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## JOURNAL OF THE AUSTRALIAN NAVAL INSTITUTE



## AUSTRALIAN NAVAL INSTITUTE INC

The Australian Naval Institute was formed and incorporated in the Australian Capital Territory in 1975. The main objects of the Institute are:

- To encourage and promote the advancement of knowledge related to the Navy and the maritime profession,
- to provide a forum for the exchange of ideas concerning subjects related to the Navy and the maritime profession, and
- c. to publish a journal.

The Institute is self-supporting and non-profit-making. All publications of the Institute will stress that the authors express their own views and opinions are not necessarily those of the Department of Defence, the Chief of Naval Staff or the Institute. The aim is to encourage discussion, dissemination of information, comment and opinion and the advancement of professional knowledge concerning naval and maritime matters.

The membership of the Institute is open to:

- Regular Members. Regular membership is open to members of the RAN or RANR and persons who having qualified for regular membership, subsequently leave the service.
- Associate Members. Associate membership is open to all other persons not qualified to be Regular Members, who profess an interest in the aims of the Institute.
- c. Honorary Members. Honorary membership is open to persons who have made a distinguished contribution to the Navy or the maritime profession, or by past service to the institute.

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

#### ACKNOWLEDGEMENTS

The Australian Naval Institute is grateful for the assistance provided by the corporations listed below. They are demonstrating their support for the aim of the Institute by being members of the "Friends of the Australian Naval Institute" coterie.

Australian Defence Industries Avio Consultants Blohm and Voss Computer Sciences of Australia GEC Marconi Pacific Dunlop Batteries Rockwell Ship Systems Scientific Management Associates Stanilite Electronics Thomson Sintra Pacific Westinghouse Electric Krupp Atlas Electronik (Australia)

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HMAS LAUNCESTON Late '88 off Darwin.



## **FROM THE PRESIDENT**

His Excellency Rear Admiral Peter Sinclair, AO, Governor of New South Wales has honoured the Institute by agreeing to launch the ANI sponsored history by Lieutenant Tom Frame, tilled "The Garden Island". The launching will be at 1100 on Sunday 7 October 1990 on the lawn to the east of the Dockyard Administration Block.

It is very appropriate that the Institute sponsor such a history as the Navy has relied upon Garden Island in some way since the establishment of the Australian settlement in 1788. Initially it was a ships garden, then a place to careen and repair naval vessels. In the 1920s and the 1930s, when Garden Island really was an island, it met its charter to repair and maintain the Fleet, despite antiquated equipment, the uncertainties of the Navy,s future and the economic difficulties facing the nation. In the early 1940s it was joined to the harbour foreshore at Potts Point when the largest graving dock in the southern hemisphere was constructed and during the 1980s it was modernised extensively.

"The Garden Island", examines the many obstacles and problems that were overcome during the early period of the Islands history and chronicles the Navy, s disputes during the nineteenth century, with a succession of governors, the army and politicians. It emerges that the Navy had a very tenuous grasp on Garden Island and the course of Australian naval history could have been altered if this grasp had loosened. For instance, in the 1870s Commodore James Goodenough proposed that the Navy depot move from Garden Island to Dawes Point. It was lucky he failed, as the new depot would have been reclaimed to make way for the Sydney Harbour Bridge and economic circumstances seem likely to have prevented its replacement. Without the depot Sydney would not have remained the nation's major naval port.

I hope you and your families will support the launching and while we cannot forget the sad circumstances of his appointment, I hope we can make this a happy naval occasion for His Excellency and Mrs Sinclair Appropriate civilian attire should be worn.

Sincerely Ian Callaway

## FROM THE EDITOR

This is probably the shortest editorial for some time. Firstly, an apology for the quality of the last issue. Our first experience with a scanner showed that more attention to detail and recognition of the types of errors that can arise has resulted in this issue of the journal being closer to the desired quality. I believe that we are about 99 per cent there. When we have access to software akin to Ventura Publishing, the printer can then be presented with a high quality camera ready copy of the journal.

Preparation for the next Journal is already underway but at present more articles are required otherwise either timely distribution will be prejudiced or the number of pages will be drastically reduced.

The article quality in this Journal is of consistently high quality and I wish to thank the contributors for their effort and time. If the opportunity arises for personnel aboard those ships in the Persian Gulf to subsequently pen an article for publishing I would appreciate it. Please note the guidance for authors on page 4. Submision of articles on 9cm diskette in ASCII format is also acceptable.

Regards Don Agar



### GUIDE FOR AUTHORS

In order to achieve the stated aims of the institute, all readers, both members and non-members, are encouraged to submit articles for publication. The following guide outlines the major points most authors would need to know in order to publish a quality article in the journal. A more comprehensive guide is available from the Editor.

#### TYPES OF ARTICLE

Articles should deal with interesting recent developments in the maritime area which directly or indirectly impinge upon the naval profession. Overseas contributions are also encouraged. To be eligible for prizes, original articles must be accompanied by statements that they have been written expressly for the ANI. The Editor reserves the right to reject or amend articles for publication. The ANI will pay the authors of articles specially written for the Journal and accepted for publication \$10 per 1000 words. An annual prize for the best book review will also be awarded. Payments will not be made to the authors of articles such as staff college prize essays and Peter Mitchell competition entries.

#### LENGTH OF ARTICLES

As a broad guide, articles should range from 2500 to 6000 words. This is between 9 and 21 pages of typing on A4 sheets. Short articles are also welcome. SUBDIVIDING THE ARTICLE

Readers will note that boldface capitals, boldface lower case, underlined light lower case and plain lower case letters are used in descending order for headings (down through sub-headings etc.) Because as much text as possible is entered by optical scanner (which has trouble with bold and italic), Authors are requested to avoid bold and observe a heiracrhy that has UNDERLINED CAPITALS representing major headings, CAPITALS as the next level, underlined lower case next and plain text at the fourth level.

#### ABSTRACT

An abstract of 75 words at the most is desirable when the article is proposed. It should state the scope of the article and its main leatures. THE TEXT

1

The style should be impersonal and semi-formal. Consistency is essential in such matters as spelling. headings, symbols and capitalisation. REFERENCES

References should be numbered consecutively and listed at the end of the paper. The preferred format is:

Smith R & Jones A "Marketing Videotex", Journal of Marketing in Australia, Vol 20 No 3, June 1985, pp.36-40.

#### PHOTOGRAPHS

While glossy black-and-white prints are preferred, sharp colour prints with good contrast are acceptable. Captions must be provided. Figure numbers and captions should be on a separate paper taped to the

#### COPYRIGHT DECLARATION

If your paper has not previously been published, either in whole or in part, you are asked to assign a non-exclusive licence to the Australian Naval Institute as a condition of publication. Such assignment would not restrict you from publishing the paper elsewhere as long as acknowledgement of the original source is given. If your paper has previously been published, either in whole or in part, you are reminded that it is your responsibility to bring this to the notice of the Institute so that full acknowledgement may be made. 1. TITLE OF PAPER ....

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### TABLES, DIAGRAMS AND GRAPHS

Tables, graphs, line illustrations should be supplied on separate pages so that they can be incorporated by the printer in a similar manner to photographs. Use figure numbers consecutively for all illustrations

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#### CLEARANCE TO PUBLISH

If articles contain sensitive inforamation (costs, unapproved policies, critical statements etc) authors should obtain clearance from their employers. There is no objection to authors stating their personal views. even if these are at variance with a corporate view, but such viewpoints must be put into perspective so that readers in Australia and overseas do not gain a false impression ot the status of the subject.

#### THE FINAL TYPESCRIPT

In order to reduce production costs and streamline production, as much of the journal as possible is loaded into a computer through an optical scanner as plain text and edited and formatted electronically. The use of italics, boldface and special characters can reduce scanning efficiency. The ideal document for scanning is in 12 point and 10 pitch (the larger of the two basic typewriter sizes) one-and-a-half spaced on an A4 sheet with at least 25mm margin all round. The higher-quality dot-matrix printers (rated NLQ or LQ) are acceptable for scanning

Three copies of the typescript should be sent to the Editor, PO Box 80, Campbell, ACT, 2601. The complete package will comprise, on separate sheets.

Cover sheet - title of article - author's name 0 (or pseudonym) and qualifications - present posotion telephone number - address

Recent photograph and biography of the 0 author (less than 200 words)

Abstract (less than 75 words) 0

The text 0

0 Tables, each on a separate sheet

Illustrations 0

Photographs, clearly identified 0

List of captions for tables, photographs and 0 illustrations

#### FOR MORE INFORMATION

The Editor can be contacted either via the aforementioned postal address or by phone (06) 265 2020

## LETTERS TO THE EDITOR

#### Dear Editor,

Now the decision has been taken and smoking has been restricted in ships and offices, but surely this is only part of the answer.

The hazards of smoking have been well documented for some time not only to the smoker but also to those unfortunates in his (her) vicinity. With such evidence available, how is it we continue to allow those who do smoke to attain or remain in positions of responsibility? Knowing the facts no rational person could continue deliberately to do such damage to themselves and others. Surely the fact that these persons continue to smoke demonstrates a major flaw in their character and a gross disregard for acceptable standards of safety. Everyone will have seen how a smoker when stressed needs to 'light up' to calm them down. Yet we allow these people to command multi-million dollar ships and make decisions at the highest levels. I am not suggesting smokers are incapable of such decisions but no other drug user addicted in such a way would be allowed to continue in a responsible position.

Already we have seen the weight surveillance program arrive with various degrees of success. Though suffering problems in its execution this plan was basically sound and demonstrates concern for the individual. The smoker, not only demonstrates no concern for himself but no concern for his shipmates. Working in close confines it is not enough to simply encourage people to give up. How many subordinates would tell their Captain to cease smoking in their presence? Yet that senior officer is slowly killing the people he his responsible for.

With the publicity already in the media and a better educated service it is only a matter of time before the first claims for compensation from naval passive smokers come in. By not taking complete action the Navy is failing in its responsibilities to its people and to the Australian taxpayer. The Navy has already suffered some very damaging media coverage over its poor handling of the asbestos-issue. Isn't it time, as a responsible and caring, employer that the Navy takes the lead for a change?

I propose that only a blanket ban on smokers in the Navy is sufficient. Those who refuse to be treated must be discharged unlit as is any other drug addict. Are we brave enough for such a decision I wonder?"

"WOWSER" (Name and address supplied)

Dear Editor,

#### PERFORMANCE APPRAISAL AND POTENTIAL

The arrival of the new PR5 form was a disappointment. Too little attention is paid to potential. The DI(N) relating to performance appraisal mentions potential only once; in relation to PR5 section 1 it says "potential or lack thereof should be noted".

By chance an article on WESTPAC's executive selection process arrived at about the same time as the new PR5s (The Australian March 17 1990 p 35). I quote: "An organisation should draw its future leaders from the high potential high performing employees (the stars), or from the high potential but lower performing employees. Many organisations make the mistake of viewing their high performing but low potential employees (the workhorses) as their stars. It is often the workhorses that get promoted to their level of incompetence."

The identification of potential is vital to the success of the Naval assessment process. Is the PR5 the right vehicle? Perhaps we need another dimension, such as the use of specialised interviewing techniques at the 30 and 40 year age mark. The WESTPAC article reports a successful technique of this sort called Career Path Appreciation.

Has the Navy considered going beyond the PR5 in order to evaluate an officer's potential for senior rank?

"STAR GAZER" (Name and address supplied)

# an act of war

### A NEW NOVEL BY MICHAEL O'CONNOR

### White South Africa has fallen

The Soviets are poised to block the Cape oil routes

The potential threat to Australia is enormous – restricted trade routes, mineral supplies cut off leading to an increased interest in Australia by the Soviets and the Western world. If the Soviets gained control of Australia as well as South Africa, they would shut the USA out of the Indfian Ocean and make western access to the Missle East difficult.

The Indian Government starts to apply pressure on the Australian Government to 'give' the Cocos Islands back to their indegenous population.

A BHP bulk carrier goes mysteriously missing near Dampier, West Australia. Three months later another BHP ship is sunk.

India invades and takes control of the Cocos Islands, acting, it claims, on behalf of the 'opressed' indegenous population.

This is regarded as AN ACT OF WAR!

HOW WILL AUSTRALIA DEAL WITH THIS THREAT?

This novel is published by Arrow Australia, RRP \$9.95

## SOMETIMES FORGOTTEN

A record of those who died on service and those who were decorated in Vietnam, Malaya, Malay Peninsula, Borneo, Sabah Sarawak, Korea, British Commonwealth Occupation Force (Japan) and United Nations.

Also included are those who were decorated for HMAS Voyager (1964) and RMC Duntroon (1956)

Edited by Frederick Kirkland OAM JP

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#### By Vic Jeffery

GERMAN CAPITAL SHIPS OF WORLD WAR TWO by M.J. Whitley Published by Arms & Armour Press, London. Distributed in Australia by Capricorn Link (Aust) Pty Ltd, PO Box 665, Lane Cove, NSW 2066. 224pp, recommended retail price \$75.00.

This impressive work joins the author's two previous volumes on the Kriegsmarine's surface fleet, "German Cruisers of World War Two" and "Destroyer".

Laid out in the proven format of the earlier volumes, commencing with a technical section dealing with the various aspects of each class design. This section has been compiled from archival sources and includes the reports of many conferences, official correspondence and minutes unearthed in the German and British Ministries of Defence.

An operational section follows in which details and accounts of the actions the ships participated in.

Battleships, battle cruisers and pocket battleships listed are all well-known, Bismarck, Tirpitz, Gneisenau, Scharnhorst, Admiral Grat Spee, Admiral Scheer, Deutschland, and the reconstructed predreadnoughts Schleisen and Schleswig-Holstein.

An interesting chapter on Kriegsmarine aircraft carriers covers the never-to-becompleted Graf Zeppelin and her unnamed sister, Ship "B" which was suspended in September, 1939 when she was completed up to the armoured deck some five months before her planned launching. She was subsequently broken-up in 1940.

The liners Europa, Potsdamam and Gneisenau were considered for conversion into aircraft carriers along with the 90% completed heavy cruiser *Seydlitz* and the incomplete French light cruiser *De Grasse*. Due to technical and design problems, none of the conversions was proceeded with.

Other designs were entertained, including four flight-deck cruisers of between 10,000-40,000 tonnes with heavy cruiser type guns along with two more aircraft carriers of 30,000 tonnes, simple 13,000-15,000 tonne escort carriers and a flying boat tender.

Four highly detailed appendices - 1. Ships' Technical Details, 2. Construction, Commanders and Fates, 3. Armament, and 4. Electronic Installations complement the book. Lavishly illustrated with 142 blackand-white photographs, 31 sets of detailed line drawings and 10 maps, this is a wellresearched and highly detailed reference work.

The last photograph in the book, a view of the rusting disarmed battle cruiser *Gneisena* scuttled as a blockship at Gotenhafen, draws one to the conclusion that the construction of these fine ships was more a futile exercise in national pride than in practicality - especially so being deprived of air cover most of the time and spending a major part of their time lying idle for the last three years of the war.

A most interesting book and worthy of recommendation.

SOVIET SUBMARINES 1945 to the present by John Jordan Published by Arms & Armour Press, London. Distributed in Australia by Capricorn Link (Aust) Pty Ltd, PO Box 665, Lane Cove, NSW 2066. 192pp, recommended retail price \$65.

Well researched, and clearly with the object of not producing a staid reference work, this book sets out to further our understanding of the development of the Soviet submarine force in the post war period.

Political, philosophical and technological considerations are all taken into account in presenting this work which covers 35 types of Soviet boats up to the new generation of SSN's - Sierra, Akula and the Mike classes.

Divided into eight sections - The Post War Era, The Nuclear Age, The Anti-Carrier Strategy, The New Generation, 'Alpha' and 'Papa', The Bastion Concept, The Missile Giants, and The New Attack Boats, "Soviet Submarines" is presented in an easy-toread format.

Contained within the eight sections mentioned are 100 sub-sections covering every aspect of naval policy, technical characteristics, developments, communications, sensors and weapons, propulsion, modifications, history and economic considerations.

Since its inception, the Soviet submarine force has been the USSR's major offensive arm and will remain so for the foreseeable future.

With the appointment of Admiral Chernavin, the submarine fleet's importance has increased while early indications point to Gorshkov's surface fleet bearing the brunt of any cuts from the new era of detente.

Each class receives detailed analysis in which published performance data is reviewed alongside operational concepts.

The diesel-powered Kilo-class has become a successful export design with Poland ordering four, Romania 2(?), five by India, and one each by Algeria and Syria, replacing the older Whiskey and Romeo with which we have become so conversant.

Further exports of the nuclear-powered Victor III-class are expected with India expected to take six to complement their modified Charlie I-class which appears to be a training boat.

The text is supported by 150 black & white photographs, 66 line drawings covering each class and sensor masts. Seven maps appear, including one of the Soviet Union's submarine building yeards in the post war era. This book goes a long way to breaking down many of the misconceptions and myths about Soviet submarines.

TEDDY ROOSEVELT'S GREAT WHITE FLEET by James R. Recher. Published by Naval Institute Press Distributed in Australia by Princeton Books, Cnr Mills & Herald Streets, Cheltenham, Victoria. (Recommended Retail Price \$75.00)

Until now, the 1907-09 cruise of Teddy Roosevelt's "Great White Fleet" has been examined solely within the context of United States-Japanese relations and America's defence strategy in the Pacific.

The author has skilfully re-created the pageantry of the event - 16 US battleships and several auxiliaries including a hospital ship on a 14 month voyage around the world. However, he has emphasised the cruise's long-range impact on the United States Navy. It reveals the Fleet's shortcomings and forced the naval authorities to acknowledge these faults and make concessions which led to permanent benefits, coal shortages and supply being the major factor.

Australia was the first country to respond to America's announcement, Prime Minister Alfred Deakin extending a tentative confidential invitation on Christmas Eve 1907 to the US Consul General, John P Bray "for at least some of the battleships to visit Australia". At a suitable time the Prime Minister would follow-up and go through formal channels and send an official invitation to the US President.

The Australian invitation was discussed at US Cabinet level on 21 February 1908.

President Roosevelt told his naval aide

"Some day the question of the Pacific will be a dominant one, and it will be necessary to know the sentiment of Australia and New Zealand". The accompanying letter recommending acceptance by the US Secretary of State, E. Root received a favourable response.

On recept of the American response in cable form while addressing a crowd at Sydney's Centenary Hall on the subject of national defence. Prime Minister Deakin rose, and in obvious excitement announced: "A cable message has just been received to the effect that the American fleet will visit Melbourne and Sydney. The least we can do is give three cheers for the United States. I venture to say that a welcome such as no fleet has ever seen outside its own country will be given in Australia to the American Fleet". This announcement received loud and prolonged cheering.

Australian Defence Minister Thomas Ewing describing the US decision told the Australian press: "We feel that our future in the Pacific is bound with that of the United States."

The British Government's handling of Deakin's official letter which he had given to the Governor General on 24 January had been overtaken by events. Colonial reaction to the Australian initiative has been "tepid to cool". The Parliamentary Undersecretary Winston S. Churchill opposed the visit. The Admiralty unable to match the American demonstation of force thought it "inconvenient", but left the decision to the Foreign Office with no option but to endorse the Australian invitation and forward it to Washington.

On receiving advice of Australia's invitation, the Prime Minister of New Zealand Sir Joseph Ward decided to invite the fleet to his country.

The Honolulu - Auckland leg of the voyage was the longest uninterrupted segment of the cruise. The 3850 mile trip was easy for the newer battleships of the First Squadron with their greater bunker capacity. However, for the ships of the Second Squadron the distance represented extreme steaming range.

Watch officers of the battleship USS ILLINOIS enforced tight control over coal to conserve precious supplies. The bunkers were locked, and every hour the Watch Officer entered the boiler rooms, unlocked the bunkers, and counted out 12 buckets of coal for each boiler.

The enthusiasm of the public welcome given to the US Fleet in Sydney and Melbourne fully justified the invitation. The welcome in Sydney was a dress rehearsal for the arrival of Australia's own Navy in 1913. Sydney had 30 US deserters, but Melbourne had 300! Admiral Sperry counted 17 dinners, dances and parties in a single day in Melbourne.

This book examines the cruise with the broad pattern of world diplomatic and naval affairs. At the same time it presents a scrupulously accurate record of the technical and operational aspects of the voyage, correcting some errors in earlier accounts. Supporting the text are more than 50 illustrations, many rarely seen before, and 15 cartoons of the period.

I found this a well researched and easy to read book which gives new significance to the World Cruise of the "Great White Fleet". It is certainly worthy of further study and debate.

Vic Jeffery is the Navy Public Relations Officer for Western Australia, an officer in the Royal Australian Naval Reserve and a keen and active naval historian



HMAS PALUMA SWRH S. POPE, FEB 89

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### AN ESSAY ON THE MARITIME STRATEGY FOR A STRATEGIC BACKWATER

by

Lieutenant Commander L A Cocks RNZN

LCDR Cocks was awarded an Australian Naval Institute medallion for this essay, judged the best essay on maritime strategy on RAN Staff College Course 23/90

#### INTRODUCTION

The South West (SW) Pacific region as referred to throughout this paper covers an area of approximately five million square miles which is divided into two sub-regions, Melanesia and Polynesia. The region encloses New Caledonia and the independent island states of Papua New Guinea (PNG), Nauru, Solomon Islands, Kiribati, Tuvalu, Vanuatu, Fiji and Tonga. Except for PNG the islands are small with a total land area for the region being only about 200 000 square miles. The total population is around six million,

Australia has had a long association with this region and several of the islands were administered by Australia for many years. A decolonisation cycle commenced in the 1960s and since that time there have been many developments. However, these developments have created or been the catalyst for many problems. Some of the more significant problems, which tall in the areas of economics, demographics, politics and ethnics, will be examined and highlighted before proceeding with an analysis of the strategic worth of the region.

The SW Pacific has been referred to as 'a strategic backwater', but what is a strategic backwater and how is the strategic importance of this region assessed? I am defining an area referred to as 'a strategic backwater' as an area that is strategically unimportant and could be called 'stagnant', 'backward', and possibly 'quiet and peaceful'. It must be emphasised that the strategic importance will vary as the activities of the major powers on the international scene interact with with the strategic assets of the region as a whole, or with the individual countries within the region. Some of the particular assets being referred to include sea lines of communication, ocean resources, sea bed minerals and satellite observation sites. Consideration must also be given to major powers using the region as an alternative route in pursuit of a particular mission or as a low risk area to conduct rivalry. The importance or unimportance of the region will emerge and

be assessed with the problems to identify the strategic value to Australia and the international strategic importance. These findings will be utilised as a component in formulating a maritime strategy for Australia in the SW Pacific region.

#### PROBLEMS

#### Ethnic

Ethnic conflicts exist in New Caledonia and Fiji where the indigenous populations have become a minority. In New Caledonia the indigenous Kanak population seek independence from France, however, resistance to this development by French nationalists in New Caledonia and the French government has resulted in violent confrontation . New Caledonia is considered by France to be an extension of metropolitan France and the French authorities endeavour to treat it as such. However, an accord between the ethnic communities of New Caledonia and France in 1988 has been optimistically heralded as a step towards peaceful self-determination in the 1990s. Australian contact with the territory is insignificant, but when considering future activities in the region this area cannol be ignored.

Fiji was the scene of two military coups in 1987 led by Colonel Rabuka to topple the Indian dominated coalition government of Dr Timoci Bavadra. Many skilled Indians fled Fiji following the coups and those who remained, either by choice or through inability to leave, face an uneasy future. It can be speculated that had the coups not occurred, a bloody civil was would have erupted, instigated by the extremist Taukei movement. The situation has now stabilised and an interim government has been installed. A new constitution has been drafted which fixes the maximum number of seats available for the Indians and therefore guarantees the indigenous Fijians political control of Fiji. This non-democratic constitution will be the source of ethnic unrest for some time.

The initial stern protest by concerned countries in the South West pacific, including Australia and New Zealand, has now subsided due more to the blatant overtures to Fiji by would-be partners such as France, Malaysia, Indonesia, Libya and the USSR rather than any condonation of the non-democratic constitution. The sympathy offered by all the Melanesian countries (in particular PNG) and Malaysia for Fijian efforts to protect the aspirations and rights of the indigenous people has deflated the adverse attitudes within the region. India, on the other hand, continues to strongly protest the treatment of Indians in Fiji. Although unlikely, the scenario of India intervening militarily to protect the resident Indians cannot be dismissed. Until the Fijian government can take appropriate steps to gain the confidence of the population, the ethnic friction will continue and remain a problem that affects the whole region.

There is also internal unrest in PNG and although the main antagonistic feature in the dispute between local land owners and the large mining interests, there is an underlying ethnic unrest. PNG is a country without a strong ideological base and therefore no sense of nationalism. In view of this and the fact that there are approximately 167 tribes and over 700 languages spoken in PNG, there will always be a degree of animosity between this civerse population. This animosity is evident in the split between Bougainville and the rest of PNG which started in land disputes and has now escalated into a declaration of independence by Bougainville. This dispute will undoubtedly continue to cause disruption in the SW Pacific.

#### Economic

Most of the small island states in the SW Pacific are poor with limited scope for economic growth. PNG, Solomons, Fiji and Vanuatu are the only countries in the region with resource bases capable of providing a reasonable level of self-sufficiency. Nauru is presently self-sufficient, however, the only resource, phosphate, will be depleted in the 1990s. The only significant resources for the other countries are those contained in their exclusive economic zones. Due to this lack of resources many countries are dependent on outside countries and institutions for economic support and therefore are very vulnerable to external influence

Although the countries of the SW Pacific have been dependent on foreign aid, much of this aid has has fuelled the existing economic problems. Unconditional aid does not encourage internal development or economic policy reforms, but rather prolongs the old ways. All aid should be conditional and should encourage self help. To help overcome the economic problems of the SW Pacific, Australian aid should be modelled on the Marshall Plan, where the United States provided aid to war-torn European countries on the condition that all participants co-operated, liberalised their economies and primarily helped themselves.

#### Demographic

The population for the region is small but the growth rate is high at about 2.3%. This rate of growth equales to an approximate doubling of the population over the next 30 years and a large increase in the number of young people. PNG, for example, has a population of about 3.5 million and based on its present growth rate of 3% will have a population of approximately 7 million by 2010. [1]

There is also a growing urbanisation throughout the region which is placing strain on the modest urban infra-structures. Increased urban under-employment has resulted which in turn has led to a breakdown in law and order in some areas. Successfully educating the younger population has intensified this problem by promoting aspirations for non-manual work, of which little exists in this region. Historically this problem has caused political trouble because these groups are easily mobilised and manipulated, a feature extremist groups are quick to exploit.

#### Political

In relation to the rest of the world, the countries of the SW Pacific are young and inexperienced. Until recently the political environment the political environment has been stable throughout the region. The initial governments elected when coun-tries gained their independence were strongly influenced by their former colonial administrators and remained sympathetic to Western interests. This situation is changing rapidly with the evolution of a new generation of leaders.

This new generation do not have the lasting memories of the colonial days or of the protection offered by Western powers near the end of the second world war when the Japanese threatened to overrun the entire region, instead of being loyal to their former colonial administrators and Western interests, the new leaders are frustrated with the overwhelming de-pendence on traditional Western links (especially New Zealand and Australia) and prone to explore alternative support. The most notable example of deviation has been Vanuatu's contact with Cuba, Libya, North Korea, Vietnam and China.

In the future, countries most likely to exert influence in the SW Pacific in competition with the existing presence are Japan, France, China, Taiwan and the USSR. Indonesia and Malaysia are also displaying considerable interest in playing a role in the region's affairs and the closer ties these countries have established with Fiji since the coups in 1987 have aided their desires. It is contested that this divergence of political interest may not be a bad thing. As discussed earlier, most of the island states require external co-operation and assistance to survive. The economies of the traditional partners are stretched to provide the necessary level of support and therefore investment from these other countries could be largely beneficial for the entire region. Further, when consideration of the small size of the island states is taken into account, any external activities with these states is unlikely to be of any substantial size.

It is acknowledged, however, that with these developments may come the possible demise of the traditional political stability of the region. This political instability combined with the ethnic, economic and demographic problems, adds up to regional instability. It is with this relatively new instability in mind that some of the region's strategic potential will be assessed.

### STRATEGIC POTENTIAL

#### Sea Lines of Communication

The sea lines of communication that pass through the region are already of major strategic importance to Australia. Almost half of Australia's seaborne trade passes through the region and if this trade was disrupted for a lengthy period, Australia's economy and security would deteriorate accordingly. However, it is the alternative route between the Pacific and Indian Oceans, should the straits of Southeast Asia ever be interdicted, that makes the region of potential strategic importance to the major powers.

Presently most ship movements between the Pacific and the Indian Oceans are via the Indonesian arch-ipelago straits or the straits of Malacca. Many countries have the capability of mining these straits or interdicting shipping as it transits between the two oceans. If these contingencies become reality, the sea lines would move south and through the SW Pacific. The region would be transformed from one of 'strategic interest' to being strategically 'vital' to several major powers.

For example, about half of the United States foreign trade transits the Pacific and protecting that trade would be of prime importance.

#### Ocean Resources

The huge ocean area of the region contains a rich resource of fish which is very attractive to many outside countries such as the United States, Japan, Taiwan and the USSR. As discussed earlier, this resource is also vital to the livelihood of most of the island states in the SW Pacific. Accordingly, these states have declared exclusive economic zones (EEZ) to protect their ocean resources. However, until the capability to patrol and police the zones is enhanced, some piracy of resources will continue.

The United States was involved in a major conflict over the right to fish for the migratory tuna which is predominant in this area. The issue was resolved in 1987 when a five-year agreement was reached between the United States and the member countries of the South Pacific Forum Fisheries Agency. The agreement provided for the licensing of United States tuna boats and lor catch zones, quotas and payment by the United States of \$12 million annually in grants and fees. [2]

The USSR commenced tuna fishing in the region in the late 1970s but avoided EEZs until the United States conflict described above erupted in 1984. Kiribati, in an effort to continue reducing the level of aid dependency, decided to seek fishing agreements with other countries and reached a commercial agreement with the USSR, Since then the USSR has endeavoured to establish further fishing agreements with Vanuatu and Fiji. Several regional and neighbouring countries have voiced concern that the policy of strategic denial practised by New Zealand and Australia is being undermined by allowing USSR access to the region which some are predicting will have a further destabilising effect on the region. This concern is nothing short of hypocritical as both New Zealand and Australia have fishing agreements with the USSR.

It is considered that, as the island states become economically strive to independent, more agreements in relation to ocean resources will be established with countries outside the Western Alliance. These developments reinforce the importance of this strategic asset which will be the focus of activities in the region for some time. Once again it is contested that the island states have the right to seek the best economical deal concerning their resources. However, assistance in patrolling EEZs should be offered and used as a means of monitoring the situation and maintaining a presence in the region's activities.

#### Seabed Minerals

Research has indicated that there are large deposits of manganese nodules or seamount encrustations in the SW Pacific region. Access to seabed minerals has been a contentious international issue and has held up progress of the Law of the Sea. Part 11 of the Law of the Sea attempts to legislate control over seabed minerals. However, the United States will not become a signatory because of this legislation.[3] When the legislation was drafted there was a greater demand for minerals and therefore more intense effort and competition to develop an economical method of extraction. The demand for the minerals has now waned with a corresponding decline in inter-national interest.

Although the seabed minerals are a strategic asset, the importance of this asset will be low until the demand for minerals increases significantly and an economical extraction process can be developed.

#### Satellite Observation

According to Western experts on space defence, rivalry between the United States and the USSR to secure control of outer space for military purposes has turned parts of the SW Pacific into areas of critical strategic importance. This is because three USSR launch sites at Piesetsk, Tyuratum and Kapustin Yar are on the opposite side of the earth to a triangle area (reterred to as the three gateway locations) in the South Pacific. Satellites launched from the sites will always pass over this South Pacific area after completing the first half of their orbit and before the earth's rotation and manoevering by ground controllers moves the satellite to a difference position.

The United States already has a radar network for tracking newly launched Soviet satellites with stations in the Phillipines, Kwajalein Atoll and Saipan. However, having access to the three gateway locations for deployment of anti-satellite weapons could become a strategic priority. Alternatively the area would be of major strategic importance to the USSR to protect their satellites. Although this strategic asset is contentious and not presently visible, it is agreed that the country that controls space activities will be a superior world power and therefore in the future this asset that falls within the SW Pacific could become strategically important

#### Major Power Play

Until recently the countries of the SW Pacific have always been sympathetic to the Western Alliance. However, the USSR has shown strong desires to exert more influence and establish a presence in the region. Various motives for this interest are frequently raised, some more credible than others. It is believed by many that the Soviets will do anything to disrupt the Western Alliance and eroding Western political influence, promoting island state nonalignment and terminating United States naval and air access within the region is one way of achieving that aim. It is also contested that access is required to facilitate the monitoring of United States missile testing at Kwajalein and military movements throughout the area. Some speculators further believe the Soviets may at some future occasion require to hide their nuclear submarines in the trenches of the SW Pacific.

These motives do have some credibility considering the ideological and political goals of Soviet policy have not changed. President Gorbachev has reminded us of this point in recent speeches. However, the methods and time frame for achieving the goals have undergone substantial change. In view of this, other Soviet objectives in the region such as fishing, commercial shipping and development of trade opportunities are considered more plausible.

Softening of relations between the United States and the USSR reduce the likelihood of conflict in the area in the near luture. However, as these two major powers scale down global activities other major powers are likely to emerge and exert regional influence. It can therefore be assumed that the strategic importance of the SW Pacific as a low risk for major powers to pursue an indirect route to achieve a particular aim or to conduct rivalry, may increase.

#### APPROPRIATE MARITIME STRATEGY

After assessing the SW Pacific, the 'strategic backwater' definition is considered appropriate in view of the relative unimportance of the region in a global context. However, the problems that have emerged and are likely to become prominent in the future make the use of words such as 'quiet' and 'peaceful' to describe the area as rather inapt.

As emphasised earlier, the region is of strategic importance to Australia, mainly because many sea lines of communication between Australia and major trading partners pass through the SW Pacific. On the international stage, however, the strategic assets are qualified by 'ifs and buts' and therefore are presently considered strategically unimportant. The problems on the other hand are making the region more unstable and it is this development that must be given greater attention when designing a maritime strategy.

Maritime strategy must flow from the Defence Objectives which in turn are derivatives of National Aim(s), Objectives and Strategies. The Australian National Aims are not written but a possible aim could read: 'to develop and maintain an independent, peaceful and prosperous nation dedicated to the pursuance of a fair and just society and the preservation of a democratic system of government'.

This aim would lead to the four main priorities of Australian foreign policy which could be called national Objectives and are:

 Protecting Australia's security through the maintenance of a positive security and strategic environment in our region;

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- o pursuing trade, investment and economic cooperation;
- o contributing to global security; and
- contributing to the cause of good international friendship.

Defence policy and strategies for various areas of interest follow the first of these objectives, 'protecting Australia's security'. Several of Australia's national defence interests as detailed in *The Defence of Australia* create the requirement for a maritime strategy to protect Australian interests in the SW Pacific and to promote a favourable strategic situation and sense of strategic community. [5]

These interests or objectives must be assessed in conjunction with various factors such as threat, geography, economy and regional sensitivity to establish the strategic requirements. In view of the assessment that the region is relatively unimportant, no direct high level threat is deemed to exist. There will, however, be many more countries involved in the region which must be accepted and therefore Australia must maintain a presence and be ready to protect Australian interests.

The geography of the region dictates that any defence activity must rely on maritime and air forces accompanied by light mobile ground forces. Because the region is large and remote, surveillance to provide early warning is vital and must be continued.

Protecting Australia's interests, including Australian citizens in the region, necessitates the requirement for a sea lift capability. This has been emphasised by the contingencies in Fiji and PNG and by the assessment made of the region's problems. As indicated these problems and likely effects on Australian interests should be given more attention than the strategic attractiveness of the region when formulating strategy. Fostering a favourable strategic situation and sense of strategic community calls for the continuation and strengthening of regional alliances and defence co-operation programs. The Pacific Patrol Boat project, which will provide 12 31.5 metre boats and training and advisory assistance to several island countries, is a good example of a co-operation program. [6] This type of program must be emphasised to assist these countries to manage their EEZs.

It is assumed that the Australian defence budget is unlikely to increase and therefore the maritime strategy must be economically realistic. The strategy must also cater for regional sensitivities and in view of these two factors, any offensive capability should not be pursued.

The appropriate maritime strategy for the

SW Pacific that is considered to have emerged from the assessment of all these factors is layered defence against low-level threats. A breakdown of this strategy is:

- Naval forces for patrolling, transporting light ground forces, providing a sea lift capability and escort duties;
- air forces for air defence, patrolling and transport;
- o alliances for regional security; and
- co-operation and aid to enhance the sense of a strategic community.

#### CONCLUSION

Examination of the SW Pacific's strategic assets and problems indicates that the region is a 'strategic backwater' in a global sense, but with several problems which will require considerable attention. The large diversity of races within the countries of the region will inevitably make racial tension, that is very visible in Fiji, New Caledonia and PNG, an ongoing problem. This problem may be accentuated by the increasing population of young educated people who are underemployed and susceptible to exploitation by extremist groups.

Most of the countries are poor and must look for external investment and assistance. This in association with the emergence of a new generation of leader who is frustrated with traditional political ties will result in many other countries such as japan, France, China, Taiwan, USSR, Malaysia and Indonesia becoming more involved in the region's activities. This development is not considered bad as these countries are likely to provide investment that will benefit the entire region and any outside activities would be relatively small in scale.

The strategic assets discussed do not elevate the region to a level of international strategic importance. Sea lines of communication through the SW Pacific are of major strategic importance to Australia but to the major powers these lines would only become important if the Indonesian archipelago straits and Straits of Malacca were closed. This would force the sea lines between the Indian and Pacific oceans south and through this region.

Ocean resources are the most important asset of the island countries. Control and management of these assets is therefore of vital importance. Seabed minerals are of minor importance and will remain so until there is an enormous increase in demand for them.

The region had been identified as an ideal location for the United States to deploy anti-satellite weapons against USSR satellites. Sometime in the future this may become a reality. However, the present strategic importance for this purpose is considered negligible. Likewise the prospect of major powers using the region as a low risk area to pursue an aim or conduct rivalry in the present environment is considered highly unlikely.

Maritime strategy must correspond with national aims and objectives and defence objectives. A maritime strategy for the SW Pacific must therefore protect Australian interests in the region and promote a favourable strategic situation. When formulating the strategy bases on these objectives, factors such as the threat (based on the importance and problems of the region) geography, economy and regional sensitivity must be taken into consideration.

Although globally the SW pacific is considered a 'strategic backwater', to Australia the importance of the region is much greater. The appropriate maritime strategy to meet the Australian requirements would be layered defence plus a sea lift capability, alliances and an intense co-operation program. The suggested name for this strategy is 'Denial Plus'.

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### SEAPOWER AND THE CHINESE AND INDIAN NAVAL EXPANSION

by

LCDR D.M. Stevens, RAN.

#### ABSTRACT

The Indian and Chinese navies have been engaged in a period of rapid growth. This expansion has given both nations increased possibilities to project maritime power. One of the prime purposes of both navies is to deter extraregional forces however, both nations have also realised that naval forces are an important instrument of peacetime political influence. China and India are now using their navies to ensure that due recognition is given to their leading regional roles.

#### INTRODUCTION

Over the past few years it has been noted by many observers that both India and China have been engaged in naval expansion and modernisation programs that have greatly increased their maritime capabilities. The implications of this growth must now be carefully considered in any examination of these nations' security thinking. It has, for example, been suggested that the Chinese expansion signals its international ambitions (1). While India's naval expansion may not just be keeping pace with but may in fact be describing broader national goals (2). Certainly recent actions in the Spratly and Maldives Islands, by China and India respectively. have shown that both countries have the political will to make use of their enhanced maritime power. Such actions have revived or maintained fears of regional hegemony amongst many neighbouring nations.

This article will examine and explore the reasons why both India and China have found it necessary to increase their naval strength and capabilities, and compare and contrast the perception of the role of sea power in the two countries.

# HISTORICAL FACTORS

Historically India has not had an affinity with the sea and its early mariners did not bequeath a significant maritime tradition, prior to and even after independence in 1947 the fledgling Indian Navy was operated as an adjunct to the Western navies, primarily designed as an anti- submarine force protecting allied shipping from first Axis and then Soviet submarines. The Indian Navy in the period after independence was substantial on paper but neglected in practice and considerably affected by financial stringency. It would have found it difficult

to exert more than local superiority against even one of the poorly equipped regional nations.

Prior to 1965 India's conflicts were primarily land and air campaigns in which the Navy did not play even a nominal role. The shock of the limited invasion by the Chinese in 1962 brought a modest increase in the naval budget but still successive governments perceived a benign environment in the Indian Ocean and became complacent about the need to protect their extensive coastline. However, during the 1965 war with Pakistan the Pakistani Navy successfully conducted a raid against the Indian coast with impunity. Though only a minor action, with no effect on the war's outcome, the Indian Navy was compelled to radically review its structure, doctrine and strategic role.

To the north, India is constrained by the Himalayas but elsewhere India's exclusive economic zone (EEZ) adds an extra one million square miles to its continental land mass and the Islands of Andaman and Nicobar to the east and Lakshadweep to the West give India a commanding position astride Indian Ocean trade routes. Gradually there came to government an increased awareness of India's strategic position in the Indian Ocean and the importance of its maritime resources. India's merchant lleet was rapidly expanding and maritime trade accounted for virtually all links with the industrialised nations. Funding for naval development began to increase and in the period 1966-70 manpower doubled while ship numbers expanded from 32 to 55.

Despite strong traditional ties, India was dissatisfied with the naval assistance being offered by the United Kingdom and looked further afield for additional sources of aid. India found in the Soviet Union a nation keen to assist with training and technology transfers and willing to offer generous credit terms on Soviet-built ships. Thus in the late 60's be@an the favoured association that has continued to provide the Indian Navy with advanced Soviet equipment and played a major role in maintaining the Navy's rapid development.

The next milestone in the Navy's fortunes was the 1971 conflict with Pakistan. In this war the Indian Navy took the initiative and conducted an aggressive campaign aimed at taking the conflict to the enemy. The Navy achieved complete regional sea control and heightened general awareness in the Government of the flexibility of maritime power projection. This lesson was reinforced in an unexpected way when the United States sent a task-force centred around the carrier USS ENTERPRISE into the Bay of Bengal. This taskforce was mounted against India as a show of military power after US diplomatic pressure in support of Pakistan had failed, the task-force did not Influence the course of the war, but the helplessness of the Indian Navy to counter this demonstration of coercive diplomacy provided the final impetus for the commencement of a further major program of naval expansion. Future plans were thereafter aimed at deterning both regional and now extra-regional threats.

After 1974 the Navy began to rank first in defence budget capital equipment allocation (3). Still further impetus for India's own expansion came in the growth of the external naval presence in the Indian Ocean in response to the Iranian revolution, the Soviet invasion of Afghanistan and later the Iran-Iraq war. The increase in rivalry and tensions in the region were seen to be threatening India's increasing maritime interests. India feared that strong external forces could either challenge India's regional supremacy or be used by local states as insurance in regional disputes, if India wished to secure a region free of external interference it required the maintenance of a modern and well balanced fleet. In 1977 a coastguard was created to release the Navy from much of its coastal duties. The naval share of the defence budget doubled again between the seventies and eighties and the numbers of ships increased in kind (4).

#### China

In contrast to India, China has a maritime heritage dating back thousands of years. However the continental mindset of successive Chinese governments, even after the revolution, prevented the numerically substantial Chinese Navy from attaining a blue-water capability. Even the inability to seriously threaten an invasion of Taiwan was insufficient to produce a requirement for a fully capable navy. As in India, maritime awareness developed only gradually. China perceived in the late 1960's that it was being encircled by a hostile Soviet Union to the north and an increasing and threatening US presence to the south. With China's growing interest in offshore energy, minera resources and expanding fishing and merchant fleets there came an urgent requirement for more capable warships, able to protect her maritime assets.

Improvement for the peoples Liberation Army-Navy (PLA-N) received further support in the late seventies after the disastrous Cultural Revolution and reconciliation with the USA.

With the fall of the 'gang of four' and the restoration of Deng Xiaoping, China launched the four modernisations, the last of which was defence. The PLA-N received particular attention in response to the growing capability of the Soviet pacific fleet.

The Soviet Union's continued support for Vietnam and its acquisition of naval facilities at Cam Ranh Bay was of particular concern, the entire South China Sea being regarded by China as regional waters. Like India, China saw the need for

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a new maritime posture of deterrence, aiming to prevent external interference not only in its EEZ but the region as a whole. More recently China has realised that its power projection capabilities are lacking. Public pronouncements have stressed the wider nature of Chinese maritime interests, including the importance of several disputed islands in the South China Sea, and therefore the requirement for a stronger PLA-N with longer range capabilities to protect these interests (5)

#### CURRENT FORCES

The rapid and continuing growth of the Indian Navy and PLA-N is in evidence in the figures provided at Table 1. Of particular note is the increasing numbers of capable submarines, larger surface warships and logistic units.

#### India

Today the Indian Navy ranks about sixth in the world in size and may soon surpass Britain and France. It is centred around the operation of two aircraft carriers which, though small by world standards, are sufficient for regional power projection.

The Navy also comprises 17 submarines, 8 of which are modern Soviet or European designs, and one nuclear powered guided missile submarine (SSGN) on lease from the Soviet Union. Surface forces consist of 26 trigates/destroyers, 16 major auxiliaries and numerous smaller craft. Amphibious forces are small but capable in regional terms and troop lift is also available from the large merchant fleet. The Indian Navy today is capable in most forms of maritime warfare but has concentrated on its power projection and deterrence capabilities.

The training and technological base of the Navy has expanded in response to fleet requirements and India has now built frigates of indigenous design and commenced local submarine construction. Because of favourable credit terms the Soviet Union is still a primary source of supply but India also receives access to some of the latest European technology including guided weapons and maritime strike aircraft.

India is now the dominant regional power from the Persian Gulf to the Strait of Malacca and is well on its way to achieving the capability to control all access to the Indian Ocean. Plans call for more modern submarines and destroyers and, if the economy allows, a force centred around three small aircraft carriers by the end of the century. Additional modern maritime patrol and airborne early warning aircraft are also planned thus increasing surveillance capabilities. The Navy is also reported to be interested in the lease of further nuclear submarines from the Soviet Union and their eventual construction in India. However, linancial constraints may make such acquisitions difficult and before losing office former Prime Minister Ghandi stated that there were no immediate plans to increase numbers.

China

China's PLA-N is considerably larger in terms of tonnage than the Indian Navy and its force structure is completely different. Though recent cut backs in manning have taken effect, the PLA-N is still some six times larger than the Indian Navy in manpower. Unlike India the PLA-N has a small but expanding strategic component. The PLA-N's main force presently comprises 94 submarines of which six are nuclear powered and two are ballistic missile capable (SSBN). Surface forces include 56 frigates/destroyers, 60 major auxiliaries and over 900 coastal craft. The PLA-N also has a significant and improving maritime air element with an antishipping capability. China's amphibious strength would be insufficient for a major opposed landing but in 1984 amphibious units were able to conduct a considerable show of force around the Spratly Islands in response to the first ioint Soviet/Vietnamese amphibious exercise.

The PLA-N is attempting to move its operations further seaward and has increasingly deployed into the Pacific. It has also disturbed India by conducting a goodwill deployment of several ships to Bangladesh, Pakistan and Sri Lanka in 19B5. However, China does not yet have the logistic capability for prolonged remote operations.

China has purchased a great deal of Western technology to assist in its modernisation but has been hampered by the current downturn in the This has delayed important economy. improvements in anti-submarine and anti-air warfare capabilities which are particular weaknesses. A more recent problem has been the imposition of arms embargoes as a result of the June 1989 uprisings. Once technology transfers resume, future developments will most likely concentrate on frigate/destroyer construction and more capable submarines. The nuclear submarine program in particular has been suffering severe developmental problems. Economic constraints will have a great effect on future plans and have already caused the shelving of plans for an aircraft carrier. Recent press statements, however, report an increase in the levels of defence spending in 1990(7).

#### NATIONAL REQUIREMENTS

It has been said that "...one factor that measures a nation's quest for international status is it's naval strength" (8) Both India and China have been viewed as regarding their navies as instruments of frustrated nationalism. Certainly each nation's particular view of the world and its position in it has affected its maritime requirements.

#### India

India has grown increasingly frustrated with its place on the world stage and is attempting to ensure increased influence in the future. However, recent attempts to gain permanent membership of the UN Security Council have been unsuccessful. India can see that in the 21st century it will be one of a number of new great powers. In this complex multi-polar balance It is unlikely that any one power will predominate and India feels the need to ensure it maintains its position as the strong ast regional power in the Indian Ocean. Indian foreign policy is directed towards this aim. The Indo-Sri Lankan Accord of 1987 went so far as to guarantee that the strategically important Sri Lankan port of Trincomalee could no longer be used by extraregional navies without the Indian Government's prior consent (9).

India sees the primary threats to its security as Pakistan and, in the longer term, China. These countries' military capabilities are most often used to justify India's own armed forces' expansion, of recent concern is China's improved relations with Thailand including the Thai purchase of Chinese warships. Permanent Chinese access to the Indian Ocean from Thailand or even Myanmar would be regarded as a significant threat by India, though there presently seems little likelihood of such a Chinese requirement in a worst case scenario India sees an alliance between Pakistan and China, where the PLA-N would threaten India's maritime approaches and substantial overseas trade while Pakistan kept a large portion of the Indian fleet occupied closer to the homeland. Other countries that have been mentioned as potential threats, though not currently hostile, include Australia, Indonesia, Malaysia, South Africa and Iran (10).

Regional countries have been clearly disturbed by the Indian expansion, which to most analysts, goes far beyond self defence requirements and there have been many attempts to explain it. India herself regards the Navy as an important tool of diplomacy and thus a necessary part of her defence capability to control and influence events in her region.

In keeping with her newly acquired power and influence India sees a role tor herself as the Indian Ocean regional policeman. The Indian presence in Sri Lanka and the rapid action of the Indian Navy in the Maldives have demonstrated Indian willingness to act decisively. An Indian commentator has noted that "..in :the years to come the navy would have to play a similar role in the littoral states in the Indian ocean" (11). This role may well include supporting the interests of the considerable Indian population spread amongst the littoral nations.

A further indication of Indian ambitions and perhaps intentions was given by a former Indian Fleet Commander in 1984 when he asserted that "...India intended to use its naval power to support the aspirations of the Third World against the industrialised nations." (12) Comments of this type and of the use of naval 'power projection' are not uncommon from senior Indian officers and have added considerably to regional concern.

of the regional nations, Indonesia and Malaysia have expressed particular unease over India's positioning of bases in the Andaman Islands to control shipping using the Malacca Strait Meanwhile Pakistan, in response to the Indian expansion, has over the last year increased its own surface fleet and maritime air capability, it seems possible that India's rationale for a strong Navy may well be self sustaining as other nations respond to the apparent threat. China

China does not yet have the power projection capabilities of India and China's security concerns are locussed more on its immediate region. However, despite claims that it specifically disavows any quest for great power status or influence, China, like India, wishes to enhance and maintain its regional and world position. Nationalist sentiments mean that there is still a desire to reunity the motherland by regaining control of Taiwan, while China is also determined to retain control of the disputed South China Sea territories.

Disputed sovereignty claims in the South China Sea with Vietnam and others have become of increasing importance to China as the economic potential of seabed resources are realised. These sovereignty issues have already caused naval clashes with Vietnam in 1982, 1983 and 1988 and China now attempts to maintain a permanent naval presence in the area.

Though both superpowers are considered to be destabilising forces, China sees its primary threat as the Soviet Union and in particular the maritime threat presented by the growing capabilities of the Soviet Pacific fleet. Though tensions have lessened, China views the Soviet Union as seeking to gain future advantage in the Pacific region after being thwarted for the present in Europe (13).

A longer term but potentially serious threat is seen to be a remilitarised Japan. As economic and political pressures increase, the capabilities of the ASEAN states may also cause concern.

#### ASPECTS OF SEA POWER

The primary function of both navies is the protection of the homeland. Both India and China have previously suffered the loss of their independence and both are concerned to ensure that this is never repeated and that the gains they have made are not lost. Both have also argued that historically they have been vulnerable to foreign intervention because of their failure to maintain an adequate maritime defence (14). However, both nations now also have an offensive power projection capability which is continuing to improve.

#### India

India's Navy has been designed for a variety of missions, primarily sea denial and sea control, but including coastal defence, political presence, and power projection. Sea control is useful primarily for intra-regional threats which would be eliminated by mass application of naval power, principally using surface forces and maritime air. Sea denial is aimed at external threats, which if stronger than India, would perceive the expected losses at the hands of the Indian Navy as disproportionate to any gains; submarines are the main components of this strategy. The political presence mission is particularly important in peacetime as the simple presence of naval forces can achieve important objectives in furthering national policy.

#### China

Like India, the PLA-N has also concentrated on sea denial, largely relying on the deterrent effect

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of its huge conventional submarine force. The strategic component of this force meanwhile acts as a deterrent to any Soviet attempt to conduct a nuclear disarming strike. However, unlike India, only recently have surface combatants been developed that could realistically attempt to protect China's offshore interests. Sea control can still only be achieved in very localised areas but the PLA-N can now at least exert limited power projection in the region.

#### CONCLUSIONS

From the above discussion it can be seen that both India and China have embarked on significant naval expansion programs. In common with all such programs both nations regard their naval power primarily as a defensive instrument designed to deter other nations from achieving their own maritime objectives. However, both nations also realise the extreme utility of naval forces and as stated in the editorial to the 1989-90 edition of Jane's Fighting Ships:: "...one of the great strengths of sea power is that the true interpretation can be so vague and the options it offers so varied regardless of the original intentions" (15).

In peacetime, navies offer a unique ability to further policy and Influence far removed from a nation's borders. In times of conflict capable maritime power can be the one of the most important of deciding factors. If the economies of India and China can maintain a steady growth then their maritime strength will continue to be enhanced. India and China have both demonstrated the political will to use this strength to achieve their national aims. Further growth will serve to widen the policy options and influence available to both nations. At the same time this naval expansion will complicate and reduce those options available not only to regional nations that feel threatened, but also to external powers seeking to project their own influence.

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	In	dia	Chin	а
		1980	1989 198	0 1989
Manpower	46 000	47 000	360 000	260 000
SSBN				2
SSN			1	4
SSG				1
SS	8	16	92	87
Aircraft carriers	1	2		
Cruisers	1	-		10
Destroyers	00	5	11	19
Frigates	22	21	14	37
Corvettes	26	0	906	015
Goasial craft	20	20	20	915
Amphibious	7	10	31	50
Auxiliaries	9	16	30	60

TABLE 1

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### THE HUMAN SIDE OF THE MEGA ENTERPRISE

By

CAPT Graeme H.C. McNally

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#### INTRODUCTION

The decision to re-establish a major combatant warship building industry in Australia was made more than half a decade ago. Construction of two 4000 tonne gas turbine FFG7 Oliver Hazard Perry Class Frigates at Williamstown, Victoria represents the implementation of that decision. The scope of the task is an enormous undertaking and one in which industry has not been active for some two decades and certainly not at this level of complexity. This paper looks at the scope of the task, the nature of the challenge, the dependency on Australian industry succeeding and the need for Australian industry to effectively seek out and buy in some of the undocumented "know how" associated with modern warship building today.

#### THE MEGA ENTERPRISE

I invite you to consider for a moment the human feelings, the thoughts of the workers and wonderment of those in attendance at a launching of a modern fighting ship.

No matter what your attitudes may be towards these implements of national insurance, there is very little doubt in my mind that an event such as the launching of a modern warship will stir something emotional, some inner feelings, some wish, some feelings of pride in most people.

The launching of a new sophisticated warship named *Melbourne* took place in Victoria on 5 May 1989, some 10 months ago. This event marked the restart of warship building in Australia after a 20 year period of non-activity.

The decision to build two of these FFG7 Oliver Hazard Perry class frigates in this country, rather than order another two of the same class from the United States as we did with the first four, was made in the early 1980's. The reasons for making that decision, with the attendant price and schedule penalties, are now history. What remains is the commitment and challenge to somehow make it all come together, to ensure that the venture is successful and that confidence in Australian Industry to take on such an enterprise and succeed is restored. This being in the full knowledge that we have embarked on a course of action which we know other people in this global village of ours, perhaps can do more cost effectively.

#### THE SCOPE AND COST

The new ship *Melbourne* took 2.5 million manhours of human effort to get to the launch stage of construction and yet there is up to another 2.5 million manhours of human effort still needed to complete the build and make this ship fully operational and ready. That is, 2.5 million manhours of further effort involving managers, planners, fabricators, fitters, electricians and operators in the installation, set to work and test engineering work yet to be done to complete this single ship

The total project cost for the two of these modern fighting units together with some supplementary shore-based support is 1.3 billion dollars. That means of course that the bottom line for these ships is in the order of 600 million dollars "a piece". That amount of money buys you the Australian constructed ship itself in a fully tested, crew fully trained, fully armed and fully provisioned state which translates into an effective, operational major combatant.

To accomplish this mind-boggling task, up to 5 million manhours of effort will have gone into the construction of the first of these "ship shapes", and about 4 million manhours into the second ship on order. The difference allowing for some learning curve factors. This represents a total which may well amount to some 9 million manhours or 4500 manyears of human effort to plan, manage, build and test these ships.

#### CLIENT PARTICIPATION

On top of this is a further 5 million manhours in the manufacture of all of the equipments and systems that go into these ships together with the enormous project management effort required of the client who in this particular case is responsible among other things for the purchase, test and freighting of all major specialist equipments and systems from the various manufacturers to the shipbuilder's facilities for installation into the ships.

He (the client) is also responsible for the provision, validation and maintenance of the drawings, the procedures, the guidance, the total ship test package and the technical manual information. For the client to control the configuration management aspects of this complex project and for the client to select, arrange and make available a limited amount of specialist engineering service expertise required to complement the builder's capability so that the equipments can be effectively fitted into the "ship-shape", set to work and successfully tested to the required contractual standard.

This further 5 million manhours added to the 9 million to construct the two ships gives a total of some 14 million manhours or 7000 manyears of effort to complete these vessels.

Into each ship will go the gas turbine propulsion equipments, computer controlled propulsion control systems and including a controllable reversible pitch propeller system together with active fin stabiliser system to keep the ship as stable as possible in all sea states. The degree of stability reached by the ship will determine the degree of effectiveness of the ship sensors and weapons in wide and varying sea conditions.

In and on this platform will be fitted some of the most sophisticated and complex surveillance and fire control sensor systems Australian industry has ever fitted into naval combatants. With these will be fitted equally complex weapon delivery and launching equipments representing the most modern that Australian ship construction workers have ever handled.

#### THE CHALLENGE

This mega project is about constructing in Australia, two modern, complex combatants, in accordance with the agreed scope, to the agreed international quality standards, in the agreed time and to the agreed cost. You may argue that this has been done before by Australian industry. So what's new? Where's the challenge and why is this particular billion dollar project receiving special attention? And why is it so significant?

Well firstly, have we done it before? Do we have a previously established track record of performance and achievement in manufacturing these sophisticated machines? It so, when did we do it? and how did we do it?

A close examination of major combatant shipbuilding history in this country shows that we have never done it before to this level of complexity and to this level of sophistication. This, therefore is a first. At 4000T, this is the largest class of combatant to be built in this country since we launched the 6000T seaplane carrier HMAS *Albatross* at Cockatoo Island in 1929.

With so much anti-air and anti-surface missile fire power together with antisubmarine weaponry using one of the latest and most flexible torpedo delivery capability through the on-board Seahawk helicopter, these ships are not only the largest in the last 60 years but are also the most sophisticated and potent combatants yet to be built in Austra tia.

This project, if it's successful, will in effect re-estabish modern warship building in Australia. If we get it right there will be others to follow. There already being a contract for others, although smaller and somewhat less capable. We therefore must get it right this time round! The largest in 60 years and the most sophisticated in this country ever'

Can we get it right? Is it really within this country's industrial and project management capability and capacity to get it right? Entering into a contractual situation with Australian industry or any country's industry for that matter does not (of course) necessarily guarantee a successful contractual conclusion leading to a satisfied customer. In fact, looking back, I would suggest that this country has never really had, what could be called, a totally satisfactory and happy shipbuilding experience; yet! If we had done so, we would have as a result, been able to perhaps have done the same for others! In other words, to have successfully competed in the warship building business with others around the world.

#### THE NEED TO GET IT RIGHT

With so much commitment and investment in Australian industry for the entire future of the Navy's major surface combatant "sharp end" and given our track history to date, I would submit that it is not difficult to understand why we at the project management level, we at the client level, are determined to see that industry gets it right! We are actively working with industry to ensure we do get it right. The defence of this nation is now so committed it has to be right.

As with any Mega enterprise "getting it right" will obviously be determined by the effectiveness of the interfaces between the various participants. How well people work together, understand each party's problems and working together on an appropriate corrective action. In the case of this enterprise the principal people interfaces involve not only the client/shipbuilder interface but at the international level Australia and the United States, the Commonwealth and industry at large and of course the shipbuilder and the unions. The intent and will of these parties must be there and sustained if we are to get it right. The whole venture will only be as good as its weakest link.

Getting back to the theme of this conference, do we, the client and the shipbuilder, (or if you like the opposing forces) get it right by aggression and a preoccupation on speed (or in project management terms maintaining schedule)? Or do we get it right by philosophical discussion and what could easily become prolonged very contemplation? In other words do we get it right by hard business management of the contracts following proven management and construction processes in order to get exactly what the scope, quality, time and cost paramaters in the contract ask for?

Or, does the client and the shipbuilder tend to place the contract to one side and contemplate other ways of doing it and other ways of achieving what the contract asks for? That is, the Australian way! Our unique way! Our own way! And may I suggest, perhaps the re-invention of the wheel way!

# THE NEED FOR TRANSFER OF 'KNOW-HOW'

The two ships of this class that are currently being built in Australia are in fact the 55th and 56th of this type following the build of the first 54 by the USA. Four of those Australia brought from the USA which are essentially "off the shelf" and are currently operational in the Australian Navy; the Adelaide, Sydney, Canberra and the Darwin. In addition, the Spanish have built four at the Bazaan shipyard at El Ferrol in Spain. In addition to that again, the Taiwanese have started to build four and perhaps followed by another eight. When we add all those up we are talking about a very popular class of ship of which there is, or will be, a total of some 70 or more either in service or under construction or planned to be built. We are therefore really not breaking new ground here

The first of the USN ships was started in 1975 and the last of the fifty odd for the USN has only recently been delivered. In other words the US has been building these ships for 15 years in three yards. One yard in the state of Maine, one yard in Seattle and one yard in California. A total of 54 ships. During the peak of this activity, the ten year period between 1975 and 1985 saw the US yards collectively delivering 5 to 6 ships of this class per year.

There are two important points that emerge from this recent history which should be of interest to those of us that are currently involved with the restart of warship building in this country. First, for this class of ship it has been done before at least 54 times and secondly, because of this, there is available a lot of experience and know-how to help us reestablish our industry. This experience unfortunately is not yet resident in this country.

We are in the process of entering a period of significant technological challenge never before taken on by Australian industry. With a validated ship construction package and proven equipments and systems, the prospects of Australian industry being able to successfully complete this contract at least in theory, should be high. That success however, will only be forthcoming if the Australian warship building industry is able to fully exploit the advantages available of constructing two of a long line of ships of this class.

That exploitation can only occur if the design and construction philosophies that have been successful for other shipbuilders over the past 15 years can be adhered to, with local interpretation and deviation from the proven way minimised.

To do this and to supplement the validated construction package, effective technology transfer from the established and ongoing shipbuilding enterprises to the newly re-established Australian industry has to occur. Such technology transfer, such know how does not come with the construction documentation. It is the unwritten element, the bit that nobody puts down, the bit that involves the human side, the mortar between the bricks, the experience between the drawings; a comprehensive understanding of the ships designer's philosophies, the ability to quickly and effectively interpret all the details in the ship construction package, the ability to be able to translate a drawing package into meaningful and easily understood production work packages. In other words the real "craftmanship" of the trade

This "craftmanship" does not come with the wide range of complex equipments and software packages when they are delivered to the shipbuilder's gate, nor does it reside in the equipments associated documentation. Nor, I may add will it come with the client provided specialist expertise, representing less than 1% of the total human effort of building these ships.

In Australian industry's case, which has embarked on the re-establishment of major combatant warship building in this country, coupled with the largest follow-on warship building program in our history, this element of technology transfer (the "know how") will have to be sought from where it currently resides. Such "know how" transfer, in my view can only be effective it Australian nationals from industry work alongside those that have done it before and have been doing it during the period when Australian industry has been inactive on this front achieved by either sending representative Australian management and production staff to overseas locations or by inviting some of these experienced people to work alongside our industry in Australian shipbuilding yards at all levels.

At this stage of our progress, I would strongly suggest that in the case of this mega project which is about building very precise, detailed, complex, expensive and sophisticated vehicles well enough to withstand some of the worst sea conditions and to survive a wide variety of weaponry in the world today, there is very little room or time for philosophical discussion and contemplation. Very little time to do it the "Australian-way". Very little time to re-learn all the lessons again. If we are to fully exploit the opportunity, the commitment and the challenge, industry must quickly come to terms with itself and obtain some of this experience.

We must do it with businesslike aggression and calculated speed. If our industry does not know how to do it and get it right, then it must be prepared to seek out that "craftmanship" of successful warship building. Seek out from those that have been successfully pursuing this craft for hundreds of years and have demonstrated their respective capabilities and capacities to build such complex vessels.

The fact is that whilst Australian industry has not been in the major combatant warship building business for some two decades, the rest of the world has. In relative terms, "stitching" the steel and aluminium together to make the "shipshape" so that you can stage manage a highly visible and I must readily admit, an emotionally charged and memorable event, such as a launch, is the easy part. Installing, setting-to-work and optimising the performance from both the hardware and software point of view, all the equipments in these modern combatants, so that you meet what you have been contracted to do, is the real challenge.

For Australian industry, which

effectively has only been back in the business of building modern combatants for some 700 days, the complexity and the effort involved in this task is enormous to say the least and in terms of production management, second only to becoming involved in space vehicle manufacture, and in my opinion, is the most challenging technical undertaking we as a nation have ever faced.

The fact remains, however, that the decision to do it ourselves in this country has been made, at least as much of it that's practicable. We therefore will be seen to be a little more self reliant and at the same time demonstrate not only to ourselves but to the rest of this global village of ours that this nation still has some of what it takes.

The commitment has been made and must be sustained all the way through the period of the construction, leading to a product built to the agreed quality standards, in the agreed time, to the agreed cost and producing a fully operational combatant.

How are we doing it? How will we see it through? What it, our industry gradually realises that the scope of the task has been grossly underestimated? What do we do then?

In other words, despite the initial enthusiasm, our initial optimism, our confidence in our collective capabilities, acknowledgement of our demonstrated performance in other fields, the fact may well emerge that we have "bitten off more than we can chew", and that we need help!

#### THE REAL QUESTION

Is Australian industry going to be astute enough, determined enough, motivated enough and committed enough to seek out the experience of those who have demonstrated that they know the finer skills of the craft of warship building? As already stated there are people around in this world of ours who have done it before and specifically on this class of ship. They know what is needed over and above what may be written on drawings or in the methodology or procedure. They know the craft. They are not necessarily super efficient or possess the highest productivity indexes in history, but the fact nevertheless remains that 'they' have done it before.

It is only human for us to claim that we also have done it all before, therefore we should be able to do it again. I submit that in the case of this Mega enterprise there is too much at risk nationally for any of us involved in this venture, not to seek those special, unwritten unique skills and the best advice and guidance from wherever it may reside.

Currently Australian industry is, in many respects, serving its apprenticeship all over again. A good tradesman is more often than not the direct result of serving under a good craftsman. You can never effectively produce good tradesmen by just following the book on how to do it. There is always that unwritten bit that only gets passed on from one generation to another by human contact. by understudying someone, by recognising his strengths and weaknesses and capitalising on the positive aspects of what he has to offer and playing down his shortcomings. Then and only then can the real, meaningful transfer of technology (in warship building terms) from one nation to another actually take place. This is the human side of any Mega undertaking, to know when you do not know and to seek assistance from those you know do know.

Like any other craft, warship building is very much totally dependent on the quality of human knowledge, the knowhow. The ability to maintain the intent and the will to succeed. The strength to admit that maybe you do not know all the answers and that your intended approach is wrong, and to have the sense enough to recognise it and seek qualified advice on how to take some corrective action sooner rather than later, so that any negative impact on your overall efforts may be minimised and a worthwhile profit is realised at the end of the day.

#### SUMMARY

The decision to re-establish warship building of major combatants in Australia was made more than half a decade ago. The scope of the task is enormous and involves heavy participation of the client (Commonwealth). The challenge is to successfully complete the building of the largest in 60 years, the most sophisticated and potent combatants Australia has ever built. With so much committment we have little choice but to get it right. This Mega enterprise involves many participants at the international, national and local levels. The intent and will of all participants will have to be sustained if industry is to be seen to get it right is the need for industry to quickly understand the scope of the challenge and to recognise the need to seek out some of the "craftsmanship" of the trade, some of the undocumented "know how" from those that have done it before transfer of technology into Australia actually occur which hopefully will lead to a successful enterprise conclusion, a happy customer and a revitalised industry.

#### THE AUTHOR

Captain McNally joined the RAN as an engineering officer in 1965 and his association with the FFG7 class of guided missile frigate goes back to the mid-1970s when he served on the staff of the USN Ahip Acquisition Project Manager in Washington DC where he spent three years as Test and Evaluation Manager. He has served in various postings at sea and ashore. His qualification is in electronic engineering and he is a graduate of the Joint Services Staff College and the Australian Management College. He is currently the director of the Australian Frigate Project.



HMAS DARWIN with USS MISSOURI during RIMPAC 88 Photo: ABPU Peter Boyd

### AN ESSAY ON THE TWO-OCEAN NAVY AND AUSTRALIA'S CHANGING STRATEGIC ENVIRONMENT

by

Lieutenant Colonel B T Pacey

#### INTRODUCTION

The unravelling of the post-war strategic order is in many respects a welcome development, particularly for unambiguous beneficiaries like the Eastern Europeans. Nevertheless, superpower condominium has had benefits as well as costs. While Europe is arguably more secure because of the Soviet Union's preoccupation with internal political and economic reforms, elsewhere the trends may not prove to be so benign.

In South-East Asia the prospect of superpower retrenchment has raised the spectre of long-suppressed tensions within the region and the possibility of intrusions by new and less predictable external powers like India, China and Japan. A poorly performing economy and strategical over-extension (1) have already led to a Soviet draw-down at Cam Ranh Bay. (2)

Economic difficulties are also forcing the United States to examine its security commitments in South-East Asia. Congress is looking for a peace dividend' from the end of the cold war, and the global network of US bases is facing cuts.Where foreign bases are besieged by a local opposition like that in the Philippines there is a risk that the US Congress and public opinion will eventually force a pullout. (3)

Australians should view the negotiations now taking place in Manila with concern. An American withdrawal from the Philippines would undermine many of the comfortable assumptions with which Australian security planning has proceeded for the last forty years. Australia's maritime strategy would need to be re-evaluated if the leases on the US bases were not renewed and the Americans were forced to fall back on alternative sites like those in Micronesia.

Australia's two-ocean navy policy would require particular scrutiny as an element of that strategy because it is intended to help improve Australia's operational flexibility in the crucial waters to the west and north made more secure by the reassuring US presence. This paper seeks to evaluate Australia's two-ocean navy policy in the light of this changing security environment.

#### AUSTRALIA'S MARITIME STRATEGY

Australia's security policies have been the subject of continual review and refinement over the last decade. Three documents can be identified as benchmarks in this process. The 1986 Review of Australia's Defence Capabilities (4) provided a comprehensive appraisal of Australia's security needs. The Defence of Australia 1987 (5), referred to hereafter as the 1987 Defence White Paper, spells out a defence strategy with new clarity. And the December 1989 Ministerial Statement by Senator Evans on Australia's regional security (6) draws together defence and foreign policy to provide a coordinated framework for security planning for the first time

Each of these papers defines Australia's defence interests in terms of sovereignty and regional stability, Importantly, each provides insight into the decision to move up to half of the Australian Fleet to the Indian Ocean base at Cockburn Sound near Perth.

#### Fleet Base Relocation Study

The move to Cockburn Sound was first mooted in October 1985 when the Minister for Defence announced a study into the relocation of naval facilities from Sydney to Jervis Bay and canvassed options for increasing Navy's presence in Western Australia, at HMAS STIRLING. (7) The move was confirmed in December 1985 when the Minister indicated that the government planned for .a greater presence by the Royal Australian Navy in the west, to accord with a strategic need for maritime operations to be conducted from both east and west coasts.' (8)

There were no other locations nominated for consideration in the terms of reference for the Relocation Study. No threat had been identified in the Indian Ocean, but when the study was released in January 1987, it identified HMAS STIRLING as the 'principal source of support for operations in the north and north-west.' (9) The language of the report suggested a strong influence by the recently released 1986 Dibb Review.

#### The Review of Australia's Defence Capabilities

The importance of Nixon's Guam statement and Britain's.gradual but now substantially complete withdrawal from east of Suez have long been appreciated. Still, defence planners had difficulty in articulating a security policy that fully reflects these changed strategic circumstances.

The 1976 Defence White Paper (10) ventured some way to satisfying this need and had clearly identified a requirement for greater defence self-reliance. Budgetary constraints, departmental in-fighting, and a lack of political will had prevented a full realization of these policies.

So the 1986 Dibb Review was an overdue consequence of the changes in the declaratory policies of Australia's two great power 'protectors'. In the Review, Dibb foreshadowed significant changes in Australia's maritime strategy.

A controversial judgement was that it would take at least 10 years and massive external support for the cevelopment of a regional capacity to threaten Australia with substantial assault. As these preparations would be readily detectable and provide warning of an aggressor s intentions, the threat of invasion was down-played as a determining factor in equipment and force structure decisions.

The review identified scope for lower level conflicts arising within shorter warning times, and states that some of these - like dispersed operations by irregular forces over a wide area - could be very demanding. (11)

Of particular interest to Australia's maritime strategy was the judgement that 'no country has ever blockaded a continent surrounded by seas such as Australia' Dibb concluded that 'most military activities involving the disruption of Australian trade could be handled by evasive routing' (12)

Dlbb chose to ignore the value of exports flowing through Australia's most exposed ports in the north-west, which include the vital energy and ore exports to Japan. Exports from the Pilbara ports alone are worth more than \$2.5 billion per year. The weight and volume of these exports and the lack of a trans-continental rail route would prevent the transfer of these goods to the east coast before loading. Bateman has argued that while a short-term shut-down would have little effect, if it were prolonged, - 'as it could be in an extended period of low-level conflict, there would be an unacceptable economic and social vacuum in wide areas of Australia.<sup>4</sup> (13)

Concentrating on contingencies involving enemy operations on the Australian mainland, Dibb declared that 'Australia's most important defence planning concern is to ensure that an enemy would have substantial difficulty crossing the sea and air gap.' (14) Dibb's response to these demands was to call for surface maritime forces that could operate over broad areas of the northern and north-western approaches.

Recognising that political forces were conspiring to move elements of the Fleet out of Sydney harbour, the Review recommended that the opportunity be taken to select the most desirable locations for particular maritime forces. Dibb favoured Cockburn Sound as a base for part of a new fleet of light patrol frigates and as the main submarine base because of its proximity to priority operating areas. He called for the purchase of a low-cost tanker to help support two-ocean deployments.(15)

The Cockburn Sound recommendation is hardly surprising given the Fleet Base Relocation Study's restrictive terms of reference. These did not require an alternative to be considered. But it would be unfair to attribute the recommendation solely to political influence as some have suggested (16), when Navy does not appear to have proffered alternative base locations like Darwin.

#### The 1987 Defence White Paper

The 1987 Defence White Paper has defined a policy of defence self reliance for Australia. The priority aim is the defence of Australia's vital interests, its territory and freedom of action from military aggression. Self reliance is designed to meet the objectives of an independent defence, regional stability, alliance obligations, and to contribute to global stability.

Predictably, the White Paper confirmed as policy the Fleet Base Relocation Study report's recommendation that up to half the fleet be relocated to HMAS STIRLING to gain a substantial increase in operating time.(17) However, the White Paper placed greater emphasis on Australian contributions to regional and global stability. These had been areas of weakness in the Review that caused friends and allies such as the United States to criticize Dibb's recommendations as isolationist.

#### Statement on Australia's

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#### Regional Security

The Ministerial Statement by Senator Evans calls for policies to protect Australia's physical integrity by having the means to deter, and if necessary defeat. an aggressor. The Statement goes on to describe the requirement in broader terms as maintaining a positive security and strategic environment in our region. The region is described as South-East Asia. the South Pacific and the eastern reaches of the Indian Ocean. This is essentially the area described in the 1987 Defence White Paper as one in which Australia would have 'the most realistic prospect of substantial defence influence and involvement." (18)

In a major departure from earlier papers. the Evans statement identified politicomilitary objectives beyond the immediate approaches to Australian territory. The Statement recognises that Australia's military capabilities provide 'the foundation for our capacity to contribute to a positive security environment through the exercise of what might be described as military diplomacy, or politico-military capability.' (19)

Opportunities for the exercise of politico-military capability are described as including defence cooperation programs, regional security arrangements, and military assistance rendered, in a variety of circumstances, in neighbouring countries. While acknowledging that a collective security arrangement was not an early prospect, the Statement promoted the notion of increased bilateral cooperation.

The Statement noted that 'any gradual reduction that occurred over the coming decade of the United States military and security presence in the South-East Asian region, and any consequent increased importance and freedom of action of other external powers, could in time squarely focus attention on the issue.' If Australia were not part of a developing regional security arrangement, it would be relegated 'to a secondary role in the region.' (20)

#### The Maritime Strategy

Collectively, these papers define Australia's national strategy, although not in the traditional language of naval strategy. They do not define a maritime strategy as such but a maritime strategy can be derived from the broad statements contained in them.

The primary tasks proposed by the government for the Navy appear to be preventative, and include coastal tasks, protection of trade, and naval diplomacy. The notion that enemy forces could enforce an effective blockade of Australian shipping is rejected. And although it could be argued that power projection has a role to play in some lowerlevel contingencies, it is eschewed as an affordable option for Australia.

Still, the White Paper and the Regional Security Statement call for the less demanding presence mission to be carried out within Australia's primary area of strategic interest. But these missions have been given little attention in the determination of equipment and force structure priorities. And critically, they do not appear to have been factors in the Fleet Base Relocation Study. Nor have they stimulated any re-evaluation of the decision to base a major portion of the Navy distant from likely operational areas to the north.

So the planning for the expected trend towards regional security cooperation is unsatisfactory, and the absence of a clear maritime strategy is telling. The strategy of defence in depth - a thinly disguised strategy of denial - is clearly inadequate for contributing to regional defence and 'resilience'. Australia's basing blueprint is not preparing Navy for a larger regional role in the future.

#### MULTIPOLARITY

Superpower condominium, a bilateral balance between the United States and the Soviet Union, is drawing to a close. In its place we face a more complex multipolar world in which five or six Powers (21)balance seek a of interests. Prospective new great powers of the twenty-first century, three - Japan, China and India - have intersecting arcs of interest in the South-East Asian region. Australians have yet to come to grips with what self-reliance means in this new and more dynamic society of states. Each of the new players represents different challenges, but the bottom line is that Australia's region is becoming 'a complexity of shifting alignments and arrangements characterised by an array of large and medium sized powers.' (22)

#### Japan

The steady arithmetic progression of Japanese defence spending has enabled Japan to grow into a military power of some regional consequence. Japan now has the world's third largest defence budget, exceeded only by the budgets of the superpowers. The Maritime Selt Defence Force (MSDF) has more principal surface combatants than the Royal Navy. (23) For the present, a dependence on landbased aircraft limits the MSDF to operations within Japan's immediate maritime environs.

A narrow interpretation of article nine of the Japanese constitution has constrained the development of Japanese power projection capabilities. In the coming decade the Japanese may broaden their interpretation. There are capability requirements on the Japanese political agenda that would enable the Japanese to project power into the region perhaps to secure their vital energy supplies through the Indonesian Straits.

Aircraft carriers and long-range strike aircraft may be acquired before the end of the decade. These would send shock waves through the region because they would break the Gordian knot effectively limiting the credibility of Japanese naval operations far from Japan. Already a suggestion by Thailand that Japan play a greater defence role in the South-East Asian region has caused other regional states to react with hostility. There is widespread concern about the possibility of a resurgence of Japan's World War II militarism. (24)

#### China

In China, the People's Liberation Army has been freed from spending constraints after its role in restoring Farty authority in Tienanmen Square. The United States reflects regional opinion in expressing concern about the steady build-up of China's South Sea Fleet. Six Chinese bases have been established in the Spratleys since 1987, 900 km from the Chinese mainland. A new airlield has been built on Woody Island, 250 km south of Hainan Island adjacent to the mainland, to provide a stepping stone for communications with the Spratleys. (25)

#### India

The formidable growth of the Indian Navy is also causing concern. The Military Balance reveals that India now has the sixth largest navy in the world, with some 52,000 personnel and 135 ships. The fleet includes two aircraft carriers, twenty nine trigates and destroyers, and 17 submarines (including one nuclearpowered boat). (26) This growth does not seem to relate to a particular threat, nor to the protection of any particular interest. Rather, New Delhi sees the development of a blue-water navy as a means of enhancing its prestige and facilitating its recognition as a regional power and global actor. (27)

#### WRONG OCEAN, OR JUST THE WRONG NAVY?

The Australian Navy has long been based in the secure south-east of the continent, reflecting the early pattern of settlement, trade and the availability of the infrastructure required to support fleet operations. But the increasing importance

With the publication of the Ministerial Statement on Regional Security, a period of introspection and drift towards isolationism is now passing in favour of a more balanced involvement in regional security affairs. These trends have not yet led to a proper evaluation of Australian maritime strategy, but a number of factors should be causing a rethink. Naval strategists should be questioning whether current development guidance is adequately preparing Navy for a more assertive regional role, or whether we are building the wrong Navy for the wrong ocean.

The Basing options The 1987 White Paper focuses on credible northern contingencies. Yet while Army and Air Force are moving units to the north, Navy is consolidating facilities in Cockburn Sound near Perth. Perth is the most isolated city in the Western world. It is remote from the focal points identified in the 1987 Defence White Paper, from major economic assets on the North-West Shelf and in the Timor Sea. and from the important export ports in the North-West. It is poorly placed to provide intimate support to the region and to the presence missions that are now so clearly government policy.

There is little doubt that the basing of naval forces in the West will increase the tactical flexibility and physical mobility of naval forces in the region, and Cockburn Sound offers the best option for a submarine base. But there is cause to ask whether a naval base near Perth is the best option for a major portion of the surface fleet.

Darwin: It is revealing that nowhere in the principal documents relating to the relocation of Australia's fleet support assets is Darwin given serious While not offering the consideration. range of facilities that can be offered in the vicinity of Cockburn Sound, Darwin's capacity is nevertheless useful. Darwin has berthed vessels up to 50,000 tonnes. and vessels up to 74,000 tonnes have laid at anchor. (28) The channels leading to Darwin can be mined - but are easily swept. And the shallow approaches that make Darwin unsuitable for an Australian submarine base also make it difficult for an enemy's submarines to operate without being detected. Darwin has more readily available air support than any other

#### Australian port.

Part of the reason for Darwin's omission can be found in the Relocation Study report which asserts that 'bases needed in forward areas should be limited to what is necessary to support operations.' (29) The report advocated 'continued development of intrastructure to meet the requirement of credible contingencies. Major fleet bases in south-west and southeast Australia would, with the use of civil ports and the naval facilities at Cairns and Darwin as forward operating bases, provide support with minimal transit times.' (30)

But Australia needs to increase its regional presence in cooperation with other regional states. This cannot be achieved by token periodic cruises around the 'cocktail circuit' of Asian ports. Rather it needs a demonstration of commitment in the form of proximate basing and an attempt to keep the US engaged in the region by facilitating their operations.

Darwin is close to the region to the north in which a presence is to be maintained. It is close to the vital choke points in the Indonesian straits, especially the deep straits that can conceal the passage of submerged submarines. And it is close to vulnerable resource projects in the Timor Sea and on the North West Shelf.

And while there is no entirely satisfactory alternative to Clark Field and Subic Bay, Australia could respond to American needs by providing assured access to high quality facilities in Darwin, assuming these had been developed to support Australian fleet operations. Australia can provide a range of options that complement Darwin including access to airfields at Weipa in the east and Christmas Island in the west. Provision of these facilities need not assume basing, an option which would not be politically acceptable. A level of use already acceptable in Perth would be sufficient.

The positive aspects of Darwin need to be balanced against its disadvantages. Darwin is susceptible to blockade and bad weather. While closer to the South-East Asian region, Darwin is remote from the main Australian industrial centres. Darwin lacks a substantial infrastructure of its own. Therefore, the case for Darwin being developed as a major fleet base is not without weaknesses. Nonetheless Darwin deserves serious consideration as a site for basing major surface combatants.

#### CONCLUSIONS

The call for defence self-reliance is nothing new. William Morris Hughes, in an analysis of Australia's defence in the years before World War II, dealt with the decline in the power and influence of the Royal Navy and advocated the use of air-power for maritime interdiction within a broader alliance relationship with Britain. (31)

Calls for a two-ocean navy go back to 1911 when Sir Reginald Henderson reported to the new Federal Government that bases should be built at Port Jackson and Cockburn Sound. A lack of funds and World War I prevented development at that time, But England no longer has a base in Singapore and no longer rules the Indian Ocean.

The revised two-ocean navy policy goes some way to orientating Navy operations to its regional roles and responsibilities. But Navy's readiness to continue to concentrate its major fleet support assets in the south has attracted too little debate.

Not only does the choice of Cockburn Sound as the location of a main fleet base at the expense of a northern port like Darwin raise doubts about Navy's operational concepts for the defence of vital national interests in the North and NorthWest, but it sends the wrong signals to a region looking to Australia as a symbol of western engagement in regional stability. Furthermore, by failing to develop a major fleet base in the north of Australia, we have restricted the usefulness of our defence infrastructure to the United States in pursuit of its wider global interests.

To argue that Darwin is too exposed to operations from the Indonesian Archipelago assumes a major deterioration in our strategic circumstances. This would require a hostile Indonesia, or the occupation of a portion of the Indonesian Archipelago by a hostile external power. But a hostile power will not be able to gain a foothold in the Archipelago if the region pursues a policy of collective or at least cooperative security and the United States remains strategically engaged.

The proper execution of the Navy's mission implied by the Ministerial Statement on Regional Security demands a close evaluation of Navy's priorities. The focus of Australia's defence interests have moved inexorably to the North since the publication of the Dibb Review in 1986 and the Fleet Base Relocation Study in 1987. Navy should not drag the anchor in embracing its newly expanded role. While Australia is probably building the right Navy, it is not clear that it is building the right bases for operations in the right ocean.

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### AUSTRALIAN SHIPPING IN CONTEXT

by

LCDR Daryl Smith RFD RD RANR

#### INTRODUCTION

Australian commercial shipping is firmly established as an integral part of global Maritime Business, and as our society approaches the 21st century shipping emerges from being municipal and international in character to a dynamic force on a global plane.

In a global context, 80 percent of Maritime Law can be regarded as "dry", covering commercial Maritime Business, and the mirror of Maritime Law, Marine Insurance. The other 20 percent which is "wet", is perhaps more traditionally adventurous and involves Law of the Sea, collisions, groundings, the growing mass of International Maritime Organization Conventions, and last but not least, the business of the Admirals.

Australia's economic well-being is heavily dependent on Maritime Business and international trade, and any increase of its commercial shipping industry will, of necessity, see a significant expansion in Maritime Law activity.

The Maritime Business Community in Australia must therefore be prepared to take an increasing interest in Maritime Law legislation and the impact of such legislation on the shipping industry, both as a recognised body within its own region and on a global basis through appropriate international channels, for while there is growth in Australian Maritime Business there will be a positive contribution to the nation's economic well-being.

#### SHIPPING IN A GLOBAL CONTEXT

Shipping is big business. It requires enormous capital outlays, it is global in character and a derived movement demand service industry with linkages throughout the entire international transport network.

The legal and regulatory appendages to Maritime Business are wide-ranging in content, international in scope, and impact upon the economies of all nations.

The world merchant fleet of 70,200 vessels employs 878,069 seafarers with one-third of all seafarers employed under flags other than their own nationality.<sup>1</sup>

The physical tasks performed by the world's waterborne vessels include the transportation of 95 percent by weight of all international trade and the consumption of three percent of the world's energy needs.

As a highly organized movement industry, shipping can be used directly to earn hard currency, for the projection of national interests, and through subsidies or the manipulation of freight rates, to reflect government or commercial business policies.

The innovative methods of flag discrimination practised by many nations, including Australia, under guises such as tradebans, trade agreements, preterential treatment, most preferred partner, economic community, closer trade agreements, closer economic relations, and so on, invariably ensures that freight rates are not world competitive under such discriminatory arrangements.

Protective measures for national shipping are many and varied and can include loan moratoria, state-organized mergers, subsidies, grants, investments from closely involved banks, soft loans and direct Government involvement.

In 1982, the average age of the world fleet was 8 years, by 1989, the average age was 12 years, and by the year 2000 there will be a requirement for over 350 million tonnes deadweight of new buildings at a rate of 32 million tonnes per annum as against only 14.6 million tonnes in 1988. This will require \$US 78 billion additional capital from non-traditional sources<sup>2</sup> and could cause a considerable shake-out in ownership patterns.

## AUSTRALIA'S RELEVANCE IN GLOBAL SHIPPING

World seaborne trade in 1985-86 was 3385 million tonnes gross weight, of which Austsalia's share was 7.7 percent, or 260 million tonnes gross. On a tonne-miles basis, the world seaborne task was 13765 billion tonne-miles with Australia's share being 13.6 percent or 1870 billion tonne-miles.<sup>3</sup>

In Australia's case, it is the fifth biggest generator of sea transport demand in the world<sup>4</sup> and provides six percent by weight and one percent by value of all international trade.<sup>5</sup> Yet strangely enough, with only 0.6 percent of world tonnage, recently ranked about 35 in the world league of shipowning with a relatively small commercial fleet of 76 major vessels over 2000 deadweight tonnes. Of these, 33 are engaged in overseas trading and 43 in domestic coastal trades. 11 of the 76 vessels are in a combination of both the domestic and overseas trades. Additionally there are 18 other smaller vessels over 150 gross tonnes to make up a total of 94 ships of the Australian trading  $^{6}$  fleet.

Of the total Australian international transport task of 263 million tonnes in 1986-87, shipping accounted for 99.9 percent. 91 percent of the total maritime task involved the movement of exports and of the total export cargo, 90 percent was dry bulk cargo.

In world terms, Australia ranked 19th among the importing nations and 24th among exporting nations in 1987<sup>7</sup>

In general terms, Australia's biggest indigenous shipping group, B.H.P. Co. Ltd., is about as big as the fifth biggest Japanese operators, and about as big as the fifth biggest European <sup>8</sup> operator. And while there is a long way to go before the nation can gain any significant increase in Australian flag participation in its export and import trades, current industry and government policy moves are most encouraging with present initiatives concentrating on the reduction of physical manpower and manning levels in ships and wharf cargo handling activities.

In very broad terms, it can be said that for every one tonne of imports. Australia exports ten tonnes and still loses out on the monetary value of the transaction.

With an overall shipping tonnage capacity in 1986-87 of 300 million deadweight tonnes per annum serving Australia's export/import trade, imports required 23 million tonnes deadweight (26 million tonnes revenue), and exports 233.7 million tonnes deadweight (234.7 million tonnes revenue).

Incredible as it may seem, 31.5 percent of the major Australian fleet is overseas owned with this accounting for 19.3 percent of the deadweight tonnage9

### AUSTRALIAN SHIPPING FLEET - PERSONNEL

Australia established its own Register of ships on Australia Day, 1982, and at 30 June, 1989, listed 6,363 vessels of various types, mostly small craft.

At June 1988, 54,900 persons were employed across the spectrum of the nation's shipping industries representing 0.9 percent of the total persons employed in Australia. Subisdiary to the commercial trading fleet is a fleet of 116 tugs for commercial ship-handling in 49 commercial ports around the nation, with the major component of tug operating costs being crew costs of between 50 and 80 percent of the total cost structure of a towage operation in a particular port. And of the high profile and often maligned waterside workers, the amount of non-bulk cargo handled by each waterside worker increased from 1,000 tonnes per annum in 1965 to over 5,000 tonnes per annum in 1985 with the current productivity increase said to be compounding at a rate of 11 percent per annum.

#### TRADE - COASTAL - EXPORT-IMPORT

In terms of Australia's domestic transport task on a tonnes kilometre basis, Australian coastal shipping carries more freight than any other form of transport. This however is tempered by the fact that 90 percent of all Australian domestic coastal cargo is carried in ships owned or controlled by the cargo owners, and that coastal bulk cargoes represent some 93 percent of total coastal tonnage with members of the Mining Industry Council owning or controlling more than half of the coastal shipping.

What makes the coastal shipping task different to the overseas task is that 90 percent of the coastal task is "in-house", tied, and virtually non-competitive, whereas the overseas task is global open market competition.

The coastal freight bill in 1986-87 was \$790 million. This comprised \$680 million in ship based costs plus wharfage and stevedoring of non-bulk cargoes included in the freight rates. In the same period Australian flag shipping carried approximately 4.1 percent of Australian seaborne exports and 5.8 percent of Australian seaborne imports, or 4.2 percent of the total Australian task. Again, in the same period, the gross earnings of Australian flag shipping in coastal and overseas trading were estimated at \$1.160,000,000.

In 1987-88 the coastal shipping task around Australia was about 43.3 million tonnes equalling 89.4 billion tonneskilometres with the estimated freight cost about \$660 million. This involved 56 ships (over 2,500 DWT) with a total DWT of 2.5 million tonnes using some 40 coastal ports and with bulk minerals and energy products accounting for about 96 percent of the total coastal shipping task on a tonnes/kilometre basis.<sup>9</sup> Of the minerals and energy products 68 percent were dry bulk and 28 percent petroleum products.

#### POLICY ISSUES

The plethora of complex laws governing national, regional and international Maritime Business, together with the statutory controls, regulations, Marine Orders, Ministerial Recommendations, International Conventions, Protocols, Agreements, Understandings, Practices and Customs of the Port or Trade, and Ministerial discretions and delegated powers, form a very small segment of some of the legal obstacles to be encountered by a potential ship operator seeking to enter an industry which is almost suffocated by legislation.

Statutory junk mail, Official Government documentation, user pays fees and regularly increased bureaucratic service charges combined with an awe-inspiring range of monetary penalty provisions, provided for under a wide range of both Federal and State legislation and local bylaws, make a full understanding of Maritime Business and its associated Maritime Law extremely difficult for all but the very experienced Maritime Businessman or exponent in the field of Maritime Law.

Over-regulation and statutory supervision, no matter how necessary or well-intentioned, has to be paid for and is one of the many impositions passed on to the ship operator, shipper and end consumer. However, despite the chronic ills of over- regulation and a crippling range of stagnant Federal and State bureaucracies, Australian shipping remains profitable overall but grossly non-competitive in the international marketplace.

The issues become confused and the incentive for a national shipping strategy wanes when the legislators attempt to influence the upstreaming and downstreaming of ship operators' activities, the vertical and horizontal operations of inter- national cartels, and the in-house financial manipulations of non-competitive monopolies.

Current Australian ship operators have little incentive to try and break into the real world of competitive international shipping, as a perusal of the operators concerned shows that they are only associated with specific sectors of the coastal bulk trade and are really not interested in the business of cargo procurement or competitive international sea transport.

The mind tends to boggle when looking at the effects of legislation and governmental policies and practices on Australian ports which directly affect the efficiency of interstatesea transport arrangements with the very scope of autonomy granted by State Governments being an encouragement to the concept of Autonomous Ports becoming publicly independent of close ministerial control. The regulatory, administrative and managerial procedures within the broad spectrum of the out-dated Australian port system shows that:

 In the process of importing just one piece of L.C.L. (Light Container Load) cargo, up to 100 cargo related documents can be generated.

0

The legal linkages which currently impact upon commercial shipping, and these include national, bilaterial, regional, international and LM.O. sourced regulatory and statutory constraints, have reached such proportions that Maritime Law is last becoming a major legal growth area, with the proliferation of ship management companies distancing many beneficial owners from the scrutiny of public accountability.

#### COMPETITION ISSUES

In the sphere of Maritime Business, the beneficial ownership of a commercial vessel may be conveniently shuffled through mortgage. leasing, cross-charterring, tax minimisation and Ilag of convenience measures so that the true ownership identity is difficult to trace. In fact the beneficial ownership can be clouded almost to the point of obscurity.

Australia relies almost exclusively on toreign flag shipping for its commercial survival in the international marketplace and the time is now long overdue for the national decision makers to develop and action a strategy for the projection of Australian commercial shipping.

The bulk of Australian coastal shipping is very much operated on a commercial "inhouse" basis whereas the foreign flag shipping upon which Australia relies for its vital import and export trade is a combination of very highly competitive spot market operators and multi-national cartels with locally integrated networks.

The cost to Australia in supporting foreign-owned ship operations significantly affects Australia's balance of payments and is a lucrative financial area which can and should be fully exploited by Australia to help reduce the nation's staggering international indebtedness.

The high degree of confidentiality which invariably surrounds the predatory nature of Maritime Business, coupled with the fact that huge capital outlays for shipbuilding can be financed 100 percent through creative international mortgage, leasing and chartering contracts, allows a system of "double-dipping" by separate owners and operators of profitability in some low competition Australian trades, and the continued maintenance of high freight rates. (or cost for service for non-trading vessels), particularly where the owner and the operator of the vessel are separate entities. And with most of Australia's coastal tonnage being carried for captive participants moving their resource products in an "in-house" production or distribution process only, the desire or incentive to break into the competitive export and import trades, particularly in areas outside their normal interests, may require legislative or government support.

The business separation of owner from operator can be used as a form of pyramid selling which has successfully and faithfully served the world shipping industry for decades.

The aura of confidentiality which surrounds the profitability of in-house shipping operations is able to successfully screen the real value of Australian shipping.

A cost breakdown of a liner operator trading between Australia and New Zealand across the Tasman Sea shows,

0	Stevedoring and	related costs
	A State of the lateral	65%
0	Ship costs	31%
0	Administration an	d overheads
		4%
TOT	AL	100%

Of the 31% ship costs, the breakdown

0	Capital costs 49%	and maintenance	
0	Manning	21%	
0	Bunkers	5%	
0	Port costs	15%	
TOT		100%	

It follows that crew costs are currently 21% of 31%, or 6.5% of total costs. Even a massive 30% reduction in crew costs will only lead to a reduction of 2% in total costs and this is on the basis of each crew berth costing \$103,000 per annum so that the bogie of high costs for Australian crews may be shown up for the fallacy it always has been or is an effective cover up for poor Mantime Business Skills.

Of the 94 vessels (of over 150 gross tonnes) which make up the Australian Trading Fleet, 45 vessels are owned by organizations which do not actually operate the vessels themselves.

The 94 vessels are in fact operated by 30 operators. And of 76 vessels which make up the Major Australian Fleet of 3,653,632 DWT. (vessels over 2000 DWT), 24 are overseas owned. Again, currently only 17 vessels of the Major Australian Trading Fleet (of 76 vessels), were built in Australia, which gives a better idea of the nation's dependence on foreign shipbuilders.

#### RELIANCE ON FOREIGN FLAG SHIPPING

In 1984, 2,439 ships belonging to 73 different flags visited Australia with the total number of shipping movements being 6,823 individual port visits. Australian flag ships, however, only ranked tenth in the number of shipping movements representing a mere 3.5 percent of total port visits.

Perhaps the most incredible aspect of Australia's overall maritime transport task is the national scandal in which 95 percent (80 percent by value) of Austsalia's import and export trade is carried in foreign flag ships owned and registered outside Australia. This financial drain on Australia's economic earning power will certainly continue while successive Australian governments lack the nerve to accept the political and ideological fact that a vital component of the nation'seconomy is under foreign flag control.

In the high value manufactures segment of Australia's international trade 50 percent of the nation's international trade is transported by liner shipping with an annual value of 35 billion dollars. Most of this liner trade is captive to foreign monopoly cartels which carry between 50 percent and 80 percent of the liner trade, with nonconference or independent operators carrying the remainder.

Of the 58 shipping lines operating 185 ships in the lucrative liner trades in 1983-84 only one Australian company had any significant presence and even that presence has now deteriorated. In the overall tasks of Australia's overseas trade, as distinct from the coastal trade, 350 ships are more or less permanently engaged in addition to irregular callers.

In the coastal component of the Australian sea transport task, Australian coastal shipping, in 1986-87, carried about 44 million tonnes between some 65 ports at an estimated cost of 920 million dollars on a wharfgate to wharfgate basis with the ship segment valued at 680 million dollars and the shore segment valued at 240 million dollars, which is about three percent of the total Australian domestic task, or 37 percent on a tonnes kilometre basis, down from 52 percent in 1970-71.

Taking Australian flag shipping as a separate entity, the task undertaken is: ANNUAL TONNAGE

11 m Overseas 44 m Coastal ANNUAL FREIGHT

(\$A) 640 m Overseas 680 m Coastal

Perhaps the biggest factor inhibiting a substantial Australian flag participation in the nation's import and export trade is the enormous imbalance in ship types required for the separate import component and the separate export component of the nation's sea transport task.

Something like 70 percent of exports are mining and resource products and 30 percent are in the manufactures sector, while for imports exactly the opposite prevails, with 70 percent of imports being manufactures and 30 percent being resource products.

This major imbalance in product type means that different ship types are required for most imports as against exports. In some trades it is possible to use multi-purpose vessels but in most instances a bulk carrier will come to Australia empty and depart with a one way cargo. If this imbalance in product type can be evened out by an increase in manufactures for export and a decrease in manufactures in imports very considerable economies of scale can be achieved. Of the bulk exports, nearly 90 percent come from mineral and rural industries, both of which face intense competition in already oversupplied world markets.

While Australian entrepreneurs may appear reluctant to commit huge capital investments into an industry which has been described as having the worst industrial relations record of any developed nation, it should be pointed out that there is developing a strong shipping industry-wide realisation that a change in Australia's international sea transport capabilities is long overdue and needs to be made in the national interest. With this in view, recent industry, trade union and government initiatives for changes are starting to impact in a spirit of industry-wide co-operation which hopefully will lead to a more efficient and effective Australian flag shipping capability and increase the international competitiveness of Australian commercial shipping.

#### AUSTRALIA'S COMPETITIVE ABILITY

Australia's international indebtedness is now approaching 160 billion dollars and is clearly spiralling out of control when compared with \$45 billion in June 1984, \$14 billion in June 1978 and \$6 billion in June 1973

The nation's ability, however, to trade itself out of a looming, disastrous economic quagmire is stymied by the revelation that, as a world exporter, Australia's ranking has slipped from 8th in 1953, to (2.6% of world), 12th in 1973 and to (1.7% of world) 23rd in 1983, (1.2% of world) and is still slowly falling.

The potential revenue for carrying Australia's overseas seaborne trade currently stands at \$A7 billion and while 55 percent of world exports are manufactures, only 20 percent of Australia's exports are in this category and occupy a miniscule 0.37 percent of the world market.

The cost of servicing Australia's foreign debt in 1982 was 8 percent of its export income, in 1989 it had escalated to an unacceptable level of 20 percent.

Very decidedly something has to be done to prevent a collapse of the Australian standard of living, and one area of economic action which can be taken is to reduce the more than seven billion dollars a year outflow of freight and other shipping costs which leave the country in the form of payments to foreign flag ship owners and operators.

Australia's annual overall commercial shipping task is in three distinct areas (1987-88):

(\$A31.91 billion)

EXPORTS of 268.06million tonnes (\$A35.50 billion)

COASTAL of 43.30 million tonnes (TOTAL 338.10 million tonnes)<sup>10</sup>

The ability of shipowners and operators to "flag-out" into areas where the standards and costs of living are lower than Australia's is perhaps the major obstacle in building up an internationally competitive fleet. Australia has the trade, it has the personnel and it can soon acquire the vessels but it is the social standard of living which currently determines international economic competiveness in shipping.

The net cost of servicing Australia's overseas debt in 1990 is now running at more than \$A16 billion a year which means that 37 percent of all our export income immediately goes back overseas to pay interest and debt.

#### THE FUTURE

There seems little likelihood of any significant increase of Australian flag shipping in the nation's import and export trades in the short or medium term. This is due to:

- The reluctance of Maritime Business entrepreneurs to commit vast capital outlays into the higher cost of operating Australian flag vessels in competitive world markets.
- The reluctance to import Free on Board (FOB) and export Cost Including Freight (CIF).
- The Maritime Business difficulties of coordinating a resource export trade with a manufactures import trade to maximise the vessel utilization.
- The diplomatic difficulties of breaking into trades captive under agreements between other nations' national cabotage provisions, trade bans, and flag discrimination arrangements.
- The reluctance of the present "inhouse" coastal owners and operators to expand into an internationally competitive market outside their normal business enterprises.
- The lack of effective taxpayer backing to ensure guaranteed profitability for Maritime Business entrepreneurs willing to take up the challenge of competition in open competitive markets, and
- The lack of a national policy to reserve a percentage of trade for

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Australian flag vessels where such a trade is with another nation with a reservation policy in flag international trade

A redeeming feature under which the "in-house", non- competitive Australian coastal shipping environment operates is that:

There is no Australian shipping laid-0 up for want of cargo.

and

Ø There are no bona-fide seafarers unemployed.

Recent privatisation of the New Zealand ports system has reduced the number of harbour workers by 40 percent, the average ship port stay by 50 percent, reduced waterfront costs up to 60 percent cheaper than Australia, and is one of the options Australia should carefully consider.

#### CONCLUSION

In the development of any worthwhile policy for the establishment of a viable international Australian flag shipping industry, the decision makers must decide what is critical to Australia's economic wellbeing and what is merely important, after carefully thinking about the hard economic decisions which must be taken by Government and Industry to lift the nation from the mire of international debt and foreign sea transport dependence.

Although something over 99 percent of Australia's international trade is carried in ships, not all of that trade, in or out, can be said to be essential to the survival of the nation, but a percentage of it is.

There is no doubt that the rigid cabotage policies of successive Australian Governments have developed an inwardlooking non-competitive coastal shipping environment, which has only been sustained by decades of total protection from foreign flag competition.

Australia's benevolent attitude of allowing freight rates, insurance rates, time and voyage charter rates, manning levels and shipbuilding costs to be determined almost exclusively outside its jurisdiction is strategically dangerous and places the control of the nation's international trade in the hands of countries who are capable of using such control to the economic and political detriment of Australia.

If ever the nation needs to trade it is now, and to trade successfully Australia must have a strong commercial shipping fleet over which it is able to exercise control. A recent world survey of standards of living by the OECD puts Australia in 24th place, forty years ago it was placed third. Australia is now clearly on the way down, and debate on welfare, interest rates, taxation and the environment will remain confused while activists, remote from international markets, pledge specious statistics to support doubtful ends.

The health of the Australian economy depends on trade and it is important for Australia to develop an ability to project its commercial shipping and to ensure that such shipping remains protected, both economically and physically.

While it may be easy to formulate a legislative policy for Australian commercial shipping, the decision makers have yet to show the entrepreneurial management skills necessary to effectively action a strategy to stop the multi-billion dollar drain caused by toreign flag shipping control of the nation's import and export trades.

In whatever its forms, bare unashamed profit-making is the reason shipping operators exist. With the dexterity and skills of the creative and manipulative accountant being paramount in exericising his agility to juggle millions across the ledgers and through the balance sheets to reduce the burden of taxation, industry over-regulation, restrictive work practices, bureaucratic stagnation and legislative indifference.

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#### THE AUTHOR

LCDR Daryl Smith joined the RANR (SEA-GOING) in 1959. Postings include IIMA ships, Quickmatch, Queenborough, Supply(twice), Sydney (carrier) and Stalwart LCDR Smith holds a Full Naval Watchkeeping Certificate and has completed the RAN Tactical Course and the Convoy Commodore Course. Sea service in more than 70 different ships up to 165,250 tonnes displacement, under Australian, British and Hong Kong flags, has included command of 16 different ships and pilotage certificates for 14 Australian ports, LCDR Smith has a number of business and professional Interests and enjoys cruising in his 13 metre Auxiliary Schooner Ventura.

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## ANI BOOK LAUNCHING

In the presence of

### His Excellency Rear Admiral Peter Sinclair AO

Governor of New South Wales 1100 Sunday 7 October 1990 on Garden Island, Sydney Harbour

Ships	No	DWT	Gross
MAJOR TRADING	FLEET (2000	DWT AND OVER)	1
Coastal	1	1	1
Australian owned & registered	32	1,268,313	881,986
Australian owned, overseas registered	1	35,244	20,570
Overseas owned, Australian registered	7	78,725	54,492
Overseas owned & registered	3	17,056	10.303
Coastal Fleet	43	1,399,338	967,351
Overseas			
Australian owned & registered	18	1,600,785	964.627
Australian owned, overseas registered	1	41.151	29,223
Overseas owned, Australian registered	13	609,433	458,185
Overseas owned & registered	1	2,925	2,610
Overseas Fleet	33	2,254,294	1,454,645
MAJOR AUSTRALIAN FLEET	7.6	3.653.632	2 421 996

Australian owned & registered	18	9,868	10,848
AUSTRALIAN TRADING FLEET	94	3,363,500	2,432,844



### REFORMING THE AUSTRALIAN DEFENCE FORCE

By LCDR Alan Hinge RAN

Remember it is the customary fate of new truths to begin as heresies

The art of war is in a continual state of development. New and increasingly lethal arrays of weapons and tactics confront defence organisations with the need to adapt to changes which affect military performance. Not only do defence organisations have to deal with changes imposed by the accelerative thrust of technical innovation and human cunning. They must also adapt to changes generated by wider society such as social changes affecting the attitudes, motivations, 'spirit' and moral values of those newly entering the services. Therefore the spectrum of change which impacts on the defence environment is both broad and dynamic. The changing defence environment can no longer be catered for by unduly straining old organisational maxims to meet new conditions. We must learn to to be inherently more adaptable and responsive to changing conditions and not remain absorbed with maintaining the status quo. The status quo is comfortable but it could get us killed.

A fundamental institutional reform of the ADF is called for.

The aim of this article is to specify how to institute the two decisive changes needed in the ADF to restore commitment and group cohesion to a high level. The first change is a major decentralisation of control which will enrich jobs and raise the pulse of our people's endeavour. The second change is the reform and restructuring of the Australian Officer Corps so that good leadership again takes its rightful place above good management (men won't be 'managed' to their deaths).

To achieve the aim of changing to restore cohesion and commitment in a defence force which is showing signs of degeneration in terms of morale and confidence we have to do the following:

- First, Sober up! Remember what our job is and, after almost half a century of relative peace, refocus on the issues that really count. Recrystallise our basic objective.
   and maintain it!
  - Go 'home' Look at tomorrow's task environment.

- Decide on the requirements of the people we need to succeed in tomorrow's task environment.
- Identify the decisive changes to be made the. ADF to make it an organisation capable of nurturing, educating and motivating tomorrow's winners; and
- Keep the unique values we have that will count in a crisis

#### THE REAL ISSUES - THE THINGS THAT COUNT!

Deterrence deters. Despite the growing importance of economic, political, diplomatic, legal and ideological levers as tools used by governments to influence conflict situations and reinforce national security, military performance remains the ultimate guarantor of a nation's detence. This is not a simplistic Clausewitzian cop out! Certainly, as the ancient Chinese strategist Sun Tzu said, '...to win without fighting is the acme of skill' but we cannot count on the acme of political and strategic skill always being available in the Australian military-political establishment. Far from it.

Hence military performance underwrites national security and the only real test for the ADF remains combat performance. We must be combat credible by having a military capability married to cunning and the will to use it. That's deterrence. Military capability comes from having the hardware while cleverness and will comes from people, the right people.

The use of force will not become obsolete in one year, ten years or perhaps even a hundred years time. Combat performance will remain the test and anything else we do well doesn't really matter! We may be able to provide a 'quality of life' (however you measure it!) to our servicemen and women which is comparable to or exceeds that in civilian life We may even become exemplary at assimilating the modern business and bureaucratic practices which streamline the ways we manage major capital projects. We may be good at surveillance, search and rescue, aid to the civil community, hosting cocktail parties and looking smart on ANZAC

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Day, but if we cannot perform well on tomorrow's battlefield under fire, and win, these things really do not matter and we will have failed ourselves and our country.

The ultimate object of change in the ADF is therefore to win. To win in battle by ourselves as a cohesive defence force.

Winning on the battlefield tomorrow depends on how we reorganise our people and processes today. An organisation consists of people and the processes which are set in place to make their jobs easier. Throughout history some defence organisations have simply outperformed their contemporaries on the battlefield because they have developed processes to bring out the best in their people. Such organisations were energised by their people. They nurtured and sustained human commitment. We can relearn their lessons and ensure we become a winning defence organisation when we have to be.

The Roman legions, Napoleon's Grand Armee, Moltke's Armies, the German Wehrmacht and the divisions of the Israeli Defence Force all had two decisive common denominators in terms of the way the processes of the organisation were deliberately geared to heightening the pulse of endeavour and commitment of their people. These common denominators transcended time and technology(2). The first involved simplifying organisational command and control to build commitment and cohesion in people. The second principle was ensuring the existence of an excellent officer corps and hence leadership.

Some serious cracks have shown up in our organisation in terms of the way we do business (processes) and the way we handle our people. The pulse of endeavour in the ADF is wavering and things are not OK as we face an undeniably serious problem(3). personnel wastage Consequently the ADF is confronted with the major social engineering problem of revamping the organisation to meet the changing aspirations and expectations of the people it needs. Let's not kid ourselves. 'Fine tuning', slick psuedo-corporate management tricks and a plethora of retention bonus schemes may ease the pain for a while but will not be enough to stem the haemorrhage of talent. The truth is that reduction in experience levels continues because people do not feel strongly enough committed to our organisation. Unless we genuinely come to grips with decentralisation and streamline our processes so as to enhance commitment and reduce Irustration, people will continue to 'defect' and leave for what they perceive as better rewards. Then, without stable experience levels we will become a second rate outfit. A loser.

Make no mistake about it. Problems and difficulties involved in attracting, training and retaining the right people in the ADF cannot be blamed on exotic factors such as external market forces, greater executive mobility in the wider community. demographic trends, the need to compete with the civilian economy for expensive technically gualified manpower or even a general reluctance by the young to accept the discipline of service life. These are secondary considerations which only serve to show up a sclerosis in our own defence organisation. A sclerosis which disappoints our peoples expectations, saps vigour, lowers the pulse of personal endeavour and fails to sustain commitment in them. The ADF is becoming uncompetitive not because it is doing the wrong things but because it is not doing things right! It is not placing its people in an environment where they feel like winners. There seems to be a growing feeling that the ADF is becoming a second rate organisation which is increasingly misunderstood by an uninterested public, increasingly cribbed by an overcentralised bureaucracy and increasingly cowed by a government which fails to recognise the uniqueness of the military and make allowance for it.

Our real problem in changing the defence environment is therefore that of reshaping and refocussing our organisational structure and processes to better serve the aspirations of the kind of people we need, the type of people who can save us and pass the test. But let us look more closely at the test, that is, combat in tomorrow's task environment. This will give us a few important clues on how to go about the organisational refocus.

#### TOMORROW'S TASK ENVIRONMENT - GOING HOME!

Tomorrow's battlefield will most likely have no 'front line' and will run around the clock. It will become an increasingly uncertain task environment due to the acceleration of tactical change and a resultant lessening of time for human decision. Higher speed decisions will need to be made as more information/intelligence. arrives at greater speed. Delay will become increasingly costly and there will be far, far less time for extended, peaceful attention to one problem or situation at a time as the speed and range of modern weapons and transport systems reduces command coordination times to a fraction of what they were only a decade ago. Every minute of decision 'down-time' will cost more in lost opportunity than ever before. Tempo will be greatly increased and slow moving amateurs armed with bankrupt, maladaptive control systems will die(4).

Contributing to rising uncertainty, tempo

and confusion is the fact that almost instant feedback blurs the traditionally clear division between hierarchical line and staff and, given the increased need for decision flow enhancement, the elaborate hierarchies which once directed corps, divisions, air fleets and naval task groupings may totter in their slowness to assimilate mountains of information and respond to rapid change. Planners embedded deep in a calcified military hierarchy or civilian bureaucracy will be too remote, too ignorant of local conditions and too slow to react to a fluid, dynamic situation.

There will likely be a vastly increased risk of command/control/ communications (C<sup>3</sup>) failure in highly centralised command systems dominated by lumbering civilmilitary hierarchies (8). Modern warfare is marked by high mobility, complexity and dispersion. These will continue to be dominant aspects of tomorrow's changing battlefield and deployment strategies.

Hard evidence is mounting that many tried and true ways of doing business in Western style military operations are becoming increasingly ineffective in modern conventional conflict. Professor Richard Gabriel, a former US Army intelligence officer and currently a Special Consultant to the US House and Senate Armed Services Committee, undertook a comprehensive series of studies in which he assessed the five major military operations US forces have been committed to since 1970 - the Sontay Raid in Vietnam 1971, the Mayaguez rescue bid in 1975; the Iran hostage rescue attempt in 1981, the Marine Peacekeeping tragedy in Beirut 1982 and the Grenada Invasion of 1983(5). Gabriel concluded that each mission, even the Grenada effort (which could not be militarily lost) was crippled by clumsy execution, poor planning and faulty intelligence and each cast serious doubt on the ability of the US Department of Defence to actually wage modern limited war. He suggests that nothing less than fundamental reforms involving new arrangements of people and processes, breaking with calcified lines of military and bureaucratic traditions, are needed to be successful in tomorrow's high tempo military task environment

One may argue: 'We have our act together!' But the numerous similarities in the way the Australian Department of Defence and US Department of Defence do business were institutionalised with the 1973-76 Australian Defence reorganisation which was directly modelled on the McNamara defence functional reorganisation of the early 60's

The same well documented institutional and micromanagement pathologies exist in both systems. Most NATO/ABCA nations have similar pyramidal command and control orientations due to a deliberate policy of inter-operability and we should not presume that we will have any different problems to those encountered by the Americans(6).

#### PEOPLE AND PROCESSES WE NEED - THE RIGHT STUFF!

In war we cope with first time problems. We have seen that tomorrow's winners will have to gear themselves increasingly to solving more non-routine problems faster. This is particularly so in democracies, like Australia, which must regain the initiative since we seldom have the luxury of being able to 'throw the first punch', or our people the creative imagination capable of responsibly departing from set routines and standard operating procedures. Indications are that there may be a real danger that our currently rigid, vertically oriented structure may totter in tomorrow's task environment and catastrophic failure may occur. We would be complacent not to at least accept the possibility of a crisis in command and control of an as yet untried ADF(7).

To meet the test we must evolve a command/control organisation and personnel employment/management programme which will effectively be capable of self renewal, that is, capable of quickly altering structure, style and tactics to meet contingencies inherent in our increasingly uncertain task environment. Organisational structure, decision flows and processes must now evolve to match the capabilities of our people and nurture their creativity.

## PROCESS CHANGE - DECENTRALISATION

The structure and processes of a command/control system must be adapted to the level of uncertainty associated with the defence task. Not only does the Australian defence organisation have the prospect of facing the uncertainty of a fast moving battlefield but it also has no clearly identifiable threat on which to absolutely base its force structure judgments. This has led to endless debates by a constellation of committees concerning force development and threat assessment. Increased uncertainty derived trom these deliberations and, a decade after the defence reorganisation, a ministerial consultant was appointed to effectively arbitrate the issues(8). A White Paper resulted which gave direction but did not increase certainty. Consequently the enemy has an ever more decisive role in determining the level of uncertainty which our organisation faces

We can deal with defence uncertainty in two ways. We can centralise or decentralise our command and control. The Australian defence organisation has elected to centralise (some would argue overcentralise) the great majority of its command/ control functions. But a cost is involved with centralisation which has strangely enough made the Department an extremely differentiated and bloated organisation. This is extremely dangerous in a detence environment where we do not know our enemy. Professor Martin Van Crevald, author of COMMAND IN WAR, describes the situation aplly.

The more numerous and differentiated the departments into which an organisation is divided, the larger the number of command echelons superimposed upon each other, the higher the decision thresholds, and the more specialized its individual members, then the greater the amount of information processing that has to go on inside the organization [sound familiar?]. Uncertainty, in other words, is not dependent solely on the nature of the task to be performed; it may equally well be a function of a change in the organization itself.

Confronted with a defence task, and having less information available than is needed to perform that task, an organization may react in either of two ways. One is to increase its informationprocessing capacity, the other to design the organization, and indeed the task itself, in such a way as to enable it to operate on the basis of less information. These approaches are exhaustive, no others are conceivable. A failure to adopt one or the other will automatically result in a drop in level of performance .'(9)

In the mid 70s we elected to go the way of increasing information processing capabilities in terms of building layer on layer of civil-military bureaucracy. Enter the Department of Defence. But what if we go the other way? I am not suggesting going back to the pre reorganisation scheme of having 3 separate, centralised departments but why not attempt to restructure our organisation on the basis of it being able to operate with less information? Decentralisation of control is the way to go in the Australian non-threat, threat environment!

There are four essential steps to be taken in a process of control decentralisation in the ADF. These are:

#### STEP 1. FORCE DECISION THRESHOLDS AS FAR DOWN THE HIERARCHY AS POSSIBLE.

Bureaucratic and military objectives, courses of action and constraints must be clear and definite without restricting local initiatives more than necessary in order to make maximum use of the energy of individuals charged with a task. This demands delegation of real responsibility. real authority and real accountability to middle managers in the civil-military bureaucracy and ADF units. This is the best way of ensuring that decisions taken at the 'coalface' are in harmony with actual conditions. It would also be found that pushing decision making thresholds downwards is a vital part of an education process in responsibility and the cultivation of confidence. The ego needs of the individual are effectively met and there is greater opportunity for job enrichment together with the development of job satisfaction and group cohesion. Reducing decision thresholds also makes it easier to identity and promote those with the best ability to accept responsibility.

Demanding more non-programmable decisions from below forces all levels of the organisation to make thorough appreciations of their situations. 'Don't rock the boaters', 'Yes men' and 'Hangers on' will be shown up in an environment that now becomes competitive rather than administrative in nature. Risks of things going wrong and not 'looking good' will be everpresent. We may even have to rethink the way we judge merit and move away from an emphasis on not being seen to get things wrong to a system of taking certain things in our stride and looking at an absence of mistakes as perhaps a sign that no learning is taking place and people are not making the most out of their jobs. However, education through delegation is the prime responsibility of command in peacetime and the devolution of responsibility process would not take place overnight (10). It is evolutionary. People will respond to the challenge of more responsibility and accountability. The people we need to save us will thrive on the challenge.

## STEP 2 'SELF-CONTAIN' UNITS AS MUCH AS POSSIBLE.

Lessening of decision thresholds is achieved by maximising the command and logistical autonomy of defence operational and administrative/support groupings. In his analysis of successful command and control systems through the ages, Professor Van Creveld notes that outstanding performers were:

...cohesive, self-contained organisations, both tactically and in regard to their command systems. The cohesion - often obtained by carefully selecting men and commanders and then allowing them to serve together for comparatively long periods of time, even at the expense of overall flexibility - and this self-containment have the effect of

reducing the need for communications and information processing both inside the units themselves and between them and higher headquarters; they also ensure that errors, when made, will be limited in scope. Furthermore, the selfcontainment of subordinate units helps simplify planning by reducing the time and effort that have to be spent on overall coordination. If exercising central control over limited resources is one way of maximizing cost-effectiveness. distributing those resources among subordinate units may, by virtue of eliminating much of the need for planning, coordination, disruptions in the communications process, and consequently uncertainty, are inherent in war, I would suggest that distributing the resources may often be the more effective way to maximize costeffectiveness (11).

The suggestion that maximizing cost effectiveness through decentralisation of resources with the object of achieving maximum self containment runs directly contrary to the current functional orientation of the department and ADF. It is also completely different in principle to our current concept of Joint operations which, in slick management jargon, equates to a matrix organisation. Matrix organisations are fine in business but unfortunately indications are that they consistently foul up in war. This is because interfaces still have to be built up between co-operating units and as more interfaces have to be built up. precious time is lost and uncertainty increases. The chance of failure rises tremendously.

#### STEP 3. INSTITUTE RELIABLE PERFORMANCE FEEDBACK MECHANISMS:

We cannot decentralise through delegation without setting up reliable mechanisms for ensuring accountability. A reporting/information transmission system must be instituted which is not merely 'bottom up' in nature, where Headquarters either gets fed mountains of innocuous detail or simply the things people think it may like to hear. Headquarters must supplement the information regularly sent to it by units with 'active search' information by which it can be kept advised of true ADF performance. Decisive, highly selective information must be actively sought from the bottom by the 'Top' using its own independent means and not merely demanded as a matter of routine.

Active search teams must not be seen as intrusive or threatening but as necessary for ensuring the quality of ADF military performance. In particular, a system of Joint Operational Readiness Assessment should be instituted which tests ADF output and provides a high level means of directing remedial efforts. Active search must not be preoccupied with ensuring overly-rigid financial accountability and constraints which immobilize activity. That is not its 'part of ship'. Active search must be based on the principle of 'the truth before cosmetic results' so that there will not remain an overwhelming compulsion for units to look good no matter what. Veracity must be accorded a higher priority than cosmetic management. The command must be made aware of what things are really like at the coalface. Micromanagement without Objectives (or objections) will be 'Out'

By cutting through repeated summarising of information which currently happens at all echelons, active search teams will ensure that a true and speedy picture is made up without any 'chocolate coating'.

#### STEP 4. MINIMISE POSTING TURBULENCE.

Successful Decentralisation and posting continuity go hand-in-hand. Maintaining experience levels on-the-job is an important part of the decentralisation process. Posting turbulence contributes 10 amateurism no matter how professionally competent incumbents are when they enter a job. It takes time to know the content and routines of any job and time to become confident when making decisions and taking guick action. Above all time in job allows people to know other people, to have an idea of each others capabilities, preferences and ways of doing things. The value of this can never be underestimated.

Dilution of genuine military leadership in the Officer Corps continues because we feel we have to compete with private enterprise by commissioning good technicians or other hard to get professionals. Commissions are increasingly given away on the basis of commercial and bureaucratic selection criteria and quaint old 'Officer Like Qualities' do not get much of a hearing in our increasingly frantic scramble to fill nominal officers' billets. By halving the number of officers billets in the ADF during the next decade we can afford to be fussy again!

Besides being bloated the ADF Officer Corps is deformed (Things aren't looking good are they?). In the 1987 Joint Parliamentary Committee on Foreign Affairs Defence and Trade enquiry into the management of Australia's defence it was found that '. The upper rank structure of both the ADF and the Department is being inflated in favour of higher level positions'(14). In 1972 there were 19 Two Star positions in the Services. Today that figure has doubled to 38. During the same period One Star positions trebled from 36 to a staggering 111. This represents six times the proportionate number of One Stars in the US and double the proportionate number in Canada(15). It is little wonder that after thirty or so years of striving for Flag/General rank and making it, senior officers find themselves in a position of having higher rank with less real authority.

After reducing Officer Corps numbers and rebalancing rank structures military leadership can also be enhanced by introducing a new pattern of engagement. This involves extending the nominal service period of selected officers and NCOs to thirty years!

The benefits of having officers and NCOs in the services for thirty years are many. A thirty-year period of military employment would reinforce the military service as a primary career and the profession of arms as a true profession. This period would also stabilise postings and reduce posting turbulence, especially with a smaller officer corps, by up to 30% (16). Mutual knowledge, trust and cohesion would be enhanced and the officer corps would become even more so a repository of seasoned military expertise and experienced leadership.

Of course, to get thirty years committed service from individuals in this day and age is a tall order so we not only have to enrich their jobs through decentralisation and first class military leadership. That is not quite enough. A 'sweet' financial package is also needed.

First of all we must not force our people to leave at the twenty year mark. The current DFRDB 'no-commutation without leaving' provision pushes many of our best people out into the civilian world after twenty years service. Let us work to give our people a lump sum after twenty years and a suitable pension entitlement after thirty years service. For example, increase the percentage of final salary pension payout by 3% per annum over the last ten years. This makes the pension benefit about 65% of final salary after thirty years service, entering at 18 and being able to retire in the full sense of the word at age 48! The expense associated with such a scheme would by no means be prohibitive if the condition of service is selectively given. Also, costs would be offset by those under the new condition not being paid a pension for a decade after their first twenty years. After 'resuscitating the organisation through decentralisation, halving the officer corps and drastically altering the basic service engagement pattern!' we must do one more thing. This is to consciously decide what not to change in our defence environment.

We, the military, are unique. We are a different 'culture' and must remain so. If we do not believe this then no one else will. Duty, camaraderie, self sacrifice (and not total self interest) together with a willingness to perform their duty with courage against the odds, if necessary, are still prerequisites for those wearing uniforms whether they be combat infantry, radar plotters aboard warships, airframe mechanics or staff officers in Defence Central. They are simply expected to place their life in jeopardy when legitimately ordered to do so. It is a unique and pervasive obligation which simply cannot be civilianised.

Military mission is becoming less and less the key to our military organisation. Political and bureaucratic considerations are. Motivation, commitment and professionalism are suffering as we have become further removed from our basic purpose and identity and become awash in a sea of civilian and bureaucratic values. We must begin to discriminate again and resurrect our military ethos.

Motivation within the military is different to that in the corporate community or a civilian bureaucracy. Our people must not be further conditioned into unquestionably accepting the habits, methods and ultimately the value systems of bureaucracies and businesses, otherwise their perception of themselves as true. unique military professionals disappears and military performance declines. It will then be impossible, apart from the occasional wearing of uniform, to discriminate between military officers and corporate executives, sealing our fate as a truly second rate organisation. There are simply no civilian equivalents and we must no longer let ourselves be judged on that basis.

The people we need to attract and retain must be systematically educated in this military responsibility and ethos. It can no longer be taken for granted that the military spint or ethos in many ways approximates to that of the outside world so we must spell it out from 'day one'. Formal socialisation into the services must begin with stating and practising a code of military conduct and responsibility. The code must be practical. non-idealistic, non-cynical and consistently reinforced throughout careers, even if this adds significantly to initial entry training time. If not, cynical, suspicious and nihilistic pressures from wider society will further dilute the military ethos and this may lead to a compelling and probably fatal mediocrity on the battlefield. Unfortunately, all too often the services have compromised their principles to accommodate trendy and transient myths and slogans.

#### KEEPING THE MILITARY ETHOS

#### CONCLUSION

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Military performance underwrites national security. The ADF must aim at no less than an excellent level of performance so it can prevail under fire and guarantee national security when and if diplomatic, economic, political and ideological levers fail.

Consequently, the prime object of change in the Australian Defence environment is the ability to win by ourselves in combat. This calls for an abandonment of bankrupt methods which may make the ADF maladaptive in its task environment. A levelling process of centralised, pyramidal heirarchy of control is broken down to cope with the speed of change. Our modern civil-military bureaucratic system of war planning and execution may have become calcified and will totter when challenged.

The ADF must go beyond bureaucracy to solve its problems of declining retention, motivation and commitment. Fair dinkum decentralisation of control (not command) will develop an organisational climate which educates tomorrow's leaders in the decisive skills of accepting responsibility, using real authority and ensuring accountability. This breeds winners who have confidence in themselves and contagious enthusiasm born of having some control over their jobs, actions, lives and achievements.

Two radical means of organisational 'traumatic surgery' have also been described which can transform the ADF Officer Corps into a truly outstanding one. One involves halving the number in the Corps and adjusting the rank distribution of the Corps. The other involves a dramatic change to the engagement pattern of selected officers and NCOs.

There are no miracle cures to the personnel and organisational problems contronting the ADF, only a complex set of tradeoffs. This article has called for new arrangements of people and tasks which break with military and bureaucratic traditions in the conviction that new arrangements for promoting decentralised control and excellence of leadership will guarantee the high level of human commitment we need to be winners. The risks involved in implementing these fundamental institutional reforms are great, but the challenge to change is clear.

#### FOOTNOTES

- From Thomas Huxley's 'The Coming of Age of the Origin of the Species.
- Van Creveld, M, 'Command in War', (Harvard University Press, London, 1985). Van Creveld traces command/control systems

throughout history and establishes the common denominators in Chapter 8 of this excellent work, (Chapter 8. 'Reflections on Command').

- See JPCFADT Report (1989)'Personnel Wastage' pp 184-88. The Committee was so concerned about separation rates that they selected the subject for enquiry in 1988. For another view of the officer wastage problem also see Jans, N. 'Careers in Conflict' Service Officers and families in Peacetime' (Canberra, Department of Defence, 1985).
- See Van Creveld (1985) op cit Chapter 8.
- Gabriel, R. 'Military Incompetence, Why the American Military Doesn't Win', (New York, Hill and Wong, 1985).
- ABCA Armies of America, Britain, Canada and Australia.
- The ADF has never fought a 'self reliant' war before. It has always been under the effective operational control of allies who also provided most logistical support.
- In early 1985 Mr Paul Dibb was appointed to prepare a report an Australia's Defence capabilities.
- Van Creveld (1985), p269.
- 10 Armour Press, 1983). The author gives the following example to establish that the primary role of the Command is to educate subordinates '.... In 1953 a group of Wehrmacht officers, led by ex-chief of the General Staff, Franz Halder, ...were asked to comment on a new US Army publication FM 100-5, then being drafted to incorporate the lessons of the war. . . Halder's team said '... We deliberately put the educational aspect of the matter first of all and proceeded to list 3 main goals of the German High Command's education process. p 39.
- 11. Van Creveld (1985), p 271.
- 12. See Gabriel, R and Savage, P, 'Crisis in Command' (New York, Hill and Wong , 1978) pp 40-41 for an excellent discussion on military cohesion under the most appalling conditions and also the subject report summary detailed at pp 197-236. Van Creveld (1983) also gives an excellent specialist study on reasons for German Army cohesion during World War II. The major sources on motivation, commitment and job enrichment used for the purposes at this article are: Herzberg. F. Mausner. J and

Snyderman, B, 'The Motivation to Work', (New York, Wiley 1959); and ' Sarkesian, S (Ed) 'Combat Effectiveness: Cohesion Stress and the Volunteer Military', (New York, Russell Sage Foundation, 1980).

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Russell Sage Foundation, 1980). The second factor was posting turbulence which is discussed elsewhere in the article.

- JPCFAD Report (1987) 'Management of Australia's Defence' (AGPS, Canberra, 1987) p 183
- 15. Ibid p. 178
- 16. Gabriel. R.(1985), op cit p193.

### THE RAN'S FORGOTTEN WAR DEAD

#### by

#### Sub Lieutenant G J Swinden RAN

Many thousands of people have died in Australia's service. The names of most of them are displayed with reverence around the Pool of Remembrance at the Australian War Memorial in Canberra. There are, however, some inconsistencies.

In 1987, while posted to Canberra, I visited the Australian War Memorial on several occasions. On one visit I noticed what appeared to me to be several omissions on the bronze Roll of Honour plaques which surrounded the Pool of Remembrance. The most notable of these is the omission of three of the four men who lost their lives in the *Sydney-Emden* clash of 9 November 1914.

Puzzled at this I contacted the Australian War Memorial for clarification. I was informed that the only RAN member they had listed killed in the battle was Ordinary Seaman Robert William Bell (official number 1964). Yet at the Royal Australian Naval College a memorial plaque (well known to the midshipmen who have to polish it) lists four men as being killed. They are:

Ordinary Seaman Robert William Bell (1964);

Able Seaman Albert Hay (7912);

Leading Seaman Reginald Albert Sharpe (8003); and

Petty Officer Thomas Lynch (7902).

To confirm this I contacted the Directorate of Sailors' Postings at Navy Office who replied with the information that four men had been killed or died of their wounds during the *Sydney*'s fight with the *Emden*. The only difference from the plaque at RANC was that Reginald Sharpe was listed as an able seaman, not a leading seaman.

This information was passed the the Australian War Memorial where it was promptly filed and forgotten. In 1990 I rediscovered my file copy of the unanswered 1987 letter. A check of several RAN histories revealed that four men had been killed. In Patsy Adam-Smith's THE ANZACS a Lieutenant Garsia states: "Right near the beginning, though I knew nothing about it, a shot hit the range finder without exploding ... the poor range finder, Hay, able seaman, was done for" Garsia later recorded : "Able Seaman Hay and Ordinary Seaman Bell were gone poor beggars, and Petty Officer Lynch and Able Seaman Sharp(e) died one that afternoon and the other the next day.

Another reference is in Alun Evans' A NAVY FOR AUSTRALIA, where Harry

Freemen, a young Boy Seaman recalls the action: "We'd had a seven bell breakfast and a half dozen of us were sitting below the forebridge having a smoke and talking about things. A chap there Able Seaman Hay said: Well, I've got two legs and they can have this one.' He hit his right leg. Later a shell came down on a high trajectory and took his leg off and hurled it down on the awning between the forebridge and the for'ard funnel. He died from shock and loss of blood." The shell damaged range finder at which Hay lost his life is now located at HMAS Creswell (RANC) on which the previously referred to plaque commemorating those killed is attached.

Freeman also recalled the deaths of Lynch, Bell and Able Seaman Sharpe: "Sharpe was hit with shrapnel, and he was down in sickbay when we were getting German prisoners onboard. He got hold of the bunk above him and hauled himself up into a sitting position and said: 'You bloody bastards, you got me before I could get a shot at you", then he fell back dead.

Finally, in C E Daw's and L J Lind's HMAS SYDNEY 1913-1929, it is recorded that Sydney suffered four dead and thirteen wounded compared with Emden's 134 dead and 65 wounded, and that: "...the dead were buried at night, there was no distinction between friend and foe".

Armed with this information I again contacted the Australian War Memorial to have the matter settled An apology for failing to answer my previous letter was quickly given and in a month I had an answer to the question which I had asked three years before. The names omitted from the Roll of Honour were done so because the men were not Australians, they were Royal Navy personnel; on loan to the RAN, the fact that they were serving in an Australian warship and lost their lives in a purely RAN action in defence of Australia did not qualify them to have their names borne on the Roll of Honour.

The inclusion or exclusion of these men's names can be argued from both sides: That their names should not be included as they were not Australians, or that they should as they died whilst serving with the RAN. However, a further examination revealed more omissions and some, possibly, incorrect additions.

In September 1914 the RAN took part in the capture of German New Guinea during which five naval personnel were killed or died of wounds. These included Able Seaman William G V Williams who had the dubious honour of being the first member of the RAN and the first Australian to lose his life in World War I. However, Lieutenant Commander C B Elwell RN, who was on loan to the RAN and died leading a bayonet charge against a German french, is not included on the Roll of Honour.

Shortly after the surrender of German New Guinea, the Australian submarine AE1 was lost mysteriously with all hands off New Britain. As the wreck of the AE1 has yet to be found her fate can only be speculated at, although it is surmised that she may have hit a reef while submerged.

Approximately half of AE1's comperent were RAN and the remainder, including all officers, were RN on loan. Thus the Royal Navy personnel should not have had their names recorded. This is not true, as the names of three Royal Navy personnel from AE1 are included on the Roll of Honour. Those who served in AE1 are listed below:

#### Names recorded on Roll of Honour:

Petty Officer Robert Small (RAN)

Leading Seaman Gordon Corbould (RAN)

Able Seaman John Reardon (RAN) Able Seaman Jack Jarman (RAN) Able Seaman James Thomas (RAN) Able Seaman Arthur Fisher (RAN) Telegraphist Cyril Baker (RN) ERA James Fettes (RAN) ERA John Messenger (RAN) Stoker PO John Maloney (RAN) Stoker PO Charles Wright (RAN) Stoker PO William Waddilove (RAN) Stoker PO William Waddilove (RAN) Stoker Percy Wilson (RN) Stoker Fernest Blake (RAN) Stoker Ernest Blake (RAN)

#### Names not recorded on Roll of Honour:

Lieutenant Commander Thomas Besant RN

Lieutenant Leo Scarlett RN Lieutenant Charles Moore RN Petty Officer Henry Hodge (RN) Petty Officer William Tribe (RN) Petty Officer Thomas Guilbert (RN) Able Seaman Fred Woodland (RAN) Signalman George Dance (RN) Able Seaman George Hodgkin (RN) Able Seaman Frederick Dennis (RN) CERA Thomas Lowe (RN) CERA John Marsland (RN) CERA Joseph Wilson (RN) Stoker James Guild (RN) Leading Stoker Sidney Barton (RN) Leading Stoker John Meek (RN) Leading Stoker William Guy (RN) Stoker Henry Gough (RN)

For some unknown reason the Australian War Memorial has decided to include the names of three Royal Navy personnel and exclude that of Able Seaman Woodland from the Roll of Honour. Able Seaman Woodland's is not the only Australian omitted; once again the submariners are forgotten. Following the sinking of the second Australian submarine AE2 in the Sea of Marmara on 30 April 1915, her crew were made prisoners of was of the Turks. During their period of captivity four AE2 men died from disease and illtreatment. Those who died were Chief Stoker Charlie Varcos, Petty Officer S J Gilbert, Able Seaman Albert Knaggs and Stoker Michael Williams.

Williams from Dunkeld in Victoria does not have his name recorded in the Roll of Honour despite being a member of the RAN. His death is recorded in T R Frame and G J Swinden's FIRST IN, LAST OUT - THE NAVY AT GALLIPOLI: "Stoker Michael Williams was working at Belmedik when he was moved to the hard labour site five miles away at Bezardjite. In September 1916 he was sent to Pozanti to work and ended in hospital with malaria. With him was Private H Ridgeway of the 1/5 Lancashire Fusiliers, who had been captured at Achi Baba on 7 August 1916. Ridgeway recovered from his delerium and searched for Williams, who has disappeared without trace. John Wheat the dual escapee alleged at the time that the Turks were murdering the delerious patients in the hospital at Angora. Wheat's contention notwithstanding, Williams' disappearance was certainly mysterious."

Williams' mother tried on several occasions without success to discover her son's fate. He was the fourth of her sons to lose his life during the was.

Why does the War Memorial say it does not include RN personnel on loan to the RAN as Australian war dead when it does, and then exclude Australians whose names should rightly be recorded. It appears in the RAN's case that the honouring of its war dead has been done guite haphazardly. Both Woodland and Williams were members of the RAN and their names should be recorded. Those RN personnel who lost their lives whilst on loan to the RAN may or may not have the right to have their names recorded on the Roll of Honour, but it must be remembered that they died whilst serving in RAN ships and units, in purely Australian actions.

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#### THE AUTHOR

Sub Lieutenant Swinden joined the Royal Australian Naval College in 1985 and graduated from the Australian Defence Force Academy in 1987 with a BA in history and politics. Following service at HMAS *Cerberus* and in the Destroyer Escort HMAS *Swan* he was posted to Navy Office in May 1989.

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### SUBMARINES - THE WAR OF SILENCE

Translated by Myriam Amar from an article first published in the French magazine 'Le Point'' No 881 of 7 August 1989

The sea is all "ears". To be able to listen without being heard: this is the obsession of those who, at Cherbourg, with the future Triomphant, prepare the new generation of even better and quieter nuclear submarines.

The powerful smell of hot metal. The deafening noise of steel between hammer and anvil. The telluric hammering of the presses. The muttled rumbling of the bending machines curving metal plate. It is amid this noise and turmoil, but also in the tradition of the village blacksmith's forge that at the entrance to Cotentin, the Triomphant is being born under the direction of DCAN of Cherbourg, 138 meters in length, this huge cucumber shaped body 12.5 meters in diameter which will be launched in 1993, is the first in a series of six nuclear submarine missile launchers (SNCE) called the "New Generation". In taking over from the Redoutable class vessels, this "NG" - as abbreviated by those in the know - will constitute the spearhead of the French deterrent force until the middle of the XXIst century. Paradoxically, the excessive noise and energy which preside over putting the first elements of the Triomphant's hull in place have but one aim, namely, to produce a vessel so quiet that it would be lost in the background noise of the sea. A sea, otherwise babbling and with nothing to do with the supposed "world of silence" which, sallies forth from the fertile imagination of some members of the literature world.

Because of the freedom of others to listen, invulnerability, which is fundamental to the deterrent credibility of the "SNLE", will be continuously under threat. What is more, given, the progress in detection, today, noise has become the Achilles heel of submarines, said Emmanuel Duval. As Chief Engineer of Armament, he is MOP (Master Chief Production) of Project Coelacanthe; this famous fish is the program's mascot.

At Cherbourg, Michel Accary, Chief of DCAN StudiesTrials Section and Pierre Ouinchon who is in charge of building the SNLE-NG No 2, the *Temeraire*, explains that between 1975 and 1980 the advent of Very Low Frequency detection rocked submarine warfare. In one blow, the first generation of American, Russian, English and French nuclear submarines began to lose their invulnerability, since surface ships as well as attack submarines became capable of detecting them from a distance of dozens, even hundreds of kilometers.

It is interesting to note that this leap forward in detection was not the work of the Military. It was the oil explorers who, whilst improving their hydrophones (underwater microphones) designed to pick up echoes from successive geological layers during seismic exploration, have technologically stirred up an ant's nest. Henceforth, every nuclear submarine worthy of the name, is equipped with such "ears". Actually, it involves a long tube in which are housed an array of hundreds and even thousands of these famous hydrophones, sensitive to sound waves of very low frequency vibrations which propagate so well in the ocean.

Faced with this new threat, the only recourse was to make submarines even quieter. Americans, Soviets, British and French are set upon this course. The twosuper powers are already there which deeply worries Les Aspin, President of the National Army Forces Committee of the United States Congress. In a report published on 21 March, he writes: "it is possible that the rapid progress made by Russian submarines in their freedom of action may become the forerunner of a tidal wave in sea warfare". He went on to say "There is something seriously amiss in priorities when we invest considerable sums of money in the Strategic Defence Initiative (Star Wars), but neglect submarines and the anti-submarine struggle where the threat is so fundamental."

To be sure, in the USA, the lobbyists often make their weight felt. However, French specialists share Les Aspins's viewpoint. As they could not use Defence-secrets in order to convince their opponents, they turn to the novel "Red October" by Tom Clancy. This technological thriller tells how Captain Marko Alexandrovitch Ramius. Commander of the latest Russian submarine, fitted with an ultra-silent propulsion system nicknamed "the caterpillar" by its crew, avoided capture by the Russian and US navies and succeded in getting to the West. We discover, and according to reports of submariners, it is virtually the reality today; a world humming with thousands of sounds perfectly propagated by the sea. An environment in which the simple manoeuvre of a dive control and the natural creaking of the hull under water pressure tell the hunter of the course being followed by the hunted.We understand that every submarine emits a "noise signature" which computers analyse and filter out the normal background of the sea. But in the end, it comes back to the "golden ears": to listen and to hear; to the listening specialists real "music lovers" of the sea to identify with precision the source of the signature: a Soviet Alpha, a British Trafalgar, an American Ohio, or a French Redoutable. Those who have read Tom Clancy's novel discover that the United States has placed at the bottom of certain strategic ocean channels long chains of fixed hydrophones (the SOSUS System) which, like the devices placed on highways, count the number of potential enemy movements. This story, written with the aid of American naval specialists is that submarine warfare is not for tomorrow. it has been already declared. It is the war of silence. It is played twenty four hours a day at a depth of hundreds of meters. The one who wins this naval battle at the time is the one who, emitting as little noise as possible, has the most sensitive "ear" at very low frequencies. One must hear the other before being heard oneself. Thus, one can avoid detection and continue to cruise on peacefully expecting that the order will never come to aunch a nuclear weapon such is the very principle of deterrence

Before the sailors at sea, it is the engineers, the technicians and the workers of DCAN at Cherbourg who must win this war of silence by conceiving and building the quietest machine possible. But, from the shape of the hull, to the rumbling sound of the pump of the crew's common washing machine, to the nuclear reactor, the propeller or fluid flowing inside pipes, including that of the thousand and one motors and pumps of a submarine of that size, everything causes turbulences, produces vibrations, noises. If one does not take care this cacophony is transmitted through the water to inform the enemy.

Hence, to convince his teams, Bruno Richebet, the only academic among the armament engineers at DCAN, the "Mr Silence" of the program, has devised a means of demonstration. The "sea" is contained in a tank in which is placed one of the famous very low frequency hydrophones. Pumps, pipes, electrical cables are fixed to the outside of the tank as they would be on a vessel. Hit one of these components: if it is rigidly fastened to the tank, the sound is transmitted to the water, and the hydrophone returns it to the experimenter through a loud speaker. By contrast, if a flexible insulator is placed between the component and the hull, for example a rubber washer or one of those "Silentblocks" used in modern cars, you could hit it many times harder with no sound being transmitted to the "sea"

That is why, in the *Triomphant*, engineers intend to hang huge cradles inside the hull, by means of super, sound insulating blocks. Each motor, each pump, each pipe, each electrical cable will be suspended in these cradles or placed on equivalent round insulators. "This is what we call the principle of the ship within a ship", explains Bruno Richebet.

Since then, in order to suspend these huge cradles in the Triomphant's hull, on four springs, just as it used to be done for the huge microphones in the days of wireless, it is necessary to increase the volume and weight of the beast. The thousands of rubber blocks, the flexible joints, and shock absorbers placed end to end become very heavy. And in addition, so that the submarine can hide at a depth below the cold layers of water which can hold captive the sound which propagates anyway in spite of precautions, its promoters have decided that it will be capable of diving to twice the depth of the Redoutable.

For the hull to resist this doubled requirement it was necessary to select the world's best quality steel, the 100 HLES. This steel perfected by Creusot-Loire Industries and DCAN, is extremely difficult to work. The boilermakers and the welders of Cherbourg are the only ones in the world today to master it industrially. "Often a submarine technology is more complicated than that of space", stated Michel Accary.

The result of this hunt for "noise"? For a mission similar to that of the 8000 tonnes *Redoutable*, the *Triomphant* will be 50 percent heavier than that of its predecessor. The extra 4000 tons is the penalty of silence. It is well known, that the bills for this type of machine are proportional to the size of the vessel. A first generation submarine cost 5,5 billion francs in today's franc. The cost of the *Triomphant* is in the order of 10 billions. This is the price of silence. "Yet," states Bruno Richebet, we have been very careful. "For each innovation made in acoustics, we have done a value analysis. We have retained only those improvements which were essential to reach our goal".

Yes but what goal: to build a ship much quieter than the Redoutable! The design and manufacture of the noise insulators. perfectly hydrodynamic hulls, a smooth propeller, a truly noise-free turbine, pumps of which the ball-bearings which "rumble" have been replaced by solid bearings infinitely more precise to manufacture, but all of which is very expensive. Terribly expensive. The key component, the specially designed submarine propeller has even been tested to scale, on an operational attack submarine, while a one tenth scale model submarine, a machine of 12 meters nevertheless, was operated in the Castillon lake to study the "sound signature" of the future SNLE. In a dock at Cherbourg a section of the hull of a standard vessel is being used for the acoustic testing of each component.

The obsession to minimize the noise has even caused the engineers to conceive special piloting techniques. "The Triomphant will be hyper-adapted to its environment", predict those who built it. So, in order to minimise turbulence. they have eliminated all rough edges from the hull, designed the superstructures to stop them resonating like a drum. A further technical problem is caused by the covers, on the Redoutable, and the nuclear missile silos. Even more fastidiously, they have invented a garbage compactor which is designed to compress the scraps of each meal by the crew to the size of two Camembert packs. These round blocks are disposed of at less critical times during a mission so that the enemy is not alerted by the noise of the garbage disposal airlock. Some people already worry-half seriously-about the possible location of submarines in this indirect way. Camembert after Camembert, sown on the bottom, like Tom Thumb's pebbles, could be tracked ...

"If need be, we will get the crew to wear slippers", said Emmanuel Duval in his office of the Delegation Generale for Armament, Victor Boulevard, Paris. In fact, when all rigid contact with the hull has been eliminated, there is still one unavoidable "wave guide" - the air. Therefore, everything which is likely to cause noise is enclosed in sound-proof covers and the crew is taught to move and to express itself in the guietest manner.

In order to understand the extent of the war of silence, the DCAN staff had to accomplish a real cultural revolution. Because this war will only be won if all the devices conceived by the engineers from the Drawing Offices are accurately brought on board. "Twenty percent of the task is done at conception, and eighty percent during construction", repeats Bruno Richebet to Patrick Lelaidier and to Patrick Bourdet, two young technicians who, after eleven painful formative weeks, at last convinced, are preparing themselves to convince in turn, thousands of workers on which will depend, in the end, the credibility of French deterrence well beyond the year 2000.

Credibility which will be maintained during the operational life of the new generation of nuclear missile launching submarine, only through the price of maintaining continuous silence. The engineers even suggest that this will constitute the essential part of the work to be done during the three weeks that each submarine spends at the secret base of Longue Island in the anchorage at Brest, between patrols devoted to confronting, for real, the war of silence.

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### ERICSSON AND NOBEL INDUSTRIES TO SET UP NEW SWEDISH COMPANY FOR COMMAND AND CONTROL SYSTEM

The Ericsson Radar Electronics Division Command and Control Systems will merge with Bofors Electronics AB to work together in the area of command and control systems. This will take effect from January 1990. The joint company will be designated Bofors Electronics AB. The new company will be 80 per cent owned by AB Bofors and 20 per cent by Ericsson.

The merger will concentrate Swedish expertise and capacity in the command and control systems' product area to one unit. This will give the industry the resources to continue to supply the Swedish defence forces with command and control systems into the foreseeable future.

The new company will be responsible for the development, manufacture and marketing of advanced electronic systems for defence and civil applications. As such it will cover the same product areas as those at present served by Ericsson's Command and Control Systems Division and Bofors Electronics AB. Bofors Electronics AB is located in Jarfalla, near Stockholm, employs 1400 and has an annual turnover of USD 130 million. The Ericsson Command and Control Systems Division is in Kista, also near Stockholm, where it employs 700 of the total 4150 in the Ericsson Radar Electronics workforce. The annual turnover of the division is USD 80 million. All employees will be offered continued employment in the new company.

Commenting the merger Ericsson's CEO, Björn Svedberg, says "Those projects which are of interest in the command and control systems' area demand a major investment of engineering talent. Coordination of the expertise that is available in Sweden is, thus, a logical and natural step to take."

Command and control systems development and production in the two companies have previously complemented each other. For Ericsson the emphasis has been on air defense systems and civilian air traffic control, while Bofors have been engaged in naval systems. Recently, however, certain projects, notably the new STRIC Command and Control System being developed for the Swedish Air Force, have introduced a major risk of duplication.

"The merger opens the way to advancement through rationalization, in comparison with the non-merger option," says Nobel Industries CEO Anders Carlberg. "These will primarily manifest themselves in the more effective use of the base technology and development environment, as well as the avoidance of duplication. This merger between Ericsson and Nobel Industries represent an important step in the necessary restructuring of the Swedish defence electronics industry,"

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