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AUSTRALIAN NAVAL INSTITUTE INC

1. The Australian Naval Institute Inc is incorporated in the Australian Capital Territory. The main objects of the Institute are:
   a. to encourage and promote the advancement of knowledge related to the Navy and the maritime profession,
   b. to provide a forum for the exchange of ideas concerning subjects related to the Navy and the maritime profession, and
   c. to publish a journal.
2. The Institute is self supporting and non-profit making. The aim is to encourage discussion, dissemination of information, comment and opinion and the advancement of professional knowledge concerning naval and maritime matters.
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CONTRIBUTIONS

In order to achieve the stated aims of the Institute, all readers, both members and non-members, are encouraged to submit articles for publication. Preferably, submissions should be typed, double spaced, on A4 paper; the author's name and address must be shown clearly, even if a pseudonym is required for printing purposes; to be eligible for prizes, original articles must be accompanied by statements that they have been written expressly for the ANI; and short biographies will be welcomed. The Editor reserves the right to reject or amend articles for publication.

DISCLAIMER

Views expressed in this journal are those of the authors, and not necessarily those of the Department of Defence, the Chief of Naval Staff or the Institute.

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Cover: Bell-Halter SES 200 (page 47)

FROM THE EDITOR

With regret, I announce that this will probably be my penultimate edition of the *Journal* as I have resigned from the RAN and will be moving to Queensland to teach in a TAFE College at the beginning of December. I have enjoyed the experience enormously, to the extent that I have offered, as a last resort, to continue from a distance if the Council cannot find a replacement. However, there is no doubt that the interests of the Institute will be served best by having an editor resident in Canberra, in close touch with the Council.

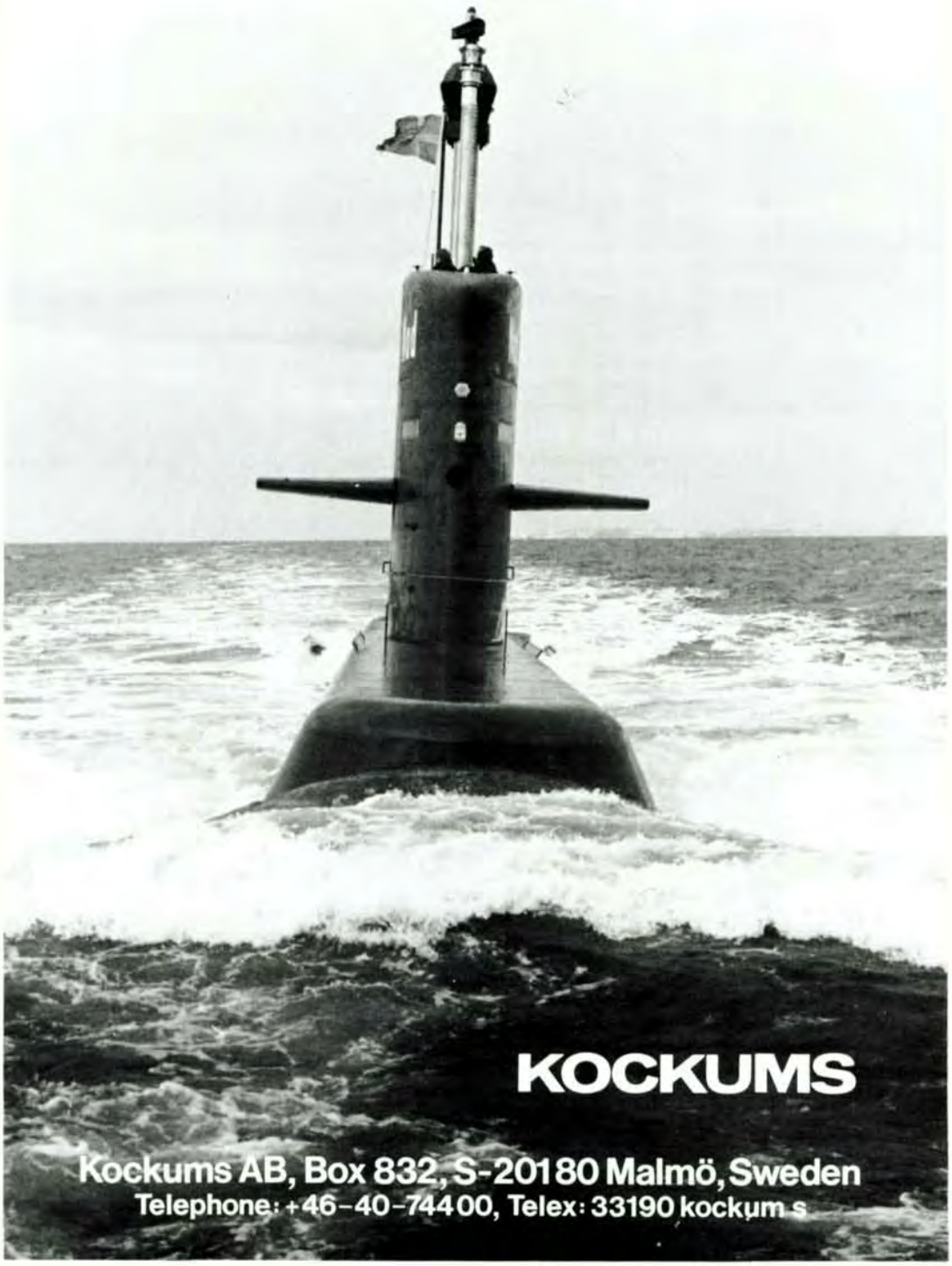
We are seeking, urgently, someone who is willing to take over as editor before I go, so that we can prepare the next journal together. The requirements, in addition to willingness and enthusiasm, are a sound knowledge of grammar, spelling and punctuation, not so much to correct the contributions (most of which are extremely well written) but to ensure that there is a consistent editorial style. If you compare this edition with our first volumes, you will realise that my predecessors and myself have worked hard to improve the format and general, professional standard. The idea of restricting Council Office-Bearers to permanently serving members of the RAN has the distinct advantage of ensuring that people with new ideas move in every three years or so; I have done my time, and we now require someone to be able not only to maintain the present standard, but also to inject some new ideas.

The task is not as daunting as it might seem, and there are several people who, though unable to take on the job themselves, for various reasons, are prepared to help. Indeed, if there is a willing volunteer who will be moving to Canberra in the new year, we should be able to get the helpers to carry over between my departure and his or her arrival. If you are prepared to volunteer, or know of someone who is suitable but shy, please let me know as soon as possible.

As for this edition, although there is no theme, we do have a number of articles which are linked. There are, for example, two on the Indian Ocean and two on destroyers, and two of the minor articles look at aspects of the latter in the sense that they propose a different approach to new acquisitions. The theme for November is aspects of maritime history, in any shape or form, and the deadline for copy is the **21st October**, a significant date for such a theme. I would particularly like someone to pick up two ideas, advanced by Tom Frame in the last edition (*The opportunity is now available and the means within reach to initiate appropriate restoration of the condition of naval history* — with reference to the War Memorial) and by James Goldrick in his book review in the February 85 journal (*Naval officers were and are subjected to naval history as a serious discipline for so little time in their careers. . .*) Letters, minor articles and major articles are all welcome!

Finally, in case the next journal is produced by my successor, my thanks to all the contributors in my time, and to those who have helped me to put the journal together and to dispatch it promptly, especially our ever patient and helpful printer, Peter Trick.

Geoff Cutts
(062–662245)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Correspondence

Aircraft Carrier Project

Sir

As one who has been closely involved with the carrier question for the last sixteen years, I would like to record some comments on Lieutenant Commander Francis' paper *Ashes to Ashes* (ANI Journal May 85).

To preface my remarks, it is fair to observe that the writing of researched papers can be an incestuous business insofar as it involves quoting from earlier papers. In the process, what 'seems to be' to one author becomes a stated fact to the one who quotes him, and this then becomes the historical truth to all those that follow. The media do it frequently. For this reason, it is necessary to set the record straight regarding those aspects of Francis' paper of which I have some direct personal knowledge.

In listing the pro-carrier arguments, Francis gives seven circumstances which he says 'the RAN argued'; Note 24, referring to this section, then implies strongly that these arguments are taken from my paper, *The Need for an Australian Aircraft Carrier Capability*. This is simply untrue, as anyone who takes the trouble to read my paper can verify quite easily. I argued that the RAN's prime strategic mission was sea assertion for both ocean and coastal sea communications; that sea assertion required the tactics of ASW and AAW; and that organic naval aviation was essential to both to be effective. I was not acting as a surrogate for the Navy and stating its case for it as Francis implies. They were entirely my own views. The Navy did distribute unclassified papers which covered every conceivable use for a carrier, but I did not use those arguments.

Francis quotes John Stackhouse of *The Bulletin*, at Note 53, stating that there were 'orchestrated Navy lobby groups', and goes on later to observe that Stackhouse's comment 'may well be true'. I cannot speak for other groups, but my group, Admirals Guy Griffiths and Andrew Robertson, Captain Jeff Gledhill, Brian McKeon and the FAA Officers Association, has never acted at the behest of the Navy. This is sheer speculation by Stackhouse and has no basis in fact. It is quite untrue. I would not be surprised to find that others (with the possible exception of the Navy League) also acted quite independently, out of personal conviction and their estimate of the national interest.

I was extensively involved in NAPTAWS, and the use of ocean surveillance satellites was raised then as an argument against ALL surface ships, the carriers in particular. It is a story worth repeating for an insight into the depths to which opponents of the carrier would sink.

The NAPTAW Study officer (Commodore Jim O'Farrell) and I became aware of this argument through one of the study papers which included a statement to the effect that there was absolutely no future for surface ships. This assertion, on the covering paper, was merely a restatement of a similar flat assertion in one of the many attachments — no supporting evidence or deductions from verifiable fact. We asked for an explanation. We were told that it was too secret for us to be told. We said we would get security clearances, or, if not us, then at least CNS had a right to know. Eventually, and after a lot of time and persistence, we were told there would be a general briefing for all concerned. A large audience attended to hear the supersecret news. It was revealed that the source was an unclassified (sic!) Adelphi paper on Soviet ocean surveillance satellites.

Quite apart from the questionable political assumption that the Soviets would expend their low orbitting satellites in this way for a regional power, and would arrange to give real time intelligence from them directly to his maritime strike forces, there was the question of the efficacy of the satellites themselves. This resulted in a long debate at WRE, with the Defence scientists as referees. The upshot was that, while not discounting their capabilities, these satellites were not necessarily as omniscient or invulnerable as was being claimed. (Angry collapse of anti-carrier faction.)

Given this background, it surprises me to learn that the satellite argument continued to be used at Russell Hill. (And if it is accepted, how much more at risk are fixed land bases?) Francis refers to this anti-carrier argument as 'the weakness of the open ocean argument'. Surely he jests; but it does not appear so.

I disagree strongly with Francis' judgement at Note 23 about Brown and Woolner's paper. Whatever its apparent virtues, it confirms Orwell's comment that no one writes without a purpose. And their purpose is obvious. I disagree too that the basic weakness of the pro-carrier

arguments underlies the whole issue. The plain, ugly, truth is that Navy simply could not muster the numbers in the Canberra Power Game. The so-called strategic arguments were mere surface dressing on a decision forced on the Navy for the panochial reasons of a majority whose various interests coincided. And, moreover, a group which will bear no personal responsibility for the consequences, and whose lives will never be at risk because of it. Strong words; but the truth is often painful. The money argument, that a carrier and its aircraft would distort the Defence budget, is incredible in the light of the $5 billion for the F18s and the further sum of a similar size which is needed to make it into an effective weapon system.

Lest my comments disappoint Francis, I would like to congratulate him on a well-researched and, on the whole, very good paper. Improbable as it may seem from the foregoing, I greatly appreciated it. Indeed, I would like to see the whole story expanded up to book length one day, going back to the 50s, to include all the dirty tricks, and the Navy's complicity in its own defeat. It is an appalling story which Australia's taxpayers are owed. Pogo said it: 'I have seen the enemy and he is us'.

Francis is quite right, of course, that the failure of successive Governments and administrations to state achievable Defence objectives is the root cause of uninformed debate on force structure; that failure is nothing short of criminal negligence in my view. It does not need an unambiguous threat to decide Defence objectives. But that is another debate.

Alan Robertson

The author's comment:

America

One of the things that attracted me to explore the decision-making process on major equipment acquisition is that it is normally a closed business. The process usually only opens up for public scrutiny and debate at a very late stage, such as when a Cabinet decision to buy is announced. My objective in writing *Ashes to Ashes* was to illuminate this process, and so it is particularly gratifying that my work has stimulated the strong, articulate and informed public response as provided by Commodore Robertson. His comments on the satellite argument and the 'Canberra Power Game' are especially valuable input from one of the players on the 'inside'.

Robertson strongly disagrees with me on a number of points. This is excellent; disagreement is healthy, for it is only by an open debate that the Navy can find the '. . . defensible intellectual basis for its existence' that Robertson himself seeks.

Turning now to details, Footnote 24, in fact, refers to my condensation and interpretation of pages 11 to 19 of the paper *The Need for an Australian Aircraft Carrier Capability*. These pages precede Robertson's own pro-carrier arguments and are his version of the narrative of RAN participation in the debate. Surrogacy on behalf of the RAN is neither implied nor intended.

Whilst I accept the Robertson comments about the Stackhouse view on 'orchestrated Navy lobby groups' and especially his own independence, I reiterate that the circumstantial evidence of orchestration remains very strong. The CNS-sponsored, retired officers' symposia and newsletter are overt signs of seduction; what lies underneath? The Robertson aside about the Navy League adds to this body of evidence. I go on and ask the question — where were our own submarine, destroyer and missile patrol boat lobbies? If you accept the money arguments, then they stood to gain from the carrier's loss and so should, in theory, have been arguing against the carrier.

Finally I must thank Commodore Robertson for his generous closing remarks, and say that I too have seen the enemy, and he is indeed us. We must get our intellectual house in order.

D.A. Francis

ACP Costs

Sir,

In his May 1985 'Journal' article on the Aircraft Carrier Project, Lieutenant Commander Francis several times refers to the contemporaneous Tactical Fighter Project for purposes of contrast and explanation. May I suggest that in the area of costs, at least, his comparison is overdrawn.

He comments: 'The failure of the $478M Aircraft Carrier Project is in contrast to the affirmative decision given to the $4000M F18 Project.' In fact, the official announcements of approvals for the two projects gave the total project costs in August 1981 prices for the FA18 purchase as $2,430M and for the *INVINCIBLE* purchase as $478M (see House of Representatives Hansard for 20 October 1981 and 25 February 1982 respectively). Like must be compared with like, and it is simply not reasonable to take a 1981 cost for one project and set it against a 1985 or later cost for another.

Later in the article, Lieutenant Commander Francis makes a different error in deducing a cost for each FA18 of $53M, by dividing 75 into $4000M. Your readers would, of course, appreciate that the overall project cost includes substantial elements for spares, training, support and facilities, and that the average unit cost for the FA18 is substantially less than 1/75th of the project cost.

These points are not mere debating subtleties. They have clear relevance to some of the most common errors made in general media discussion about Defence equipment costs. If the case for Defence spending is to be effectively made and understood, it is surely necessary that public discussion acknowledges the distinction between unit cost and project cost, the reality and effect of inflation and exchange rates over a given period, and the importance of a common price basis in any sort of dollar comparison.

SPK Brown

NOTICE OF ANNUAL GENERAL MEETING

The Annual General Meeting will be held at 2000 on Friday 22 November 1985 at RSL National Headquarters, Constitution Avenue, Campbell, ACT.

AGENDA

1. Confirmation of Minutes of the Annual General Meeting held on 26 October 1984.
2. Business arising from the Minutes.
3. President's Report.
4. Auditor's Report.
5. Election of the officers of the Institute and the Ordinary Councillors.
6. Appoint an Auditor and fix his remuneration.
7. Other Business.

ELECTIONS

Office Bearers

The Officer Bearers of the Institute are:

a. President
b. Senior Vice President
c. Junior Vice President
d. Treasurer
e. Secretary
f. Journal Editor

Council

The Council of the Insitute consists of:

a. The Office Bearers
b. Ten regular members known as Ordinary Councillors

Qualifications

Only regular members may hold office.

Nominations

Nominations of candidates for election are to be signed by two members (regular or associate) of the Institute and forwarded to reach the Secretary no later than 1 November. Nomination forms are available from the Secretary.

Voting

Only regular members may vote and voting must be in person at the Annual General Meeting.

CANBERRA CHAPTER MEETING

Following the AGM, there will be a meeting of the Canberra chapter and an address by the Chief of Naval Staff, Vice Admiral M.W.Hudson AO, RAN.

FROM THE TREASURER

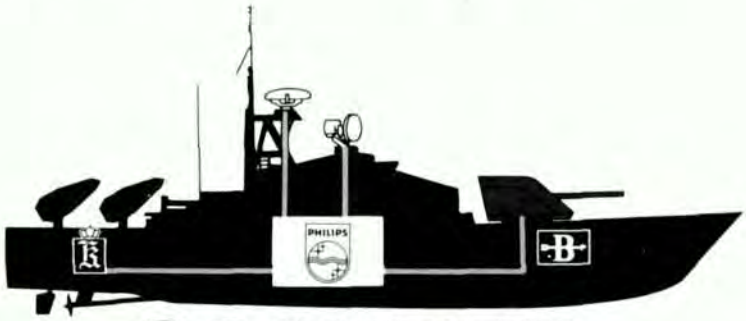
Membership renewal time has arrived again and members should note that, as decided at last year's AGM, the subscription rate is $20.00, but this will cover the period 1 October 1985 to 31 December 1986. This is to allow us to align our future financial years with the calendar year and the Journal volumes. Members who wish to use the airmail option, should also note that the rates quoted are for four (4) journals, and if they wish to have the November journal mailed by air, they should add an extra 25% and ensure that it is returned by mid-October at the latest.

Without pre-empting the auditors' report, I'm pleased to say we have reduced our long term debtors to one, and he has promised to pay before the end of our financial year. I trust this will encourage the host of volunteers waiting for the chance to take over as Treasurer, now that they will only have to run the books and not chase up old debtors.

Now is also a good time to encourage new members to join; it makes life easier for the Treasurer, the membership secretary, and our computer, if people join at the start of the year. So please see what *you* can do to produce new members, especially junior officers and sailors — members of the other Services and civilians are, of course, more than welcome.

Peter Coulson

Royal Swedish Navy has taken delivery of Hugin-class patrol boat no.14 in a series of 16.
Length: 36.4 m. Displacement: 150 tons. Speed: 30+ knots.
Complement: 18.



SCANFIRE

- Bofors all purpose gun 57 mm/ L 70.
- Kongsberg SSM Penguin Mk 2.
- Philips combat & weapon control system 9LV 200.

This powerful weapon package is proposed for the R.A.N. Freemantle class FPB.

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PHILIPS

The author was awarded the ANI Silver Medal for this essay submitted during his attendance at the RAN Staff College

LOOKING OUT TO SEA:

AN ESSAY ON THE APPLICATION OF A PRACTICAL MARITIME STRATEGY IN SUPPORT OF NATIONAL INTERESTS IN THE INDIAN OCEAN REGION

by Lieutenant Commander MJ Taylor RAN

The first point to remember about the Australian island-continent is not that it is a continent but that it is an island.

TB Millar 1969

The Indian Ocean is, paradoxically, in many ways the last frontier of Australian national policy: paradoxically, because the ocean was the avenue for the discovery and colonisation of the continent, and its historical lifeline to Britain and the major portion of the British Empire. It was the avenue by which Australians rushed to assist the 'Mother Country' in two colonial and two world wars; the avenue over which passed nearly all of Australian overseas trade; and the scene of Australia's first major naval engagement. Except for a few, brief, alarms, Britain remained the predominant Indian Ocean power until well into the 1960s, and Australia remained content to assume that protection of British interests in the region would serve also as security for Australia's western seaboard and European trade routes.

As the British withdrew from their former possessions, Australia, as in the World War, sought to increase American involvement in the region to fill the power vaccuum, thus perpetuating the tendency noted by T.B. Millar to '. . . demand an equal voice in policy, equal status, equal theoretical responsibility, but not to make equal effort or sacrifice . . .'[1] By this time, however, President Nixon had, through his Guam Doctrine, served notice on America's allies that they would henceforth be largely responsible for their own regional security arrangements: 'The American commitment anywhere is only as deep as the continued conviction of Americans that their interests require it'.[2]

The implication for Australia was clear; foreign and defence policy had to be based upon a realistic appraisal of Australia's regional aims and interests, irrespective of differences with the global policy of her erstwhile protector. This essay will contend that our history, geography, economic interests and national aims, are integral factors in Australia's regional posture, which dictate that national interests in the Indian Ocean are best supported by a judiciously applied maritime strategy.

INFLUENCES ON AUSTRALIAN REGIONAL STRATEGY

No other country of the Western tradition is more vulnerable than Australia to any international storms that may arise in the Indian Ocean, and none has a clearer or more direct interest in the construction . . . of a viable security system covering [the region].[3]

As mentioned earlier, Australian regional interests are seen as being derived from the influences of historic, geographic, economic and political factors, which combine to form a

The Author

Lieutenant Commander Mark Taylor joined the RAN in 1968, and has had considerable experience at sea, especially in Attack/ Fremantle class patrol boats. He was an A/PWO in *HMAS SWAN* and has commanded several boats at various times, with a long stint as CO of *HMAS CESSNOCK*. He completed the RAN Staff Course 1/85 earlier this year, and is now posted to the staff of Director Naval User Requirements in Canberra.

national policy and which will determine how it can best be implemented. Separate analysis of each factor should allow us, by combining the results, to derive a broad view of our direct interests in the Indian Ocean region. Each factor confers upon Australia certain strengths and weaknesses in the development of maritime power: building upon the one, and minimising the other, will enable Australia to better pursue its regional intersts.

Australia's Place in Regional History

The Indian Ocean has long served as an international highway, linking the nations of its shores. Arabian, Indian and Indonesian seamen plied their trade around the littoral for centuries before the first European rounded the Cape of Good Hope in the late 15th Century. The enormous profits from trade with China and the Spice Islands, which soon began to swell the national and mercantile coffers of Portugal, naturally brought other Europeans in search of the same and began the first period of great power rivalry in the Indian ocean. The subsequent rush for secure bases and trade routes led accidentally to the European discovery of Australia, although it was not thought economically useful by any of its discoverers. Britain eventually became the dominant regional power, having crushed successive rivals by interdiction of their trade, and capture of, or control of access to, their bases. Forty-one years after the First Fleet entered Port Jackson, a British colony was finally established in south-western Australia. The reason was an extension of British maritime strategy in the south seas: to deny France a useful Indian Ocean base and any claim to part of continental Australia. Britain now controlled all sides of the lake, and her control was not seriously challenged for another century.

British naval predominance, exerted through a mighty fleet in bases astride the trade routes and points of entry to the Indian Ocean, allowed Australians to turn their attention inward to the exploitation of their vast island. Australia traded almost exclusively with Britain and other countries of the Empire, and defence and foreign policy were largely subject to whatever Whitehall and Westminster determined to be in the best interests of Britain, and therefore of her colonies. Australia grew fat under this benevolent dictatorship, until the umbrella began to leak after 1918. British maritime power wilted under the impact of the Depression, and independence movements in the Asian colonies threatened the continued existence of the great chain of bases in which few naval ships were now in any case, to be seen. At about the same time, Japan was emerging as the dominant military and naval power of the Western Pacific. Australia limited its concern to continued pressure for reassurance of British naval protection in its region; in the event, none was forthcoming and Japan enjoyed a brief but dazzling period as master of the Eastern Indian Ocean. Australia brought back troops from the Middle East, continued to export aircrews to the RAF, and appealed for help to America.[4]

After 1945, British power in the Indian Ocean underwent a brief resurgence, then went into steady decline as she divested herself first of India and subsequently of all other possessions around the Indian Ocean. The new great powers, the USSR and America, extended the global power struggle into the now unstable potmess of newly independent states, each vying for mastery of the vital trade routes of the region, made more important than ever by western and Japanese dependence on oil from the Arabian Gulf. Australia dived for cover under the new, US owned, umbrella, confining its foreign and defence policy to acting as a vocal, but largely toothless, adjunct to US regional politics. The brief flirtation of the Whitlam government with third-world rhetoric, while remaining abjectly dependent upon US forces for national defence, only exasperated our protector while generating thinly veiled contempt from those whom we courted, particularly India.[5]

Australia is seen by many in this emergent regional power as a 'white outpost in Asia', whose regional concerns are mainly limited to supporting an unwanted superpower presence.[6] The Fraser government made some effort to increase its practical contribution to the region, notably in East Africa, but the continued visible dependence of Australian warship deployments upon the US Seventh Fleet logistics train did little to improve our standing as a distinct regional entity able to pursue an independent policy. Indian objections to the US presence seem to revolve more about the inhibiting effect this has on India's desire to become the dominant regional power. Inability to compete militarily with the US for maritime dominance, and US arms sales to the old rival, Pakistan, could well be the main source of this frustration, rather than any sincere support of the Zone of Peace concept originally mooted by Sri Lanka. By its hosting of US defence facilities, and its lack of independent maritime power, Australia is seen as contributing directly to the maintenance of this unwanted northern interloper in India's rightful achievement of its regional destiny. Australia, therefore, far from being a welcome voice in the affairs of the region and the guarantor of regional stability, became a regional pariah[7], seeking to achieve its regional ends not through its own strength and willpower, but through the proxy of a superpower friend.

I.S. UDAYGIRI *J. Mortimer*

Geography — Strength and Weakness

Australia is geographically remote from the major centres of tension and conflict in the Indian Ocean, and major population centres in the southeast are even more so. Her Indian Ocean territories are closer to other littoral states than to Australia, and the sparsely populated archipelago of settlements on the Pilbara and Kimberly coasts seems itself to be a foreign country to most Australians, although it is regarded as the potential frontline by adherents to the fallacy of continental defence. If one adheres to this belief, which sees Australia and its interests as best defended from within, then there is really no argument for a wide ranging maritime strategy. The Indian Ocean becomes a moat which invaders have to cross, during which crossing they are apprehended and drowned. At worst, only small forces could cross undetected and attempt to inflict death by a thousand cuts; but before the nation bleeds to death, a posse will have hounded up these people. Our geographical location, with no land borders, is thus a great national asset.

The maritime view would more likely hold that the Indian Ocean is a vast highway network, essential to the daily functioning of the national economy, but susceptible to pressure at any of thousands of locations. Although Australia is agriculturally self-sufficient and has a reasonable industrial base, it is still heavily reliant on seaborne imports of high technology equipment, certain minerals and heavy crude oil. The vastness of the interior and the concentration of our small population on the coastal fringes, have made development of a comprehensive road and rail network prohibitively expensive. This has largely been overcome by the use of sea transport, disruption of which would cause severe dislocation to heavy industry in particular, and the national livelihood in general.

On the Indian Ocean littoral, the few settlements are widely separated, and linked only by inferior roads. The sea lines of communication (SLOC) are long and vulnerable, and the ports are easily blocked. Overseas SLOCs are very long (nearly 8000kms from Fremantle to Capetown or the Arabian Gulf), and are beyond our present military capability to defend. Both of the routes just mentioned terminate in areas of high instability: in South Africa, domestic upheaval continues to escalate to the level of insurgency; the Middle East remains a powderkeg of regional and global tension. The northern searoute to Asia passes through the Sunda and Lombok Straits and could easily be threatened by hostile control of these chokepoints. Re-routeing trade south-about would add thousands of kilometres to merchant ship passages, adding greatly to transport costs,

while still leaving trade vulnerable to interdiction while transiting the west coast. Australia, therefore, appears more likely to be strangled to death by interdiction of its maritime trade than to be brought down by invasion of the mainland.

Regional Importance to the Australian Economy

Well over 50% of our total trade, by tonnage, passes through the Indian Ocean region. Export trade passes mostly to Europe, via the Cape of Good Hope, or to Japan and Southeast Asia, through the Lombok and Sunda Straits. Nearly 80% of our bulk imports, including 87% of oil imports (from the Arabian Gulf), originate from the littoral states. Additionally, the western seaboard forms a major section of our domestic shipping routes, which contribute an estimated $3 billion per annum (about 2% of GDP) in freight revenues to the national economy. West Australian iron ore and alumina comprise the major portion of both overseas and domestic bulk cargo, with oil and natural gas movements increasing steadily in both volume and value.[8] Disruptions to this trade, particularly to the movements of energy products and iron ore, would have severe effects on the national economy and on our industrial, transport and defence infrastructures.

The majority of Australia's natural resources on the Indian Ocean littoral are found in the isolated areas of the northwest coastal and offshore zones. National investment in the development infrastructure is enormous (eg about $12 *billion* in the Rankin natural gas field alone).[9] Loss or destruction of these national assets would involve costs beyond normal comprehension, in addition to the damage done to other sections of industry and the costs of obtaining these resources from other areas. The substantial inflow of foreign venture capital, upon which so much of our national development relies, might well dry up with startling suddenness. There appears to be little need to expound further upon the absolute necessity to safeguard, by every possible means, these resources and associated capital works, and the ports and trade routes through which they flow.

In addition to known resources, the vast area of Australia's 200 mile Exclusive Economic Zone (EEZ) may yet yield considerable future economic benefits in energy, mineral and food stocks. All of these will require policing and, particularly the living resources, careful management to ensure maximum benefit without prejudice to the delicate balance of the maritime environment. Foreign desires to exploit these assets will have to be considered and regulated, and jurisdictional disputes resolved. Also of continuing concern will be the prevention of unauthorised landings on our shores, in order to avoid the introduction to Australia of plant and animal diseases which could disastrously affect our pastoral industries. Given the likely continued constraints on Defence Force and civil surveillance funding and manpower, other means will have to be sought to offset our limited capacity to physically defend the wide range of vital economic interests in the Indian Ocean.

Politics and National Aims

The balance of regional power has altered dramatically over the last three decades, as have the main protagonists. From being simply one of many 'British' littoral states, Australia has now become a regional oddity. It is a stable western style democracy, in a region now composed largely of unstable, often left-leaning, 'non-aligned' nations. It shares no land borders with any regional state. It is well-fed, affluent, blessed with vast natural resources, in a region of pitifully poorly endowed, overcrowded and often starving countries. It relies for 25% of its Gross National Product on seaborne exports; over half of this must pass through the Indian Ocean.

In 1976, the Senate Committee on Foreign Affairs and Defence stated: 'Australia is a member nation of the Indian Ocean littoral and as such is dependent on the viability of the Ocean and the region for sea and air communications links, trade, cultural and political relations, and regional progress to ensure our own development. Any disruptions to the security and development of the region will have repercussions in Australia.'[10] This statement, which effectively summarised Australia's external interests in the region, was endorsed recently by our Minister for Foreign Affairs, who cited similar 'unassailable reasons of national self-interest'[11] for increasing Australia's voice and participation in the affairs of the region. Expanding upon this, Mr Hayden listed Australia's regional objectives; paraphrased, these are:

- allocating the regional states, particularly India and the island states, first priority in Australia's overseas aid programme;
- increasing Australian diplomatic representation and influence in the region, with special regard for the regional power aspirations of India;
- reducing the regional presence of the superpowers and the achievement of regional political stability; and,
- continuing to support the legitimate regional interests of our allies, where these coincide with our own interests as expressed above.

It seems, therefore, that Australia's national

objectives have at last been designed with the aim of ensuring the 'viability of the Ocean and the region' seen to be so vital to our continued development and prosperity.

Summary — Selecting a National Strategy

Strategy is the comprehensive direction of power to control situations and areas in order to obtain objectives.[12]

Historically, Australia has relied for the defence of its territory and major interests upon the maritime power of first, Britain, and then the USA. Geographically isolated, prosperous and politically stable, it has taken little notice of or interest in the affairs of the Indian Ocean states, and its policies have been characterised in the main by vocal intervention without physical commitment. The Guam doctrine has placed responsibility for its regional security squarely upon Australia's shoulders, forcing a fundamental reappraisal of what the country's vital interests are in the Indian Ocean. The over-riding interest is the free passage of overseas trade, the continuation of which is crucial to the national economy. The security of Australia's sparsely populated but resource rich Indian Ocean littoral is also a major national concern, as is the protection of the citizens and resources of Australia's widely scattered island territories. These diverse factors are the 'present strategic realities' which, the Minister for Defence declared in April 1985, '. . . [emphasize] the need for a self-reliant strategic posture, based on the principle of developing independent national capabilities for the defence of Australia and its direct interests.'[13]

Australia now seeks to pursue a regional policy predicated on self-interest rather than the interests of non-regional powers. It intends to demonstrate an increased commitment to the Indian Ocean region by improving bilateral relations with regional states and working for improved regional stability. It aims to strengthen its regional position by economic and diplomatic means and by pursuing an independent defence policy which will support these interests. To credibly pursue this policy over the vast reaches of the Indian Ocean, will require the power to advance and maintain our stated objectives in the region, through formulation of a comprehensive national strategy. Like it or not, the continentalists must now accept that Australia aims to project national power into the region to attain its policy objectives. The key elements are economic power, diplomatic power and seapower. They are interdependent and, comprehensively directed, form the basis of our maritime strategy for a maritime region.

APPLYING A MARITIME STRATEGY

Limitations of Australian Seapower

Classical theories of seapower generally refer to three elements essential to attainment: a viable merchant marine, secure bases and the fighting instrument.[14] Australia is deficient in all three, although it possesses certain components of them, and has both the capacity and the need to further develop its seapower. It is most unlikely that Australia will ever aspire, given the volume of its seaborne trade, to moving more than a small portion of it in nationally registered shipping, although a substantial improvement in the present ratio should definitely be sought. That Australia relies heavily for its prosperity on maritime trade does, however, demand positive measures to ensure the security of our trade routes, both international and domestic. Australia possesses no offshore bases in the Indian Ocean, apart from limited facilities in the Cocos Islands. This in turn affects its ability to sustain maritime forces in the region to ward off threats to its sea communications. However, Australia's maritime forces are arguably the best developed of the elements of national seapower, and as such will probably remain the prime expression of its role as a component of regional maritime strategy.

The biggest obstacle to meeting our regional objectives is the very size of the area we seek to influence, so to some extent, desire must be tempered by recognition of our limited capability to simultaneously apply all elements of seapower in support of national policy. Our maritime strategy will rely in many areas upon economic and diplomatic efforts to enable the development of the seapower upon which their own success will ultimately depend. What is proposed, is a regional subdivision of the Indian Ocean into zones where one of the three prime elements of our maritime strategy — economic power, diplomatic power and maritime forces — will serve as the predomenant expression of national interest, supported to varying extents by the other two.

The Eastern Zone

The Eastern Zone comprises Australia's western seaboard and the island territories and surrounding waters as far as the Indonesian archipelago. It is generally considered to be the area in which Australia is most vulnerable to direct attack at all levels of conflict, due to its remoteness, poor internal communications, the abundance of scattered, highly vulnerable and economically vital targets. The safety of international and domestic shipping, without either of which the northern half, in particular, would wither away, must also be assured. The

development and assertion of national seapower is essential to prevent interdiction of shipping, to deter interference with the national assets in the region, and to prevent diplomatically humiliating infringements of national sovereignty. Strong, flexible and balanced maritime forces, operating from secure bases in the region are therefore necessary. Effective mine countermeasures will also be essential to ensure the security of these ports and bases. The threat to merchant shipping, and therefore to markets for resources available from other sources, is best deterred by naval and air forces, while highly mobile land forces will be required to contain lodgements on the shore and to secure the land approaches to ports, bases and the economic infrastructure ashore.

An increased proportion of Australian-owned shipping will ensure that at least a portion of our trade can be carried to our customers irrespective of whether or not neutral shipping is scared off by an aggressor. Additionally, development of internal road and rail links is necessary to reduce the defensive burden on maritime forces, releasing them for offensive employment against enemy forces and bases, and for protection of the offshore island territories. The Cocos and Christmas Islands are strategically located astride the approaches to the Indonesian Straits, and their loss, apart from failing in our obligation to the Australian citizens residing there, would be an enormous disadvantage to Australia's ability to conduct effective surveillance of the area and to control the adjacent seas in time of tension. In attempting to develop our Indian Ocean maritime strategy, it is essential to start from a position of strength; if we are demonstrably weak in our own local area, we cannot hope to influence events and safeguard our interests further afield. As a final comment in this regard, the possibility of a resources dispute over the Jabiru oilfield in the Timor Sea, where resource zone boundaries have yet to be agreed with Indonesia, is not out of the question: in the light of that country's growing naval strength, it is worth asking what forms of pressure could be exerted in support of Indonesian claims to the seabed.

The Western Zone

The Western Zone encompasses the Island states and the countries of the East African littoral. In this area, economic assistance, in the form of mainly developmental aid, is of prime importance.[15] Australia is capable of providing all sorts of technical, agricultural, educational, and health services, besides assisting the development of capital intensive infrastructure projects, assisting the development of new resources and facilitating access to foreign markets for indigenous products. If it can foster economic stability and a measure of steady national development, Australia will do much to ensure the political stability and security of the states that it assists. The Indian Ocean islands have been noted as of particular strategic significance to Australia, and it is there that our efforts should be concentrated to reduce superpower opportunities to gain base facilities by economic leverage.[16]

The assistance provided, will bring with it increased diplomatic contact, which could then be reinforced by modest defence co-operation programmes with civil applications, such as resource zone protection, harbour survey and clearance and customs support. Sound, broadly based relations would also provide a measure of redundancy in Australia's choice of regional air routes, besides providing recreational facilities and limited logistic assistance to Australian maritime forces deployed to reinforce our interest in the region. Political stability, durable diplomatic ties and access to regional port facilities would reduce the potential sources of threat to Australia's main shipping route to Europe, besides alleviating its lack of overseas bases and contributing to regional stability. It is unlikely, however, that Australia would be granted permanent basing facilities for naval forces in time of national conflict not involving the host country, and the staging through of maritime aircraft is problematic. Naval forces in the western Indian Ocean will still require to be self-supporting in both logistics and aircover.

The Northern Zone

The Northern Zone includes the Horn of Africa, the Gulf States and the Indian sub-continental region. A small amount of our European trade passes through the Suez canal, but not enough for its interruption to seriously affect Australia. The Gulf region is of rather greater importance due to the essential supplies of heavy crude oil which flow from it. Both areas are the major source of superpower interests and competition in the region. Australia has no vital interests in the Horn of Africa, but provides substantial food aid, primarily for humanitarian reasons. The threat to the oil trade could be simply removed by getting our heavy crude elsewhere — Indonesia, Brunei, Nigeria and Venezuela all spring to mind. Australia has no hope of influencing events in this volatile area, and should confine itself to the maintenance of diplomatic and non-oil economic relations.

India is worthy of a much lengthier treatment than can be given it here. It is the major economic and military power of the region, and it sees its destiny as lying in the increase of that power. The rapid buildup of India's naval

BRAHMAPUTRA *J. Mortimer*

strength, and the public pronouncements of her leaders, both civil and military, leave little doubt that India seeks to establish sufficient maritime power to ward off all challenges to its regional primacy.[17] India has been highly critical of superpower conflicts being played out in 'its' ocean, and has also taken Australia to task for its involvement in US naval activity and the hosting of US defence facilities on Australian soil. The accession to power of Rajiv Ghandi, who appears less radically inclined than his late mother toward Soviet-style 'non-alignment', offers Australia the chance to mount a concerted effort to forge strong diplomatic ties with India, culminating in a regional security agreement. Mutual technological exchanges and trade agreements also offer scope for increased co-operation in ensuring the stability of the region and reducing tension with Pakistan. It is vital in this regard that Australia be seen to be acting solely on its own behalf in the region, and naval task group visits should be logistically self-supporting and avoid the use of US facilities in Diego Garcia, or of the US fleet train.[18]

This will require striking a nice balance between self-interest and our commitment to the western alliance, to avoid alienating an old friend while pursuing a new one, but there are further potential benefits to be gained for another ally in Japan, whose economy would be wrecked by interdiction of her oil supplies. Australian co-operation with India to reduce regional tensions would substantially reduce the potential threat to Japan's Indian Ocean lifeline, and would also help alleviate the concerns of states fearful of Japanese naval expansion in defence of its trade. An indirect contribution would thereby be made to stability in Southeast Asia. Whatever the outcome of Australian attempts to reach regional accord with India, Australia's interests outside the region will require maintenance of our position as part of the western alliance as part of our overall national security stance, and a conflict with aggressive Indian nationalism cannot be discounted. The best guarantee of a strong diplomatic position in our dealings with the sub-continent is the possession of strong maritime forces, able to intervene wherever regional interests are threatened, thus acting as a brake on any overly expansionist tendencies which a new Indian regime may display.

CONCLUSIONS

Australia, after a long period of indifference, has accepted that the security of its Indian Ocean seaboard, overseas territories and trade routes are vital to its continued development and prosperity. It has also recognized that it can no longer depend on 'great and powerful friends' to defend those interests, and that a self-reliant policy toward the region is necessary to reduce tension and build regional stability. Although lacking, at present, in some of the necessary elements for the achievement of seapower status in its own right, the geography of the region and Australia's economic, diplomatic and defence interests dictate that Australia must comprehensively direct what power it does possess, to ensure that national policy objectives are achieved.

The means of doing this is the intelligent appreciation, and judicious application, of a regional maritime strategy in which maritime military power, while essential, is but one of several means toward the end of securing our commerce and national sovereignty. In the western Indian Ocean, development aid will provide the initial key to our strategy, while diplomacy will predominate in the north. Our naval presence must be strongest in the waters of the Eastern Indian Ocean, but should be capable of independent deployment to other areas, in support of Australian policy initiatives. Due to our lack of overseas bases, the fleet will need to provide its own logistic and air support to conduct operations effectively, in both peacetime and in periods of tension. Having accepted the need for an independent Indian Ocean policy, the nation must now accept the reality that it cannot influence regional events from within its continental castle. If Australia does not develop and project its maritime power into the region, the continentalists' dream may yet be fulfilled by the region projecting its power into Australia.

Notes and Acknowledgements

1. Millar TB. *Foreign Policy*. Sydney, 1972. p 3.
2. Babbage R. *Rethinking Australia's Defence*. Queensland University, 1980. p 17. The person quoted is former US Presidential security adviser McGeorge Bundy.
3. Adie WAC. *Oil, Politics and Seapower*. New York, 1975. pp 65–66. Quoting Coral Bell.
4. McCarthy's *Australia and Imperial Defence* gives a good account of Australian and British attitudes, although his interpretations are suspect.
5. Adie, Ch 6. While he never refers directly to Australia, Ashok Kapur is also scathing in his criticism of such practices.
6. Kohli SN. *Sea Power and the Indian Ocean*. New Delhi, 1978. The sentiment was described as prevalent as recently as late 1983, by Sundatta Datta-Ray, in an article in the *Sydney Morning Herald* of 29 Nov 83.
7. Kapur A. *The Indian Ocean*. New York 1983. p 192. Australia hardly rates a mention in this book, except as a formal ally of the US, but the inference is heavy throughout, hence: 'the innovativeness of a pariah state lies in turning a formal patron into a client, in locking a patron into a relationship that is mutually beneficial.'
8. Figures drawn from an address by Mr J.F. Firk to the ANI Seapower '84 Seminar.
9. *Western Australia Yearbook*, 1984. p 368.
10. Senate Standing Committee on Foreign Affairs and Defence, *Report on Australia and the Indian Ocean*, 1976.
11. Australian Government's View on Foreign Affairs, speech to the Australian Institute of International Affairs, 20 Jun 85. *Australian Foreign Affairs Record*, Jun 84.
12. Eccles HE. *Naval War College Review*, December 1971.
13. Ministerial News Release 48/85. Speech to the NZ Institute of International Affairs, 2 Apr 85.
14. Till G. *Maritime Strategy in the Nuclear Age*. London, 1984. p 75.
15. The Jackson report on Australia's Overseas Aid Programme makes no bones about the fact that development aid '... is not wholly altruistic [and] it is in Australia's strategic and commercial interests to foster it.'
16. Also noted by the Joint Committee on Foreign Affairs and Defence in its *Report on Diplomatic representation in Africa and Indian Ocean Island States*. Dec 1983. pp 10–11.
17. Towle, Phillip. *Non-Aligned Criticisms of Western Security Policies*. SDSC Working Paper No. 14, Canberra, 1979. An interesting comparison of actions versus proclaimed principles.
18. At the Seapower '84 Seminar, VADM MP Awati (Indian Navy, Retd) stated '... [the RAN] would be most welcome to Indian Ocean littoral states, countries, provided it is operating as a totally self-contained independent group ... not in any way dependent on [the USN] for supply and support.'

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MARITIME POWER IN THE INDIAN OCEAN

by Captain I A Callaway RAN

Leaving these three big countries, the United states of America, the Soviet Union and China aside for a moment — look at the world. There are many advanced highly cultured countries. But if you peep into the future and if nothing goes wrong, war and the like, the obvious growth country in the world is India.

Jawarharlal Nehru

The Indian Ocean is the name applied to that ocean bounded in the north at about latitude 25° north by India, Pakistan and Iran; in the west by the Arabian Peninsula and Africa; in the east by the Malay Peninsula, the Western islands of Indonesia and Australia; and in the south by the Southern Ocean. In the south, an arbitrary separation from the Atlantic Ocean is made at longitude 20° east, from the Pacific Ocean at longitude 147° east, and from the Southern Ocean at latitude 70° south. The Ocean is more than 10,000 kilometres wide between the southern extremities, and narrows steadily towards the north where it is separated by India into the Arabian Sea and the Bay of Bengal. The Indian Ocean is the smallest of the world's major oceans; it comprises 20.7 percent of the ocean-covered portion of the earth, and it is the only one which does not extend from pole to pole.

Historical Background

From the earliest days, the Indian Ocean has been important to maritime travellers between east and west. It was a bridge over which people moving from Europe and Africa passed when going to Asia and Australasia and vice versa. The potential of the area for the effective exercising of maritime power was realised by the Indians and Chinese at various stages of their history. Chinese activity was significant in the 13th, 14th and 15th centuries when they voyaged as far afield as the Maldive Islands, the Persian Gulf and the Red Sea. At one stage, the Indian Mughal Empire had a large navy but the Empire collapsed before the invading European powers in the 18th century.

In the 15th century, the Portugese gained control of many of the key points in the Indian Ocean and established European maritime supremacy for the first time. For the next 200 years, history reflects the rivalries of Portugal, Holland, Denmark, France and Britain. By the 17th century, only Holland, France and Britain remained rivals and the British finally gained complete control of the ocean by the middle of the 19th century. At this time, they had captured from the Portugese, in the north west, Socotra at the entrance to the Red Sea, and Ormuz at the entrance to the Persian Gulf, and in the east, Malacca and control of the Malacca Strait. From the Dutch, they had captured Trincomalee, in Sri Lanka, and from the French, Mauritius. They also had taken control of the strategically important Maldive and Seychelle Islands, the Chagos Archipelago and Aden, and they had established a very significant presence in Malaya, Singapore, Australia and the Cape of Good Hope. All are geographic features which remain of considerable significance to the maritime strategist today. With control of the Indian ocean, the British were able to reap handsome dividends when the Suez Canal was opened in 1869.

In the first half of the 20th century, two world wars demonstrated the benefits of maritime supremacy in the Indian Ocean. During the First World War, because of British supremacy over most of the area, the safe and timely arrival of shipping destined for Allied fronts in Africa and West Asia and even Russia through Persian Gulf ports, generally could be assured. During the Second World War, British supremacy was defeated temporarily and the Japanese captured Malaya, Singapore and Burma and the Andaman and Nicobar Islands. The Japanese also

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captured the islands of Indonesia from the Dutch, and their forces raided Colombo in Sri Lanka and attacked shipping in the eastern half of the Ocean. They forced the Royal Navy to withdraw temporarily to Mombasa in Kenya before they themselves withdrew, due to reverses elsewhere.

After the Second World War, the energies of many of the peoples of the island and littoral European power colonies were firmly directed towards independence. This came in relatively orderly fashion during the later 1940s and the 1950s and 1960s, starting with India, Pakistan, Burma and Sri Lanka in 1947/48. When the exit of the colonial powers had been completed, the Indian Ocean littoral nations were free and independent, although they were not in all cases democratic and politically stable, nor were they all militarily and economically strong. Internal political instability, which is a destroyer of economic growth and progress, was endemic to the newly emerging Indian Ocean states. In several countries, rival political factions fought each other to gain power, with a determination and ferocity only matched by their earlier drive for national independence. In some cases, external assistance was provided to warring factions and upopular political solutions forced upon people. These activities sometimes were a direct extension of the international rivalry between East and West.

In 1968, the United Kingdom, because of her declining ability to become involved in other nations' problems, and because she was distasteful of the implicit commitment to do so while she had a military presence, announced that she was preparing to withdraw her defence forces from east of Suez by 1971. These forces chiefly were based in Singapore. In association with this decision, the United Kingdom also made other important strategic decisions. It was apparent that the Indian Ocean would in the future provide access to an increasingly significant proportion of the world's critical resouces. It was also apparent that the Soviet Union in its constant ideological battle with the West, might find denial of such access an attractive proposition. This could be achieved if the Soviet Union gained maritime control of the Indian Ocean. The United Kingdom, therefore, made provision for the future, by forming the British Indian Ocean Territories which included the almost uninhabited group of islands of the Chagos Archipelago. The action was taken with a view to their later development for military puposes if and when required. In the light of subsequent events in the Indian Ocean, it appears to have been timely.

As if in confirmation of the United Kingdom's assessment, but probably quite coincidentally, shortly after the intention to withdraw had been announced, area competition between the superpowers began. For the first time for many decades, a small fleet of Russian naval units made a series of goodwill visits to ports in the littoral and joined the equally small United States maritime presence in the region. The Soviet visits were a challenge to the United States, and the first sign of a possible intention to acquire a strategic advantage in the Indian Ocea.

A Political Prognosis for the Indian Ocean

The Indian Ocean nations encompass a wide range of political systems and economic and national alignments. They include the largest island, and the most populous democracy, and they are rich in resources. The states share no common threat. Common factors to many nations are Islam, the experience of having been colonized, and poverty. Many independence-orientated political movements tended to embrace Marxism because it provided their ideological justification, it ensured the support of socialist and communist states and generally it accelerated the arrival of independence. The region is replete, however, with examples of movements which sought ideological, diplomatic and logistic support from the Soviet Union, but which once assuming responsibility for independent and stable government, took the furtherance of social and economic development and their nation's interest as the highest priority. Many littoral nations now are prepared to accept greater political tolerance as the price for the economic and technologial support from the West which they so desperately need. Due to poor national economies and political stability, however, some still remain susceptible to diplomatic pressures and the lure of promises of military and/or economic aid which are not necessarily in the national interest.

The Indian Ocean nations have found themselves in conflict with each other on a number of occasions since World War II. These conflicts between Indonesia and Malaysia, India and China, India and Pakistan, Iran and Iraq, South Yemen and North Yemen, Somalia and Ethiopia, Somalia and Kenya, and South Africa and its neighbours, have slowed down economic and social development and in many cases have left lingering suspicions and a commitment to military spending. Some countries of the region have substantial military establishments and by far the largest of these is in India. Only India, Australia, Malaysia, Indonesia, Pakistan and possibly South Africa and Iran have open ocean navies. The Indian maritime force once again is the most powerful, and, apart from those of the superpowers, currently the only maritime force of real significance in the region. India is the only

nation with a demonstrated nuclear explosion capability, although it is suspected that other nations have not publicly demonstrated theirs.

All countries in the region are members of the movement of Non-aligned Nations except Australia and South Africa. Because it is so dominant a factor in the Indian Ocean, the movement could play a most positive role in maintaining the stability and neutralism of the region. The movement's leading spokespersons, however, sometimes involve themselves in the ideological confrontation between the superpowers, and tend to reflect the ideology, attitudes and policies of the Soviet Union. It is feasible, therefore, that they could lead a significant number of members of the Movement into some form of alignment with the Soviet Union during any superpower confrontation. Because of this, it can be argued their Movement is a threat to the strategic balance between East and West.

Marxism could become endemic in the suspicious and politically unstable nations existing in the Indian Ocean region and Marxism feeds on the poverty and resentment which abounds in such societies. It is in the interests of the West, therefore, that all the Indian Ocean nations advance economically in a stable political environment and that their aspirations are satisfied. The main interest of the Soviet Union in the Indian Ocean is the improvement of its own strategic position at the expense of that of the United States. It is likely, therefore, that the Soviet Union will attempt to destabilize unfriendly governments, and to support friendly ones despite the wishes of the people. Maritime power will be one of the instruments they are likely to use when making these attempts.

Maritime Power

Maritime power is political or military power which is brought to bear on, over and in the sea. Maritime power does not depend entirely on the presence of a force of warships and their companies at sea. Land based aircraft and weapon systems also have a role to play, as does the political or military control of straits, archipelagos, canals and other geographical features of strategic importance. The objective of maritime power is to develop the potential to win and maintain control of maritime areas for one's own use and to deny use of these areas to the enemy when necessary. The areas may be as small as that around a group of ships or as vast as an entire sea. In peace-time or during a period of tension, a superior naval presence is in effect a display of maritime control potential.

Nations can use maritime power to guarantee the safety of shipping, and deployed strategic weapon systems, to counter maritime threats deployed by an enemy and to ensure that the sea's resources can be gathered. More significantly, in times short of unlimited war, nations can project their maritime power far afield and use it as an instrument of diplomacy, to foster attitudes in other countries which serve their own national strategic interests, to exercise specific leverage over other countries and to influence the outcome of regional disputes by strengthening the hand of those with favoured policies.

As an instrument of diplomacy, maritime forces have several advantages over forces borne on land. Firstly, a maritime force can move at will on the high seas and thus can arrive, be strengthened or withdraw without reference to other nations, and because the force is mobile, the level of its involvement and interaction with other forces is controllable. This is in strong contrast to the historical precedents which indicate that land forces tend incrementally to become more deeply involved than was originally intended. Frequently, such forces deployed in support of diplomatic aims, find themselves in a situation where they are unable to control the direction of their involvement or the pattern of events. Secondly, a maritime force is highly visible. It can be seen as it makes its steady progress on the high seas to its destination. The visibility and progress can be used to indicate the determination with which an announced course of action is being undertaken. Visibility can also be used during visits to foreign ports when the sheer power of a warship or fleet of warships can convey a threat, provide reassurance or earn prestige, in a way anonymous and invisible troops and aircraft can never do. Thirdly, a maritime force uses the high seas and the air above them which unlike the land and air above it, are international media. The high seas allow naval vessels to sail to distant countries quite independently of land bases. The high seas enable a state possessing a maritime force to share a border with every country which is accessible by sea.

There are some very special reasons why the superpowers value the advantages of sea power in this tense and confrontationalist world. The flexibility of sea power is valued because of the fear of nuclear war and the belief that incrementally deeper involvement when only their naval forces are involved is avoidable. The visibility of sea power is valued because of the need to exploit the threat of force and not the force itself, as this may lead to a disastrous confrontation. Finally, the universality of sea power is valued because land forces based in foreign lands have become political liabilities, as they generally cause resentment amongst the local population.

The potential of maritime power is now sufficient for a few countries to build up some maritime forces primarily to meet a national requirement for a limited war power projection capability. They apparently believe that if they lose the peacetime battle for strategic advantage, the strategic balance will so change, that unlimited war will become a winnable option and thus possible. A force designed to meet such a capability requirement, will be characterized by highly visible and capable surface combatants and will include amphibious forces. Forces of this type have an important role in limited war and diplomacy, but if they fail, a much lesser role in the unlimited war which may follow.

The Maritime Presence of the Superpowers in the Indian Ocean

The United States and Western nations are vitally concerned that ships in the Indian Ocean carrying strategically important cargoes for them could be prevented from proceeding safely upon their lawful occasion, as the well being of their economic systems depend upon such trade. The most critically important strategic cargo passing across the Indian Ocean is Persian Gulf oil. The United States and the West are also concerned that the strategic balance of power between East and West be maintained, and the ability to deploy and defend strategic weapon systems in the Indian Ocean is an important element of this balance. Finally, it is of concern to the United States and the West, because of their potential to disturb the strategic balance, that some Indian Ocean nations tend to political instability and are susceptible to the diplomatic pressures which can be exerted by the Soviet Union with its maritime power. It is believed that the United States and Western presence in the Indian Ocean is intended primarily to prevent these concerns becoming reality, by maintaining the pre-eminent maritime presence in the area.

The Western world generally, and the United States principally, emerged from World War II with pre-eminent maritime power. This power was projected over any area of the high seas desired to further their national interests. Since World War II, however, Soviet maritime power has advanced relative to that of the United States. Their maritime forces now are a significant factor in the strategic balance and they underline Soviet claims to superpower status and the achievement of strategic equality with the United States. The pattern of such development would indicate that in addition to pre-eminence as a land power, the Soviet Union may also be intent on achievement of some degree of pre-eminance as a maritime power. In this regard, they probably would be interested principally with pre-eminence in areas strategically important to the defence of their homeland such as the North Atlantic, Northern Indian Ocean, North-West Pacific Ocean and seas and waters adjacent to these oceans. They would also be aware, however, of the advantages of being able to project, where possible, maritime power over a wider area.

The Soviet Union wishes to guarantee the safety and freedom of action of its shipping in the Indian Ocean. It also wishes to counter the maritime power of the United States deployed there. Additionally, however, they have grasped the political and diplomatic utility of maritime power, and the fact that its potential in times short of unlimited war to advance Soviet interests and counter the advances of those of the United States may be more important than the other capabilities of such power. The Soviet Union realizes that, in the circumstance, the Soviet Navy is the branch of the defence forces best suited to the furtherance of Soviet foreign policy. It should be assumed, therefore, that the reason for the current presence of the Soviet Navy in the Indian Ocean is the desire in the short term to neutralize United States maritime power, and to provide a basis from which, in the long term, it can build up pre-eminent maritime forces in the area, able to counter United States' influence and deny usage of the Ocean to them whenever necessary.

The Maritime Presence of India in the Indian Ocean

India's Prime Minister, Jawaharlal Nehru, had a weakness in that he glossed over reality and based his policies on the Gandhian idea of an idealistic world. He realized the flaws in this belief in 1962 when China, a friend and ally, invaded India. Because he had given inadequate support to India's defence forces, China was able to capture and retain 40,000 square kilometres of Indian territory. The loss reminded the Indian people that throughout their history they had been unable and apparently were still unable to resist invasion. It damaged the national pride and self respect built up by the successful campaign for independence, it revealed the fallibility of India's leaders, it threatened the stability of government, and it reduced India's standing amongst the many countries of the third world which it sought to lead.

As a reaction against the tide of events, the Indian nation began to build up its defence forces,most especially its land forces, to levels of strength which are now quite disproportionate to the threat. These forces are intended to make certain that loss of Indian territory, military reversal even in a minor form, and the public trauma associated with such events, is never

VIKRANT *A & J. Pavia*

possible again. India learnt from the experience that the national interest must be dominant over all other loyalties and beliefs when national policies are being developed. Thus, while India has argued in world forums with high political and moral conviction for concepts of world disarmament, nuclear free zones, an Indian Ocean Zone of Peace and opposition to military alliances, in the national interest it has been pragmatic enough to develop the fourth most powerful military forces in the world and a nuclear explosive device, and to sign a Treaty of Friendship and Cooperation with the Soviet Union. The treaty has led to an admitted 'special relationship' between the two countries, and indicates a commitment by India and the Soviet Union to take measures to ensure the security of the other in the event of one being attacked.

The development of a very powerful military capability, the displayed potential to develop nuclear weapons, and the India/Soviet treaty have made India immune from a successful invasion. Despite this, and the fact that India depends very little on seaborne international trade, the defence forces, and especially the maritime forces as illustrated at Table 1, have continued to expand. The Indian defence strategy and especially its maritime strategy, therefore is not merely concerned with direct defence of the nation but with the development of military and maritime power for other purposes. Indeed, instead of defence, signs of an offensive power projection and maritime power diplomacy capability are becoming apparent. The Indian Navy's Fleet Air Arm has been given a new lease of life and some credible visible power with the acquisition of Harrier aircraft and, according to press reports at the time of writing, a second carrier. The Fleet has been/will be provided with a good range of very capable and visibly impressive major surface combatants; and a capability for amphibious lift and afloat support operations has been developed. Significant also, is the fact that the Navy carries out regular and major deployments throughout the Indian Ocean and South East Asian area with these ships.

India rightly believes in the reality of its power arising from the strength created by its geography and sheer bulk, the influence it is entitled to wield because of its leading involvement in the non-aligned movement and the respect it is due because of its new-found military might. India aspires therefore to power, influence and respect. During its recent history, it believes it has been openly denied all three by the United States' use of maritime power. The first occasion was when, following the withdrawal of British forces from east of Suez in 1971, the United States filled the vacuum created by

Table 1: Indian Navy
(Authority: Janes Fighting Ships)

	1970	1984	Projected
Personnel	17,000	47,000	
Patrol Submarine	4	8	7
Attack Carrier	1	1	1?
Cruisers	2	1	2?
Destroyers	3	3	2
Frigates	16	25	4
Corvettes	0	3	2
Fast Attack craft - missile	0	16	
- patrol	0	3	
Landing ship	3	7	
Landing craft	0	4	
Minesweeper - ocean	1	6	
- coastal	4	4	3
- inshore	2	7	1
Survey ship	4	7	
Submarine Tender	0	1	
Submarine Rescue ship	0	1	
Replenishment Tankers	2	2	
Support Tankers	0	5	
Repair Ship	0	1	
Coast Guard Ships	0	3	2

inserting significant levels of maritime power into India's perceived sphere of influence. The fact that this is believed to have caused the Soviet Union to react with its own maritime power, and thus introduce the threat of a superpower confrontation to the region, is an additional irritant. Another occasion was during the 1971 Indian/Pakistan war, when a United States Carrier Task Group entered the Bay of Bengal — it would appear with the possibility in mind of assisting Pakistan, and with apparent disdain for the threat posed by India's, by then, quite-powerful maritime forces.

In light of these experiences, India has set out to challenge the ability of the United States to influence matters in the Indian Ocean region to the benefit of its strategic position, and it is equipping its maritime forces appropriately. It also would like to challenge Soviet maritime power in the region. This will be much more difficult, however, due to India's reliance on Soviet assistance for the maritime force development programme.

I believe the Indian maritime strategy for the short term primarily is aimed at achievement of a major and visible maritime power presence in the Indian Ocean, and the use of this power in the projection role to limit the ability of the United States' maritime power to influence matters there. While the chances of success appear limited, the advantages India has as a littoral state and prominent member of the Non-aligned Movement, and the political power associated with the latter, should be borne in mind. If successful, India could begin to realise some of her ambition for power, influence and respect at the expense of the United States.

In the long term, achievement of pre-eminent maritime power status in the Indian Ocean is the objective. Realistically, this could only be met if the superpowers departed the region. This would only occur if the Indian Ocean Zone of Peace proposal is forced upon them by world opinion, as they are unlikely to depart voluntarily when it is not in their national interest to do so. India's strong advocacy of the Indian Ocean Zone of Peace proposal, therefore, is an element of its maritime strategy.

(This is the transcript of an address to the Canberra Chapter on 25 June 1985)

A MORE EFFECTIVE MARITIME STRATEGY IN SE ASIA

by Admiral TB Hayward USN (Ret'd)

I am terribly pleased to be here with you, and honored to be able to address this special group and to share some thoughts related to the strategic situation facing Australia and the United States here in the Asia-Pacific region, from an American's perspective. It is always a special delight to be back in one of my favorite of all countries — among friends and compatriots. I arrive here fresh from a week in Washington, DC, our nation's capital, where I am always amazed at what a fascinating, astonishingly interesting place it is. Some of you, I am sure, have been posted there in the past, and will agree with me that while one may not always like what's going on there, one can't complain about there being an inadequacy of activity. Our Legislature, in particular, is undoubtedly one of the most perplexing, yet fascinating of bodies. Mark Twain, one of our great American humorists, is said to have remarked after visiting our Congressional halls that Congress is a place where every law is a joke — and every joke becomes law . . . but, there are few laughs in Washington, today.

As you can well imagine, there is a frenzy of concern over the hijacking of the TWA airliner and the state of the passengers still held hostage. As a former Washington decision maker, it is not difficult for me to empathize with the President, who finds himself frustrated by the limited options available to him; and suddenly much more sympathetic towards his predecessor and the plight which he faced five years earlier in the terrorizing hostage crisis of Iran. There are no easy solutions to terrorism. And, in my judgment, Americans will increasingly become favorite targets.

While the Congress is busy criticizing and admonishing the Administration over its handling of this particular crisis — and we have our own tax bills to emasculate — it is also engrossed in an intense debate over the adequacy, or, as many would allege, the profligacy, of the 1986 defense budget. It is a debate that comes at a time when economic forecasters variously predict a national deficit of $150–$250 billion annually, for the next two years at least. Furthermore, it is in an atmosphere of acrimony and retribution that this budget debate takes place, in reaction to a plethora of alleged and proven examples of corruption by some of our most prominent defense corporations, of improper use of gratuities, and of ridiculous over-pricing of such vital defense items as toilet seats, coffee makers and ashtrays. The true impact of this abuse is yet to be known — except we can be certain it will undermine the credibility of the Department of Defense and the defense industry, lead to major cutbacks in defense programs, and present a troubling opportunity for those who wish to play partisan politics at the expense of national security.

Remarkably, in the midst of this budgetary turmoil, a most unusual event occurred — President Reagan and Secretary Weinberger acceded to the wish of some members of the Senate to restrict the 1986 defense budget to zero real growth after inflation! For those of us who have been in the business of defense budget formulation and justification for years, you can be sure we were astonished and perplexed by this shift in the Administration position, especially after having watched with considerable admiration some of the most effective battling for defense spending increases over the previous four years.

Thus, my participation in Washington last week, in the final session of a year-long study, centered on evaluating the impact of a no-growth defense budget for the next five years, has turned out to be a prescient and excrutiatingly pertinent effort.

How big a problem does a no-real-growth defense budget present? Would you believe

$300 billion from the existing Five Year Plan? $300 billion, or about a 20% cut. Wouldn't you like just a 2% slice of this? It would double your annual defense budget in one fell swoop! Well, if this projection comes to pass, I can assure you that its impact will be felt as far away as Australia, and you will be intensely interested in its consequences. Just as importantly, America will be vitally interested in Australia's reaction, in a strategic sense.

Oddly, throughout this wrenching experience of looking for ways to live with a reduction of such enormous dimensions, I kept having a feeling of *déja vu*. We've been here before! So what's new?

- We've sure dealt with budget cuts aplenty in prior years.
- We've persisted for half a decade or more in the 70s with negative growth, while trying to patch up a well-worn armed force following years of combat in Vietnam.
- Even the fickleness of the American public is not new. Now, they are clamoring for big cuts in defense (or so our Congress and media would have us believe). Five years ago they were clamoring for a massive build-up in our armed forces, following the humiliating Iranian hostage crisis and the Soviet invasion of Afghanistan.
- Nor is there any evidence the Russians have changed. Their economy is still in a shambles. Their surrogates are still avidly, though ineptly, at work worldwide. They are as obstinate and intransigent in arms control negotiations as ever. And, troublesomely, their armed forces continue to modernize and build along the track that we predicted they would — an inexorable display of constancy of purpose. It would be wonderful to see *our* governments so inclined.

So what has changed to concern us, if anything? Let me suggest, at least one highly significant factor — one that is irrevocable and will permanently alter the nature of international security — the 'globalization' of geopolitics. I appreciate that this is a most esoteric sounding phrase — globalization of geopolitics — but, it has very special meaning, especially to those of us who live and strive in the Asia Pacific region — certainly, including America and Australia.

We have witnessed a gradual but certain shift in the geopolitical center of gravity away from Central Europe where it has resided for decades, through the Middle East and South Asia to East Asia, where it will surely remain through our lifetime. Affected by the endless conflict between Arabs and Jews; the oil crises of the 70s; the mindless slaughter of Iranians and Iraqis; the Soviet occupation of Afghanistan; the widening effects of Islamic fundamentalism; and, now the revitalization of India under Rajiv Ghandi's leadership. All are leaving their special mark.

But, it is in East Asia, especially, where the altered geostrategic posture is stunning and of overwhelming importance to political, economic and defense planners. The 'era of the Pacific', an overworked phrase to be sure, is nonetheless expressive of the evolving situation, with two overriding developments having the most meaningful influence: the explosive emergence of Japan as the industrial giant of the region — perhaps, of the world — and the flowering of China, in all of its dimensions and ramifications.

Certainly not to be overlooked, or under-emphasized, is the ASEAN success story — still to be proven permanent — but, impressive nevertheless. ASEAN's political maturing and economic growth rival any in the developing world. I wish to stress, however, that these achievements have been made in an atmosphere of strategic security — comfortably ensconsced within the umbrella of a well understood, non-threatening US military presence.

So, let's talk a little bit, then, about this geopolitical phenomenon in the Asia-Pacific region, bearing in mind as we do the mutual interests and responsibilities of Australia and the United States. To help us with this analysis, let me suggest that there are no less than five major events or factors which we need to take into account, especially as we reflect upon the long established Australian defense policy of 'forward strategy', the evolving policy of 'self-reliance', and the American preoccupation with 'deterrence'.

Taking these factors in chronological order, one comes first and prominently to the Guam Doctrine, enunciated by President Nixon in 1969 — a doctrine which has been referred to by many senior officials of the Australian government as an event which has had a dramatic impact upon the thinking of Australian defense leaders, especially as it affected the now discarded policy of 'total reliance'.

We recall the second event, pridelessly, — the ignominious withdrawal of American and allied forces from Vietnam in 1974–1975, an event that signalled the commencement of a significant drawdown of US forces from the Asia-Pacific region. One of the most immediate consequences of these events was to jar the Japanese political leadership into initiating its first serious examination of its self-defense needs, and to be willing to subject the general public to a defense dialogue which has resulted in the now familiar annual Defense White Paper.

In 1979, another geopolitical milestone was crossed with the declared Carter Doctrine, following the Soviet invasion of Afghanistan and America's deep concern regarding Soviet's intentions in Iran and the Gulf Region. It is one of the few bi-partisan policies to endure the transition of the 1979 Presidial Election, leading ultimately to the formation of the US Mid-East 'Central Command', the Rapid Deployment Force and now the pre-positioning of some 16 ships in the Indian Ocean as a part of that force — highly pertinent factors to your westward-oriented interests.

Fourth, an event of considerably more geostrategic importance than it is receiving from Asian governments, is the emergence of a Soviet nuclear threat east of the Urals, with the implantation of over 135 SS-20 mobile ballistic missiles directed elsewhere than at NATO. While they are unarguably out of the threat range of Australia *for the moment*, there can be little doubt but that their presence imposes a new dimension on the balance of power in the Pacific Basin, especially in Northwest Asia.

And lastly, thoughout all of this period, there has been the monumental growth of the Soviet military power in Siberia and East Asia — a build-up of first line forces that exceeds, by any measure of professional judgment, that which the Soviets might consider necessary for the defense of the motherland.

Each of these factors has a vital relevance to our overall understanding of the strategic policies to be considered by the United States and Australia — for that matter, by New Zealand as well. In the aggregate, they must be integrated into any objective assessment of 'vital interest', 'self reliance', or 'regional deterrence'.

Now, there is one more concept that must not be overlooked, given that the focus of each of these factors is related to security — each is related to defense — and each points a damning finger at the same ubiquitous adversary:

- The concept is 'correlation of force'. It is a Soviet term. It is most useful for our consideration because it is unambiguous to the Russians and relates directly to their perception of their 'deterrence', which is what deterrence is all about anyway — the adversary's perception.

While I would be quick to acknowledge the very relevant importance of economic and ideological factors to the 'correlation of forces' equation, neither dimension can give the Soviets much comfort in this region. Their economic penetration has been minimal, and their Marxist-Leninist ideology is seen as bankrupt and no longer relevant. We are left then with the military dimension to be concerned with — no small dimension — especially since we know that it is here where the Soviets have concentrated their priorities and are able to confront us with unwanted major challenges.

Examining the military factor then, let's start far in the north with Korea and work our way south to Australia. It would be difficult to expect more of the Koreans. Their investment in defense is heavy. Readiness of their forces is extraordinarily impressive. Their commitment is unambiguous.

One cannot say the same for Japan. For well over a decade, the United States has been searching for an effective way to persuade Japanese leadership to meet its self-appointed self-defense responsibilities. While I would staunchly defend those who argue that the Japanese defense investment has not been minimal the past decade or so, still any reasonably professional accounting of the Japanese self-defense force would question its ability to defend Japan adequately against air attacks of the sophistication that can be presented by their northern adversary, or to control their sea lanes to the degree necessary to complement the not inconsiderable demands on the US Seventh Fleet. Few Countries are more crucial to the 'deterrent posture' of the Western Alliance in Northeast Asia. Japan can and must do more.

Mainland China is an altogether different factor in the deterrent equation. The 50 plus Soviet divisions, the steady increase in modern air power, and the threatening imposition of SS-20 nuclear ballistic missiles, consitute adequate evidence of the importance the Soviets place on China's role in the correlation of forces posing it on its eastern flank. Since this situation generally prevailed even before 'normalization', let me suggest that the most important nearterm leverage which China can pose, vis-a-vis the Soviet Union, is to achieve balance economic growth under its new experiment with a market-oriented free enterprise system, and a liberalization of its education and information systems. I am not surprised to find myself confronted on frequent occasion by our friends in Asia during my travels, when they question US initiatives to hasten the rearming of China.

With regret, I would quickly pass by Taiwan, the Republic of China. I emphasize 'with regret' in that our lack of strategic vision has caused us to lose sight of its strategic significance vis-a-vis the Soviet Union. Even China will come to know and appreciate the need to rectify this situation in the days ahead.

The advanced SONAR concept

Integrated Sonar Systems

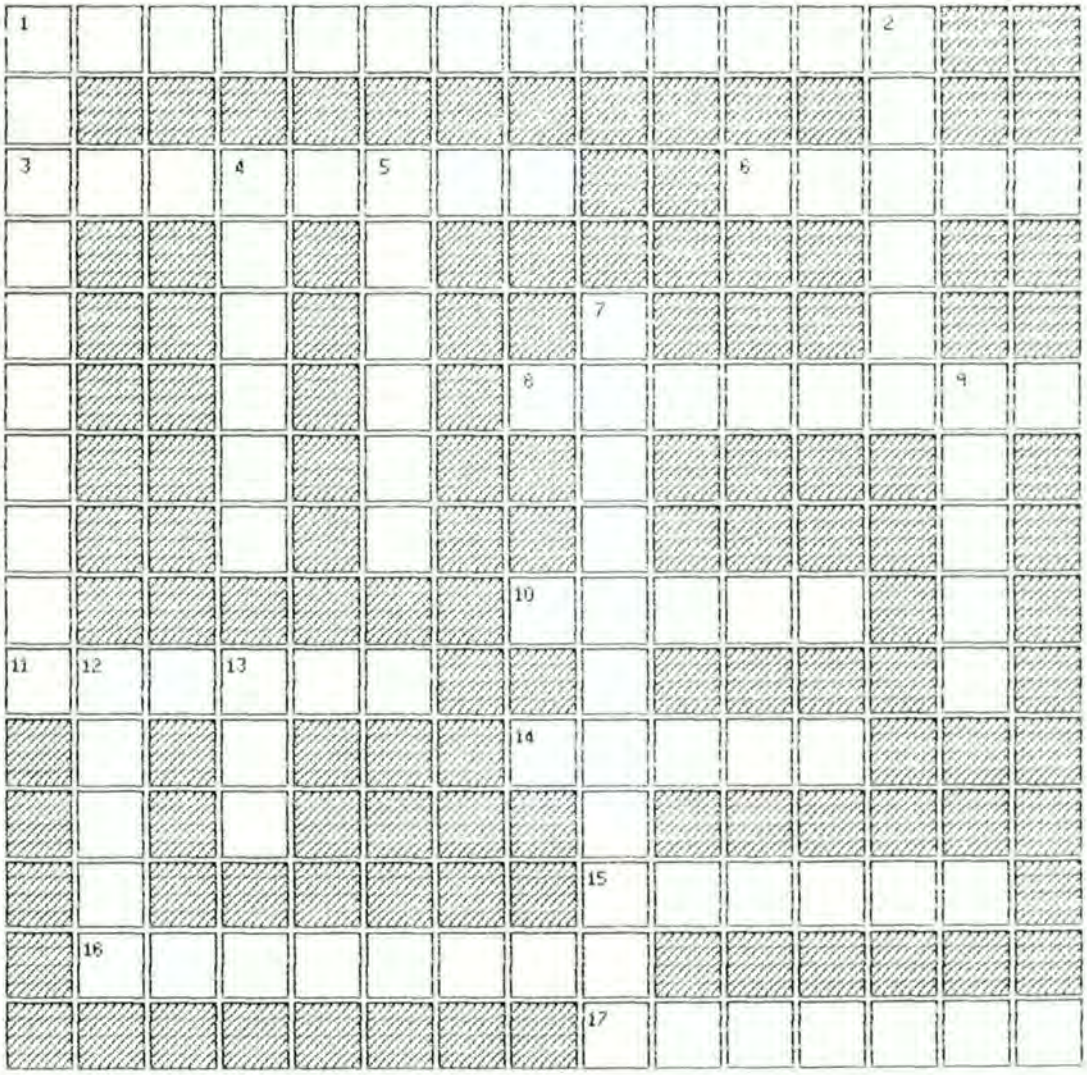
for Submarines

for Surface-Ships

for Mine Counter Measure Systems

KRUPP ATLAS ELEKTRONIK

ANI VESSELS OF WORLD WAR II



CLUES ACROSS:

1. A SKY SHIP USED BY NAVIGATORS
3. THEY HAD A GOOD WINE STORE !
6. A FOREIGN AND TIME INTERLOPER
8. IESHIMA SURRENDERED ON BOARD
10. A VESSEL FROM THE SOUTH COAST
11. NOT A PADDLE STEAMER
14. NOT A LION BUT A SNAKE
15. VICTUALLING SHIP - TEA ONLY ?
16. DOESN'T SOUND LIKE OUR KETCH
17. AN ARMED MERCHANT CRUISER

CLUES DOWN:

1. A CRUISER OF GREAT RENOWN
2. ARMCHAIR DESTROYER'S BROTHER ?
4. AN ARMCHAIR DESTROYER !
5. ARMCHAIR DESTROYER'S FLOOSIE ?
7. BOMBED OFF DARWIN JAN 1943
9. SOUNDS LIKE A RICH DESTROYER
12. CORVETTE, 650 TONS, 1942
13. YOU'D THINK THIS WAS RN ONE !

As for ASEAN, we find a mixed bag of factors that contribute to the correlation of forces in Asia. Clearly, for the most part, ASEAN is a fledgling success story that ought not to fail to sustain its momentum. We must assure that it does not. On the other hand, one can scarcely overlook the cancerous situation in Cambodia, and growing Soviet presence in Vietnam. There seems little reason to hope that a Cambodian solution is near at hand, given the level of success which Vietnam has enjoyed in this past dry season. As for the Russians, I believe we have only begun to feel the effects of Soviet influence within Indo-China and Southeast Asia. I don't believe we have the vaguest notion as to how to persuade them to go home. Nor have we thought through the consequences of their enduring presence.

Which leads me to highlight the major concern I hold regarding the decaying situation in the Philippines. While one can undoubtedly argue that Third Party countries should not get involved in the affairs of others, including the Philippines, I must urge you to consider the strategic consequences to Australia and all Southeast Asia if the United States were required, through one form of coercion or another, to vacate its strategic presence at Clark Field and Subic Bay. What happens to the correlation of forces at that point? What cracks emerge in our deterrence shield if the vaccuum left by US withdrawal is filled gradually by crafty, opportunistic Soviet policy? I suggest the strategic geo-consequences to ASEAN and Australia are substantial.

Which brings me to the real bottom line — Australia's role in this geopolitical matrix I have been attempting to construct. At this point, I would much prefer to turn the podium over to one of the several strategic giants here in the audience. Your perspective would surely be far more credible than mine. But, that would be a true cop-out. So, let me give you one American's perspective for you to shoot at, beginning by casting a few pejorative questions your way:

- Am I correct in suggesting that the reassessment of Australia's defense policy now ongoing, which has been a natural adjunct in government leadership, leads one to the conclusion that the policy of 'self reliance' is taking on a connotation that is much more 'defensively' oriented and more inwardly directed to your national security objectives — with all of the troublesome implications that might have on force structure decisions?
- Or is it more appropriate for one to interpret 'self reliance' in its broadest regional context, denoting a greater desire to deal independently with security issues in the vital areas to the north and east, as well as the Indian Ocean?
- Am I right or wrong in my reading into the statements of senior government officials, a new movement in a direction away from support of the policy of 'deterrence', in the context of regional security, to more emphasis on continental defense?

I hope I am wrong, for a 'fortress Australia' policy is no more relevant to the current state of regional affairs than 'fortress America' would be for the United States. While acknowledging absolutely the legitimate right of any nation to concern itself foremost with its vital interests at home, from an American's perspective, key among the vital requirements of nations committed to the Western persuasion must be a visible capability to play a meaningful role on the deterrent front. A viable alliance must project first and foremost the perception of cohesion, unity of purpose, the melding of vital interests, while confronting all adversaries on all fronts with a correlation of forces which will always lead them to the conclusion that military adventurism is dangerous and imprudent. Little wonder then, that the US is deeply concerned with the recent crisis in the ANZUS alliance by the breakdown in New Zealand's commitment. Australia's efforts to shore up the breach have been helpful and appreciated.

As an American with great affinity to our traditional friend 'down-under', I urge that as you undertake this important, ongoing reassessment of your national goals, and that as you grapple with the trying task of balancing national priorities in times of real fiscal stress and strain, you never flag from your position of leadership throughout the archipaligic region to your north and your vital influence in the Southwest Pacific Islands; and that you look beyond these nearby horizons, on into the Indian Ocean, westward to Southwest Asia and Africa, and northward to the South China Sea, appreciating how critically important your strategic role is to regional long-term stability and balance.

Within this strategic framework, it seems to me that a strong maritime strategy is especially applicable. I hasten to clarify that I did not say *naval* strategy, but maritime. My definition of a maritime force explicitly includes full utilization of all land-based assets of the RAAF, and all surveillance systems available nationally and internationally.

I would suggest that it does not take much analysis to arrive at the conclusion that a capable, flexible, highly mobile maritime force, possessing substantial offensive characteristics, not only meets the imperative of defense of the

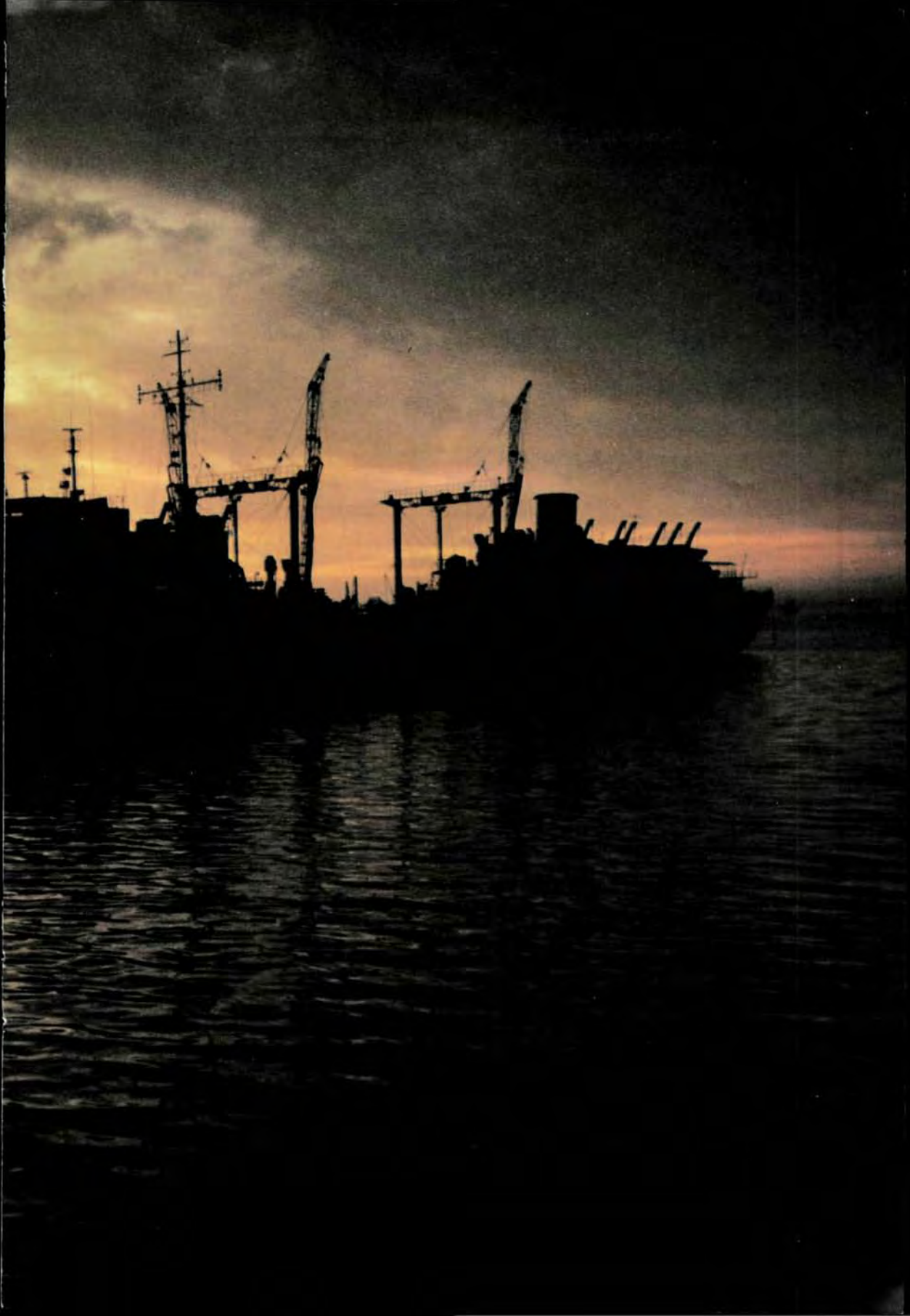
continent, in the remote possibility of a serious attempt by any adversary to mount an assault on your homeland, but also (and most importantly) provides you confidence in your ability to control the sea lanes, sea approaches, and choke points, as well as supporting directly your vital interests and alliance challenges regionally, which you have traditionally demonstrated so ably in the past.

The United States, Japan, and Australia — and ultimately, China — bear a unique and vital obligation in maintaining an atmosphere of co-operation, common purpose and confidence building that will not only block Soviet adventurism in the Asia-Pacific region, but will permit steady, mature growth of the economic and political systems of all nations, large and small, within the region.

Given this kind of commitment, strategic vision and continued acceptance of regional responsibility, there is great hope for us all.

VIJAY DURG *RAN*

HMAS SUPPLY, May 1985
— LSPH E Pitman



The Fremantle class patrol boat HMAS BENDIGO arriving at the HMAS STIRLING fleet support facility on 25 February, 1985. This was the BENDIGO's first visit to the base.

Photo: LSPH E Pitman, RAN

THE WIDENING ROLES OF DESTROYERS AND FRIGATES IN TOMORROW'S NAVY

by Commander G Cutts BA PGCE Grad Dip Lib RAN

If we are going to progress with the development of a national maritime strategy, and to derive our force structure from it, it is desirable that we shed all assumptions, preconceptions, received wisdom and hallowed doctrine. It is not enough to sweep an expansive arm across the watery map and proclaim 'Obviously we must do this and possess that out to so many 100s or 1000s of miles', or to invoke the importance of our maritime trade. We can hold no truths to be self-evident, but all must be thought through and tested in our own national discussions.

WB Pritchett
Seapower 84

October 1986

Midshipwoman F Radox RAN
Australian Defence Force Academy
CANBERRA

My dear Frieda,

Since receiving your phone call at the weekend, I have been giving considerable thought to the topic which is the theme of your presentation to the Naval Studies seminar next week. Having been named after the Nordic goddess, the subject of naval destroyers should be right up your street! I am sure that you will have access to all the latest info on current frigates and destroyers, and to trends in ship design; consequently, I have come up with a few ideas for your consideration which will not be in the traditional mode.

The following letter will not deliver a force structure for the 90s, nor will it be very popular with any gung-ho instructors you may have. Nevertheless, it does present some ideas which must be considered, for we move in rapidly changing times and the navy of the present must look to the possible future, no matter how unpalatable such stargazing might be. If you are prepared to consider my thesis unemotionally, and can then reject it with reasoned argument, I will listen carefully to *your* arguments in favour of a more fighting image for the navy of the future. But I suspect the widening role of frigates and destroyers may not be in the direction you and the other up and coming young NOs would like.

HISTORY IN A BOTTLE

Originally, frigates and destroyers were designed for speed and manoeuvrability, frigates in the sailing era to act as lookouts, repeat signals or to work independently of the Fleet, and destroyers from the end of the 19th century as a counter to the fast torpedo boats. Apparently, there was a gentleman's convention in sailing ship days that ships of the line did not fire on frigates during fleet battles unless fired upon first — beneath their contempt as it were. This superior attitude has been continued until recent times, ie, until the numbers were reversed and the frigates and destroyers became the larger part of many navies. You will recall the classic signal dispatched by a 'ship of the line' during World War II — the escort had been detached to collect mail for the Fleet, but before departing, showed off its speed and manoeuvrability by cavorting around the 'old lady' — the aircraft carrier; unfortunately, the last manoeuvre involved a slight contact, to which the admiral responded 'Touch me there again and I'll scream!' A splendid way to demonstrate one's superior attitude.

The Author

Commander Geoff Cutts joined the RN in 1959, came to Australia as a civilian in 1963, and joined the RAN as an instructor officer in 1966. Postings have included *HMS HERMES*, *HMAS MELBOURNE*, four years at the RAAF Staff College, and three staff jobs in Canberra. A founder member of the ANI, he has been at various times councillor, secretary and editor.

Introduced for speed and flexibility at the turn of the century, the development of destroyers has shadowed the development of their adversaries, aircraft and submarines. All three have benefited from changes in fuel source, introduction of lightweight materials and miniaturisation in electronics: coal has given way to nuclear fuel, iron to fibre glass and aluminium, guns to missiles. The speed and weight has changed dramatically since *HMS HAVOCK* was ordered in 1893 — from about 27 knots to a maximum these days of 40 knots, and around 250 tons at the beginning of the century to up to 7000 tons today (the US *SPRUANCE* class — gas turbine engines and two helicopters). The term 'frigate' was revived in World War II and is often used now to describe the smaller destroyers; for the rest of this letter I will use the term 'destroyer' for both, not only for convenience, but also because it suits my thesis better!

Over the years, the original, fairly simple roles have been expanded, both by adding new ones and by greatly developing the old. There is no doubt that one of the primary roles remains the escort of merchant shipping and other naval vessels, but the extent to which there will be convoys, large battle groups or task forces in the future is a matter for conjecture, to which I will return. Destroyers in their escort role, and independently, have to be able to interdict surface, subsurface and aerial opponents; they have to be able to provide naval gunfire support and focal area defence; and they have to be able to control the activities of carrierborne and shorebased aircraft. 'Peacetime' roles — and I use inverted commas deliberately — include public relations, surveillance, protection of offshore resources, and prevention of infiltration of the mainland, be it by smugglers, drugrunners or illegal migrants.

THE CURRENT SEASTATE

Rising Costs

To cope with the developing 'wartime' roles, destroyers have needed to keep pace with changing technology. Automated detection of submarines, aircraft and missiles; solution of the fire control problem; release of the relevant weapon system — all have led to the development of very complex warships which need high speed, good seakeeping ability and endurance. Unfortunately, one tends to counteract the other, and designers are faced with the difficulties of containing increasing weights and sizes within hulls which are strong, but light, not top heavy but fast and stable; such materials, and the sensors and missiles to fit in them, are rapidly increasing in price — just as the ratio in the budget of equipment costs v. manpower costs tends to favour the manpower costs. The paradox is that those nations, certainly in the Western world, which may be able to afford the equipment, often cannot afford to train and man as many ships as they would like, and indeed consider essential to the defence of their countries. In Australia, for example, manpower costs have consumed more than 50% of the Defence budget for each of the last 10 years at least, whereas capital equipment's share has been less than 20%.[1]

The Military Balance 1984 noted that 'qualitative improvement certainly continues, with some modern equipment replacing old, but nowhere do the overall numbers show much change . . . unit costs of equipment are still rising generally in real terms . . . defence budgets are mostly static . . . the general trend is in the direction of increasing accuracy, greater mobility, dispersal and concealment, and smaller size.'[2] Closer to home, the Cross Report, the 1984 report of the Joint Parliamentary Sub-Committee on Foreign Affairs and Defence, stated, much to the chagrin of the Chief of the Defence Force, that 'Because of the uncertainty associated with future threats to Australia, the force-in-being is structured to defend Australia and its interests against intermediate and high level threats with only a few force elements being maintained at an advanced degree of readiness to meet low level contingencies.'[3] The Committee believed that Australian defence forces were in no state to defend the country and that our whole defence strategy needed a rethink.

No doubt there are some exaggerations and some omissions in the Report, and CDF had a right to be upset by it, but few sailors could be well pleased at the strength of the Navy today — no aircraft carrier, a decimated Fleet Air Arm, no helicopters at sea, negligible mine warfare or countermeasure elements, and a direction to 'lose' some hundreds of bodies before the end of the financial year. The West Australians were delighted to hear that *HMAS SWAN* was to join *HMAS STUART* in the West — but wondered how even the two of them could manage to protect the enormous resources both on and offshore. As several speakers at the Australian Naval Institute Seminar 'Seapower 84' attested, not the least being Sir Charles Court, (former Premier of Western Australia) Australia has over 19,000 km of coastline, and with a 200 nm exclusive Economic zone to protect, there is a great deal of seaspace — over 16m square km, in fact, or twice the land area. As the Managing Director of Esso Australia said, vital interests therein range from the coastal tourist industry to oil rigs:

'I hope that I have demonstrated to you the vital role that the maritime industries play in determining the health of the Australian economy. The direct contribution — shipping, fishing and tourism — is over $4 billion each year. The indirect contribution — oil and gas etc — is over $6 billion per year. These industries are strategically and economically vulnerable . . .'[4]

Strategic Dilemmas

Maritime nations are facing much more than the problems associated with rising costs, for even within their own ranks there are long and far ranging arguments about the strategies to be adopted, all assuming that money is really no problem. No librarian is prepared to discuss the pros and cons of a mini-library consisting of a few thousand books, next to no periodicals, and no computer systems for access and retrieval of information; similarly, no professional naval officer wants to face a future dominated by diminishing budgets, fewer ships and men, and a Government and people not prepared to see eye to eye with him/her on the country's defence needs — after all, the *raison d'être* of a naval man is to prepare for war at sea, and war at sea has traditionally involved **fleets** and all the concomitants.

Consequently, the strategists continue to debate the troubled waters of convoy, air at sea, submarines and, to a much lesser extent, mines. All of these issues relate directly to the roles of destroyers as seen by the strategists, though I will argue later that they are mostly irrelevant.

To convoy or not to convoy has been a constant theme, the basis of which has changed little as ships, both naval and merchant, weapons, aircraft and submarines have changed over the years. The *principals* for the defence of convoy allege that merchant ships grouped together and escorted are more easily defended against subsurface and aerial attacks, for the destroyers can concentrate their forces to seek out and destroy potential aggressors: the Sikorsky Seahawks approved in 1984 for the RAN will enable a ship to pick up submarines up to 60 nm away, to pick up a ship up to 120nm away, and enable a Harpoon missile to be fired accurately to a target 75nm over the horizon. The *prosecution* rests its case on such factors as the differing speeds of differing merchant ships and naval ships, making convoy extremely difficult; the presentation of a valuable target in one packet, to an enemy possibly armed with a nuclear weapon which can be fired from well outside the range of escorts and targeted to a convoy whose exact position is known from satellite surveillance; and the need to spread ever so thinly the already meagre antisubmarine force. This is no place to discuss this topic in depth, so please read the simple summary as no more than that, and if you need a concise treatment of the subject, look at the references I have added for you at the end. Suffice to say here, that if Australia is to consider a convoy capability, either in local waters or especially in mid-ocean, then a much larger force of destroyers will be required than we have today.

The protagonists of **naval aviation** argue that control of the air is a prerequisite for control of the sea, and that an ability to strike at an enemy's home bases or forward operational bases is essential in time of war; without organic airpower, there is virtually no capability to protect sea lines of communication. Nevertheless, to refer to an earlier theme, naval airpower is expensive, and you should be all too aware of the other arguments, which raged to and fro for many years concerning a possible replacement for *HMAS MELBOURNE*. All the relevant arguments are to be found in the report of the Joint Parliamentary Sub-Committee on Foreign Affairs and Defence *An Aircraft Carrier for the Australian Defence Force*, but regardless of the views of you or your naval friends at ADFA, the conclusion was all that mattered: 'The Committee is of the view that many of the functions performed by an aircraft carrier cna be performed as effectively, or at least acceptably, by other elements of our air and maritime forces.'[5] The arguments leading to the decision not to replace the *MELBOURNE* and the subsequent demise of the Fleet Air Arm are not restricted to Australia alone, in that few countries can afford such apparent luxuries despite the pressing arguments to the contrary. The effect on the role of destroyers has been twofold — it has removed that aspect of escort duty which was not related to merchant ships, ie the protection of the Task Force, and at the same time it has meant that destroyers have had to take on the added tasks, for example the limited airpower deriving from limited numbers of helicopters, a correspondingly greater emphasis on ASW, and the responsibility for command and control.

As the role of naval aviation seems to be declining in all countries except perhaps the two superpowers, so the emphasis on **submarine warfare** has been growing, especially since the advent of nuclear submarines. There would appear to be little debate regarding the roles and value of submarines, though there are arguments concerning the comparative advantages of nuclear propulsion as opposed to diesel-electric. The power of submarines depends on speed and endurance underwater, weapons carried, and detectability (ie, minimal); most would agree that the nuclear submarines

lead the way in all three categories — and a fourth, namely cost. Australia has been singing the praises of its *OBERON* submarines, but a report stating that Defence analysts were concerned at the apparent ease with which the crew of a RAF Nimrod was able to track one in a Spencer Gulf exercise may change their tune.[8] SSNs, which conceivably could use Australian ports if they were not carrying nuclear missiles, would be an attractive replacement for the *OBERONS* but for the cost; Mr Sinclair promised that the Coalition parties would procure them in his pre-election policy speech on Defence in 1984 — I wonder if the costs would have been 'reassessed' if they had been elected? The effect of such a purchase on destroyers would be to increase our expertise in ASW, by giving us so much more readily available practice, but to counteract this, we would probably be able to afford fewer destroyers!

Lastly, a brief word on **mines**, which arguably constitute the most cost-effective form of naval warfare, both for aggressive and defensive purposes. Traditionally, mine warfare has been the poor relation in the naval family and has received scant attention except in times of war, but there are indications that this is about to change. Two considerable problems facing the miners have been the legal and the psychological aspects; the latter has led to a general abhorrence of mine warfare not only in defence circles but, perhaps more significantly, also in the minds of the general public. The consequence has been the development of both written and unwritten 'rules' concerning their usage. Recent events in, for example, Nicaragua and the Red Sea, have thrown more emphasis on this form of warfare and may be an indication that there is a lessening of the legal and psychological controls. *Mine laying* is a comparatively cheap operation for which the effects on a potential or actual enemy can be enormous and out of all proportion to the cost to the miner: *mine countermeasures* are much more expensive, and there are added costs in the form of diversion of funds and effort from other resources, plus the effect on enemy morale, and the economic effects of the bottling up of ports and sealanes. Destroyers have been and could again be used as either minelayers or minesweepers, but any significant development in mine warfare will not be in this area, but will be in coordination of tasks, — miners and destroyers forming the nucleus of many navies in the future.

To recap, Frieda, I am surreptitiously building a case which will suggest that *the roles of destroyers are diverting rather than widening*. Modern technology has widened the roles over the years, and made the ships that much more effective, but there has also been a concurrent increase in size, weight — and cost. Added to this, continuing arguments in defence and naval circles regarding the widening/narrowing of the roles of naval air, convoys, submarines and mines all seem to be pointing in the one direction. I hope that you and your friends will be prepared to examine my thesis objectively and not emulate General Haig at the battle of Passchendaele: intelligence advised abnormally heavy rainfall, that an artillery bombardment would destroy the land drainage system, and that the Germans expected an offensive. 'In total disregard of the evidence . . . Haig started the offensive with a bombardment of 4½ million shells . . . 4¾ tons for every yard of front . . . it continued for 10 days . . . the drains collapsed, the rains came and the ground subsided into a sea of liquid mud . . . they advanced in torrential rain. On the left flank they made progress, but on the right men and tanks simply disappeared into the mud . . .'[9] Not that my thesis and your seminar have much in common with General Haig, but do not disregard *any* facts just because they happen not to fit your preconceived opinions. Take the advice offered in the prologue by Mr Pritchett.

The Will of the People

Now I come to the bit for which I have no concrete evidence, no chapter and verse which you can look up. I refer to it loosely, very loosely as 'macro history' — the drawing together of threads stretched over a period of time, to try to form a tapestry in which one can see a picture. I think the approach is not as invalid as it might at first seem, for although the threads are present in Australia, they can be seen in other parts of the world too. And hopefully not stretching my analogy too far, the threads are growing into larger strands every day.

With all due respect, our Labor Government provides an example. The socialist and egalitarian principles espoused, and put into effect, by this Government are merely typical of what is happening elsewhere in the world, regardless of the type of ruling party. Think, for example, of the ramifications of the Freedom of Information Act and the Sex Discrimination Act, still in their infancy; amongst other things, the former has allowed minority groups access to a great deal of information previously barred to them which they will obviously use to develop their own causes, and the latter, *inter alia*, forced the Navy to create billets at sea for women. The limitation of such billets to the training ship because of the Defence Force exemption for combat and combat-related billets, will not last long, and I have no doubt that one of your female peers will be pacing the deck on one of the

destroyers we are currently discussing — especially if my thesis proves true. These two Acts, and the trends I will mention shortly are, to mix my previous metaphor, but ripples in a pond.

From the sublime to what some would regard as the ridiculous — the *Canberra Times* on 14th October 1984 contained two lengthy articles on the subject of smoking: the Non-Smokers' Movement of Australia initiated proceedings against a TV station for allegedly telecasting cigarette advertising during the Rugby League Grandfinal, and the Director of Naval Aircraft Engineering was cited because his directorate 'which is responsible for landing millions of dollars worth of helicopters on ships far out to sea, cannot clear its library of smoke'. A storm in a teacup, to use another metaphor, but one which is significant of wider ranging issues and symbolic of the growing power of the previously silent minorities; I will not prolong this section, but you should consider the growth of the Peace Movement in all its forms and names, and the influence of the Nuclear Disarmament groups, in the light of world trends which can have an impact on defence policies.

The anti-smoking lobby is a specific example of the liberalising, the 'coming-out', of races, females, homosexuals and other minority groups throughout the world; indeed, some of them are not so minor. Witness the declining role of ANZUS in our defence thinking, brought to the fore after years of quiet whispering behind closed doors by the decision of the Lange Government in New Zealand. There has been no major *world* war or confrontation for over 40 years, and there are now senior public servants and politicians, ie, people in power, who have had no contact with the armed forces whatsoever. In fact, there are people in all walks of life who have never seen or heard of a shot being fired in anger: a person too young to have been called up in World war II, say 17 years of age in 1945, is now close to retiring age.

The moral of this saga is that the Navy will not get what it would like for its destroyers and frigates, let alone for the rest of the Navy. The rising costs of defence equipment and manpower, in a time of relative peace and stability, with growing powers and voices of, for the sake of a better phrase, anti-Defence groups, coupled with a general disinclination by the mass of voters to expend scarce resources on such equipment, means that our arguments will fall on deaf ears. When the decision on the Sikorsky helicopters was made in 1984, only three weeks later a television reporter commenting on the lack of child care facilities in Australia and Canberra said 'Think what the cost of one helicopter would pay for in creches, baby-minding . . .'[8] Frank Cranston, the Defence writer for the *Canberra Times*, had a full page article on United Nations Day repeating a suggestion he

HMS WAVENEY *James Goss*

had made the previous year, that Australia should set an example to other countries by putting aside *one day's* Defence spending to be used for the poor and hungry.[9] Needless to say, the naval cause is not helped by the internal debates on maritime strategy, nor the external debates of and with the other two Services, to which I have not referred. The Cross Report of 1984 gave a glimpse of what is to come when it stated:

> 'Australia's military capabilities will increasingly depend on a range of *non-military factors and capabilities* such as our industrial capacity and our ability to mobilise civilian resources and services.'[10] (my italics)

This statement may be open to interpretation, but I believe it points in a new direction that we would be wise to investigate.

FUTURE ROLES OF DESTROYERS AND FRIGATES

The Minister for Defence, whilst neither endorsing nor repudiating the conclusions of the Cross Report, was reported as saying that Australia was devoting its Defence resources to consolidating its ability to meet a seaborne threat, viz replacement submarines, Orion PC3 Long Range Maritime Patrol aircraft, Sikorsky helicopters, new anti-surface-vessel and anti-submarine weaponry for aircraft and helicopters, and two more guided missile frigates. He apparently went on to say: 'Our first priority should be to deal with an enemy who has to come by sea. The best way to deal with him is before he hits the beach.'[11] Which enemy do we prepare for, and how far from the beach do we intend to hit him?

Due in some measure to all the factors I have been discussing, there has been a general 'drawing in' noticeable throughout the world. At Seapower 84, Dr TB Millar said of a conference he had attended in England '. . . no one was at all concerned at the possibility that the Soviet Union might take targets of opportunity in Africa, the Indian Ocean, South, South-East, or East Asia, or indeed the Pacific . . . It seemed irrelevant to the problems of European NATO, so near and narrow has their vision become.'[12] There has been a return to the world scene which consists of 'Home', and Near East, Middle East and Far East, of which the British withdrawal east of Suez was but the forerunner. The Falklands operation provided a much needed boost to the morale of the Armed Forces, the Navy in particular, and showed that the RN at least could readily 'mobilise civilian resources and services'. Nevertheless, the analyses of that operation continue, and there is more than one bean-counter at work.

Closer to our 'home', regional development and cooperation is a mixed bag — remember ASEAN, SEATO, ANZUK, even ANZUS? 'Fortress Australia' is back in favour and likely to remain so, and the fortress will be surrounded by a well patrolled moat. The recently retired Commander-in Chief US Pacific Fleet, Admiral Long, quoted the strength of the Soviet *Pacific* Fleet as more than 120 submarines, an anti-submarine aircraft carrier, more than 80 cruisers, destroyers and frigates, and more than 300 amphibious vessels.[13] Let us agree that if there is to be another major conflagration, it will feature the two superpowers, and if one of them chose to concentrate any force on Australia, there would be little we could do about it — and that applies to all other countries if your topic is to be concerned with wider issues than domestic. So, in the prevailing climate as enunciated to date, there is no scope for preparing roles for our destroyers which look too far away from our shores. The enemy thus has to be a country other than one of the major powers, unstated for tactful reasons, and the distance from the beach will probably be not much further out than the EEZ.

Also at Seapower 84, Mr R Cottrill, First Assistant Secretary Strategic and International Policy, made a statement in the open session which should have been pursued, but, in the way of these seminars, was not. In the course of that statement, he said:

> 'I would urge you to keep in mind that any defence of Australia must be a defence of the *whole* of Australia . . . We have to consider there is a multiplicity of interests involved and we have to also consider changes over time, and there can be legitimate interests of particular groups in our community which have to be taken into account.'[14]

To tell the truth, this quotation provided the germ from which this diatribe has sprung: I thought it was a comment worthy of some follow-up.

My thesis is that the rising costs of Defence in all areas, combined with the will of the people as it is developing, and enhanced by the lack of perceived threat, will force Australia, and like countries, to withdraw to the heartland. There will be a fortress, an EEZ, and a PIZ — a 'Protective Interest Zone'. Destroyers and frigates will still carry out all the tasks assigned to them today but the emphasis will be on what has been called the 'non-belligerent' aspects; 'destroyers' will become 'protectors' and their major roles will be in the EEZ and PIZ. The size of the PIZ will be determined as part of the national maritime strategy and will not be an internationally recognised or limited area; it could be, for example, another 200nm out from the EEZ

HMAS BALLARAT *Credit RAN*

where feasible. I would see it as extending beyond the Cross Report's Australian Area of Principal Defence Interest which appeared to be restricted to Australia and its off-shore Territories[15], for in order to protect those territories, the Navy must extend its operations beyond their boundaries.

'Protectors' will be responsible for establishing a naval presence, ie, illustrating to other countries that we intend to protect our interests (gunboat diplomacy in a new guise!). They will provide a credible backup, wherever and whenever required, to the work of patrol boats, which will concentrate on the EEZ as now, and the protectors themselves will perform a number of maritime tasks such as patrol, surveillance, intelligence gathering, interception (as permitted by international law, of course), law enforcement, search and rescue, hydrography, meteorology, public relations, training, disaster relief ... Although current primary roles will become secondary, they will be far from neglected: for the essential task will be to deter potential aggressors and harassers, and in order to do that, we must practice for war.

In this latter regard, I believe that destroyer/protectors will provide the nucleus of a fleet which will consist of three arms — the destroyers, diesel-electric submarines, and mine warfare vessels. I said at the outset that the aim of this letter was not to provide a force structure for the 90s, so I will not develop this aspect further than to suggest that diesel-electrics will be cheaper and more than satisfactory for the new strategy, and in line with Government thinking, and the upsurge of interest in mine warfare will be for similar reasons — cost effectiveness, and an indication that we intend to protect our interests: 'Australia should develop within its maritime defence forces a small but highly capable mine countermeasures capacity utilising both surface and airborne facilities and capable of providing protection for at least our major ports and choke points.'[16] I need not add for a young lady at ADFA that we will be forced to rely on landbased air, and that there will be a rapidly growing move towards greater rationalisation and jointery — although unification of the Defence Force will not come to pass!

In passing, I think that because of the thesis I have presented, there will be a return to the arguments of yesteryear for a DDL programme, a light Australian destroyer specially designed

for Australia's needs, rather than the current, costly general purpose design. There is no doubt that the development of a destroyer fleet is a crucial element in the evolution of a force structure to meet my proposed strategy, and to provide some 30 ships, say, will require a long lead time — and some lowering of costs and requirements. Nevertheless, or should I make the usual pun and say *paradoxically*, to be a credible backup and or deterrent, a warship must be well-armed, and to carry out its ASW task against sophisticated submarines it cannot be a cheap and nasty. Professor Freebairn said:

> '[The real cost of Defence] is drawing resources away from producing other goods and commodities that we like, to providing defence support . . . if we can think of it in that type of economic context, then you can make arguments to the people and to the Government.'[17]

The cost of acquiring future destroyers can limit their deployment and number, or their armour and tactics can be adapted to suit a new strategy. I suggest the Navy has little room for manoeuvre, and should plump for smaller ships in larger numbers.

In conclusion, my dear Frieda, you can argue for a *widening* role for frigates and destroyers along the lines I have enunciated, or you can argue for a *changing* role, and I would prefer the latter. The tasks as they are today will remain essentially the same: the emphasis will be different. Rising costs, changing views of maritime and national strategy, and, most importantly, the will of the people, will insist that we spend if not less on Defence, then at least 'wisely', and that we get a fair return. To put Professor Freebairn's words into midshipperson's terms, like it or not we have to sell our product — we have to convince the taxpayer that the Defence budget is being well-spent protecting our vital interests, and that without an adequate destroyer fleet, those interests may well be overtaken. We have to prove that we are capable of protecting our off-shore oilmen and fishermen from harassment, and we have to be able to show that in the event of any aggression short of major world war, we are prepared to take decisive defensive, and if necessary, offensive action.

The Lord Hill Norton in his book, *Seapower*, quoted Churchill's description of gung-ho destroyer captains during World War II: 'They are captains of ships, not captains of war.'[18] Let us hope that you and your peers will have the same drive and enthusiasm, coupled with the ability and strategic knowledge to be able to avoid war.

Yours aye,
Pa.

Notes

1. Defence Report 1982–83, p 31.
2. The Military Balance 1984–85, p 15.
3. Cross Report, p 5. 13.
4. Mr Kirk, Managing Director Esso Australia. Seapower 84, p 73.
5. Sir VAT Smith, Journal of the ANI, Vol 9, No 2, p 28.
6. Canberra Times, 13 Oct 84.
7. Psychology of Military Incompetence, pp 372–3.
8. News Report, CTC Channel 7, Canberra, 22 Oct 84.
9. Canberra Times, 24 Oct 84.
10. Cross Report, pF. 5. 19.
11. The Age, 13 Oct 84.
12. Seapower 84, p 15.
13. Almanac of Seapower.
14. Seapower 84, p 123.
15. Cross Report, p 4. 25.
16. Cross Report, p 6. 28.
17. Seapower 84, p 84.
18. Seapower, p 158.

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(Lecture given to the Canberra Chapter on 8 May 1985)

THE NEW DESTROYER IN THE FUTURE MARITIME FORCE STRUCTURE

by Commander T.H. Cox RAN and Captain Chris J. Skinner RAN

Disclaimer

We must say at the outset that the thoughts presented are solely our own, and do not represent the policy or opinion of the Government, the Department of Defence nor the Royal Australian Navy. Furthermore, the Chief of the Defence Force requires we state that 'the (New Surface Combatant) project is not yet approved and it could be some time before it will be considered by higher Defence Committees. At this stage, the size, costs and capabilities and numbers of ships are yet to be determined.'[1]

Preamble

A former secretary of the Department of Defence (DoD) said recently: 'Government is usually too busy to spend time on other specific issues . . . What is lacking is that penetration by Government into the area of strategic guidance and defence policy objectives, with deliberation on basic defence posture, degree of preparedness and acceptability of commitments, real or potential, that would support much tighter definition of capability requirements and programming of the force structure and defence infrastructure.'[2] Early indications of the Defence Review are that Mr Dibb is very much attempting to redress the lack described by Pritchett.

This paper falls into two main stages of discussion:

- the national defence posture, and the context for maritime force structure; and
- destroyers as part of the maritime force structure and the place of the New Destroyer Project.[3]

APPROACHES TO NATIONAL SECURITY

The *conventional* approach to National Security consideration is to provide for defence capability to:

- resist invasion (of the Australian mainland); and
- protect sovereignty and national interests, including offshore territory, surrounding ocean and coastal areas as provided for by the Law of the Sea.

Then, as this paper suggests, there is also the need for protection of international and coastal commerce on which Australia relies, especially trade shipping.

An *alternative* approach is to:

- identify vulnerabilities to outside interference or aggression; and then
- assess the optimum posture to minimise these vulnerabilities.[4]

In this, we describe vulnerabilities as opportunities for an adversary to exert effective pressure on Australia with minimum effort (expenditure of resources).

This is none other than the principle of 'Disproportionate Response' as described by Babbage[5] and others[6], with the rider that 'disproportionate response' is the aim of the military strategist *on both sides*. It fits in well with the Principles of War — Concentration, Economy of Effort, as well as use of Intelligence (and natural geography).

Significance of Trade

A significant Australian vulnerability is our major dependence on overseas trade — much of it carried by ships[7, 8]; this extends not only to imports of vital raw-materials, especially heavy crude oil, but also to the much larger tonnages of exports. The scale of trade is prodigious — 207 million tonnes in 1983, valued at nearly $A40 Billion.[9] Because so many of our exports are bulky, low specific-value mineral and agricultural commodities, Australia's exports require proportionally more shipping to carry them. Since our trade pattern has shifted from a European to an Asian focus, the trade routes through or near the archipelagos to the north and east of Australia have become more important.

There are two stages of benefits from international trade. Firstly, survival is assured because the vital imports are obtained; these include high-technology manufactured items which, if small, are usually air-freighted, and also the strategically necessary raw materials like heavy crude oil, needed to produce lubricants

and for chemical feedstock. Secondly, the economic growth of the country and the flexibility to influence the future are better assured. The major contribution to this ability is our continuing to *export*. In time of war, this capability to earn revenue would be needed to support the defence effort.

We should eschew the advice of some who believe that in time of war we would be self sufficient and that all imports and exports would cease abruptly.[10] On the contrary, Bateman notes: 'Even a relatively low level of trade attrition would have a serious impact on macro-economic performance, particularly growth, inflation and levels of employment.'[11] As usual, Soviet CINC and noted strategist Admiral Gorshkov has the last word: 'The economies of the developed capitalist countries largely depend on sea transport . . .'[12]

National Security Objectives

There are several reasonable objectives for National Security; three that are widely accepted are:

- avoidance of global war — hence Australia's interest in disarmament, and the monitoring and related capabilities of US bases in Australia;
- protection of Australian Sovereignty; and
- maintenance of regional peace and stability.

The latter objective is of particular interest. For example: 'Trade and War were intertwined for four centuries of the seaborne empires. It is possible that, with the dissolution of these empires, the high seas will be used only for peaceful purposes . . . That result becomes more likely if the States in the middle seas of the Pacific keep the peace effectively in the waters within their control. It is a wider commitment than guarding the coast.'

'Peace keeping is a commitment which Australia and New Zealand can afford . . . if the traditions, equipment and force structure of the two Defence Forces are switched from the demands of alliance defence to those of their strategic environment . . .'[13]

Two further objectives relevant to our theme are:

- maintenance of national scientific and industrial capability, which contribute to national growth, self reliance in technology and especially in the ability to cope with future change; and
- maintenance of the standard of living.

The latter objective is often contentious; however, we support it as a National Security objective because why should we make do with pure survival, and more objectively — it is the disparities in living standards that leads to much conflict in the world. Nicholls has this to say: 'The greatest obstacle to the re-focussing of the Defence Force may be the political dividends gained from playing on national insecurities. It has been suggested[14] that as a counter, the concept of national security should be widened so that it includes threats to the quality of life as well as threats of aggression.'[15]

Scope for Interference of Trade Shipping

Firstly, an adversary must consider the likely effects:

- *Rerouting* of the shipping which results in increased costs, and anyway still leaves opportunities for interdiction by direct action or mining in focal areas; higher costs for exports reduce earnings marginally.
- *Reduction of shipping levels* which results in adverse balance of trade, inflation or unemployment.
- *Escalation* of conflict which is a complex subject but *is* capable of analysis. (Insufficient space to do so in this article but it is a fruitful subject for further study).

The *expenditure* of resources to achieve the effects is a function of:

- the level of forces required — readily achievable in the archipelago, more difficult elsewhere;
- economic repercussions due to bilateral trade effects, either as a result of the high level of interaction or due to deliberate trade sanctions by countries affected by the conflict; and
- the risk of escalation, especially if there have been no explicit limits to the conflict proclaimed by either side.

The *capabilities for protection* of trade shipping include:

- counter intelligence — eg concealment of shipping destinations or cargoes carried;
- evasive routing;
- treaty invocation — eg the Radford Collins agreement; and
- escort in higher threat areas (in convoys).

Future Maritime Force Structure

The roles of maritime forces we define as:

- intelligence gathering and analysis;
- surveillance and reconnaissance;
- maritime strike;
- the exercise of presence — either static (geographical) as in sovereignty patrols, or moving as in escorting merchant shipping;
- defensive — as in AAW, ASW, ASMD capability; and
- reactive (post attack) — as in mine countermeasures.

The direct protection of trade shipping requires *either* the merchant ships to be armed, which would be difficult to attain observing such a high proportion of Australian trade is carried in foreign flag-ships, *or* escort by capable, survivable, surface combatant ships in sufficient numbers.

NEW DESTROYER PROJECT

The New Destroyer Project was established in July 1983 to identify the capability requirements for a new class of surface ships to take the RAN into the 21st century. Six new ships are required to augment the capabilities that will exist in FFGs. In deciding on new ship capabilities, it is necessary to clearly understand what is lost as the DEs and DDGs retire, and where the capability short-falls lie with FFGs. Then there is a need to examine what is relevant to Australia's defence needs, in the nearer term, and the more remote term beyond that time span which is associated with confident intelligence prediction; last but not least, the need to counter the argument relating to ship vulnerability, which would appear to be the only lasting lesson of the Falklands war.

The Threat

Part of this exercise should rightly include performance of intended ship capabilities against the threat. This is particularly difficult in a case such as Australia's, where no perceivable threat can be identified in the short term, and successive governments have acknowledged the most credible defence situation is likely to be a low level conflict, such as a sovereignty dispute or one involving a resource zone. Both of these sorts of disputes are likely to be in the maritime zone rather than on land, close to population centres. With this sort of background, it is difficult to focus people's attention on anti-ship missile threats, protection of shipping and sea lines of communication as it relates to the life of new ships, the majority of which will be beyond 2000.

The Relevance of Surface Fleets

The importance of trade has been discussed earlier, but this does not provide a succinct rationale of the relevance of surface fleets for the 1980s and beyond. The question begs a reply and one of the best answers is found in Gorshkov's writings[12] where he says:

> 'Demonstrative actions by the Fleet, in many cases have made it possible to achieve potential ends without resorting to armed struggle, merely by putting pressure with one's potential and threatening to start military operations.
>
> 'Thus the Fleet has always been an instrument of the policy of states, an important aid to diplomacy in peace time. To this corresponded the very nature of a Navy, the properties peculiar to it, namely constant high combat readiness, mobility and ability in a short time to concentrate its forces in selected areas of the ocean. In addition, the neutrality of the waters of the world's oceans, means that the forces of Fleets can be moved forward and concentrated without violating the principles of international law and without providing the other side with formal grounds for protests or other forms of counteraction.'

Regionalism

To this, it is appropriate to add an interpretation of Australia's role and relevance in the South Pacific. Together with New Zealand, we have the only long range maritime capabilities of the sovereign states of this region. The small island nations are generally supportive of the aspirations of the western alliance and anti-nuclear, which inhibits and will continue to inhibit United States foreign and defence policy initiatives. Island economies are small and fragile, with only a limited potential for earning foreign credits. No-one would suggest that Australia and possibly New Zealand should assume a big brother role, and indeed they haven't, but surely a resource affluent country with a stable economy, such as Australia, should be expected to shoulder some responsibility for regional stability and peace? There is ample evidence that neither former nor current colonial powers offer such comfort. Although stability is defence and foreign policy related, there is more to it — creating the right state of mind amongst our regional neighbours, providing a warm feeling, showing we care about their security. How is this best done? One application that has proved successful since before Nelson (well before anyone even thought of Air Forces) is with unobtrusive ship visits that don't impose upon the sovereign state.

Capabilities

Given all this, how do we get down to capabilities that can be supported by robust arguments? The criteria for selecting them against the above background is that they are task related and satisfy at least one of the following: unique; make a significant contribution, ie complementary; or at least cost (and the boss doesn't want floating coffins).

The most unique thing about warships (destroyers) is their ability to stay on task, an attribute which can be augmented by afloat support when required and available. They can remain in a disputed zone for weeks, maybe months, or escort shipping over the long hazardous sections of a passage. They can display and innocuously visit the nations throughout the region in support of foreign policy

or trade initiatives, including those countries without infrastructure (no wharves or airfields).

Complementary and contributory tasks are surveillance, reconnaissance, maritime strike, fire support, command, control and communications. Other defence assets can do these tasks, sometimes more effectively than destroyers, but they depend on the range from an airbase or the depth of water. Additionally, if activities are occurring in an area of maritime interest and you need to be able to get out there and intercept or observe over a possibly prolonged period, in all weather and conditions — with what? — destroyers. Patrol boats are weather limited and have no credible fighting capability.

To meet these tasks best, you need ships with credible capabilities, both offensive and defensive, capable of a flexible, graduated response. That means that the ships must be able to deal with the lowest level of dispute, while at the same time be equipped to meet any sudden escalation — such as an indiscriminate or erroneous missile firing. The ships must offer defence to ships in company as well as having a high survivability threshold. There is no value in warships that spend all their time looking after themselves. Our surface Navy must have a balance of offensive anti-submarine, anti-surface and anti-air capability, supported by appropriate defensive systems. We need a modern design, that incorporates the lessons of the Falklands, distributed systems, smoke isolation and clearance systems, and no aluminium. The design should incorporate appropriate techniques to reduce radar cross section, infra-red and acoustic signatures. This project is well down the track in investigating these matters.

No, we haven't forgotten about land based aircraft; they are important, they make a significant contribution to air defence, surveillance, maritime strike, ASW protection of shipping and when they are availble, so much the better. However, always be prepared for the unexpected, your Falklands, and remember all the other tasks required of land based aircraft and the range of operations from the air field.

Least cost is difficult. Cox's formula says it's made up of purchase and support costs over the ship's life divided equally amongst all tasks undertaken by ships. Operating costs are task-related and similarly divided. The answer is that ships in the totality of defence and foreign policy support, over their total lives, are no more expensive than anything else; in fact they are cheaper than many defence assets which is undoubtedly why every maritime nation is building or buying capable surface ships in ever increasing numbers — look at India.

Finally, let me say that vulnerability to anti-ship missiles is a much overstated, little understood issue in the community. Ships lost in the South Atlantic were not appropriately armed for the threat they met. The umbrella of land-based air support was not available, layers of missile defence were not provided in every ship. The combination of modern missiles and rapid firing guns, with technologies of the 80s, provide ships of destroyer size with a very high level of protection against tomorrow's threat. Other nations are demonstrating their solutions; examine closely the capabilities of the F122, the M Class and Type 23 to mention but a few. These ships will make an effective contribution to their nations' defence effort, not the wealth of their undertakers.

The New Destroyer Project can provide capable, effective ships for Australia into the 21st century at reasonable cost. Without such capabilities in sufficient numbers, in a region where our neighbours have a right to expect Australia to make a significant contribution to stability, history may be the ultimate judge of those who overlooked the need and relevance of capable surface ships for the island nation.

Notes:

1. CDF minute 124/85 dated 19 February 1985.
2. W.B. Pritchett. 'Consultants Extraordinary'. *Pacific Defence Reporter* May 1985, p10.
3. The official title is Navy Project 1348 — New Surface Combatant Ship Acquisition Project; however, this is a bit of a mouthful and NSCPD is apt to be confused with NCS/MPD or NCSSPD, hence the abbreviation to 'New Destroyer' — a generic title, not indicative of any pre-conceived view on size or capability.
4. This parallels propositions made elsewhere, for example: Ross Babbage — *Rethinking Australia's Defence*. UQP. 1980. Annex C.
5. Op cit.
6. For example: JO Langtry & Desmond Ball. 'The Concept of Force Multipliers and the Development of the Australian Defence Force.' *Working Paper No 66*, The Strategic & Defence Studies Centre, ANU Canberra. January 1983. p5ff.
7. N Ralph, DSC, Captain RAN. 'Australia's Maritime Trade: The Problem of Defence.' *Journal ANI*. Vol 2(2) May, 1976. pp6–11.
8. WSG Bateman, Captain RAN. 'Overseas Trade and Defence.' *Journal ANI*. Vol 9(1). Feb 1983 pp45–54.
9. Australian Bureau of Statistics: *Shipping and Air Cargo Commodity Statistics Australia*. Catalogue No. 9206.0.
10. Sir Mark Oliphant. *Challenge to Australia*. CTAC. Parkside SA. 1982. p37.
11. WSG Bateman. *Australia's Overseas Trade: Strategic Considerations*. SDSC, ANU. Canberra 1984. p139.
12. Sergei Gorshkov. *Sea Power of the State*. Pergamon Press. Oxford. 1979. p9.
13. DB Nicholls. 'The Strategic Implications for Australia of the New Law of the Sea.' ANU. *Canberra Papers on Strategy and Defence #33*. 1985. p50.
14. Richard H Ullman. 'Redefining Security.' *International Security*. Vol 8(1). Summer 1983.
15. Op cit. p52.
16. Op cit. p 298.

THE SIDEWALL HOVERCRAFT TYPE OF SURFACE SHIP — ITS POTENTIAL FOR THE RAN

by Harry Julian

The original hovercraft concept, developed by Christopher Cockerill in the United Kingdom, was taken up by the Saunders-Roe aircraft company and then turned over to the British Hovercraft Corporation which brought it to production. BHC has had considerable success in the civil field, and their vessels are routinely employed in profitable operations as passenger and vehicle ferries. In particular, they have developed the England to France service and achieved a high reliability.

Lengthy trials have been carried out during the last 25 years by a Joint Service Hovercraft Trials Unit, based on the Solent, but there has been no major breakthrough with this type of hovercraft which has led to an acquisition of any magnitude for the naval or military forces of the UK. This may have been in part due to the genesis of the machine, when in the interests of lightness and high performance, the original manufacturers used aircraft techniques in the construction, and aircraft powerplants for lift and propulsion. These high technology structures and power sources perhaps lacked the ruggedness and anti-corrosive characteristics which operation at sea demands, so that the trials machines presented problems of maintenance and support. On the other hand, the true hovercraft has a fantastic ability to cross shallows, mud flats and even quite high obstacles beyond the beach area, which renders it ideal for Search and Rescue duty in tidal areas or to land troops and light loads well inshore.

The hovercraft concept was carefully examined by the US Navy and study contracts were let to firms in the USA. At the same time, the USN was also looking at the possibilities of the high speed, foil supported craft. The outcome of these moves is represented by Bell Aerosystems' hovercraft and Boeing's 'Jetfoil'. A combination of the work carried out by Bell Aerosystems, and the catamaran hulls built by Halter Marine, resulted when these companies became part of the Textron Group. The development of a craft not wholly air cushion supported was expected to show advantages in operational economy, and by having a small part of the hull immersed, it was possible to overcome one of the defects of the true hovercraft; that is, to avoid the extreme leeway resulting from strong beam winds.

The combination of a catamaran type hull, in which these hulls act as side walls for the air cushion space and as anti-leeway keels, with a low-pressure hover cushion, contained by the side walls and 'fingers' across the forward and after gaps, results in an efficient and relatively rugged sea going vessel. Halter Marine's experience in building work boats which can stand up to the hard knocks of ordinary commercial life has been applied with advantage. The only thing this type of craft cannot do, compared to the true hovercraft, is fly over mudbanks and low obstacles. They have become popular in the Gulf of Mexico, where they lead a hard working life as oil rig ferries, carrying supplies and people from the mainland, at high speed and with good economy. They have the virtues of a low build cost, low operating cost, high capacity and vey high speed. The

The Author

Harry Jullan joined the FAA in 1941 as an apprentice engine fitter; has had dirty-finger nails ever since. Avoided WW11 by being at RNEC Keyham, apart from a short burst as a Mid in the Med. Later service as a flying plumber included Far East and Med Fleets, a visit to NZ and Australia (which affected his mind to the extent that he returned) and the Korean war. Test pilot school in 54, followed by 3 years as Senior Pilot, Naval Test Squadron, a period in which many notable flying flascos finally fell flat. At Admiralty in Air Warfare 61–64, when the carrier CVA 01 and its aircraft P1154, were both cancelled; then Senior Officers' Golf Course and to last RN appointment as Defence Attache, Copenhagen. This resulted in the repeal of the Danish anti-porn laws. No direct connection was established and entry to the RAN was allowed, provided he cleaned his finger nails and washed his mouth with soap. Served in the RAN for over 8 years, including time on the Skyhawk and Tracker introductory programmes, and the Hilicopter Project Team leading up to the Sikorsky. Now minding his own business as an engineer consultant in Canberra. A longstanding contributor to the ANI and the journal.

lateral disposition of the screws also gives excellent manoeuvrability.

The placement of the main and auxiliary machinery, the fuel and water tanks, low in the side hulls, keeps the vertical centre of gravity down where it should be, which assists in providing good seakeeping qualities. A wide variety of SES craft are built, from 29m (95'0) to 60m (200') in overall length; these may be powered by diesel or gas turbine engines, and the installed power may be varied to provide economy at around 30 kts or, with higher power, speeds of 40+ kts.

A typical example of the lower end of the range is the 96' Model 261 High Speed Crew boat, which has an all-welded hull in 5086 marine aluminium, 29m long with a 9m beam (96'×30'). It is powered by two Detroit Diesel GM 16V engines of 1500 SHP at 1900 rpm, and the lift fan is driven by a single GM 8V of 435SHP. Draft on cushion is 1.47m (4'10") and the cruise speed is over 40 kts in a 760mm (2'6") sea. Range is 500nm; displacement is 85 tonnes. She carries a crew of 7; a passenger load of 55, with baggage allowance of 10kg each; 8000 litres of fuel; and 1900 of fresh water. At the other end comes the SES 200, which is some 50m overall, 12m beam, displaces 250 tonnes and can cruise at 55 kts in SS2. All the major systems are conventional marine designs, using standard hardware, so that manning and maintenance requires no additional skills beyond those used on conventional craft. This vessel is fast, stable and very manoeuvrable, and has a range at 30 kts of 3,400nm - what is more, she can carry a helicopter and has the space and lift capacity to embody weapon systems. Such a vessel would be a useful supplement to our existing patrol boats, and would be capable of covering much greater areas of search, using the helicopter to extend the visual horizon.

The SES 200 can accommodate a wide range of diesel, gas turbine, or CODOG/CODAG machinery, to allow commonality with existing craft or to utilise existing overhaul facilities. The power output can be tailored to meed the speed or range requirement, using fixed pitch, subcavitating propellors in the 30–45 kt region, or going for maximum performance with variable pitch, supercavitating propellors and high installed power. Lift air pressure is provided normally by two GM 8V diesels driving 1.06m diameter fans. Draft on cushion is 1.68m (5'6") and off cushion is 2.5m (8'3").

Halter has some interesting products under construction at present, including a sidewall SES for the US Navy; this is a mine sweeper/hunter or MSH. The objective of the MSH is to counter moored and bottom mines in harbour or coastal environments, using modular systems which can be readily installed or removed to permit singular mine clearance operations. The air supported hull gives excellent shock attenuation and has low detectability, while the catamaran layout reduces roll motion. The vessel is powered by two main diesel engines, and is manoeuvered at low speed by hydraulic power provided from diesel driven units on the main deck. The same power source feeds the lift fans to give a pressure under the hull of 1 psi; only a single fan

SES OFFSHORE BOAT *Bell-Halter*

The SEA HAWK (WSES-2) and SHEARWATER (WSES-3) operating in the Gulf of Mexico.

Bell Aerospace Textron (504) 245–6614

is necessary at normal operating speeds. The GRP hull, built using a Karlskrona technique under licence, is supported 1.9m clear of the water surface, with the exception of the tips of the side hulls which have a 0.8m draft. A conventional displacement hull has 70% of its watertight exposed to underwater explosion shock, while the air-supported hull has about 15% exposed. The MHS is a quite large vessel, having an overall length of 58m (198') and a beam of 11.9m (39'). The large deck area is available for shipping the requisite mine hunting and sweeping gear, and as there is no requirement to use the space for'd of the bridge, this has been allocated as a helicopter platform. There is adequate room to operate a medium sized machine, such as the Iroquois or W-30, from this for'd platform.

Also being built for the US Navy, is a true hovercraft capable of taking the 60t new Main Battle Tank (MBT) across the beach and well inland. To digress slightly from the theme of the article, this craft, the LCAC or Landing Craft, Air Cushion, is 27m long and 14m in beam, constructed of welded 5456 aluminium alloy and powered by four Lycoming TF 40B gas Turbines. It has a speed in calm water of 50 kts, pushed along by two 11.7m diameter variable and reversible pitch propellors. It is required to operate through an 8' surf.

The US Coast Guard established a new SES Division in November 1982, to enhance its capabilities in maritime law enforcement, particularly drug shipment interdiction off Southern Florida and in the Caribbean. The Surface Effect Ships have proved to be fast, manoeuvrable and very stable platforms, which have met the USCG mission demands in nearly all sea states. They have been employed in their primary role and also on SAR duty with success, and further orders for this type of craft are expected. The main characteristics of the USCG variant are:

length	33.5m (110')
beam	11.9m (39')
speed	30 plus knots
power	3,600 SHP incl lift fans
displacement	150 tonnes
range	1,000nm

It will be seen that the SES is now a well proven type of vessel and can be maintained as a ship rather than as an aircraft. It is in routine service with the US Navy and Coast Guard, as well as earning its keep in the rough and tumble of oil rig support work. The designs of the Halter Marine offices can be constructed by competent engineering and shipbuilding companies in this country, subject, of course to the usual negotiation processes. This rugged development of the hovercraft concept would appear to have some application for the Royal Australian Navy, with its commitment to patrol a very long coast line and a vast sea area of exclusive economic zone. An SES 200 equipped with a helicopter could make a valuable and cost-effective contribution to the carrying out of the task. Certainly, the idea is worthy of study.

The oceanographic survey ship HMAS COOK entering the Port of Fremantle in Western Australia on 19 March, 1985.

Photo: LSPH E Pitman, RAN

WASHINGTON NOTES

by Tom Friedmann

Elizabeth Cowan's prize winning essay on the application of America's 'high/low' debate on acquisition policy to Australia (February, 1985), provides an interesting application of one country's defense debate to the problems faced by another. Admiral Elmo Zumwalt's tour as head of the Navy was one of the most controversial in American history. Unfortunately, his experiments with 'Z-grams' and new uniforms caused such an uproar amongst the Navy's 'Old Guard' that his innovative high/low approach to weapons acquisitions was emasculated in the process.

The essence of the high/low concept was - and is - to create a balanced force of ships, each with its assigned task. The aim is to not squander valuable assets on tasks far below the capability of the assigned vessel. The high/low idea was not new to the USN. Before World War II, Navy planners decided that full fleet destroyers with their heavy armament and high speed, generated by hard to produce turbines, were overkill for convoy escorting purposes. Hence the acquisition of the destroyer escort and the patrol gunboat, the latter (horror of horrors) based on a British design. The ships were produced to counter a specific threat. They did this and more.

Also from the British, came the idea for the escort carrier for use against submarines. Although our planners only reluctantly agreed to the conversion of the *LONG ISLAND*, our first CVE, we soon saw its worth. Evolving from this concept came our 'jeep carriers'. Their use was based on the assumption by CINCPAC and other commanders in the fleet that it was dangerous to use fleet carriers to cover island invasions as long as was necessary. Further, it would be better to have replacement planes and air crews ready to fly from ships behind the main fleet instead of moving planes to the forward areas in crates with their crews following behind. Henry J. Kaiser went to work, and his carriers time and again proved themselves in combat. Even the redoubtable CNO, Fleet Admiral Ernest J. King, was forced to admit that his original opposition to the 'Woolworth carriers' was misplaced. That the second string was first rate, was shown as it made history in an unintended role at the Battle of San Bernardino Strait.

But the further we have moved from the experience of World War II, the more obstinate the USN has become at looking at smaller, cheaper and, yes, less capable alternatives to the ships we acquire. The list of proposals that have been shunted aside is long, and the examples given here are far from inclusive. The Carter Administration suggested two smaller conventional carriers in place of one nuclear. The carrier lobby stopped that as well as the Surface Effect Ship. At least this latter concept will see the light of day, but only flying the red and gold flag of Spain.

Opposition in the Navy to even the *consideration* of building diesel submarines remains so intense that Congress recently had to threaten to cut off funding, to force the Navy to deliver a report it ordered regarding the practicability of diesel submarine use by the USN. So obstinate is the Navy that it would rather have Congress grant Israel's request for $300 million to build a shipyard capable of constructing diesel subs in *that* country, than run the risk of having Congress watch the requested foreign-designed Israeli boats being built in an American shipyard.

It is interesting to look at the destroyer/frigate program Zumwalt proposed. The high end became the *SPRUANCE* class destroyer, so large that its hull and machinery became the basis of the *TICONDEROGA* class cruisers. The *OLIVER HAZARD PERRY* class frigates were to be the 'top' of the low end for ocean escort work. But below this class was the proposal for an even smaller class of frigates with capabilities similar to the new *BEAR* class Coast Guard cutters to be manned by the Naval Reserve. And below this, a large number of *PEGASUS* class

fast missile attack hydrofoils was to be built for local interdiction work.

The result? The early *PERRY* class has been transferred to the Naval Reserve Force, a fewer number of ships whose capability exceeds the basic needs of the reserve forces. The small frigate was thus sunk on paper. A squadron of *PEGASUS* hydrofoils was completed only after direct Congressional intervention, and no more are planned.

The best, the great enemy of good enough, reigns supreme in the USN. The result is a fewer number of ships that are so costly that we must consider this cost carefully before they are placed 'in harm's way'. The admirals may complain that they are being forced to plan for a three ocean war with a one and a half ocean navy, but the fault in part lies in the Navy and, to some extent, the Congress.

For Australia, our low end *PERRY* class is the 'high' — very 'high' — end of the fleet. With the replacement of the RAN's *OBERON* class submarines looming over the horizon, fast missile boats could provide the numbers and the punch the RAN needs for coastal defense and surveillance. French, German, Israeli and American designs all furnish proven platforms that could be built in Australia and be rapidly put on line. These ships could meet others operated by navies in the region in the event of a local confrontation and could operate with one or two of the new frigates as an integral part of the fleet in a more general conflict. The key is value for the dollar: common weapons and the electronic systems with other ships in the fleet on hulls built at home: 'cheap and nasty' in the words of Winston Churchill.

Cowan emphasizes how the Falklands campaign again showed the necessity for rigorous training and the maintenance of high morale for success in combat. Of course, she is right. But a key element of morale is providing modern weapons and platforms. There are many reasons to justify the acquisition of technology only for training purposes with the view to preparedness for wartime expansion. However, Cowan makes two assumptions with which many strategists would argue, namely that any general conflict will be of a long enough duration to acquire operational units of the technology in question and, second, knowing the state of the American armaments industry, whether or not the technology will be available at all to foreign countries as America gears up for war.

An unwanted by-product of the 'acquisition for training' scheme could be that the knowledge that such equipment is available, but not distributed to the fleet, might cause frustration and general consternation rather than the excitement it would surely be hoped these pieces of 'high' equipment would generate in the fleet.

But of all the points made in the essay, the 'no threat' scenario is one that has me absolutely stumped. And I am not the only one. A colleague, recently returned from several weeks in Australia, introduced the 'no threat' conclusion to me earlier this year. She reflected that, not only did many of the Australians she met not consider the USSR a threat, but that they considered the US a greater threat than the Soviet Union to world peace. She was, she admitted, somewhat taken back by what she had heard.

And well she might be. Putting the Reagan Administration's posturing and rhetoric aside, 'no threat' borders on appeasement and is debilitating to any national defence planning. All we need do is return to the immediate post-World War II period. The West rapidly demobilized, with America's lowest funding year coming in 1950 despite Berlin and Greece. Korea was a rude awakening.

The Pacific powers must acknowledge that a Soviet invasion of NATO would undoubtedly bring war to their ocean. And, *even if not*, do Australia, New Zealand and Japan think they can avoid this type of conflict? What type of world would be left for the Pacific democracies if the NATO nations were laid waste?

I will be the first to admit that a Soviet attack on Australia and, for that matter, the US, seems remote at this time. But world events change rapidly, as the Cuban Missile Crisis and the build up of Soviet forces during the 1973 Arab-Israeli War demonstrated. More germane to the existence of Australia is the presence of the rapidly growing Soviet Pacific Fleet which now numbers some 300 major combatants, including approximately 100 attack submarines of all types. If this doesn't pose a mighty and continuing threat to Australia, a nation *dependent* on seaborne trade for its survival, then what is a 'threat?'

A prediction of a decade of 'no threat' can easily lull politicians and the general public into believing that there is no threat at all. This can be particularly destructive to the RAN, as Cowan rightfully points out that platforms require a great deal of time to build and thus should be built on a regular basis.

Anyone can use the excuse that new technology demands larger, more expensive ships and equipment. The key for naval planners in the US and Australia will be to use only as much modern technology as necessay to do specific jobs, while still providing enough ships to fulfill the tasks required of our fleets. The time is coming when we must accept 'good enough' or we may get nothing at all.

OF SHIPS AND THE SEA

THE BRAVE *BORDE*

This item is prompted by the coverage of mining and mine countermeasures in the November 1984 Journal. It concerns the good ship *BORDE* which in her own way became a pioneer in an art which was sadly neglected in the years between the wars. When Hitler unleashed the magnetic mine upon an unprepared Royal Navy in 1939, the drastic havoc almost brought merchant shipping to a standstill and drastic measures were called for. The battle was fought in the laboratory as much as on the high seas, and rapidly developed into a duel between dedicated scientists from both sides.

Magnetic mines were a mysterious threat which claimed victims stealthily and efficiently, despite all that the men in the minesweeping trawlers could do. Ship after ship was sunk, without a single mine being swept, simply because the magnetic concept was not recognised as the source. *HMS BORDE* has her origins in a successful 'delousing' of a magnetic mine which, when dropped by aircraft, fell into soft marshes instead of the sea. She was an unlikely heroine; ugly, fat, dirty and beamy, owned at war's outbreak by Stephenson Clarks at Borde Hill, Sussex. Designed as a collier with her engines and accommodation aft, *BORDE* became an experimental platform which led the way to ultimate success against the magnetic mine, although the final answers were somewhat less dramatic in execution.

Put simply, the 2000 ton *BORDE* became a floating magnet whose purpose was to generate an enormously powerful magnetic field ahead of her bow. In something akin to a suicide mission, her task was to steam ahead of a convoy in line ahead and to detonate magnetic mines before the merchant ships reached them. This meant that *BORDE* became both a destroyer and the victim, for mines usually detonated about 150 feet ahead of her bow wave. Her crew was a hardy bunch, to say the least. Each detonation was an experience in itself: smashed crockery, flying debris inside the ship, everything and everyone well and truly shaken up as *BORDE* heaved in the water like a rodeo horse. When calm returned, she would regenerate the magnet, resume course and set off once more.

The magnetic field was produced by a huge, immensely powerful electro-magnet thrust into *BORDE's* forward hold. It weighed about 600 tons, was 60 feet long and six feet in diameter. The current through its massive windings was supplied by diesel generators, which took up most of the remaining space in the ship. The effect was to send the current through the magnet alternately north and south, each pulse lasting about three seconds. *BORDE's* success brought many interesting side effects, for she went through crockery, glass, and breakables at a rate which caused the authorities much despair, but something weird also happened. The ship was so magnetised that nothing metallic which was loose would stay put, even when the magnet was switched off. Spanners would leap out of pockets and fly alarmingly across compartments; watches were ruined; compasses useless; and everyone's nerves wrecked.

Winston Churchill was very proud of the experiment (*BORDE* was in some respect his idea) and after he paid her a visit in 1940 to carry out a successful inspection, the *London Gazette* announced the award of one DSO and five DSMs to her crew. By then, *BORDE* had destroyed 23 magnetic mines and saved as many ships through her singularly unusual methods.

BORDE was the first of several old ships to be fitted with the distinctive magnet, and losses were inevitable. In May 1940, *HMS CORBURN* suffered paralysing consequences of a mine which detonated alongside and despite all efforts, she sank in comparatively shallow water. German divers were soon on the scene and the next phase in the laboratory war began. Enemy magnetic mines were quickly fitted with a delay mechanism which allowed the mine to absorb the first few pulses from the floating *BORDE* class magnets and to then detonate and sink targets astern. This German innovation spelled the end of the magnetic field defence and heralded development by the British of degaussing and the Double L sweep.

Although boneshaken and weary,*BORDE* was taken to Portsmouth dockyard to be fitted with the new breakthrough in sweeping technology.

She was several months in dock because degaussing was no simple matter, given the inherent magnetic field she had assumed in the previous twelve months. After several coils were combined in vain, the attempt to convert her was abandoned and she was reclassified as a minesweeper depot ship and sent to work in North Africa.

Throughout the war, while mining measures led to new countermeasures, and the battle raged at sea, *BORDE* continued to serve as best she knew, even in a humbler and more conventional role than she previously held. She found no more glory, but survived to return home to Britain in 1945. Perhaps a future life hauling coal held no appeal for this respected veteran, or maybe the god of warships decreed another fate. Perhaps she just became too tired and gave up. Whatever the truth, the fact is that on her journey from Africa she foundered and sank.

Such was the dignified end of a gallant experiment, *HMS BORDE*.

Alan Brecht

THE NORTHERN PATROL

A major problem faced by Australian missions and pearling interests in the years prior to the outbreak of the Pacific war in December, 1941, was the multitude of Japanese fishing vessels, working within territorial waters, fishing and pearling illegally, without fear of reproach from any official Australian presence.

The complaints came to a head in the mid thirties as the fishing flotillas of the Empire of Japan, well equipped and well crewed, began to challenge the local pearlers' monopoly. The Federal Governmenthad, in 1932, considered the growing threat and of the numerous schemes suggested to provide a suitable patrol in northern territorial waters, the RAN or RAAF had been considered to provide a deterrent. However, the Navy had no desire to station a warship in the region, nor was the air force at all interested. A decision was finally reached in 1935, after further investigations into a suitable vessel to satisfy the patrol requirements. The design considered was based on a 45 foot triple-engined boat, built by the Power Boat Company of Great Britain for the Royal Air Force; the British prototype was of wooden construction for air-sea rescue duties. A gentleman connected with the British boat's early trials was Aircraftsman Shaw, better known as 'Lawrence of Arabia', who completed a handbook for the RAF motor boats. A direction having been made by Australian authorities, the new boat would have the duties of air-sea rescue and patrol work. The former was in support of the Qantas air service from Australia to Singapore, when the boat would be required to be on stand-by for the plane's transit from Darwin to the British island colony.

The new boat, constructed in England, was named *LARRAKIA*, and was delivered to Sydney in early 1936. She was subsequently taken to the Cockatoo Island Dockyard for fitting out, before being placed aboard the freighter *MANGOLA* for the long haul to Darwin, arriving there on 18th May, 1936.

LARRAKIA was a sleek craft of 45 feet in length, with a jet black hull riding high out of the water. 'Her squat upper-works ending aft in the rise of the control cabin gave her a smooth compact line', so commented her first skipper, Captain CTG Haultain, who overseered her delivery, fitting out and most of her active pre-war adventures. Modifications made to the boat included screens on doors, ventilation apertures and additional vents, for duties in the tropic waters of the Northern Territory and the extended periods at sea *LARRAKIA* would be required to undertake. More importantly, *LARRAKIA's* fuel tankage was increased from 250 to 840 gallons, although top speed was reduced from 28 knots to 20.5 knots. The need for additional fuel was necessary if the boat was to make a crossing of the Timor Sea, a distance of 500 sea miles, as well as undertake a search and rescue mission once in the region. A crew of four would normally be carried, plus an aboriginal pilot. A Vickers medium machine gun and smaller arms were carried.

An old building on the Darwin Harbour foreshores, known to the crew as 'The Tin Shed', became headquarters of the Northern Territory Patrol Service. The bay provided a suitable beach on which *LARRAKIA* could be beached for maintenance, hull repair being governed by the state of tide and weather conditions. Captain Haultain described it thus: 'To beach the boat in the Wet season was always a risky business, with the possibility of gales and the odd cyclone, and the Wet was the only period during which patrols could be suspended'. A major obstacle and a continuous problem was spare parts for the boat and her engines. With the Darwin base thousands of miles from the source of supply, it was not unusual for months to pass before the necessary part could be obtained. Improvisation was a key factor, and happily for *LARRAKIA*, proved most successful.

During her period in the Northern Territory, *LARRAKIA* undertook a multitude of duties, including search and rescue operations, a voyage to Timor and arresting Japanese trawlers. On one early occasion, she sank at her moorings in the bay after flooding through the boiler inlets. On the positive side, the little boat

LARRAKIA on trials, Sydney 1936

The Tin Shed

Both photos by Captain Haultain, courtesy Ross Gillett

rode out the March, 1937, Darwin cyclone, staying afloat during the 100 mph winds and resultant seas. 'It was a source of some selfish satisfaction to us (the crew) that of all the vessels anchored when the storm hit the harbour, *LARRAKIA* was the only one left afloat when it had abated. The local maritime "experts" who had once expressed their doubts as to our boat's sea keeping qualities, now keep a discreet silence' Haultain commented.

An embarrassing moment in the boat's career occurred in 1937, after her arrest of the Japanese trawlers *TAKACHIHO MARU No. 3* and *NEW GUINEA MARU*. After laying up overnight en-route to Darwin, *LARRAKIA's* starter motor failed due to two flat batteries. As one of the crew members had been transferred to *TAKACHIHO MARU No. 3*, it was a simple matter to pass a tow line between the Japanese boat and *LARRAKIA*. The newspapers took the matter to heart, giving the patrol boat a bad time in the press.

Earlier the same year, a second vessel, named *ROOGANAH*, had been suggested as a back-up for the *LARRAKIA*. Previously operated by the Commonwealth Health Service, the eight knot *ROOGANAH* was shipped to Darwin on the *MARELLA*. Haultain's opinion of the new vessel was very poor, with the hull and engine in very bad condition. After only a brief career in the region, *ROOGANAH* was returned to the Health Service and her crew used as a reserve for *LARRAKIA*.

A built-for-the-purpose Northern Territory patrol vessel emerged from the builders in 1938. The *KURU*, as she was christened, was employed on similar duties to *LARRAKIA*. Her top speed was only 13 knots and she displaced 55 tons gross. The Royal Australian Navy requisitioned both *LARRAKIA* and *KURU* for service in World War Two, commissioning in 1939 and December, 1941, respectively. *LARRAKIA* operated as a channel patrol vessel and paid off in 1945. She was purchased for the sum of £50, but was left high and dry in a Darwin backyard by the new owner, with her upperworks of wood rotting away. *KURU* paid off in December, 1943, after sinking during a heavy storm and eventually was blown ashore.

LARRAKIA, although renowned for her numerous mechanical breakdowns, was expected to travel 1,800 miles on some missions and most times in extreme temperatures. Her powers to deal with infringing fishing boats were handicapped by inept Government regulations and she was therefore unable to completely fulfill the tasks for which the boat was acquired. The conditions onboard for crew members within the boat's 45 feet were very cramped, and only 40 gallons of fresh water for all purposes was carried! In his book *Watch Off Arnhem Land*, Captain Haultain states, '. . . consideration must be given to the length of patrols when assessing performance and maintenance problems' and 'It was most galling to us when uninformed opinion scoffed at *LARRAKIA's* breakdowns, without a thought to the conditions under which that gallant little boat laboured'.

LARRAKIA — Specifications

Built:	1935 by Scott-Paine and Co, Hythe, England.
Displacement:	11 tons full load
Dimensions:	Length 45 feet Beam 9 feet 9 inches Draught 3 feet 3 inches (full load)
Machinery:	Three 100 hp Meadowes motors, three screws.
Fuel (petrol):	840 gallons in 5 tanks 430 gallons in 3 tanks (late 1936) 1.2 gallons per mile to 15 knots 1.7 gallons per mile to 20 knots
Speed:	20.5 knots (maximum)
Fate:	Hulk 1945.

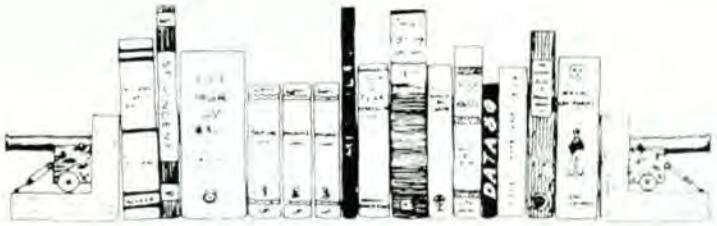
Ross Gillett

The Author

Ross Gillett is the Fleet Public Relations Officer at FHQ, Sydney. He has written extensively for naval publications in recent years and has served as Editor of *The Navy* magazine since 1978. He has also authored nine books since 1976, including *Warships of Australia*, *Colonial Navies* and *Australia's Armed Forces*.

Answers to the ANI Anniversary X-Word

BOOK REVIEWS



CHARLES HOTHAM A Biography.
Shirley Roberts. Melbourne, Melbourne University Press, 1985, pp 201, ill. RRP $22.90.

It is not really an over-generalization to state that Australian history is not high on the priority list of reading (or study) for most Australians. True, there is a burgeoning interest in such study and this interest will increase as 1988 approaches. However, one incident in Australian history has been elevated to folk-lore — the rebellion at Eureka (Ballarat) in December 1854. The stylized 'Crux Australis' first displayed at Eureka has become a symbol for Australian republicans.

But even our perception of the Eureka incident is influenced by mental pictures of Chips Rafferty (and latterly Bryan Brown) leading the oppressed miners in 'rightful' condemnation of the 'system'. Lalor and the miners are the heroes; the constabulary and officialdom, which overzealously enforced the licence system, are the 'villains in residence'; and the Colonial Administration (including Government Hotham) are the 'villains in absentia'.

Shirley Roberts' interest in Victorian Colonial history in general, and Charles Hotham in particular, led her to write what the publishers refer to as a detailed study of Hotham's life. Detailed it may be, balanced it is not.

Hotham died on the last day of 1855, two weeks short of his 50th birthday. He arrived in Victoria and was sworn in as the Colony's second Lieutenant Governor (the title of Governor was not assumed until a year later) in May 1854. Half of the book is devoted to this latter 18 month period of his life.

Thus, the book is very much an account of Hotham's Governorship. The first half of the book is, of necessity, a skimming of Hotham's life and of major influences upon it. Particularly outlined are such positive features as: his competency as a Naval Officer; his dedication to his country, his Navy and his family (he did not marry until he was almost 48 years of age); his compassion for the oppressed (outlined in his naval activities in opposition to the slave trade); and his political perception (shown in his contribution to the establishment of the Argentine Nation).

The book is written to be read and not studied — it appears to be produced as a labour of love and not as a professional requirement. As such, there are some eminently interesting asides and presumptions which are not acknowledged.

The book has a good index and is sensibly illustrated. Illustrations are at relevant pages of the book and not grouped. I found it an interesting background to a character who has been to many just 'Governor at the time of Eureka'.

Denis Woodward

COMBAT FLEETS OF THE WORLD 1984-85
London, Arms and Armour Press. Available in Australia from Thomas C. Lothian Pty Ltd. of 11 Munro Street, Port Melbourne, Victoria. $110.00.

Now in its fifth English language edition, this best selling reference work continues to get bigger and better. Consisting of a massive 1,052 pages, which includes 143 countries, 2,498 black and white photographs and 107 line drawings, many by the English language editor, A.D. Baker III, this is clearly the most authoritative, comprehensive naval reference guide available today.

A major factor in its favour is that it includes aircraft, weapons and sensor systems, complete with supporting photos and performance data, in their own special sections. All information contained in this book is up-to-date, and in an easily readible format, for the general public or naval personnel alike. Supported by an addenda with new material that arrived in the final stages of production, this book answers almost any question one may ask.

The book examines such items of special interest as the post-Falklands Royal Navy; accurate war loss information for both the Royal and Argentine Navies; the navies of the Warsaw Pact nations, including details of Romania's new warship programmes which appears for the first time.

The Australian section is covered in 11½ pages which are packed with information and contain an amazing 34 photographs, and one line drawing of the new minehunting catamaran. Special attention has been paid to the RAN's small boats and support craft along with Army water transport units. Some of the photographs included are of rarely seen vessels in this type of reference. They include the RAN's last Seaward Defence Boat SDB.1325, the stores lighter CSL 01, the fuel barge OFL1202 and the Army workboat AWB 430.

The USSR and USA each have 138 pages devoted to them, while Great Britain is covered by 64 pages — a feature of this being the excellent photographic coverage. Well laid out, this book uses its photographs to maximum advantage, more than 60 percent of the photos being new. Controversial questions such as ship design and cost are covered, and great detail is provided on the strengths of the smaller countries.

A superb reference at a most competitive price for a volume of this magnitude. Highly recommended.

Vic Jeffery

LIST OF MEMBERS BY RANK AS AT 30/06/85

ADML	=	2
CAPT	=	56
CDRE	=	30
CHAP	=	1
CMDR	=	150
CPL	=	1
CPO	=	3
DR	=	6
LAC	=	1
LCDR	=	95
LEUT	=	79
LSWTR	=	1
LTCOL	=	1
LWRWTR	=	1
MAJGEN	=	1
MIDN	=	9
MISS	=	1
MR	=	133
MRS	=	2
MS	=	1
MSGR	=	1
PO	=	2
POWR	=	1
POWTR	=	1
PROF	=	3
RADM	=	26
REV	=	1
SBLT	=	13
SIR	=	3
SMNETS	=	1
SUPRT	=	1
VADM	=	5
WGCDR	=	2

Total records = 634

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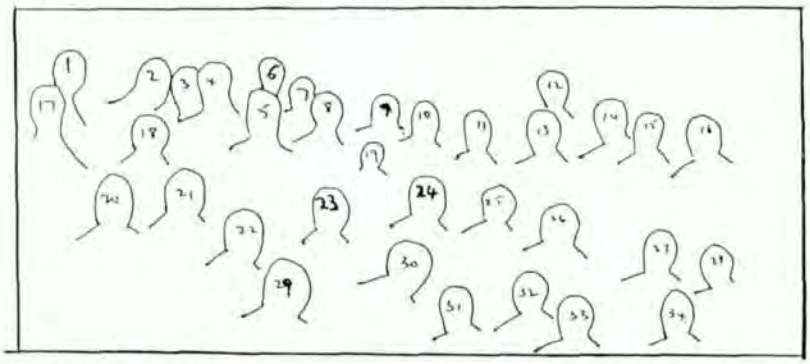
Civilian	=	156
ARA	=	2
ARA (Rtd)	=	1
IN (Rtd)	=	3
RAAF	=	2
RAAF (Rtd)	=	2
RAN	=	294
RAN (Rtd)	=	47
RANEM	=	57
RANR	=	61
RANVR	=	1
RN	=	2
RNZN	=	1
RTN	=	1
USN	=	1
USN (Rtd)	=	1
USNR	=	2

Total records = 634

Names of those in the 1935 *CANBERRA* photo:



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3. Lcdr Brownfield
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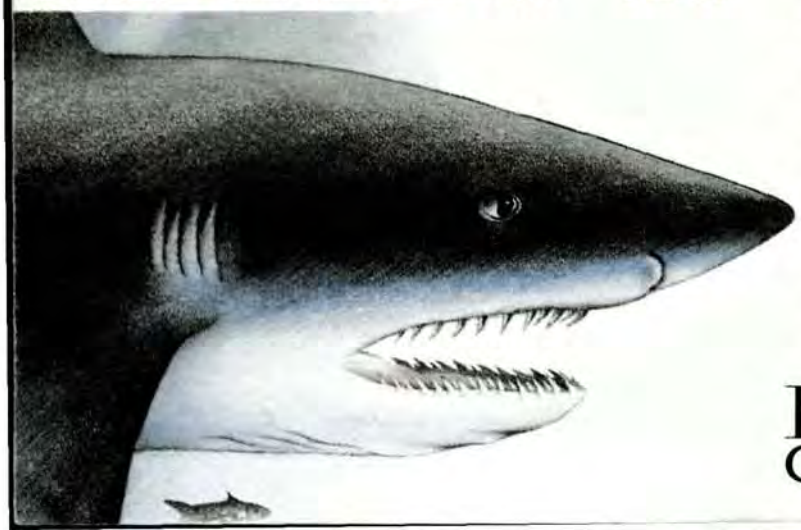

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