SURVEILLANCE

JOURNAL OF THE AUSTRALIAN NAVAL INSTITUTE

VOLUME 4 MAY 1978 NUMBER 2

AUSTRALIAN NAVAL INSTITUTE

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a. to encourage and promote the advancement of knowledge related to the Navy and the Maritime profession.

b. to provide a forum for the exchange of ideas concerning subjects related to the Navy and the Maritime profession.

c. to publish a journal.

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CONTRIBUTIONS

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JOURNAL OF THE AUSTRALIAN NAVAL INSTITUTE (INC)

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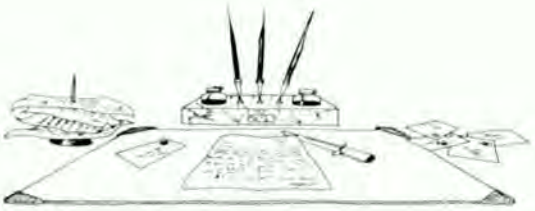


CANBERRA CHAPTER

Unfortunately there is no chapter news for this edition due to various unforeseen circumstances. The current Convenor, Captain Les Fox, has, through no fault of his own, found it impossible to devote the necessary time to the task and we require a volunteer replacement.

No experience is required, the only qualifications necessary are that any potential volunteer is a member of the Institute (Regular or Associate), is interested in furthering the aims of the Institute and lives or is currently serving in the Canberra area.

Anyone interested is requested to contact Captain Fox or the Secretary.

Correspondence

Dear Sir,

WOC's remarks on Furlough (February, 1978) struck a very responsive chord in me. I, too, am going through that mid-career phase which has been termed as 'male menopause', displaying the same symptoms described by WOC's mess-mate. WOC makes good sense, but I believe the reservations expressed by 17-YO are widely held and they can probably only be dispelled by the publication of a credible official policy. A couple of months away from the rat race to recharge the batteries are clearly indicated, but the suspicion lingers that in the long term the cure could well be worse than the affliction.

WOC's suggestion to press furlough on an officer submitting his resignation deserves careful consideration. It is easy to see difficulties in the implementation of such a paternalistic scheme — especially if it were attempted by Navy in isolation from the other Services — but if it could help arrest the grievous loss of good officers, it would well be worth the effort.

May I suggest that as a matter of editorial policy, the ANI Council seek out official reaction and comment on suggestions of this nature? WOC's is certainly worthy of such a response. So was Lt-Cdr Brecht's article "A Path to Survival in Sedentary Naval Life", (November, 1977). Joseph Porter replied to this latter article in the following issue of the Journal and expressed the hope that the medical and safety policy makers would bestir themselves, but it appears to have been a forlorn wish.

The last thing we want is for the Journal to degenerate into pages of 'agony columns', or to have some Naval guru routinely pass judgement on every contribution, but some questions do warrant official rejoinders. To provide a forum for this exchange is a legitimate role for the Journal; if it were not, then such ideas could be put forward through official channels and the wider community would be none the wiser, and neither could debate be generated nor sustained. If thoughtful articles like WOC's and Lt-Cdr Brecht's do not in themselves evoke the desired reaction, then the Council should stir the possum, and attempt to extract an authoritative comment from those in the policy making areas.

Yours sincerely,

MUSHROOM

Dear Sir,

I gather from reading "Pongo's" rather emotional article (Vol 4 No. 1 FEB 78) that he is not altogether in agreement with my plan for a Naval Battalion. I expected comment and criticism, so his letter does not surprise me.

The unfortunate point about his letter is that his comments are not constructive; if they were I could possibly modify my plan accordingly. In fact the main body of his letter consists of a heap of questions which were quite clearly answered in my previous article.

I consider that a gap exists in Australia's defence capability which could be countered by a force such as I have suggested. "Pongo" does not agree with me, but the least I would have expected was for him to produce an alternative plan; but it was, alas, not forthcoming. I did, however, like his quote from Nicholas Monsarrat.

Yours faithfully

AUTHOR

FROM THE EDITOR

In this edition of the Journal we have attempted to break new ground by featuring, in the main, one subject — **Surveillance.** In view of the developments in the International Forum, with regard to the Law of the Sea, coupled with recent happenings around the coastline of the **island** of Australia we feel that the general subject of surveillance and specific aspects thereof need airing.

The articles range across the Fishing Industry, Immigration Aspects, the practical aspects of surveillance (particularly LRMP aircraft, Tracker aircraft and Patrol Boat operations), a civilian's thoughts, the Marine Operations Centre and what could be involved in forming an Australian coast-guard. This latter article, by Lieutenant Commander Campbell, was intended for publication in the February 1978 issue of the Journal but was, unfortunately, received too late for our printing deadline. However, we believe the article covers what is still a very current subject which is complemented by the other articles.

Although all aspects are not covered (for instance what would Australia do about safeguarding the resources under the sea bed when an Exclusive Economic Zone is eventually declared — see article by Captain I. W. Knox in Volume 4, Number 1) we trust that this edition will stimulate discussion and debate and will, hopefully, lead to further articles and correspondence in the Journal.

We believe that, with the imminent extension of an Exclusive Fishing Zone and the extension in the future of an Exclusive Economic Zone, we are about to enter a new era and all Australians, particularly those interested in maritime affairs, should be aware of the ramifications.

EDITORIAL STAFF

Although we have an editorial staff (volunteer, part-time) which participates in the production of the Journal, there is now a requirement to have an Assistant Editor due to an expanding workload.

It is stressed that no previous experience is necessary, the prime requirements are for someone who:

a. is a member of the Institute (Regular or Associate);
b. is interested in furthering the aims of the Institute;
d. lives or is currently serving in the Canberra area.

The only rewards for the job are an occassional 'well done' and of the criticisms we do not speak.

This is an interesting job and we are looking for a volunteer not a 'pressed man/woman'.

Anyone interested is requested to contact the Editor (Canberra 482818) or the Secretary.

AUSTRALIA'S 200-MILE FISHING ZONE

by Peter Pownall, Editor 'Australian Fisheries'

Legislation extending jurisdiction over foreign fishermen, out to 200 miles beyond low water mark was introduced in Federal Parliament on April 13. Except for the Gulf of Carpentaria, in the far north of Australia, which will be closed to unlicensed foreign fishermen immediately on Royal Assent to the legislation, (probably in May), the new zone will not come into force until later in 1978.

Extension of its fishing zone to 200 nautical miles will give Australia control over an area of ocean nearly as large as its land mass of 7,682,300 square kilometres.

The Gulf of Carpentaria is an important prawning ground and activities of foreign fishing vessels in the area have been a matter of concern for some years. To protect the grounds the Australian Government has limited the number of Australian fishing vessels that can operate there, and closed it to fishing at certain times. While there has been no evidence to suggest that foreign fishing vessels, (mostly Taiwanese) have been catching prawns in the Gulf outside 12 miles (the old declared fishing zone), the Government considers the area should be closed to foreigners to avoid conflict with Australian fishermen.

Australia has one of the longest ice-free coastlines in the world — 36,736 km extending over some 33 degrees in latitude — but the fishing resources within the new 200-mile zone do not match the immensity of the zone itself. As a result Australia's fishing industry is small by world standards, however it is expected to expand considerably with the stimulus of the extended zone.

Although the annual catch of the Australian fishing industry is only about one-thousandth of total world production, its annual value, of about $A200,000,000, is relatively high. This is because the catch contains a high proportion of crustaceans (rock lobster and prawns) and molluscs (abalone and scallops) that are sold on world markets. **Australia is the world's largest producer and exporter of rock lobster.** The annual catch is 13,000 tonnes and exports in 1976/77 were worth $A59,000,000.

About 9,000 commercial vessels, a capital investment of about $A226,000,000, comprise the Australian fishing fleet. Most of the vessels are relatively small — 70 per cent are less than nine metres long and only two per cent are more than 21 metres long. The industry employs about 18,000 fishermen. Just over 150 registered land-based plants process the catch. Most of them are small and 70 per cent are in rural areas. Only 20 per cent have an annual throughput of more than 1,000 tonnes and most employ predominantly casual labour.

The Australian industry consists of two distinct sectors. One sector fishes for crustaceans and molluscs — rock lobsters, prawns, oysters, scallops and abalone — primarily for the lucrative export market. The other sector catches swimming fish and is largely tied to the domestic market. This sector, which is linked closely to the distribution of population, produces about half the domestic demand. The shortfall is made up of imports. Australians eat seven kilograms of fish per person each year, and two kilograms of crustaceans.

In 1975/76 the Australian catch was made up of 54,973 tonnes of fish, 33,173 tonnes of crustaceans and 21,280 tonnes of molluscs, and was worth a total of $A139,314,000. In 1976/77 the catch comprised 60,111 tonnes of fish, 36,660 tones of crustaceans and 22,657 tonnes of molluscs and was worth a total of $A198,063,000. In the 10 years to 1975/76 the Australian catch's absolute value has grown 11 per cent a year — **more than twice the rate of all rural industries.** This growth accelerated in the last three years because of higher prices, particularly for exports.

In 1976/77 edible marine product exports were valued at $A135,000,000. Principal items were rock lobsters ($A59,000,000), mainly to the United States, and prawns ($A53,000,000), mainly to Japan. In 1976/77 fish imports totalled $A109,000,000.

Australia's early European settlers found there were no fishing grounds around Australia to compare with the great herring, cod and salmon

Modern High Speed Rock Lobster Boat — by courtesy Australian Fisheries

fisheries in the Northern Hemisphere. Attempts to introduce popular species from Europe met little success, and the settlers turned increasingly to the land for protein-rich food. Of more than 2,000 species of fish in Australian waters less than 10 per cent are commercially acceptable.

The most productive fishing areas of the world are usually in temperate to sub-polar regions where extensive land masses provide nutritients for seas that are shallow for long distances from the coast. Other fisheries occur where massive upwellings of deep oceanic water bring chemicals from the bottom to the surface, promoting marine life. These conditions occur infrequently around Australia. To the north of the continent there are wide areas of sea bed within the 200-metre depth contour, but not all of these shallower waters support substantial fisheries. To the southern part of the continent much of the sea bed within the 200-metre contour is relatively narrow, limiting shelf fisheries. All around the coastline of Australia and Tasmania the area within the 200-metre contour covers about 2,300,000 square kilometres. Australia also misses the benefits of deep ocean upwellings. The Roaring Forties, which provide the necessary energy, are far south of the continent's main land mass. Existing Australian fisheries are almost entirely on the shelf and within the old 12-mile fishing limit.

The extension to 200 miles will bring into Australian jurisdiction large areas of deep ocean and probably only about 30 per cent of the extended zone will be within the 200-metre depth contour. The major additional potential new fishing areas to come within the jurisdiction of Australia will be:

NORTH — Along the north-west and northern coasts between the North-West Cape and Torres Strait.
— Off north-eastern Queensland.

SOUTH — Minor but significant areas in the Great Australian Bight, along Australia's southern coastline.
— About Bass Strait.

In the south the additional shelf areas support a mixture of fish species similar to those already being exploited by Australian fishermen in shallower waters of the same area. These species are not at present being fished by other nations, but they provide the Australian industry with substantial opportunities for expansion and the industry is showing interest in their development.

In the north the situation is different. The additional shelf waters are not significantly fished by Australia, but over the last four or five years they have been fished extensively by other countries, particularly Taiwan. The Taiwanese operate mainly off the north-west, north and Gulf of Carpentaria for bottom fish. About 300 Taiwanese vessels were operating in 1976 and Australian authorities estimated their catch at about 75,000 tonnes. Fishermen from Indonesia and Japan also fish in waters that will be within the Australian 200-mile zone. The Indonesians operate in a restricted area in the north-west but their total catch is negligible.

The Japanese have been catching adult southern bluefin tuna within and beyond the zone, off eastern and southern Australia, using a fleet of about 350 vessels. The catch within the 200-mile zone was about 10,000 tonnes a year.

The Japanese also catch other tuna species in waters north and north-west of Australia. The Japanese and some Australian fishermen share the southern bluefin tuna fishery, the Australians taking mainly younger fish close to the Australian coast while the japanese catch older fish further out to sea. Fishing authorities say the southern bluefin tuna is probably already fully exploited and see other tuna species providing the most promise for the Australian industry.

Australians at present are not heavily involved in catching pelagic (surface) fish. The main pelagic species they seek are the southern bluefin tuna and the Australian salmon, which is not a true salmon but a type of sea perch. However, fishing authorities see the Australian tuna fishery expanding to take the northern bluefin tuna, the yellowfin tuna and the skipjack tuna. The skipjack tuna will provide the main opportunity for expansion. It is a small species distributed in tropical and sub-tropical waters throughout the world. Exploitation of this species in the south-west Pacific leaves room for further development. Australia plans active cooperation in a major survey of skipjack tuna stocks in the region. The South Pacific Commission is undertaking the survey.

Australia's inshore fisheries are at present well exploited and there is limited scope for further development, other than by Australians. In these fisheries the industry and fishing authorities have introduced management regimes to conserve stocks of rock lobsters, prawns, scallops and abalone. Australian fishermen also exploit heavily the demersal (bottom) fisheries located near large population centres, and authorities have introduced some controls to preserve some of these fisheries. Common species caught include the morwong, flathead, red gurnard, a variety of small and edible sharks, gemfish, snapper, whiting, John Dory, leatherjacket, cod, bream and mullet.

In a bid to assess the resources in its extended fishing zone, Australia is inviting fishermen from other countries to apply for feasibility fishing rights. Under this program the Australian Government will consider proposals by foreign fishermen to join Australians in fishing areas in the extended zone for agreed periods and under agreed conditions. The aim is to provide information to Australian authorities. The Australian Minister for Primary Industry, Mr Ian Sinclair, said feasibility fishing would not be allowed in areas already exploited by Australians.

Extension of fishing limits will increase enormously Australia's fisheries surveillance responsibilities. It will involve not only recognition and reporting procedures for licensed foreign fishing vessels and the inspection of their equipment and catches, but control over foreign vessels not licensed to fish in the zone.

Modern Tuna Boat — by courtesy of 'Australian Fisheries'

THE NEED FOR COASTAL SURVEILLANCE

AN IMMIGRATION VIEWPOINT

This article has been contributed by the Department of Immigration and Ethnic Affairs

Australia is happy to open its doors to the world, provided the key remains securely in Australian hands. Tourists, businessmen, people visiting relatives, students are welcomed in good faith. Australia has a selective immigration program that has added some three million permanent residents to the population over the past 30 years. In that time, too, Australia has made room for many thousands of homeless refugees. But Australians have always reserved the right to pick and choose the people they want to come and live with them.

Last year more than 1.5 million people entered Australia. About two-thirds of them were Australians returning from overseas trips, whether holidays or periods of residence abroad. Within the other half-million, nearly one in three was a tourist on holidays and nearly as many were coming to visit relatives. Only about 70,000 had the right to stay permanently.

To keep track of so many people, to ensure that they come and go or stay as expected, needs an elaborate system of controls. In the past, the application of those controls was aided by Australia's remoteness from much of the world. Air travel brought the world closer, but commercial airliners can be directed to recognised airports and the cost of air travel deters the individual adventurer. Now the sea, once a comforting wall, has proved to be a bridge that quite small boats can cross.

The first nudged its way into Darwin Harbour on 27 April 1976. It looked harmless enough; five refugees on board had spent weeks making the long and hazardous voyage from Vietnam. Australia had already accepted about 1,700 Indo-Chinese refugees and was taking action to receive more. Five people on a small boat seemed to be no great threat to the system.

Since then, at last count, another 34 have followed, carrying a total of just over 1,200 people, most but not all of them genuine refugees. Except for one or two larger vessels, converted tankers or transports carrying up to 175, nearly all have been small craft, around 20 metres in length, many of them wooden-hulled and in various states of sea-worthiness. While many have chosen or especially lately, have been diverted to Darwin as their destination, others have been beached at points along a 2,000-kilometre stretch of coastline, reaching as far south as Broome.

Australia recognises the problem of the 'boat people'. Those arriving are being required to substantiate their claims to refugee status before a decision is reached about their stay here. They deserve our sympathy and have been receiving it. But, viewed against the equally-deserving claims of the thousands left behind in war-shattered Indo-China, the boat people can be seen as 'queue jumpers'. By-passing the machinery the Australian Government has set up to process applications from genuine refugees, they have pushed their way in front of others.

While solutions are being looked for at the source of the problem, Australia has had to act to protect its territorial integrity. From an immigration viewpoint, it is essential that unauthorised entry should not go unchecked. For a start, the Australian public would not tolerate continued breaches of the Migration Act. Aside from the health and quarantine risks which the Department of health is concerned to prevent, so-called refugee boats, if unchallenged, may carry any type of unauthorised person, ranging from petty criminal to terrorist, or goods of any kind, including narcotics. Reception at point of entry is more efficient and, incidentally, less expensive than belated detection of illegal immigrants within the community.

Vietnamese Refugee Vessel 'Song Be 12' — by courtesy Defence Public Relations

With experience, reception arrangements for small boats have become standard. **Alerted by regular RAAF and RAN patrols, health and immigration officials now have ample time to prepare.** On arrival, a boat and all on board are subjected to normal health and quarantine inspection. Immigration officers, usually from Darwin staff, supplemented if necessary from Canberra, then make preliminary inquiries to assess the bona fides of the passengers. Sometimes these inquiries have been protracted in the light of allegations about vessels having been 'seized' by crew. If, on the surface, the people seem to be in genuine hardship, they are usually permitted to land under temporary entry permits and accommodated in the Darwin Quarantine Station for detailed interviewing and full medical screening, including radiological and pathological tests.

The recently-established Determination of Refugee Status Committee, an interdepartmental committee, now has the responsibility for further assessing the bona fides of the boat people and making recommendations to the Minister for Immigration and Ethnic Affairs. In essence, the test of a genuine refugee, established by United Nations Convention, is whether a person has good reason to fear for his safety and well-being if obliged to return to his own country. Boat people approved for permanent residence have been air-lifted from Darwin to long-term accommodation at government hostels in southern states.

This treatment of the problem, while far from cosmetic, is curative rather than preventive. The Australian Government has taken and is taking more positive steps. Task forces stationed in Thailand and Malaysia, with the full co-operation of the governments of those countries, are diverting boat people into normal channels of application. Their presence should remove the need for anyone to undertake the dangerous voyage to Australia. Between December and March, 1,500 refugees were sent to Australia from boat camps in Malaysia. More will follow, bringing the total number of Indo-Chinese accepted by Australia to almost 10,000 by 30 June. It can be seen that the 1,200 boat people make up a relatively small proportion of this total. The task forces can therefore claim a fair measure of success in reducing unauthorised landings. Further preventive measures involve international negotiations and continuing co-operation with the United Nations High Commissioner for Refugees.

Nevertheless, the need for coastal surveillance is unlikely to disappear within the foreseeable future. Immigration controls depend largely on early warning. Of course, attempts are made to monitor the movements of the many small boats reported to be on the island-studded waters of the South-East Asian area. Boats leave Vietnam at the rate of about one a day and their numbers appear to be increasing. In the first three months of this year alone, 95 have been permitted to land on the Malaysian coast. In contrast, the 35 landings in Australia over two years seem marginal. In the event, the only sure sign that a boat is heading for Australia is that it has been sighted off the Australian coast. **At that point, immigration control relies on the RAAF, the RAN and coastal surveillance.**

PRACTICTICAL ASPECTS OF SURVEILLANCE

by Lieutenant Commander G.P. Allen MBE RAN and Lieutenant B.E. Eddes RAN

This article is an adaptation of a presentation given to the United Services Institute of the ACT to whom acknowledgement is made.

Operating Tracker aircraft in Northern Australia (the area in which they have primarily carried out specific surveillance missions) is quite different to operating out of the air station at Nowra or onboard *HMAS MELBOURNE*. Two major differences are that they are operating some 3,000 miles from their major support base and, secondly, they are operating outside controlled airspace with limited SAR facilities. These demand that aircrew be super-cautious of aircraft performance, fuel and weather — especially because of weather variations experienced in tropical climes. The self-confidence gained by aircrew through these remote area operations is invaluable to the Service.

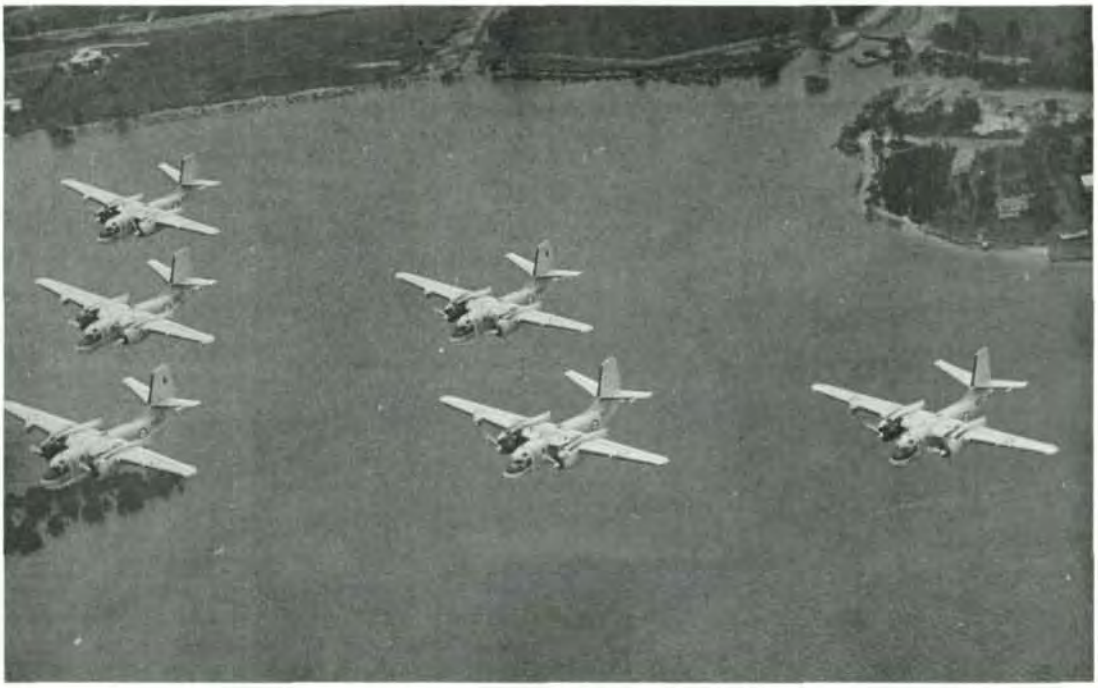
Naturally, with a detachment of aircraft in a town such as Broome, that detachment becomes the provider of civil aid to the community. During 1975, RAN personnel became involved in several searches for missing aboriginals, overdue fishing boats, and major SAR operations which included a missing helicopter in the desert, the M.V. *CAPTAIN A.E. TRIVETT* (which overturned in the Admiralty Gulf), and the *'TROPIC QUEEN'* tragedy off the Monte Bello Islands. These aspects are just some of the off-shoots of surveillance operations.

At this stage, some brief specifications of the Attack Class Patrol Boat and some background on fishery surveillance are required. The Attack Class Patrol Boat is 32m in length, with a beam 6m, and displacing 140 tonnes. It carries a crew of 2 officers (the fortunate ones carry a third officer who is borne for training), and 16 sailors. Top speed is marginally greater than 20 knots and endurance on one engine is slightly in excess of 1,000nm. One other important factor is the vessel's minimum speed of 11 knots (2 engines) and 8½ knots (1 engine). The vessels have sound sea-keeping qualities although they are very stiff and uncomfortable in seas that are greater than 8-10 feet high.

Fishery surveillance is the major activity in the North. Various Commonwealth acts exist which prohibit foreign fishing boats from fishing within 12nm of the coast, and from taking sedentary organisms from the continental shelf, which extends to the 200m (100 fathom) line. 'Fishing' under the act is described as intending to fish, actually fishing, used to be fishing, thought to be doing ay of these, cutting up or cleaning — within the Declared Fishing Zone (DFZ). The burden of proof, of course, rests with the arresting officer (for example, unstowed nets can be taken to indicate an intent to fish, and foreign boats can be arrested inside the DFZ for that breach). 'Taking sedentary organisms' can be done by trawling the bottom or by using divers. At present, arrests can only be made when commercial quantities of the organisms are found onboard.

Lieutenant Commander Allen commanded the Navy s Tracker detachment in Broome for two months during Operation Trochus 75. He has been involved with Trackers since 1966, being a member of the lead crews trained in Canada and the USA prior to the introduction of the aircraft to the RAN service. For the past two years, he has been a member of the staff of the Director of Naval Aviation Policy.

Lieutenant Eddes has been involved with patrol boat operations since 1971 and has commanded two Attack Class patrol boats. During his tours in command, he was involved in a wide range of naval activities, which included fisheries surveillance. Since 1975, he has served as a Prinicipal Warfare officer of a destroyer escort, and on the staff of the Director of Naval Officers' Postings in Canberra.



S2E Tracker Aircraft — by courtesy Defence Public Relations

Attack Class Patrol Boat 'HMAS Bayonet' — by courtesy Defence Public Relations

Taiwanese Stern Trawler —
by courtesy of Department of Primary Industry

Just what is a surveillance operation from a Tracker all about? Firstly, the concept of operations: aircraft are part of the forces assigned to an Area Commander for an operation. The Area Commander is responsible for the tasking of the assigned assets, and to assist him, he will have an air operations officer on his staff. Having determined the areas to be surveyed, the best method of covering that area to meet the operation's aim is decided, and then aircraft are tasked daily.

Ideally, aircraft sorties are coordinated with Patrol Boat operations to provide the surface follow up, investigation, or apprehension of vessels. The sorties are planned for early morning launch (before 0630) so that the non-airconditioned aircraft can complete its sorties before the most extremes of tropical temperatures, which occur mid-afternoon. To prepare the aircraft for launch, the maintainers would prefer to work through the night because this is the only time that working conditions (because of temperature) are bearable. However, available facilities for maintenance (for example, hangarage and lighting) are usually inadequate for major tasks to be undertaken by night. The day for the aircrew commences around 0400 with breakfast, flight planning, camera loading, weather briefing, operational briefing and aircraft pre-flight check. By the time the aircraft launches, the maintainers have earned a well-deserved rest and the aircrew are already wet-through from perspiration with the temperature in the mid 20s — but the 6-7 hour flying task is still in front of them.

Each of the four patrol boats which operate out of Darwin, undertakes a nine day rest and maintenance period after returning from a patrol of 19 days' duration (some are of 12 days' duration). One ship must always be undertaking maintenance to allow three to be operational at any one time. The operations officer of *HMAS COONAWARRA* plans each patrol with the respective commanding officers. All vessels are also continuously preparing for exercises and inspections by their operational and administrative authorities. On leaving harbour, all ships usually carry out manoeuvres and evolutions to maintain naval skills and practise operating in company at close quarters before proceeding to the various patrol areas. Although the patrol boats' major role is fisheries surveillance, they are also prepared for search and rescue duties, civil disasters of relatively minor nature, low scale aid to civil power and authorities if required, escort duties, explosives ordinance disposal and some PR tasks; they regularly visit coastwatchers. However, as a naval unit, they must always be prepared to react quickly to any hostility directed towards Australia.

A typical (though fictional) operation in the Gulf of Carpentaria is as follows. While the aircraft is climbing out from the airfield, the rear seat crew prepare their equipment for use, radio contact passes from civil to military nets and as the aircraft levels at 500 to 1,000 feet altitude, the mission is underway with some 30-40,000 square miles of ocean to be searched. Trackers use this lower altitude to provide the best compromise between visual and radar search.

For all but the radar operators, it's eyes out of the windows, visually searching the ocean for vessels, while the radar operator watches his scope intently. He reports his contacts to the tactical coordinator who plots these and other contacts so that he can direct the order in which they are to be visually identified. They are then reported to headquarters by radio, giving full details of name, type of vessel, nationality,

Australian Purse-Seiner —
by courtesy of Department of Primary Industry

position, course and speed, and activity undertaken (for example, fishing, trawling). The identification of vessels requires low, slow flying to read the vessel's name and to obtain photographs. Often, more than one pass is necessary to achieve this, and, at the same time, the aircraft must be manoeuvred in close to the vessel, but taking care that no manoeuvre is construed as provocative as this would contravene international law.

The mission continues in this manner until the assigned area has been searched. The rear crew members rotate on the radar at 30 minute intervals to maintain alertness; the pilot has to moniotor his instruments; the tactical coordinator keeps the fuel log — and the inside of the aircraft gets hotter and hotter! The Tracker's airconditioning consists of openable front overhead hatches, and with these open the noise level in the aircraft is very high and one has to be very cautious that charts, logs, etc., are not sucked out of the aircraft. Except when it rains, these hatches are always open in the tropics.

From the patrol boat aspects of such an operation, the weather plays an important role in the operation for the vessels do not have the fuel range to outrun unexpected depressions. The majority of the ship's company dread the thought of suffering from the inevitable seasickness — the duty bucket is normally situated in the wheelhouse for commual use! Additionally, the hazards of boarding a foreign fishing vessel (FFV) in rough weather, causing possible injury to personnel, is another consideration, as medical assistance is not readily available: facilities onboard are relatively meagre — and no one relishes the thought of the coxswain, assisted by the cook, performing even the simplest operation!

Because of the geographical situation of the Gulf, foreign fishing vessels can move in and out of the Declared Fishing Zone quite quickly and as aerial and coastal surveillance is scarce, the majority of detections are unalerted. The Australian fishermen provide information only when their particular activity is directly threatened. Long Range Maritime Patrol Aircraft reports are infrequent owing to the lack of such aircraft.

Navigationally, the patrol boat is limited by the charts of the area — some were last drawn by Matthew Flinders! The lack of navigational aids, and shipborne equipment limitations contribute to the dangers of navigating in the area. The wet season brings rain which hinders any early detection of FFVs and prevents the patrol boat going close to reefs and shore. Fishing vessels are not bent as easily as light naval vessels — and are not maintained by the taxpayer.

At sea, communications are at times poor, due to equipment failures in rough weather, ionospheric variations in the area, and radio operators being unable to remain in the W/T office for long periods. If the sighting is far from the Patrol Boat's patrol line, the ship's fuel range and the distance between fuelling stops in the North could limit the ship's ability to react.

Should a local interested observer sight any FFVs suspected of fishing inside the DFZ, he informs the local civil authorities who contact the Department of Fisheries. This Department reports to Marine Operations Canberra and a request for assistance is passed to Defence Central, thence to Navy Office, and the Operating Authority, who directs aircraft and/or a Patrol Boat to the area. Although this seems an unwieldy procedure, it can happen quite quickly and is the legal authority to react. Interaction between a Patrol Boat and an aircraft could occur at any time during an operation. The most likely interaction is in providing homing assistance for the Patrol Boat to an FFV found inside the DFZ. Apart from this assistance, the aircraft must accurately fix the vessel, and photograph it to provide the necessary evidence that may be required by a court of law in proceedings against a vessel.

The Patrol Boat's boarding party (usually consisting of 1 officer, 2 senior sailors and 4 junior sailors) search the FFV after it is spotted. Not infrequently, the boarding party is confronted by an attempt — sometimes successul and sometimes not — to scuttle, destroy or incapacitate the fishing boat. This causes additional problems which have to be allowed for. For example, if the engines have been incapacitated the Naval engineers are required to fix them. The alternative is to tow the FFV ashore, and under certain circumstances this can damage the Patrol Boat's main engines, or gearboxes, as they are not designed for such work. If the fishing boat crew has set fire to the vessel, the Boarding Party is required to fight the fire. The only portable fire fighting equipment — apart from hand extinguishers — carried by a Patrol Boat, is a 'portable' 2 man Sigmund pump of limited capacity and of great weight. Additional trips in the 14 foot aluminium dinghy of the Patrol Boat are required, and the ship's resources and manpower are stretched further. Whether the FFV crew attempts to burn the vessel or flood it, the same damage control effort is required by the Patrol Boat, thereby stretching its resources even further. Either way, the FFV crew has a better than even chance of destroying the evidence before it can be impounded.

All this can happen in one operation, but the task for the aircraft is not completed until long after it lands. The aircrew are debriefed and all fishing vessel details from the mission are reported by message to headquarters where all photographs are also forwarded for developing.

Taiwanese Clam Boat Apprehended by RAN Patrol Boat — by courtesy of 'Australian Fisheries'

Planning for the next day's mission then commences.

Generally, operating 3,000 miles from a major support base does not present major problems but it can be trying. The maintenance crews refuel the aircraft in 30 degree temperatures and carry out the necessary maintenance to prepare the aircraft for its next flight, working through the night if necessary. Should a major equipment unserviceability occur, the new aircraft part, whether it be an engine or a seal, must be flown to the detachment base, and this normally takes two days to accomplish because of the distance involved.

Equipment failures do not occur frequently, but there are many other distractions. For example, propagation conditions may allow the aircraft to communicate clearly with Guam or Hickam in Hawaii — but not Darwin, the one centre with which it needs communications!. A merchant ship may be trailing an oil slick which requires detailed reporting, or the density of fishing vessels may reduce the area the aircraft is able to search, and, of course, the aviator's worst enemy — weather, which may cause diversion from track, holding at home base, or return/diversion to another airfield.

The new patrol craft (PCF 420) which will replace the Attack Class vessels will have better sea-keeping qualities (being 42m long), a higher top speed and, hopefully, a lower minimum speed.

This should improve the ship's surveillance capability. As to using apprehended FFVs as surveillance vessels, there are three important disadvantages: they have poor habitability and are a health risk; they are mechanically unsound and not cost effective to refurbish; and the newer foreign fishing vessels can easily outrun the older ones.

The hiring of Australian fishing boats, or aircraft with capabilities similar to the Nomad used by the Army, to aid in surveillance has one huge disadvantage — the cost would be exorbitant.

Surveillance operations, as far as the public is concerned, have been limited to specific tasks, such as 'Trochus' in Broome and our present effort in Darwin, where the comforts of home are not always available. However, the fleet in general is always carrying out surveillance through its daily operations — whether by aircraft, submarines, major warships, or by the smaller war vessels which operate further around our coastline.

RAAF PEACE TIME SURVEILLANCE OPERATIONS

by Wing Commander L.R. Anderson RAAF

THE ROLE OF THE RAAF

Surveillance, described in military terminology as the systematic observation of the surface and subsurface of the ocean for the purpose of identifying and determining movement of ships, submarines and other vehicles, is a traditional role of the RAAF maritime force. Surveillance, on one hand, may be for defence purposes or, on the other to satisfy civilian requirements or to police government policies. Although there is no specific requirement for Defence Force assets to be used in national surveillance, there is an obvious and clear connection between the two. Operational techniques and vehicles are similar; and intelligence derived from national surveillance does have a defence interest. In the present situation of undisturbed peace the location of the foreign fishing fleet is of little defence interest. However, should the level of tension increase a knowledge of the location and movement of all shipping in Australian waters would become a defence requirement. Whilst Defence Force vehicles can make a contribution to national surveillance, it must be recognised that national surveillance is but one of a number of defence tasks to which the allocation of effort must be kept under constant review and for which adequate budgetary and manpower resources must be provided. However, this effort must not be allowed to dilute ASW excellence which is the primary wartime mission of the RAAF maritime force. This air surveillance covers the entire Australian coast line, including Tasmania, and has the following broad aims:

a. detection and reaction to illegal activities,

b. deterrence of offences against Australian law, and

c. acquisition of information on patterns of activity which could lead to an increase in the effectiveness in the use of Australian resources.

THE RAAF MARITIME FORCE

The RAAF Maritime Force consists of 10 P3B Orion aircraft in service with No. 11 Squadron. No. 10 Squadron, which previously flew Neptune aircraft, is presently re-equipping with a further 10 P3C Orion aircraft. The P3C, although basically the same aircraft as the P3B from an airframe and engine point of view, represents a major advance in maritime aircraft performance by providing computer control of electronic systems. Essentially, the Orion family of aircraft are long range anti-submarine aircraft designed to search for, locate and destroy enemy submarines without the aid of other vehicles. When fitted with a stand-off missile system, capable of destroying surface shipping, the Orion can be regarded in all respects as a sea control aircraft.

A number of the military features of the Orion make it an outstanding surveillance aircraft for national surveillance particularly in an Australian context which, because of geography and demography, poses a most difficult surveillance problem. The aircraft has a long endurance and is thus capable of covering the entire fishing zone from major established bases. A typical crew consists of 2 pilots, 2 flight engineers, 3

THE AUTHOR

Wing Commander Anderson graduated as a pilot from RAAF College, Point Cook in 1954. He has spent most of his time in the Long Range Maritime Patrol Force, including an exchange posting in the United Kingdom with Coastal Command, RAF.

His recent appointments have been:

1970 RAAF Staff College.

1971-73 Commanding Officer No. 10 (Maritime) Squadron, RAAF.

1973-76 Maritime Operations — Headquarters Operational Command.

He is currently serving as the Operations Maritime Staff Officer in the Directorate of Operations, Air Force Office, Canberra.

The first RAAF P3C Orion undergoing its inaugural test flight in the USA — by courtesy of P3C Project Group RAAF

navigators (including the tactical co-ordinator) and 5 sensor operators. This allows crew rotation which in turn maintains crew performance throughout a 10-12 hour mission. Aircraft performance is such that high search speeds can be maintained throughout the entire mission resulting in extremely large area surveillance.

RAAF MISSION PLANNING

The aim in surveillance mission planning is, at all times to maximize both the size of the area surveyed and probability of detection. The area surveyed will be a function of radar performance and the speed of advance of aircraft which in turn will be dependent on patrol speed and contact density in the area. Experience in northern Australian waters has shown that for a high probability of detection against a wooden hull trawler, 30 nautical miles is a realistic radar detection range and the contact density is such that a speed of advance of 240 knots can usually be maintained. Using these planning figures, surveillance and visual identification of all surface contacts in the entire Gulf of Carpentaria has been achieved within 7 hours. Surveillance of the Gulf of Carpentaria is carried out during an 11 hour mission originating from Darwin and terminating at Townsville. In addition to the surveillance of the Gulf, this mission would also cover the DFZ between Darwin and Gove, and the Barrier Reef area between Thursday Island and Townsville.

All surveillance patrols are mounted out of the RAAF maritime force home base at Edinburgh. A normal patrol is seven days which involves six ten-hour sorties, staging through Richmond, Townsville, Darwin, Learmonth and Pearce. This style of patrol provides high aircraft utilisation as well as 100% on-task time to total mission time and covers the entire Australian mainland (including Tasmania) Declared Fishing Zone. Normally, two such patrols, with two additional shorter five-day patrols covering the area from Geraldton to Brisbane, are flown monthly. Normally, these patrols are flown during daylight hours for ease of identification of radar contacts. However, the Orion (particularly the P3C) has the capability of night surveillance, and some missions are flown at night to ensure there is no obvious change in fishing activity at night.

CONCLUSION

The present RAAF maritime force equipped with Orion aircraft has a tremendous capacity for ocean surveillance. In peace time, this capacity is being applied to the national surveillance problem and provides a ready solution to the surveillance of probably the biggest and most difficult fishing zone in the world.

THE AUSTRALIAN COAST GUARD DEBATE

by Lieutenant Commander D.J. Campbell RAN

"Undoubtedly, we have yet to be faced with the plethora of schemes ranging from retired admirals strategically sited and equipped with rowing boats, to a voluntary organisation complete with club houses". With these words, a Pacific Defence Reporter editorial[1] highlighted the current debate with its calls for the urgent establishment of an Australian organisation like the US Coast Guard.

These calls have had their origin in the recently well publicised events on our northern frontier concerning Vietnamese refugees and drug smugglers. Other revelations about the illegal movement of currency, immigrants, native flora and fauna, and the risk of exotic diseases have all combined to produce a state which ranges from mild concern to near-hysteria, depending on your source of daily news.[2] It is timely to pause and take stock of the situation, and the purpose of this article is to contribute to the current debate, clarify some misconceptions, and to provoke further discussion in the Journal.

Some of the problems noted above are capable of solution by regulations and licences, and all are legislated to a greater or lesser extent already. However it is a maxim of jurisprudence that no law is worth much unless it can be enforced, and it is this lack of an enforcement capability which is righteously and rightfully being criticised.

Since the US Coast Guard features so frequently as the model for an Australian response, it is well to review the mission and extent of that organisation.

In 1915, an Act of Congress established the US Coast Guard which was a consolidation of the old (1790) Revenue Cutter Service and the Life Saving Service (founded in 1878). In 1939, the Light House Service (dating from 1789) was added and in 1967, the Coast Guard was transferred from the Treasury Department to the newly-created Department of Transportation. It is important to note that the legislation defined the Coast Guard as a "military service and a branch of the armed forces of the United States at all times". In practice, it functions as an independent organisation except when operating as a part of the US Navy as it has done on many occasions from World War I to Vietnam.

The missions of the US Coast Guard are to:

- enforce, or assist in the enforcement of, applicable Federal laws upon the high seas and the waters subject to the jurisdiction of the US, including environmental protection;
- administer all Federal laws regarding safety of life and property on the high seas, and on waters subject to the jurisdiction of the US, except those laws specifically entrusted to other Federal agencies;
- develop, establish, maintain, operate, and conduct aids to maritime navigation, ocean stations, ice-breaking activities, oceanographic research, and rescue facilities; and
- maintain a state of readiness to function as a specialised service in the Navy when so directed by the President.

THE AUTHOR

Lt Cdr D. J. Campbell is a Supply and Secretariat specialist currently serving within the Naval Materiel Division. He disclaims any particular expertise on the subject of maritime surveillance but, as he says, such a handicap has never been a hindrance to others who write on topical issues and indeed he observes that quite the reverse appears to be the rule. He is a regular contributor to the Journal and is the Treasurer of the Institute.

US Coast Guard personnel total about 6,000 officers and 31,500 men — more than twice the authorised ceiling for the RAN.[3] Of these, 1,000 were added last year to man an increase in cutter[4] strength to enforce a 200 mile fishing and conservation zone off the US coast.

The "fighting strength" of the force centres on 43 cutters and 75 patrol craft, and is a substantial force in its own right when compared with the navies of anything less than the super-powers. The Hamilton class cutters, for example, are 115 metres in length, displace about 3,000 tonnes, are armed with a 5" gun, 81mm mortars, 50 calibre machine guns, triple Mk 32 tubes, and a helicopter. They have a complement of 164 and are capable of 29 knots. Other units include 150 vessels of other categories ranging from ice-breakers to harbour tugs and from training cutters to light ships, and in addition to these are 600 small rescue and utility craft. The aviation element includes more than 60 fixed-wing aircraft and more than 100 helicopters, which is a significant air force in anybody's language.

A brief analysis of the types of missions noted above will show that several are already performed by the RAN in the Australian context such as enforcing applicable law at sea, conducting oceanographic research, and carrying out SAR operations. The other coast guard types of missions are performed by a variety of other departments, agencies, and instrumentalities, and even by a number of non-governmental bodies. Consider the Commonwealth Departments alone: Attorney-General's, Business & Consumer Affairs, Transport, Primary Industry, Immigration & Ethnic Affairs, Health, and Overseas Trade come to mind, and there are doubtless others.

To gather all the relevant components of these bodies into a US Coast Guard type of organisation would be exceedingly difficult and enormously expensive, and yet this proposal is implicit in the calls for an Australian Coast Guard. Typical of the coast guard advocates is Independant Senator Harradine, who is quoted[5] as saying that the Australian coast guard should be modelled on the highly professional US Coast Guard, and that the Government should act now to establish one. It is a very facile argument and patently stems from an ignorance of what the US Coast Guard is really all about, for to put such a scheme into effect would entail an expenditure approaching that of the existing defence budget. Senator Harradine's proposal includes no fewer than eleven bases around the coast line; his afloat element alone must be hefty if it is to be used in wartime for surveillance, port control, defence, rescue of survivors, and limited convoy duties, as he is quoted as saying. With every due respect, one suspects that he has a very romantic concept of the subject, gathered perhaps from Hollywood's portrayal of pretty little white yachts dashing about the Caribbean performing gallant deeds.

The fact is that the US Coast Guard and any such Australian equivalent stem from two entirely different historical bases, and this fundamental disparity needs to be appreciated because different problems require different solutions. Nevertheless, in fairness to the Senator and others, their misconceptions are understandable. No one has yet put forward a public and authoritative explanation of what the surveillance task involves and certainly the qualitative and quantitative criteria which are the pre-requisites for the development of an appropriate surveillance effort have remained unstated, if indeed they have even been determined. At the time of writing (February, 1978), no Government pronouncements have been uttered and if the opposition speak from ignorance, then those on the Treasury benches should shoulder some of the blame.

Again, from the opposition side of the house, has come a more rational approach but even then it is wide of the mark. The Opposition's defence spokesman, Mr Scholes, has said[6] the prime responsibility for coastal surveillance belonged to the defence force and not the Narcotics Bureau.[7] "Clearly," he said, "the expertise, organisation, and manpower to carry out major defence surveillance and less sophisticated forms of surveillance for civilian purposes exist with the defence forces." But then this piece of sweet reason was ruined by the call for the Services to put together a new maritime command to co-ordinate all surveillance, which must have made them groan on the Chiefs of Staffs Committee. Nevertheless, it is clear he has read the White Paper[8] and has noted that some surveillance is within the capability of the Forces. Something he overlooked, though, was that the Services do not have the manpower nor the equipment in the quantities needed.

More importantly, he and other commentators generally appear to have misunderstood the meaning of the word "surveillance", and the legal implications and complications which might attend such actions as apprehension and prosecution which result from surveillance. Military surveillance is poles apart from civil surveillance, largely because of the actions which follow. Surveillance is defined[9] as the systematic observation of aerospace, surface, or sub-surface areas, places, persons, or things by visual, aural, electronic, photographic, or other means for intelligence purposes. It is one thing for surveillance to reveal a Soviet submarine operating covertly off Darwin, another to detect drug runners, and something else to observe an Australian fishing boat contravening local catch laws.

V/STOL, THE

strike one:
steam catapult and arrestor wires and their maintenance

A modern steam catapult costs over $A10 million — without the boilers which supply the steam. It weighs hundreds of tonnes. And you'd better have two in a ship operating convential naval aircraft.

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These three separate situations must evoke three entirely different reactions, and only one is properly the responsibility of the Defence Forces. The interaction of the several arms of Government remains the most complex issue in the overall surveillance matter, as a brief consideration of the RAN's enforcing the current fishing laws would illustrate.

It is proper that defence dollars should be spent on military surveillance. It is arguable that defence resources should be expended on civil police functions such as overseeing the behaviour of our fishing fleet. Who should pay for this latter role? And does not the sensitive question of military interference with civil rights intrude here as well? If surveillance is to be conducted in this wider context, then who should determine the priorities for tasking? Systematic observation does not come cheaply and indeed it has been suggested that such an operation to cover the EEZ would require 300 P-3C-Orions at a capital coast approaching four billion dollars.

When critics of the standing of Sir Richard Peek[10] call for the establishment of a Coast Guard, then a different interpretation of what is envisaged is appropriate. Informed critics, it is safe to assume, appreciate that the US Coast Guard is a military service and it can be deduced that what is being proposed is a Coast Guard in its military role alone, shorn of its civil activities, or put another way, an operational Coast Guard alone, rather than an organisation with both operational and regulatory responsibilities. Nevertheless, even Admiral Peek claims that surveillance is not a defence problem, and that the cost of surveillance operations should not be borne by the defence budget.

Such a coast guard would not therefore be concerned with the regulation of motor boats, the oversight of unloading dangerous cargoes, maintaining buoys and beacons, licensing marine personnel, inspecting merchant ships, collecting revenue, and the host of other non-operational duties which are the lot of the US Coast Guard. What is left then is an organisation which for lack of a better name is a Navy. The logical extension of this argument is to enhance the capabilities of the RAN and RAAF to enable a more effective role in a national surveillance effort.

Although the White Paper discusses their capabilities for military and civil surveillance, an expanded police role is not listed as a task for the Services. Surveillance has generally been a civil responsibility, discharged at minimum cost and with commensurate and understandable ineffectiveness. The current surveillance activity in the North and West is therefore an additional, supplementary commitment imposed on the Services to be undertaken with existing and inadequate assets which, it should be noted, are not designed for such a thankless task. The answer to the coast guard question is two-fold: task the Services with surveillance as a national responsibility and then provide them with the appropriate resources to do the job. Following up the results of surveillance should remain with the several agencies which handle them now.

An alternative to this is to establish yet another government agency. But consider the requirement of establishing the necessary legislation against a background of Constitutional barriers, and setting up the required departmental organisation to administer it. Then add the tasks of equipment selection and procurement, facility and base construction, recruiting and training, maintenance, and the rest of the daunting range of operational and logistic support and the complex infrastructure to sustain the entire effort. Throw in the need to develop a workable C^3 (Command, Control & Communications) relationship vis-a-vis the Services, and the enormity of the task takes on very considerable proportions. To compound the matter further, determine the pay scales and conditions of service; should they be the same as for the Services, more, or less, and why? Then pay for it. From all of these considerations, the same solution presents itself: use the Services — they have the organisation already, but what they need is more hardware and more people, and that of course means more money, but only at a fraction of the cost of the civil alternative.

Any unlawful intrusion into our air or sea space is by definition a breach of our security, and ipso facto surveillance is a proper task for the Services. All peace time surveillance and patrol of the Resources Zone would involve the same sort of operations and organisation as would be needed in war time. By the wisdom inherent in the gunners' motto, Si Vis Pacem Para Bellum, it makes good sense to learn, practise, and develop wartime surveillance skills in the days of peace. At the same time, there is no need to dismantle the existing civilian information and control system, the Marine Operations Centre (MOC); this system works well now and is used and trusted by all the relevant agencies. It interlocks well with Defence without draining defence resources, and while it may well be responsible to Defence in war time, there is no justification for tampering with it now.

Detection and interception require respectively elements of air and sea forces. Effective execution of these tasks means that intruders are detected by aircraft (or other intelligence, but this aspect of surveillance must be left out of an article published in this manner) and subsequently intercepted by surface units. There are alternatives, but unless cost is entirely disregarded, none is as effective as this combination. Antenna heights, sea states, speeds of advance, propagation environments, and other physical

Nomad Aircraft of the Australian Army — by courtesy of Defence Public Relations

realities force such a basic combination, and incidentally such factors point to patrol craft of at least the size of the PCF 420.

Turning to the choice of aircraft opens up a new field of speculation. As far as the surveillance of the immediate littoral sea, reefs, and islands is concerned, small aircraft with minimal navaids and sensors are adequate. Most detection and all identification in these waters would necessarily be visual. In particularly confined waters where patrol boats cannot venture (such as in some parts of the Barrier Reef), aircraft are the only practical means of detection and identification.

Such a requirement could be met by GAF's Nomad variant, the Searchmaster with its AN/APS-504 radar, which is enjoying such an enthusiastic press at the moment. Yet given that the circumstances outlined above are valid, the Searchmaster is too much of an aircraft for the job. Instead this particular surveillance task could be contracted to private enterprise operating far less capable machines, and indeed Narcotics already employ such a scheme albeit on a modest scale. If the communications and control aspects of compatibility with ships is questioned in this regard, then it is well to remember that civil light aircraft have for years successfully operated under contract to the RAN for such Fleet support roles as target towing, AA tracking, and radar calibrating. An immediate difficulty with this approach, however, is the availability of such aircraft. Depending on how you do your sums, the annual requirement is probably anywhere in the vicinity of 20,000 to 40,000 hours, for an acceptable level of surveillance from Cape York to North West Cape, at a hiring charge of $2.5 to $4.5 million.

Further out from the coastal fringe to the limits of the 200 mile EEZ and beyond, the requirement changes drastically. Electronic sensors and aircraft and crew endurance become far more important factors. With this type of surveillance, a fully-fledged LRMP is called for, and of the current inventory the P-3C-Orion or S-2G-Tracker are certainly the most effective operationally, yet at their high capital costs it is arguable whether they are the most cost-effective for police work. Both are highly specialised aircraft and are expensively equipped, manned, and operated for the detection, classification, and prosecution of submarines. Outside their dedicated roles, they also are too much aircraft for the job. Other aircraft warrant consideration: the DHC-4 Caribou would perform very adequately, for instance, and the obsolete C-130A Hercules is also attractive from at least one point of view — its's free.

The air side of surveillance is of paramount importance and must be the focus of attention of the systems approach which must be applied to the entire question. The RAAF has offered little if any public debate on the issue but it is not easy to imagine the RAAF accepting with equanimity any commerical competition in what is demonstrably a defence task. On the other hand, its reticence could be due to concern about the impact which supporting more reconnaissance and patrol aircraft might have upon its TFF programme. In these circumstances, the Searchmaster may well emerge as the compromise for both close-in and distant work, particularly when the inevitable

complication of industry assistance gets injected.

Notwithstanding this, the L version Searchmaster does not deserve to be dismissed lightly. Together with its 360° radar, it carries inertial navigation equipment and has an endurance of seven hours. Its cost is about 25% of the bigger HS-748 or F-27. Australian production and local overhaul facilities, small crew, and cheap fuel all combine to make it an attractive proposition in the search of a compromise. On the other hand, the Grumman E-2C Hawkeye twin turbo-prop Airborne Early Warning (AEW) aircraft is not without its dedicated supporters. It has amazing capabilities, and despite its unit cost of around $30 million, should attract close and favourable scrutiny particularly since surveillance should be integrated with an effective air defence network. The E-2C is an operationally proven total capability AEW system which could well provide the answer to the overall problem of surveillance and tracking

The inability of the Services to conduct an effective surveillance operation is a far more serious matter per se than the illegal immigration and illicit drug worries. It reveals that surveillance in response to a purely military threat must also be inadequate. In the presence of a more tangible danger, then then the forces currently allocated to surveillance — a handful of PTF's, S-2G's and P-3B's — would necessarily be diverted back to their parent operational authorities for their primary missions. Defence should be quick to take advantage of the prevailing climate surrounding calls for an increased presence in the North and West, and, although the current FYDP holds small prospect for the additional resources, the time is ripe to seek more money and extra manpower. Where there is popular support for an evident need, then Cabinet is responsive even in these times of economic constraint. Nevertheless, the Australian electorate is notoriously fickle, and unless action is taken quickly the opportunity could be lost as national attention is diverted elsewhere to some other nine-day wonder.

The initiative must be taken now to obtain the necessary authorisation for expensive long lead items. Two which come to mind are patrol craft and a patrol craft base. An operational analysis is beyond the scope of this article, but a good case could be put forward for a minimum need for a further twelve patrol boats which could be achieved by the expansion and acceleration of the existing programme for 15 boats, and for an operating and maintenance base midway between Darwin and Exmouth which could be achieved by hastening the development of the long-mooted Port Hedland facility.

Costs are elusive, but the boats could be procured for approximately $100 million and the base, together with its facilities and housing, would probably be in the region of a further $25 million. The capital outlay would therefore be about $125 million expended over four or five years. The annual cost of maintaining the force, by applying various rules of thumb, could be as high as $8 million. Extrapolation of some figures from recent GAF studies suggests that a reasonable air component could be acquired for $25 million with annual running costs of around $5 million. For a total investment of some $150 million, a viable surveillance structure for the North and West could be achieved. With the enhancement of other resources such as the

P3B Orion of No. 11 Squadron RAAF — by courtesy of Defence Public Relations

Jindalee over the horizon radar (in particular), Project Barra, and intelligence, the Services would have a respectable and credible surveillance capability.

Other benefits would accrue automatically. With a good surveillance capability would come the ability to conduct reconnaissance, patrol, and sovereignty missions. The training value for the Navy alone would be inestimable, as the experience with the patrol boat and landing craft squadrons has amply demonstrated, and following from this, the term "civil surveillance" should not be used if that task is to be assigned to the Services. It is psychologically important that the (relative) youngsters who carry out surveillance should feel that they are performing a valuable, essential, and legitimate defence role. This particular benefit would not be lost on the Chiefs, either.

These actions could and should be taken now. Concurrently, detailed planning should be continued for the remainder of the surveillance task, for the measures outlined above are essentially an opportunistic device to obtain some surveillance hardware with more than an element of haste. The geographic area discussed has been focused, but it remains barely a quarter of the ocean expanse which will require Australian surveillance once the 200 mile EEZ is proclaimed.

Nothing would more help the development of such plans as defence sponsored public debate, and it is unfortunate that a cloak of secrecy surrounds whatever effort is now underway within Government. There are countless factors to consider, not the least of which is the level of surveillance which ought to be achieved — costs rise exponentially as the probability of detection approaches unity. Once this level is determined, then the other matters can be examined in an iterative process. These range from satellite systems to blimps, from the role of coast-watchers to whether or not the RAN should operate LRMP's, and from command and control problems to the use of low-light television and infra-red sensors. A prime requirement in establishing a surveillance organisation is the accumulation of a data bank, and towards this end, F-111 photo-recce missions should be tasked. Bigger complements for "prize crew" working should be examined as a means of extending the endurance of patrol boats. The list is virtually endless.

It is emphasised that the Services cannot rush into a surveillance role with exorbitant demands for equipment. Policing the EEZ does not necessarily demand enormous resources, simply arrived at by a pro-rata extension of existing commitments and present forces. We do not yet know the full extent of the surveillance requirement — for example, whether the Gulf of Carpentaria will be closed to foreign fishing, what the licensing and reporting rules will be, or how foreign fishermen will react or conform. All these will take time to develop or to manifest, and the Services must respond with measured care. Still, whatever the eventual outcome, some requirements will be constant such as the continuing and absolute need for more patrol boats. Prudence dictates that their procurement be embarked upon now, recognising the facts of long lead times and the opportunity provided by the current public awareness.

The calls for a US Coast Guard type of organisation come as a result of quickening community interest in the state of our defences. Whether they are the voices of vested interests such as fishing co-operatives, extremist groups who oppose Indo-Chinese immigration, harassed narcotics agents, secretive defence planners, or merely concerned private citizens, they all have a common theme if not always one which is clearly articulated. Their theme can be reduced to a simple demand for the creation of an enhanced capability to detect and intercept unwelcome intruders, and generally to deter illicit activities particularly in the maritime and air approaches to the north and west of the island/continent.

These capabilities can be provided in the first instance by extending the roles of the Services to include the task of surveillance and by increasing their available resources to undertake such a task effectively. A modest but credible capability could be achieved in a short time for a moderate financial commitment now. A greater Australia-wide capability could demand enormous expenditure, and it is towards this end that public debate should now be directed. The pages of this Journal provide a proper forum.

Notes:

1. Pacific Defence Reporter, February, 1978.
2. From these notes it can be seen that the author's major news source is the Canberra Times. The chief reason is that of all Australia's newspapers, the Canberra Times is the only one to maintain a full-time Defence Correspondent on strength — a sad but true reflection of the nation's defence consciousness.
3. The 1977 Defence Report gives the strength of the RAN in June, 1977, as 1844 officers and 14,546 other ranks, including WRANS, but excluding the Reserves which latter number 970.
4. All Coast Guard vessels are known as "cutters".
5. Hobart Herald of 6th February, 1978.
7. The Canberra Times of 1st February, 1978, carried a report that a civil coast guard under the Department of Customs and Excise (sic) could be as much as $400 million.
8. "Australian Defence", a White Paper presented to Parliament by the Minister for Defence, November, 1976, at page 16.
9. JSP (AS) 101.
10. Vice-Admiral Sir Richard Peek, KBE, CB, DSC. Chief of Naval Staff 1970-73. Quoted in the Canberra Times of 31st January, 1978.

THE SURVEILLANCE OF THE AUSTRALIAN COASTLINE

A CIVILIAN VIEW

by Frank Cranston

Set quite recently the task of attempting to define "defence" in the connotation which it might have for the average newspaper reader, I was able, after some agonising, to arrive only at the conclusion that it meant pretty much what the news media might have said about it the day before.

Had I been a Japanese journalist my task would have been a lot easier because of the quaint habit of the Japan Defence Agency of taking a fairly frequent public opinion sample about itself and then publishing a (probably-sanitised) version of the result. The last exercise incidentally was a public relations disaster in which more than 70 per cent of those asked their opinion of the Japanese White Paper on Defence admitted that they had never heard of it. The Australian Department of Defence has never to my knowledge ventured into such a sticky arena and would no doubt have concealed such a result if it had.

During last year's election campaign one of the more erudite public opinion samplers did attempt to discover what was exercising people's minds and established that defence was not one of their anxieties. Not much, I will admit, with which to attempt to divine what the civilian's attitude might be toward the proper surveillance of his coastline and the responsibility for it, but the only "evidence" available.

It could be fruitful to examine the attitudes of the elected representatives of the people to the matter in the belief that they might reflect the opinions of their constituents, but here again there is little guidance. They first showed some interest about 10 years ago but in the relatively-narrow field of fisheries intrusion. Suggestions in the wake of Japanese and Soviet incursions around the Gulf of Carpenteria led to calls for a "coast guard" but they were not pushed. The RAN was called in instead.

In the early months of the Labour Government attention focused sharply on fisheries contraventions by Taiwanese boats off the northern coasts. Just how much of the subsequent political hysteria evoked was a natural desire to show our new friends in Peking that we were friends indeed is knowledge which rests in the minds of the politicians who directed it. They firmly believed that the detection and apprehension of the intruders was a job for the RAN backed where necessary by the RAAF.

In the latter part of 1974 and the early part of 1975 though the Taiwanese were still being hunted and vain attempts made to turn their confiscated boats into something useful for Aboriginal fishing co-operatives a new spectre loomed over the north-west. This time it was Indonesian subsistence fishermen and the "cause" was not so much fishing itself as animal quarantine. Again it was deemed to be a job for the Navy, this time by sea and air, with the RAAF helping out in times of stress.

Last year something even more sinister turned up as boatloads of our former Indo Chinese Allies began arriving uninvited and it became the task of the RAAF and RAN to attempt to detect them and escort them in, though there was the occcasional view that the task should have been to shove them back into the sea.

And this year of course, the well-publicised efforts — one seemingly successful — to penetrate unpatrolled northern airspace with plane loads of illegal narcotics. The RAAF pulled off a successful interception but, curiously enough, was not invited to react to the second apparent penetration of our sovereignty.

Artist's Impression of PCF 420 Patrol Boat — by courtesy of Defence Public Relations

In each of these operations, as in the early fishing penetrations, the defence force has been involved at some stage as the result of appeals by the civil authority. And that, I suggest, has established in the mind of the average citizen the belief that, as the defence force seems reasonably capable in the area, the responsibility is probably properly placed with it.

Few voices have been raised to point out that the task of our sea and airborne maritime reconnaisance units has never been officially recognised by the defence authorities as their proper prerogative per se, nor that the equipment with which they are provided is at the one time both woefully inadequate and a gross diversion of capabilities. The Minister for Defence did try in a way to explain this with discussions of "300 Orions" but, in a rare lapse of concentration, never got the point across.

Various civilian authorities have looked at the question from time to time but seemingly in the belief that any civilian attempt to approach the matter can be done either with detached units of the defence force under their control or at the expense of the defence vote if they establish self-supporting units. One newspaper went so far recently as to suggest that the defence force was trying to duck its responsibility in the area — a publication fortunately enough with a limited readership.

At the time of writing the "threat" to the coastline seems low, giving time, if advantage is taken of it, to thoroughly examine the proper roles of the defence force and any necessary para-military organisation deemed desirable nearly 80 years after Federation. There is still a period in which the defence forces can argue the cogent reasons why civilian tasks are best handled by civilian organisations backed up only in times of necessity by military muscle.

Despite the absence of the "threat" however (and it can emerge very quickly in the form of one more Vietnamese refugee boat, a successful aerial penetration or one large fishing boat) advantage must be taken of the respite for the proper delineation of tasks to be thoroughly explained to the civilian so that he might understand that an Orion swanning around in search of a fisherman is a gross abuse of highly expensive equipment. It must also be explained to him that the tasks of the RAN and the RAAF lie much further afield. It might be pointed out too that 200 nautical miles out is no place for constant deployment of a Brooke Marine patrol boat.

Any failure to adequately inform the public of the real roles of such platforms as the Orion and the patrol boats — not to mention FFG's — will, I would suspect, lead inevitably to their being looked upon by parsimonious politicians as electorally expendable items to be thrown into the headlines at politically advantageous intervals. The need, it will have to be shown, is for another different capable force rather than for a diversion of resources which are fully committed. The Treasury needless to say will be looking for the cheapest option rather than the best. What a pity Defence never sends accounts to ther departments for tasks carried out for them.

These are the parameters of the argument as I would believe the disinterested bulk of the citizenry see them, and they are parameters I believe the citizenry will accept if they are properly explained. I believe also, however, that politicians, being what they have proved to be, will forbid the disclosure of the infomation the citizenry will need to make such a considered judgement. **Politicians may have discerned that there is no "threat" to national security such as would prevent the diversion of military resources to non-military tasks, but they are also fully aware that to each of them there is a definite and more urgent "threat". They can even put a reasonably precise date on it. If nothing intervenes, December 1980.**

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SHIPS AND THE SEA

THE RECOVERY OF THE STEAMSHIP *'GREAT BRITAIN'*

"The first iron built ocean going steamship, and the first such ship to be entirely driven by propellor was the *GREAT BRITAIN* designed and launched by Isambard Kingdom Brunel. This, the forefather of all modern ships, is lying a beached hulk in the Falkland Islands at the moment.

The *CUTTY SARK* has rightly been preserved at Greenwich and *HMS VICTORY* at Portsmouth. Historically the *GREAT BRITAIN* has an equal claim to fame and yet nothing has been done to document the hulk, let alone recover it and preserve it for record. May I make a plea that the authorities should at least document, photograph, and fully record this wreck, and at best do something to recover the ship and place her on display as one of the very few really historic ships still in existence".

The above letter by Dr. Ewan Corlett MA, PhD, C.Eng, FRINA, FI Mar E, published in The Times in November 1967 was the start of a remarkable recovery operation taking just over 2 years and costing in the vincinity of £150,000. Subsequent restoration work has pushed the cost even higher.

Built in Bristol UK by Isambard Kingdom Brunel, the steamship *GREAT BRITAIN* was at that time the largest ocean-going iron built ship driven by a propellor. Six masts were in the original design but over the years these were reduced to five, four and finally to three. The original engine was also updated and replaced until finally being discarded when *GREAT BRITAIN* was reduced to the role of a three masted, fully rigged ship.

The original engine was somewhat of a novelty in its day. Four cylinders in an inverted 'V', of 88 inches diameter and 72 inches stroke. The pistons were connected to a wheel 18ft in diameter on the overhead crankshaft. To transfer the power to the propellor shaft four endless chains drove a small (6ft) wheel on the actual shaft. Subsequently, as one modification, these chains were replaced by gear wheels. The shaft itself was again of original design being 67ft long, 30 inches in diameter, hollow and made up of 6ft x 2 ft wrought iron plates. The 'business end' of the shaft was a six bladed propellor 15ft 6in in diameter. Although the original engine never achieved its designed 1,000 hp, it did drive the ship at 11 knots at 55 (propellor) rpm.

Much has been written of the construction, operation and general history of the *GREAT BRITAIN* but over the passing of the years she dropped from the public eye and memory, and slowly passed into obscurity. One little known fact today is that the ship made 32 voyages to Australia. In May 1886, then a fully rigged sailing ship, *GREAT BRITAIN* put into Port Stanley, Falkland Islands for repairs. The survey carried out considered repairs too costly and she became a hulk for wool and wool storage. The final indignity came on 14th April 1937 when the hulk was towed the few miles to Sparrow Cove, scuttled and left to the elements.

But to return to the recovery operation. After Dr Corlett's letter to The Times a meeting was held (April 1968) in the London offices of the Falkland Islands Company. In addition to Dr. Corlett and a Director of the F.I.C. it was attended by Basil Greenhill of the National Maritime Museum and Richard Goold-Adams. Later that year a second meeting was held and the *SS GREAT BRITAIN* project was formed. Both Corlett and Goold-Adams became involved in the project.

Speed was becoming the essence, the ship had been exposed to the elements for the last thirty years and she'd been used as a storage hulk for the previous fifty years. Deterioration was increasing, the vertical crack in the hull was increasing as wind and swell took effect and the Americans were interested in the hulk. The San Francisco Maritime Museum had been collecting material for eight years and were considering a recovery operation. However, with the formation of The Project the Americans offered to stand aside **provided** the British made a serious effort to return the ship to England.

During November and December 1968 Dr. Corlett, with the assistance of 4 or 5 volunteers from *HMS ENDURANCE*, carried out a survey of the wreck and surrounds in Sparrow Cove and his report was favourable. *GREAT BRITAIN* could be saved. After much investigation it had been found that the ship could be re-floated and towed back to England. The scheme was favourable but now came another obstacle — the estimated cost was £150,000 and this had to be found. In April 1969 Prince Philip sent a message of encouragement to The Project and a trickle of funds started to come in. The millionaire Jack Hayward OBE, a resident of the Bahamas, stepped in. At a meeting with Goold-Adams he simply stated "I'll see the ship home!". No formal contract was drawn up, but the promise to cover costs of up to £150,000 was kept.

The time had now come to decide who was to carry out the salvage operation. The Riston Beasley/Ulrich Harms Consortium gave an 80%

estimated chance of success. With their tug VARIUS II (724 tons) and pontoon *MULUS III* (2000 tons) the recovery was on. Approval was given to the Governor of the Falkland Islands to release the ship to The Project. This was not without drama as the authority to amend and sign the documents had to be given by the Foreign Office in London by telephone.

On March 26th 1970 the salvage convoy arrived in Sparrow Cove and work commenced. Leslie O'Neill of Risdon Beasley Ltd., together with the tug crew of 15, plus six special-Royal Marines serving in the Falkland Islands comprised the salvage crew.

The method of return of *GREAT BRITAIN* to the UK had changed somewhat. Originally it was considered feasible to patch the hull and tow it home 'on its own bottom', but this had been altered with the advent of *MULUS III* and it was now decided to refloat the ship and place her on the pontoon for the long tow home. Work continued with little rest until April 13th (33 years less a day) when *GREAT BRITAIN* was refloated, set square on the *MULUS III*, the pontoon re-surfaced and all was ready to secure the ship prior to departing Port Stanley for the 7,500 mile tow.

On June 22nd 1970 the tug and pontoon with *GREAT BRITAIN* atop arrived in Barry Roads and entered the Graving Dock at Avonmouth the next day. After days of hard work, including welding a heavy steel plate over the crack in the hull which had closed during the recovery operation, Lloyds issued a towage certificate for the great ship to return to her building port 'on her own bottom', being towed up the River Avon and reaching Bristol on 5th July.

The final act of the recovery was played out on July 19th 1970 (the 127th Anniversary of her launching) when *GREAT BRITAIN* was gently eased back into the Great Western Dock in the port of Bristol. Two co-incidences are of note; the Great Western Dock was specially built for the construction of *GREAT BRITAIN* and had, remarkably, survived. Prince Albert has been present at the launching of the ship in 1843 and Prince Philip was present to see *GREAT BRITAIN* returned to her birthplace

But what of restoration? *GREAT BRITAIN* had undergone many changes in her long career and it had to be decided which of her many appearances was right for the public to see. The final decision was, of course, I.K. Brunel's original 1843 design. How many years and how much money this will take is not known, but at last report the work continues.

The uneasy background of local politics and beaurocratic wrangling appears to have settled, and the ship hopefully will remain in the Great Western Dock at Bristol as a surviving example of nineteenth century British design and craftsmanship.

R.J.R. PENNOCK

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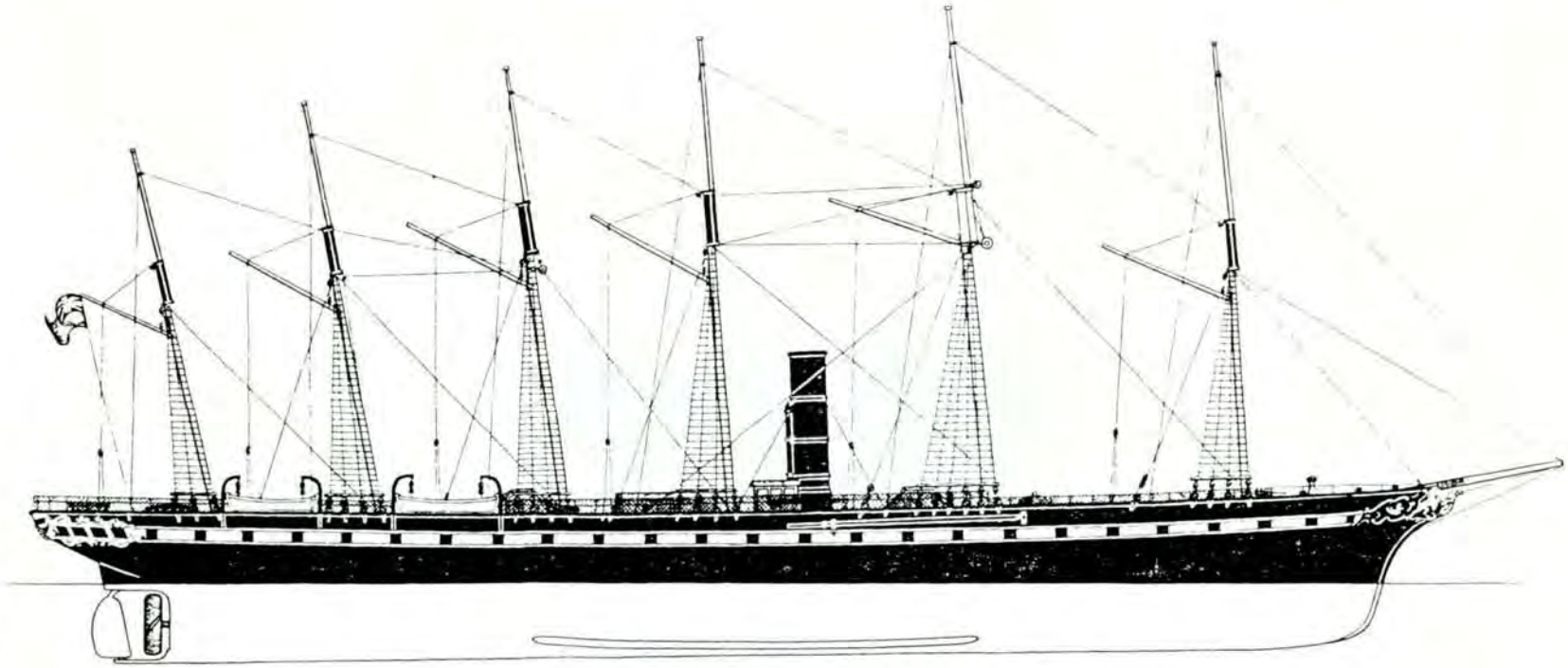
DIMMENSIONS OF GREAT BRITAIN

Length (o.a.)	322ft
Length of keel	289ft
Beam	50ft 6in
Depth	32ft 6in
Draft (max)	17ft 6in
Laden displacement	3618 tons
International call sign	PJFC

DIMMENSIONS OF ORIGINAL ENGINES

Cylinders	4 (inverted 'V')
Diam of cylinders	88in
Stroke	72in
Weight of engine	340 tons
Weight of boilers	200 tons
Weight of water in boilers	200 tons
Working pressure	4lb/sq in, later upgraded to 10lb/sq in
Diameter of propellor	15ft 6in
No. of blades	6
Bitch of propellor	25ft
Weight of propellor	4 tons
Coal carried	1200 tons



GREAT BRITAIN · 1843

GREAT BRITAIN — 1843 — Reproduced from 'From Paddle Steamer to Nuclear Ship' by W.A. Baker

Nobody asked me, but...

AUSTRALIAN DEFENCE FORCE ACADEMY

...and nobody's told me either. In fact, I haven't heard anybody say a good word about the concept of the Australian Defence Force Academy (ADFA), or Casey University as it is to be otherwise known.

There was recently a letter in the Canberra Times in which one of the civilian academic staff at RMC, Duntroon, took issue with the standards of dress required in the Officers' Mess. This gentleman considered that refusal to accept his wearing of jeans and sandals was an unacceptable infringement upon academic freedom (and incidentally, he managed to establish that this proved the Army was anti-Christ).

From that charming little episode, it is possible to extrapolate a hundred and one fundamental differences between what the Serviceman sees in an Academy and what the Academic regards as a University. Think about it. Then consider what Navy's, and Air Force's expectations and requirements are of a Service Academy, and I put it to you that we have all the necessary ingredients to fill a recipe for futility. "Useless U".

Everything I read about ADFA — and precious little has been made publicly available — has two common themes: cost and compromise. It would seem that in these days of waste and extravagance in education in Australia (and in these days of restriction and economy in Defence), it ought to be impossible to justify further expenditure in this field, even having regard to the specialised nature of the curriculum of ADFA; and it would seem that the persistent need for compromise between the Commandant and the Vice-Chancellor and everything they represent, can only spawn an institution which will satisfy no-one but a bureaucratic mischief-maker.

I do not quarrel about the need for a marriage between the pen and the sword — indeed I endorse it enthusiastically — but can anybody tell me why this misbegotten borstal is being forced upon us?

PLATO

A SPADE IS A SPADE AND A DE A ....

One of the more crushed petals in the bed occupied by the Editor of **Jane's Fighting Ships** has been the different approach taken by each navy in classifying its various warships. A cruiser in one continent is a destroyer in another and a frigate in a third. Full-fledged aircraft carriers are 'anti-submarine cruisers' to their owners and fleet carriers to everybody else. It is thus not surprising that **Jane's** has frequently been forced to adopt its own methods and ride rough-shod over indigenous classifications to bring some semblance of order to its pages.

In 1968 the Australian Naval Board took the decision, admirable in principle, that the RAN would follow USN practice in the classification of ships. This seemed quite logical since Australian ships were operating with the Americans off Vietnam and participating in frequent joint exercises in the South China Sea and off Hawaii, we had American built ships and American built aircraft, and the British links were slowly fading.

Unfortunately, however, only one type of ship was affected in any direct way. Fired by what can only be termed a *'CONSTITUTION'* complex, the USN has for twenty years called frigates what would anywhere else be termed cruisers. In the place of 'frigate' for the escort type intermediate between destroyer and corvette they had 'destroyer escort'. Thus, to move into line with the Americans, our Type 12s lost their 'F' pennant numbers and became DE 45, 46, 48 and 49.

It did seem an odd thing at the time and it seems odder now. NATO nations had long been pressing the USN to move into line with them as every nation in the West uses a term comparable to the British frigate (ranging from 'aviso' to 'fregatten') for vessels that compare in size and role with the Type 12. The United States was thus the odd one out, especially as the term 'frigate' sat even less well on its subjects when Russian 'cruisers' of far less tonnage (though possibly far more fire-power) slipped past.

In 1975-76, the USN took the plunge and the term DE died in America as frigates became cruisers and destroyer escorts, frigates. The editor of **Jane's** offered thanks to God and all was well with the world-save in Australia.

Can I thus make a plea for our return to the use of the term 'frigate'. We are now well and truly the odd ones out as all other Type 12s are still under F pennant numbers and now even such as the KNOX class have joined them. Apart from that, 'destroyer escort' is a very silly name anyway — what does the poor ship do — escort destroyers?

Furthermore, I have noticed a very interesting official habit which has sprung up since 1969. Instead of referring to the active fleet as 'one light carrier, five destroyers and six frigates', we now say 'one light carrier and eleven destroyers' which may sound better but smacks of a confidence trick — an easy way to gain a reassuring increase in strength. So, could we possibly go back to 'dat ol' time religion'?

Master Ned

MARINE OPERATIONS CENTRE

FUNCTIONS AND RESPONSIBILITIES

This article has been contributed by the Department of Transport.

The Commonwealth Department of Transport's Marine Operations Centre (MOC) was involved in almost 1,500 search-and-rescue, coastal surveillance and general marine incidents in 1976-77. At the same time the MOC was responsible for co-ordinating seventy nine searches for vessels in difficulties — ranging from tiny runabouts, to huge ocean-going ships. There has been a steady increase in the number of incidents handled by the MOC — about 1,100 incidents were dealt with in 1973-74, 1,278 in 1974-75, 1,327 in 1975-76 and 1,482 in 1976-77.

The MOC started operations in Canberra in April 1972. It is part of the Department of Transport's Emergency and Special Services Branch and is responsible also for issuing navigational warnings to shipping, operating the Australian Ship Reporting System (AUSREP) and co-ordinating coastal surveillance.

Some of the highlights in the development of the MOC are:

— In 1973 it was made responsible for all aspects of navigational warnings to shipping. Until then the Department of Transport initiated navigation warnings to shipping about reported dangers and malfunction of navigational aids while the Royal Australian Navy was responsible for the NAVAUS series of navigational warnings.

— At the end of 1973 — following the Blythe Star Tragedy — the Commonwealth Government introduced the Australian Ship Reporting System.

— In 1975 the Department of Transport was made responsible for Australian coastal surveillance, with the MOC responsible for co-ordinating activity.

SEARCH AND RESCUE

The Australian Government, as a signatory to the 1960 Safety of Life at Sea (SOLAS) Convention, is required to make all necessary arrangements for the rescue of people in distress in Australian or foreign vessels which are involved in interstate or international trades. The Marine Operations Centre co-ordinates this search-and-rescue (SAR) activity and works closely with the Defence Forces and State search-and rescue-authorities such as police. Search-and-rescue for vessels other than those involved in trade — such as fishing boats, vessels in port and pleasure craft — is the responsibility of State authorities.

The relationship between the Commonwealth and State Governments in this field is set out in an agreement on marine search and rescue which is followed in operations involving both Commonwealth and State agencies. If a SAR operation is considered to be beyond a State's capabilities, overall responsibility is quickly passed to the Marine Operations Centre.

State and Commonwealth authorities always work closely together to ensure all aspects of an operation are covered. The Marine Operations Centre is usually given details of an incident long before the handover stage is reached. Police continue to assist in the operation particularly in seeking information from relatives, friends and others who may have some knowledge which could help in the search. In case of a purely local nature, which are well within the capability of the police, the Marine Operations Centre assists wherever possible.

In a marine search and rescue incident it is unlikely that the operations room will be near the

scene of an incident. The siting of the MOC in Canberra — so far from the sea — is unimportant. The key to the situation is communications between the MOC and the aircraft and vessels engaged in the incident. Once an incident happens more than 15 miles offshore it is effectively out of sight of land in any case.

Communication with ships at sea is carried out through the Coast Radio Stations of the Overseas Telecommunications Commission (OTC). OTC maintains 15 coast radio stations, nine of which give continuous coverage and six operate during the day to compensate for the reduced daytime range of maritime radio frequencies. Each coast radio station is connected to the MOC by unlisted telephone and telex links, ensuring immediate access by distress traffic. Telex is particularly useful because it provides 'hard copy' and the operator in the coast radio station can type the message from the ship directly onto the telex, whether it is received by radio-telephone or radio-telegraphy. All distress and safety messages received by coast radio stations are passed directly to the MOC.

To supplement the OTC coast radio stations, use is made of base stations operated by fishing enterprises and organisations engaged in offshore activities such as oil exploration. Yacht clubs also operate limited services and provide useful information when their members are invovled in an operation. Many ports operate radio stations in the VHF band which can provide valuable assistance where an incident is taking place within their limited range.

Search and rescue incidents fall into two main categories. Firstly, there is the case where a vessel is in need of immediate assistance and sends out a radio message prefixed with an SOS or MAYDAY or some other recognised distress signal. The search and rescue organisation swings into action immediately and arranges to co-ordinate whatever help is necessary.

The second category is that of the overdue vessel — a vessel fails to arrive at its destination within a reasonable time, or return from its voyage. Notification usually comes from the police who have been contacted by a worried relative or friend. The search and rescue organisation immediately makes inquiries to determine whether the vessel has diverted to another port. The organisation also attempts to narrow down the area which should be searched. Shipping and transitting aircraft are alerted to keep a look out.

Whatever the nature of the incident, the duty Senior Co-ordinator in the MOC has authority to start a search and rescue operation of any size. If a major operation is unsuccessful, however, he must seek the approval of higher authority before the operation can be terminated.

AUSTRALIAN SHIP REPORTING SYSTEM (AUSREP)

Under AUSREP, vessels lodge details with the MOC of their time of departure, expected time of arrival at their destination and give a set time for reporting their position by radio. In the case of a missed report the MOC takes action to locate the vessel. The first action, in this event, is to undertake communications checks to establish if any station has communicated with the vessel recently or is able to contact it. If no communications can be established a search is launched. The aim is to be in the search area within 24 hours of the time the vessel should have reported — that is within 48 hours of the last report received. AUSREP has been used operationally on several occasions since its introduction.

One hundred per cent co-operation is being obtained from Australian ships, and about 50 per cent of foreign ships in the area are now participating in AUSREP. Amendments to the Navigation Act will make AUSREP compulsory for Australian ships within the Australian area and it will be compulsory for foreign ships from their first port of call in Australia until they leave. Voluntary participation will be encouraged before their first port and after their last port, whilst they are within the area. In any case all ships will be required to lodge a sailing plan, and if they do not intend to participate they must say so. More than 1,600 ships have participated in AUSREP so far.

AUSREP uses three basic types of communication as follows:

1. When a ship leaves port a *Sailing Plan* is sent to the MOC. This gives the vessel's name and call sign; port of departure, time and date; destination and expected arrival time and date; planned route, speed and the daily reporting time.
2. Once a day — and in any case within 24 hours of leaving port — the vessel sends a *Position Report*. This gives the vessel's call sign, position, course speed and time of position. If at any time the vessel's speed or course vary so that a dead reckoning position worked out from his last report will be considerably in error the ship automatically sends a further *Position Report*. This states the reason, for example change of destination or reduced speed due to bad weather.
3. On arrival at the destination the vessel sends an *Arrival Report*. This gives the vessel's name and call sign, arrival port and time.

In each case the vessel is given two hours grace after the time the report is due before any follow-up action is taken. This enables a vessel to sail, and having dropped the pilot or cleared the port, to send his message through an OTC coast radio station. It also ensures that the MOC does

Operation's Room at the MOC

— by courtesy of the
Department of Transport

Communications Centre
at the MOC

— by courtesy of the
Department of Transport

MOC Officers Working in the AUSREP Area — by courtesy of Department of Transport

not take premature action where a message has been delayed in the system.

All position reports are, by necessity, sent by radio. Sailing Plans and Arrival Reports can be sent by several means. Some are received from ship agents by telex, some direct from the ship by telephone. Some ports advise the MOC several times a day of arrivals and departures. This serves as a very useful source of information, particularly if a position report is received, when no Sailing Plan has been previously lodged.

NAVIGATIONAL WARNINGS TO SHIPPING (NAVAUS)

The NAVAUS system is operated by Australia as part of a world-wide system by which navigational warnings are issued to the users of British Admiralty charts through radio stations situated in Commonwealth countries. If a major navigational aid malfunctions the MOC broadcasts a warning as soon as it is reported. Ships at sea report partially submerged objects, containers, large trees, other more highly dangerous objects such as mines. The MOC is continuously available to deal with these reports as soon as they occur and issue appropriate warnings.

The United States of America operates a similar system which to some extent overlaps the NAVAUS system.

Within one or two years both these systems will be replaced by a world-wide system developed jointly by the Inter-Governmental Maritime Consultative Organization (IMCO) and the International Hydrographic Organisation (IHO). The world will be divided into sixteen areas, with a major country responsible for issuing the warnings in each NAVAREA. Australia will become area co-ordinator for NAVAREA X, which is basically the same area as that presently covered by NAVAUS messages.

AUSTRALIAN COASTAL SURVEILLANCE

Many Government Departments want surveillance information to help them manage and control a wide variety of activities; for example:

a) the Department of Transport needs information relating to the malfunctioning of navigational aids and oil pollution at sea;
b) the Department of Primary Industry needs information on the activities of fishermen, both Australian and foreign, who may be fishing illegally;
c) the Department of Health is interested in preventing the introduction of diseases into Australia;
d) the Department of Immigration and Ethnic Affairs is concerned with illegal immigrants; and
e) the Bureau of Customs has a duty to prevent smuggling.

The MOC receives reports from all primary surveillance vehicles, including ships and aircraft of the Defence Force, and also receives information from many other sources. This information is quickly passed on to the relevant

Department and if any follow-up action is required the duty MOC Senior Co-ordinator advises the Department about the availability of vehicles to assist. For example a RAN patrol boat may be assigned to check reports of illegal foreign fishing vessel activity or a Department of Transport navigational aid vessel may be asked to collect samples from an oil spill at sea. **It is important to note that Defence Force ships and aircraft — even in search and rescue operations — remain under the control of the Defence Force.**

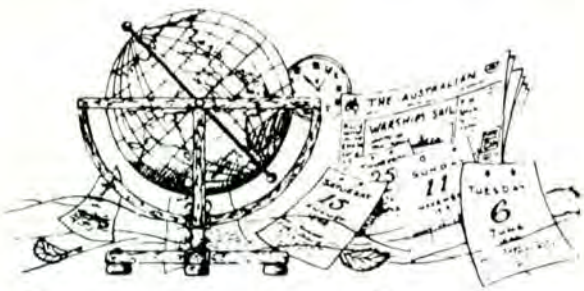
The Department of Transport's aviation operational areas — such as the Flight Service Unit — also have a role to play in coastal surveillance. The pilots of commercial aircraft, merchant ships, trawlers and other sources all provide valuable information — in fact about one-third of surveillance reports come from voluntary sources.

All surveillance reports are analysed so a complete picture of activities taking place off the Australian coastline can be built up. This information is used to develop longer-term plans for the use of surveillance vehicles and to assess the degree of surveillance required.

CONCLUSION

The work of the MOC has expended continuously since it was established in 1972 to draw together the Department of Transport's responsibilities and provide a continuous service for marine search and rescue. Navigational warnings are issued using many of the same facilities which, together with the need to react quickly, made it sensible for these two functions to be combined. The SAR organisation was further improved by the introduction and development of the Australian Ship Reporting System.

In the same way it was entirely logical to make use of the existing organisation with its skilled personnel and extensive communications facilities when the government decided to establish an organisation to co-ordinate civilian coastal surveillance in 1975. There has been considerable publicity recently concerning the need for an effective coastal surveillance organisation to ensure that Australian interests are protected.



I was there when...

KOREAN PATROL

Crossing the Korean coast early one morning, our flight of Sea Furies made VHF contact with the *USS ST. PAUL*, call sign "Tinkerbell". A flight of USAF F-80 jets promptly called on the same channel, clearly under the impression that the heavy cruiser was a U.S. Army spotter aircraft, as their leader asked for coloured smoke markers on a suitable target for their ordinance load.

ST. PAUL's reply was garbled by other traffic on the frequency. The F-80 leader called up "Tinkerbell, your transmission is weak. Can you get some more altutude?".

Without hesitation came the reply — "Sure, stick around. High tide is at 1738.".

HGJ

FRENCH WITHOUT TEARS

It was during the final examinations in French at BRNC, Dartmouth. The oral section was being conducted by a courtly old Tutor whom we suspected had learned his French in the time of the Second Republic, and who also cherished his own native tongue as it had been spoken in the days of the dear Queen. Things had been going well until he suddenly said in tones of mild distaste, "Now I want you to listen to this recording of a current French pop song, then give me a free translation." I was aghast, and stammered, "But I can't even understand the words of the English Top 40!" The charming pedant regarded me thoughfully over his spectacles for a few moments and then replied, "My dear young Colonial. I can't tell you what a relief and comfort that is to me, to hear one of your generation confess to that. Let's skip this part, shall we, and call it a pass?" And so we did; it was relief to me, too.

DJC

POSTED? MOVING SOON?

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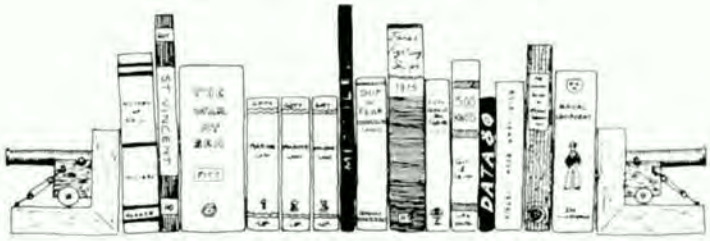
BOOK REVIEW



ON WALLPAPER

When next they refurbish the hallowed halls in Building F, the decorators should not overlook the specialist range of wall coverings which are now available. Some are functional indeed, and one such item is produced by the US Naval Institute (Annapolis) and is marketed under the name of **Grand Strategy — Principles and Practices.** It was designed by John M. Collins, an established artist in this field.

It may sound an extravagant claim, but this is probably the only book there is on *grand strategy*. Liddle Hart's classic **Strategy** contains merely a seven-page chapter on the subject and most other tests ignore it completely. Although the book emphasises the US scene, the lessons are there for any country to learn to correlate national security interests, objectives, policies, and concepts with national power and strategic constraints. The author defines grand strategy as the art and science of employing national power under all circumstances to exert desired types and degrees of control over the opposition by applying force, the threat of force, indirect pressures, diplomacy, subterfuge, and other imaginative means to attain national security objectives. Each term and phrase of that definition is analysed and discussed in considerable detail and with commendable clarity and skill.

This is an excellently produced book. It is amply illustrated with figures, tables and maps and has extensive other support in the form of appendices on strategic terminology and specialised abbreviations. The notes on sources of material are most comprehensive: there is a good list of suggested reading (although being first published in 1973, the list is a bit dated now); and a useful index. In the final section of the book is a case study of Vietnam, which is remarkable in that it is a review of that conflict in an integrated strategic context that takes cognizance of the fundamentals. Above all, this is a very readable book and the author has successfully avoided the tortuous prose that bedevils so much of today's American writings. The layout has been carefully thought through, and although the book integrates all aspects of strategic considerations, it is possible to read sections in isolation. If you want a quick overview of Economic and Fiscal Constraints, for instance, there it is.

There are four primary purposes of this book: to stimulate broad interest in strategy; to produce a concise compendium of strategic principles, considerations, and techniques for use by aspiring strategists; to outline ways of generating and sustaining strategic thought; and to give concerned citizens in all walks of life a firm grasp of strategic interactions, thereby affording them a better understanding of defence issues, and the nation a better-informed electorate. That last one, particularly, is a bit ambitious but it is a tribute to Collins' scholarship and authorship that he has succeeded in these objectives so well. There may be faults in this book, but if so, then this reviewer hasn't detected any. The most devasting criticism to be made is that the book would benefit from a programme of successive editions, especially to keep up to date with movements in SALT and other current developments in international affairs. But that is *simply criticism for its own sake*.

To anyone about to embark on building a library, or to anybody who wants to make a wandering around the corridors of power in Russell — where Australia's own grand strategy is allegedly developed — an educational experience (after redecoration, of course), this book is recommended. Unfortunately, **Grand Strategy** is neither ready-pasted nor washable, but at $7.50 (which would cover up to six square metres), you can't have everything.

DJC

CHURCHILL AND THE ADMIRALS
Captain S.W. Roskill CBE., DSC., RN.

Collins, London, 1977. £8.50 in U.K. Estimated $18.00 in Aust.

Since the time, nearly thirty years ago, that Captain Roskill accepted the monumental responsibility of writing the official history of the Royal Navy in the Second World War, he has produced a number of historical works of ever increasing lucidity and interest, culminating in his two volumes on Britain's naval policy between 1919 and 1939. His research has been copious, both in terms of his delving into the official records and the voluminous correspondence that he has engaged in with almost every man who could cast any light on the years that Captain Roskill was researching. His list of acknowledgements testifies to his achievement in drawing out the hidden opinions of many a veteran of the 'silent service'.

I would venture to suggest that **Naval Policy Between the Wars** represents the peak of Captain Roskill's achievement and I am sure that he himself would want it so. **Churchill and the Admirals** represents but a by-blow, albeit one of crucial importance. As he researched the period, even in the first days of **The War at Sea,** Roskill began to suspect that the dominion of Churchill over all aspects of the war from 1940 to 1945 was not, save in the earliest and darkest days, quite the splendid thing it seemed. Furthermore, the presence of Sir Dudley Pound as First Sea Lord from 1939 to 1943 was one that became increasingly open to criticism as more facts were brought to light.

The crux of Roskill's thesis is that Churchill's over-enthusiasm for what he regarded as the aggressive aspects of warfare, his sudden passions and dislikes, his misapplication of land strategy to the naval context and, above all, his constant interference in matters which were not his concern, were vastly detrimental to the war effort on more than one occasion.

The most disastrous and far-reaching interference was the sinking of the *PRINCE OF WALES* and *REPULSE* after Churchill had insisted that they be sent out, even without a carrier, against the better judgement of the naval staff, to act as a 'mobile deterrent' in the Far East. The rest is history.

Roskill goes further than this; in his explanation he details the most fascinating picture of the complex relationship that developed between Churchill and Fisher in the First War and labels the resignation of Fisher, which was eventually to bring Churchill down, as the underlying cause of Churchill's constant mistrust of the naval leadership. Pound, Cunningham, Somerville, Forbes and Tovey, all were at various times harassed and control removed from their hands in most improper fashion.

Churchill is, however, not the only one who comes in for criticism. Roskill hypothesises that Pound's place would have been better filled by Lord Chatfield, who had served with distinction as the First Sea Lord before he retired in 1938, or, at a later date, Sir Charles Forbes. Roskill points out that Pound was a sick man even when C-in-C Mediterranean in 1938 and that his health continued to deteriorate up to his death in 1943. Pound could not always stand up to Churchill — which may have been the cause of his continuing employment. He and the Prime Minister both tended to employ aged dug-outs, heroes of the late War, who performed tasks that may have been better done by younger men. Notable among these was Roger Keyes who had not served afloat since 1928 but was nonetheless employed as Chief of Combined Operations. What is more, Pound, too, was liable to interfere in operations properly the concern of the Commanders-in-Chief. This culminated in the disaster of Convoy PQ 17, where Pound and Pound alone was responsible for ordering the convoy to scatter and the massacre of the undefended ships that followed.

Pound possessed, too, a certain meanness of character. After the *BISMARK* episode he and Churchill made an attempt to have the Captain of the *PRINCE OF WALES* and the Vice Admiral in *NORFOLK* court-martialled because they had broken off action after the sinking of the the *HOOD*. They were only dissuaded from this by Sir John Tovey, the C-in-C, who threatened to haul down his flag and act as prisoners' friend if the matter were proceeded with.

Roskill's arguments possess a great validity, reinforced as they are by a vast weight of documentary and personal evidence. This book has a vast importance for the serviceman because it clearly demonstrates how political control can exceed its terms of reference and threaten to bring ruin to all. It is a valuable object lesson for all who are involved in the business of defence. In short, essential reading.

Master Ned

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Due to a typographical error R.C. Swan was not shown as a foundation member in the members list published in the last edition. The error is regretted and members are requested to ammend the list accordingly.

Editor

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