

The Sea Kings order is part of a deal which includes the Rolls-Royce Gnome engines and the British Aerospace Sea Eagle sea-skimming anti-ship missile, announced in the House of Commons by Defence Procurement Minister Mr Geoffrey Pattie on Wednesday, July 20, 1983.

Mr Pattie said: "I am delighted to announce that Westland Helicopters, Rolls-Royce and British Aerospace have signed contracts for the supply of Sea King Helicopters, Gnome engines and Sea Eagle missiles to the Government of India."

A Westland spokesman said: "This contract was won in the face of intense international competition after many months of negotiation and with the support of the UK Ministry of Defence."

"We are now poised, we believe, to consolidate our export success by winning in the other major markets open to us."

The purchase of the Sea Kings will also bring substantial business for British aerospace manufacturers who will contribute to the overall weapon system.

This contract, in accordance with normal practice, will become effective when the initial payment is made by the purchaser.

## NEWS FROM THE WEST



The United States nuclear submarine USS GUITARRO leaves HMAS Stirling in Western Australia, after seven days in port (Photo — ABPHOT, Eric Pitman, RAN).



Pictured together on May 23 are the RAN's hydrographic survey ship HMAS MORESBY (left) and the oceanographic survey ship HMAS COOK off the West Australian coast. COOK was on her first operational cruise and this was their first meeting. MORESBY is based at HMAS Stirling on the west coast (Photo — RAN).



Pictured in the HMAS Stirling small boats harbour is the new West Coast based patrol boat HMAS ASSAIL. Formerly the longest serving Darwin-based boat (14½ years), ASSAIL replaced sister ship HMAS ADROIT which is under refit at HMAS Stirling before joining the Fremantle Port Division of the RANR (Photo — ABPHOT, Eric Pitman, RAN).



The Attack class patrol boat HMAS ADROIT pictured on the HMAS Stirling slipway on 1st July undergoing a refit before its handover to the Fremantle Port Division of the RANR. The handover was expected to take place in late August (Photo — ABPHOT, Eric Pitman, RAN).



Pictured cutting HMAS Stirling's 5th Birthday cake are the youngest sailor on the base, 17-year-old Michael Vidulich and the Commanding Officer Captain Daryl Fox. Since commissioning on 28th July, 1978 HMAS Stirling has seen 97 RAN, United States, British, New Zealand, Netherlands and Malaysian ships and submarines visit the base. It has indeed lived up to its motto of "Go Forward" (Photo — LSPH, Steve Given, RAN).



The Fremantle class patrol boat HMAS IPSWICH visited HMAS Stirling for an Assisted Maintenance Period between 8-27. In so doing, IPSWICH became the first Fremantle class patrol boat to undergo an AMP at HMAS Stirling and the first vessel of this class to stop-over at the base. HMAS FREMANTLE is the only other Fremantle class patrol boat to have visited HMAS Stirling, having been alongside for one hour on her delivery voyage from the UK in 1961 (Photo — ABPHOT, Eric Pitman, RAN).



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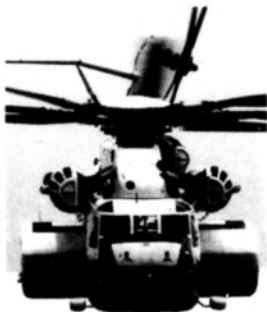
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The Western World's largest heavy-lift helicopter is the Sikorsky H-53E SUPERSTALLION, being utilized by the U.S. Marines and Navy for any task that requires up to a 16-ton lift. The MH-53E will be used by the Navy as the next generation airborne minesweeper.



The technology that produced these aircraft created the finest commercial helicopter in its class, the S-76 MARK II. Not a stretched derivative of prior technology, it is a new aircraft at the beginning, not the end, of its evolution. The MARK II has delivered what was promised—unparalleled productivity, speed, range and comfort. Its maturity and acceptance are the result of over 200,000 flight hours. Its availability rate is 95%, and mission reliability in the tough offshore oil market is over 98%. In the highly competitive corporate marketplace, it is the most popular twin turbine helicopter.



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## New Concepts for Australia's Maritime Defence

The NSW Division of the Navy League held a seminar on new concepts for Australia's Maritime Defence at Tattersall's Club, Sydney, on 3rd May. The aim of the evening was to stimulate thought and an awareness of the necessity for strong maritime defences in Australia. Some factors involved in concepts were examined, and presentations given on certain modern maritime platforms which could have relevance to our defence. The seminar was well attended by members of the League and invited guests. The addresses given are reproduced in this edition for the information of readers. It is of note that, in opening the seminar, Rear Admiral Andrew Robertson, a Vice-President of the League, called on all present to take note of the facts and philosophies given and to discuss these matters with friends and contacts. It was of growing importance that our people should be well aware of basic maritime considerations and the importance of our control of the seas around as for our long-term survival as a democratic nation. All were enjoined to do what they could to bring to the notice of press and public the need for action to redress the serious situation now facing the RAN following its loss of the carrier group and most fixed wing aircraft.

## New Concepts for Australia's Maritime Defence

By Rear Admiral Andrew Robertson, AO, DSC, RANEM

*I have been asked to address you on New Concepts. This is a great challenge to which I am not altogether sure I can do justice.*

One might well ask whether there are any new concepts, or just reshapes of old principles and methods, modified by changes in technology. Maybe that is so, and I will leave it to your judgement as I develop what seems to me to be the most applicable and practical of the various options available.

Since World War 2 the main concept for our defence has been a so-called Forward Defence Strategy, based on playing our part in SE Asia along with certain regional countries and with the support of powerful allies.

The strategic changes which have taken place in recent times have altered the scene greatly. Major changes of course include the withdrawal of Britain from SE Asia and East of Suez; the withdrawal of the US from Vietnam; and the growing power of the Soviet Fleet and its world-wide deployment, including in the NW Indian Ocean and S China Seas.

While Soviet Fleet deployments have led the Americans to deploy task groups to the Indian Ocean, and the British fleet to return to that area, the overall maritime balance has swung somewhat against the West.

So what should be the ideal concept for maritime defence and how should one perhaps address the matter?

Before we approach the problem it seems wise to set the major parameters and avoid getting bogged-down in the myriad of issues which, while important, do not seriously affect the central driving factors.

Firstly it is intended to consider the Defence of Australia in a serious war affecting our territory and in the final analysis, survival, for if we get that right minor skirmishes will be well catered for.

Secondly I do not intend to cover a super-power nuclear war, though the concept would still, in the main, be applicable in such a case.

Thirdly the timescale is the next 10 to 15 years — too early for most "star wars" so far as we are concerned, and too early for Australia to become self sufficient in defence support.

Fourthly I do not intend to consider identifying who might or might not be the enemy, but rather to assume that it must be a nation or nations with strong maritime power coming from the general NE to NW direction probably with some island hopping, and with the probability of maritime action anywhere around Australia and in its approaches.

Fifthly it is considered and assumed that Australia must have greater independence in defence and foreign policy. All political parties support such a proposition.

Having outlined the five parameters the main influences on a concept would seem to derive fundamentally from Geography and Technology. Historical precedent is also a most important guide. There are of course many matters involving political and military judgement which will modify a basic concept but these three influences seem to be the main ones.

If you spin a globe you will experience great difficulty in finding a country with a more extensive maritime environment than we have. Maybe New Zealand would qualify, but no other sizeable nation. Common sense indicates that were we situated in a continent like say the Soviet Union, a huge and powerful army would be central to our defence needs. For an island (particularly one with a dead heart), maritime power, however provided, is clearly central to our defence.

You all know the geographical facts of our position, but a quick recap may be helpful. We live close to the greatest collections of islands in the world — the great island barrier (or stepping stones?) between us and Asia — the

islands of the Pacific and Indian Oceans, many of which are of great importance to our lines of sea and air communication to allies such as the US, and to sources of supply such as the Persian Gulf or the Cape of Good Hope.

We have huge oceans around us with great distances and sparse resources, ports, air bases, etc. We have to face cyclones and stormy seas in many areas.

Our natural resources are largely in or off our NW coast, Queensland, or in the Bass Strait area.

We depend on overseas supply, particularly from the Persian Gulf, for 35% of our oil including black oil. Over 95% of our trade is seaborne. In war we couldn't fight without overseas supplies of equipment, etc.

Our population is largely in the South East with a pocket in the South-West and a strip up the East coast. Our major cities and concentrations of industry are on the coast.

Out of these facts tumble clearly our dependence on the passage of merchant ships around our coasts and across the deep oceans, particularly to N America, Cape of Good Hope, the Gulf, and Japan. We need to protect these lines, perhaps for long distances from our shores. Long range self-contained maritime forces are clearly one requirement. Secure well-placed bases are another. An increase in our capability to supply our forces ourselves is clearly another.

Now let us look at technology. You will hear more on some platforms later, but certain developments have indeed had a considerable impact in recent times.

Satellites have made detection, but not necessarily identification, of ships much easier. While surveillance is easier for us advantages of satellites are two-edged, for homing in of submarines and surface ships on our allied merchantmen in the deep oceans will be easier for enemies.

Over the horizon radars such as our own Jindalee will improve ocean surveillance in

some areas, but again, not identification, or doing anything about the information received.

Missiles have had big effects including that most attacks on ships could well end up these days as air attacks since submarines, aircraft and ships can fire Harpoon/Exocet type missiles and in the final stages ships face air attacks. This increases the importance of ship's Air Defence including the most effective counter-measure — to be able to destroy the launching ship, aircraft, submarine, or shadowing aircraft before missile launch.

This points up the need for fighter/strike aircraft with the Fleet or convoy. Additionally it points up the need for our own ships to have aircraft or helicopters for targeting of our own Harpoon missiles.

Missiles on PBs have increased their hitting range but PBs are limited due to weather and vulnerable to air attack.

While AS detection systems have improved with new sonars, towed arrays, bottom sensors, Barra-type sonobuoys, processors, etc submarines have become quieter. There is no clear swing in that balance. Merchant ships however have increased in speed which makes intercept by conventional submarines rather more difficult.

You will hear later of Nuclear Subs, VSTOL, Hydrofoils and airships.

Now let us look at Historical precedents.

It is said that those who do not study history will be doomed to repeat it. In our case we should look closely at World War 2 in our area for many of the parameters I outlined at the start of this talk were present in that war.

To start with we had the very successful and most cost-effective armed merchant raider operations off our coast and in our approaches, mounted by Germany. These raiders sank some 49 vessels in our general area, mostly not in local areas, by gunfire, air attack (some carried an aircraft) and mines. They were finally combated by cruisers, long-range air patrols, control of shipping, and the tightening of the blockade near their bases, but they were very successful in the early years of the war. They could be again for they are easy to cover and there are plenty of fast merchant ships available.

Then when Japan struck southward the allies adopted a strategy of holding up the advance wherever they could and buying time — Corregidor, Malaysia, Singapore and the Indies, and our own efforts in AMBON, TIMOR and RABAU. Japan endeavoured to cut off Australia from US support by striking through the Solomon Is. She also launched a submarine and raider campaign against our shipping. These moves were countered by the build-up of strong balanced allied naval forces — mostly US and some of ours — in the SW Pacific; by British Naval forces, with some Australian ships in the Indian Ocean, and by shore based air-power. Strong submarine forces were deployed from Fremantle and Brisbane (36 US + Brit and Dutch squadrons from Fremantle) against enemy shipping. Secure main bases were established well back from the front and naval forces with effective aloft support ranged over thousands of miles. Based around carrier power and marine forces supported by shore-based aircraft the allies were able to strike back and, after defeating and largely destroying Japanese carrier power, used island hopping and concentration of immense force to drive to the very gates of Japan itself.

Tomorrow is the anniversary of Battle of



Trackers — still flying but for how long? (Photo — RAN).

Coral Sea — the first example of carrier warfare between carrier groups. This was the beginning of the end for Battleships (though they have been revived again now). We saw the new technology changing maritime warfare.

The Battle barred the way to Port Moresby and proved a major turning point in strategy, and in the power of carrier groups.

We must note well the lessons of WW2, for though some technology has changed, basic principles and geography haven't, eg the use of the huge distances for defence in depth; long range self-contained striking forces; the complementary nature of land and sea-based

air power; the significance of islands and straits; the role of submarines; and the lessons of shipping and its protection.

What in sum do all the factors I have outlined add up to on the Maritime frontier?

We would therefore be wise to include in any future concepts for our defence strong deterrent forces including aircraft, both shore and sea based; submarines; mines; an ability for island warfare to help our friends, defend our own islands, and hold up any advance; an ability to deploy naval power on both our coasts — A TWO OCEAN NAVY; an ability to defend important shipping in our far ocean areas as well as our coastal traffic; naval plat-

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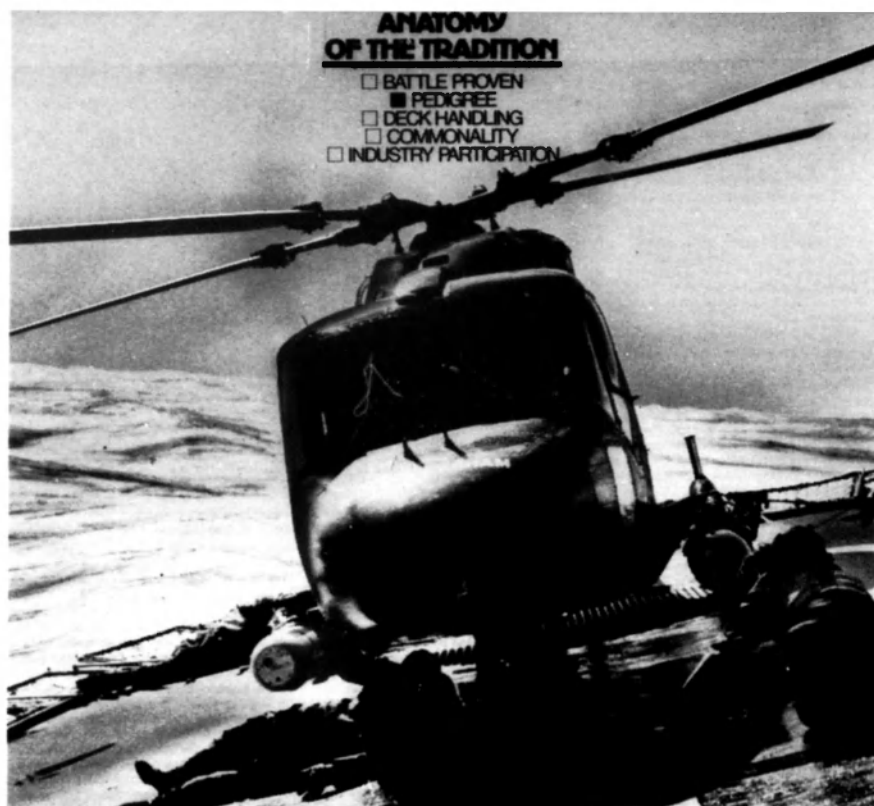
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forms with longrange and good sea keeping capabilities; increased air-defence capability for the Fleet and convoys (notwithstanding the recent carrier decision, this implies fighter/strike air power at sea with the Fleet for there seems no other answer except when close to shore air bases); advanced capabilities in ocean surveillance, anti-submarine warfare, and electronic warfare; and improved communications.

We would of course need a small but highly mobile and efficient army with means of movement and support; and fighters etc for defence of our vital bases and cities. Army and air force structure would of course need to take account of the broadly maritime concept outlined.

Are there alternative concepts?

Of course there are. For example dependence on allies to do some of the major tasks outlined. But this wouldn't fit with self reliance, or with today's capabilities or even the will of our allies.

Another would be to defend Australia from land alone, but one needn't mention to this audience the difficulties of mounting such a defence with our small population, huge coastline, and paucity of roads and rail. Even Hitler with his huge army and excellent internal communications system in Europe was overwhelmed by maritime powers able to land where and when they liked with a great concentration of force.

A further option would be one of nuclear deterrence, but this seems ruled out.

There may be other concepts and I hope those of you with ideas will bring them forth.

So far the defence concept held by the present Government has not emerged clearly. The Minister of Defence has stated the Govern-

ment's adherence to deterrence; to surveillance of Australia's coastline and maritime zone, to meeting emergencies within Australia's area "which the Government determines should be met by Australian military forces"; and to respond to lesser emergencies, peacekeeping, assistance to civilian authorities, etc.

These policy objectives are not very specific and could mean almost anything, depending on one's interpretation. However various statements have been made from time to time which seem to indicate a concept based largely on land-based aircraft (F111, Orions and F18s) with tanker support. The announcement of \$200m to update the F111s and \$9m for extra VIP aircraft/tankers seems to bear this out, particularly noting the destruction of the carrier group. While submarines have been mentioned no firm commitment to increase the present tiny force has been given. Nor has any announcement been made on new frigates or patrol boats. The carrier decision has had a profound effect on the offensive and defensive power of the surface fleet and removed many possible options for Australia in time of threat. It has unbalanced the Navy and the Defence Force as a whole. We do not yet know the Government's intentions for the defence of vital ocean shipping which we must have since we do not produce most of our defence requirements or 35% of our oil. Nor do we know the concept for defence of our own islands, or those of friendly island powers, or of keeping open our link with the USA. There seems to be increased emphasis on air bases in the North, but one wonders to what degree this is realistic given the small size of our army and navy, both of which would be heavily committed to defend such bases and ensure fuel and other supplies reached them.

There are other elements of Labor Party policy, though seemingly not yet Government policy, which are of great interest. In particular the formation of a Maritime Command controlling all maritime assets would seem to be most sensible. It would ensure economic and priority use of our dwindling resources. Inter-service co-operation should improve as would co-ordination of our maritime defence. The possible transfer of ORIONS to the Navy has been recommended by some authorities including in the Katter Report. But no statements have been made by the Government. Again this would seem wise and follow the practice in nearly all the maritime powers. A dichotomy of control and support would be avoided and priorities resolved by the one authority with the overall responsibility for maritime defence.

So overall the new concept espoused by our Government is still somewhat cloudy.

It has been further confused by the reported decision of the Cabinet last night to dispose of the Navy's fixed wing aircraft. This is a disaster not only for the Navy but for the Defence of this Nation for not only will our war potential be greatly lowered, but the efficiency of the Surface Fleet will be most seriously affected. Further, these 27 combatant aircraft would have been most useful for operations from shore — the Skyhawks for long range strike and army ground support — and the trackers for surveillance and ASW. The decision doesn't fit with strengthening our defences, or with standing alone.

It is to be hoped that the Government's concept and reasoning will be clearly enunciated soon, for the strategic background has changed greatly in recent years, and we can no longer be certain of the aid of powerful friends.

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and the new diesel-electric powered KIL0 conventional attack submarine. These submarines give the Pacific Fleet a substantially improved capability in antisubmarine and anti-carrier warfare.

Soviet Naval Aviation has grown by over 50 per cent since the mid-1960s to a current force of about 400 aircraft. The deployment of over 30 naval long-range BACKFIRE B aircraft to the Far East since 1980 — in addition to the Air Force BACKFIREs in the region — has significantly increased the threat to shipping in large expanses of the Pacific.

The Pacific Fleet also includes the largest contingent of naval infantry in the Soviet Navy — an 8000 man division based near Vladivostok. Elements of this elite, well-trained force deploy with naval forces in the Pacific and, on a limited scale, can rapidly respond to local contingencies.

The quality and quantity of Soviet forces in the Far East have been

substantially improved, and these trends will continue in the future. The Soviets have a formidable capability to wage wars simultaneously in the West and East. Moreover, the Soviets have projected their military power in the Far East beyond their historic sphere of influence and have thereby enhanced their capability to challenge any nation or combination of nations in this region.

US and Allied forces capable of countering Soviet adventurism in the Far East are those forces depicted further on.

## GENERAL NAVAL FORCES

The missions of the Soviet Navy are two-fold: first, to protect the seaward approaches to Warsaw Pact territory and coastal waters including SSBN patrol areas and, second, to neutralise Allied maritime

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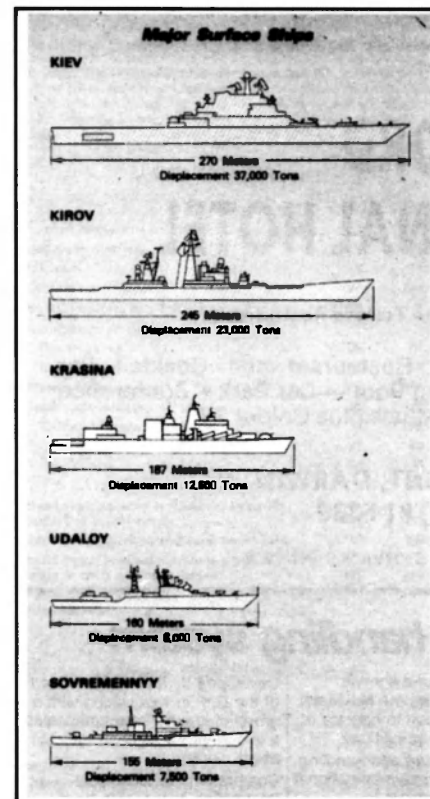
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forces which could threaten the success of Soviet military operations. Each of these two major missions requires distinct groups of ships and aircraft. Generally, the forces protecting the sea approaches are larger in number, smaller in size, more oriented to a single task and less capable in terms of weapons and endurance. These forces are designed to gain and maintain control of waters contiguous to Warsaw Pact states and along the coastal flanks of ground force movements.

The second wartime mission results in an increasing trend toward sustained operations by large naval formations in all the world's major oceans. These forces comprise hundreds of strike bombers, attack submarines and surface warships. They are forces capable of firing eight types of medium and long-range nuclear-capable antiship cruise missiles and four types of missile-delivered long-range ASW weapons. These modern forces have been created as a result of improved design efforts and Soviet advances in nuclear and other technologies. Concurrently, the Soviets have constantly expanded their distant area operations to maintain a significant naval presence in the Mediterranean Sea, Indian Ocean, South China Sea and in the South Atlantic.

During the past several years, the Soviets have maintained a large naval construction programme. This vigorous programme now comprises seven classes of surface warships, five classes of submarines and four aircraft types. Among the surface warship programmes is the KIEV-Class 37,000-ton V-STOL aircraft carrier. In 1982, the third KIEV unit joined the fleet with the fourth unit expected to do so in 1984.

The second unit of the 23,000-ton KIROV-Class cruiser — the first Soviet nuclear-powered surface warship — is nearing completion. This



*Defence production includes the new Ivan Rogov class amphibious assault ship. Judging by IVAN ROGOV's characteristics, the ship can carry three air-cushion landing craft, a Naval Infantry Battalion, armoured personnel carriers, tanks and helicopters.*

unit will have a significantly improved surface-to-air missile defence capability, and it is being fitted with a new SAM believed to be optimised to defend against sea-skimming cruise missiles. The first ship of the 13,000-ton gas-turbine-powered guided missile cruiser of the KRASINA-Class has also entered service. This ship carries 16 antiship cruise missiles and an advanced vertical launch SAM system of the same type as that on the KIROV-Class. Additional units of two classes of guided missile destroyers, the SOVREMENNY (antisurface warfare) and the UDALOY (antisubmarine warfare), continue to augment the fleet.

Of the three nuclear and two diesel classes of attack submarines being produced, the most impressive is the 12-14,000-ton OSCAR-Class carrying 24 SS-N-19 antiship cruise missiles with a range of 500 kilometres. This is more than three times as many cruise missiles than have been fitted on previous classes of series-produced Soviet submarines. Additionally the nuclear-powered, titanium-hulled ALFA-Class torpedo attack submarines — at 40 knots the world's fastest — and the VICTOR III, fitted with the Soviet's first towed-array ASW sensor, are still entering the fleet at a rate of three per year. The TANGO and KILO-Class of diesel-powered attack submarines also continue to be constructed. The latter is currently being built and deployed only in the Far East, although deployments are expected to include the western fleets by 1984.

Among the aircraft still being built for Soviet Naval Aviation are the supersonic, variable-geometry wing BACKFIRE capable of carrying three 300-kilometre-range, MACH-3 air-to-surface antiship cruise missiles. The FORGER fighter-bomber also continues to be built to fill the air wings on the KIEV-Class carrier. In late 1982, this aircraft, carrying air-to-air missiles, conducted a close-range interception of a US Navy aircraft over the Indian Ocean.

In the near future, a new attack submarine will begin series production at two shipyards. This class will have significantly more capability than the older VICTOR III.

The Soviets soon will begin construction of a large, nuclear-powered aircraft carrier that will carry conventional take-off and landing high-performance jet fighters. The first ship of this new class will probably enter naval service late in the decade. The Soviets will also continue to improve the combat capabilities of their antiship and antisubmarine weapons and sensors so that by the 1990s they will have greater capabilities to fight naval battles on the high seas far from home waters.

### NATO AND THE WARSAW PACT

In May, 1982, the North Atlantic Treaty Organisation published the *NATO and the Warsaw Pact — Force Comparison* study, which portrayed the magnitude of the threat posed by the Warsaw Pact. This publication comparing NATO and Warsaw Pact Forces carried the

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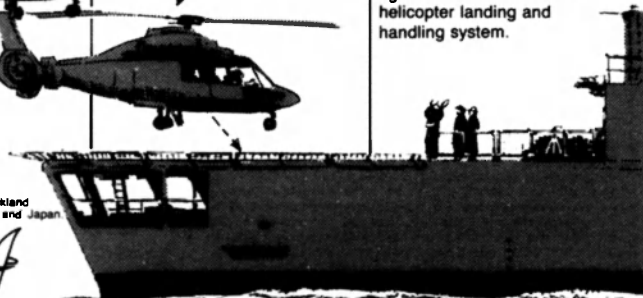
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authority of all the NATO nations that participate in the integrated military structure of the Alliance. The US position at the US-Soviet INF talks in Geneva was developed in co-ordination with the NATO Allies and is based on the Alliance estimate of the Warsaw Pact threat discussed in this study. The NATO Alliance will soon update this force comparison study to reflect the changes that have occurred since it was issued. While specific data may change, the magnitude of the threat will not. Displayed in the following charts and graphs is the comparison of NATO and Warsaw Pact forces that was carried in the 1982 NATO study.

### NATO Naval Forces<sup>1</sup>

	1971	1981
Aircraft carriers	8	7
Helicopter carriers	6	2
Cruisers	11	16
Destroyers/frigates	281	274
Coastal escorts and fast patrol boats	180	167
Amphibious ships		
Ocean-going	24	41
Independent coastal craft	62	59
Mine warfare ships	348	267
Total submarines	185	180
Ballistic missile submarines	38 <sup>2</sup>	36 <sup>2</sup>
Long range attack submarines	72	80
Other types	85	85
% NATO submarines nuclear powered	60%	49%
Sea-based, tactical and support aircraft including helicopters	801	712
Land-based tactical and support aircraft	112	180
Land-based anti-submarine warfare fixed-wing aircraft and helicopters	471	450

<sup>1</sup> Includes forces allocated to the European and Atlantic areas  
<sup>2</sup> Also referred to in the section on Nuclear Forces

### Warsaw Pact Naval Forces<sup>1</sup>

	1971	1981
Kiev class ships	0	2
Helicopter carriers	2	2
Cruisers	20	21
Destroyers and frigates	142	182
Coastal escorts and fast patrol boats	663	661
Amphibious ships		
Ocean going	7	18
Independent coastal craft	180	166
Mine warfare ships	374	360
Total submarines (all types)	248	288
Ballistic missile submarines	36 <sup>2</sup>	52 <sup>2</sup>
Long range attack submarines	115	148
Other types	85	57
% Submarines nuclear powered	32%	45%
Sea-based, tactical and support aircraft including helicopters	38	148
Land-based tactical and support aircraft (including some transport aircraft and transport helicopters)	521 <sup>2</sup>	718 <sup>2</sup>
Land-based anti-submarine warfare fixed wing aircraft and helicopters	225	178

<sup>1</sup> Excluding the Pacific Fleet  
<sup>2</sup> Also referred to in the section on Nuclear Forces  
<sup>3</sup> About 300 of these are bombers

(This article has been prepared from "Soviet Military Power", published by the US Defence Department.)

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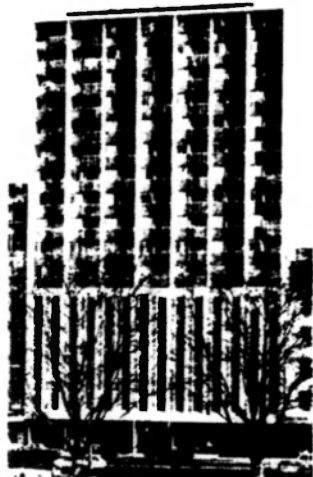
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## Out of the Past

**HMAS TOBRUK  
1950-1972**

by HARRY ADLAM

The average career of a destroyer is usually twenty years and that was the life span of the Battle Class destroyer TOBRUK.

She was laid down one year after the close of the Second World War, and incorporated many improvements that that struggle had brought to light. Her main armament consisted of four 4.5 inch DP guns mounted in two turrets forward of the bridge and ten torpedo tubes in two pentad mountings. Her close range weaponry was quite imposing with no less than twelve 40mm guns. Six of these were MK VII Bofors, whilst the remaining six were in three twin STAAG mounts. These STAAGs were just about the latest thing in radar controlled AA fire. A triple barrelled "Squid" A/S mortar completed her armament.

TOBRUK was a large ship, with a full load displacement of 3330 tons. The use of aluminium proved a great saving in weight including the lattice mast, the torpedo tubes and even the outer funnel casing.

When commissioned on 17th May, 1950 TOBRUK was not complete as she had not received her torpedo tubes. Her first commanding officer was Commander T. K. Morrison, RAN. The crew were as good a bunch as could be found in any ship. They got on well together, and under Cdr Morrison's guiding hand they soon developed into a first class crew. Cdr Morrison was later to become a rear admiral. The same rank was attained by her engineer officer, Lt Cdr B. W. Muscard. Her 1st lieutenant, Lt L. M. Hinchliffe, became a captain.



HMAS TOBRUK early in her career (Photo — RAN).

seamed in to two miles from the coast line on this particular night and waited. The supply train was in the habit of stopping in a tunnel, working its boiler up to full steam pressure and then tearing for its life across the beach. As the engine left the tunnel, "B" turret fired a star shell whilst the rest of the armament belied into the waggons. It looked as though the whole train was blown to pieces, so Cdr Peek started to move out. Suddenly, the voice of the GI, CPO Reg Blackwell, roared out over the armament broadcaster "Skipper, the ... 's shooting through." What happened was that the engine evidently not badly damaged was slowly creeping away. A 4.5 projectile straight in the boiler soon put a stop to that.



HMAS TOBRUK starboard broadside view showing full gun and torpedo armament. The Squid mortar is carried right aft (Photo — RAN).

In August, 1951 TOBRUK was detailed off to take her place with the United Nations naval forces in Korea. HMAS BATAAN had been refitting to go to Korea, when an accident to her number one boiler caused her to be taken into dock yard hands, her place being taken by TOBRUK. Most of her crew had been transferred to BATAAN, then had to be drafted back again. Of the senior officers who originally commissioned TOBRUK only the engineer, "Yea" Muscard remained. It was to all intents and purposes a new crew that took her to war. The second crew were on a par with the original one and by the time the ship reached Japan they were a fine well-trained team. Korea was a good war as far as the navy was concerned, but it was certainly no picnic.

Fourteen days out at sea, two days in port, was the standard routine. Even at this stage TOBRUK was still not complete, as she had only received one set of torpedo tubes.

In Korean waters she fell into the established routine quickly. Sometimes it was screening an aircraft carrier, other times with the inshore bombardment forces. As carrier escort she worked usually with USS RENOVIA, a WOOLWORTH carrier. On other occasions she screened the Australian carrier HMAS SYDNEY. The other escort jobs were varied. A usual screen could consist of TOBRUK teamed up with a Canadian destroyer, with an American destroyer completing the screen.

One highlight of TOBRUK's time off the coast came on the 18th November, 1951. The North Koreans were in the habit of sending ammunition supplies down the coast railway line at night. TOBRUK

With regards to gunnery shoots, it was commonplace at times to carry out a one gun firing. This meant only one gun of one turret being required. When one of these "cruising watches" shoot took place, one seaman gunner only loaded both shell and cartridge. Quite a lot of work for one man, but TOBRUK's gunners were good. However, accidents will happen even in the best teams. Able seaman Cameron was working his gun one night when an accident occurred. In the 4.5 turret, the shell hoist is right at the front of the gun house, with the cartridge hoist three quarters of the way back. He had hurled a shell into the loading tray, dashed back to the cartridge hoist, picked up a charge and dropped it into the loading tray. The rammer started to ram home when he saw that the shell had rotated on its driving band and was pointing the wrong way. Too late! The rammer went home, and to use the gunner's terminology the shell was rammed "a ... first". The shell was finally removed from the gun and the ship brought back into action.

Another letdown concerned a mine. A "floater" was spotted and all hands mustered on the uppers to see it blown up. The Bofors opened fire but the shells seemed to "bounce off". A Bren had a gun and the mine's casing punctured. A light blue cloud escaped as the mine sank. What a dismal show. The next time a "floater" was spotted nobody thought it worth while watching. This one went off with a tremendous roar. Very few people saw it. Another letdown.

Korea can be a very cold place as TOBRUK found out. In December



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she had the misfortune to burn out the armature of No 1 turbo generator. This in itself was not too serious, as the ship had three diesel generators, as well as the two steam units. But the ship was modern and was "all electric", even the galley.

At this stage one of the diesels was down for overhaul. Even this wasn't a problem, but within thirty-six hours of No 1 TG burning out No 2 decided to do the same thing. This meant that when the ship went into action every bit of electricity was needed for the guns. The ship had to go on to emergency battery lighting. Likewise the galley could not be used. A request to return to harbour for repairs brought a "negative, stay on station".

To illustrate the conditions aboard, every steam leak became a block of ice. The coldest place in the ship was the boiler rooms. The icy cold air outside was sucked into the boiler rooms by the forced draught fans.

In 1952 the ship was ordered home. Before her time on the station was completed, she was to go to Cocos Island to escort the Royal Yacht carrying Princess Elizabeth and the Duke of Edinburgh. While TOBRUK was in Hong Kong news came through that King George VI had passed on. This meant the end to the Royal Tour for that year.

In June, 1953, TOBRUK went back to Korea, staying there until January, 1954. For the rest of her active life she was employed with the fleet, doing service with the strategic reserve in the Singapore Area, and in fact all the usual jobs that befall the lot of a ship in the permanent navy. Her seagoing career came to an end as the result of a gunnery shoot off Jervis Bay in September, 1960. The exercise was known as a throw off shoot. Two ships used each other as a target, but set the directors about five degrees off. This enables a very realistic exercise but in this case, something went wrong. Her "throw off" mate in this shoot was her sister ship ANZAC. ANZAC put a beautiful shot straight into TOBRUK's engine room. It was only a practice shell, but destroyers' side plating is traditionally thin, one quarter of an inch being the usual. With fourteen feet of water in her engine room TOBRUK was helpless.

Towed back to Sydney for repairs, then paid off she was never recommissioned. TOBRUK had been in service for ten and a half years without a break. Having steamed over 299,946 miles and firing approximately 3000 rounds of 4.5 ammunition at the enemy.



With the O class, type 15 anti-submarine frigate QUIBERON, TOBRUK is towed from Sydney for scrapping on 18th April, 1972 (Photo — RAN).

It was time for her now to have a rest. To be honest, she was becoming obsolete. Her type of ship was no longer being built. There seemed no future for her. For many years she was a forlorn sight rusting away in Athol Bay. On May 14, 1971, three days short of her 21st birthday she was declared for disposal. April, 1972 saw her, and another old timer QUIBERON being towed out of Sydney enroute for scrapping in Japan. Another name was missing from the Navy List.

She was a good ship, and could maintain thirty-one knots with ease. She could also put up a terrific barrage of gunfire. But better than that she was a clean, efficient and happy ship.

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THE NAVY

October, 1983

## NAVY'S FFGs Good Ships for Australia

by A. W. GRAZEBROOK

destroyer type ships for the 1980s — showed up several needs:

- Close in Weapons Systems — The RAN's FFGs all have or will have PHALANX, the same system that the British hastened to fit to their new aircraft carrier HMS ILLUSTRIOUS.
- An area Surface to Air Missile system — Australia's FFGs have the STANDARD system.
- Anti-submarine and targeting helicopters — our FFGs are fitted for them. They have

THIS year's Australian Labor Party pre-election Defence Policy Statement included remarks to the effect that the RAN's four guided missile armed frigates (HMA Ships ADELAIDE, CANBERRA, SYDNEY and DARWIN) are far from ideal for the RAN and were not designed for service in these waters.

This writer found the ALP statement surprising to say the least. It was the previous ALP Government which cancelled the (RAN's preferred) locally designed and built Light Destroyer Project (DDL) in favour of the US-designed and built FFGs.

Whether the Whitlam Government's objections to the DDL Project — "its cost would explode" — were justified will never be known. However, the FFG Project itself (remembering the helicopters are a separate project) has been managed outstandingly well, both at the Australian end and by the ships' builders — Todd Pacific Shipyard Corporation, of Seattle, USA.

Specifically, the FFG Project performed well in that:

- The original two ships (ADELAIDE and CANBERRA) plus the third ship (SYDNEY) were delivered by Todd right on time, to the day.
- This performance was achieved for SYDNEY in spite of a significant fire during construction.
- The fourth ship (DARWIN) is on schedule so far and is expected to be delivered right on schedule.
- After allowance for inflation and exchange rate changes, project costs are within those budgeted.
- The first two ships performed well on trials and the third (SYDNEY) has performed well so far — her trials are not yet complete.

The Falklands War — in a sense a "laboratory" for evaluating the needs of

influenced by criticism (in the USN) of the FFG type, or by reports, since substantiated, of the forthcoming termination of the FFG building programme.

The latter is not necessarily significant. It was triggered by the need to cut the US Navy's forward shipbuilding programme costs. The FFGs were only one of a number of cuts and delays implemented to achieve these cuts in the FY84-88 programme and included the cancellation of plans to build a new series of nuclear powered guided missile armed cruisers.

Furthermore, the original US Navy FFG programme envisaged the construction of fifty



(Photo — RAN)

not got them, but that is no fault of the design of the ships.

- Much more Damage Control, particularly for controlling fires. This is one area for concern — both the control of fires after they have started, and their prevention in the first place.

In view of all this, the ALP's Policy Statement is surprising. It may be that they were

FFGs. Fifty FFGs have already been approved, and of these many are already complete.

The United States Navy's criticism of the FFG type is made in the light of US needs. It cannot be assumed that Australia's needs are the same as those of the US Navy. Therefore, it is appropriate to look briefly at the US Navy's criticisms and consider which, if any, are appropriate to the RAN.

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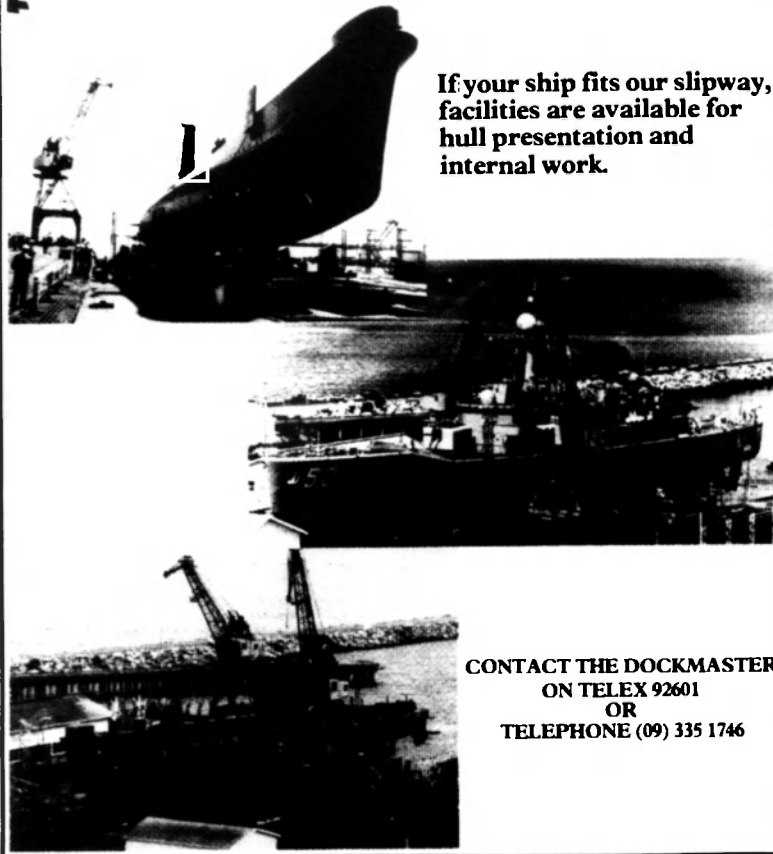
THE NAVY

Page Forty-seven

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The US Navy's criticisms have been well summarised by LCDR B. R. Linder, USN, writing in *United States Naval Institute Proceedings*:

- **Anti-aircraft Warfare:** A Mark 92 fire control system serves both gun and missile systems and, in concert with a separate tracking and illumination radar, can provide two channels of direction for the STANDARD area defence SAM system. Two channels are considered too few. The lack of a three dimensional search radar and Link II data link are also considered disadvantages. This AAW capability puts the FFG into an AAW supportive role only as distinct from a leading AAW role.
- **Anti-Submarine Warfare:** The primary ASW capabilities of the FFG have yet to be installed — the two ASW helicopters and towed array sonar have yet to arrive. When they do, the FFG will be a formidable ASW ship. Meanwhile, they are very limited.
- **Surface Warfare** — the combination of HARPOON surface to surface guided missiles and the Oto-Melara 76mm gun make the FFG a good augmentation to existing firepower.
- The small crew size compared with other destroyers and frigates may impart crew endurance limitations.
- Dependence upon shore maintenance, resulting from the lack of a significant on board repair capability, will limit the FFG type compared with other similar sized ships in the USN.
- Although not designed for battle group operations, the FFG must increasingly be integrated into Carrier Battle Groups and Surface Action Groups in order to comply



(Photo — R. Gillett)

with existing (US Navy) surface force wide training, deployment and force structure objectives.

The real thrust of these criticisms and by no means all the remarks are criticisms, is that the FFG7 type is not suited to the US Navy's Carrier Battle Groups. The RAN has no Carrier Battle Groups and has never had serious ambitions to operate such units. Therefore, unless Australia wishes to be able to provide units for US CBGs, criticism that the FFGs are unsuitable for such groups is irrelevant to the RAN.

The anti-submarine temporary disadvantages — the lack of helicopters and a towed array sonar — are more serious. However, the lack of helicopters can be rectified and should have been, by Australia,

much earlier than is now forecast. The lack is an indictment of the defence equipment procurement system and not of the design of the FFGs.

The next question is whether the anti-aircraft system is sufficient for our Region, recognising the types of threat the RAN may have to face. These threats range widely, from EXOCET missiles launched from air or surface craft, from IL38 aircraft to the more modern aircraft available today from the Soviet Union and from ancient WHISKEY Class submarines to the HDW1500s of the late 1980s.

It would be difficult to find a design available in the world today which would provide a better counter to these threats than the FFG, at a cost the same as, or better than, that of the FFG7.

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## BOOK REVIEWS

### FIGHTING SHIPS OF THE ROYAL AUSTRALIAN NAVY

by ROSS GILLET  
Published by: Burgess Media Services Ltd  
PO Box 2131, Wellington, NZ  
Reviewed by: BRIAN ALSOP

Price: \$11.95

"Fighting Ships of the Royal Australian Navy" is a comprehensive 128 page pictorial history by class, of those fighting ships which have served the RAN since its birth in 1911. Both built-for-the-purpose and requisitioned ships are covered with comprehensive data and a brief history of each vessel included.

In addition to those ships commonly presented, the vessels detailed include twelve colonial naval vessels which entered RAN service, but which regrettably are rarely listed in histories of the RAN. Also included in this book are details of two classes of built-for-the-purpose ships which served the Services Reconnaissance Department (SRD) during the Second World War. These ships, like the organisation for which they worked, are little mentioned in other works. In "Fighting Ships of the Royal Australian Navy" the reader will find their full particulars.

The book is illustrated with 135 photographs, most of which have not previously been published. Each vessel is illustrated with at least one, and in many cases more photographs. It is clear that the author has put much effort into locating the photographs collected in this book.

Unfortunately, due to the limited space available, it would have been impossible for the author to represent major auxiliary as well as fighting ships. Hence, as the book's title implies, only fighting vessels are covered.

As a brief reference work, "Fighting Ships of the Royal Australian Navy" is invaluable. Highly recommended.

### "SEA COMBAT OFF THE FALKLANDS"

by ANTONY PRESTON  
Reviewed by: SHTANDART

The definitive history of the Anglo-Argentine conflict concerning the stewardship of the Falklands/Malvinas Islands will undoubtedly not be written for some years yet; however the book under discussion here by the well-regarded British naval historian Antony Preston, represents an excellent enlargement of its sub-title, "The Lemons That Must Be Learned".

Apart from a fairly brief historical summary of the discovery, settlement and later-day nationalistic territorial claims surrounding this remote part of the world, the author concentrates on material and consequent tactical considerations which made this fortunately brief but fierce conflict of such importance to military personnel the world over.

### FIGHTING SHIPS OF THE ROYAL AUSTRALIAN NAVY



The fabled God of Battles is reputed by the cynics to favour only the possessor of the "big battalions". However, in this war, he definitely favoured the numerically inferior British Forces with success by endowing them with superb training and unmatched esprit de corps and motivation.

As this book only too graphically shows, British determination was partially negated by material inferiority in some important areas and disappointing weapon performance in other least expected categories. These deficiencies tended to be offset by malfunctions in the Argentine air-delivered ordnance which, whilst saving British ships, wasted the lives of many courageous and highly skilled Argentine aircrew and valuable aircraft.

Whilst this was undoubtedly a missile technology war, the hand-laid ship-borne machine gun and the heavy-calibre naval rifle reaffirmed their necessity to an unexpected degree and the cumulative effects on the Royal Navy of decades of emasculatory parsimony on the part of successive British governments were all too painfully evident in the lack of appropriate armament and defensive measures available to HM Ships.

In addition, the Argentines exhibited a remarkable degree of technical expertise and a talent for improvisation which was to cost the British dear.

The author provides several illuminating answers to questions like: What were the actual reasons for the final sinking of HMS SHEPHERD? What were the circumstances surrounding the death of the Master of the ATLANTIC CONVEYOR? Exactly why did "Vulcan" XM597 land at Rio de Janeiro after attacking Port Stanley?

One also reads of the major class of British warship which was designed and built with so tight a margin of stability that absolutely no

addition to the ship's armament could be made without sacrificing the two boats amidships! This is a splendid book. It is of worth to such an extent that when you also take into account its comprehensive photographic content, your personal budget could not be better served by purchasing this one work out of all the material currently available.

### "THE ILLUSTRATED ENCYCLOPAEDIA OF MODERN WARPLANES"

by DOUG RICHARDS  
Published by: Lansdowne Press, 1982

Reviewed by: "MOSQUITO"

In recent years there have been many books published pertaining to be "encyclopaedias" on aircraft. Modern Warplanes by Doug Richards is one such book. Unfortunately, it cannot be described as an encyclopaedia as there is insufficient technical detail to warrant this. Notwithstanding the above, Modern Warplanes is an excellent and easy to read reference book which should appeal to both aircraft modellers and enthusiasts alike.

The excellence of this book lies not only in the hundreds of colour photographs and drawings but mainly in the small line drawings detailing the major variations on each aircraft type. For 100 often aviation books describe aircraft variants or modifications but do not illustrate them. Modern Warplanes is an exception to this rule in that the author has attempted to show most of the major modifications made. The use of colour drawings has also allowed the author to illustrate aircraft markings and colour schemes from Abu-Dhabi to Zaire.

Only one Australian military aircraft is illustrated by a colour drawing. This is a Macchi MB 326 belonging to VC 724 Squadron of the Royal Australian Navy Fleet Air Arm. Unfortunately, the colour scheme shown is incomplete, as the wing-tip tanks should be coloured Oxford Blue and have the word NAVY on them. The caption to this sketch also gives the impression that it is an Air Force aircraft; even though it now is, but that's another story.

The overall treatment of Australian service aircraft is rather poor. In most cases no mention is made of the fact that a particular type of military aircraft is operated by one of the Australian services. Examples of this are: the RAN's HAS Mk 50 and Mk 50A Sea King helicopters and the RAAF's C130 Hercules (for which the RAAF was the first foreign customer). In cases where Australia does get a mention there are some errors. An example of this is the Macchi previously mentioned as well as the entry for the Westland Scout/Wasp. The RAN operated two Scout helicopters, in the utility role from HMAS MORESBY, not Wasp as claimed in the book. These Scouts had been specially modified for ship-borne operations.

Despite the above shortcomings Modern Warplanes is an extremely well written and illustrated book which at \$24 represents good value for money.

### "AN ILLUSTRATED GUIDE TO THE MODERN US NAVY"

by JOHN JORDON  
Published by: Lansdowne Press  
Reviewed by: ROSS GILLET  
Price: \$10.00

This compact book provides full data and descriptions of more than 40 warship types currently in service with the United States Navy. The vessels are arranged within sections of classes and then listed under the name ship of that class.

A brief introductory piece discusses the development of the Fleet to today's standards, as well as Fleet organisation, classification systems and comparisons of US and Soviet armament and magazine storage. Most of the illustrations appearing in the book are in full colour, with a good selection of line drawings showing deck plans and side profiles.

The book also features sections on carrier-borne fixed-wing aircraft, radars, missiles, guns and ASW weapons and sensors.

"An Illustrated Guide to the Modern US Navy" is a relatively cheap investment for many hours of enjoyable reading into the current state of the "world's most advanced naval power". Recommended.

### "US NAVAL WEAPONS"

by NORMAN FREIDMAN  
Published by: Conway Maritime Press  
Reviewed by: ROSS GILLET

"US Naval Weapons" is a 288 page book describing and illustrating every significant weapon system employed in the American Fleet since 1883. Detailed tables for each weapon are included in the book and further amplified by authoritative descriptions of why the weapon was developed and how it functioned in service.

The author is fast establishing himself as America's leading naval writer, with six major

works to date. This latest book is purely an encyclopaedia of facts. Many readers today are becoming more interested in the details of why ships and weapons were so designed. "US Naval Weapons" goes a long way in satisfying this need for more detail.

Numerous black and white photographs and scale line drawings appear throughout the book, while the dust jacket features a colour montage of some of the "weapon systems".

"US Naval Weapons" is a highly specialised book and as such would appeal greatly to readers interested or specialising in the US Navy and its many and varied weapons. These weapons descriptions have been properly researched and well presented.

### Fighting Ships of the Royal Australian Navy

- A BMS "THE WORLD'S NOT-SO-LARGE NAVIES", Volume II
- For the first time, an accurate all-embracing pictorial history of Australia's Fighting Ships.
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  - An essential reference work for libraries, serving ex-RAN members, naval buffs, model makers, or the "just interested".
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THE NAVY

Other pleasing aspects of the book are the detailed captions which in themselves tell a story and the line drawings, most of which are fully itemised.

The book's dust jacket proudly claims "Every gun, missile, mine and torpedo used by the US Navy from 1883 to the present day". When one reads between the covers, this statement is found to be completely warranted. Highly recommended.

### "CRUISERS OF THE WORLD

1873-1981"

by MICHAEL BURGESS  
Published by Burgess Media Services, 1983  
Reviewed by: RON WRIGHT  
Price: \$11.95

Readers may well be forgiven for thinking that the British war-museum iron frigate SHAH of 1873, and the new Russian nuclear powered ballistic missile KIROV have little or nothing in common.

But both can be rated as "cruising vessels" and they form the first and last vessels in this new book by Michael Burgess. The linkage between these two extremes is shown by some 120 vessels illustrating the cruiser's development over more than a century.

Each vessel has a page to itself, with a photograph and all essential data being supplemented by notes. The appeal of the book lies mainly in the photographs, particularly of older vessels, and in the notes, where even the most experienced reader is likely to find some information that is new to him. There is, for example, the Russian Cruiser (Rossia) whose boiler power was sufficient only to power two of its three engines, while the well-known French Cruiser Dupuy De Lome is credited with having certain watertight compartments filled with cellulose which was meant to swell on contact with water and plug shot holes.

Overall, this book lends itself well to browse reading and in such fashion will give much interest and enjoyment.

### "A CENTURY OF NAVAL CONSTRUCTION: THE HISTORY OF THE ROYAL CORPS OF NAVAL CONSTRUCTORS, 1883- 1983"

by D. K. BROWN, RCNC  
Published by Conway Maritime Press

Reviewed by: "MOSQUITO"

A Century of Naval Construction by D. K. Brown is a well written and very readable history of the Royal Corps of Naval Constructors. The Corps was formed in August, 1883, as a result of concern over the professionalism of British warship designers and constructors.

The decision to form the Corps into a professional body was made only after a bitter struggle against vested interests and has been fully vindicated by history. The background to this struggle is detailed in the first chapter. The remainder of the book traces the development of the Corps through the reign of the various directors.

This book is, however, more than just a history of the Corps, it is also a history of the design and development of warships over the past 100 years. In covering this period of rapid

Page Fifty-one



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technological development Mr Brown reveals the compromises that are continuously made in the design of modern warships. These compromises are generally the result of naval policies, economics and the technology available at the time. Because this book does cover the design and development of British warships over the last 100 years it is of special interest to students of Australian naval history.

As the vast majority of Australia's warships came from Admiralty drawing boards Mr Brown's book provides us with an interesting insight into some of the decisions taken in the design of these ships. There are also some interesting pieces of information provided about individual ships, such as the fact that HMAS SYDNEY (ex HMS TERRIBLE) was the only aircraft carrier built in a Royal Dockyard. A Century of Naval Construction is also one of the few books to do justice to the importance of the design and construction of the CERBERUS in relation to the development of the modern warship. "With twin screws, no sails and a twin 10in turret at each end she was the germ of the modern battleship".

Apart from designing warships, members of the Corps have been involved in various other projects. These ranged from designing tanks and trench digging machines to research into the collapse of box girder bridges (including the Westgate Bridge in Melbourne). This involvement by members of the Corps in other projects apart from warship design as well as the free exchange of personnel and information between the Admiralty and the civilian shipyards is one of the reasons why British shipyards have consistently produced some of the most capable and innovative warships in the world. Perhaps contained within the pages of

Mr Brown's book are some important lessons to be learnt, especially by Australia.

The illustrations contained within the book are both interesting and informative. One which is of particular note compares the performance of HMS LEANDER at sea to that of her model in the tank at Haslar. The model's performance predicts perfectly that of the actual ship.

Overall A Century Of Naval Construction by D. K. Brown is yet another thoroughbred to come from the stables of Conway Maritime Press and as such is highly recommended as a worthy addition to any maritime library.

**"CONWAY'S ALL THE WORLD'S FIGHTING SHIPS 1947-1982 PART I — THE WESTERN POWERS"**

Published by: Conway Maritime Press

Reviewed by: ROSS GILLET

Price: \$80.00

For too many years, authors and publishers in the naval book field have tended to specialise in the two world war eras with only an occasional publication devoted to the fleets of today (James being an exception of course).

In their effort to produce the widest possible coverage of the world's "fighting ships" since the dawn of the modern ironclad in 1860, Conways have to date produced the fascinating 1860-1905 volume, the 1922-1946 follow-up volume and now Part I of the 1947-1982 era; a period of 25 years' witnessing the navies of the world move from war to peacetime operations, new ship designs, the demise of many warship types, the emergence of nuclear propulsion and the continuing importance of the aircraft

carrier, submarine and now missile-firing small craft.

The 304 page, 1947-82 volume of "Conway's All The World's Fighting Ships" lists every significant warship constructed for the NATO countries, Australia, New Zealand and Japan; the last trio being referred to as "pro-western navies". Each fleet is preceded by Conway's usual tables to illustrate all units in service at the beginning of 1947.

Some of the most pleasing aspects of this latest Conway book are the quality of photographic reproductions (291 photographs), and the use of over 250 line drawings. Together they provide the reader with an improved insight into the many changes effected to warships in the last quarter of a century. Also featured are those ship designs, projected but never actually commissioned. These include the abortive British destroyer and frigate projects of the 1950s and 1960s, the United States super carrier UNITED STATES, and naturally our own DDL, light destroyer project.

No index of ship names is provided in the book as it will be included in Part II, covering the Warsaw Pact, non-aligned countries and minor navies. The volume under review here should appear in Australia later in the year. The final book in the series, 1906-1921, is currently in preparation.

When the first volume of "Conway's All The World's Fighting Ships, 1860-1905" was released in the late 1970s, I commented that the book must rank with the all time great naval reference works and that the size and originality of the undertaking was immediately apparent. The high standards achieved in the two earlier volumes have been successfully maintained. Highly recommended.

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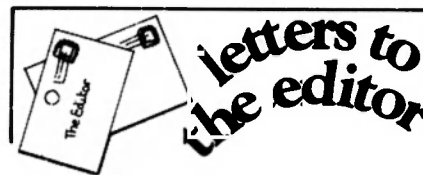
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Sir,

One cannot but be concerned about Australian defence matters at this time. Security is one of the prime responsibilities of Government, but here it often receives less than adequate consideration probably because our Governments are elected for only three years whereas Defence development is necessarily a long-term process.

It seems that less importance is to be attached to the ANZUS alliance. If this is so, then it would be logical for more emphasis to be placed on strengthening our own Defence Force; but it appears that the reverse will be the case.

If Australia is to be secure from regional threats, we must have a force capable of deterring, by threat of retaliatory offensive action, those who might think of embarking on some military excursion against us. Regional countries must also be aware of the determination of our Government to secure our interests, if necessary by use of our Defence Force.

The decision that our last aircraft carrier was not to be replaced is an example of the rundown. This necessary arm of fixed-wing aircraft was introduced by the Chifley Government as a result of war experience, which indicated clearly the importance of controlling our sea approaches and our sea communications.

Past wars are not necessarily a guide to the future, but experience indicates that air power at sea has become more, rather than less, important. Now, however, our Maritime Forces (Navy and Air Force) are to be expected to protect our interests without the full means to do so.

Certainly there could be occasions when the fighters and F111 aircraft would be able to provide support; but there could also be important occasions when shore-based fighter/strike aircraft either were not available when needed or did not have the range to provide the support.

Loss of such a capability is, no doubt, seen by our neighbours as a lack of determination to protect our interests should the need arise. No longer will Australia be seen to have the major maritime force in the region — we will be seen to have a force with a very limited capability.

We believe that a fundamental mistake is being made by those who expect to be able to get maritime defence on the cheap. Missile-armed patrol boats are useful in narrow waters but are largely ineffective in the vast oceans which surround us.

Similarly it is easy to look for a cheap solution by having more submarines instead of surface ships. Certainly the submarine has some unique capabilities — but the conventional submarine has its limitations. Also there could be many occasions when it would be very unwise to start submarine warfare (for example submarines did not play an active role in the Korean and Vietnam campaigns).

We believe it is essential, if we are to be confident of our freedom from attack, to have a "blue-water" fleet with RAAF support and with its own ready-reaction fixed-wing aircraft, capable of protecting our interests as far away from our shores as possible.

Anything less would not be adequate for Australia's security and would be seen by others as a weakening of our National will. We should not settle for a "cheap" solution, such as the British Government appeared to be doing, which resulted in the Falklands war.

In the long run it is cheaper in every way to avoid war by making a potential aggressor aware of the high risks beforehand, rather than by having to fight after a war has been allowed to start.

It is up to the people of Australia to insist on the provision of adequate defence in times of no obvious direct threat. The lack of a "blue-water" Navy would place the country at a very grave risk. In the past, Governments have gone to war unprepared. It is our concern that this should not happen again.

V. A. T. SMITH  
R. I. PEEK  
H. D. STEVENSON  
A. M. SYNNOT  
Former Chiefs of Naval Staff  
Canberra, June, 1983

letters to  
the editor

New Bridge Road  
Edgecliff, NSW, 2027  
Telephone 32 9939  
12th May, 1983

Dear Editor,

The Council of the RANSA is endeavouring to re-establish Squadrons of RANSA in Melbourne and Perth and to form Squadrons in other ports where possible. RANSA activities have long been confined to Sydney and Canberra and should expand with the increase in Naval facilities around Australia.

There is a need to give the plan maximum publicity and the Council would very much appreciate your assistance in "The Navy" magazine so that serving and former Naval personnel may be encouraged to take an active part in the organisation of new RANSA Squadrons.

Serving, retired, reserve and former Naval personnel interested in forming Squadrons are requested to either write direct to RANSA, New Beach Road, Edgecliff, Sydney, or contact the Secretary to the NOIC in their area. Volunteers to organise new Squadrons are required.

Yours faithfully

Commodore RANSA (Australia)

Dear Sir,

I am sure I am joined by the thousands of donors who contributed to the Save the Krait appeal when I say I am disgusted by the planned ignominy of this famous vessel to placement on the "hard" at the Canberra War Museum.

This cavalier decision by the so-called trustees is a complete breach of faith with the people who donated money to keep her afloat. To quote the poster headed "Death of a Hero" — "... restored to carry on her peacetime role, not just a museum piece, but as a living reminder of the nation's debt to servicemen and women."

MV Krait is a unique symbol, not to be paralleled with a Lancaster bomber or bits and pieces of Japanese mini-subs. For her symbolism to have meaning, she must be kept afloat and alive in whatever role volunteer boating organisations have for her.

To quote the appeal poster again — "This gallant little ship deserves more. Give her a future."

DAVID BAUME  
Church Point

Dear Sir,

There is nothing so sad and neglected as a ship out of water. With the best will in the world, the management of the National War Memorial in Canberra will not be able to sustain life in the Krait if she is allowed to die on dry land.

To see this diminutive vessel cutting her way down Pittwater is graphic testimony to the fearlessness of those Australians who, during wartime, put their trust in such a small ship.

They felt secure in the knowledge that, despite her appearance, she was a big ship, safe and comforting in her element. She must remain afloat.

To allow the Krait to rot on shore in the soulless city of Canberra is to deny this fine vessel the dignity of the peace for which she fought so valiantly.

ALAN J. LLOYD  
Riverview Road, Avalon

20 Marie Crescent  
Mona Vale, 2103  
29th June, 1983

The Editor,  
The Navy.

Dear Sir,

Many people put money, time and a great deal of effort into a major refit of "Krait", with the express purpose of enabling her to continue a useful life afloat.

There were rumours of moves to cement her up, some time ago, so there were plenty of warnings. How did this irresponsible decision on "Krait" come about? Up to now there seems to be a conspiracy of silence by those responsible. Is this another case of arrogance on one side and incompetence on the other?

The people who have given so much of their own time and effort to keep "Krait" even just afloat, over the many years preceding the major refit, must feel they have now been cheated. These people and those who donated to "Krait's" refit are owed an explanation at least.

Yours faithfully  
DENIS FOSTER  
Page Fifty-five

# THE NIGHT THAT MADE KIWI FAMOUS

*Twenty years after the night that made her famous, KIWI was declared surplus by the Royal New Zealand Navy.*

The Minister for Defence, Mr Eyre, announced that the ship, which had been in reserve for six years, had no future training value, and would be sold.

His statement recalled one of New Zealand's most unusual Naval actions. It was less a battle than a brawl fought at night against odds with Elizabethan gusto, and, by all accounts, to the accompaniment of Elizabethan language.

McVinnie, in KIWI, picked up a submarine on Asdic. The ship dropped a pattern of six depth charges, turned, lost contact, regained it, and attacked again.

The attack damaged the submarine's electric motors. She surfaced and, faster than either of the two ships, made off into the darkness.

KIWI and MOA followed, firing star-shell to illuminate, and high explosive to damage. Hit by MOA, the submarine returned the fire.

One of I-I's twists brought her beams on to KIWI. The little ship raced in to ram, hit hard and rode high up on the hull, throwing off barges and startled soldiers. KIWI used full power to pull clear, and with MOA helpfully



Detailed view of HMNZS KIWI's damaged bow (Photo — RNZN).

Incredibly, the submarine could still move. MOA took over, hammering her with gun fire until she went ashore on a reef and became a total loss.

Readers of "The Navy" are invited to write in expressing their views on nautical affairs of general interest.

illuminating, rammed twice more.

The third time she rode well up on the submarine, and lay there, listing, while fuel from I-I's ruptured pipes gushed up over her, and every member of the ship's company who could find something to fire, attacked the decks below.

The ramming had damaged KIWI's bow.

Everything about the participants was robust. The two ships, 600-ton corvettes, KIWI and MOA, were ordered before the war and with a third, TUI, were built in Scotland. All arrived in New Zealand in 1942.

With the Japanese sweeping down the Pacific, the Navy was pressing a mixed bag of coasters and trawlers into service as mine-sweepers.

The three ships joined the famous 25th Minesweeping Flotilla, and ended in the embattled Solomon Islands. They were popular ships, chunky and far from handsome, but they had room, and they were sturdily built.

The robustness extended to their commanding officers. Lieutenant-Commander Gordon Bridson, of KIWI, was a large Auckland and a former swimming champion. Lieutenant-Commander Peter Phipps, of MOA, was a substantial South Islander who had been one of the earliest members of the Volunteer Reserve.

Both men had commanded ships on Channel convoys in the United Kingdom during the dangerous days of 1940 and 1941.

At the beginning of 1943, one of the decisive battles of the Pacific war was being fought on and around the humid island of Guadalcanal.

The Americans were slowly expanding an invasion beachhead on the island; the Japanese were desperately trying to run in reinforcements by destroyer or submarine.

One of these submarines was the I-I. On the night of 29-30 January, she was off the north-west end of Guadalcanal. So were KIWI and MOA.

On paper, it was a particularly even battle. The submarine was longer than the two ships combined. She displaced more than they did together. Her 5.5" gun could fire a shell heavier than the combined weights of the corvettes' single 4" guns.

Shortly after 2100, Able Seaman E.

## NAVY LEAGUE DIVISIONAL & CADET NEWS

NAVY LEAGUE OF AUSTRALIA

Notice is hereby given that the Annual General Meeting of the Navy League of Australia will be held at the Melbourne State College, 757 Swanston Street, Carlton, Victoria, in Conference Room S820, Level 8, Science Education Building at 7.30 pm on Friday, 11th November, 1983.

### BUSINESS

- (1) To receive the report of the Federal Council and to consider matters arising therefrom.
- (2) To receive the financial statements for the year ended 30th June, 1983.
- (3) To elect office-bearers for 1983/84 as follows:
  - (a) Federal President.
  - (b) Federal Vice-Presidents (2).
  - (c) Federal Council Members.
  - (d) Auditor.

Nominations for the above to be lodged with the Honorary Secretary prior to the meeting.

- (4) General Business.
- By Order of the Council

J. H. H. PATERSON  
Honorary Federal Secretary

13 Malvern Road  
Mont Albert, 3127

Operating nine factories for the manufacture of munitions and other defence materiel, three aerospace facilities, two naval dockyards and nine research and development establishments, the Department of Defence Support designs, develops and manufactures a range of products for the Australian defence force.

### PRODUCTS

- Included are
- Aircraft
  - Guided weapon systems
  - Small arms • Ordnance
  - Ammunition • Explosives
  - Rocket motors • Propellants
  - Uniform clothing
  - Generator sets

### FACTORIES

Ammunition Factory Footscray, Vic  
Ordnance Factory Bendigo, Vic  
Ordnance Factory Maribyrnong, Vic  
Small Arms Factory Lithgow, NSW  
Albion Explosives Factory, Vic  
Explosives Factory Maribyrnong, Vic  
Mulwala Explosives Factory, NSW  
Munitions Filling Factory St Marys, NSW  
Australian Government Clothing  
Factory Coburg, Vic  
Government Aircraft Factories  
Fishermen's Bend and  
Avalon, Vic  
Aircraft Engineering Workshop,  
Pooraka, SA  
Guided Weapons and Electronics  
Support Facility, St Marys, NSW

### DOCKYARD SUPPORT

The Williamstown (Vic) and  
Garden Island (NSW)  
Naval Dockyards have  
extensive facilities  
for the  
construction  
and repair of  
naval vessels

### RESEARCH & DEVELOPMENT

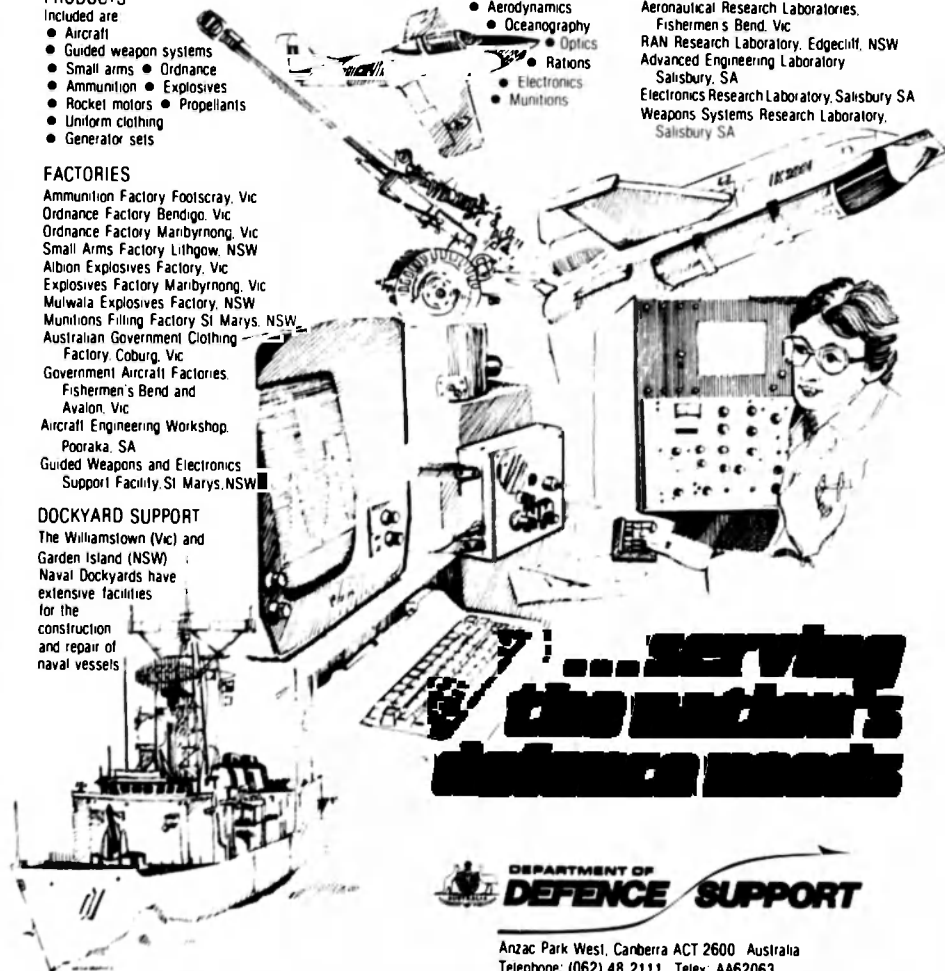
The Department's defence research and development laboratories, form the second largest research and development organisation in Australia with some 1000 professional scientists and a total staff of about 4400

### RESEARCH FIELDS

- Aerodynamics
- Oceanography
- Optics
- Ratons
- Electronics
- Munitions

### LABORATORIES

Materials Research Laboratories,  
Maribyrnong, Vic  
Materials Testing Laboratory, Alexandria  
NSW  
Armed Forces Food Science Establishment  
Scottsdale, Tas  
Joint Tropical Trials and Research  
Establishment, Innisfail, Old  
Aeronautical Research Laboratories,  
Fishermen's Bend, Vic  
RAN Research Laboratory, Edgecliff, NSW  
Advanced Engineering Laboratory  
Salisbury, SA  
Electronics Research Laboratory, Salisbury SA  
Weapons Systems Research Laboratory,  
Salisbury SA



DEPARTMENT OF  
**DEFENCE SUPPORT**

Anzac Park West, Canberra ACT 2600 Australia  
Telephone: (062) 48 2111 Telex: AA62063

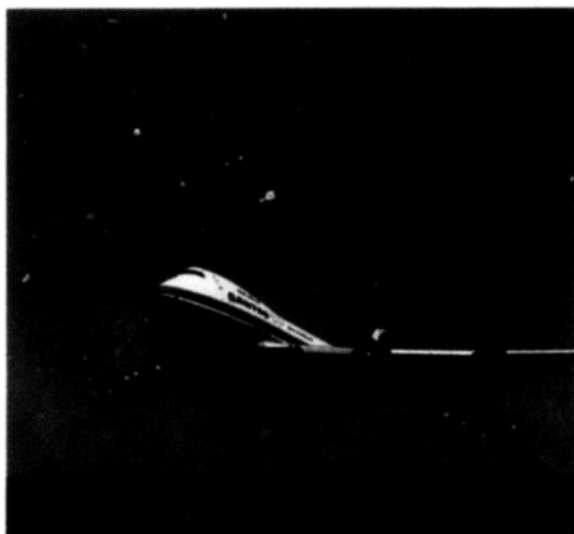
# Software Sciences

Software Sciences combines practical experience as a systems house with specialist skills in aviation consultancy to provide a wide-ranging capability in Air Traffic Control and Airport systems.

## AIR TRAFFIC CONTROL

Major areas of practical expertise are:

- Flight Data Processing (FDP) Systems — including systems for procedural control in non-radar areas such as trans-ocean.
- Radar Data Processing Systems, including short range, long range, ground movement (using networked micro-processors), and weather radar processing;
- Combined FDP/RDP and flow control systems;
- Census of air movements over a particular region
- Air/Ground data link studies.



Software Sciences has carried out work for the Civil Aviation communities of over twenty countries including Algeria, Australia, Belgium, Canada, Denmark, Federal German Republic, France, Hong Kong, Hungary, Italy, Japan, Philippines, Portugal, Spain, Sweden, Thailand, Turkey, UK, and USA.



## AIRPORTS

The company's resources are particularly suited to:

- Taxiway, runway, and terminal area simulation models;
- Airside scheduling systems
- Flight information systems
- Message switching systems;
- Check-in systems.
- Operational/financial statistics
- Commercial data processing

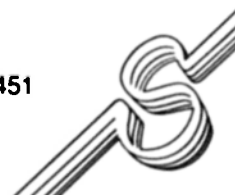
For more information contact  
Gwynn Boyd.



**Software Sciences**

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