

147



JOURNAL OF THE AUSTRALIAN NAVAL INSTITUTE

AUSTRALIAN NAVAL INSTITUTE

1. The Australian Naval Institute has been formed and 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.
- c. to publish a journal.

2. The Institute is self supporting and non-profit making. The aim is to encourage freedom of discussion, dissemination of information, comment and opinion and the advancement of professional knowledge concerning naval and maritime matters.

3. Membership of the Institute is open to:—

- a. Regular Members—Members of the Permanent Naval Forces of Australia.
- b. Associate Members—
 - (1) Members of the Reserve Naval Forces of Australia.
 - (2) Members of the Australian Military Forces and the Royal Australian Air Force both permanent and reserve.
 - (3) Ex-members of the Australian Defence Forces, both permanent and reserve components, provided that they have been honourably discharged from that force.
 - (4) Other persons having and professing a special interest in naval and maritime affairs.
- c. Honorary Members—A person who has made a distinguished contribution to the Naval or maritime profession or who has rendered distinguished service to the Institute may be elected by the Council to Honorary Membership.

4. Joining fee for Regular and Associate Member is \$5. Annual Subscription for both is \$10.

5. Inquiries and application for membership should be directed to:—

The Secretary,
Australian Naval Institute,
P.O. Box 18,
DEAKIN, A.C.T. 2600.

CONTRIBUTIONS

As the Australian Naval Institute exists for the promotion and advancement of knowledge relating to the Naval and maritime profession, all members are strongly encouraged to submit articles for publication. Only in this way will our aims be achieved.

DISCLAIMER

In writing for the Institute it must be borne in mind that the views expressed are those of the author and not necessarily those of the Department of Defence, the Chief of Naval Staff or the Institute.

JOURNAL OF THE AUSTRALIAN NAVAL INSTITUTE (INC)

Title	CONTENTS	Page
President's Annual Report		2
Chapter News		2
Correspondence		3
Financial Statement		6
New Concepts in Design of Seaborne Air Platforms – By Frank Cranston		7
From the Editor		9
The Trident of Neptune – By LCDR I.M. Speedy, DSC, RAN		10
Australian Naval Institute Prize 1975/76		20
Technical Topics		21
Naval Aviation – Past Present and Future—One Man's View – By CMDR H.G. Julian DSC, RAN		22
A Path to Survival in Sedentary Naval Life – By LCDR A.H.R. Brecht RAN ...		35
Honorary Life Members		40
Nobody Asked Me, But		41
Ships and the Sea		41
Formation of an RAN Amphibious Battalion – By Leut. R. M. Smith, R.A.N. ...		42
The Navy and the Olympics – By LCDR W.M. Swan RAN (Rtd)		47
Book Review		48

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OUR COVER

The front cover is a photograph of a Swordfish aircraft of World War II
by courtesy of the Royal Australian Naval Air Station, Nowra.



**PRESIDENT'S REPORT PRESENTED AT THE
ANNUAL GENERAL MEETING
HELD ON 28th OCTOBER 1977**

It is a considerable pleasure for me to report to you as President of the Naval Institute. More importantly for our members it is especially pleasing to be able to report another excellent year's progress, building on the sound basis established in the Institute's first two years.

Membership continues to grow steadily, if not spectacularly. Applications have now exceeded our initial target of 300 which was assessed as the number required to ensure that the Institute had enough support to be viable. Our actual membership has fallen slightly below this number due to some members not renewing, but we can confidently expect their places to be filled by new applications before the year is out. Our actual members stand at 277. This healthy position does not mean that we can reduce our efforts to get more members. We continue to need new members to further the Institute's aims, and to realize some of the longer term objectives which your Council believes the Institute should pursue.

As a result of growing support the Institute's financial position is sound, as you will see from the record of income and expenditure which has been distributed separately; it will be printed in the next issue of the Journal. The consequences which flow from a stronger financial position are that your Council has been able to look to improvements in the Journal, to cover more topics, and to make it more attractive by adding more illustrations. In turn it is hoped that rising standards will encourage more applications for membership. As well, it was possible to award a prize of \$75 to Master Ned for his paper "Training the General List Officer". In its report the judging committee commended the papers by Lieutenant Lemon on Wargaming and Lieutenant-Commander Campbell on Introducing ILS.

The Council and I congratulate Master Ned and endorse the commendations of the judging committee. You will have seen in the August 77 edition of the Journal the announcement of this year's intended prizes. The prizes are modest enough, and we would hope to make them bigger in due course, but it is a good beginning. Again, the Council hopes that recognition of contributions in this way will encourage more authors to submit their papers for publication.

You will have also seen the news of the Canberra, Sydney and Fremantle Chapters, all of them active and getting pleasing attendances. This is not only because of the interest and variety of the subjects presented but is also due in a considerable measure to the interest and efforts of the Convenors and Secretaries in each city. They deserve our thanks. Commodore Parker has told me he intends to activate a Melbourne Chapter next year; its success would appear to be assured.

During the year the Council decided that the funding of a National Headquarters was quite beyond us at present, and this project has been temporarily deferred until we can see our way clear to finding the very considerable capital sums involved, to say nothing of the regular maintenance costs. If anyone knows of a philanthropist who would like to endow us I should be pleased if we could be put in touch with him. We do need a permanent headquarters, somewhere to house our growing

library and records, for meetings, and so on. It will come in time, but for now we must be patient.

In support of our objective of advancing professional standards we intend to hold our first national seminar in May next year. The dates to be noted in your diary are Friday 6th May and Saturday 7th May. The title of the seminar is 'Australia and Seapower' and we are seeking a very high level of nationally and internationally known figures to address us. The National Library Theatre in Canberra has been booked; it seats 300. More details will be sent to members soon, for example, an accommodation and hospitality sub-committee will provide assistance with accommodation for those who would want it. It is hoped that this teach-in will be well patronised and draw the attention of all serious students of defence matters in Australia as well as our members. The papers will be published, either as part of, or as a supplement to, the May 78 issue of the Journal.

The few matters I have covered do not indicate at all adequately the vigor, enthusiasm and unselfish effort of the Councillors and office bearers who make it all happen by giving up their time to attend meetings, edit the Journal, chase up advertising, negotiate with suppliers for our own Institute cuff-links, and so on. Without these devoted people the momentum would falter; because of them the Institute continues to prosper. On your behalf I offer them our warmest thanks.

To sum up, the year just concluded has built on the steady progress of the first two years and reflects the increasing maturity and confidence of the Australian Naval Institute. We can look forward to continuing and growing success.

CHAPTER NEWS

Canberra

On completion of the Annual General Meeting held on Friday, 28th October, 1977, 25 members heard a paper presented by Captain I.W. Knox RAN titled "Law of the Sea—Political, Economic and Strategic Implications."

The paper generated so much interest in those present that question time had to be extended over twice its normal length. Many interesting points of view were presented and discussed.

A particular welcome was extended to the inter-State visitors present.

The next Chapter meeting will be held on Wednesday, 15th February, 1978, at the RSL National Headquarters, Constitution Avenue, Canberra where Captain B.G. Gibbs RAN will present a paper on a Naval legal subject.

Canberra Chapter Annual Report

The Canberra Chapter has met on four occasions at the RSL National Headquarters during the 1976/77 year. An aggregate of 90 members heard the following papers presented:

- November 1976: Operational Training Projections for the 1980's by Captain A.R. Cummins RAN
- April 1977: Automated Command and Control Systems—Current and Future by Captain P.G.N. Kennedy RAN and Commander O.R. Cooper, RAN.
- July 1977: One Man's View of Naval Aviation—Past, Present and Future by Commander H.G. Julian RANEM.
- October 1977: Law of the Sea—Political, Economic and Strategic Implications by Captain I.W. Knox RAN.

Chapter finances solely involved the sale of refreshments at meetings and a healthy working balance was maintained during the year. The Chapter has an outstanding liability of \$13 with cash on hand of \$29.54. Assets to the value of \$25.00 are also held. The Chapter accounts have been audited by the Honorary Treasurer of the ANI.

The Office Bearers of the Canberra Chapter are: Convenor—Captain L.G. Fox RAN, Treasurer—Mr. F. Goddard, Secretary—Lieutenant R.M. Jemesen RAN

Subject to finding a successor, the Present Convenor, Captain L.G. Fox, intends to submit his resignation at an early date.

In conclusion, it is considered that the proceedings of the Canberra Chapter have made a valuable contribution to the growth of the ANI and it is with some optimism that the Office Bearers look forward to the year 1977/78.

L.G. Fox
Captain, RAN
Chapter Convenor

Sydney Chapter Annual Report

The period was a difficult one for the Sydney Chapter due to the posting of two convenors in quick succession. Commodore J.A. Robertson was posted to Canberra at the end of the previous period and Commander K.C. Stephen RAN assumed the convenorship on joining HMAS *Kuttubul*. It was not possible to hold a meeting until February and a further meeting was planned for May. Unfortunately for the Chapter, though not for him, Commander Stephen was posted to the United Kingdom and his pre-posting commitments prevented the May meeting. Captain D.J. Orr RAN assumed the convenorship in August 1977 and our second meeting was held on 7th September.

The first meeting for the year was held on 9th February and was attended by 44 members. A presentation on "The Needs of the RAN—1985 to 2000" was given by a syndicate called the Young Turks. The syndicate, led by Captain E.E. Johnston AM, RAN had originally presented this paper at the Naval Symposium and because of its wide interest kindly agreed to present it to the Sydney Chapter. The presentation covered most aspects including the function and roles of the RAN, operations and tactics, technology, infrastructure, training and research and development. The paper was well received and discussion had to be terminated due to time after one and a half hours devoted to question time. The paper was subsequently published in the Journal.

The second meeting was held on 7th September and was attended by 27 members. A presentation on the International Law of the Sea was given by Commander I.A. Shearer RANR, Professor of Law at the University of NSW. The presentation gave a brief historical resume of International Law and the Law of the Sea and then the procedures involved in formulating law. Commander Shearer then related details of the Caracas Conference including the actual organisation of the committees and the strange political alliances, eg USA and USSR. The presentation concluded with a summation of the likely developments.

On 9th September, representatives from the Chapter represented the ANI Council at a meeting of Naval Associations including the Naval Historical Society, Naval Mens Association, The Federation of Naval Ships, Flotilla Associations and the RAN RSL Sub Branch. The meeting was organised by the RAN RSL Sub Branch to establish a dialogue between the various organisations and share information and the possibility of mutual assistance. A further meeting has been tentatively organised for January 1978.

As a result of the meeting on 9th September, the Federation of Naval Ships Association invited the Secretary of the Chapter to address their meeting on the aims and functions of the Australian Naval Institute. This took place on 16th September.

The Sydney Chapter now has 97 members, including 43 associate members. It is hoped that the number of associate members will increase as a result of the meetings with other Associations.

S.P. Lemon
Lieutenant RAN
Secretary

Fremantle Chapter Annual Report

1977 has been a quiet year for the Institute in Western Australia. However, the members have regularly met in informal meeting throughout the year. It is hoped with the increase in Naval activity in this area that a growth in membership to the Institute will be a natural off-shoot.

Highlight of the year was the showing of the film *TORA! TORA! TORA!*. The night may be claimed more as a family occasion but all members present were engaged in lively discussion on the whys and wherefores of Pearl Harbour on the completion of the film.

Next year will see a new convenor in the chair. LCDR. K. Grierson has agreed to become the guiding hand in the West. He is a foundation member, and has already had contributions published in the Journal.



Correspondence

24th September, 1977

Dear Sir,

May I say that the pictures and artist impressions throughout the last edition make a marked improvement on an already very good Journal. The idea of prizes for articles should stimulate more interest as a lot of research work goes into producing authoritative articles.

The Institute crest in colour on the cover of the Journal was a very good idea which has been replaced by another, the crest in black and white and the impression of an FFG-7.

I would like to suggest that the Institute has the crest made up as a membership badge, as, I believe, all members would wish to have one. Furthermore the revenue would add to the Institute's funds and may be a means of obtaining more members.

May I add my thanks to Commodore Parker and his helpers for their work in launching the Institute on the stormy sea and coming through with flying colours. Bravo!

Yours sincerely, Yours sincerely,
E. JEHAN
Mortdale, N.S.W.

I read, with considerable interest, Derek Woolner's article in the August 1977 edition regarding the purchase of FFG7 class ship in the context of future equipment policy for the RAN. It is refreshing to have a new contributor to the Journal, particularly one of Mr. Woolner's political and academic background. Much of his article makes very good sense but I find myself in disagreement with him on several counts. To refute much of his thesis would take an article equal in length to his own and I shall therefore confine myself to a few points only, trusting that other contributors may cover those I omit.

First, Mr. Woolner seems to assume the existing force structure is sacrosanct in some way and that the money available for capital equipment purchases will always be about the same unless specifically increased by the government. 'Australia's existing military structure is a product of our history (to call it 'an accident of history' would be less than charitable to our predecessors). Because it exists it makes its own demands on the total defence resources and consumes the greater part of the defence vote. A gradual restructuring of the existing force with say, an emphasis on decreasing its manpower component (by far its most expensive item) would permit a greater portion of the vote to be allocated for equipment purchases without the need for a significant increase in the defence vote as a whole.

Second, I do not accept Mr. Woolner's assertion that 'the cost of providing equipment for one of the three Services affects the ability of the other two to meet their objectives'. This assumes that the objectives of the Services will always conflict and that the conflict cannot be resolved or the objectives integrated into a total whole. The integration of the three single Service departments into a single defence department was designed to overcome this problem.

Third, it seems to me that Mr. Woolner is an 'inverse strategist'. That is he starts with the assumption that because the financial resources are limited to \$A we can therefore only afford technology to level B and accordingly must adopt strategy C to defend Australia. If we start more properly with the notion that strategy X is the most appropriate, we then require technology to level Y to implement that strategy. The funds required for that strategy will be \$Z, but because funds are indeed limited (to say \$A) we must acquire the more important components of technology Y, and those which have the longest lead time first, so that we can pursue strategy X in an emergency by obtaining the difference (the shortfall) in technology Y. If we have planned prudently we will be able to obtain that shortfall within an appropriate time scale. The problem can be further simplified if these long lead items also have a long life. This does mean, as the author points out later in his article, that some technologies will only exist at a low level in peacetime and some not at all. Which leads me indirectly to my fourth point.

I dispute Mr. Woolner's inference that Navy is obsessed with a 'replacement syndrome' in its ship acquisition program to the point where it is prepared to maintain the destroyer force strength to the exclusion of all other capabilities. 'Destroyer' is easier to say, and write, than 'general purpose maritime capability ship', but that is precisely what a destroyer represents—a general purpose maritime capability. Together with the aircraft carrier and the submarine arm, the destroyer force constitutes the general purpose maritime component of the Navy. That component must have the strength and flexibility to engage in a wide range of activities in both peace and war and in the various contingent situations which may arise between the two. It provides the government with the requisite flexibility of response to situations in which military intervention may be required.

The size and composition of the destroyer force is governed by the need to balance the capabilities assessed to be necessary to meet possible contingencies, the likely concurrency of tasks and known commitments. For Australia, a force of about a dozen destroyers has seemed to be about right for the next decade or two, accepting that beyond about 10 years the future lacks clarity. Within those numbers the RAN has been endeavouring to balance the capabilities required in the Navy of a medium sized regional power. Any increase in activity or the emergence of a maritime threat to Australia could well dictate the need for more general purpose capability, possibly provided by destroyers or submarines or aircraft carriers.

The capabilities required in the destroyer force are, as Mr. Woolner suggests, determined to a considerable extent by advances in technology in maritime warfare. Relatively speaking, there can be no doubt that the RAN's ageing destroyer force is now less capable than it was 10 years ago. Whilst the FFG's will go some way to rectifying this situation, their appearance in the Fleet will only be a partial solution to the problem. Technology does not remain static, even in our region, and there is a constant requirement for the RAN to maintain an appropriate balance of technology in its general purpose maritime component. The problem then becomes one of balancing both the numbers of ships required with an appropriate level of technology spread across the force. What must not be forgotten is that we are a small nation in population and that it is our ability to cope with modern technologies which helps maintain some of the regional maritime balance.

Destroyers are long lead items, but they also have a long operational life (about 20-30 years). It was asserted earlier in this letter that in times of financial constraint it is important to acquire long lead items which also have a long life, first in an equipment acquisition program. It is because of the need to maintain the general purpose maritime component of the Navy at an appropriate level, both in numbers and technology, and the very long lead times to acquire ships that Navy places so much emphasis on its destroyer acquisition program. It is not because we are obsessed with maintaining the status quo.

Fifth, I do not agree with Mr. Woolner that any decision to acquire more FFG's from the US means that the decision to purchase the first two ships 'has effectively ended the construction of warship of the destroyer-type in Australia during peace-time'. This assertion has no basis in fact, must be treated as idle speculation, and is not in keeping with the high standard of the rest of his article. Apparently, the Government does not agree with Mr. Woolner either. Subsequent to his article, The Defence White Paper of November 1976 stated (p. 19) 'To maintain the strength of the destroyer force from 1987 onwards, when the first of the destroyer escorts is due to retire, the Government has commenced investigations into the concepts, characteristics, and cost of follow-on destroyers, preferably for construction in Australia.'

Earlier in the White Paper (p. 13) the Government also stated 'Our Country is an island continent, with an extensive maritime resource area. We have no land frontiers. Except in the Torres Strait area, any approach to our continent would involve a transit of the open ocean, by sea or air. Any confrontation or conflict would be, initially at least, maritime in character'. It appears that the importance of our national geography is beginning to be comprehended and the importance of an effective navy, permitting Australia to pursue a predominantly maritime strategy, recognised. The vital role of the general purpose maritime component in that strategy is evident, as is the need for a capable destroyer force with adequate numbers of ships.

Mr. Woolner has also raised the guided missile patrol boat (PTG) argument. As this letter is already longer than I intended, I do not propose to attempt to precis an argument worth an extensive paper in its own right. Perhaps one of our 'younger Turks' would care to take up the task of writing objectively in a future article about the utility, or otherwise, of PTG's for Australia. Suffice to say that I refute Mr. Woolner's assertion that PTG's 'Have been embarrassingly successful in SEATO exercises against larger RAN vessels', as any criteria for the RAN to acquire PTG's. Most of your readers will be well aware of the constraints of exercise artificialities.

Finally, I hope Mr. Woolner will continue to write for the Journal. He has gone some way towards raising the level of defence debate in Australia. If he has failed to come to grips with some of the essentials of maritime warfare we have no one to blame but ourselves.

Yours faithfully,
ALAN BEAUMONT

Dear Sir, 21st September, 1977

I was delighted to read Mr. Derek Woolner's article on the FFG in the August 1977 issue of the Journal and I would like to congratulate him upon the effective way that he has thrown light upon the rather murky waters that surround the whole affair of the purchase of these American vessels.

It is now generally agreed that we were raising a shibboleth in the DDL and that the Labor Government's decision to cancel, though made for the wrong reasons, was ultimately quite correct. The purchase of the FFG, however, is a different matter. In the years leading up to, and past, the DDL project, the impression was consistently given that a vast number of foreign designs had been examined, evaluated and eventually rejected. The impression was further given that the FFG ranked very low among these designs as far as the Australian requirement was concerned. A cursory glance at the statistics and the opinion of many American authorities as to the merits of this product of the 'Low' in Admiral Zumwalt's 'High-Low' mix appeared to more than confirm this opinion. In summary, at the end of 1973, the Patrol Frigate was anathema to the R.A.N.

Yet we bought it. This was bad enough, however, the vast mass of interested observers felt that a reasoned explanation of the whys and wherefores involved in the decision would nonetheless be enough to satisfy them. For one reason or another these explanations have not been given. The failure to explain lies principally in these areas:

1. Just what role the FFG is intended to fulfill in the R.A.N. in the 1980s and 1990s
 - (a) without HARPOON, as seems certain.
 - (b) without CIWS, as also seems certain.
 - (c) without follow-on purchases of more FFGs, which is eminently likely.
2. Why smaller and cheaper escorts were not purchased from other sources, notably:
 - (a) the improved 'super' Type-21.
 - (b) the Vickers Australian-style VEDETTE.
 - (c) the Dutch KORTENAER type.
 - (d) a variation on the Brazilian British-built NITEROI.
3. Just why the cost increases on the 'cheap' FFG are so astronomical, the Financial Review today gave the revised price as \$414 million for the pair!
4. Why the FFG, an American conception of the ultimate ASW vessel has been purchased when we do not intend to fit American sonars but use MUL-LOKA and also why we have rejected IKARA in favour of the large and exceedingly expensive LAMPS helicopter, the construction of which is still in a state of flux even in the U.S.N.?

In none of these areas has a satisfactory explanation been given and an attempt has only been made to give some poor reasons in the area of comparable designs.

The whole matter of these explanations seems to smack of one thing—a misguided desire for security. Security, as such, is a valid and utterly important goal, but it must be kept in the right place. Certainly we cannot bare our joint military soul for all to see, but can the veils not be opened enough so that those who must use, and those who must pay for, all these new weapons may understand how they are meant to be used? Our first FFG may arrive in Australia with its planned role in the present vague state that attempts to label it a new and improved DDG, but it may end up like the case of the Emperor's new clothes—with the child who laughs being the Russians and not us.

What my plea boils down to is this: could we please have a few more officially approved (or otherwise) articles that do not tell us what Australia is doing for the coming FFG (as in Commodore Loxton's excellent article) but what the coming FFG will do for Australia?

Yours faithfully,
'Master Ned'

28th September, 1977

Dear Sir,

In a recent Journal article "Needs of the RAN 1985 to 2000" the Young Turks devoted two paragraphs to their assessment of recruiting problems and offered the ubiquitous solution of "buy in expertise". What a pity the legendary Mandrake or Merlin could not be commissioned to solve the problem. We obviously don't want to!

Let us not dwell on recruiting arguments, these wax long enough already. Instead let us examine their suggestion to buy expertise to better market and promote the RAN.

Please gentlemen, take the blinkers off and look about you. The Navy has some sixteen thousand plus salesmen, quite able to promote themselves and us if enthused and given a chance.

Consider these points. The Navy remains the silent service by its own volition. Read any newspaper and see what space we get—resignation notes, emasculation of conditions and benefits, disasters large and small, criticism and occasionally the arrest of fishermen. The press and media would be only too happy to give the Navy more space if we assisted them. Let's blow our own trumpets occasionally!

But to return to our salesmen. How many officers and sailors are encouraged, or encourage the wearing of uniform outside of ships and establishments? How many officers and sailors wear uniform in the vast Navy/Defence complexes except on pay-day? How much can the general public be enthused by anonymous grey men in anonymous grey buildings?

Ever more towards promoting the overall image are our vehicles. Do many of the general public recognise the ZN number plates and miniscule signs on doors? I certainly don't advocate painting vehicles with candy stripes, but the word 'Navy' or similar may help. Car bumper stickers are produced, but who sees them on skateboards and dolls prams. A number of people in this fair city use the excuse "that the police pick on a car with a Navy sticker". Could it be that those persons deserve all they get?

By all means buy in expert help, but be prepared to have the conservative mind shattered. The old adage "The Lord helps them who help themselves" can easily be rephrased to "Lord help us if we don't!"

Yours sincerely,

R.J. PENNOCK
Pearce, A.C.T.

AUSTRALIAN NAVAL INSTITUTE FINANCIAL STATEMENT 1976/77

(With 1974/75 & 1975/76 figures for comparison)

Income and Expenditure Account for the year ended 30th September, 1977

	Expenditure				Income		
	74/75	75/76	76/77		74/75	75/76	76/77
Advertising	25.60	9.60	27.20	Advertising	380.00	1297.50	862.50
Audit Fees		25.00	30.00	Joining Fees		637.69	230.00
Art Work		10.00		Subscriptions	1940.00	2724.15	1949.86
Bank Charges	2.50	4.50	13.64	Journal Subscriptions		461.69	797.02
Hall Hire		24.16	30.00	Journal Sales			10.00
Postage & PO Box Rental	39.61	253.00	308.10	Bank Interest	8.93	42.19	151.46
Printing & Stationery	841.98	3370.35	3603.50	Net loss for the year			106.60
Legal Fees	57.40						
Chapter Grants			20.00				
Prizes			75.00				
Surplus for the year	1361.84	1466.61					
	<u>\$2328.93</u>	<u>\$5163.22</u>	<u>\$4107.44</u>		<u>\$2328.93</u>	<u>\$5163.22</u>	<u>\$4107.44</u>

Statement of Receipts and Payments for the year ended 30th September, 1977

	Receipts				Payments		
	74/75	75/76	76/77		74/75	75/76	76/77
Cash at bank		672.53	1435.95	Advertising	25.60	9.60	27.20
Cash in hand		309.31		Audit Fees		25.00	30.00
Bank Interest	8.93	42.19	151.46	Art Work		10.00	
Joining Fees		637.69	230.00	Bank Charges	2.50	4.50	13.64
Subscriptions	1940.00	2724.15	2249.86	Commonwealth Bonds		1000.00	1000.00
Journal Subscriptions		389.19	845.92	Hall Hire		24.16	30.00
Journal Sales			10.00	Postage & PO Box Rental	39.61	250.00	308.10
Advertising		977.50	787.50	Printing & Stationery	841.98	3373.35	3603.50
Debtors		380.00		Legal Fees	57.40		
				Prizes			75.00
				Chapter Grants			20.00
				Cash on hand	309.31		
				Cash at bank	672.53	1435.95	603.25
	<u>\$1948.93</u>	<u>\$6132.56</u>	<u>\$5710.69</u>		<u>\$1948.93</u>	<u>\$6132.56</u>	<u>\$5710.69</u>

Balance Sheet as at 30th September, 1977

	Accumulated Fund				Assets		
	74/75	75/76	76/77		74/75	75/76	76/77
Balance at beginning of year		1361.84	2828.45	Sundry debtors	380.00	392.50	418.60
Surplus/Loss for the year	1361.84	1466.61	106.60	Commonwealth Bonds		1000.00	2000.00
Liabilities				Cash on hand	309.31		
Subscriptions in advance			300.00	Cash at bank	672.53	1435.95	603.25
	<u>\$1361.84</u>	<u>\$2828.45</u>	<u>\$3021.85</u>		<u>\$1361.84</u>	<u>\$2828.45</u>	<u>\$3021.85</u>

D.J. CAMPBELL
Lieutenant Commander, RAN
Honorary Treasurer

C.P. MANN REIS & ASSOCIATES
Auditors

New Concepts in Design of Seaborne Air Platforms

by FRANK CRANSTON

This article is reproduced by kind permission of the Canberra Times. Mr. Cranston is the Defence and Aviation Correspondent for The Canberra Times, a post which he has held for five years.

Recent advertisements by the Department of Defence for designs for new aircraft-carriers for the Royal Australian Navy have brought forth a spate of criticisms which if nothing else have indicated that it is not only the military which can properly be accused of preparing always to fight the last war.

The advertisements have clearly provoked two basic misconceptions about the "defence of Australia" which though they are not shared by the military are clearly embedded in the minds of politicians and many commentators.

The first of these fundamental errors is that an "aircraft-carrier" for the 1980s and through into the 21st century is something which looks and performs a lot like HMAS Melbourne or in the cases of the more extreme critics like the USS Enterprise.

Exciting

The second, and probably the more serious error is the assumption that the aircraft-carrier can be replaced by long-range land-based aircraft operating either from continental bases or from bases at such points as the Cocos Islands, Christmas Island and Norfolk Island.

Talking as they do about yesterday's aircraft-carriers, today's critics seem to have failed to take note of the very exciting concepts for new maritime air platforms now emerging from the makers and the even more imaginative ideas going on to the drawing boards.

For many years after its debut in World War I the aircraft-carrier was assumed to have one major role—that of "eyes" for the big guns of the fleet. It was used almost exclusively for that purpose by the Royal Navy until in 1940, against

the background of polite guffaws from the "big-gun" merchants, the Fleet Air Arm's old Swordfish biplanes took on the Italian battle fleet at Taranto with startling success.

Inquiries

The lessons of Taranto were not fully appreciated by either the British or the Americans (who should have known better, having established the same potentialities in their 1934 war games), but they certainly were not lost on the Japanese.

Tokyo made urgent inquiries of the Italians about the raid and staged their own more spectacular version of it at Pearl Harbour. Not to be outdone, the Americans in their turn returned the lesson severalfold, though the British, even after their successful Italian job, still did not see the aircraft-carrier in what was for its time undoubtedly a major strategic role.

By the time the Chifley Labor Government in Australia was persuaded that the carrier had a role in Australian defence World War II was over, but it was quite clearly in the strategic strike role that the RAN saw its new acquisitions.

Throughout the years, however, and with very little attention being paid to it, the Navy's concept of future carrier roles, and indeed of future carriers, has changed quite drastically but without this being recognised by the critics.

Capable

Far from being greatly interested in huge sea-going platforms with casts of thousands and costs of billions Australia's naval air strategists see a ship around 10,000 tonnes, capable of launching both vertical-take-off aeroplanes and helicopters.

It would have capable point-defence systems to look after itself, a limited capability to launch strategic strikes against land targets, much greater capability to fend off hostile air with missiles and fighters and, more importantly, still to be the cause of great pain to submarines, both conventionally and nuclear-driven.

Concepts of such ships have already been widely publicised—such vehicles as Y-ARD's Protean and Vosper-Thorneycroft's Harrier Carrier, General Dynamics' Sea Control Ship, Russia's V-TOL series and the rest. Which makes it even more difficult to see why current critics of the RAN investigation have misinterpreted its direction.

Criticisms

One critic has gone so far as to claim that we would need at least three such vessels to have a viable number, though without examining the inconvenient nature of the maritime environment which would make even that number too few.

There have been criticisms that an aircraft-carrier can require up to four destroyer escorts to keep it safe from submarines and that its job can be done by land-based aircraft such as the F111.

None of the critics seems to have recognised the point realised by far too few Australians: this country is an island, albeit a big one, and that one of the basic facts of life on this island was best, if a little inappropriately, expressed by a former Minister in the Labor Government, Mr. Enderby, who announced that "traditionally our imports come from abroad". He might have added that traditionally our exports are sent abroad.

The RAAF's F111s have been cited as an ideal vehicle for striking at enemy shipping far from our shores. Their range, it has been said, can be extended by using island bases, or tankers, and that they can be equipped with anti-shiping missiles.

All of this is true, but it ignores the point that the F111 is a sophisticated strategic bomber carefully tailored for particular roles which do not include hanging about looking for ships.

The F111 can certainly be used in this role but only at the expense of greatly increasing its vulnerability and diverting it from its proper purposes. Its basic role is against land targets and there is no aircraft in the world which can do it better. In a maritime role it could quickly be all at sea.

The RAAF's Orions, it has been suggested, can also be used against shipping—and so they can but again, only at risk of terrible vulnerability, especially if an enemy force has even a moderate air-to-air capability.

It is another case of diverting equipment from its tailored mission. The Orion is designed better than any other aircraft in the world to hunt out and kill submarines. In its patrol role its purpose is to identify threats and call up forces to deal with them.

Suggestion

Patrol boats have also been suggested instead of aircraft-carriers in the close-in areas, and in this environment they would be used—and effectively—against hostile ships: or could be if they were properly armed. But 2,000 miles into the Indian Ocean?

One of the major difficulties which current non-military thinking about Australia's strategic situation fails to identify is that the "defence of Australia" is not something which starts at the shoreline, at the 200-nautical mile limit or even 1,000 miles out.

Nuptials

Since the need was enforced upon it by President Nixon on Guam the Australian Government has been wedded to the doctrine of greater self-reliance in defence. It was a shotgun marriage and not one which we would voluntarily have contracted but that the vows had been solemnised were illustrated very graphically in South Vietnam in 1975.

Allied to the nuptials was the self-imposed vow of "continental defence" which, though it sounds great coming from the mouth of an eloquent politician, is a military nonsense nevertheless.

Mr. Enderby's famous view of the origin of our imports contained an element of hard truth which none of the RAN's current critics seem prepared to acknowledge.

Beaten

Even in the event of war Australia would have to trade for its existence. The military hardware necessary to mount and maintain defence would have to come by sea from abroad. The goods with which to pay for that hardware would have to depart by sea.

The "continental defence" of Australia could be cheaply challenged by an adversary so far from our shores initially that the citizen would not be aware of what he looked like until he arrived to accept the surrender.

Without clear sea lanes we would inevitably be beaten unless the United States reversed its Asian policy and entered the lists on our side.

And this, probably the most important element in any strategic planning, is the factor which the critics of the "aircraft-carrier" replacement study have overlooked.

Seaborne air-power is still the only effective method of finding submarines, killing them or at least making life so difficult for them that they sheer off. It is the only method of projecting anti-submarine capabilities beyond the range at which the submarines have sufficient opportunities to successfully strike.

In this context it quickly becomes clear that far from the destroyers being required to protect the aircraft-carrier it is the carrier which protects the destroyers and their merchantmen from the submarine—and also from hostile air.

The air cover the carrier can provide was most clearly illustrated in World War II, though it was recognised almost too late.

The situation has not greatly altered since then, at least against the sort of submarine capabilities available to other than the major powers, whose involvement against us would in any case create a ball game of entirely different dimensions than those which we could be expected to handle.

The USAF's ability to resupply Israel in 1973 has been cited as an example of the avail-

ability of military hardware at short notice, but there are indications that even this could not have continued for much longer than it did.

Tanker

As a former Chief of the Naval Staff, Admiral McNicol, pointed out on one occasion, it might take only one torpedoed tanker to bring Australia to heel. If that tanker, however, could be given the protection of a capable, integrated escort force it might never be torpedoed.

Australia might not need aircraft-carriers or none might be available which fit our requirements. That is what the present study is all about. If the objections raised so far are to be the criteria the purchase of carriers appears likely.

The cost is, of course, high. So is any sort of defence, but that is a politician's problem. Labor wants to spend defence money on social services. The Liberals want to give it to business. The Country Party wants to give it to the farmers.

But none of that is the Navy's concern, no matter how serious the consequences might eventually be for the nation.

FROM THE EDITOR

Again it has been encouraging to receive copy well in advance of printing deadlines thereby giving us time to carry out the necessary research; including selection of appropriate photographs.

You will have noticed that the correspondence section contains several letters commenting on articles appearing in previous editions. We sincerely hope this is only the beginning of a permanent feature.

With regard to Mr. E. Jehan's letter on page 3 the Editorial Staff is very encouraged by his comments on the Journal. Furthermore, the Council is investigating production of such items as cuff links, plaques etc. featuring the crest and details will appear in the next edition.

We have decided to introduce a new column titled 'Ships and the Sea' to which we hope members will contribute. As the title indicates we are looking for factual items of interest concerning ships and the sea. The items can be historical or contemporary covering ships, both men of war and merchantmen, and the men who serve in them. Items should be of such a length that they fill about half a page to a page of the Journal. The first of the series appears on page 41 of this edition.

THE EDITOR

The Trident of Neptune

This article was written in 1976 and may be dated in some matters of detail.

by Lieutenant Commander I. M. SPEEDY, D.S.C., R.A.N.

THE TRIDENT OF NEPTUNE

"The counsel [sic] which Themistocles gave to Athens - Pompey to Rome - Cromwell to England - De Witt to Holland - and Colbert to France . . . that as the great question of commerce between nations and empires must be decided by a military marine, and war or peace are determined by sea, all reasonable encouragement should be given to the navy. The trident of Neptune is the sceptre of the world."

—John Adams, 1802

INTRODUCTION

There are many causes of war. All too often the factors causing war are not seen until after the event. Hitler announced on 16th March 1935 that he was raising a conscript army of 36 divisions—quite contrary to the provisions of the Treaty of Versailles—thus leaving himself open to legal redress from France. The day after the world saw Chamberlain's "scrap of paper" Czechoslovakia was taken over by the Germans. This is but one example of many which could be cited.

In all the conflicts since 1939, the average time taken from what is considered as the first indication of impending war to the firing of the first shots has been 14.3 months. If the smaller scale conflicts since World War II are to be representative of a future Australian conflict, the combined Perception and Warning Times of those conflicts since 1950 may be more meaningful. The time has now shortened to a frightening 10.6 months (see Table 1). Available evidence is not able to place Australia outside these statistics. There is a 50 per cent probability that conflict could occur in less than 16 weeks as shown in Figure 1.

Our treaties with other countries, especially the USA, are not strong enough to guarantee automatic assistance from any of our treaty partners. The ANZUS Treaty only specifies consultations ". . . to act to meet the common dan-

ger". American help upon which we have so heavily relied previously may not be forthcoming. The 1972 Nixon Doctrine and later warnings from Dr. Kissinger apply equally to Australia as to others—that nations cannot expect America to be their policemen and that they must carry the burden of their own defence.¹ The Arab/Israeli War of 1973 demonstrated this resolve.²

It is evident that no nation can gird itself for the gigantic efforts required to fight a modern war without the formulation of a definite pro-

THE AUTHOR

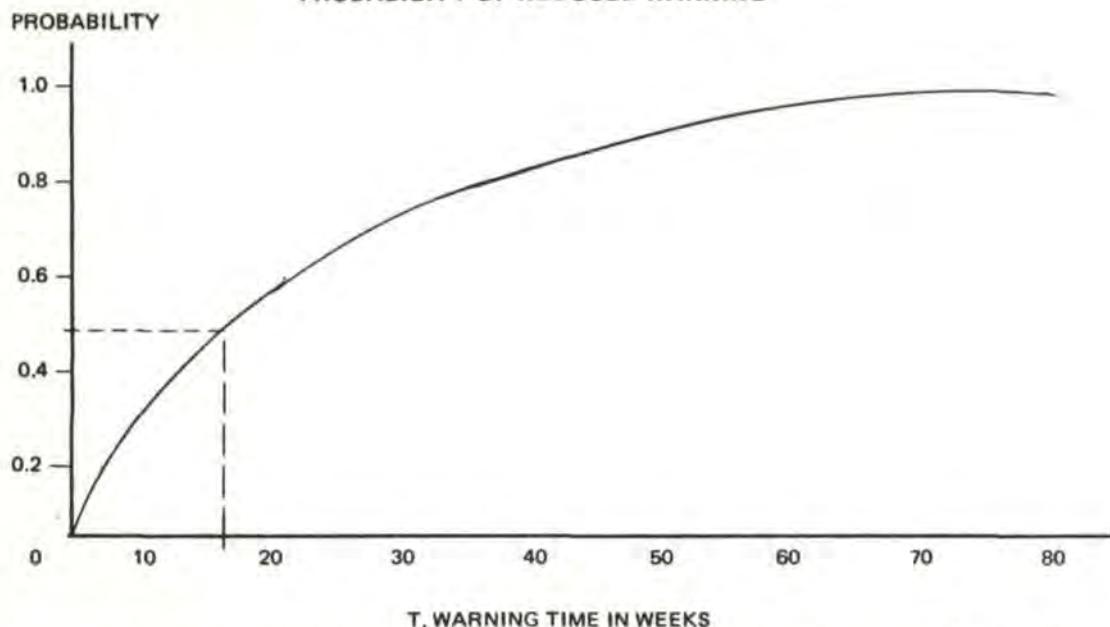
Lieutenant-Commander Speedy joined the RAN in 1962 and has flown as an Observer in Wessex ASW helicopters and Sea Venom Day/Night fighters from *HMAS Melbourne*. In 1967 he gained his pilot's wings and was Dux at BFTS and Best Pilot at AFTS. He was posted to the 135th Assault Helicopter Company with the RAN Helo Flight Vietnam in 1968/69 where he earned the DSC. After QHI course and two years' exchange flying training with the RN he commanded HT723 Squadron at RANAS Nowra. He gained his Bridge Watchkeeping Certificate in *HMAS Parramatta* in 1974 and later that year was Equerry to Prince Charles during his Australian Tour. In 1975 he was Senior Pilot and later CO of HS817 Wessex ASW Squadron. After the Army Staff College course in 1976 he was posted to Navy Office where he is currently serving as a Staff Officer in the Manpower Branch.

TABLE I
PERCEPTION AND WARNING TIMES
(Provisional Figures)

Ser.	Conflict		Point of View	Perception Time (1)		Warning Time (2)		Total Time	
				(In Months and Days)					
				M	D	M	D	M	D
1	World War II		England	39		12		51	
2	Indo China	1946	France	4		5		9	
3	Indo/pakistan	1947	India	4		4	15	8	15
4	Arab/Israeli	1948	Israel	5		5	15	10	15
5	Malayan Emergency	1948	Britain	14		15	17	29	17
6	Korea	1950	USA		1		2		3
7	China/Korea	1950	USA		17		17	1	4
8	Arab/Israeli	1956	Israel	33		13		46	
9	Cuba	1962	USA	1	9	1	17	2	26
10	Confrontation	1962	Britain		12	3	21	4	3
11	Indo/Pakistan	1965	India	3		1	15	4	15
12	Arab/Israeli	1967	Israel	15		9		24	
13	Czechoslovakia	1968	Nato	5		2	21	7	21
14	Indo/Pakistan	1971	India	4	15	3	15	8	
15	Arab/Israeli	1973	Israel	3		4	15	7	15
16	AVERAGE			8.8 Mths.		5.5 Mths.		14.3 Mths.	
17	AVERAGE SERIALS 6-14			6.6 Mths.		4.0 Mths.		10.6 Mths.	

- (1) Perception Time: The time taken by a government from its first recognition of a potentially unstable international climate to its positive identification of the specific threat to its security.
- (2) Warning Time: The time from a government's acceptance of a perceived threat to the time it will need an operational response.

FIGURE 1
PROBABILITY OF REDUCED WARNING



Converting from frequency over the given periods in Table 1, half the wars had warning times of 16 weeks or less.

gramme for the guidance of economic activities within the nation and without considerable advance preparation. War goods do not exist in quantity and as evident in Australia even the facilities required to produce them "en masse" are not available. The larger the war effort in proportion to the resources of a nation, the greater the necessity for the adoption of a comprehensive plan. The greater also is the danger inherent in assuming that business may proceed as usual.

By definition the Australian "Core Force"³ must achieve the development and maintenance of the capacity to produce a range of terminal forces that could be required in the future. The "Core Force" must be adequate for our present needs and be capable of reacting quickly and decisively to low level contingencies. Most importantly the Core Force must provide the solid basis upon which rapid expansion may take place to a "Terminal Force" the abilities of which are dictated by the specific threat at the time. This article will argue that as yet we do not have a naval Core Force and that an expansion of the RAN must take place to achieve it. Because we do have a period of relative stability we must make the most of this valuable time. When war is thrust upon us we must be capable of defending our own country ourselves—it could cost us Australia.

THE PRESENT FLEET

ASW Leanings

Since the late 1950's there have been advances in the capabilities and numbers of submarines out of all proportion to the capabilities of the surface units to counter this threat. Submarines can attack surface shipping from ranges far in excess of retaliatory weapon ranges. It is impossible to ignore submarines and yet they require resources out of all proportion to counter effectively. Against a global submarine threat and enhanced by the significant Indonesian submarine fleet in the 1960s⁴, Australia's contribution to the balance of power in our area of responsibility has been the development of anti-submarine warfare (ASW), of ships, weapons and sensors.

There are only sixteen ships which make up the fighting elements of the Navy and all have a significant ASW capability—*HMAS Melbourne*, our flagship, with *Seakings* and *Trackers*; the six River Class DEs; the three Perth Class DDGs; two Daring Class destroyers; and the four Oberon Class submarines.

By 1978 the number will be 18 when the latest two submarines are accepted for service but what will we have in 1984/85 when the 10 to 15 year "no threat" era is drawing to a close?



Sea King ASW Helicopter

—Defence Public Relations



HMAS Supply fuelling HMAS Perth and HMAS Derwent

—Defence Public Relations

HMAS Melbourne may or may not be replaced, the Patrol Frigate (FFG-7) may have by then replaced the Darings. The DDGs will be 20 years old, and the DEs will range from 14 to 24 years' service.

In other than "teeth" units we will have hopefully had *HMAS Supply* replaced, the *MV Australia Trader* as our training ship, *HMAS Tobruk* as the Assault Landing Ship Heavy (LSH), and the Attack Class Patrol Boats replaced by an equal number of either the British PCF 420 or the German FPB 45.

All in all we will have weapons systems on our ships that a potential enemy may have had for some time. Difficulties in our 1976/77 capabilities will have been reduced by 1984/85 but how well will they compare to 1984/85's actual requirements?

The Fleet Air Arm

In 1984/85 the Fleet Air Arm (FAA) will have the same aircraft that it has now. The Skyhawks will be due for replacement though they could continue in shore service for longer. The replacement Trackers and Seakings will last until 1990, and may have been fitted with the BARRA sonobuoy system.

The decision to replace *HMAS Melbourne* in 1985 will have to be made by 1979. If she is replaced, Naval aviation will be fixed permanently as a strong arm of the Navy, or, if she is not replaced, as a small addition to the land-locked RAAF.

1984/85 will be a turning point for the Navy. It may be able to continue to the 21st Century with confidence in its strengths and abilities or it may not.

REQUIREMENTS OF THE RAN

Present Limited Needs

One requirement of the "Core Force" concept is that it shall be sufficient for our present limited needs and foreseeable contingencies. In determining these needs, the answer to the

question "What should our defence strategy be?" will give the necessary guidance. There are several correlated factors which when studied will give the answer. They are:

- a. Australia's foreign and economic policies,
- b. the Nixon/Guam doctrine of 1972 and its implications on the ANZUS Treaty,
- c. Soviet aspirations, and
- d. the implications of the Law of the Sea.

Foreign and Economic Policies

Indonesia controls three deepwater passages between the Indian Ocean and the Western Pacific; the Wetar, Sunda and Lombok straits. She has a controlling interest in the fourth—Malacca. The preponderance of Australian trade is carried through these straits to Japan. At the same time Indonesia is becoming an important resource supplier of Japan. The ability to use these straits when we are in direct competition with the controlling authority and with whom we have had troubled relations, must rely on Indonesian goodwill. South East Asian regional security as well as our own will be heavily influenced by the development of cooperative policies and programmes with this nation.

In the Western Indian Ocean, India and Pakistan are preoccupied with internal problems and have only recently established new relations after the agony of Bangladesh. Iran is proceeding rapidly with a military expansion programme to fill the gap left by the departure of Britain from the Persian Gulf, to protect the flow of her Middle East Oil, and to back other national policies of the Shah.

What ought Australians to conclude from these developments? The first conclusion should be that the military posture of today will not be adequate for tomorrow. The assumption that radical change in Australia's strategic situation is unlikely to occur suddenly cannot be justified. The world scene does not change in progressive fashion and there are a great many reasons why we may witness dramatic changes. Deterioration

of the world economic situation, shortages of resources or the demand for them⁵, the Asian population explosion, the communications revolution, mass demand for better living standards, disagreements and friction over maritime resources, proliferation of nuclear weapons, ideological revolution: any or all of these factors could initiate dramatic shifts in our situation, and there may not be time to develop the necessary forces. There is no evidence to suggest that Australia could not be at war in a period shorter than we ever thought possible.

Nixon Doctrine and ANZUS

President Nixon in 1972 was most positive when he stated that it could not be taken for granted that America would automatically come to the aid of nations seeking her help. The American withdrawal from Asia marked the end of the containment policy which tried to prevent the spread of Asian Communism. The era of self-help had begun and has since been reinforced by the successor US administrations. Australia therefore moved towards a more neutral stance (Labor's continental and neighbourhood defence rather than forward defence).

The Nixon Doctrine was amply demonstrated during the Arab/Israeli War of 1973. When America did finally come to the aid of Israel, it was America that dictated the terms, which were not wholly acceptable to Israel. Though it is not unreasonable to expect that Australia is held in high regard by the US and we do have some of their very important facilities here (just as Israel has US facilities), there is no evidence to suggest that the US will respond in any other way than that called for by the ANZUS Treaty—negotiations in the event of armed aggression.

Soviet Aspirations

The Indian Ocean is important to the Soviets for many reasons and Soviet activity there forms a pattern consistent with the secret protocol of the draft 1940 Four Power Pact between Russia, Germany, Italy and Japan. The USSR declared then "that its territorial aspirations centre south of the national territory of the Soviet Union in the direction of the Indian Ocean"⁶. It is the access to the belly of Russia, and with the Suez Canal reopened the Indian Ocean will be the highway between their Northern, Baltic, Black Sea and Pacific fleets. The Russians are thought to have long desired a port in this region with road and rail access to the homeland. They are thought to have a long-range plan to achieve this goal by splitting off Baluchistan from Pakistan, as a Russian puppet state. They already have the use of port facilities in Aden, Bangladesh, India and Somalia. They use these bases to support their "presence" operations and promote political influence. At the same time Soviet trade with the littoral states, from Kenya to Sri Lanka inclusive

has, during the eight years 1960-67 increased at 13 per cent per annum, and during the years 1967-69 increased 12 per cent. This accounts for 5 per cent of all Soviet foreign trade. By 1980, it is clear from Russian statements that they expect to be net importers to the extent of 90 million tons per annum of Arab oil.⁷

These regional ambitions must also be viewed in the light of huge Russian investment in maritime assets operating in the Indian Ocean which include merchant shipping, fishing fleets, and whaling fleets. This ocean provides their shortest and most natural access to the untapped resources of the Antarctic.

Law of the Sea

At the United Nations conference in 1974 on the Law of the Sea one proposal which gained considerable support and which will probably succeed soon is that for the 200nm economic zone—an off-shore area of a coastal nation over which there would be exercised total control of economic resources both within these waters and beneath them; and a twelve mile territorial sea to coastal states. Peru and Chile have long claimed the 200 miles, Iceland has had accepted its borders, the EEC, America, Russia and Japan have followed suit. Of any nation, Australia has the most to gain, in all an area equal to the size of Australia and this does not include the waters off Antarctica.

A serious problem caused by the "Continental Shelf Convention" is its division when the shelf is shared by two or more states. It calls for agreement to be made between the nations concerned; Australia has problems yet to be faced in this area. The shelf between Queensland with its Torres Strait Islands and Papua New Guinea, is one. The other, potentially more serious is that the shelf between Indonesia and ourselves at one point has a deep trench (50 miles from Indonesian Timor) which has been ignored. At the time of the agreement the equidistant rule was applied so that Indonesia now has some "Australian" Continental Shelf. No agreement was reached with Portuguese Timor. With Indonesia's annexure of Eastern Timor being ignored by Australia, the position of the Continental Shelf may cause future difficulties especially as the area has huge oil potential.

Of vital interest to Australia is the contention by the Philippines and Indonesia (and others) that all waters enclosed by the baselines drawn from their outermost islands in conjunction with the 12 mile limit forms a territorial sea. It is unlikely sufficient support can be raised for this contention⁸, but it could effectively close off any passage between the Western Pacific and the Indian Oceans except at the whim of the nations controlling the straits.

SUMMARY OF THE PROBLEM

The pressures being advanced against us are increasing. Though the worse case may never happen, we must insure against it. The US might come to our aid and on terms that do not affect our ultimate sovereignty. We may be able to develop full and open relations with our closest neighbour rather than the stand-off ones we now have. The Russians may never turn their attentions onto us or apply pressure on us through a neighbour. All the nations of the world might respect our resources zones. On the other hand the opposite could just as easily occur.

Australia's present defence needs are not limited. In describing the scale of conflict, low scale conflict could be those military situations which could be handled to conclusion within our present organisation and structure, while medium scale conflict could be those situations which cannot be handled to conclusion without an expansion of the Defence Force. Prolonged protection of our off-shore oil rigs or other possessions would be an example.

We have at this moment regular incursions of Indonesian, Taiwanese, and occasional Russian fishing vessels off the north-west, eastern, and Carpentaria coasts. This is potentially the richest stretch of our coast, yet we only have a few patrol boats in Darwin and Cairns to try to police its 4000 miles. What are we going to do in 1985 when we will have the same number of patrol boats and a resources zone out to 200 miles to police?

More properly, the question should be, what should Australia's defence strategy be? The answer—the use of the natural barrier which separates our continent from our neighbours: the

barrier in which more and more nations are becoming interested and the barrier, the mastery of which holds the key to mainland Australia. Since any potential enemy must use the sea, force levels and composition must be selected to provide a high degree of assurance that any amphibious force could be destroyed before it gains access to the homeland. Australia's defence force must provide the deterrent against attack which plainly can only come from the sea.

Resources Protection

The enormous size of the resources protection task and how little our capacity to deal with it were earlier described. When the new patrol boats arrive they will not increase our capabilities significantly, being replacements, not additions. To date we have not acknowledged Antarctica and our Southern Ocean possessions as a problem. When the 200 mile resources zone is agreed to, these areas will assume a special significance in view of their remoteness, their enormous potential wealth, and our lack of experience in these areas. When we acknowledge the resources zones of the Southern Ocean, patrol boats will be inadequate for the task and ships of frigate size will probably be required.

The protection of our coastal installations and off-shore facilities from terrorist type activities in a low threat situation is a subject in itself. Generally, the resources required to counter this threat fully would be beyond us, if force were to be met with force. An answer to this problem is the provision of a credible deterrent. This could be achieved simply by maritime surveillance and reaction vessels capable of providing timely assistance where needed. The RAN's Operation TROCHUS⁹ has proved the value of this type of surveillance, but to be in any way effective in the

OPERATION TROCHUS



HMAS Advance and S2E Tracker

—Defence Public Relations

TABLE 2
TIME TO IMPLEMENT PEACE TIME WORKS PROJECTS
(All times in Months)

Works Project	TP(1)	TC(2)	TPT(3)	Comments
Cockburn Sound	20	98	118	
Wildoc			108	1864-1873
Fitzroy Dock			144	1846-1858
Sutherland Dock			120	1880-1890
Facility to make 66mm rockets		54	54	

200 mile zone or against increasing numbers or more determined opposition, there has to be a much larger availability of ships and aircraft. Project JINDALEE (over the horizon radar) may reduce the dependence on aircraft but in the final analysis a ship is the only means of interrogating and deterring another ship.

The few patrol boats we have are not enough to police 4000 miles of coastline against unarmed fishing boats. If the 200 mile Extended Economic Zone (EEZ) is to be given reasonable protection double the number on patrol may come closer to our requirements. The question now posed is do we allow all and sundry to take what they want or do we keep our waters free from foreign poachers and thus prove our strength and determination? A foreign power seeing an inability to keep fishermen away must surely be able to draw further conclusions regarding the rest of a Navy.

The Fighting Ships

The aircraft carrier, destroyers, frigates, and submarines which make up the Navy are sixteen in number. They play a vital role in the low and medium scale threat situation, up to the limit of their numbers. They provide a credible deterrent to a nation having fewer ships and a grievance with us. Should there be a breakdown in relations leading to hostilities with a better equipped nation, the following questions need to be asked of our Navy:

- Is it large enough to cope with the foreseeable contingencies of medium scale threats?
- Can it stand as a force on its own from the time the threat is acknowledged by the Government, to when an operational response may be thrust upon us perhaps only 10 months from now?

Sixteen ships will not go far especially when the lead times needed to purchase new ones are taken into account. While we are purchasing new ships it must always be borne in mind that they are replacements not additions and even at this late stage it is by no means certain that *Melbourne* will be replaced. Eleven destroyers of various age, four submarines (six by 1982) and one carrier do not appear a formidable line-up around our 12,000 mile coast given the unlikely event that all ships are available—dockyard employees willing.

RESPONSE TO THE THREAT

The present fleet provides a deterrent with the exception of the resources protection. Australia's big weakness is the ability to respond with adequate speed to a perceived threat. We live in a time of comparative regional stability, but when a breakdown in relations occurs the statistical evidence all points to the fact that the deterioration is rapid and violent.

The timings associated with every order for new equipments are unique to that equipment and it is difficult to establish lead-time relationships between new equipments. From information that is available, the time from the inception of a project to its completion or delivery of the goods is in the order of 95 months. Little information is available on the times for the construction of works and facilities such as docks and airfields, but it is about 10 years (see Table 2). Training facilities' times are in the order of 85 months (see Table 3). Simulators for example, are frequently ordered in conjunction with major weapons systems. In the years prior to and during World War II, project times were 44 and 20 months respectively (see Tables 4 & 5). Of the 24 Corvettes begun in August 1940, the last was completed at the end of 1943.

TABLE 3
TIME TO ACQUIRE TRAINING SYSTEMS
(All times in Months)

Equipment	TP	TC	TPT
Action Information Organization	50	67	117
Tactical Trainer (AIOTT)			
Seaking Simulator	31	43	74
Weapon System Trainer			66
Fleetwork Trainer	19	24	43
Submarine Command Team Trainer		63	63
Basic Radar Trainer	29	27	56

Definitions — (1) TP—Planning Time. (2) TC—Construction Time. (3) TPT—Total Project Time

TABLE 4
TIME TO IMPLEMENT PROJECTS ASSOCIATED WITH WORLD WAR II
CARRIED OUT WITHIN AUSTRALIA

Works/Production Facility	Date Initiated	Service Acceptance/Completion	Total Project Time (mths)
3.7" A.A. Weapon	Jun. 37	Jun. 40	36
40mm Bofors	Oct. 40	May 43	32
2 pdr. A.T.G.	Jun. 40	Apr. 41	9
6 pdr. A.T.G.	Jul. 41	Jul. 42	12
2" mortar	Feb. 42	Dec. 42	10
3" mortar	Sept. 40	Mar. 41	6
Lt. Armoured Car	Dec. 41	Mar. 42	3
Tank AC1	Jun. 40	Nov. 42	29
Bren Gun	Oct. 35	Jan. 41	63
Torpedo	Dec. 41	Jul. 44	31
Wirraway	Oct. 36	Jul. 39	33
Boomerang (Wirraway Interceptor)	Feb. 42	Aug. 42	6
Beaufort	Jul. 39	Aug. 41	25
Mosquito	Jan. 42	Jul. 43	18 To prototype
Mustang	Jan. 43	May 45	28
Whyalla Shipyards			24 Approx.
Captain Cook Graving Dock	Early 39	Mar. 45	72 Approx.
Brisbane Graving Dock	Aug. 42	Jun. 44	23
S/R Wasp A/C Engine	Oct. 36	Feb. 39	28
T/R Wasp A/C Engine	Sep. 40	Nov. 41	14
T/R Wasp A/C Engine (as parts)	Sep 40	Jun. 42	21
Gipsy Major	Oct. 39	Sep. 40	11
Machine Shop 1—Maribyrnong	Apr. 36	May 40	50 Approval in
Projectile Shop 1—Maribyrnong	Apr. 36	Oct. 40	55 December 37
Machine Shop 2—Maribyrnong	Sep 39*	Apr. 41	20 *Approval date
Ordnance Factories—Bendigo	May 41	May 43	24
Ordnance Factories—Echuca	Jan. 43	Jun. 44	18
Small Arms Factories—Bathurst	Oct. 40	Nov. 41	14
" " " —Orange	Apr. 41	Apr. 42	13
Other Ammunition/Explosives Factories			14-24

TABLE 5
SUMMARY OF MEAN REPRESENTATIVE TOTAL PROJECT TIMES

Situation	Mean TPT (mths)
Peace time — equipment	95
Peace time — works	120
Pre-World War II (Australian works 1936-1939)	44
World War II (Australian works)	20
World War II (from overseas)	8
Middle East War (1973)	<4
Estimate time to construct bare base—expansion	18-36

(Source of information: Central Studies Establishment)

AUSTRALIAN BUILT CORVETTE (Bathurst Class)



HMAS COLAC ON CONVOY DUTY OFF NEW GUINEA IN 1944. The caption of the original photograph reads 'Steaming at full speed to an emergency'.

Negative No. 75762

Although Australia produced much of its own equipment during World War II, whether or not this could be repeated in the context of present or future technology is open to question. The matter under consideration is the ability to expand to the larger force to cater for the threat contingency.

Since the construction of major ships has been largely outside Australian control, and generally involves long lead-times, it is impossible to assess what time savings could be achieved. For projects involving local production, a saving of at least 25 per cent should be possible. This suggests that peace-time procurements could be reduced to 67 months (56 months training systems). However, even if lead-time could be reduced to construction time alone, the figures for men-of-war are still far in excess of the Perception and Warning times. Peacetime production rates and construction times for some current weapon systems are shown in Table 6.

Page 18—*Journal of the Australian Naval Institute*

—By courtesy of the Australian War Memorial

MANPOWER

The most critical factor in the Navy is its manpower base. The current ceiling of the Navy is 16,215. No fleet unit goes to sea without being fully manned, which in past years has left the shore establishments threadbare in some categories. Liberal retirement benefits have denuded the Navy of its vital middle management at a time when the Defence Department is swallowing officers at an incredible rate. The picture is not a pretty one.

To alleviate part of the problem, the ceiling must be raised above the 16,215. We have had to turn many prospective recruits down because of the ceiling. In theory for every man at sea there are 1.1 ashore. If this were so, equitable sea/shore ratios would prevail (the ideal being 18 months each way) but some personnel spend an inordinate time at sea simply because they cannot be relieved.

Raising the manpower ceiling by a set amount each year will help. The Navy could recruit into the critical areas where the first priority is to reduce shortages and thereby the inequitable sea/shore ratio, a cause of much dissatisfaction. Next the planned incremental growth will permit the go-ahead with capital

TABLE 6
PEACE TIME PRODUCTION RATES AND CONSTRUCTION TIMES

Equipment	Rate	Remarks
Patrol Frigate (US)	12 per year	Planned, after 1977 Construction time = 48 mths
DDG (Charles F. Adams) (US)	6 per year	Construction time = 30 mths
Frigates (UK "Leander" class) (UK)	3 per year	Construction time 33-50 mths
Submarines ("Oberon" class) (UK)	6 per year	Construction time 29-39 mths
D.E. (Australian "River" class) (Australia)	0.6 per year	Construction time = 54 mths
Tanks - M 60 (US)	60 per mth	From one plant
Tanks - Leopard (German)	60 per mth	Average to 1971
AJ37 Viggen (Swedish)	3 per mth	
Jaguar (Anglo-French)	8.5 per mth	Combined UK/French rate
F.15 (US)	6-7 per mth 12 per mth	Present 1979
F-4 Phantom (US)	18 per mth	Present
F-111 (US)	1 per mth	Planned to 1977
C130H (US)	6 per mth	To 1977
P3C Orion (US)	1 per mth	To 1978

projects to which we are already committed. Should the ceilings not be raised, there are four options:

1. A reduction in the recruit training time would reduce the number of training ineffectives. This is of only short term benefit—three years—as the lack of training will ultimately be reflected in performance especially in the technical fields upon which the Navy increasingly relies.

2. Reduce capital projects either by cancellation or deferment, money may appear to be saved. Unfortunately, deferring Year One growth (not the shortfall) does not mean you start Year One next year. Manpower increases are based upon, say, a new destroyer in Year Five which in turn was based on the life of the ship being replaced and taking into account modernisation programmes, refits, dockyard capacity and the replacement of the other fleet units themselves. The deeper this argument becomes, the more unacceptable the long term results.

3. Reduce the operational commitments, ie. reduce the visible arm of Australia's foreign policy through which we display our National identity and resolution. With the ten per cent cuts in 1973, Navy carried on as it had always done and denuded the shore establishments to keep the fleet at sea. With the same ceiling four years later the shortages are now critical. We have managed in the past but with increased commitments in most areas (Defence Central, fishery surveillance, North West Cape, Zetland, and WANSF to name a few) 'in house' reallocations can go on no longer. Some commitments may have to go and for reasons of foreign policy, it can not be the Navy's decision.

4. The reallocation of finance within the Services but it has caused so much strife in the past that this avenue would have to be very carefully used.

None of these options are pleasant but to this writer Options 1 and 4 would be the least harmful in the short term. The second and third are unacceptable.

CONCLUSIONS

We have a natural barrier which separates us from any potential enemy—a barrier which he must master if our sovereignty is to be disturbed. A strong naval force is the most effective deterrent to offer would-be aggressors. It is naive to assume that the USA will automatically assist us in any armed conflict—or she could have her hands full when otherwise willing. The Nixon/Guam Doctrine reinforces this position and leaves Australia to face the reality of being responsible for its own defence.

The present fleet will remain relatively unchanged up to 1984/85. Some ships will have been replaced but this is only an acknowledgement of the requirement to keep pace with the technological advances common to other navies, rather than increasing our overall strength. In the near future, the relatively unchanged fleet will have to cope with the 200 mile Resources Zone. The continued development of northern Australia will necessitate greater naval activity for protection of its valuable resources. The definition of the continental shelf boundaries with our neighbours may create tensions. Furthermore no consideration has been given to a threat prior to 1984/85. By then the projected fleet will be stretched to fulfil its increased domestic tasks quite apart from coping with additional problems.



West Australian Naval Support Facility (HMAS Stirling)

—Defence Public Relations

The construction time for ships is four years. In time of threat this is a critical factor when the warning time may not be more than 10 months. During the next eight years we will build our Patrol Boats and the Assault Landing Ship. These projects will be a valuable opportunity to demonstrate the effectiveness of national participation in a significant manner, and should be a step towards a more independent attitude to our defence needs.

The manpower base requires expanding now for without that expansion we either reduce our commitments or become ineffective through being too thin on the ground. There is far too much at stake to have a Navy too small for the task it is going to have to perform.

NOTES

1. Brandon Henry, *The Retreat of American Power*, Bodley Head, London, 1973.
2. Times Insight Team, *Arab/Israeli War 1973*, London, 1974.
3. Tange Sir Arthur, Address to the A.C.T. Regional Group, Departmental Organisation and the Profession of Arms 26 Jun 75.
4. Indonesian Submarines:
Totals: 1952 2x 'W' ex Poland
1962 6x 'W'
1964 14x 'W'
5. For instance, Japan by 1986 intends to increase her nuclear energy output to 10% and by 2000 to 50% of her total output which currently is only 0.4%.
6. Molotov/Ribbentrop Talks, October 1940. Some observers state this as misleading but nevertheless a pattern is emerging.
7. Jukes Geoffrey, *The Indian Ocean in Soviet Naval Policy*, Adelphi Papers, London No. 87, May 1972.
8. A two-thirds majority in the UN General Assembly.
9. Surveillance and fishery protection operation off NW Australia involving RAN Tracker aircraft, Patrol Boats and RAAF long range maritime patrol aircraft.

AUSTRALIAN NAVAL INSTITUTE PRIZE — 1975/76

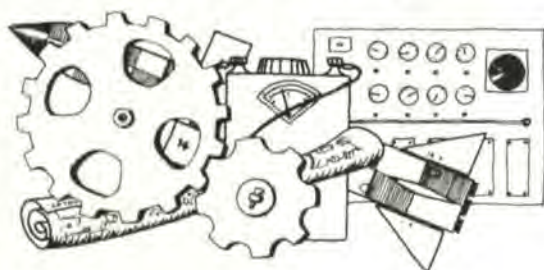
In the previous issue of the Journal the introduction of prizes for various types of contributions to the Journal was announced.

In fairness to previous contributors it has been decided that the competition for the best major article should become effective from the first Journal issue. For convenience major articles appearing in Volumes 1 and 2 have been combined into one competition and judged in accordance with the established rules.

As a result of the judging, the ANI is pleased to announce the award of the 1976 prize of \$75 to "Master Ned" for his article "TRAINING THE GENERAL LIST OFFICER—SOME PROBLEMS AND POSSIBILITIES".

This article was published in Volume 2 Number 4 of November 1976.

Technical Topics



AVGAS THE INSIDIOUS

To those who recall the days of Avgas in the earlier carriers or who have recently served in *Melbourne* perhaps this tale of Avgas in the firemain will be of interest.

During the final preparation of *HMAS Sydney* in 1952 for a tour of duty in Korea, the day before departure from Sydney, Avgas was detected in the firemain. The ship had refuelled that day and was topped up with some 83,000 gallons of the stuff. All probable sources of the contamination were explored but no lead could be found. The most likely source—a leak in the Avgas cooler, which was sited outside DCHQ1 was proven by appropriate pressure testing to have been clear of blame.

Some little time later whilst alongside in Fremantle, a similar occurrence was reported to the Flight Deck EO when he returned on board late in the evening. Obviously the ship had a problem of some consequence.

Up to this stage the following facts pertained:

- (1) the system had been pressure tested and proven intact;
- (2) On both occasions the contamination occurred following the working of the system, in the later case the venting of all tanks prior to securing the system on completion of the day's activities; and
- (3) the ship had been alongside, steaming auxiliary on the forward unit with the After Machinery Space turbo-driven fire and bilge pump on firemain duty.

With these few facts ascertained the matter was reported to FOCAF who, to say the least, was not amused.

Whilst on passage to Singapore, various theories were evolved and discussed in the Engineer's office as to how the Avgas could get out of an intact system and into the firemain. The AMS fire and bilge pump, which took its suction longitudinally in line and separated by some 15 feet aft of the 'midships' Avgas group of tanks,

became the prime suspect. At this stage it should be explained that the venting of tanks, which in itself was quite an involved task, did entail discharging overboard some one or two gallons of Avgas through a fitting situated on the ship's outer bottom.

A follow-up letter to FOCAF presented a theory as to the solution of the problem. The theory was that during venting this discharged Avgas flowed (under suitable conditions) along the ship's bottom to be sucked up into the fire and bilge pump suction.

The reply to this letter was signalled in terms which suggested that *Sydney* think again. By this time the ship was in Hong Kong.

A decision to prove the discounted theory was the only short term answer. (Those who recall the Stores Basin in Singapore Naval Base will appreciate the impracticability of the following procedure being carried out there). When the tide was due to be on the turn giving a slight stem-to-stern flow the suspect fire and bilge pump was run up and one gallon of Avgas vented overboard from 'midships' group following approved venting procedures. To the delight of the Flight Deck Engineering Officer one gallon of Avgas was vented from the fire and bilge pump casing in the AMS. Home on first base! At the next change the FDEO, the EO, and a far more qualified diver stationed themselves at the appropriate point under the ship's outer bottom whilst the experiment was repeated. Avgas was observed to flow from the discharge point straight into the fire and bilge pump suction by following a joggled lap joint seam line—game, set and match! The Fleet Staff were not exactly apologetic but did relent on their previous stance.

The reader may well ask why this occurrence had not happened before. It had, but this was not discovered until some years later. When it first happened, the matter was investigated most thoroughly and the same conclusions arrived at, but the event and its sequel were not documented. Instead, the operating sequence for venting the midships Avgas tanks was passed by word of mouth from Petrol Party to Petrol Party. None of the systems handbooks or operating manuals was annotated to make the reader aware of the design defect inherent in the system.

In consequence, human fallibility being as it is, the word of mouth system failed with potentially dire consequences—imagine if you will the sequence of jolly jack, cigarette in mouth, flushing the heads and then the fire party rushing to the "rescue"!

Obviously, the moral of this tale is: Always document the out-of-ordinary events—it may well save a catastrophe in later years.

Badger

Naval Aviation—Past, Present and Future

One Man's View

INTRODUCTION

The intention of this paper is to look at Naval Aviation from where it began, through to the present day and then to attempt to project where it may go in the future. Along the way there will be all manner of digression, to discuss particular periods, devices, ideas and funny naval aeroplanes. And some have been very funny, even when meant to be serious.

Being an author brings with it a responsibility to review one's qualification to write, especially on a very broad subject. Being broad probably helps, as does 36 years in pretty close contact with naval aircraft, especially when you remember that it's only 74 years since powered flight began.

THE BEGINNING

And this is where we begin—with the Wright brothers, the original flying plumbers. They beat all the theorists and worked out how to fly empirically—an attitude we should take to many of our problems now, rather than waiting for someone else to evolve a formula we can apply. Being unable to buy a suitable engine, they designed and built their own. The crankshaft was cut from a solid chunk of nickel steel and the engine featured mechanical fuel injection of admirable simplicity.

On 17 December 1903 they achieved the first known manned, powered flight. Of particular interest is their use of a catapult to launch the 'Flyer'. This overcame the problems of acceleration, having low power and low propeller effi-

ciency coupled with a skid undercarriage. The principle was much the same as the cat fitted to carriers in the 40s and 50s, only instead of storing energy in compressed air cylinders, they used a large weight hoisted up in a frame. The cross-head and multiple reeving was almost identical to the BH series of carrier catapults.

THE AUTHOR

(by the Author)

Harry Julian 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 fiascos 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 out his mouth with soap. Served at Navy Office on Skyhawk and Tracker introductory programmes, since when the RAN FAA has never been the same. Resigned in 69 and represented Messerschmitt-Bölkow-Blohm for four years, during which period no helicopters were sold. Joined the Public Service but found the strain and excitement were too great; various South American governments decided not to buy the Nomad. Now very happily remarried to the Service, and posted to CNTS staff as a junior jack of all trades. Apply to him if you want anything expertly postponed or cancelled.

Oddly, their achievement had very little effect at first. Orville and Wilbur preferred to perfect their device before seeking any publicity. It was 5 years—1908—before the aeroplane began to catch the public imagination on both sides of the Atlantic and, in the Southern Hemisphere, in Australia and Brazil.

NAVAL INTEREST AWAKENS

At this time, both the USN and the RN began to study the aeroplane as a reconnaissance device. A 20 mile circle was all that one could expect to see, from the masthead, in favourable conditions. An aeroplane or a dirigible balloon offered great possibilities, particularly as the introduction of oil fuel was promising some reduction in the 'pillar of smoke by day' that discoloured the battle fleet.

In 1911 Ensign Ely flew off the USS Langley, when she was at anchor, from a flying platform over the bows. In the same year the Admiralty had authorized formation of the Royal Naval Air Service and had 3 pilots under instruction, two gentlemen and one engineer. An airship, prophetically called 'Mayfly' was under construction and take-off rails for aircraft were fitted to three battleships.

THE FIRST WORLD WAR

Three years later the RNAS was operating landbased fighter aircraft, in Belgium on Army support duties, and in the UK as the anti-Zeppelin force. Patrol aircraft were covering the approaches to the German harbours, and, in the same year of

1914, three RNAS Avro 504 two seaters flew 250 miles over enemy held territory to carry out a surprise bombing raid on the Zeppelin sheds at Friedrichshafen on Lake Constance. Not much bomb damage but a considerable surprise.

Author's aside—my own first flight in 1929 was in the back seat of the same type, only then with a radial replacing the original rotary engine. Lots of 504s flew on into the thirties, joy riding and giving displays.

Much effort was devoted to developing patrol flying boats and torpedo aircraft, the latter achieving their first success in Turkish waters. Small 'blimps', whose soft gas bags were kept in shape by inflation pressure, were developed for A/S patrol work and operated very reliably in the approaches to UK, escorting convoys whenever they could keep up the requisite speed.

Small single seat fighters were embarked in larger warships—they sat out in the open, taking off along rails mounted on top of turrets. They could thus be aimed into the relative wind and shot off to find the enemy fleet or to intercept shadowing Zeps. Thus integral air recce and fighter cover was provided, somewhat akin to the modern practice of helo plus SAM—or maybe, later, a VSTOL aircraft? Unfortunately, the little biplane fighter could not land back on and had to ditch if he could not make it to the beach—so really he was the forerunner of the Hurricane, the time expired Hurricane shot off from the catapult of a merchant ship, which was used to knock out shadowers of convoys to Russia in 1939-45.



Aircraft operating from HMAS Sydney in March 1917

—By courtesy of the Australian War Memorial EN 343





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Sopwith Pup operating from HMAS Australia in 1917

—By courtesy of the Australian War Memorial EN 224

FIRST REAL CARRIER

Cruisers in the first World War were often fitted to carry Sopwith Pups—Sub Lieut Smart flew off the *Yarmouth* in August 1917 and hacked down a shadowing Zeppelin, later ditching and being picked up by the *Prince*.

The cruiser *HMAS Brisbane* was the first RAN warship to operate an aircraft in war. She carried a Sopwith 'Baby' seaplane, for reconnaissance duties, when hunting the German raider 'Wolf' in 1917. And in the middle of 1918, aircraft launched from HMA ships *Sydney* and *Melbourne* were in action against enemy aircraft over the North Sea; good names to carry forward for our first two carriers. The cruiser *HMAS Australia* also made a contribution to our naval aviation history; in December 1917, Lieutenant Fox took off in a Sopwith 'Pup' from her quarter-deck.

Earlier in the same year, Commander Dunning had also flown a 'Pup' when he made the world's first underway deck landing, on a 200' x 50' deck built over the forepart of the heavy cruiser *Furious*. The arrestor gear consisted of 10 officers, five each side, to catch the lower mainplane and hold him down. Dunning had to approach along the side, dodge round forward of the funnel and bridge area, cut his engine, line up and land. Unhappily, on his second attempt, a tyre burst and he went over the side and was lost, but he paved the way. Admiralty went ahead with a flush decker, the first true aircraft carrier, after a short and unsuccessful trial of an aft landing deck on *Furious*.

THE FIRST TRUE CARRIER

The new ship, previously an Italian liner *Conte Rossi*, was named *Argus* or the Flat Iron. She had a 550' x 66' flush flight deck and the funnel gases were led, via trunking, over the stern. She was commissioned late in 1918 and didn't see operational service, but, after remaining in commission between the Wars, was in service right through WWII, mainly as a training carrier. (This humble role is, of course, a spectacular one for the goofers gallery.)

Argus was typical of a 1915 merchant ship and had a massive steam-operated safety door between the engine and boiler room areas. When operating from the Clyde on training duties, she was always in the midst of modern vessels who, when about to get under way, would pipe all manner of good things about Damage Control, closing X, Y and Z openings, Red and Blue doors, shutting this and that vent, DC parties close up, etc etc. *Argus* used only to pipe 'Shut the Water Tight Door', which generally silenced the opposition.

In WWI the USN was a bit late in to get much experience in operating their Naval aircraft, but they had some good kit developed. The RNAS made great use of their Curtiss H4 flying boat, a twin engined patrol plane with good water handling. It was developed at Felixstowe into a flying boat fighter, as it had a good rate of climb and could mount seven machine guns. It achieved considerable success against Zeppelins. Many years later, Saunders-Roe picked up the same

concept when they designed the Saro twin jet flying boat fighter for use in the Pacific.

The Japanese, incidentally, were much impressed by naval aviation developments when they operated as allies in 1914-18. Their Naval Air Service was developed between the wars, using British and American built aircraft and instructors from the RN.

SMALL CARRIERS

Another WWI development was the seaplane carrier—generally converted from ferries, these vessels hoisted seaplanes in and out by derrick. *Campania* was fitted with tracks along the deck and could launch special Fairey floatplanes whilst under way. Drop-off wheels clipped under the floats, and the aircraft came back to settle on the water and be hoisted in. The idea was revived in 1924, when the RAN ordered the *Albatross* and the RAAF operated her complement of Seagull V aircraft. She served from 1929 until 1933, when the depression obliged her to be put into reserve.

An even smaller carrier was the Porte lighter, a high speed sea-sled which was towed by destroyers, at up to 32 knots. It carried a Camel fighter, which was launched from the lighter when steaming into wind at full speed. The Camel rose vertically—the original VTO at sea. These lighters were also used to extend the range of F2A flying boats, twin engined aircraft with 6 hours patrol endurance and very heavily armed. They were towed somewhat more sedately and took off from the water after being slid over the stern.

TRAGEDY STRIKES

On April 1st 1918, the UK was April fooled into accepting a separate Air Force. The RNAS and RFC were merged, despite the fact that they had operated happily and successfully, together and separately. Without the impetus of war, the Ship Navy after 1918 forgot how desperately it had needed air recce and air cover, protection against shadowing aircraft and air support in A/S. Warfare.

The new Force concentrated on the air defence of Great Britain, continued slowly with the RNAS inspired long range strategic bomber force and virtually ignored both naval aviation and army close support. A few dedicated men kept alive the techniques of operating from ships, whether single units catapulted from gun ships or squadrons from the carriers, but the equipment was unchanged. No money was spent on modern types or the development of new ideas. Britain's lead dwindled and the USN and Japanese Navy drew ahead. Both ships and aircraft were under the same control and were matched to one another. The functions of Fleet protection against air, surface or submarine attack, of maritime patrol and shipping strike, and of strategic warfare, are by their essence naval affairs. This was

understood by the USN which steadily became the major flying service in the States, and this attitude was paralleled in Japan. Looking ahead, we, as a growing island nation, will become more and more dependent upon the safety of the seas around us. We, too, must look to developing our naval air power to match our inevitable responsibilities.

Development in Britain was not entirely static and a number of concepts were explored, within the extremely tight financial constraints attending the depression. One of these, the Parnall Peto was a diminutive recce biplane on floats, about the size of a Pitts Special, which folded away into a cylindrical watertight hangar on the casing of HMS/M 'M2'. The front door was surmounted by a crane arm which swung the Peto into the water for take off and picked it up again later. The pilot drew both S/M and flying pay.

Another was the General Aircraft 'Fleet Shadower', which was powered by four tiny Pobjoy engines swinging huge geared propellers which kept the whole of the high lift wing washed with their slipstream. It stayed up for 12 hours at 45 knots, could come down to 25, and required no deck hook.

Both concepts were re-examined in the 1950s. ML Aviation produced an inflatable delta winged affair, powered by a 4 cyl McCullough two stroke engine, which pounded like a swarm of bees and developed the same thrust. Happily this was replaced by a 50 h.p. 'Mikron', a modification which enabled it to fly. The whole thing tucked away into a valise, a flimsy thing which formed the cockpit once the blow-up bit had been harnessed and inflated. In theory it could be stowed in an S/M and launched from water, or carried in a jeep and flown from any small paddock. In practice the low speed handling was deficient—even non existent—and one has shameful memories of it suffering an ill-judged landing during trials, of sitting among the debris of wires and fabric listening to the prop chewing up the remains of the bag.

The slowspeed shadower idea was looked at when a pair of Prestwick Pioneers were obtained, one a single and one a twin, and some interesting trials were carried out. It was all very feasible but much too vulnerable, given an enemy with a radar and a popgun.

THE SECOND WORLD WAR

Europe, The Atlantic and Mediterranean

At the outbreak of WWII, the Admiralty had just regained responsibility for the Fleet Air Arm, taking over a load of ancient biplanes hardly different from those of 1919. Whilst we tend to laugh at some of the types developed by the RN

during the war years, it is in fact remarkable that so much was achieved under war conditions, in intense competition for materials and manpower, and with so few trained, air minded staff officers. One must give credit to the dedicated men of the sea-oriented RAF who stayed on with the Navy, transferring or just serving in light blue, and formed the core of the expanding Air Arm.

A 'Skua' dive bomber of the Fleet Air Arm was the first aircraft to down an enemy plane in WWII—a recce seaplane. Skuas also divebombed the cruiser *Konigsberg* in harbour at Kiel and put her out of action, in 1939. In December, the little 'Seafoxes' of the light cruisers spotted for the guns in the action with *Graf Spee* at the mouth of the River Plate, proving again the value of integral air capability in ships. The Seafox was an FAA funny—it was a biplane with the observer under glass but the driver out in the open to keep him awake. The general drag was overcome by a strange set of works, the Napier 'Rapier'. This had four cylinders up and four down on each side, i.e., two flat eights arranged vertically with their crankshafts geared together via the prop. It was the only H16 with air cooling I've ever met and not fond of warm weather. The pilots reckoned, in sailing terms, that, given a good long reach, sudden luffing up into wind would often cause the Seafox to fly.

On the 11 November 1940, the old 'Swordfish' vindicated the night torpedo attack which the RAF and RN had worked up in the lean years. 21 aircraft attacked the Italian Navy at Taranto, and, for the loss of three aircraft, put the major units out of action and completely altered the balance of power in the Mediterranean. The same obsolete machine slowed the *Bismark* and brought her to action, but its utter inadequacy in the face of an enemy with fighter cover was sadly shown when LCDR Esmonde and his training squadron gallantly attempted to stop *Scharnhorst*, *Gneisenau* and *Prinz Eugen* when they dashed up the Channel in February 1942.

But this old classic became a vital weapon against the U-boat, operating from tiny merchant aircraft carriers in the Atlantic Gap. It achieved the first night success, using early ASV radar slung between its undercarriage legs, sinking U-752 in May 1943. The 'Albacore', developed to replace the Swordfish, never achieved the same success and with the supply of US aircraft it faded from the scene.

The convoys to Russia suffered from attacks by U-boats which received intelligence reports from land based recce aircraft. The latter were combatted by old ex-RAF Hurricanes, catapulted from merchant ships and ditched on completion



A Swordfish over HMS Ark Royal during World War II

—RANAS Nowra

of their last fighter sortie. To provide the UK carriers with a modern fighter, the Spitfire and Hurricane were hurriedly modified and operated with moderate success. The Seafire was in action for the North African landings (and, in various versions, served on until the Korean War in 1950) but was short legged compared to the USN aircraft supplied under Lease Lend. Ranges of over 1000nm and 3 to 4 hour endurance plus rugged landing gear, were better suited to the seagoing scene.

The German Navy intended to operate modified Luftwaffe Me 109s and Ju87s from the carrier *Graf Zeppelin*. They would have suffered similar disabilities to the British modified RAF aircraft. However, *Graf Zep* was much delayed by bombing of the shipyards and eventually ended up in Russia as a war reparation. How much of *Kiev* and *Moscow* relates to *Zeppelin's* design, one wonders? German warships have usually been very thoroughly thought out and well built.

The Pacific War

Early Japanese success in the Pacific theatre came from skillful and ruthless use of their carrier borne aircraft. The distances involved precluded any other method of bringing air power to bear. Pearl Harbour, and the sinking of the British battleships *Repulse* and *Prince of Wales* off Malaya, changed the balance of sea power in this, the world's greatest water surface. The subsequent resurgence of the USN and the great air battles between fleets confirmed the importance of the carrier and led to its acceptance as the major warship of the day.

The carrier also provided the essential air support for the Marines and Army in regaining the island chain, which would eventually allow attacks on the Japanese mainland.

The 'Wildcat' fighter and the 'Dauntless' dive bomber were the aircraft of the early days, soon replaced by the heavier, higher performance 'Hellcat' and 'Corsair' in the fighter and ground attack roles. The 'Avenger', originally designed as a torpedo aircraft, became a marvellous maid of all work, operating as a bomber, A/S aircraft, minelayer and transport. These aircraft were all produced in vast numbers and this, plus their sturdiness succeeded in sweeping the Japanese naval aircraft from the sky. The 'Zero', most famous of the Japanese Navy fighters, had proven a formidable adversary in the opening phases. It was light and very manoeuvrable, with a high power to weight ratio giving it an admirable performance, but it was vulnerable to the heavily armed USN fighters which followed the 'Wildcat'.

Only the Kamikaze suicide aircraft could really worry the USN, as the Pacific War gathered momentum towards its inevitable end. Many of the US carriers were 'open hangar' types with

wooden planked flight decks over the hangar. All the aircraft—and this type of ship could carry a lot—were gasoline powered, so that a strike by a Kamikaze was certain to start a holocaust, almost impossible to bring under control. The larger and later US carriers, and the British 'Fleet Carriers', were steel decked and better able to withstand these attacks, but the suicide aircraft campaign was certainly effective and a matter of severe concern to the Allies.

THE RAN FLEET AIR ARM

The feats of the USN, and the lesser exploits of the RN Fleet Air Arm in the Pacific Campaign, had reinforced the RAN view that integral air power was an essential part of any modern fleet. In 1947 the Naval Board evolved a plan to build up an air A/S and fighter force, and on 28 Aug 1948 the RAN Carrier Air Group was commissioned. Equipped with the 'Seafury' fighter and 'Firefly' A/S aircraft, the 20th CAG embarked in the carrier *Sydney* and arrived in Australia in May 1949. The 21st CAG formed that year and *Sydney* went back to the UK to embark the Group. By September 1951 the RAN aircraft were in action in Korea under UN command, *Sydney* relieving *HMS Glory* on the west coast. The newly fledged Australian Fleet Air Arm proved itself the equal of the USN and RN carrier fliers, as its record of sorties shows.

The selection of ships and aircraft had also been proven sensible. There were many exciting developments in train in the early post war years—in December 1945 a de Havilland 'Vampire' jet fighter had made the first jet decklandings, on a light fleet carrier similar to *Sydney*; advanced turbo-prop strike and torpedo aircraft were being constructed; in the US a VTO turboprop 'tail-sitter' was at the design stage. But the Naval Board had the wisdom to start off with proven types; later the 'Sea Venom' all weather, radar equipped jet fighter replaced the 'Seafury', and the 'Gannet' turboprop twin took over the 'Firefly's' role.

During the Korean war, the piston engined aircraft had the endurance and weapon load capability to carry out the principal task of supporting the Army ashore. This is a function peculiarly well suited to carrier aircraft, which can operate close to the front line, all their fuel, armament and base facilities being provided by the ship, thus avoiding the logistics problems encountered ashore. Korean roads and railways were not well suited to the supply of major landbased facilities.

RISE AND FALL OF CARRIER FORCES

Meanwhile, the whole world seemed to be getting into a one generation carrier act—Canada, Argentina, Brazil, India, the Netherlands and Spain were all operating single carrier navies, some with a strange mix of aircraft aboard. One suspects that there were some quite irresistible bargains about in the postwar years!



Part of the 21st Carrier Air Group flying over HMAS Sydney

—RANAS Nowra

And then the cost rot began—the steam catapult, angled deck and mirror landing sight were making the operation of larger, faster aircraft feasible. Jets got bigger, twin engined and heavier; AEW became an essential element demanding a large airframe to carry the scanner. Gradually fewer, larger and more costly ships were kept at sea, their aircraft capable of very long range nuclear strike or Mach 2 interceptions ten miles up. Replacement carriers were designed, rethought and then not built. Only the US and Russia kept momentum in their programmes, which produced the big nuclear powered USN carriers and the Russian hybrids such as *Moscow* and *Kiev*.

The latter are the modern equivalent of the 1918 battleship and its air component, but immensely more effective, combining a heavy missile fit with a VTO jet fighter complement.

The mid fifties were a fascinating time for those involved in naval aviation development, but must have been hell for the bean-counters. The mass of new ideas to be tried out made it hard to select those which were worthwhile pursuing, and the finalisation of any design was always frustrated by the discovery of some beautiful new feature which simply had to be incorporated.

This period saw the jet VTO idea well researched by Rolls-Royce with their 'Flying Bedstead'; the Short SC1 with its four lift engines, all computer controlled, and a single engine for thrust when in normal flight; the German

VAK with eight lift engines in wingtip pods; but none produced an operational aircraft with the required performance. Deflected thrust devices abounded—a Meteor with two 'Nene' engines was one (a memorable and touchy beast when deflected)—the GD/Ryan fan wing in the US, blown flap configurations which could bend the airflow through 80°. However, none were developed into the ideal, high performance naval aircraft which would offer a break from the tyranny of the huge carrier.

The writing was on the wall—the small navies' carriers were too small, the big carriers too costly, aircraft were too big and fast into the gear. Water spray arrestors, heftier, longer steam catapults, all added to weight, power and maintenance demands. Progress was slow and unrewarding; the US Navy had continued with larger carriers but these had inherent problems in their very size—crews of 4000 plus, congressional hearings inquiring into the need for such massive resource inputs, decisions on nuclear or conventional machinery. Aircraft development, on fairly conventional lines but incorporating much new material technology, had been continued. The classic carrier fighter of the era was the F-4 Phantom, but it required at least 40,000 tonnes of ship to operate its 40,000 pounds.

OPERATIONAL VTOL

The great improvement in the specific thrust of jet engines had, by the late 50s, led to the many and varied VTO designs mentioned. Bristol

Siddeley pioneered the 'Pegasus' deflected thrust engine and Hawker built a suitable airframe, the 1127. This combination flew successfully in the early sixties, in the hands of Bill Bedford. It entered a lengthy development phase and a later version, the Kestrel, was ordered by the RAF and operated in a tripartite trials squadron funded by the UK, the US and West Germany. It was given carrier trials onboard *Ark Royal* in 1963, and later, in the Harrier version, was ordered by the US Marine Corps, Spain and the RAF. Now the RN is about to receive the first of the Sea Harriers, a somewhat higher capability aircraft, for its new 'Through-Deck' Cruisers which are virtually light hybrid aircraft carriers/missile ships.

This, the first operational VTOL fighter, has enabled carrier size and cost to be held. The USSR, with its YAK-36, has developed a lift engine plus a deflected jet lift/cruise engine arrangement not unlike the VAK 191. The YAK36 is slightly larger than the Harrier and is presently embarked in the 35-40,000 ton *Kiev* which has, additionally, a massive missile armament. Vosper Thornycroft in the UK have designed a 25 knot, 8000 ton vessel around the Harrier; Italcantieri's 'Garibaldi' is a 28 knot 9500 ton ship of rather similar characteristics. Spain will be retiring the



Kiev with Yak 36 aircraft and helicopters ranged on deck.
—By courtesy of Hawker-Siddeley Aviation Ltd.

ageing, wooden decked *Dedalo* and may build a similarly sized, but up to date, replacement.

So the trend is clear—Vertical, or Short, Take Off and Landing aircraft can now perform in the fighter ground attack role from almost any platform which can operate a big helicopter. But VTOL is not a complete answer to the exercise of air power at sea.

WHICH WAY NOW?

Air operations at sea demand much more than a limited capability in fighter/strike or army support. Reconnaissance, Airborne Early Warning, Strike Direction, and Anti Submarine operations are of equal or greater importance to a Fleet Commander. To some degree they might be carried out by modern helicopters, or by the VTOL types, but not efficiently.

HMAS Melbourne presently operates a good mix of air capabilities, having just sufficient deck size and speed to fly fixed wing fighter/attack 'Skyhawk' and anti-submarine/recce 'Tracker' aircraft, plus space for anti-submarine helicopters. To replace the old lady with a VTOL—only type, of 8 to 10,000 tons, would be a retrograde step.

Bearing in mind our constraints in manpower and money, what alternatives are there? Firstly the provision of their own, even though limited, air element to smaller ships. Well equipped modern helicopters add very appreciably to the capabilities of frigates, destroyers and destroyer escorts. Maintenance beyond the scope of the smaller ships could be effected by the temporary transfer of the helo to larger support vessels such as oilers and repair ships, or to a shore base. Secondly, to replace *Melbourne* with a cheap to operate, low manpower ship with a long clear deck. This sounds like the impossible dream, until one looks outside the warship mould. Take a long hard look at the 'Bay' class container ships:

Length overall	290m (950')
Beam	32.3m (106')
Deep draft	13m (42')
Service Speed	26 kts + 80,000SHP
Crew	42 men

Or the Sea Land class on the North Atlantic run

Length Overall	289 (947')
Beam	32.15 (105')
Deep draft	9.15 (30')
Service Speed	33 kts 120,000 SHP, steam, (one of these has gas turbine power installed)

Alternatively, the Japanese K line ship, *Verrazano*
Bridge offers:

Length overall	265 (869')
Beam	32.2 (105')
Deep draft	12 (39')
Service Speed	32 kts, from twin diesels of 80,000 SHP total
Crew	35 men

In general, container ships are becoming faster; they have finer lines than tankers, bulk and ore carriers, and their general hull design lends itself to conversion to a flat-top aircraft carrier. The concept is worth pursuing, as there are so many permutations of ship to choose from—and don't forget that the *Sydney* and *Melbourne* type of CVL has a basically merchant hull up to the hangar deck. In the smaller class of container ship, one might select a 28 knot vessel, 223m (730') long, 31.4m (102') beam and drawing, deep laden, 10.9m (36'). She makes her service speed on 68,000 shp—or 4 x LM2500 gas turbines, if you are looking for commonality with the FFG.

WON'T THE COST KILL IT ALL?

It depends how we go down the options track as to whether we can afford a real carrier—one could drive to work in \$65000 worth of Rolls Camargue, or in a Falcon at around \$6500. Both do the job adequately; one just doesn't have the fancy fixin's. Building costs for container ships are around \$US625 per deadweight ton, so if we chose say the Ishikawajima Heavy Industries Aioi Shipyards *Kiso Maru*, she'd cost about \$US19,857,000. That's a fraction over \$A18m for a ship 260 x 32 x 10.7m (852' x 104' x 35') which punches along at over 30 knots service speed, powered by twin Sulzers of 34,800bhp each. Suppose by the time we got around to it, and ordered a few changes, like putting the bridge and controls over to starboard and taking the diesel exhausts there too, she would cost \$36m. We could then bring her to an Australian yard and fit her out as a carrier, but in a simple straightforward way—no fancy bits and emphasis on staying afloat by operating aeroplanes efficiently and keeping the opposition at arm's length. A little improvement to the bulkheads for damage control's sake, and clap on the flat top.

If the budget were set at twice the sail-away cost, then it should produce an extremely useful ship for \$70 to \$75 million. Compare this to the costs in the true warship world and it has to be the bargain of the century.

That 850' flight deck would give the Harrier a free take off run which would double its payload or its range, even at anchor.

We have a very efficient fixed wing element in our Fleet Air Arm, and the container-carrier would permit it to continue. It might well be supplemented by VSTOL types, which could operate from other decks in the Fleet, or from miniscule pads ashore, when operationally necessary. But until VSTOL aircraft efficiently carry out the whole gamut of roles required of naval aircraft, it would be foolish to give up all fixed wing conventional aircraft just because the carrier costs too much. It doesn't have to, if one looks at what can be bought commercially.

The converted container ship hull offers the RAN a chance to have a carrier, able to operate aircraft in all the desired roles, for about half the cost of a much smaller, VTOL-only, ship from a warship building yard. The conversion task, based on a design already modified by the builder to meet the need for a clear flight deck, would be well within the capability of an Australian yard and would boost the morale of our shipbuilding industry.

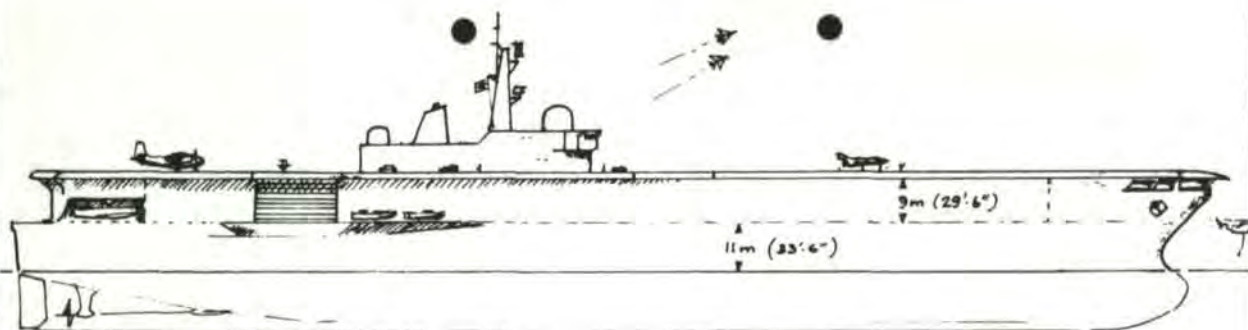
Container ships are designed to be operated by small crew numbers, they have a mass of volume in the hull for accommodation and the extra machinery needs of a carrier, whilst the stability is already adequate for a container stack on deck. The concept is certainly worthy of consideration by a nation with such an enormous coastline as ours, and so dependent upon the security of the seas.

THE WAY AHEAD

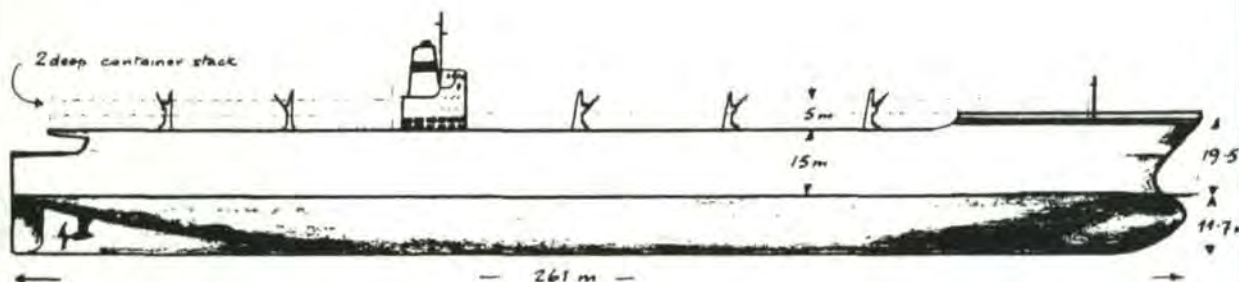
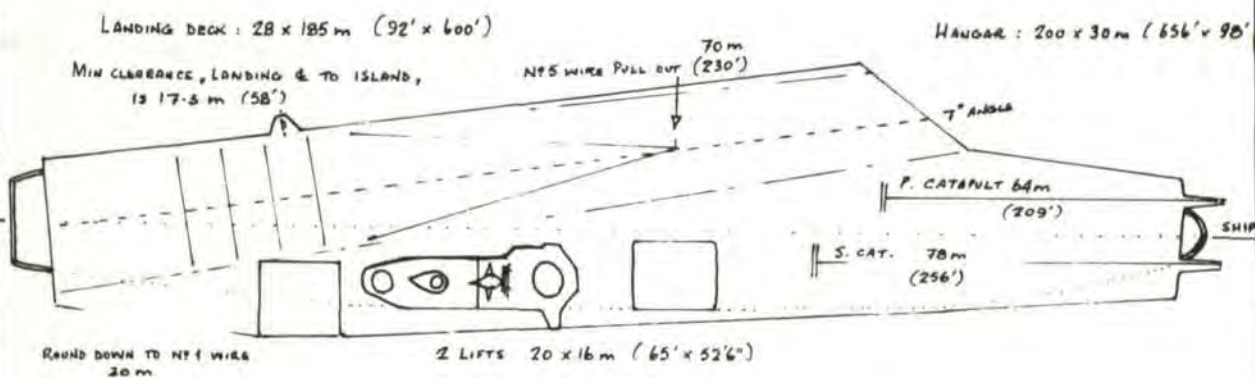
For the RAN's varied tasks, the way ahead is clear. We need our conventional fixed wing aircraft as sea; this requires a carrier. Let's buy and build a modest but effective one.

We also need embarked air power in our smaller ships, which will often have to operate alone. As many helo platforms as we can manage (even at the expense of Mortar Mk10, perhaps) should be the aim.





PROPOSED 'NEW GENERATION' COST CONSCIOUS CONTAINER SHIP CARRIED

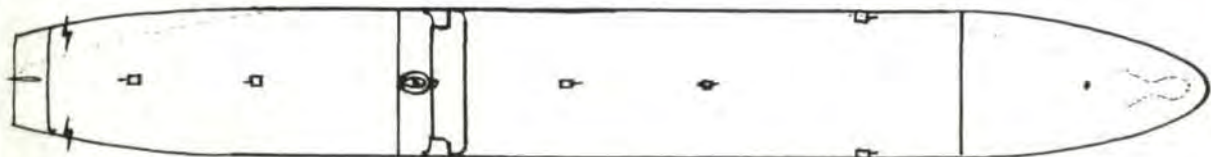


TYPICAL 3rd GENERATION CONTAINER SHIP. 38,500 tons gross. 31,770 dwt.

261 m overall, 242 bp, 32.2 m beam, 19.50 depth, 11.70 deep draft.

2 diesel motors - 34,800 bhp each - 30.5 knots service speed.

Containers are 2.44 x 2.44 x 6.1 L - they can be stacked 2 deep along upper deck



Signaal's Mini-Combat System

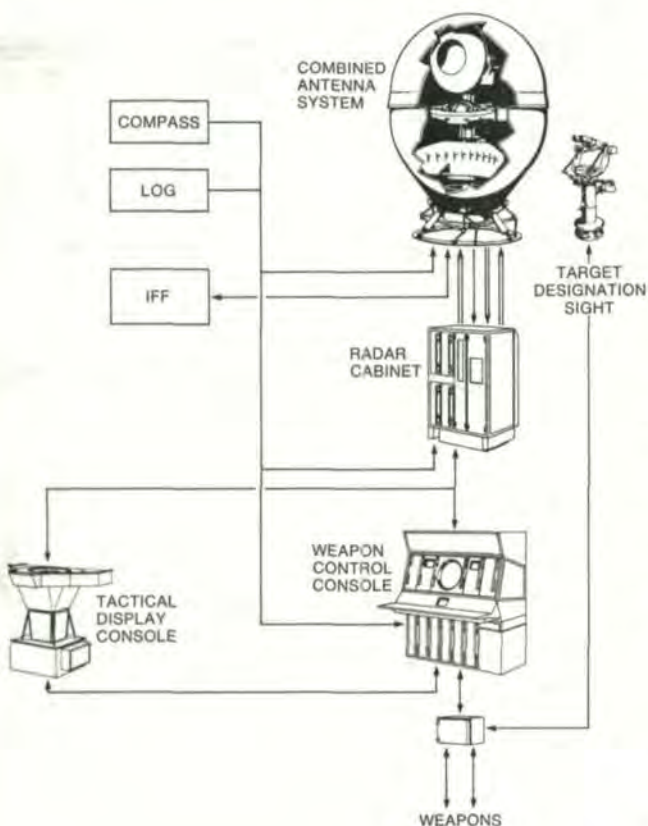
Mini-combat system based on Signaal's well proven M20 system concept now in use with 14 navies, including the United States navy.

Utilizes Signaal's specially developed SMR-S micromin general purpose computer to provide even the smallest ships with:

- surface and air surveillance
- tactical data handling
- tactical data display
- weapon control of guns, missiles, torpedoes.

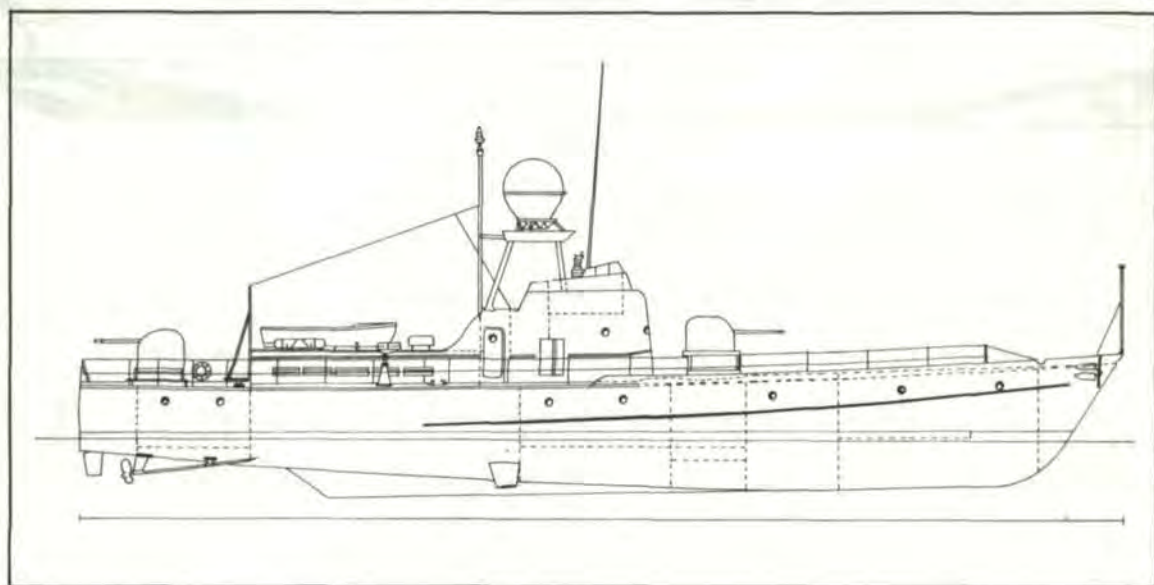
In larger ships the system can be either part of an integrated sensor, weapon and command system, or an autonomous weapon control cell.

Hollandse Signaalapparaten BV - Hengelo - The Netherlands. Radar, weapon control, data handling and air traffic control systems.



SIGNAAL

S 14



A Path to Survival in Sedentary Naval Life

BY LIEUTENANT COMMANDER A.H.R. BRECHT, RAN

"The relationship between the soundness of the body and the activities of mind is subtle and complex . . . intelligence and skill can only function at the peak of their capacity when the body is healthy and strong."

President John F. Kennedy

The small navies of the world mostly compensate for their size by a degree of professional competence, dedication and hard work which is often uncalled for in their larger fellows. The RAN is no exception to this general rule and strives always to make up for deficiencies in equipment or resources through insistence upon high standards in all that it does. The professionalism thus displayed is, however, only all right as far as it goes.

Few would question the continuing need for training to be first class; axiomatically we assume in almost all levels of planning within our Navy, whether in casual conversation or on paper, that the methods employed are achieving the results required in the long term, thereby ensuring the RAN to be a small but top quality outfit. This essay contends that our training, our way of life, and our thinking has allowed us to concentrate upon the material and professional aspects of naval skills to the detriment of the physical capability of the manpower to do the job. The author will show that our most valuable resource, the man, is potentially unable to physically cope with today's tasks, and that unless changes occur in the Navy's administrative approach to fitness his ability to do so will continue to decrease.

The first part of the essay will outline the nature of the problem and its consequences for the RAN; the author will then discuss recent research into fitness and health, and suggest some means by which the Navy might improve the health and physical capability of its members.

THE MOST VALUABLE RESOURCE



—By courtesy of the Australian War Memorial

THE AUTHOR

Lieutenant-Commander Alan Brecht joined the RAN in 1957 as a telegraphist and, after training, served in HMA ships QUICKMATCH (twice), PARRAMATTA and MELBOURNE. He attended the SD officers promotion course in UK as a Petty Officer Radio Supervisor, was promoted to Sub-Lieutenant SDEXC in January 1975 and served in the RN in HMS DEFENDER and HMS MERCURY (the RN Communications School). Since his return to the RAN in 1966 he has served in HMAS PARRAMATTA, the RAN Communications School, the Directorate of Naval Communications (twice), Naval Communications Station Canberra and HMAS ALBATROSS. He was promoted to Lieutenant SDEXC in January 1967 and transferred to the General List in 1970. He attended the RN Advanced Communications Course at the Royal Military College of Science, Shrivenham, UK in 1974 and was promoted to Lieutenant-Commander in 1975. He is currently serving as Communications Officer in HMAS MELBOURNE.

The Problem

In his book "Aerobics" Doctor Kenneth Cooper M.D. M.P.H. of the USAF Medical Corps puts forward a proposition supported by many physicians that without proper regard to diet, alcohol, tobacco consumption, and exercise the modern sedentary human being is on a one-way roller coaster ride to hospital. "As far as exercise is concerned," he says, "four out of five are candidates for illness and disease, if they haven't already fallen victim." Strong words? Maybe so, but just the facts on heart disease in Australia alone are little short of frightening. The annual statistic stood at 62,980 deaths in 1974 and has risen steadily since. As the major form of heart and blood vessel disease, coronary heart disorders account for about one third of all deaths in Australia each year. It is estimated by the Australian Heart Foundation that some 400,000 Australians are suffering from coronary heart disease at any one time so the word 'epidemic' is almost euphemistic.

Dr. Cooper's contention deserves closer examination for it must surely be argued that a modern military service such as the RAN keeps a close watch upon the health and fitness of its members and therefore the Doctor's remark cannot apply. Sadly, this is not necessarily true. Using heart disease as the base for investigation one finds that the medical and physical conditions which bring about heart disease also contribute to other illnesses, and have ready breeding grounds in sedentary naval life.

Nothing can be done about heredity; we are what we are and little is gained by blaming our forebears, but to some extent heredity can be offset. Diet is a different matter however, for casual observation in ships and establishments today shows many young men obviously overweight, reflecting the society in which we live. The effects for the service are varied, ranging from simple physical inability to carry out arduous tasks to severe posting restrictions through enforcement of medical category stipulations. DI(N) PERS 31-2 requires obese personnel in some circumstances to be classified Temporarily Medically Unfit, recognising that "Excess weight is injurious to health in general and in particular predisposes to heart disease and high blood pressure."

Obesity for some is a glandular problem about which they can do little but it is mostly a clinical condition, the same as heart disease, lung disease and the rest. The unfortunate thing is that surplus fat places a heavy load upon the heart—try carrying a 40 lb weight about on your back for a day—forcing it beyond its capability, thus risking heart attack or 'cardiac arrest'. Most people know the dangers of obesity yet do little to prevent it and worry hardly at all if overweight

by two stones or more. To the author's knowledge no exhaustive study has been made into the consequences and costs to the Navy from overweight personnel but in terms of manpower alone the bill for medical treatment of obesity cases could only be matched by the loss of man/work hours throughout the whole Navy from attendance at sickbay.

Also fuelling heart disease is the hidden diet problem, cholesterol. The goodies which adorn Navy meal tables are almost invariably bad for the cholesterol and triglyceride watcher struggling to keep down his intake of fatty food. Milk, butter, eggs, cheese, red meat, ham, pork, bacon, prawns, oysters, and other delicacies are all high in cholesterol or fat thus increasing the level of fats floating in the blood vessels. Over a period of time some of it clings to artery walls causing arteriosclerosis or hardening of the arteries. If the crust becomes thick enough to block supply of blood to the heart, a heart attack occurs which can be fatal if a coronary artery is involved.

Smoking and alcohol also contribute to general poor health as well as to heart disease. The evidence against the former is overwhelming yet possibly as many as 60% of Navy men are smokers. Among the most conclusive research on the dangers of cigarettes is the Framingham study published in the USA in 1964 which compiled data on more than 2200 men aged 30-60 over a period of eight years. Its major finding was that smokers were three times more prone to heart attacks than non-smokers due to the fact that cigarette smoke contributes to the development of arteriosclerosis. The estimation that 75% of male RAN personnel drink alcohol is a fair one, and the combined effects of smoking and drinking upon an individual's capacity for work are very marked. This has significant consequences for a small Navy where long hours at sea on the job in all kinds of conditions are normal.

Obesity, diet, smoking, drinking, and heredity are serious dangers to good health and fitness but they assume greater importance when tied together with the string called inactivity. The effects of insufficient activity upon the body will be addressed later but it is relevant here to look at the supporting role played by naval life. At sea the opportunities for exercise and physical activity are governed by ship size and programmes where in a busy ship men are usually either closed up at work or resting off-watch. Sea routines are designed around fighting the ship and make little provision for sport or physical recreation especially during workup or exercise periods. In other than large ships there is rarely sufficient space in any case. Ashore the introduction of rations and quarters charges has accentuated the drift away from close-knit naval life as more and more single personnel choose to live in private accommodation outside the establishment, and married men

CLOSE UP OF LOOSE FRAGMENT OF A CHLORESTEROL DEPOSIT



This close-up shows a loose fragment of a cholesterol deposit.

naturally live at home. One result of these factors is that after basic training RAN personnel get very little opportunity for regular, controlled physical activity throughout their careers. The legacy is physical decline.

Effects Upon the Navy

Manpower is among the most expensive items in Navy's yearly budget; we must therefore make the best possible use of it. Ships' complements include the column 'Ineffectives' to allow for members on leave, under training, or incapacitated through illness, and the latter category assumes significant proportions. Quite apart from the question of money, in terms of manpower lost the sick constitute a very severe problem to those endeavouring to get the job done at the coalface. Current manpower shortages mean fewer available replacements thus a man lost through illness is more often than not lost until he recovers. The task does not decrease meanwhile, and so our efficiency and effectiveness suffer.

The matter of efficiency opens up further avenues of investigation. Dictionary definitions are often misleading but to the case in point the Oxford definition is particularly relevant:

"Efficiency—Ratio of useful work to energy expended"

It follows that capacity for work affects efficiency, and few would disagree that an efficient

—By courtesy of the Australian Heart Foundation

person is one who totally achieves his task and almost invariably he or she works hard for long hours. Fitness levels can be directly related to this line of reasoning for the fully fit person generally has more energy, stamina and prolonged alertness than his run-down contemporary. In the highly competitive, performance oriented society of the Navy at sea in particular, job performance and efficiency undoubtedly suffer where the incumbent cannot cope through unfitness brought about by the excesses addressed earlier.

Significant also is the cost to Navy of the medical support presently required. It is beyond question that such support is necessary, no fighting service could be without it, but is the RAN's medical corps spending time and money treating patients who with better self-care might have prevented their illnesses? Conjecture has little place in a serious essay but to probe the point, how many patients who were treated last year for heart, psychiatric, blood pressure, obesity or ulcer complaints might have contributed to their conditions through over-eating, smoking, drinking, and total lack of exercise? It is certain that whatever their causes those illnesses and patients cost the Navy dearly in terms of medical manpower, equipment, money, and follow-up treatment, not to mention the expense of training replacements where this was necessary.

Studies and Research

In the period April to October 1968 Dr. Cooper conducted a project in five US Air Force bases at the request of the USAF Chief of Staff to determine under normal operational conditions the effects of different training programmes upon physical conditioning. 15,146 men were studied. Among the most interesting results was the discovery that not all exercise is good exercise, some of it being hardly worth the effort. Old favourites such as isometrics, calisthenics, weight lifting, and even 5BX have failed to create sufficient oxygen demands on the body to be effective conditioners. The most suitable activities were those in the Aerobics (pronounced a-e-r-o-biks) group which stimulate heart and lung activity for a period long enough to produce beneficial changes in the body. Running, cycling, swimming and jogging are typical exercises in this group but others which produce the desired conditioning or cardiovascular effect can fit into one's daily routine quite easily. Examples are walking briskly for the train or climbing stairs.

Physical fitness and conditioning have been given a great deal of attention by national leaders and others in recent years. Himself a jogger, President Kennedy in the remark quoted at the beginning of this essay drew attention to the relationship between fitness and capacity for work. Recent Australian studies by the Research Institute of Applied Physiology in Sydney showed that cardio-pulmonary (heart and lung) fitness reaches a peak in males at age 14 and then slumps badly in their next ten years. The Institute found that lack of correct exercise was the major contributory factor in this decline, based upon analysis of the results of the first 1000 people to pass through its laboratory. In the survey it judged cardio-pulmonary fitness on how well the body makes use of oxygen, ie. how much oxygen it burns per minute per kilogram of body weight. The more oxygen consumed the fitter one is, generally speaking. It was discovered that of those surveyed the 14 year olds consumed 55 millilitres of oxygen per kilogram whilst those aged 25 only just managed 40 millilitres. In layman's language this means that in order to provide sufficient oxygen to meet a demand brought on by extreme physical activity (such as running for a bus) the heart of a deconditioned man has to work much harder than his fit contemporary, and the older one is the more critical it becomes.

The above data have the potential for serious consequences in a fighting service where extremes of physical and mental activity occur. The phenomenon known as 'sympathetic storm' can, and does, kill outwardly fit men whose lack of conditioning left them unable to cope with the cardio-pulmonary demands of a sudden crisis. Emotional stress, apprehension, a close escape from injury or death all cause the body's nervous system to

attempt to meet emergency with a supply of hormones to stimulate the heart to a higher work load. A 'sympathetic storm' occurs when more hormones are produced than the para-sympathetic system can neutralise; the heart races wildly and sometimes gives out under the strain. Medical theory suggests sympathetic storms as the explanation for witch-doctor killings amongst natives in voodoo or pointing-the-bone ceremonies, and also advances this as the cause of heart attacks brought on during acute physical stress or the chronic stress of trying to get on in today's highly competitive world.

In the outline of this essay the word 'solutions' was deliberately avoided because in context it is synonymous with 'answers'. The methods used or programmes followed to ensure the physical fitness of large numbers of men must inevitably vary with circumstance, but the studies discussed above have significance for the RAN. Although most of its members are young men who have no disease, heart or otherwise, available evidence clearly shows that this is no guarantee of continued good health, particularly in stress filled environments like major fleet exercises or limited war. The task confronting the Navy therefore is one of prevention rather than cure; naval administration, training, and thinking must take account of the physical as well as the professional needs of the men.

Ways and Means

On the assumption that it starts with a healthy product fresh from basic training the Navy has two alternatives in maintaining health and fitness. The first seeks to promote the peak fitness exhibited by Olympians and marathoners, and although a Navy full of such men would be remarkable this level of fitness is not necessary nor is it possible. Naval requirements tend rather towards a more reachable level, that of the sports team participator or weekend athlete, and this could be achieved by following certain principles.

First, facts such as those in this essay relating to the harmful effects of inactivity and excesses of eating or drinking should be constantly kept in the forefront of naval education programmes. DI(N)s, posters, talks by Commanding Officers are necessary to bring the need for fitness to the attention of all. This principle is labelled EDUCATION for the purposes of this essay but is by no means restricted to the three examples above. Education must come through all levels of Navy, commencing at the training establishments during basic training.

Another principle which could be followed is that called CATERING. Gone are the days when Navy meals were best avoided, the culinary skills displayed today ensure that meal tables are filled with good quality dishes of wide variety. As discussed earlier many of the foods could pro-

mote heart disorders through high cholesterol content, and servings usually are too generous. In this context one asks is it *really* necessary to serve in one day a large breakfast followed by two three-course meals with (in some ships) biscuits at morning tea, and sandwiches at 1600? The potential for over-eating is self evident. Planning of menus to offer low cholesterol choices (fish, veal, chicken, lean meat, cottage cheese) as well as ordinary foods should not be difficult. Together with polyunsaturated margarine and non-fat milk these dishes could encourage more personnel to watch cholesterol as well as calories. Undoubtedly this might require some revision of supply procedures but since the foods mentioned are readily available to the housewife their purchase in bulk for Navy use should pose few problems.

The most important principle is **EXERCISE**. This presents the greatest challenge however, for to be successful the programme chosen must strike a clearly defined balance between compulsion and encouragement. Whilst it is in the RAN's best interests to have all its members at a satisfactory fitness level throughout their careers it would be plainly impossible, for example, to insist upon daily PT for all. The resolution of methods used to actually achieve or maintain physical fitness is not essential to the development of this essay provided they conform to the firm principle that aerobic activities are best. The succeeding paragraphs put forward a system of regular checks and balances against the progress of individual members, attempting to provide incentives for fitness, apart from any which might come from the education process advocated previously.

Physical Examinations

At various points throughout his naval life each member of the RAN should be required to take a physical examination. The exact form would vary according to the age and status of the individual, an AB might require a less stringent examination than a CPO, but the basic content should be the same: a medical check-up by a doctor in a surgery to determine his state of health, plus an oxygen demanding activity to prove his aerobic fitness.

The timing of such examinations may depend upon circumstances but the following are seen to be suitable. On completion of basic training each recruit or cadet should have his fitness level, weight and general health assessed as a base for future examinations. Having completed what is usually a rigorous training period he is probably then as fit as he will ever be taking his age into account. For officers an annual medical/fitness inspection should follow but if this is impractical, a medical one year with a fitness test the next would suffice. Because of the numbers involved annual examinations are not feasible for sailors but two alternatives come easily to mind. A fitness test based upon aerobic principles could be required every year (or two years) along the lines of the test prescribed in DI(N) PERS 31-2. A time/distance test of this kind is relatively easy to organise for large groups and would accurately identify the unfit. The system then encounters difficulty for what happens to those who fail? Are they fined? Is their leave stopped? It is here that this method founders because without compulsion (ie. compulsory fitness) it would be impossible to administer.

SPORT IN THE R.A.N.



—By courtesy of the Australian War Memorial

The alternative approach encourages fitness by requiring a full medical/fitness examination to be passed before candidates can be promoted to any rank above Seaman. Easily added to existing qualifications, the test would be simple to manage because a medical is required now and the fitness segment falls within the aegis of the PT category already borne in ships and establishments. Additional manpower should therefore not be required yet the system could greatly improve the fitness levels of those officers and sailors intent upon promotion to higher rank, for their fitness goal could only be achieved through regular exercise. The test might vary but running a set distance in a required time is simply arranged. Typical of this type of test is the time/distance requirement used by Dr. Cooper in his USAF project where men under 30 had to cover 1.5 miles in less than 12 minutes. Graduated for age this test let men of 40 complete the distance in 14 minutes and pass. Organised training to achieve the standard would be necessary of course, and this might not be easy in small ships. If fitness became a promotion qualification however, more effort would be dedicated to this aspect of naval life than is now the case, and trial and error if nothing else, could lead to the best training methods.

The last career point medical/fitness examination in the series comes as a condition for re-engagement. The fitness test could accompany the existing medical, ensuring that candidates are fitted in all respects to serve another term.

Conclusion

There can be little doubt that manpower represents the RAN's most precious commodity, without it our ships and their weapons systems are useless. The dangers to personnel from the diseases discussed in this essay are no less real than the causes of the diseases themselves so it behoves us to be aware of the problem and take steps to overcome it. The author contends that many members of the RAN are unfit, and under present procedures and routines are unlikely to improve. The methods suggested to remedy the situation are not the only ones possible but they do attempt to raise fitness and general health in the Navy from a systematic approach, based upon incentive or self-help. It is probable that a large proportion of those members now serving have no wish to increase their physical capabilities but the avenue should be provided to those who do, in the same way that new RAN members need to be encouraged to achieve high physical standards early and maintain them. In the long term the success of our Navy will depend upon the calibre of its men equally as upon its material resources, thus dedication to their fitness and well being now may in turn be represented as the RAN's investment in the future.

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HONORARY LIFE MEMBERS

Members of the Institute will be saddened to hear that, due to his ill health, it unfortunately became necessary for His Honour Judge T. G. Rapke QC to ask the Governor General to revoke his appointment as the Judge Advocate General for the Navy. The Governor General acceded to this request on 21st September 1977.

In World War II Judge Rapke served as a Lieutenant RANVR and was in HMAS AUSTRALIA during the Coral Sea Battle and the landing at Guadalcanal. In 1958 he was appointed a Judge of the Victorian County Court and in 1964 accepted appointment as the first incumbent of the position of Judge Advocate General for the Naval Forces. In 1965 Judge Rapke was appointed Honorary Professor of Law at the US Naval Justice School, Rhode Island.

On 1st September, 1977, Vice-Admiral A.M. Synnot AO, CBE accepted the invitation of the President and Council to become an Honorary Life Member of the Institute.

Nobody asked me, but...



There are several alterations to the uniform regulations that I feel should be made. The first is that the distinguishing lace between the stripes should be brought back for the various specialist branches. Before the screams of the engineers, supply officers, instructors and electrical engineers erupt, may I remind them that their emancipation occurred when they were given the right to wear the executive curl on their uppermost stripe? This curl is the symbol of military authority and not the absence or presence of lace, so their standing could not and would not be impaired.

My reason for this apparent retrogression is that there is a distinct need to be able to distinguish an officer's branch at sight. The return of the purple, the white, the blue and the green would save a great deal of confusion and embarrassment and end the need to ask who does what. Certainly the lace (or absence of it) would not be considered a mark of inferiority but of special skill, in much the same way that pilots wear their wings or submariners their dolphins.

My second point is that pilots and observers should be given back their old pattern of wings. I do not think that anyone could argue that the new metal wings (which I have heard described as 'something out of a cornflakes packet') are aesthetically more pleasing than the old type. Furthermore, the reversion to the old pattern wings would end the visual confusion between observers and pilots—a confusion which I have the impression is to the liking of neither group. Since the older wings were always able to be worn on long whites, I can see no reason why they should not be worn on short whites, in the same position. The matter of the placing of the wings is open to some dispute where winter uniform is concerned. I personally would favour the old position above the left cuff, but I can see the arguments in favour of them being on the left chest—still, why shouldn't the Fleet Air Arm continue to be just a bit different from the R.A.A.F.?

Finally, what about MCDOs being allowed to wear divers' helmets above their left cuffs? Or do I go too far?

'Master Ned'

SHIPS AND THE SEA



At Stenhouse Bay, South Australia, the small loading port was protected for years by what was once a sailing ship. Indeed some of that ship still remains. The ship is, or was the *Hougomont*, one of the best known Clyde built sailing ships. Built in 1897 *Hougomont* was a steel four-masted barque 292 ft in length with a 43 ft beam and of 2428 tons gross. During the early 1900's she made a name for herself as a cargo carrier and was not unknown in the grain ports of Australia. Her ownership changed after the First World War, being bought by Captain Gustaf Erikson to add to his fleet of big, Finnish registered sailing ships.

In 1932 *Hougomont* was outward bound to Australia for grain, carrying 6 passengers and 25 crew. A small enough crew for a big barque and smaller still when we realise that most of the crew were young men getting their training in sail.

When some 500 miles to the west of Cape Borda *Hougomont* was struck by one of the worst gales yet known in the roaring forties and badly battered.

There was every justification for abandoning the ship, but her master, Captain Lindholm and his young crew not only determined to get the

ship into port but also to do it without involving their owner in a heavy claim for salvage. The mainmast had disappeared altogether; the foremast and mizzen had gone just above the tops and the jigger had a fair length of topmast remaining.

A small squaresail and staysail were set on the foremast, a squaresail on the mizzen and on the jigger a staysail and triangular spanker. With the jury rig and a fair wind they sailed the *Hougomont* into Adelaide 17 days later, refusing all offers of help from passing steamships. They asked only to be reported to the owner to allay his fears.

Regretfully it was found during a survey in Port Adelaide that repairs would be too expensive, so all recoverable items were removed and the hulk then towed to Stenhouse Bay. An explosive charge then saw the end of *Hougomont's* sailing career.

For the technically minded *Hougomont* normally carried 6 squaresails on each of the fore, main and mizzenmasts with 4 staysails. Two spankers completed the working suit of 24 sails.

Cmdr RJR Pennock

Formation of a RAN Amphibious Battalion

BY LIEUTENANT R. M. SMITH, RAN

Australia's vast coastline and nearby islands provide an immense defence problem in the event of a major military conflict. The present structure of the Australian Army is such that it can defend Australia from within its own boundaries but it is not designed to deploy troops to areas remote from Australia, at short notice, with any degree of support.

Within the present political climate, there is always the likelihood of "brush fire" conflicts breaking out, often without any warning. To counter these type of threats and contain them, a military force which can be deployed, at short notice, with full support is required.

The RAN because of its mobility, would in most cases, be first on the scene of any action occurring outside Australia. On arrival at the scene of action RAN units would also be in a position to provide logistic support, for a limited period, to any military force landed ashore.

A well trained Amphibious Battalion, landed and supported by the RAN, would in fact provide an effective counter to hostile threats which occurred with little or no warning.

Ship's Landing Parties

The Navy has traditionally provided landing parties for various roles ashore. Uppermost among these roles is Aid To The Civil Power. At no time do Landing Parties receive sufficient training to fit them for a sustained land fighting role ashore. The personnel involved, usually receive training at army bases which give a good grounding in weapon handling and safety. However, continuation training opportunities are rare and efficiency soon drops. Members of the Landing Party are often unavoidably posted and, inevitably, untrained men have to make good the

vacancies. The overall result is a reduction in efficiency. These factors alone make ship's landing parties, no matter how enthusiastic they may be, less than a viable solution to the problem.

An Australian Marine Corps

In the long term this may in fact be the answer. However, problems may be experienced in the following areas: (a) The Marines would probably be formed from existing army units which would mean reducing the manpower involved in the "Continental Defence Plan"; (b) Marines would require to spend long periods deployed in ships and Army personnel could find it difficult to adapt to a maritime environment.

Existing Army Quick Reaction Forces

The Army has several units capable of quick reaction but their roles are specialised and mostly clandestine in nature. These units are:

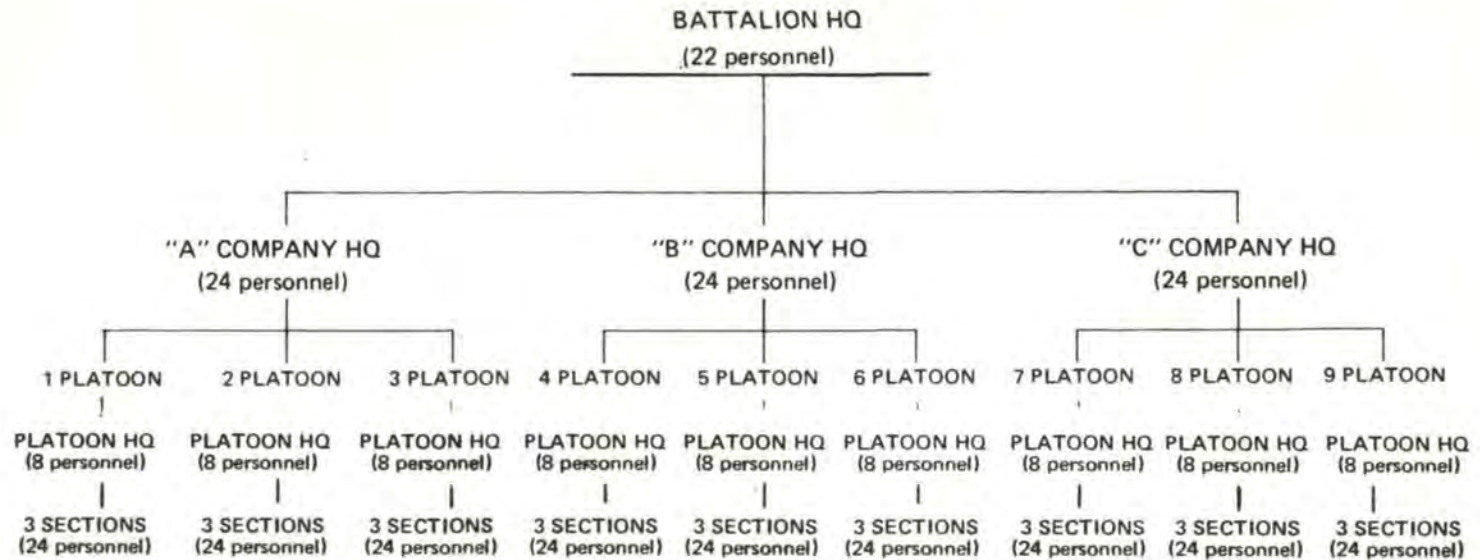
- a. 1 and 2 Commando.
- b. Parachute Company.
- c. Special Air Service Regiment.

To use the above units in a standard land fighting role, would compromise their specialised skills and thus reduce their effectiveness.

THE AUTHOR

Lieutenant Smith joined the RAN as a Seaman Gunner in January 1957. He served in HMA Ships: *Sydney*, *Melbourne*, *Vendetta*, *Yarra*, *Stuart* and *Derwent*. He was commissioned in June 1972 and served under training with the RN until 1973. From December 1973 to February 1976 he served in *HMAS Vendetta* as Second Gunnery Officer and at present is serving at the RAN Trials and Assessing Unit as the Assistant Surface Weapons Trials Officer.

BATTALION ORGANISATION



STRENGTHS

Battalion HQ	22
3 Company HQs	72
9 Platoon HQs	72
27 Sections	216
TOTAL	<u>382</u>

FIGURE 1

COMPOSITION OF HEADQUARTERS STAFFS AND SECTIONS

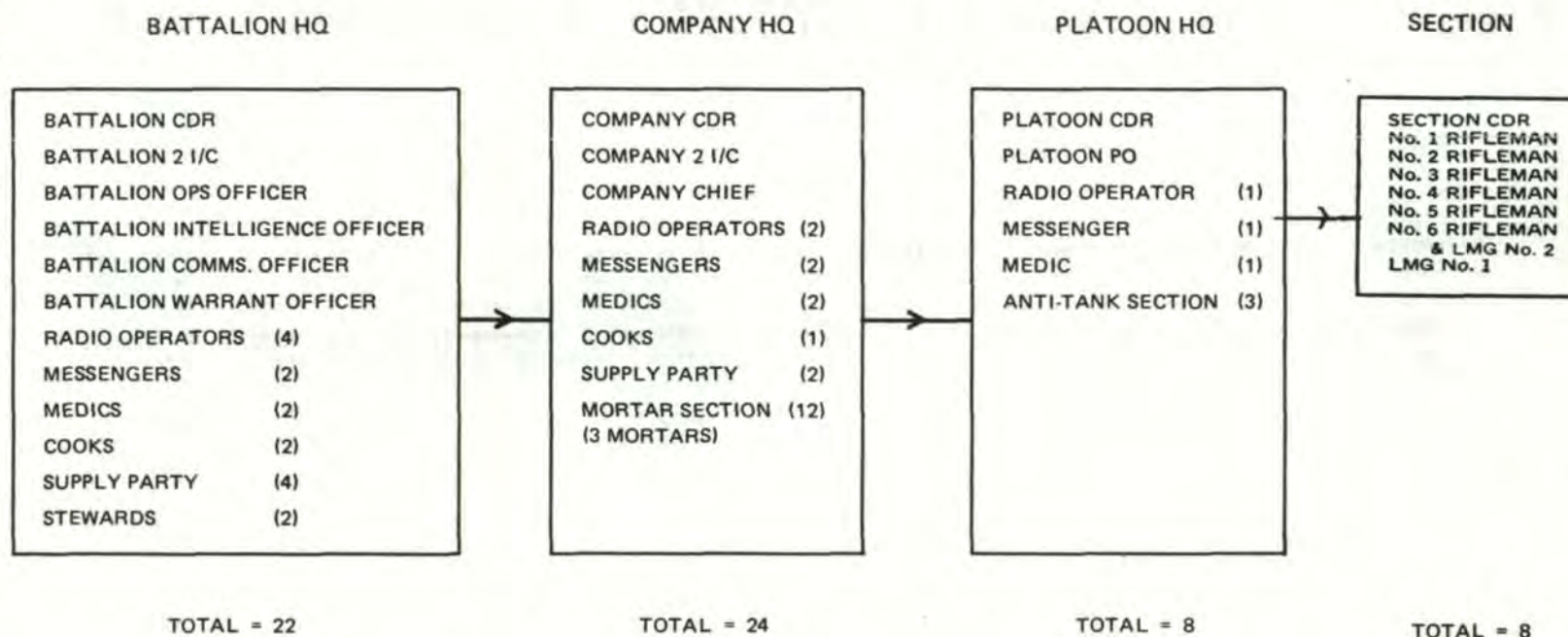


FIGURE 2

The Naval Battalion

There is nothing new in the concept of sailors fighting as troops ashore. During the First World War, members of the Royal Naval Division earned an excellent reputation as front line troops. They saw action in many campaigns on the Western Front and played an important part in the Gallipoli Campaign. Lieutenant General Freyburg, who commanded the New Zealand Division in the 2nd World War, also served in the Royal Naval Division during the First World War. He spent much of his time in command of Hood Battalion and he always spoke highly of the fighting efficiency and esprit de corps of the RN Division.

Because of the varied life, even in peacetime, sailors develop a natural flexibility, which enables them to adapt readily to new situations. This adaptation could be extended to include land fighting. A Naval Battalion would have the following advantages:

- a. Sailors adapt readily to changing environments.
- b. Mobilisation is fast because the Navy is essentially a mobile force.
- c. Logistic support could be permanently embarked in a support ship. In the event of an emergency, all that would be required, would be for the Battalion to embark.

Composition of a Naval Battalion

The proposal is to form up a Naval Rifle Battalion. Numbers would be kept to a minimum and supporting arms kept light and man-portable. A detailed plan of the proposed battalion organisation is shown diagrammatically in Figure 1. In

broad terms, the battalion would be comprised as follows:

- a. Battalion Headquarters.
- b. Three rifle companies, each comprising three platoons.
- c. Mortar and Anti-Tank sections attached to company and platoon headquarters respectively.

Headquarters staffs have been kept to a minimum to ensure that mobility and flexibility are maintained. The detailed composition of the various headquarters is shown in Figure 2.

Personnel

This is the biggest hurdle to surmount, as the whole of our Defence Forces are basically undermanned. However, during the next few years, with the gradual acquisition of more sophisticated ships, many of the gunnery sailors' billets will probably be absorbed by the Weapon's Electrical Branch. This transition will steadily release more and more gunnery sailors into shore billets. These men would be ideal personnel for a Naval Battalion and would readily adapt to learning military skills. Also, by becoming a separate arm of the Navy, a certain esprit de corps would develop which in time would be an added incentive to recruiting. The increased manpower entering the Navy through this extra attraction, would then boost the strength of the Battalion.

Battalion officers would have to be drawn from the Seaman Branch. For junior officers, the Naval Battalion would provide an excellent grounding in leadership. To ensure continuity, officers' terms of duty with the Battalion would need to be of approximately two years' duration.



Artist's impression of the LSH HMAS Tobruk

—Defence Public Relations

Training

Initially a core force of about Company strength would need to be formed. This force would be required to undergo several months' training with Army units. The aim of this training would be to give the men a good grounding in subjects such as:

- a. Weapon Safety and Handling.
- b. Field Tactics.
- c. Amphibious Landing Techniques, including helicopter assault methods.

Having completed this initial phase, the core force would then be in a position to train the new members of the Battalion. Joint warfare exercises should then be programmed on a regular basis to provide continuation training and develop professional expertise.

Accommodation

To enable rapid deployment into fleet units, the Battalion would require to be billeted at a Naval Base near the sea, such as the HMAS *Penguin*. Administration would need to be taken care of by the parent establishment so that battalion administration staff could be kept to a minimum. The Sydney area would be the most suitable area to billet the Battalion, because of the ready access to fleet units.

Deployment

The future acquisition of the Landing Ships Heavy, is the key to the deployment of the Naval Battalion. Even without an LSH, there are several major fleet units which could deploy a landing force. For example HMAS *Melbourne* and HMAS *Jervis Bay*.

The basic plan is to have part of the Battalion (e.g. one company) embarked in an LSH or other

fleet unit. The remainder would be stationed in their barracks undergoing training. Therefore at any one time, approximately one third of the Battalion would be at instant readiness. The remainder could be embarked within 24-48 hours.

On arrival at the scene of action, the Battalion would be landed by helicopters or landing craft. The LSH would remain in the area to provide logistic support along with her escorts. It would be likely that the Battalion would be accompanied by a Naval Task Force, which would probably include air and Naval Gunfire Support capabilities.

Logistic Support

The logistic effort is based on supporting a rifle battalion. Once again, the LCH is the key. Ammunition, spare clothing, medical supplies and rations would all be stowed on board. If the battalion was required to embark, all that they would require to accompany them would be personal kit and weapons.

Conclusion

The aim of this article has been to point out the need for a quick reaction force and propose a method by which such a force may be raised.

The Army's situation in regard to its current defence plan does not allow for rapid deployment of troops to areas remote from Australia.

The Navy is mobile, can deploy rapidly at short notice and can provide logistic support. By further extending its capabilities, the Navy could raise a Rifle Battalion capable of landing and containing limited outbreaks of hostilities.

This extra capability would also utilise the valuable military skills of the Gunnery Sailors in providing another valuable "arm" to the RAN.



HMAS Jervis Bay

—Defence Public Relations

The Navy and the Olympics

BY LCDR W.M. SWAN RAN (Rtd)

It might well be asked what is the connection between the fighting Services of a country and the Olympic Games. Surely these two important aspects of international life are diametrically opposed; one symbolizing conflict (or preparation for it) and nationalism, and the other sport, games and goodwill between nations. However, there has been, and can be, a strong link between these outwardly very differing aspects of human endeavour. The Services are, and should be, very involved in sports and games and, in my experience, have always taken their recreation quite seriously. Some of the most formal conferences I attended during my service in the Royal Navy concerned sport, and while PT & Sports Offices of *HMS Collingwood* in 1948 I had 22 acres of playing fields to use and kept a watching brief on 15 sports and games from cricket to gliding. In this same year I was fortunate enough to attend the XIVth Olympiad at the Wembley Stadium, London, where J.E.W. Mark, the Cambridge runner, lit the Olympic flame to inaugurate the first post-Second World War Games.

After the usual long negotiations, the XVth Olympiad for 1956 was awarded to Melbourne, the first time Australia had been so honoured. I was at this time Commanding Officer of *HMAS Lonsdale II* at Williamstown. When this Establishment was closed down late in 1956 I was appointed Staff Officer (Olympics) to NOICSEA, then Captain John Walsh. The duration of the Melbourne Olympics was from 22nd November to 8th December and I arrived at *HMAS Lonsdale*, Port Melbourne (where NOIC and his staff were located) well before this to find preparations well in hand for the considerable naval participation in Games matters. I was set up in the office of Lieut-Commander Bill Rogers, the SO (Operations), who had already done much planning, and with us we had a civilian Mr. Brogan, who became a most valuable member of our Olympics team. The Executive Officer was Commander Bob Hunt (of hydrographic fame) who had been snowed under with Olympic arrangements for some time. Captain Walsh explained to me the information booklet we were producing for visiting naval ships, titled OLYMPICS MELBOURNE NAVAL INFORMATION—short title OMNI. We, and ships of visiting nations, were to find OMNI an invaluable aid.

Two questions now arise. Why was I chosen as SO (Olympics) and why was the Navy so involved? I was chosen because, as a specialist PT&W Officer, Olympics were part of my duties (vide Naval Handbook on PT & Sports) and I was "between appointments". The RAN was very involved as not only were a number of warships visiting Melbourne for the Games, but the RAN was providing much assistance to the organising committee in men and material. It is a popular misconception that the Navy is only involved in ships and the sea. Admittedly this is its prime task, but the Navy holds big assets ashore, dockyards, drill halls, slipways, buildings, warehouses, houses, boatsheds, officers, garages and vehicles, not to mention possibly the largest number-of-items store inventory in the Southern Hemisphere. In addition, it possessed yachting expertise and ships to lay the marker buoys for the Olympic sailing races in Port Phillip, guards of honour, and sentries to guard valuable equipment. All this added up to halls for fencing practice, gymnasia for the gymnasts, moorings for yachtsmen, assistance generally and, finally, the marshalls. A team of sailors, led by Commander Duncan Stevens, was formed to show patrons of the Games to their seats—a nice touch of public relations.

The 12 venues for the events were the Melbourne Cricket Ground as the main stadium, Olympic Park, the Exhibition Building and its annexe, West Melbourne Stadium, St. Kilda Town Hall, Williamstown Rifle Range, RAAF Station Laverton, Port Phillip Bay, Broadmeadows, Oaklands and, 70 miles west, to Ballarat for the rowing and canoeing. I had hardly settled in when my desk was flooded with bids from the public to entertain men in the dozen naval ships due to visit Melbourne for the Games, an armada led by the Royal Yacht *Britannia* bringing HRH The Duke of Edinburgh who was to open the Games. One small complication was that many people did not realise there was an Admiral in *Britannia*—FORV—Vice-Admiral Able-Smith. Invitations for American sailors arrived in a torrent. I dealt mainly with the office of Mr. P.W. Nette, the Administrative Director. Bill Rogers coped mostly with the ships' operational requirements, berths and berthing and slipping parties, victuals, fuel and water. Mr. Brogan battled with the

mountains of files and memoranda, and phone calls all day.

There were 11 sub-committees in Melbourne organizing the Games. Captain Walsh sat on the Technical Committee chaired by E.J.H. Holt (who had been Director of Organisation at the London Games in 1948), the Hon. W.S. Kent-Hughes was Chairman of the Organising and Executive Committee, and the Prime Minister, Mr. R.G. Menzies, was the President of the Games. As the Games are always awarded to a city the Lord Mayor, Sir Frank Sellick, and his Council were the hosts for the XVIth Olympiad, with the various committees staging the actual events. This meant that the thousands of visitors to the city, including the naval men, were a matter for the Town Hall, with its various officials and civic committees. NOIC and I attended meetings there under the chairmanship of Councillor (later Sir) Maurice Nathan, where we arranged functions and entertainments. One of our colleagues in this was Don Chipp, later a Federal Cabinet Minister, and another live wire named Miss Taft.

Busy as I was, I somehow managed to be at the Main Stadium for the opening ceremony on the afternoon of Thursday 22nd November. The

weather was perfect and the Melbourne Cricket Ground, with its new stands, was packed with people from all over the world. It was a memorable and historic occasion, commencing with displays by bands with that provided by the RAN Band being outstanding. Bandmaster Lieutenant George Hooker RAN staged a thrilling display, with the Bandsmen marching around in the 5 overlapping Olympic circles while playing. To all who witnessed this, George's inclusion in a later Honours List was no surprise.

I feel the RAN performed its many Olympic tasks most creditably, and of course one must not overlook the many Naval Reserves who were assisting in one way or another, not the least being Lieut-Commander Lloyd Burgess, then Secretary of the Royal Sydney Yacht Squadron, who was officiating at Olympic Yachting HQ at the St. Kilda Yacht Club.

When, and if, Sydney is awarded the XXIVth Olympiad in 1988 and stages it mainly on the Homebush (?) site, I am sure the RAN will step forward once again to help make sporting history and promote goodwill among the nations of the world.

BOOK REVIEW



'THE BELLS OF SUNDA STRAIT' by David Burchell Rigby Limited

David Burchell, the author, is in himself somewhat of an enigma. Born, raised and still a resident of South Australia he is, or has been, a member of the RAAF, member of a high diving troupe, skin diver and author. Quite rightly he has become almost legendary as a diver and one of his feats was finding the wreck of *HMAS Perth* and recovering some 24 relics from that ship. Dave also lost his right leg at the age of 16—perhaps that makes his exploits even more interesting.

The Bells of Sunda Strait from whence comes the title, are of course the ships bells of *HMAS Perth* and *USS Houston*. Both ships were sunk during an engagement with Japanese forces in March 1942.

Inspired by a newspaper article the author became somewhat intrigued with the story of *Perth*, and if I have read between the lines properly, this intrigue grew over a number of years to be almost an obsession. The main driving force was his overwhelming desire to recover the ship's bell from *Perth* and in his own words "to return it to the Australian War Memorial as something of a Walter Mitty".

It took months of planning and organising, months to negotiate the assistance required and months to actually locate *Perth*. But find it he did and then proceeded to carry out 30 dives on the wreck. Some 24 relics were recovered ranging in size from searchlights to voicepipes, but no bell. Conjecture has it that the bell was stowed in the quartermasters lobby but in six dives the lobby door refused to open and thus the bell still remains in the wreck.

Of the relics recovered many were placed with the various ex-*Perth* Associations, *HMAS Leeuwin* and the present *Perth*. The remainder are to be seen in the Australian War Memorial. One, a binnacle lamp, was presented to the late Mrs. H. Waller, widow of the *Perth's* last captain.

Bells of Sunda Strait is straightforward, from the shoulder and a personal tale of achievement. It shows what can be done in the face of adversity both natural and engineered, and proves that if you know enough people then ask for their assistance.

It becomes quite evident in the book that whilst the Australian and Indonesian governments did not actually block the project, neither showed much enthusiasm. Happily the Indonesians soon altered their thoughts and much assistance was forthcoming. Sadly the Australian government ran out a bad last. On the credit side there were many individuals both uniformed and civilian that did help and their assistance is acknowledged.

To strike a final discordant note after the relics were recovered and landed it took commercial enterprise to get them back to Australia and to transport them around Australia. Finally they found a permanent home in the War Memorial.

First published in 1971 'Bells of Sunda Strait' remains readable and up to date. One hopes that sometime in the near future I will have the pleasure of meeting the remarkable Dave Burchell, the man who restored *Perth's* relics to their rightful owners—the people of Australia.

LJS

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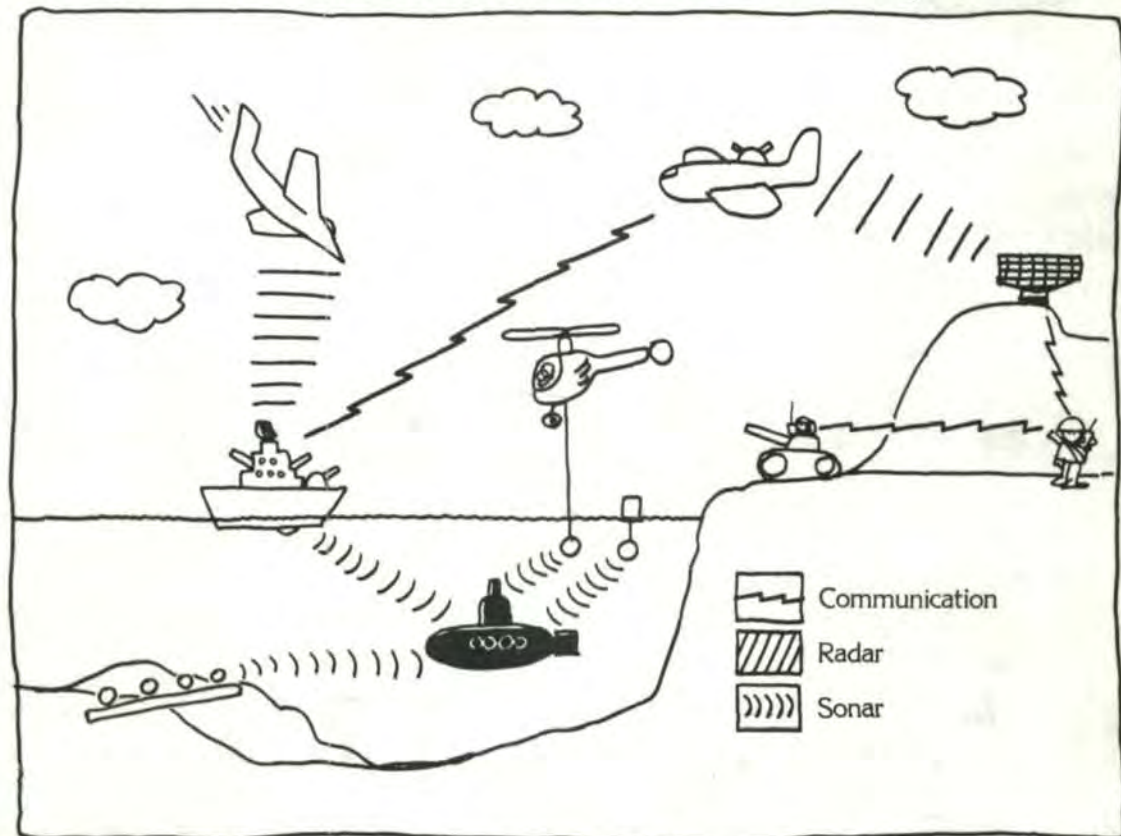
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