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The front cover: USS JACKSONVILLE (SSN 699) during a recent visit to HMAS STIRLING.





# Correspondence

#### Australian Admirals

Dear Sir.

I have just had drawn to my attention an error in my letter concerning First Naval Members in the ANI Journal. All the officers mentioned in the list are styled Vice Admirals, when in fact they all served as Admirals during all or part of their appointments. I am a little puzzled as to where or how this error crept in, as my copy has 'Admirals', but I would be very grateful if an erratum could be included in the next issue. As Hyde was the RAN's first full Admiral and Hamilton arrived a full Admiral, it is a minor but significant historical detail.

James Goldrick

#### 'Rank' Insignia!

#### Sir.

As long ago as 1914 when HMAS SYDNEY sank the German raider EMDEN, and even before, to walk into any officers' mess especially in winter time, and see members from three Services together you could not fail to observe how distinguished the naval officers' uniform was in contrast to that worn by the other Services.

The Navy, unlike the other two Services was unique in the sense that she was the only Service not acredited a ceremonial uniform. The naval officers' No. 5 coat was worn at sea, in the office and on the parade ground, without any real practical alternative, such as a hard wearing jumper as worn by the Army and Air Force not only in Australia but also throughout the world.

In July this year, the introduction of the practical, even if controversial, woolly pully was welcomed although certainly somewhat behind in terms of reching a decision on its final approval for issue, in the RAN.

The true naval officer is, without the slightest doubt whatsoever, a proud and romantic being, denial of which would be pure folly. The naval uniform is thus a reminder to each and every officer that he is unquestionably part of the Senior Service, secure in the knowledge that the meticulously woven gold lace and well cut navy blue serge is enough to prove the long standing traditions attributed to naval officers all over the globe and the mere utterance of such a statement to the contrary would be well and truly fool hardy.

The navy blue woolly pully and gold lace shoulder straps such as those worn by officers in the RNZN and RN are together still a remarkably impressive piece of kit and can only continue to subtly foster pride in such a great Service, high lighted more so when in the company of other Services.

The surprise introduction of the new, cheap, imitation, ill fitting, awful copies of the currently issued RAN insignia surely presents a situation so degrading to any high standard of naval bearing in the past, that any suggestion conducive to continuing esprit de corps must now certainly be lacking, not only as a result of shear embarrassment on behalf of the new owners but also from rivals in the other Services.

Let us seriously hope the RAN's future will be chanelled such, that those tasked with acquiring updated weapons and practical ASW helicopters for the recent FFGs will not be guided by those harbouring the responsibility currently of accepting the new rank insignia!

> **Rufus Excalibar Ffolkes** (Esquire)

#### Service at Head Office

Sir,

You can pick them easily when you adjourn to the Navy Office Mess at Russell on Friday evening at the end of a hard week's work. They have a restored sparkle in the eye, a lightness of foot and are positively effusive in speech, and they'll probably buy you a drink when you greet them. They also have a slightly perturbed air. caused by the need to break some disturbing news to their family when they get home. You guess what has caused the change, and a guick perusal of the multipage Weekly List of Officers' Postings hanging limply on the Mess noticeboard confirms your suspicion: your Head Office colleague has a posting to a ship which has a very attractive programme soon after he joins, or he's off to a good shore job away from Canberra. Why is it that notice of the end of service at Head Office is greeted with such ill-disguised relief?

When a young officer get his first posting to Navy Office, it is guite an experience. The change from, say, being a Head of Department in a front line warship, to a position number somewhere deep in the wiring diagram of a Naval Staff or Technical Services Directorate can be quite traumatic. A different style of approach to problems is mandatory - one's ability to express oneself orally or by written word to make a point or get something done becomes startlingly exposed. Some of that Staff College stuff at last suddenly becomes very relevent and perhaps useful. The tempo of day to day business varies markedly between different jobs - some jobs are locked into the inexorable deadlines of the budgetary or project management processes, other jobs are governed by the personality and leadership qualities, or lack thereof, of one's boss, or perhaps the range of gualities of his boss's boss. Sometimes political decisions can turn your whole world upside down and wipe out years of work. Whatever the controlling influences, inevitably it is a task which involves putting words on paper to direct, inform, cajole, white-ant, or perhaps just to plead with someone to do the particular adminstrative function which he or she is supposed to do, and is being paid to do.

If there is one thing all Head Office types agree on, it is that the jobs at Navy Office (and Defence Central I'm told) provide quite a challenge. The uniformed officer, and sailor, brings many talents to his or her new posting the challenge is to utilise these talents to the full, develop them further into new areas of endeavour, and use their developing professionalism effectively in the policy making tasks. The injection of naval professionalism into Head Office deliberation is an essential role — if we don't or can't do it, who elso can?

The first Navy Office posting often brings the uniformed person into professional contact with a large number of civilians for the first time. There are large numbers of very dedicated and very knowledgeable civilians in Navy Office, who have often given decades of effective service to the Navy. However, not all the civilians are paragons of virtue, they often do not have recent operational experience (some have not even been aboard a ship) and they have an understanding of the Public Service way of business which is sometimes very foreign to one's tastes and personal standards. Nevertheless, civilians are there, there are many of them, and together the uniform and civilian staff are charged with the furthering of the good of the Navy. A combined effort is required - therefore set yourself high standards, work together, be prepared to learn, be constructive in approach and a rewarding result will often be achieved.

Canberra is not everyone's idea for the location of his family's abode. The Navy has a lot of expensive men (and I suspect, women) commuting up and down the Hume and Federal Highways on Friday and Sunday nights. There are many good reasons for these arrangements, but can the Navy really afford the results of a bad accident involving a trio or quartet of Commanding Officers going one way, or perhaps involving a duo of Captains, with perhaps a one (or two) star sharing a car going the other way? The disparity of housing costs between the nation's capital and the nation's premier city has certainly promoted this weekend commuting. There are also many other reasons. They have also caused atrophy to the movement of civilian officers between Sydney and Canberra. Many civilians are prepared to move to go to an overseas posting but they are not prepared to move 300 kilometres to get that necessary front line experience of the real world in Australia which is essential for good Head Office work, particularly in the Naval Technical Services Division. Their uniformed brethren are simply posted and commute, or resign.

So when your posting to HARMAN, additional for Navy Office, appears in the Thursday's List, view the new task in a constructive and positive spirit. Here is an opportunity to better the Navy at the policy making end — a chance perhaps to right some of the wrongs that may have bedevilled you or your shipmates. It is also a chance to contribute your skills and experiences, gleaned by hard work from recent operational service, to the ongoing administration and the future roles of the Navy. And then, when nearing the end of your tour of duty at Head Office, and your new posting is promulgated and you adjourn to the Navy Office Mess for a well earned reviver, perhaps you may be able to better disguise the relief that the change of job from Head Office always seems to bring.

Plumber

#### **PWO TRAINING**

Sir,

After a very fair summary of the options for the future training of Principal Warfare Officers (PWO), (ANI Journal, November 1982), LCDR HARRISON concludes that 'an Australian PWO course overcome the problem of relevancy, selfreliance, reducing capital costs and reduced morale for officers not offered exchange service'. One would assume that these advantages make the early development of such a course essential. LCDR HARRISON also concludes however, that as 'the ability of the RAN to provide the back up training resources is inadequate', continuing the PWO course in the UK is presently the best option.

Surely the best option is to implement a plan for the provision of the required resources, because the nation will never become self-reliant in warfare training matters and will never have PWOs trained relevantly to their role in the RAN, unless a start is made.

The 1981 Naval Warfare Study detailed a plan which has as its aim, an effective in-country warfare training capability including the provision of the required resources by 1990. I wish its implementors every success.

> I.A. CALLAWAY Captain RAN



### JOURNAL BACK ISSUES

Stocks of the following back issues of the Journal are available:

Vol 1 No 1 August, 1975 Vol 1 No 2 September, 1975 Vol 2 No 1 February, 1976 Nol 2 No 2 May, 1976 Vol 2 No 3 August, 1977 Vol 3 No 2 May, 1977 Vol 3 No 4 November, 1977 Vol 3 No 4 November, 1977 Vol 4 No 1 February, 1978 Vol 4 No 2 May, 1978 Vol 5 No 1 February, 1979 Vol 5 No 2 May, 1979 Vol 5 No 3 August, 1979 Vol 5 No 4 November, 1979 Vol 6 No 2 May, 1980 Vol 6 No 3 August, 1980 Vol 6 No 4 November, 1980 Vol 7 No 1 February, 1981 Vol 7 No 2 May, 1981 Vol 7 No 3 August, 1981 Vol 7 No 4 November, 1981 Vol 8 No 1 February, 1982 Vol 8 No 1 February, 1982 Vol 8 No 3 August, 1982 Vol 8 No 3 August, 1982 Vol 8 No 4 November, 1982

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### **REAR ADMIRAL R.C. SWAN AO CBE RAN**



The President of the Australian Naval Institute, Rear Admiral R.C. Swan AO CBE RAN leaves the service in late February 1983 and with his departure comes the end of an era. Admiral Swan is the last naval officer to have seen service in the Second World War and to have served continuously since 31 January 1940.

In the years that Ross Swan has held the reins of the ANI we have made giant strides forward. Objectives have been set and met, membership has increased and the Institute has gained recognition in many countries of the world. Nevertheless, he is the first to give full recognition to the Presidents and Councillors who had established the sound foundations on which to build the future during his term of office.

During his tenure of office the Institute has held two Seminars. Planning for Seapower '83 had commenced, but in the light of the proposed programmes associated with the 75th birthday of the RAN in 1986 and other planned events, a decision had to be taken to re-schedule the long-term seminar programme. This would take advantage of the 1986 and 1988 plans when it is hoped that a number of interested visitors to Australia would be able to attend.

To 'change step' and lay the foundations for Seapower '84, '86 and '88 the Council decided to let Seapower '83 lapse.

Seapower '81 examined and discussed Seapower and Industry. The recent Falkland Islands crisis brought home the need for close co-operation and liaison between the Services and Industry. By using this edition of the Journal as a focal point for discussion, Seapower '83 could be described as having occurred but as a paper exercise. In the light of the Falklands, is it less important?

Rear Admiral Ross Swan wishes to express, through this Journal, his appreciation for the support he has received from members and non-members throughout his term of office as President. As he relinquishes the office, he expresses confidence that the Institute will continue to grow from strength to strength. The forum it provides for discussion, can but facilitate and enhance the level and breadth of the defence debate in Australia, especially if the views of the younger and more junior personnel are published.

On that note perhaps we should remember that editorial policy to allow the younger and more junior, and the older and senior members to express their opinions and ideas.

We wish Ross Swan many more rewarding years of endeavour and achievement.



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### LOGISTICS AND THE ROYAL NAVY

by Vice Admiral J.E.C. Kennon CBE RN

An address given to the Canberra Chapter of the ANI and RUSI on 19 October 1982.

I am very honoured to have been asked to address the Australian Naval Institute. I'd like to start with a quotation by Admiral Mahan in 1911: 'So long as the Fleet is able to face the enemy at sea, communications mean, essentially, not geographical lines . . . but supplies which the ships cannot carry in their own hulls beyond a limited amount.'

In very simple words, logistics are vital: and I have chosen to speak to you about logistics with the Falklands as an illustration. I think, however, that before starting on that subject. I should set the scene a little by looking at the UK's Defence and Navy Policy.

The principal objectives of British Defence Policy were, within NATO, to maintain the security of the UK and to carry out our obligations for the protection of British territories overseas.

This included being prepared to carry out an assault landing at Brigade strength, against opposition, anywhere in the world. But over the succeeding 10 years or so our priorities changed: there was a reduction in our overseas defence commitments, a heightened perception of the Soviet threat, and also a shrinking Defence budget. Primarily because of financial constraints, traditional fixed-wing carriers were to be phased out and with them went our ability to provide organic air support to our naval forces. In future, we could operate either within range of aircraft based ashore in the UK. or other NATO nations, or we could intervene only in support of friendly countries who could provide air bases. Air defence of the Fleet had to be supplemented by shore based aircraft or by aircraft from US carriers. Opposed amphibious landings were excluded fom future scenarios. I should add that the INVINCIBLE Class and HERMES were to be committed to anti-submarine warfare in the Atlantic and equipped mainly with large ASW helicopters. The few Sea Harriers that went with them were acquired expressly to cope with shadowing aircraft, not to battle for air superiority with opposing strike aircraft over a beach head. To cut a long story short, our philosophy was to be that our ships and submarines would operate with our allies in mutual support and would not be exposed to attack close to a hostile shore without

adequate air defence. We had relinquished all our overseas bases except for Gibraltar, and had only a few oil fuel depots available to us elsewhere abroad.

So, for the British armed forces the Falklands operation was very much the wrong problem. The islands were 8,000 miles away, in an area where we had no bases, no facilities, no local commanders, and for which we were not prepared. However, we did have a little local knowledge: a Royal Marine Officer had written and published a book on certain aspects of the Falklands — this best seller was immediately withdrawn from circulation, classified and turned into a book of reference! Now I've told you we had the wrong problem — what we did have, though, was a balanced force with a tradition of flexibility, and we had 2 carriers and some 30 Sea Harriers

I will not dwell on the economic and diplomatic measures which took place during Argentina's massive build up after the invasion and I would like to start with the Ministry of Defence's response to that invasion, for which there were no contingency plans, as it had been assumed that reinforcements would suffice to deter and prevent such an event. We had to improvise, and fast. We were on our own, because as you will be aware, there were few



countries that were either politically or strategically well placed to support us — but the *moral* support we got meant a great deal, and for this we are truly grateful — to among others the Australian Government.

Well, back to our response. Advance units of a task force which had been exercising off Gibraltar, and which included an SSN, were despatched ahead of the main group. Back in UK, the first priority was to make ready and sail the warships and supporting vessels immediately available and to achieve a balanced force. This was the first major test of the Navy's supply organisation since the Suez campaign of 1956. and in those first three or four days a total of 13 warships were stored to war endurance in naval bases, and sailed - followed very quickly by their supporting RFAs. The speed with which the task force was assembled and prepared amazed even those of us closely involved, and reflected the co-operation of all Services, the Merchant Marine, and the tremendous willingness of the civilian workforce. The availability of essential dockyard facilities was also vital. Any union problems we had, for example over demarcation between trades, dissolved into thin air. Gone was the dolce far niente attitude. Here was a workforce totally united - determined to do all that was asked of them and more. Even more remarkable was that at Portsmouth that very week the first redundancy notices had been issued.

The time required for the 8,000 mile passage afforded the opportunity for continued diplomatic measures under the increasing pressure of our visible intent to resort to force if necessary including the repossession of the islands by an amphibious landing force. The time on passage also afforded the opportunity to identify the problems involved with the operation.

Having given you the background, I will now concentrate on the logistic aspects. The support of the task force in the South Atlantic presented logistic problems of enormous proportions. Perhaps this was the sort of occasion when Admiral E.J. King, US Navy, said to a Staff Officer in 1942 'I don't know what the hell this "logistics" is that Marshall is always talking about, but I want some of it.'

As I've already mentioned, the lines of communication stretched 8,000 miles from the UK Bases, an average of about 21 days sailing time. The sea route took our ships into some of the stormiest seas in the world with winter closing in. Rapid improvisation linked to considerable flexibility was necessary.

We could not possibly have coped with the enormous quantities of fuel, ammunition, stores and personnel to be moved to the South Atlantic with RN and Royal Fleet auxiliary shipping alone,

although we used more than 85% of the Royal Fleet auxiliary ships. But with the excellent cooperation of the Department of Trade and the British shipping industry, we were able to take up all the shipping we needed, including the QE2 and CANBERRA (ours - not yours). This was achieved either by straight forward charter or by requisitioning by Royal prerogative under the Order in Council which was submitted to and signed by the Queen within a few hours of HMG approval for the operation. These 'ships taken up from trade' as they are called became known as STUFT - a word indelibly engraved in the vocabulary of every British naval officer. But we were extremely lucky that the market was depressed and that ships were available - and they were to prove vital: this I will come back to.

The part played by these merchant ships in the Falklands campaign has been well publicised. Not so well publicised has been the story of how some 50 ships from 33 different companies were converted for war — all part of the logistic problem. In some cases, the conversion was minimal with the fitting of extra communications equipment and replenishment at sea (RAS) rigs, but many required helicopter platforms and some were even converted to take Sea Harriers. Where the role was changed, conversion was of course complex and this work was done almost entirely in the Royal Dockyards.

The work of selecting ships to be taken up was a major exercise in itself. As the requirements became more or less clear, suitable candidates were identified, visited and vetted. The requirements varied from troop ships and hospital ships to aircraft transporters and mooring vessels, from repair ships and minesweeper support ships to despatch ships, tugs and munitions carriers. The one thing they had in common was that the time available to do the work was unbelievably short. Fortunately, the requirements did not arise simultaneously and with ships being converted on average in four days (and nights) a considerable throughput was possible. Nevertheless, at one stage seven ships were being converted concurrently.

In Gibraltar, the SS UGANDA, fresh rom her interrupted schoolchildren's Mediterranean cruise, was converted in 2½ days to a hospital ship. Constructors were flown from Gibraltar to Naples where they assessed the work required, and then flew back to Gibraltar with the information they needed to be ready when the ship got there.

In Rosyth, five deep sea trawlers were converted to minesweepers. The conversions were under way before the fish had been removed from the holds. A diving ship was converted to act as a despatch vessel. Like most of the conversions the work included additional fresh water make-up osmosis or distilling plants. As it turned out later on, water became quite a problem as there wasn't enough *ashore*, you couldn't just plug a hose pipe into an iceberg, and the water carrier we had played a vital part.

The major conversion work was done at Portsmough and Devonport. The 13,000 ton ferry NORLAND was the biggest task at Portsmouth. She was converted to a troop ship and fitted with 2 helicopter pads, flight and communications facilities, extra fresh water make-up and replenishment gear. The NORDIC FERRY and BALTIC FERRY (roll on roll off passenger and cargo vessels) were converted to troop and support ships with two helicopter pads. Ballast tanks had to be converted to carry fuel and this involved major pipework to allow the fuel to be embarked at sea and transferred for use. RAS gear and communications were fitted. GEEST PORT and SAXONIA (9,000 ton cargo ships) were converted as solid support ships. These were fitted with vertical replenishment pads. allowing helicopters to transfer stores without landing, and additional accommodation.

One of the most unusual ships to be worked on at Portsmouth was the STENA SEASPREAD. This ship is designed as a 9,000 ton multi-purpose North Sea oil rig support ship. Her new role was as a forward repair ship and to achieve this she was fitted with workshops, machinery, a mobile crane on deck, extra generators, air compressors and considerable stores and materials. Additional accommodation was added for the Fleet maintenance personnel who were added to her ship's company, together with messing facilities, totalling 300 people. A second helicopter pad was fitted and perhaps not surprisingly, 100 tons of extra ballast were installed. She was taken up while operating in the North Sea and with such speed that she still had divers in the decompression chamber on arrival in Portsmouth.

The big ships were converted at Devonport. One after another four large (up to 27,000 tons) container ships were converted to aircraft transporters. First was *ATLANTIC CONVEYOR* (15,000 tons and longer than *HMS HERMES*). Much of the work was planned aboard and in Bath during her 2 day trip to Devonport. There, in 5 days, she was converted to a Harrier and helicopter transporter. The main work was the clearing of all obstructions from the upper deck and strengthening of hatch covers, provision of protection for the aircraft on deck, two helicopter landing areas, accommodation for 100 additional people and RAS and reverse osmosis. It was a great blow to us when she was lost.

Three further ships, the ATLANTIC CAUSEWAY (identical to the first), the

CONTENDER BEZANT (18,500 tons) and the ASTRONOMER (28,000 tons) were converted in the same way, but with increasingly sophisticated facilities, including a hangar, workshops and even fuel stowage. As was said at the time, provision of a skijump and full operating facilities were starting to look perfectly feasible! and here a word of praise for the Dockyards; they achieved what they did with enormous ingenuity - there was little if any paper work, no instructions in writing; a Constructor's dream - 'Fix it your way, now', and they rose to the occasion. And perhaps I should just add here that loading these ships was not an easy task at the beginning - but once a project officer had been nominated, priorities for each ship were soon resolved. I will say that we didn't waste any time by enforcing our explosive safety regulations, and wherever prudent we relaxed them, thus saving a very great deal of time though one ship had to be prevented from fuelling and ammunitioning at the same time!

We must not forget of course that we were sending our support ships in the general direction of a potential war, and at the outset of the operation a commitment was entered into by the National Maritime Board to pay extremely high bonus payments to UK merchant seamen, but we had to pay these bonuses by way of excess personnel costs under charter or requisition agreements. The differential in payments between RFA and other Merchant Navy seamen anbd the eventual cancellation of the bonuses created some sizeable problems — but only after the war was won.

In planning logistic support for the operation, much consideration was given to the likely injuries, to casualty estimates, and to the distance involved in resupplying the task force to meet the medical priorities to provide early surgery, replace blood loss and to give specialised burns care.

I have mentioned the SS UGANDA. From the start it was obvious that a fully equipped hospital ship would be needed, and a total hospital package was agreed. Based on a 200 bed field hospital unit, it was brought to a full state of readiness and delivered for onward shipping to Gibraltar in less than 48 hours. The field hospital medical package weighed 90 tons, and together with the additional stores and equipment made a total package of 300 tons which was transported to Gibraltar.

As the first British hospital ship for 29 years, UGANDA spent 113 days at sea. She was fitted with a helo pad and a ramp was also installed to allow rapid transfer of patients to the main hospital area on the promenade deck. By the time she was finished, she had most hospital facilities available. In addition to UGANDA three survey ships were designated ambulance ships; these were HMS HYDRA, HERALD and HECLA and they were staffed and stored accordingly. I am told the key to casualty survivability is to provide treatment within six hours. Our medical team achieved a rate of survival of casualties well in excess of that achieved by the US in Vietnam. The first casualties were received from the SHEFFIELD on 12 May and the last from Port Stanley 13 July. 730 in all, including 150 Argentines.

Getting the task force away was one thing. sustaining it on task was another. At the height of the operation, a total of 26 warships and 54 STUFTS were deployed in the operational area, involving a total of 25,000 men. All supplies, both solids and fuel, had to come from UK and be passed down the chain; maintenance had to be on station. And here I would like to remind you that the nearest support airfield available was that run by PANAM for the United States Air Force, the Wideawake Base at Ascension Island some 3,500 miles from the Falklands. While it was neither practical nor cost effective to set up a forward logistic base there, it did enable us to reduce re-supply time by flying in personnel and freight for onward movement to the Falklands, and to provide effective support of air transport. maritime patrol, conventional bomber and flight refuelling aircraft. It also provided us with a vital air drop capability for emergency re-supply.

Supply and distribution of armaments, food and stores involved replenishment at sea via the afloat support provided by the solid support ships (RFA and STUFT), and use of the Ascension Island logistic facility with urgent items being airfreighted from UK.

The support ships were involved in very lengthy periods of preparation and replenishment. This in turn posed problems with the increased demands placed on mechanical handling equipment, slings and cargo nets. However, our concept of solids support at the front line in an operational environment was well proven.

Armament stores, because of their very nature, were loaded primarily in the UK onto the Fort and Regent Class RFAs although some urgent items and back up requirements were supplied and distributed via Ascension Island. Production of some major weapon systems was also stepped up in the UK to match potential usage rates.

The supply of food and general naval stores posed its own problems because of the length of the supply chain, period of deployment and changes in consumption resulting from operational activity. In addition to the 100,000 man months of feeding items deployed, over one million combat rations were deployed in RFAs and the three solid support ships from trade.

It was also necessary to provide a constant

flow of stores of a lesser priority and bulkier nature than could be airdropped. This was achieved by providing three despatch vessels, which plied up and down between the exclusion zone and Ascension Island.

Other than the loss of some aircraft and stores when the ATLANTIC CONVEYOR was sunk, we were never critically short of anything essential. How much longer we could have gone on is a very difficult question to answer. If we had run out of anything it would, in the end, probably have been ammunition, but as the opposition gave up before we reached that stage I really can't speculate!

The task force sailed with sufficient fuel for its immediate needs. At a distance of 8,000 miles from our fuel stocks the solution of the resupply requirements was vital to the success of the task force. The scale of the problem was twofold: to procure a sufficient volume of fuel of sufficient quality and to find suitable shipping to transport it. The market place was to our advantage: there was a glut of oil which enabled the speedy purchase of the initial large quantities needed.

Initially, nine commercial tankers were wanted. Three had been chartered, fitted, manned and sailed by 13 April. A further six sailed in the next 12 days. Later, the number of tankers in the supply chain increased to 14. One was stationed as a bunkering vessel at Ascension Island, and another became a depot ship, firstly at South Georgia and subsequently at the Falkland Islands.

As the task force had to be fuelled at sea and as all RFA tankers were committed to direct Fleet support, the commercial tankers were fitted to receive the RFA tankers abeam rigs, thus allowing replenishment of the latter. In addition two were also equipped as convoy escort oilers with a capability to RAS HM Ships direct on what was called the motorway up and down almost the full length of the Atlantic. Quality control of fuel was a major anxiety — the last thing we wanted was fuel contamination, and we were very careful to ensure that the ships we took up from trade had clean tanks.

Before leaving the subject of RFAs, I'll just feed in one point. Our combat support ships were there for afloat support purposes, but as they also have helicopter decks conflicts can, and did, arise between the replenishment and aviation tasks. which presented tricky problems of priority.

I have already mentioned the forward repair ship and I will now say a bit more about the repair problems. On arrival in South Georgia, teams from the STENA SEASPREAD were set to work in the old whaling stations at Leith and Stromness, which had been abandoned some 20 years ago At Stromness, which had been the repair yard for the whale catchers, there was a certain amount of ship repairing material and equipment. The generator station was set to work, the canteen cleared and galley range restored to working order.

However, as the crisis developed it became apparent that the repair team would need to be closer to the battle group. Teams were despatched to ships in 'bomb alley': they carried out on site repairs and maintenance while the battle went on about them. The aim was to return a ship as an effective fighting unit. If the damage was too severe for that, repairs were made to allow the ship to complete the 8.000 mile journey back to UK in safety. It would be impossible to detail all the work that was done, but there were many ships requiring some sort of assistance as a result of battle or weather damage. Some incidents stood out, such as that of HMS PLYMOUTH, Having spent four days repairing damage caused by three bombs, all of which fortunately failed to explode (though one set off a depth charge on deck). PLYMOUTH sailed back for the battle area capable of 85% power and with all weapons except her mortar serviceable. One of the ships damaged was HMS GLAMORGAN. Much effort went into re-establishing the integrity of the hull. and into restoring 70% of the main galley. Whilst their own galley was being renovated, HMS GLAMORGAN's ship's company was fed from the SEASPREAD: 700 men from a galley designed to feed 70.

A typical example of the improvisation necessary to provide a full repair service despite logistic difficulties was provided during the repair of one of *GLAMORGAN*'s galley machines. A weld was required in a piece of stainless steel; although the welding equipment was suitable, no stainless steel welding rods were carried. The problem was overcome by using a pair of stainless steel dessert spoons to provide the welding filler! For all ships the problem was the same — self reliance and make do.

The fighting is over, but logistic support is still required. Routine and urgent supply of all commodities are of course continuing for the ships on station. In an operation of this magnitude, however successful, there are inevitably lessons to be learned. Detailed evaluation is still continuing and this includes the field of logistics. That said, the Falklands operation showed that our logistics organisation (across all support areas) was flexible, responsive and on the whole soundly based, and undoubtedly contributed in no small measure to the success of the operation. I felt we were doing all right when I received a letter from the Captain of *HERMES* during the operation saying: 'I am sure you would be pleased to know that logistics feature strongly and in my opinion. the logistic chain was one of the wonders of the modern world. The organisation was quite fantastic and we wanted for nothing. that I know of. I believe the finest testimony for our backing was that after two months of intensive operations, not one of HERMES 32 aircraft was AOG for spares. I found the whole operation to be almost unbelievable. We cobbled together a task force over a weekened: took it 2,000 miles further than Hong Kong, as the crow flies. When we got there under extensive vicissitudes and outnumbered 10 to 1 in the air, we destroyed an Army and caused the downfall of a Dictator: but most incredible of all, while we were doing it, we were eating fillet steak and fresh fruit which had travelled 8,000 miles. It is all really quite staggering!

However, the logistic success was very much due to logistic decisions being taken early. The acquisition of tankers, approval for overtime working and relaxation of explosives safety regulations are examples of early decisions without which the despatch of the task force would not have been possible within a reasonable timeframe. These decisions could not have awaited the normal ponderous bureaucratic committee processes to which they are subjected in peacetime exercises.

So much for logistics. I must say now that the response of the civilian support element and of the Merchant Navy was outstanding. But don't forget two things — first the national reaction was clear cut and unequivocal as the justice of the cause was obvious; and second, merchant fleets in the Western world are diminishing for economic reasons and yet maritime power depends upon them as much as ever.

Lord Carrington quoted Kipling to the British Chamber of Commerce over 10 years ago — and I find these lines very appropriate:

"... and where will you fetch it from, all you big steamers, and where shall I write to when you are away?

We'll fetch it from Melbourne, Quebec and Vancouver, address us at Hobart, Hong Kong and Bombay.

And what can I do for you, all you big steamers,

what can I do for your comfort and good?

Send out your big warships to watch your big waters,

that no one may stop us from bringing your food.

For the bread that you eat and the biscuits you nibble,

the sweets that you suck and the joints that you carve,

they are brought to you daily by all us big steamers,

and if any one hinders our coming you'll starve!'

That said I cannot finish without mentioning the most important lessons we learned as a whole:

- Firstly, deterrence. We have reminded ourselves that a token force will deter if backed by higher capability and the will to fight. By withdrawing our token force, HMS ENDURANCE, and by other signs of the weakening of our maritime strength, we gave the signal to a potential aggressor that we lacked the will to fight — with fatal results.
- Secondly, we reminded ourselves of the lesson that if you are forced to operate ships, within range of enemy shore based fighter bomber aircraft, and if these ships have inadequate air defence, you will suffer losses. We had initially only 22 Sea Harriers to range against 120 Mirage, Skyhawks, Super Etendard and

Canberras. We had — it was a fundamental deficiency — no airborne early warning to alert us to low flying attacks. In the end we broke the back of the Argentine Air Force, but at a price, and with fortune as well as skill playing a part.

- Thirdly, we reminded ouselves what tremendous things can be done by improvisation and by a spirit of can do. In peacetime, we become too accustomed to assuming it will take many committees, many years, and many millions of pounds to do anything.
- Fourthly, we reminded ourselves not to be too narrow on looking for particular threats and scenarios on which to base our planning. In the event, the crisis is never the one you planned for, the battle is never the one you procured the equipment for, and a lot of things get put to new uses in a hurry. The robust lesson is that it pays to have some built in flexibility in both units and equipment — and thinking.
- Lastly, ladies and gentlemen, we reminded ourselves that the front line of our national interests and defence may well be a long way from our own shores and the range of our shore based aircraft.



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### SOME BRITISH MARITIME DEVELOPMENTS SINCE 'SEAPOWER '81'

by Admiral Sir Anthony Griffin GCB RN

Members may recall that some two months after the Seapower '81 Seminar the British Government announced a radical change in Defence policy which was generally reaffirmed both in the 1982 Defence White Paper and subsequent announcements in Parliament.

In essence, and faced with their declared policy to contain rising Defence costs within a 3% annual increase in real terms, the Government gave priority to a continental strategy at the expense of the Royal Navy.

The Navy thus became another of Britain's maritime interests that are in serious trouble. Merchant shipping, shipbuilding, offshore and fishing had for some years been declining dramatically and they continue to do so. If present trends continue the British merchant fleet could cease to be of any significance by 1986. Foreign ships even now carry 60-70% of the Country's trade, 98% of which is seaborne.

Clearly both HMG and the public at large have yet to appreciate the important connection between Britain's maritime affairs and the prosperity of every man, woman, and child in the Country.

It was with the object of restoring this dangerous situation that the British Maritime League was formed in March 1982 as described under the heading 'Britain and the Sea'.

Undoubtedly the thrust of the League's purpose was spurred by the Falklands crisis which broke 3 days after the League was initiated. Many important lessons will have been learned. However the League is concerned that some will continue to be ignored. Of these probably the most important politico/strategic lesson is that the British public, whilst continuing to support NATO, nevertheless recognised the need to be able to take independent action wherever the Country's interests are threatened, especially when matters of principle are at stake.

In this connection the fears expressed by Sir Ronald Swayne in April 1981 about the future of the British merchant fleet have proved only too well founded. With the decline in numbers of suitable ships, Britain would even now find it extremely difficult, if not impossible, to raise enough ships to support maritime operations. (54 required for the Falklands.) Such operations are always unexpected and occur on average every five years, e.g. Korea, Iran (twice), Indonesian confrontation, cod war, Straits of Hormuz, Beira Patrol etc.

Sir Ronald also drew attention to the increasing sophistication of Third World weapons (such as the Super Etendard/Exocet combination) and the need to prepare merchant ships and their crews for warlike operations. He also remarked on the increasing power of the Soviet Navy which has, since April 1981, become the largest in the World. It now possesses more nuclear powered submarines than all NATO combined and is now producing them at a rate of 12-13 per year as opposed to 8 or 9.

Added to these developments have been the failures, on the international front, of the EEC to conclude a common fisheries policy, of the International Law of the Sea Conference to reach agreement on the exploitation of the seabed, and of the GATT conference to begin to restore an orderly maritime trading market.

The British Maritime League has plenty of hay on its fork, but is encouraged by the number of influential and knowledgeable people who share its views and have joined its ranks. Hopefully the League will gather momentum throughout the Free World.

### BRITAIN AND THE SEA

Britain, as one of the two most densely populated industrialised islands in the world, has many different and often interrelated maritime interests. Together they provide the means for most of the Country's prosperity and progress and are relatively of far greater significance than those of any other country, except possibly Japan.

These interests include an ocean trading system, a coastal and short sea trading system, a fishing industry, an off-shore industry, maritime forces to provide security against military threats, and a shipbuilding and repair industry to ensure an independent capability to supply and repair the vessels and structures we need.

Most of these interests have already declined to seriously low levels and continue to do so as illustrated below.



The British merchant fleet of 53 million deadweight tons in 1975 will be reduced to about 16 million dwt by 1985. Mid and deep water fishing vessels numbered 334 in 1970 and by mid 1982 had been reduced to 53. By 1990 the Royal Navy's escort fleet will be 60% smaller than it was in 1970. British merchant shipbuilding output in 1981 was 1/6 of the level in 1971. The economic effects are a dangerous dependence on economic competitors, a major loss of foreign exchange, and higher domestic prices. Militarily the ability of the Merchant Navy to support the Royal Navy, even for a Falklands level of operations let alone providing for the far more onerous task of maintaining the North Atlantic supply line, is rapidly vanishing not only because the numbers have diminished but also because merchant ships have become more specialised. Furthermore the ability of the fishing fleet to provide a great variety of auxiliaries and patrol vessels in times of tension has been drastically reduced.

The essential causes of this national decline are partly international, though not all countries have been similarly affected. The price of oil trebled in 1973/4 and trebled again in 1978/9 thus being the main underlying cause of one of the worst depressions in history. Despite this, several countries, notably Japan, South Korea, Taiwan, Brazil and Spain, chose shipbuilding as a major part of their industrial strategy and subsidised accordingly. World capacity is now over 3 times greater than needed and normal commercial forces do not apply. COMECON has adopted a global maritime strategy. In the words of Admiral Gorshkov who instigated this policy, "The goal of Soviet seapower is to effectively utilise the world's oceans in the interest of building communism." This has led to the creation of the largest navy in the world, more nuclear powered submarines than all NATO, (one of which is produced every 4 weeks), the 7th largest merchant fleet (and growing fast) the largest fishing fleet and the largest survey fleet. COMECON shipbuilding undercuts even the South Korean industry, and their subsidised freight rates severely embarrasses Western European shipowners. Their gravel dredgers disturb the herring spawning grounds off Britain's coasts. Finally the international scene suffers from extreme complexity and distortion. The UN's International Maritime Organisation has to deal with over 100 UN organisations. The trading market's commercial freedom has been destroyed by subsidised non commercial ambitions.

Other important causes of the decline are national even though set in the international scene. They include complexity again. British shipbuilders has to deal with up to 14 different government departments, there are over 50 maritime research centres whose combined potential is second to none, but duplication and application

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are causes for anxiety. There is a gross waste of resources in defence procurement in that procedures take far too long and are insufficiently harmonised throughout NATO. Warships join the fleet obsolescent if not obsolete and at least 8 different classes of escort are being designed and produced amongst NATO countries when probably 2 or 3 basic types would suffice and be much more economical. In more general terms the Country as a whole fails to comprehend and capitalise on the relationship between maritime power, in its widest sense, and national prosperity. There is no national maritime policy or means of establishing and sustaining one. There is practically no Great Britain Ltd approach to set alongside that of our competitors especially COMECON, Japan and France.

It was against this background that the British Maritime League was initiated, two days before the Falklands were invaded, with the overall aim of 'Promoting Britain's Maritime Interests' by:

- Fostering national awareness of the prosperity which stems from sea power in its widest sense. This requires the maintenance of adequate maritime forces, mercantile shipping, shipbuilding and repair, marine equipment, offshore operations, fishing, ship business etc.
- Coordination and dissemination of information on maritime matters for the benefit of the public.
- Drawing attention to any threats to the Country's maritime interests, thus helping to ensure that the Country is never deprived of food, fuel, medical supplies, and other necessities and, further, that our exports may be made without unlawful hindrance.
- Encouraging co-operation for the public good between the many elements of the economy concerned with maritime affairs.
- Enlisting national support through memberships of the League.

In pursuit of these objectives the League has enlisted a Council of distinguished people who are acknowledged authorities in all the fields of its concern. They include shipowners, shipbuilders, marine businessmen, defence experts, broadcasters, journalists, general commerce, the Merchant Navy, Trade Unions, Peers and MPs of all three political parties, bankers, off-shore experts, fishing fleet operators, and representatives of the research and academic world.

The Council is the main statutory body of the League and as such dictates the League's policy and general conduct.

In doing so the League has no party political affiliation whatsoever. It seeks to complement the many established authorities who deal with maritime affairs such as the General Council of British Shipping, the Admiralty Board, the International Maritime Industries Forum, the Nautical Institute etc, and place its resources at the disposal of any body or government which shares its overall aim.

The League's operations will be conducted partly through the opportune initiatives of individual Council Members and a large number of distinguished Patrons, and partly through an Executive Committee. The latter will, through nominated specialist leaders, conduct specified projects which have been approved by the Council.

These projects include, for example, the establishment of a national maritime policy, effective maritime forces, a thriving shipping industry, keeping the public informed, the establishment of a maritime committee of the Cabinet, a thriving fishing industry etc.

The League is financed entirely through voluntary subscriptions and donations. Individuals can join now (including serving members of the Forces as Associate Members) as Full, Associate or Junior members. A scheme for Corporate Membership will be announced shortly. It is also intended to establish a regional organisation through which two way communication can be maintained with the public throughout the country and to provide a further source of funds. Charitable status is being negotiated.

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### ENERGY SUPPLY OPTIONS AND STRATEGIC CONSIDERATIONS

by Mr R.K. Gosper

When I spoke to the Seapower '81 seminar, in April 1981, I started by saying that 'the events of the past decade have profoundly changed the international energy scene, creating new and pressing priorities in our energy outlook'. In spite of the most recent developments in the world oil and energy scene, with over-supply and low prices, that is still valid. The lessons of the 1970s must not be forgotten, because the events of the 1970s were not historical freaks, unique events which we can now ignore, having survived them.

To illustrate that the changes of the last two years have altered none of the problems, but only our ability to deal with them, let me briefly comment on the changes in the world oil scene in recent times. The most obvious change is that the volume of oil being produced has fallen sharply. In 1981, the production rate of OPEC members was around 22.5 million barrels a day. Early in 1982, this fell as low as 16 million b/d, but increased to around 19 million b/d by December. It is a measure of the depth of the recession, as well as of the efectiveness of the consuming countries' response to the oil shocks of the 1970s, that the world is able to survive, albeit not very prosperously, with such a low rate of OPEC production. It is a far cry from the late 1970s, when demand sustained an OPEC production rate of almost 31 million b/d.

The cost of making this change has been high, both for the consuming and the producing nations. The social and economic effects, both present and eventual, of stagnant or negative growth in the industrialised world do not need spelling out. Within OPEC, Saudi Arabia has so far been able to maintain the \$34 a barrel price by cutting production sharply to about six million b/d. In 1981, Saudi efforts were bent towards *increasing* production to well over 10 million b/d, in an attempt to *restrain* prices at the \$34 level.

The fall in demand for OPEC oil has been the

outcome of several factors. First, there has been the impact of the severe recession on industry. Second, there is short term belt-tightening by both individuals and industry in hard times. In addition to these, however, are some features which have reduced - and will continue to reduce - demand permanently. These include substitution, the replacement of oil by another form of energy coal in the Japanese cement industry, for example, or coal and natural gas in processig industries here in Australia. Further, there has been a considerable increase in the efficiency with which energy is used - more people drive smaller cars, the trend is firmly towards lighter components in transport vehicles, and more insulation is being used in houses and offices.

Although, as the recession eases, we can expect oil demand to increase once more, this will not occur everywhere. In the industrialized economies, particularly in Western Europe, the falling off in demand may be permanent. Partly, this will be due to increased efficiency and substitution. Partly, however, it will be a consequence of long term structural changes in the economy. There is a move away from the traditional energy intensive industries such as iron and steel, and an accompanying shift to the manufacturing and service sectors, which are much less energy intensive. In the OECD as a whole, the amount of energy used per unit of GDP is dropping rapidly — in 1981, economic activity was 2.5 per cent higher than in 1979, yet energy consumption had declined by 6 per cent, and oil consumption by 14 per cent.

The lowering of future demand projections, and the decline in current demand in some areas has an important effect on the length of time reserves will last. Lower current demand means that without an increase in the amount of recoverable reserves, production for the world outside communist areas *could* (although it is unlikely to be necessary) rise as high as the level of 1979, almost 52 million b/d, and be maintained at that level until 2010, with a slow decline thereafter. Falling real prices, on the other hand, may have the opposite effect, since they diminish the proportion of reserves that are commercially recoverable.

The fall in demand, and in expectations of future demand, caused OPEC serious problems in 1981 and 1982. After a decade of everincreasing prices, intermittent shortages and a tight supply/demand balance, the world has been faced recently with crude oil over-supply and falling prices. OPEC's reaction was to meet in Vienna early in 1982 and agree to cut production levels to 17.5 million b/d, in order to maintain the market price of \$34 a barrel. This figure was already much lower than some prices that were paid during 1979 and 1980, when supply was suffering first from the Iranian revolution, and then from the outbreak of the Iran-Iraq war. Events in 1982, culminating in the December meetingf of OPEC ministers, have done nothing to dispel doubts about OPEC's ability to continue to maintain the \$34/barrel marker price, unless major producers are willing to cut production still further. Although at this meeting OPEC increased its production ceiling to 18.5 million b/d, there was no agreement on production guotas for individual OPEC members, and current production is around 19 million b/d. In January 1983 this ceiling was again reduced to 17.5 million b/d, but again no agreement on guotas was reached.

Indeed, by the end of 1982, it was clear that OPEC's difficulties in maintaining the \$34 a barrel price were more severe than had been thought earlier in the year. Partly due to an exceptionallly mild northern winter, and also to the continuing and deepening recession, there is still a considerable surplus of oil on the international market. This naturally has intensified the downward pressure on prices — there is already discounting by some OPEC members — and the possibility of a collapse in oil prices, perhaps to between \$20-\$25 a barrel, cannot be ignored.

The results of such a price collapse would be by no means entirely beneficial. Certainly, cheaper oil would help the economies of many oil-importing countries. On the other hand, it would sharply cut the export revenues of others, and is some cases could precipitate large scale debt rescheduling or even default. The international consequences of such an outcome would be considerable - potentially, the existing financial system could be severely damaged and the world economy badly disrupted. In purely Australian terms, the relative advantage that results from being two-thirds self-sufficient in crude oil would be diminished.

The drop in demand which I have discussed is not the only reason for doubting OPEC's ability to maintain prices. The proportion of the oil consumed in the world outside the communist areas which were supplied by producers other than OPEC rose from 40 per cent in 1979 to 48 per cent in 1981. Much of the additional non-OPEC oil came from the North Sea and Mexico, but that is not the important point. The various changes in the crude oil supply pattern combined to make OPEC the residual supplier in 1981.

In order to maintain the \$34 price, production was allowed to fall below 17.5 million b/d, perhaps below 16 million b/d in the middle of 1982. To put that in perspective, let me repeat that as recently as 1981, daily production averaged 22.5 million barrels. In 1979, that figure was around just under 31 million barrels. Technical capacity is higher still. The loss of revenue which resulted was severely damaging to the economies and development plans of some of the less wealthy OPEC nations.

I started this article with the assertion that the most recent developments had not changed the fact that we lived in a new, difficult energy world. I have dealt at some length with recent world changes in oil demand and in OPEC, because I think it is important to realise the nature of the changes that have taken place, and to understand that OPEC has been remarkably successful, over the past two years, in maintaining oil prices - in spite of enormous external market pressures, and almost equally great internal pressures from producers who saw their development plans put on the back burner by falling export volumes. It is in that context that I want to discuss the future, and the continuing need for the OECD countries to reduce futher their dependence on OPEC.

The main reason we still cannot afford to rely too heavily on OPEC oil is simple. World demand will grow when the economic recovery comes, and could, with only modest economic growth, return to around the 1979 level (almost 52 million b/d) by the end of the century. Some of this increased demand will be met by increased indigenous production, but most of it will come from OPEC sources. In itself, this increase in demand is unlikely to do more than bring the demand for OPEC crude roughly into balance with OPEC's desired minimum production levels. This is so because, as demand increases, a great many OPEC producers, particularly countries such as Nigeria and Indonesia, which rely so heavily on therr oil revenues to sustain their economies and development programmes, will want to increase production as soon as it becomes possible without softening the price. In addition, both Iran and Iraq want to resume large scale exports to pay for their war. Together, these

factors mean that it is likely that inreased demand will be met without any marked increases in price. However, they will take up the slack in the market, rendering it once more vulnerable to interruption and disruption by political or military events.

In the past couple of years, we have seen threats to close the Straits of Hormuz, a prolonged war between Iran and Irag, and an Israeli invasion of Lebanon. There still exists the danger that a victorious Iran could take reprisals against Kuwaiti oil installations. Other political dangers in the region also exist, and may equally well trigger another crisis. I do not want to be melodramatic. or pessimitic. On balance, the probability that there will be another oil crisis in the 1980s of the type that occurred in the 1970s has diminished. However, some observers - notably the OECD - would disagree with that, and certainly we must plan to take account of the possibility. For example, if world oil demand grows rapidly, in response to an economic recovery, to the point where supply and demand are in balance once more, it is possible that OPEC could limit production in order to force prices up rapidly.

In such a climate, what can we do to improve Australia's position? The obvious response is to reduce or restrain oil consumption, and to lessen reliance on OPEC and Middle East oil. There is no doubt that the most effective way of ensuring that scarce and valuable resources — in spite of the present over supply, there is no doubt that oil is essentially scarce — are efficiently used is the price mechanism. Price, indeed, is the key to improving our performance at both ends of the supply chain — exploration and domestic consumption.

In Australia, import parity pricing has kept the prices of domestic crude and products high, in line with those in the international market. This has had a clear effect on individual and industrial consumption, encouraging increased efficiency, substitution and conservation. It has also encouraged much greater intensity of exploration since it was introduced in 1978. If prices fall, but the principle of import parity pricing is maintained, there is no reason why active exploration should not continue. However, the contribution of new discoveries is not likely to be large, and the dependence of Australia on imported crude oil is likely to increase from the second half of the 1980s.

One other opinion, that of making synthetic crude oil from oil shales, has recently become less attractive due to the stabilising of conventional crude oil costs, and the very high cost of developing the necessary technology. There are other synfuel options — such as the production of liquid fuels from coal and natural gas — and research and development must

continue, in order to take full advantage of them when the availability of technology and the crude oil price combine to make them financially sound propositions. However, it is now likely that this will not occur until the next century.

All these measures are aimed at long term security of supply. There is also a need to guard against interruptions to supply in the short term. The International Energy Agency (IEA) was established after the difficulties of 1973/74. Its twenty-one members including Australia, and are the main energy importing countries of thw world. It has drawn up plans to build strategic stocks, and to share supplies in the event of an emergency. Strategic stocks are expensive to maintain, and it is my view that this expense should be born by the Commonwealth government, should it decide they are necessary for reasons of national security. It is well worth remembering, however, that Australia has a major reserve of crude oil in Bass Strait fields, which makes our the vulnerability to even the complete suspension of Middle East or OPEC imports very much less than many members of the IEA, and many developing countries, which would probably be the hardest hit.

Apart from oil. Australia is well endowed with all the other major energy resources. Our coal and gas reserves, for example, are sufficient to supply current and foreseen consumption without difficulty, and to maintain a substantial export programme as well. While it is still clouded with political and environmental difficulties, the same is true for uranium. With these three fuels, Australia is in a good position to serve its own interests by exporting, and at the same time, helping to reduce the worls dependence on oil. The North-West Shelf project will supply Japan with six million tones of liquefied natural gas a year; coal exports are likely to grow substantially from their 1980 level of 42 million tonnes a year; uranium exports are around 7000 tonnes a year.

To sum up my arguments, let me first emphasise that OPEC still is, and will long continue to be, a very important supplier of energy to the world. In spite of this, one cannot ignore the possibility of a collapse in crude oil prices, with incalcuable damaging effects on the world economy. Equally, despite the current soft prices and over-supply, it is important to guard against the ever present danger of supply disruption in the Middle East and consequent price increases. This can best be doe by reducing our oil consumption, by using it more efficiently, by searching for more indigenous supplies, and using alternatives where possible. In Australia, we are remarkably fortunate in our energy reserves, and I see no reason to doubt that we can cope with whatever challenge next awaits us.

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### THE FALKLANDS WAR — SEAPOWER IN ACTION

by Commodore J.A. Robertson RAN (Rtd.) An address given to the Sydney Chapter of the ANI on 5 October 1982.

So much has been said about the Falklands War in the last few months that I'm now in the well known position of Prince Orloff, Catherine the Great's favourite. Summoned to the Royal bedchamber one night, he entered looking pensive and worried. When the great lady asked the reason for his concern he replied 'Your Majesty, my problem is not what I have to do. I know what I have to do and am confident of my ability to do it. My problem is how to make it seem new.'

What has struck me very forcibly in many articles and papers on the Falklands War is the singular way in which many commentators appear to have missed the point which my these. I refer of course to the fact that, before anything else, the Falklands War was dominated by considerations of maritime strategy. And, of course, just as World War II in the Pacific was similarly dominated by maritime strategy, and Australians are still to understand this rudimentary fact, it seems to me that too much attention given to less important aspects may prevent the most important strategic lessons of the Falklands War being understood. What appears to hapopen is that individuals use incidents from the War to illustrate and make points to support their own parochial interests. and so, perhaps unwittingly, mislead their readers. For instance, the Brown Shoe, Big Carrier Admirals in America, whose immediate objective is a USN based on 15 big nuclear powered carriers, are conducting a battle with Admiral Zumwalt, Stansfield Turner and Senator Gary Hart, and have accordingly made remarks alleging the inadequacy of HERMES and INVINCIBLE, which they would call Gary Hart Carriers. And this Internecine fight in America has provided Australia's anti-carrier lobby with a rich source of quotations from revered authorities. The fact that this in-house dispute is quite irrelevant to Australia's strategic circumstances is lost in the anti-carrier lobby's delight at being provided with ready made bullets to fire at the Navy's carrier project.

Similarly, some of Australia's Fortress Australia strategists, committed to the Maginot Line concept of the embattled stockade fighting off the invading hordes, have referred to the Falklands War as an airman's war; Continentalists — of which we have a majority in Australia — gleefully draw attention to the fact that, in true Clausewitz fashion, it was the final showdown at the Port Stanley corral between the land forces the presentation of the bill at the end of the transaction as Clausewitz called it —= which was the ultimate factor in deciding who won. Well, even maritime strategists acknowledge that the ultimate determinant is the man on the ground with a gun exercising control. What the continentalists are apparently unable to see is that, as in World War II, unless the maritime strategy succeeded, there was no foundation for any sort of victory at all.

It would be dishonest, and futile anyway, for me not to admit that I am ardently committed to the need for a predominantly maritime strategy for Australia and for it to include naval aviation for its implementation. But I believe that my position is more defensible in terms of strategic theory, and the way in which the Falklands War demonstrated its working.

The principal factors affecting the opposing strategies in the Falklands were geography, the opposing force's objectives and the instruments available to them to achieve those objectives.

On geography you may remember John Collins' vehement comment in *Grand Strategy* — 'Misguided strategists who misinterpret, misapply or ignore the crushing impact of geography on national security affairs learn their lessons painfully after squandering national prestige, lives and treasure'. Ropp, more succintly, says 'Geography is the bones of strategy'.

And there's little doubt that the geography of the Falklands, 8,000 miles from Britain and over 300 miles from Argentina, inevitably made considerations of maritime strategy the predominant feature. Argentina had committed itself to a 'Fortress Malvinas' garrisoned by 10,000 to 15,000 troops with a logistic supply line of over 300 miles. If Britain was to take up this challenge and eject the Argentine forces, it had no choice but to undertake a power projection mission, and to succeed in that, it had first to conduct the sea assertion mission successfully. Since an attack on a fortress may employ any or all of three method, frontal assault, starving it into submission, and subverting it morally, Britain also decided to undertake the sea denial mission to weaken the garrison. And sea denial was also needed to ensure the safety of its own power projection forces. There was another strategic option available to Britain, to employ aspects of aerospace strategy; that is, strategic bombing of Argentina itself or of the Argentine garrison. For reasons which we can only speculate on, Britain decided not to take up that option. The only slight gesture towards it was rather more tactical — the V-Bomber attack on the Stanley runway to crater it — but it was badly botched and failed to achieve its objective.

So Britain undertook all three seapower missions, sea assertion, sea denial and power projection — and with surface naval forces configured primarily for sea assertion in the North Atlantic. Argentina's seapower missions were sea denial, sea assertion to maintain its surface resupply route to the Falklands, and strategic air support of the garrison. And I don't need to tell you what happened.

But even before it got to the actual shooting, it was seapower in action. Let's go back a couple of steps and comment on that aspect, an aspect which has been almost universally overlooked. Australians, generally, tend to scoff at the classic uses of seapower in conditions short of warfighting. I refer of course to naval presence, deterrence, and crisis management.

Mr first impression of the war was that the Argentines thought they could safely occupy the Falklands because they probably thought that Britain, haven given up its attack carrier capability, would not be able to undertake a successful power projection operation. As various commentators have noted, the availability of F4 Phantoms, AEW Gannets and Buccaneers would have altered the balance guite sharply. So I was not a little surprised to read a subsequent report that it was not so much ARK ROYAL which influenced the Argentine assessment but, of all things. Britain's decision, in the sacred name of Defence economies, to withdraw its icepatrol ship HMS ENDURANCE. Apparently, the Argentine comment published was, and I quote, 'Britain is giving up her deterrent'. Was that credible? But then I recalled Blainey's conclusions in The Causes of War where he said 'Wars usually begin when two nations disagree on their relative strength' and, 'A change in one factor may dramatically alter a nation's assessment of its bargaining position. In the short term that factor could wield an influence which seems irrationally large'. Now I'm not suggesting the planned withdrawal of the ENDURANCE was the only factor, but it would seem that it probably had an influence out of all proportion to its negligible military capacity. I'm sure many would think this is drawing a very long bow, but it is not easy to put any other interpretation on the facts. The point is, that no one can ever prove satisfactorily that naval presence actually achieves its object of providing the control and influence that advocates of seapower claim for it, so it is easily denied. This incident suggests the opposite, that the lack of even a very modest naval presence may 'wield an influence which seems irrationally large'.

#### **Force Structure Design**

From Britain's point of view, too, some consideration of the vexed question of her forcestructure design, and how it may have affected events can be instructive.

A recent American strategic conference included an interesting address on philosophies of force structure design. The speaker suggested that there were three observable philosophies at work. He called them 'abjuration', 'holism' and 'concretism'. I'm afraid they are all very ugly words but the ideas are worth examining.

Abjuration holds that military forces are of declining importance and that political and economic factors are of increasing importance. Accordingly, the abjurationist suggests that less money should be spent on combat forces and diverted towards say, roads or other infrastructure, to improve the national economy, or, say, international aid programmes. All of us who have done time at Russell Hill will have been exposed to that philosophy, and bloody annoying it can be, too. I'll come back to it.

Holism is the traditional, instinctive approach to force structure design. For example: 'Everyone knows that Air Forces have bombers and fighters. Let's not waste time discussing the obvious; how many and of what types can we squeeze out of the system', Holism tends to be a bit untidy but it also tends to provide a useful measure of flixibility, allowing for the sort of improvisation so often needed in war, because as Wylie has observed 'We cannot predict with certainty the pattern of the war for which we prepare ourselves'.

Concretism is another way of describing the McNamara 'cost-effectiveness' approach. It holds that there is a tight relationship between strategic policy and force structure design. It goes to great lengths to try to tie force structure down with mathematical precision. Now as Wylie has also observed, concretism tends to sail on one essential point, at least so far as seapower and land forces are concerned, and he says this:

'(concretism) worked beautifully with respect to aircraft and missiles and air defence and their warheads; but it ran into snags, and the results were a little less precise when applied to other instruments of warfare. The process just would not work out into clean and precise figures as would the process applied to the air and missile bombing elements ... Perhaps the answer (as to why it does not) lies not in the techniques but in the theory. The air theory is predicted on the delivery of destruction. Destruction is a finite and measurable phenomenon ... But destruction is not so clearly the cornerstone of ... the maritime concept of war ... Destruction is only one component of control, and not the whole of it ....

The point I am getting to is that Britain, in pursuit of at least the sort of pseudo-determinism we also apply to the question of an aircraft carrier in the Australian inventory, had run down its conventional seapower to conform to its perceived NATO interests and its dependent nuclear deterrent, overlooking, it seems, that it still retained an interest in the Falklands. And as Admiral Moorer has observed 'In order to be effective, seapower, like any other aspect of a nation's arsenal, has to be commensurate with that nation's role and the sweep of its interests'. In order to 'save' money and under the misleading influence of concretism. Britain had reduced its conventional surface naval forces and configured them tightly to the constraints of sea assertion in the North Atlantic. The result was that it simply was not prepared for the war it found itself in.

Let me introduce an aside about Australian force structure at this point. The Prime Minister has recently said that Australia would not yield a foot of its territory to another power — and he was referring specifically to the Cocos Islands. If that is so, then I suggest he had better make damned sure that he keeps at least one carrier in the Australian defence inventory. Of course, a different Prime Minister might be prepared to give up the Cocos — but that still would not eliminate the need for a carrier and naval aviation. You won't catch me that way.

I said I'd return to abjuration and this may be linked to the use of seapower in crisis management. In the light of what happened. abjuration did not come out of the Falklands dispute very well. The slow advance of the British Task Force gave a chance for political and economic measures to demonstrate their effectiveness. In fact they did not succeed at all. But at least the measured approach of the Task Force gave them the opportunity and also provided a demonstration of the delicacy with which seapower can be applied to influence events. I find criticisms of the time it took for the Task Force to get to the Falklands guite juvenile, and an indication that those voicing such criticisms have little understanding of the interaction between politics and military force.

#### Some Losses

But let's get back to the shooting war. Britain achieved her sea assertion mission and sustained it through its transformation into power projection, despite some losses. Too much has been made of British losses in my view. Such comments are on a par with those who claim that we did not win the Battle of the Coral Sea. That is fatuous nonsense. If the strategic objective is achieved it is only a question of whether the losses were tolerable. And in all the circumstances they were. No one likes losses of course. but you will notice that the very same people who want to deprive navies of the appropriate instruments for exercising seapower, are the first to concentrate on the price extracted for being forced to use the unsuitable force elements they have decided you should have.

We might note too that the actual losses were far and away more expensive than the money which was supposed to have been saved by withdrawing *ENDURANCE* and running down the RN's Fleet Air Arm. But that is the sort of false economy democracies have indulged in for centuries — and never seem to learn is unforgivably stupid. I'd like to think we in Australia could learn the lesson, but I would not hold out much hope.

Although it is true the HERMES and INVINCIBLE, particularly, were not designed for power projection, I must flatly disagree with Admiral Moorer's comment that these small carriers 'were inadequate in and of themselves' That may be a best seller with the Big Carrier lobby in the States - and of course the anti-carrier lobby in Australia - but the undeniable fact is that. despite their acknowledged limitations, they did the job successfully. One British team in Australia recently - both soldiers - when asked what was the single most critical element in the campaign. replied unhesitatingly that without the carriers it would not have been possible. I do not mean to suggest that this makes a case for an Australian sea control ship. On the contrary, what I am saving is that the Australian anti-carrier lobby cannot use Admiral Moorer's remarks to argue against an Australian carrier of that type - but of course they have done just that.

Of course an attack carrier would have been better and would probably have cleaned up the operation faster with fewer, perhaps no losses. But as I've pointed out earlier, the ENDURANCE alone, much less one ARK ROYAL, might have prevented the war occurring at all. This sort of speculation, while interesting, is on a par with that of some senior RAAF officers who have suggested changes in the scenario to suit their pre-determined positions, such as AVM Barnes who'd like to move the Falklands 100 miles west to 'prove' the uselessness of *INVINCIBLE*. Or AVM Scully who wants to have the British Task Force trying to invade Australia, so that he could try to sink them all at over 1,000 miles from the coast with Harpoons launched from F111s, F18s and P3s. I don't know what these gentlemen do to a potential enemy but, as Wellington said, 'By God, they frighten me!'

Let us just stick to the facts; and the simple and uncontrovertible fact is that the Argentine sea denial mission failed. And incidentally at very high cost. This cannot be much consolation to the British widows or even the British Treasury, but while everyone is understandably full of praise for the Argentine aviators, both naval and Air Force, losses of 94 aircraft and probably the cream of their operational aircrews have ben relatively far more damaging to Argentina's military capacity than the RN's losses which have been given so much attention. Again, this is an aspect you will notice is generally covered in a discreet silence.

The fact is, as I have said, that the Argentine sea denial mission failed. It enjoyed some tactical successes to be sure, but the strategic seapower mission of sea denial failed. On the other hand, the British sea denial mission was almost 100% successful, spectacularly so with the sinking of the GENERAL BELGRANO and the restriction of the Argentine's surface forces to their own 12 mile. territorial sea. The British power projection mission succeeded too, and 'Fortress Malvinas' fell to a numerically inferior force, I suggest, because it was able to enjoy the advantage of the initiative and attack at a time and place of its own choosing. There is evidence that both the blockade of the Fortress and the moral subversion of its garrison played their parts in making the frontal assault successful. Fortress Australia strategists might ponder this example and concede that there could be more to an Australian strategy than their preoccupation with frontal assault only. I doubt if it will; their minds are made up and they do not enjoy being confused with facts.

#### Lessons for the Future

The only other points I'd like to draw your attention to are the Sea Harriers' outstanding success as a Fleet Air Arm Defence Fighter; another is the fact that so many ships were made available at short notice and remained on station from the best part of six months. I'm willing to bet, however, that we will continue to hear the usual twaddle that ships spend so much time in refit that you cannot depend on them. Finally, we have had a timely reminder of the immense importance of access to merchant ships, and, incidentally, I am sure all of us must admire the way the British merchant seamen played their part. Perhaps the Sydney Chapter of the ANI might like to follow up by establishing some links with the Company of Master Mariners, or the Maritime Services Guild, or both.

Perhaps the most encouraging lesson is how well the theory of maritime strategy seems to have been validated in practice. Most wars today are land battles; this one, for a change, provided a working laboratory for maritime strategy. And for Australia, which, as Dr. Tom Millar said, has a great propensity to forget that it is an island first and a continent second, there are important lessons to be learned. Not by any direct comparisons of certain tactical aspects, though they are by no means unimportant, but in the broader sweep of the nature of seapower and its application to Australia.



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### WHY SOPHISTICATED MARITIME DEFENCE FOR AUSTRALIA?

by Mr B.R. Goddard

In these days of rapid escallation in defence costs, one might well ask *why sophisticated maritime defence for Australia?* 'Sophisticated' systems, as we well know, are extremely expensive and, as some sources might agree, should only be needed by the Superpowers who are committed to providing a worldwide deterrent capable of matching the strength and capability of the Eastern Bloc countries. Other forces within the Western Alliance should, as the advocate for simplicity might argue, concentrate on purely the support role and place more emphasis on the less sophisticated weapon systems to allow limited budgets to be extended by providing a greater number of less expensive defensive systems.

For example, the debate involving the selection of an aircraft carrier for the Defence Force is likely to continue to be fought in defence circles and the press for many months. There appears to be countless views on this subject and one will never be in a position to say whether the decision finally reached will prove to be the correct one over the next 15 years or so until viewed in retrospect. The aircraft carrier is a most sophisticated weapon platform and, irrespective of the platform chosen for defence, the requirements for it — in this day and age — must dictate that it:

- Fulfills a number of national roles in peacetime as well as defensive and offensive roles in wartime; and
- · contributes towards the western deterrent.

When we glance through publications covering the strengths and capabilities of forces throughout the world we note that practically all countries are in a position to purchase sophisticated weapons. The cost no longer appears to be the deciding factor. Credit is readily available and many countries, for the sake of prestige, willingly forego 'butter and guns'. Furthermore, the international market in arms is immence. Invariably, there is always another source from which to obtain weaponry if the original source is barred by political constraints. The possession of a few sophisticated weapons by a small country frequently poses a greater threat to world security than a large arsenal of the same weapons held by a major power. The smaller country might well resort to using sophisticated weapons at an early stage simply because:

- it does not possess a wide range of weapons allowing it a graduated response;
- it shows strength and determination politically, in the eyes of the enemy and the rest of the world;
- the overall capability of the weapon could be underestimated; and
- of desperation.

It goes without saying, therefore, that a nation such as Australia with its vast natural resources must be capable of detecting, at an early stage, any threat to its security and be capable of responding to that threat. Such a defensive posture must, by necessity, be 'sophisticated'.

If we cast our memory back to experiences gained in the Falklands war, no member of the general public would have judged that, in the early days of the conflict. Argentina would have the capability - and the determination to use that capability - to inflict such serious losses on the British Task Force. If the Argentinians had possessed the 'know how' to use their weapons effectively and if they had been able to purchase more self guidance weapons, the outcome of the war might have been very different. The war proved that a relatively minor power, given the required weapons, can impose its will on a major power and that the cost of reinstating the 'status quo' is enormous. In fact it can be measured in hundreds of million of dollars when intelligence sources underestimate the initial threat. As events also proved, the British were able to react remarkably guickly by mounting an extremely powerful task force at incredibly short notice. This operation must have involved a great deal of contingency planning - planning related to the protection and surveillance of the task force en route to its operational zone, a defensive system around elements of the forces employed, an onboard ability to seek and destroy threatening forces and, above all, a secure communications

network. Such an operation could not have been successfully accomplished without sophisticated electronics.

Let us now turn our attention to the Australian scene. What, for example, degree of sophistication do we require for an effective maritime defence? The argument against sophistication do we require for an effective maritime defence? The argument against sophistication i.e. an argument based on more weapon platforms at the expense of complexity, should be viewed realistically. Australia has a massive coastline to defend approximately 36,700 kilometres. To effectively patrol, intercept and defend such a coastline. Australia would require a maritime force 50 or more times greater than it is today. Unit numbers. be they ships or aircraft, could be increased at the expense of complexity for a similar financial outlay and, with such an extensive coastline. 'numbers' might, to some, appear to fulfil Australia's requirement in the future. However, although Australia might be fulfilling the requirement to 'patrol', could it effectively 'intercept and defend'? The answer must surely be NO unless the systems employed are equipped with the latest detection equipment and additional systems are available - again employing up to date technology - to track and destroy such a threat.

Australia could, of course, buy in from overseas up to date defensive systems capable of providing the country with the necessary degrees of warning. The kind of solution must be regarded as a short term measure, simply because Australia would not then be in a position to acquire the knowledge so necessary for updating and modifying these systems as new technology developed overseas. Moreover, in an emergency situation that seriously threatened the security of Australia, it is highly probable that a similar threat would also threaten supplier countries. In this situation, spare parts and additional systems are unlikely to be made available to Australia as the supplier would be directed by its national government to allocate priority to national defence needs at the expense of the overseas customer.

For many years, a very large proportion of the equipment used by the services was imported. Whilst this arrangement might appear satisfactory from the services point of view, it has an extremely deleterious long term effect on the defence industries. Not only is new technology being denied to the industry, but scientists and engineers, unable to find suitable employment to practise their skills, emigrate to seek a challenging and progressive career in overseas research laboratories. There is, of course, little need for highly trained scientists and engineers in an import oriented industry, or in one which imports its technologies and merely assembles goods incorporating such technology.

Scientists and engineers employed on defence work must see a satisfying and challenging career in an industry fully capable of satisfying the requirements of defence in an emergency.

The electronics industry in Australia has the advantage of being comprised of both Australian and overseas owned companies. As such, a number of companies have access to large R. & D. organisations throughout the world and thus to the developments emanating from those organisations. Importing knowledge related to advanced electronics is extremely beneficial to Australia. Knowledge is transformed into development research which, in turn, results in advanced products and jobs throughout industry.

When we hear statements concerning our own defensive capability we are made painfully aware of our shortcomings in the defence of this region. The suggestion that, in the event of an emergency we can always purchase equipment from our allies and maintain it effectively, is far from realistic. As I have pointed out, equipment bought from overseas in an emergency must. inevitably, be equipment surplus to the requirements of the supplier. Moreover, we would not have the experience to update equipment purchased in haste from an overseas source. Our research laboratories must be given every opportunity to fulfill defence requirements in peacetime. Such work will, at least, ensure that specialists are available when needed and, in time of peace, acquire the practical and theoretical knowledge so essential for the defence of the nation. Our contingency plans must ensure that a nucleus of specialists are available in Australia with a capability for rapid expansion in an emergency.

Our plans must incorporate lessons learnt in both the Lebannon and the Falklands Islands where it was proved in practice that electronic weaponry has now reached a very advanced stage. Future battles must hinge less on how many tanks, ships or aircraft are deployed as new emphasis is placed on new technology associated with electronic warfare. Just how potent this has now become was clearly demonstrated by Israel's success against Syria when, for example, Israel destroyed 19 surface to air missiles in the Bekaa Valley without losing a single aircraft. Moreover, in one engagement, they obliterated more SAM launchers than threatened their country during the entire Yom Kippur war, when SAM missiles took a heavy toll.

In the U.S., the Secretary of Defence for Research and Engineering strongly advocates more emphasis be placed on offensive electronic warfare tactics. Radar seeking missiles and

intelligence gathering drones are scheduled to receive greater priority to enable hostile aircraft and ships to be destroyed before they are in a position to launch their missiles. It is reported that last year, in the U.S. alone, an estimated \$3.4 billion was spent on electronic warfare research and procurement. This is by far the largest growing item in the U.S. Defence budget and it is estimated that expenditure will grow by 25% per annum. The Chairman of the U.S. Defence Science Board forecasts that advances in microelectronics and optics for electronic warfare systems will be more significant than advances in aeronautical and naval technologies. New weapon platforms use to be given priority in the defence budget, but this is now changing to electronic warfare equipment because such equipment can extend the service life of current aircraft and ships of considerable periods.

Let us now take a brief look at some ship defensive systems. The British Aerospace Sea Wolf and Sea Dart, the U.S. Vulcan-Phalanx gun and the Italian Seaguard systems, are all designed for use against hostile missiles and aircraft. In addition, a number of decoy defensive systems have been produced, notably, the French Dagaie and Majaie systems, the British Wallop Stockade system and the Swedish Matilda Philax system. As one system becomes outdated by technological advances, another system replaces it resulting in the weapon platform - be it a ship or aircraft - retaining its operational effectiveness. Replacing aircraft and capital ships whilst they remain serviceable weapon platforms is very expensive when compared with re-equipping these platforms with defensive systems such as those listed above.

Bearing in mind the geographical location of Australia and the questions strengthening our own capabilities in the field of electronic warfare.

We, obviously, are not in a position to emulate the advances made in the United States, or for that matter, in a number of the other countries capable of producing a G.D.P. higher than Australias'. We, however, must keep up to date with advances in modern technology and watch the direction taken by our major allies to ensure that our services are compatible with those of our Allies and can be regarded as fully effective in an emergency. This demands research, development and manufacturing strength in depth in order to maintain and support our services in periods of tension. I contend that the only way of ensuring that an effective backup is available in such an emergency is to ensure that a strong industry, capable of rapid expansion, is available in peacetime.

To conclude, the objective behind my paper is to remind ourselves of the direction in which other developed countries are taking to ensure that their services maintain operational effectiveness. No longer is it necessary to scrap, or mothball, weapon platforms after a limited life, simply because the ship lacks speed, manoeuverability or modern armament. Modern defensive systems will, progressively, become more and more dependent upon sophisticated electronic systems that allow ships to effectively extend their operational radius of action by seeking, identifying and, if necessary, destroying hostile targets before they pose a threat to friendly forces.

If we, in Australia, intend to be in the forefront of modern technology, we must ensure that our scientists and engineers gain the necessary experience and that our R. & D. laboratories are capable of fulfilling the operational requirements of our forces in the event of an emergency. It is our peacetime capability that will dictate our effectiveness in a national emergency and consequently every effort must be taken to ensure that our defence industries keep up to date with the advances in technology being made in overseas countries.



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### BUILDING FOR THE RAN IN CAIRNS

by Mr Don Fry

This article is based on an address given to the ANI in October 1982.

Should you ask why Cairns in the first place — set aside any primary considerations for defence strategy and viability of the area: I was born in Cairns and so was my father, the founder of NQEA and that is the reason NQEA is where it is today. Thirty-two years ago the Company began with a staff of three, no assets, no money, just ideas. Early days of NQEA were spent selling and servicing engineering supplies, hence the last part of the name — 'Agents'. Hard work, misfortune, good luck and ambition, combined with an enthusiastic work force, has been the essence of success.

Today, the work force numbers 750 and is the largest single employer in the Cairns area. NQEA has become a vital economic constituent to North Queensland and it is essential that its role be maintained. Aside from Navy, the Company is active in the construction of mining and sugar mill machinery. The Company's own design team has been responsible for many firsts in technology in the Queensland sugar industry, which has led to successful sales in Thailand, Indonesia and Fiji.

Where did the start come in shipbuilding? At the wind down in the 1964 Sugar Expansion, a decision was to be made - lay off 100 men for the first time in the Company's history, or diversify. A casual look through Department of Supply tenders one day (Landing Craft LCM Type 8-11 of) caught my father's eye. Nothing much has changed you will be pleased to note: 'No! said the Commonwealth - you are wasting your time tendering on that. We would no accept you. You have never done it before.' But, Gentlemen, you will never learn and nor will we! I recall personally working out the price - a proven design, I might add - It weighed when finished what the tender document said, and the craft did what the Army expected. Almost amazing when I think of current activities, and commensurably with that rather smooth operation, there were no cost variations to contract. All 11 were handed over on time and we made a profit. I understand all 11 are still in service. We tendered on a second batch of 7 of the same craft some years later. We put in the same price plus normal escalation and ran second to a multi-national company engaged in ship building in Western Australia at the time. We jumped up and down a bit about the decision to go west on price but to no avail. Revenge of some sort came when at their mid point in construction, they asked for guidance from us, having expended all of the project allowed hours.

Between this early experience and the present *PTF* Contract, we built commercial ships to 220 feet, expanded the commercial scene, entered the ship refit business and struck up a new relation with Navy through the winning of a period contract to refit *Attack* class boats. I guess we short cut a few traditional methods, but maintained the required standards. Today, we are still refitting most of the *Attack* class boats for Australian and Papua New Guinea. I would attribute the cost effectiveness of this refit operation to a low overhead management and facility structure.

We intend to keep it this way, but also intend to expand the extent of on site facilities to allow for total refurbishing of all equipment so as to avoid the excessive delays always experienced through Naval stores and any other Commonwealth related activity. Our present view on refitting patrol craft both *Attack* and *Fremantle*, demands that all stores and equipment refurbishing be alongside the refit area. Help us to do this, with project control vested totally in *HMAS CAIRNS*, and your patrol craft operational costs will significantly reduce.

Every 14 weeks at NQEA, a *Fremantle* class patrol boat is handed over, ready to go. To date this has been an exciting and exasperating experience. Each represents an average of 18 months of work from keel laying to hand over. There are five at any one time under assembly. Construction is under cover except for sand blasting of the finished hull and fitting of the mast. The mast originally could have been fitted in the shop, but a design change made during the period of contract evaluation put an end to that idea. Let me go back earlier on what I said about patrol boats — exciting: yes, our entire work force and local community appreciate the benefits and rewards of having such a contract. Exasperating:



Fremantle class patrol craft under construction - NQEA.

well I should not go into the details of this, but but sum up my own views on what we can all learn from the *PTF* Project, and that is to keep to the original plan — be not deviated by pressures from the Controllers of the public purse when it means a sacrifice to quality. The Brooke design now fits the Commonwealth requirement, but it took a long time to correct the early errors, the cost of which was borne mostly by NQEA.

The Commonwealth continues to shirk from responsibility remunerating its of NQEA adequately for the additional materials and work we were compelled to supply to enable patrol craft to be handed over as a copy of the first Brooke boat as apart from the lighter boat as defined to us at the tender stage by Brooke Marine. I would have considered it reasonable of the Commonwealth for NQEA to accept such costs had we chosen the Brooke design or been an agent of Brooke, but let me assure you that this never was the case. The Commonwealth chose the Brooke design and paid for it under a separate Commonwealth -Brooke Marine contract.

The philosophy of contracting this way and transfer of technology to Australia, I believe is simple to administer and needs little refinement through any of the tender or contract award stages, and should be continued with. The only fault I observe, was the weakness of Navy bending to the pressures of DAS to buy something they did not want, and for further failing to monitor that the lead yard contractor was giving you what you expected.

Such monitoring of on site progress is not a job for GOSI, Progressing Report Officers or naval junior engineers. It is a job for experienced ship surveyors such as Lloyds of London. I believe that possibly the task of monitoring the lead craft should have been sub-contracted to NQEA, in conjunction with Lloyds. I recommend that for further contracts like the planned submarine project, such a contractual link, giving the follow on builder a responsibility to monitor the lead yard production is necessary, and is possibly the only refinement required.

The difficulties experienced in building patrol boats are negligible. Our task would have been simplified had we adopted, from the start, our own thoughts on how we should build rather than introduce Brooke ideas. It took little time to discover that we know more about building boats on a production basis than Brooke Marine, and our ideas and those observed in some European countries, were implemented throughout.

NC marking, cutting and tube bending, coupled with building the hull in large, but still manageable modules, has allowed for a reduction in hours from the rates tendered, and it was the savings gained from these activities which have financed the overweight and design growth. I believe that we would be the only patrol craft builder constructing the hull in such long sections, upside down. The unit, however, does have reasonable torsional strength and with careful crane control is rolled over in rings bolted to it. A margin of 25 mm is left on the other modules to allow for fitting. If we were building another 14, no such allowances would be made - instead accurate predictions of weld shrinkage etc. would be built into the original fabrication.

The fitting out aspects including the electrical and communications systems have presented no difficulties. A Quality Control Department headed by an ex RAN engineering officer and with a staff of 7 was started at the beginning of the PTF Project. This has served the project and company's interest well,not only for the Naval projects but the commercial contracts. It is an aspect which needs very careful monitoring, as it can easily overrun cost control. However, for us it is working. From a management staffing aspect, our company is often criticized by Navy for being light on. I believe at the present time we are over staffed slightly and have become a little too much Navy orientated. Fortunately, we do recognise this and measures are in hand to ensure we stay as we were - efficient and reliable - which means that for the majority of you, who deal with us, you will always have to plead for your paper.

The facilities at NQEA are such that the present 14 weeks delivery per boat could be accelerated to 10 weeks by introducing a second shift. This production time could be significantly reduced further should our commercial activities be totally directed towards Defence work. Such improvements in delivery could only be achieved of course if there was a requirement for more boats in large quantities. There is no doubt that building patrol boats in North Queensland has done much to regain expertise in Australia previously lost. There is a need to keep the skills together, and to this end we have some plans for the future which I would like to describe to you.

The Navy's plans to investigate acquisitions of more destroyers and submarines has prompted us to investigate and plan for the construction of such vessels. Here are some of the alternate designs for such an expansion.

- We are very confident that our work force and facilities can be expanded to meet any requirement the Navy may have.
- If Australian industry and in particular shipbuilding is to exist, such that it can provide reasonable support for the Navy, then Navy needs to get its act together and accept the risk of Australian design as well as construction. Navy needs to also have a much better planned acquisition programme that will service their needs and at the same time give Australian industry continuity of work. If some of you have reservations about the capability of Australian industry then you have called tenders for debate.





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### AIRCRAFT BATTLE DAMAGE REPAIR

by Lieutenant Danny Reilly RAN

Aircraft Battle Damage Repair (BDR) is done to return a war damaged aircraft to an effective fighting condition in minimum time, by use of non-standard repairs. Controversy has often surrounded the introduction of BDR into any Service, because such a philosophy raised the questions of safety and possible malpractice in peace time. This article aims to dispel some of the misconceptions and review the use of BDR in modern warfare.

The formulation of a policy to suit the Royal Australian Navy is already under consideration. This formulation is being heavily influenced by the feedback received from the Royal Navy's involvement in the Falklands. The subject of BDR has often been raised in the RN ever since the Argentine Flag flew over Port Stanley; in fact, the Falklands provided a scenario in many respects similar to likely Australian scenarios, distance, isolation and low levels of air support being prime concerns. The RAN will do well to note the lessons. Perhaps not among the more obvious lessons, but still an influential one, was the use of BDR to help maintain adequate air cover, for serviceability levels were achieved which under normal repair schemes and flying regulations would not have been possible.

The Falklands crisis tested many areas of the RN Fleet Air Arm. Development of ideas and equipment to meet the new threat was remarkable. Even more remarkable was the fact that ideas became reality, literally within days of their inception, and trial in combat. This also happened with BDR, which previously had been a philosophy practised only in the RAF. In fact, the RN had not and still has not formulated a policy on BDR, although the subject had been under serious study at the Naval Aircraft Technical Evaluation Centre (NATEC) for some months prior to the conflict. Part of the study involved the training of two CPOs specifically in BDR at RAF ABINGDON and a BDR school is now being established at HMS DAEDALUS to train senior NCOs. One of these CPOs was sent, with an experimental BDR tool kit, with the Task Force; personnel were trained in BDR, enroute, and the kit was used to good effect on HMS HERMES, HMS ANTRIM and HMS FEARLESS. Further feedback suggests that the Mobile Aircraft Repair, Transport and Salvage Unit (MARTSU), which normally handles many of the more heavily damaged aircraft repairs, used standard BDR repairs on several occasions to maintain adequate air cover. A prime example of this was the severely damaged Wessex Mk3 on *HMS ANTRIM*. Battle damage repairs were carried out on many areas of the aircraft including wiring and the aircraft then flew many sorties until relieved. When a full survey was conducted on arrival back in the UK it was decided to place the aircraft in a museum rather than do the very extensive repairs required to bring it back up to a peace time standard. This incident has proven the value of BDR and is only one of several similar occurences.

When considering BDR in the modern sense, one must dismiss the old philosophy of the 'One More Flight' standard of repair, for the age of the 'Coke Can' repair has gone. The RAF, who initially expounded the theory, now consider that a repair should primarily aim at returning the static strength and serviceability to the damaged area. This does not mean the fatigue life can be maintained, but it does mean a decent standard of repair must be made. This will generally allow the aircraft a multiple flight capacity, allowing more substantial repairs to be done after the threat has been dealt with. Surprisingly perhaps, practice has shown that the time difference between this standard of repair and a 'coke can' standard is small, but the time saving over a scheduled repair is substantial.

Of course, the particular situation will dictate the time available for repairs. In this case the answer is to do the best repair possible in the time available. This may all sound rather basic and certainly 'to be expected' in war time anyway. To a certain extent this is true; however, if a BDR policy were formulated and men were practised in both assessment and repair during peace time, their reactions should prove more effective. Time will be the commodity most sought after when repairs must be done. Indeed it is a well tried principle that previously practised routines minimize reaction time, confusion and mistakes, when pressure is applied. The need for training in BDR then becomes obvious, particularly for a senior CPO in charge of his own flight. He will be the sole authority for aircraft assessment and repair. Under the pressures of battle, he must still make sound engineering decisions to assess, estimate repair times and formulate an effective repair schedule. A knowledge of tested repair techniques that will reduce aircraft turn round time

is essential. Practised BDR assessment and repair techniques will allow this to occur.

The question of safety is often posed, particularly when primary structures are damaged and then repaired to a BDR standard. The RAF have been involved in tests of all the taught techniques. Civil aviation industries, such as British Aerospace, and several research establishments in the UK have trialed most of the repair schemes. The results indicate that the BDR techniques currently recommended are as safe in the short term as the scheduled repairs. Again, one of the prime functions of the RAF BDR Flight at RAF ABINGDON is to correlate these results. These results then form the basis for specific aircraft type manuals.

A BDR Manual is designed to cover all the likely damage to the airframe, electrics and systems by detailing repair schemes and serviceability priority lists. Lists of essential, conditional and non-essential systems are detailed to aid the assessor in determining what must be repaired to suit a particular role. Time and effort will then be saved by only securing nonessential systems rather than repairing them.

A concern for documentation and authorizing signatures is often expressed when BDR is to be adopted. The fact is that documentation of BDR must still be maintained, otherwise formal repairs or outstanding repairs may be overlooked after the crisis. Normal signatory responsibility under BDR entry would be maintained, and entries should specify the damage sustained, the repairs made, the repairs outstanding and any limitations on the aircraft. A BDR situation should not be used as an excuse to bypass documentation.

The question of malpractice in peace time concerns those who believe a senior rating may be tempted, when placed under pressure, to short out the normal procedures and carry out a BDR standard repair. The RAF argue that teaching less experienced and less mature personnel may well create such a situation. However, the more mature NCO has established his professional standing and would not be satisfied with less than a correct repair. On the other hand, the same professionalism will dictate when and where BDR should be used in time of war.

Currently the US, NATO, French, Saudi Arabians and British forces send men regularly to do courses at RAF AGINGDON. The RAF is the field leader and has formed the basis for world policy on the subject. At RAF ABINGDON, the BDR Flight runs two courses. The first is a 10 day Instructors' Course which aims at teaching BDR assessment and instruction theory and practice. The personnel can then return to their own nations to start up their own BDR centres; ideally, the RAF envisage one instructor for every air station or carrier. The second course is of one week's duration and trains personnel in Damage Assessment; ideally, the RAF envisages two assessors per watch for every squadron or one per detached flight, and they may also act as repair team leaders.

The beauty of the RAF courses is that they allow each nation to establish its own training unit. Such a unit in the RAN Fleet Air Arm would possibly consist of one lieutenant, two opposite trade CPOs and one leading hand. Their function would be to instruct personnel, evaluate techniques, issue and amend BDR Manuals and co-ordinate independent testing of repair schemes. The physical requirement would be an office, classroom and small hangar space. Use could be made of aircraft hulks to demonstrate cannon damage and practices. Such a relatively small investment in terms of manpower and resources could yield substantial results when most needed.

One must bear in mind that at the outbreak of war, the RAN will have a set number of aircraft with little chance of replacement or loan in the short term. In all probability, operations will be at a distance and isolated. Proper repair facilities will be minimal and time used for repairs will be critical. BDR, used wisely, has the capacity to increase the number of sorties and maintain the higher levels of serviceability required under war conditions. Perhaps pre-war training in BDR will make the difference between victory and defeat. The subject is certainly worth some thought.

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## THE FALKLANDS OPERATION — TAKING UP SHIPS FROM TRADE — COULD WE DO IT?

by Commander M.B. Taylor RAN

Taking up ships from trade is no latter-day phenomenon. Half of Nelson's fleet at the battle of the Nile were merchant ships. More recently, a large number of merchant ships were enaged in support of our defence effort during the Second World War and throughout those six long years the Merchant Navy provided the lifeline to this country and to allied countries. On the Australian Station, 30 ships were lost to submarines, many more were attacked, but most convoys in our area arrived safely. At the end of the war the Merchant Navy was given its due credit. In the victory celebrations in London and Sydney, the Merchant Navy marched side by side with the three Services.

#### **The Falklands Merchant Fleet**

Since 1975 the United Kingdom merchant fleet has declined from 50 million tonnes to 29 million tonnes, a decline of 40 percent (for Australia, the figure is 3.7 million tonnes for a total of 110 interstate, intrastate and overseas ships). However, a large Merchant Fleet still sails under British Flag and everyone recognises that the operations could not have been mounted without the requisitioning of ships such as the QE2, the CANBERRA the UGANDA, the ATLANTIC CON-VEYOR and many others. To confirm this, Admiral Sir John Fieldhouse, the Commander-in-Chief of the Fleet said:

'I cannot say too often or too clearly, how important has been the Merchant Navy's contributions to our efforts.

Without the ships taken up from trade, the operation could not have been undertaken, and I hope this message is clearly understood by the British nation'.

The ships taken up covered a wide spectrum which amply illustrates the logistical support necessary to sustain an enterprise such as Falklands.

Passenger liners such as the QE2 and CAN-BERRA or ferries such as the NORLAND were used to carry troops. The passenger liner UGANDA was taken up at Naples, in the middle of an educational cruise, to be repainted and hastily converted to a hospital ship.

Five trawlers were taken up to be used to sweep the waters which had been mined off the Falklands, and ships such as ATLANTIC CON-VEYOR and ATLANTIC CAUSEWAY were used to ferry helicopters and Harrier jets.

A number of ships were used to carry ammunition, heavy equipment and general stores. Those and a large number of tankers were acquired to supplement the Royal Fleet Auxillaries. Other ships were taken up as floating workshops, despatch vessels, and to lay moorings. Last but by no means least, there were the tugs YORKSHIREMAN, IRISHMAN and SALVAGEMAN which is Britain's most powerful tug of 20,000 HP designed for hauling the largest ULCCs and oil rigs.

Nineteen ships were fitted with flight decks or helicopter operating platforms, whilst many were equipped with gear to enable them to refuel at sea and others were adapted for self defence, including installation of special crypto and satellite communications systems.

During the Falklands operation, requisitioned and chartered ships carried over 8,000 personnel, 30,000 tons of freight, over 300 vehicles, 18 Harrier jets and about 80 helicopters to the Islands. Over 700,000 tons of fuel were transported to support the operation.

#### **Fitting Out**

The average fitting out time was a mere three days. This is a remarkable testimony to the enthusiasm and professionalism — not to mention sheer ingenuity — of naval and commercial shipyards. An example of the fitting out was the CAN-BERRA. She was chartered at 1800. By 2100 the same day — a Saturday — her GA drawings had been telexed to Admiralty architects at Bath. Steel cutting for helicopter decks commenced at 0200 the next day. The steel for these decks came from Scotland and went straight into Vospers No 1 fabrication shop where work started as it was unloaded. However, the job did not go off without hitches, as it was found that when the deck was completed, it was too large to get through the doors of the workshop. Such trivialities were not a problem to Vospers — they simply cut the front off the workshop, and soon had the structure out and onto two barges which were used to float the assembly across to the ship at Southhampton.

Work on the helo-deck abaft the bridge and directly above the upper deck swimming pool was completed before the ship sailed, but the second helo-deck proved more of a problem, and so a team of volunteer welders, platers and caulkers sailed with the ship in order to complete the work — they disembarked at Ascencion Island.

The UGANDA was modified at Gibraltar dockyard in two days as a hospital ship for 1000 patients, and carried 200 extra beds. A helicopter deck was built at the stern.

#### Defence Involvement in Ship Design

The General Council of British Shipping and the Ministry of Defence have stated that future defence measures they have in mind are:

- The istallation on selected merchant ships of anti-missile decoys such as chaff or containerised anti-missiles.
- More replenishment at sea gear to be fitted to tankers.
- Container ships to be developed for helicopter and possibly Sea Harrier operations.
- The possibility of inclusion in some new ships such as ocean-going RO-ROs, of strengthened decks for Harriers and helicopters and the installation of lifts so that aircraft can be parked below the main deck.

#### Planning

A great deal of work has been carried out on planning for the protection of merchant shipping in wartime. These plans, although largely prepared in conjunction with our British, NATO and Pacific allies, extend world-wide and are regularly exercised. In the UK there is a close relationship between the Ministry of Defence and the Department of Trade. The principal forum is called the Shipping Defence Advisory Committee and allied to this is the Joint Merchant Shipping Defence Committee which is chaired by the Department of Trade but which contains representatives from Industry and Defence. There are other committees, the principal NATO one being the Planning Board for Ocean Shipping, which plans in peacetime for the employment of a pool of

Allied ocean-going merchant shipping in time of war.

Obviously, each nation needs an organization, in circumstances of tension or hostilities, to provide guidance and executive direction to Government and private organizations involved in the movement of commodities both in transit through ports and as seaborne cargoes.

A fundamental requirement for example, would be to evolve a national system for according priorities to commodities and to particular cargoes, or possibly to specific vessels, according to criteria of economic or defence importance and urgency should circumstances so dictate.

There is no such arrangement in Australia.

#### **Civil Direction of Shipping in Australia**

There is a need also in Australia to develop at the operational level, detailed systems and procedures for the civil direction of shipping. This development requires the liaison and co-operation of the Departments of Transport, Trade and Defence, representatives of ship owners and representatives of authorities responsible for port management.

These matters are under review by the Australian Shipping Defence Council (ASDC). The ASDC is chaired by the Deputy Chief of Naval Staff and members include representatives of major Australian shipping companies. In addition to considering the need for an arrangement to co-ordinate the civil direction of shipping — a National Shipping Authority — the ASDC is considering several matters which impinge upon the use of merchant ships in a defence or national emergency. These include:

- The legal problems in chartering or requisitioning.
- Legislation to support an authority such as an NSA.
- Determination of mutually financial compensation.
- Problems inherent in civil manning.

#### Manning

The Falklands operations emphasised that the defence of a nation requires adequate ships sailing under its Flag and staffed by its own national officers and men.

British merchant crews were all volunteers for Falklands, although the unions insisted that all crews should be British and on extra wages ( $1V_2$ times normal wages) — and the Government agree immediately.

Understandably, masters and crews underwent much briefing and training prior to sailing. Relevant to this is the fact that many masters were already members of the Royal Naval Reserve or had attended the courses regularly run by the Royal Navy for Merchant Navy defence, with special reference to passive defence measures for the protection of a ship and her crew.

At present, neither these courses nor Convoy Commodore courses are held in Australia.

Senior naval officers, officers of the Royal Fleet Auxillary and Royal Naval Supply and Transport service personnel were embarked on the larger merchant ships, and tremendous enthusiasm to learn was shown by those masters and crews who were new to the support role. The fact that ships sailed from the UK, rendezvoused with a ship of the Royal Fleet Auxillary and carried out refuelling at sea for the first time, sailing on southwards, learning to operate fully darkened and without navigation lights, occasionally zigzagging and operating with minimum use of radar reflects immense credit on the professionalism of the Merchant Navy and the Royal Fleet Auxillary.

Finally, about 58 ships were taken up from trade and manned. They were from 22 separate companies with a total of about 700,000 dwt, and even before the surrender, chartered shipping had cost the UK Government £M50.

#### **Australian Plans**

From our Merchant Fleet of 110 interstate, intrastate and overseas vessels, there are 44 which have defence potential. These ships can be divided into six categories:

- Ships with heavy lift capability such as KIM-BERLY (State Shipping Service WA).
- Ships capable of self discharge such as LAKE BARRINE (ANL).
- Vehicle deck ships with ramps such as ALLUNGA (P.A.D. Shipping).
- Vehicle deck ships with hatches such as BRISBANE TRADER (ANL).
- Tankers such as the EXPRESS (Howard Smith), and
- Landing craft, with opening bows, of which there are seven on the Australian Register.

The unanswered questions are, how many ships would be needed, and could their cargoes and trade be assumed by another ship or an alternative mode of transportation?

Without an adequate British Merchant Navy, the Falklands operations could not have been conducted. Without the plans, forethought and military/civil co-operation and goodwill, the Fleet could not have been assembled as quickly or as effectively.

As yet we have no formal arrangement for the civil direction of shipping in Australia, and many problem areas have to be addressed and resolved. Hopefully the ASDC will give an impetus to the resolution of our deficiencies.

But, could we react as the British Government did for the Falklands? Maybe ....



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## WHAT IF NO CARRIER

by Lieutenant Commander F.A. Allica RAN

For several years, and in particular the past few months, a considerable amount of time, effort and money has been expanded on the proposal to acquire a replacement aircraft carrier for *HMAS MELBOURNE*. The activity to achieve this end has been so intensive and the political manoeuvring so adroit, that to suggest any alternative to a shining new carrier would be heretical.

We were assured, that in November 1982 the Government would make its final decision on whether or not to acquire a new carrier or one of several differing options which will enable the Fleet Air Arm to operate in strength from a single deck at sea. The options under evaluation range from the acquisition of a high capability conventional carrier, through to a purpose built STOVL carrier, to a much lesser option of operating STOVL or VTOL aircraft from a converted merchant deck.

Whatever decision is taken by the it is Government. certain that following the 1983 general election, a Labor Government would re-evaluate that decision and it is likely that their decision would be in the negative. It is probable that, in view of the available timeframe to justify the requirement, to negotiate a contract and to produce the supporting documentation to purchase a carrier replacement, it would not be too late for a Labor Government to rescind any contractual obligation that the Commonwealth had entered, albeit at some financial penalty. Consequently, the real carrier decision will not be taken, or at least not confirmed, until late 1983 and until then the present uncertainty will remain.

In the past, RAN force structure planning has been based upon tactical naval airpower and the possession of organic air assets at sea which are to be capable of undertaking a wide variety of tasks including anti-submarine warfare (ASW), maritime strike and attack on shore installations.

But what if the decision is not in favour of a carrier or indeed any large hull capable of carrying and operating several aircraft? What if we lose the flexibility of organic aircraft at sea? What then?

The activity to acquire a replacement carrier has been so intense that few have had the time or inclination to consider the alternatives. It is inevitable that a negative decision will precipitate more feverous activity to seek a satisfactory force structure alternative.

In the acquisition of a carrier, we have been locked into a replacement programme, 'the replacement sydnrome' as many call it, although evaluation of other available options indicates that there are few, if any better solutions. A decision not to acquire a carrier puts us in a unique position. For the first time in more than thirty years, we can objectively look at our force structure and provide a novel approach to the acquisition of a maritime force which is structured to meet our defence needs but is no longer dependent upon providing protection to the carrier force.

It is important for Navy to produce a viable alternative force structure which justifies the continued allocation of funds at the present level of the Defence Budget. A 'no carrier' decision would ease the problems of fiscal allocation to a degree. No longer would Navy be seeking a disproportionate allocation of Defence expenditure in order to make the capital outlay on the carrier platform and replacement fixed and rotary wing aircraft. Insead, Naval expenditure could be spread over several years in the acquisition of smaller units, but ones which possessed highly capable weapons, systems and sensors.

There will, however, be considerable pressure from within other areas of Defence, and outside, to proportionately reduce Navy's fiscal allocation. In the wake of a 'no carrier' decision, Air Force is certain to press for more maritime patrol aircraft (MPA), more maritime strike and fighter aircraft, more weapons and supporting tanker and air early warning (AEW) aircraft and forward operating bases in order to plug the gaps left by the demise of the carrier.

Whilst those air defence and maritime strike assets are highly desirable, and to a degree may provide support to a naval task force, traditionally the Air Force is deployed and employed in defence of the homeland and strike against strategic targets, and Navy is left to fend for itself utilising its own available forces. Navy prefers organic air support to land based air support in that it is able to set the aircraft's operational priorities. Also there are few incentives quite like that which the Fleet Air Arm aircrew face; that of not having a deck to which they can return if they fail in their mission.

It is not easy to develop a totally new force structure. There is still no perceivable threat to Australia and therefore we must maintain an evenly balanced force, capable of undertaking a wide range of contingent operations within our own region and be capable of maintaining an expansion base for higher level operations in concert with a major power.

In order to achieve these aims, we must strive not only for a measure of self sufficiency, but also commonality and inter-operability of equipment. Increasing costs of capital equipment and higher level technology will in time establish a trend for us to acquire smaller, less sophisticated platforms, but with high capability weapons and sensors which offer a one shot, one hit probability of kill. In this way, we will more easily balance fiscal constraint with operational capability. The rapidly escalating cost of capital equipment will dictate that more often than not we will be required to accept something less than best in new equipment acquisitions, although improving technology will ensure that weapon and system capability and reliability far exceed standards achieved in the past.

#### Standing Force Structure Requirements

In reviewing our force structure, it is certain that some areas will not significantly change. The hydrographic survey and oceanographic requirements will exist for some time and notwithstanding the introduction of the laser airborne depth sounder into service, other requirements will be met by existing platforms or similar replacement vessels. In like manner, we can expect a continuing requirement for a trials and research vessel, a training ship and possibly an Antarctic support ship.

#### **Coastal Surveillance**

For peace time operations, the provision of 20 Fremantle patrol craft, or similar replacement vessel, is adequate and at an approximate sophistication to undertake the surveillance and offshor patrol duties. There is a requirement, however, to develop and maintain a level of expertise in the operation of several of these vessels (or similar type) in a PTG role. This expertise cannot be gained overnight and may be a useful option to employ in operations in the archipelagic waters to our north. Our ability for offensive and defensive operations in mine warfare is extremely limited and even with the introduction of the MCMH Catamaran, falls considerably short of the requirement to maintain a credible force. Clearly there is room for extra expenditure with an emphasis on offensive mining which may be a cost effective option in some contingencies.

#### **Capability Considerations**

Having disposed with the lesser but nevertheless important components of the RAN force, we may now turn to review the major combatants which cannot be considered in isolation as their capabilities of anti-surface warfare (ASUW), anti air warfare (AAW) and ASW are to a degree interdependent.

I do not intend to justify the requirement of maintaining a naval force short of saying that it is necessary to maintain a maritime force capable of meeting a wide range of contingencies which may arise, and this force should have adequate capability in all forms of ASW, AAW and ASUW operations.

Before reviewing these capabilities in detail, it may be wise to ask, what are the implications caused by the loss of the carrier, and, if we are to continue to undertake the same tasks and level of operations that we undertook with a carrier force, what deficient areas will require to be enhanced to maintain the status quo?

These questions can be answered in pure hardware terms which I shall attempt to identify; however, there are other areas which are difficult to quantify. The prestige factor should not be discounted. To be one of the few nations to own and operate an aircraft carrier implies a level of capability useful in literal operations. In tension, the possession of a mobile carrier force, to insert and withdraw as required, can apply a subtle response and level of intent which are more easily escalated and de-escalated than the deliberate measure of building up land based air facilities in a region. These attributes cannot be replaced by alternatives and a degree of flexibility will be lost.

With the demise of the carrier, the RAN will lose the ability to provide both medium and long range ASW support to the Fleet. We lose the capability of maintaining and operating several helicopters from one deck which has significant maintainability and operability advantages over multi-deck operations. We lose a daylight air defence capability and an ability to mount maritime strike operations by organic aircraft and a complete inability to take the war ashore in attack on shore targets. Some of the lost capabilities can be overcome to a degree, although the new equipment and its employment will require at the least a subtle change in established methods of operations.

#### Maritime Patrol Aircraft (MPA)

The loss of organic fixed wing ASW aircraft may be replaced by the acquisition of more P3C Orion MPA and additional complementary manpower. The fitting of Harpoons air to surface missiles (ASM) to these aircraft has, to a degree, overcome the loss of the fixed wing maritime strike capability, especially when considered in light of both the F111 and F18A ability also to conduct maritime strike operations and the ability of organic helicopters to be armed with air to surface weapons. One area of contention is that, whilst these aircraft in wartime would be operated by a joint maritime headquarters (MHQ), in peacetime, acquisition and support priority allocated by Air Force falls measurably below that given to the more glamorous areas of fighter and strike aircraft. Navy should mount a determined lobby to take control of these MPA which operate exclusively in a maritime environment.

#### Helicopters

The trend for destroyers or similar sized vessels to carry at least one helicopter will continue. Helicopters possess an inherent capability for flexibility of operations. Their ASW ability considerably exceeds that of a surface vessel and they continue to be one of the real threats to the submariner. In surface operations, in order to exploit the full potential of over horizon (OHR) weapons. helicopters undertake surveillance operations distant from the force. These two major roles for helicopters are not compatible and dictate that a mixed split of ASW/ ASUW helicopters are borne in the Fleet. This indicates a desirability for the majority of ships to carry at least one and preferably two helicopters. To achieve this aim, a ship size of in excess of 3,000 tonnes may be required, especially when related to the extreme ranges and sea states in which ships may be required to operate.

#### **Concept of Operations**

The RAN's concept of operations as practised, would undergo significant change. We could no longer consider undertaking a Falklands style operation of self sufficiency in organic forces. In operations at extended range it would be necessary to bring forward shore based air support to operate from advanced airfields. In certain circumstances, this may not be possible.

#### Surface to Air Missiles (SAM)

The predominance of SAM fitted ships would no longer be in demand as defence of the high value carrier is not required, although other high value units (HVU) would require protection. However, the importance attached to their protection may not be as significant as protection of the carrier has been in the past. This indicates that fewer SAM systems are required and a wider fitting of self defence systems such as the Vulcan Phalanx and appropriate decoys may suffice in lieu.

#### Shore Strike

The inability to take the war ashore to strike shore installations is a significant shortcoming, as shore based aircraft may not always be available, especially in extended operations at some distance from airfields. This would support a requirement for a number of ships to be fitted with relatively long range guns possessing a high degree of accuracy. A 5 inch gun with precision guided munitions (PGM) would be an alternative.

In addition to the above, there is a requirement for the RAN to possess a deterrent weapon which can remain on station, at range, for extended periods for employment in a similar manner that it was possible to employ a carrier during a time of tension. This would support the acquisition of a stand off weapon similar to 'Tomahawk' which could be fired from a sub-merged submarine or surface unit against a shore installation. The possession of a conventional weapon of this nature with precision guided terminal guidance would offer significant strategic and tactical advantages.

#### Submarines

The operation of a conventional submarine force continues to be of high priority. The possession of a force of submarines poses considerable problems for an aggressor who would be required to make a dispassionate response in order to counter the threat of a submarine armed with state of art torpedoes and anti-surface missiles. This force should be expanded to eight to assume the additional land strike task mentioned earlier.

#### Proposed Force Structure

Having reviewed the shortfalls that a 'no carrier' decision would cause, let us look at the shape of the resultant force we would need. Table 1 depicts this proposed force structure.

#### TABLE 1 PROPOSED RAN FORCE STRUCTURE

2	AOR	Operate 2 ASW helicop-
8	Submarines	Two additional to assume
		land strike role.
4	FFG	Force in being. 2 surveil-
2	FFG	Planned force. Similar
		configuration but with
		command facilities.
8-10	Corvettes	2000 tonnes, 5 inch guns
		with PGM. 1 ASW heli-
		copter CIWS. Replace
		DDGs.
10	PTG	Develop state of art.
		Home defence and arch-
		ipelagic deployment.
		Harpoon/medium range
		SSM.
20	PTF	Surveillance.
2	LSH	Flexibility in amphibious
	2 Continues	operations.
8	LCH replacement	
20	P3C	RAN assume control of
		MPA force.
12	MCM/MH CAT	
1	Oceanography	
2	Hydrography	

This force provides for two AOR which would be required to service the larger number of smaller units and allow for refit or simultaneous deployment. The two additional FFGs planned for production at Williamstown Dockyard could be constructed on similar lines to the present FFG configuration, except that accommodation and command facilities are required to embark a force commander and his staff. This may necessitate a 'stretched' version. The corvettes would take on the ASW and general duty tasks and be supplemented by the PTGs' hard hitting power. A second LSH, configured for ASW helicopter operations, would provide more ASW depth and greater flexibility for amphibious operations.

Finally, administrative and operational control of the MPA force would provide the RAN with assured ASW and ASUW support. The MPA force would become more integrated into the RAN structure and could be allocated priorities along with all other maritime requirements to achieve a balanced-force structure. No longer would it be competing as the 'Cinderella' to the other more glamorous sections of Air Force.

The proposed force structure above can be argued and probably will be, by those who see a different balance and different priorities. It does offer, however, a credible alternative and could be acquired with close to the current level of expenditure allocated to Navy.

#### Conclusion

Whatever your decision on the RAN's force structure, the capabilities lost by the demise of the carrier, should that decision be taken, must be replaced if we are to continue at our present level of operations and achieve approved Defence Force objectives. It is probable that both the RAN and RAAF will come under review to determine which Service can best achieve these objectives and which equipment acquisitions or transfers will be necessary. Whilst recognising that some capabilities can be assumed by alternative Naval forces, either in being or new acquisitions, it would be imprudent not to acknowledge that in certain circumstances shore based air support may be the preferred alternative.

The pleasant thing about producing a force structure in a paper such as this is that it doesn't have to be right. Unfortunately those charged with the production of the RAN's force structure must ensure that their structure is the right one to meet the enemy when and if hostilities do commence. That is a very serious task indeed. Navy is at the crossroads. Decisions are being made now which will influence the size and shape of the RAN for the next thirty years.

## **OVERSEAS TRADE** AND DEFENCE by Captain W.S.G. Bateman RAN

#### Introduction

Overseas trade is an important national interest. Australia's exports and imports of goods and services in 1980-81 were equivalent to about 36 per cent of Gross Domestic Product. Trade can be regarded as the 'engine of economic growth' and there are strong arguments now why Australia should be seeking to expand international trade, particularly with the dynamic, industrialising countries in South East and East Asia1. There are major implications for defence. A strong defence force depends on a strong economy and a strong economy depends largely on overseas trade.

Although Australia's position in international trade weakened somewhat during the 1970s, we retain a pre-eminent place as a major world exporter of certain food, fibre and mineral commodities. Australia has the largest, or second largest, share of world trade in wool, meat, sugar, iron ore, bauxite/alumina and lead, and is moving that way with coal. Because of these market shares, we rank as one of the world's more dominant exporting nations.

On the import side, Australia has an increasing dependence on imports of particular manufactured articles, as well as continued reliance on imports of some minerals, including heavy crude oil and phosphate rock. There are important strategic implications of the changing pattern of Australia's imports, particularly with regard to manufactured goods.

The study of the pattern and composition of Australia's overseas trade should be an essential ingredient of national defence planning. Strategic vulnerabilities in trade can be identified and then policies and plans developed to counter any possible threat to the more vulnerable points. Economic warfare, both for defensive and offensive purposes, is a powerful means of waging war and yet little strategic discussion concerns the topic. Defensive economic warfare relates to trade because it covers military, economic and diplomatic actions to maintain essential strategic supplies in time of threat, as well as the maintenance of exports to pay for the defence effort without inflation or balance of

payments problems. Offensive economic warfare includes economic and diplomatic sanctions against the enemy, and military operations to destroy his means of production and lines of communication.

Trade statistics, particularly those which reveal trends in the import shares of key industries, also provide an insight into the ability of domestic industry to support any defence effort. They show the industries which are dependent upon imported factor inputs, as well as those in which imports account for a large share to the domestic market.

Finally the study of Australia's overseas trade provides guidance for planning the force structure of the Australian Defence Force. It facilitates identification of the capabilities required for the maintenance of lines of communication and gives some indication of the priority to be accorded those capabilities.

#### ECONOMIC STRATEGIC TRENDS

In the defence context, strategic planning is the task of analysing changes on the international scene to determine the possible implications for Australian defence policy and the development of the force structure of the Australian Defence Force. As evident in recent years by the Soviet invasion of Afghanistan, the more prominent of these changes are geo-political but there are also economic ones, perhaps just as important. although less obvious in development. These economic strategic trends provide the essential

#### THE AUTHOR

Captain Sam Bateman is a seaman officer ('salt-horse') whose sea postings have included command of HMA Ships BASS (North Australia 1963-65), AITAPE (Papua New Guinea 1967-70) and YARRA (1977-78). His shore postings include Director of Maritime Operations, PNG Delence Force, [1972-74) and Director of Naval Force Development in Navy Office. Canberra (1979-81) Captain Bateman was a Defence Fellow in the Department of Economics, RMC Duntroon, studying strategic aspects of Australia's overseas trade, prior to taking up his present posting in the Strategic and International Policy Division of the Department of Defence. This article is based on a submission he made to the Joint Committee on Foreign Affairs and Defence inquiry into an aircraft carrier for the RAN.

background for any discussion of the defence interests in overseas trade.

#### **Unequal Growth-Rates**

High world economic growth in recent decades has been uneven both between nations and over time. During the past ten years, average per annum growth rates of real GDP have been nearly ten per cent for South Korea, Taiwan and Singapore, five per cent for Japan, about three per cent for the United States, United Kingdom, West Germany and Australia, and lower still for very poor nations of South Asia, Central America and Africa. There are some important strategic implications of these unequal growth-rates.

First, there is a possibility of greater worldwide economic instability with the dispersion of economic power away from New York and West European capitals. As has been demonstrated by the aftermath of the OPEC oil price hikes and the difficulty experienced in controlling international inflation, these capitals now have reduced ability to influence the world economy. There are new challenges for international economic management to ensure stability.

Secondly. there are prospects that Australians may begin to feel less secure in the future being caught between the increasing economic domination of East Asia and the continued poverty of South Asia. Despite our resources, we are losing ground in terms of per capita income. The inability of the Australian economy to grow at the same rate as the East Asian economies can largely be attributed to the failure to recognise the growth potential of international trade and to the delays in re-structuring Australian industry to expoit that potential.

Thirdly, historical experiences, including some of the major causes of World War II, provide evidence that economic differences between nations, as well as discriminatory economic action by one country against another, increase the likelihood of armed conflict. China is now awakening to the need to open the Chinese economy to international trade and a relatively high rate of economic growth is predicted for China for the rest of this century. Further pressure upon Sino-Soviet relations could result since the Soviet rate of economic growth during this period is likely to be slow.

#### Growth in World Trade

The value of world trade in current prices has increased from about US\$66 billion in 1950 to nearly US\$2000 billion in 1980. In constant prices, the growth during the period was approximately seven-fold. The growth-rate of trade in the developed industrial countries has been nearly twice that of Gross Domestic Product and these countries have gained a larger percentage share of world trade (about 66% for the developed market economies in 1980 as compared with 25% for the developing market economies and 9% for the centrally planned economies).

Australia's trade growth-rate has been below the world average and our share of world trade has fallen from 2.3% in 1950 to about 1.1% in 1980. A number of factors are at work. Some of these reflect Asutralia's relatively isolated geographical location and the higher costs associated with the transport of imports and exports. Others are a consequence of government policies which have limited Australia's participation in international trade through the protection of domestic industries. Lastly. Australia's decreasing participation in world trade is also part of the overall decline in the trade of the rural products in which Australia figures prominently.

The fall in Australia's share of world trade in no way indicates increased self-sufficiency and strategic security. It may well be a sign of economic weakness and strategic insecurity.

#### **Changing Patterns of Trade**

The last twenty-five years have seen a significant change in the structure of world trade. Trade in rural products (food and raw materials) has declined from about 35% of total world trade to 17%, whilst trade in manufactures has increased from 41% of the total to 54%2. Developments in the so-called New Industrial Countries (NICs) are a major explanation of increased trade in manufactured goods. Energy products now account for about 20% of world trade by value (11% in the early 1950s) and mineral ores and base metals about 9% (previously 12%). The growth of trade in manufactures explains about sixty per cent of the total growth in world trade between 1955 and 1979.

Changes in the pattern of Australia's trade reflect the worldwide developments. On the export side, there has been a marked decline in the importance of our agricultural exports relative to exports of manufactures and mining commodities. Imports have increased their shares of total market supplies in virtually all categories of Australian manufacturing industry.

Along with the changes in the pattern of Australia's trade, there has been a remarkable change in the direction of Australia's overseas trade during the last twenty years or so away from Europe in favour of the Western Pacific Region, and to a somewhat lesser extent, the Middle East. The situation for 1979–80 is shown in Table 1.

#### TABLE 1

#### SHARES OF AUSTRALIA'S TOTAL TRADE 1979-80 (PERCENTAGES)

#### Western Pacific Region 42.6 of which 21.7 Japan New Zealand 4.0 3.0 China 2.2 Singapore Taiwan 2.2 18.5 European Economic Community of which UK 7.4 4.3 West Germany 2.4 Italy USA 16.0 USSR 3.1 2.4 Saudi Arabia Canada 2.2 Other 15.2

Source: ABS, Overseas Trade, various issues.

#### International Specialisation

Concurrently with the growth in world trade. particularly in manufactured goods, there has been a trend towards increased specialisation in international production. The impact on Australian industry may be seen in data published by the Industries Assistance Commission which shows how imports have increased as a percentage of Australian total sales in many major manufacturing industries (eg. ASIC Code 3321 TV, Radio and Electronic Equipment - from 36.7% imports in 1968-69 to 55.8% in 1977-78. and 3332 Construction and Earthmoving Machinery from 40.0% to 76.5%).3

The implication that Australia may be becoming less self-reliant in industries associated with defence industrial production is confirmed by figures shown in Table 2 given by a Defence spokesman at a Defence Symposium in Perth in 1979. These showed that domestic industry related expenditure on the defence function declined from 69% of the total in 1971–72 to 55% in 1978–79.

#### Industry Support for Defence Needs

Realisation of higher economic growth in Australia through increased overseas trade would inevitably result in the further decline of some 'defence' industries (eg, electrical and electronic component manufacturing) but of course, a stronger Australian economy means a better general ability to support defence. Trends in

#### TABLE 2

#### AUSTRALIA — INDUSTRY RELATED EXPENDITURE ON DEFENCE FUNCTION 1971–79

#### (Domestic Expenditure shown in brackets) (Aust. \$mil.)

	71-72	73-74	75-76	77-78	78-79
Capital	140	102	162	326	370
Equipment	(81)	(50)	(57)	(100)	(127)
Replacement Equipment and Stores	170 (123)	126 (96)	171 (129)	234 (165)	255 (181)
Repair and Overhaul	39 (38)	44 (43)	67 (66)	74 (72)	84 (79)
TOTAL (LOCAL)	349 (242)	272 (189)	400 (252)	634 (337)	709 (387)
% LOCAL	69	69	63	53	55
Source: Eltring	ham, D.	H., 'De	fence	Procur	ement

and Australian Industry', W.A. Defence Symposium, 18 April 1979.

trading patterns and the re-structuring of Australian industry to achieve economic efficiency suggest that the Defence Force will inevitably become more, rather than less, dependent on imported goods and services.

Australian industry is likely to continue becoming more specialised and lead times for mobilising industry for the requirements of defence in time of threat will be longer, if indeed we would ever seek to achieve a high level of industrial self-reliance. The potential costs in terms of increased industry protection on defence grounds and more importantly, economic growth foregone outweigh the costs of maintaining some capability in the Defence Force for ensuring the safe and timely arrival of high priority military and strategic cargoes from overseas during any period of threat.

#### Increased Economic Interdependence

The growth in world trade and developments in the international capital market have been the main driving forces behind increased economic interdependence, paticularly of Western nations. During the last ten years or so, major Western countries (the United States, Japan and EEC members) have become more dependent on imports of certain key strategic commodities.

The reliance of the US on imports of petroleum, zinc, bauxite/alumina, manganese, nickel and chromium (to name a few large quantity items) increased during the 1970s. About 20 percent of total US energy requirements and

nearly 50 percent of petroleum requirements are now being met from imports and these percentages stand to increase in the short-term at least until such time as the barriers to alternative energy sources are overcome.<sup>4</sup> The security once gained from the fact that many of the materials which are lacked by the United States were available elsewhere on the North American continent, from Canada or Mexico, is also much diminished since most key suppliers are now overseas, particularly in Africa.

Japan is possibly the most import dependent country in the world and lives well beyond reasonable limits of self-sufficiency, particularly with regard to food and energy (95 to 100 per cent import reliance in crude petroleum, iron ore, copper, bauxite, cotton, wool, wheat and soybeans). Considerable attention is focused in Japan upon problems of energy and food security and as a conscious objective of Government policy, Japan has worked hard to diversify her sources of supply, and hence potential vulnerability, with important commodity imports.

The great strategic vulnerability of the EEC lies in its heavy dependence on oil imports with a current self-sufficiency rate (production as a percentage of consumption) of about ten per cent. The situation is unlikely to change for the better. A recent, detailed survey of Europe's energy future reached the conclusion that 'while the build-up of North Sea oil and gas production will for some years help to reduce energy import dependence in relative terms, all indigenous energy sources seem to be faced with ceilings and constraints'5.

#### Australia's Critical Mineral Imports

Australia's importance as a major world exporter of minerals such as coal, lead, iron ore, bauxite and manganese over-shadows the areas where we still have a significant dependence on imports. The Australian Mineral Industry Annual Review 1979 records that one hundred per cent of our requirements of industrial diamonds, ferrochrome, fluorspar, graphite, mercury and potassium is imported with a high level of import reliance in other minerals such as phosphate rock (96% import reliance), elemental sulphur (72%), and crude oil (30%). Excluding crude oil, about five million tonnes of minerals are imported into Australia each year. Many of these commodities play an essential role in Australian industry. especially in agriculture and mining/mineral processing activities.

Consideration of the availability of Australian reserves and possible substitutes suggests that the list of minerals, significant quantities of which would always have to be obtained from overseas by sea, could be narrowed down to heavy crude oil, ferrochrome, potassium, phosphate rock and elemental sulphur. With crude oil from the Middle East and phosphate rock from Nauru and Christmas Island, Canada and the United States are the major sources of supply for the other bulkier minerals — potassium and sulphur.

#### OTHER RELEVANT ISSUES

In addition to these economic factors, there are other issues which have a bearing on the likelihood and possible seriousness of a threat to maritime commerce to and from Australia. Consideration of these issues allows a better perspective to be gained of the defence interest in Australia's overseas trade.

#### Soviet Capabilities

During the past fifteen years, Soviet construction of both major surface combatants and submarines has been well ahead of that of the West. Global deployment of Soviet naval vessels has become the norm rather than the exception. Of particular concern in Australia's region, the Soviet Pacific Fleet has received a proportionately larger number of new construction ships, submarines and long-range naval aircraft than the other Soviet fleets.

The US Department of Defence publications, Soviet Military Power, published in 1981, makes the projection that —

'Having achieved rough parity in general war capabilities, the Soviets can be expected to increase their emphasis on making general purpose naval forces more capable in distant waters, of performing a variety of missions and of challenging the West's traditional dominance of the open oceans. We believe that Soviet naval policies also intend gradually to achieve greatly improved capabilities of sustained, long-range naval operations, even against substantial opposition.'6

In addition to material capabilities, the balance of naval power has also shifted in favour of the Soviet Union in geo-political terms. It now has an impressive number of 'client states', actual and potential, which are strategically located near important 'choke points' for shipping. Afghanistan and South Yemen place the classical bottle-necks of the Red Sea and the Straits of Hormuz within convenient reach. The South China Sea and the eastern approaches to the Malacca Strait are covered by Vietnam and Kampuchea. Cuba sits astride the eastern approaches to the Panama Canal, and the Cape route, carrying so much of the vital oil supplies for the West, is now threatened by potential Soviet bases in Guinea and Angola in the west and Mozambique and Madagascar in the east.

#### **Maritime Warfare Trends**

Highly capable, strategic surveillance systems, improved tactical sensors, faster communications and longer-range weapons all serve to increase an enemy's chances of intercepting shipping on the high seas. It may no longer be necessary for an enemy to concentrate his forces near coastal focal areas where the density of shipping is highest. He may do this initially but as focal area defences are improved, he will readily shift his forces to the more secure deep field whilst still enjoying a high probability of locating attractive targets but with much less risk to his own forces. The probability of enemy forces intercepting surface vessels on the high seas is, in broad terms, a function of the following factors:

- intelligence information that vessels are about to sail from a particular port for a particular destination;
- intelligence regarding the route (if diversionary routeing away from a threat area is always employed, this can *increase* the probability of interception);
- strategic surveillance (delayed or 'real-time');
- · own sensor range; and
- own weapon range (ie, missile or torpedo range).

Within our region, naval capabilities are continually being improved. India and Indonesia both have modern, long-range, quiet conventional submarines. These nations, as well as some others in the region, also possess ocean-going surface naval forces, missile-armed and including in some instances, underway replenishment vessels to extend the range of their combatant vessels. Missile-firing, long-range maritime patrol aircraft are short lead-time equipment items for any defence force with modern miliary aircraft and anti-shipping missiles already in its operational inventory. There is also the possibility of the modern version of the World War II commerce raider - a converted and disquised merchant deployed in remote ocean areas well distant from land-based aircraft basess and equipped with surface-to-surface missiles and possibly, a towed surveillance array to collect targetting information

Australia's sea lines of communication are inherently vulnerable to interdiction since they are both long and readily identifiable as such at a considerable distance from the Australian mainland. Figure 1 shows areas of the Pacific and Indian Oceans in which shipping can only be destined for Australia or New Zealand and the further areas where shipping movements are ambiguous. On the Cape of Good Hope route, the limit for the former area is at least 4000 nautical miles from Australia and on the route to the Persian Gulf, its limit is over 2000 miles.

Given the maritime warfare trends discussed above, a potential enemy has only to deploy his



Source: The Bulletin, July 14, 1981, p.36.

anti-shipping forces near these limits provided with some source of intelligence information, and then be reasonably confident of intercepting shipping bound for Australia but without fear of attack from Australia's land-based forces. This would be a cost-effective tactical gambit by even a regional enemy with limited maritime capabilities. A cargo of essential military stores and equipment is much more vulnerable at sea than when it is secure onshore behind the full bastion of national defences.

#### Strategic Nuclear Balance

There is a developing school of strategic thought which suggests that recent trends in the strategic nuclear balance between the superpowers reduce the probability that global conflict would escalate quickly into full-scale nuclear war.7. The improvement of their first-strike capabilities means that the Soviets have a higher incentive to use lesser kinds of military force. They now have less to fear from the West's nuclear deterrent and can afford to look for other strategic weaknesses where pressure can be applied without fear of nuclear escalation.

The growth of Western seaborne trade and the significantly increased interdependence between Western nations stand out as trends which, seen in the context of any future world economic and political instability, could provide a key to Soviet success. The widespread disruption of Western seaborn trade is now a strategic option for the Soviet Union which was not available some years ago.

#### **Modern Merchant Ship Characteristics**

Advances in merchant ship technology post World War II have been associated mainly with size of vessel, specialised design, more efficient propulsion systems and methods of cargohandling, rather than with speed *per se*. The number and size of overseas vessels in the Australian trade have increased dramatically from about 3,900 entrances and clearances in 1949–50 (average size of ship — 4,448 net tons) to over 11,000 entrances and clearances in 1979– 80 (average size of ship — about 15,000 net tones).

Although a number of container and Ro-Ro vessels are capable of high operational speeds, the greater majority of merchant ships (about 95% of a Bureau of Transport Economics' survey of 20,334 vessels from Lloyds' Register<sup>8</sup>) are only capable of 18 knots or less, at which speeds they may be considered highly vulnerable to submarine attack.

#### Air Transport

120,000 tonnes of air cargo were carried to and from Australia in 1978–79, as compared with nearly 200 million tonnes of cargo by sea. Air freight currently caters for about 5.0% of Australia's overseas trade by value and 0.06% by weight. It is rather more important for imports than for exports (0.3% by weight of imports but only 0.03% of exports). Particular commdities, significant quantities of which are carried by air, include office machines and ADP equipment (37.2% of exports by weight by air and 78.6% by value) and scientific equipment, etc. (31.0% by weight and 78.6% by value).

Looking to the future, air freight is likely to make further inroads into sea transport in terms of cargo value. Containerisation is rapidly spreading into the air freight business and the pre-loading of containers is especially suited for high value, manufactured goods such as light machinery, electronic equipment and electrical appliances. It is unlikely though that air freight will ever have any great impact on the sea transport of fuels, other bulk commodities (ie, grain and minerals), or the larger items of machinery and equipment (eg, heavy vehicles, earth-moving and construction equipment and generating plant).

#### Strategic Implications

The strategic implications of the trends discussed above fall broadly into two main areas. Firstly, there are those of global relevance related primarily to conflict between the superpowers with their supporting alliances and secodly, there are the ones which would apply in the case of a direct regional threat to Australia's interests.

#### **Global Conflict**

The major implication for global conflict is that there are now some clear, new reasons why the disruption of seaborne trade could be a major element of Soviet aggression against the market economies of the West, without the conflict necessarily escalating into nuclear war. The vulnerability of the West to the disruption of seaborne trade is fully appreciated in the Soviet Union. Admiral Gorshkov has noted that 'the economies of the developed capitalist countries largely depend on sea transport, especially on the importation of different kinds of raw materials and provisions'9 and thus anti-trade and protection of trade operations are 'the most important constituent part of the efforts of a fleet aimed at undermining the military-economic potential of the enemy'. 10 Gorshkov's emphasis on economic potential is important since he has also stated that the primary role of the Fleet is against the source of an enemy's military power rather than in the more classical application of action against the enemy's military forces. Operations of a Fleet 'against the shore' are involved rather than the achievement of dominance at sea by smashing the enemy fleet.<sup>11</sup> After many years of essentially global peace, the obvious can often be overlooked that in time of war, military forces are not employed for only military objectives and that wars are not fought by military means alone.

The standard arguments which once could have been used to deny the credibility of economic warfare conducted largely at sea are losing validity. The large scale military operations envisaged for example, by nuclear warfare or a land confrontation in Europe are economically self-defeating. The possible heavy loss of capital stock and means of production offers no incentive to either party.

The centrally planned economies of the Soviet Union and her allies enjoy considerable advantages over the market economies of the West with regard to their ability to wage economic warfare. They can restrict domestic consumption virtually to the point of starvation and freely confiscate and re-allocate non-public assets to ensure that maximum resources are mobilised for military purposes. The apparent dependence of the Soviet Union on food imports may be less of a weakness by Soviet standards than would seem the case by application of democratic principles.

The growth of Soviet seapower in all its dimensions, encompassing naval capabilities, the fishing fleet, merchant shipping and marine scientific and research operations has strengthened the tool of maritime economic warfare in the hands of the Soviets. They now have a counter to the previous Western dominance of merchant shipping and could use this to support unaligned Third World countries possible threatened with economic sanctions by the West should they, for example, attempt to withhold suplies of vital raw materials.

In this contingency of worldwide disruption of seaborne trade, Australia would seek very determinedly to preserve our export markets for domestic reasons let alone any responsibility to the more threatened members of the Western Alliance in the Northern hemisphere. Australia's experience during World War II suggests that whilst imports of strategic materials may appear to have the highest priority, the maintenance of exports is hardly of lesser importance. Exports are required to finance our own defence build-up and to preserve the domestic standard of living.

Much depends on the duration of the conflict. A quick global nuclear war could result in almost total dislocation of world trade but as the conflict became more protracted, either during the conventional warfare phase before any nuclear exchange or in its aftermath, increasing attention would be focused on the strategic importance of overseas trade.

In the contingency envisaged of a threat to trade, lasting more than a few weeks without escalating to nuclear war, Australia would lose some customary export markets, particularly for primary products such as meat and wool, but on the other hand, there could be increased demand for some mineral exports. For example, the relatively high threat to trans-Atlantic shipping could lead the United States to increased imports of manganese, bauxite and iron ore across the Pacific from Australia rather than from the normal sources in Africa.

A further, possible implication of the contingency would be the increased movement of Western shipping in waters adjacent to Australia. Shipping bound to North America from the Middle East or Africa may be routed through the Southern Ocean south of Australia to avoid choke points' under Soviet control. Japan already takes such an eventuality into account in national security planning. The recent report by the Comprehensive National Security Study Group (an advisory group to the Japanese Prime Minister) contains a specific recommendation that as a short-term measure to cope with a national security emergency, an examination should be made of 'alternative marine transport routes in case a situation occurs in which existing routes. such as the Malacca and Lombok Straits, are blocked to traffic.'12 Routes to the south of Australia are obvious alternatives.

#### **Direct Threats to Australia**

The highest level of direct threat, that of a major assault upon the Australian mainland, should not be seen as an issue of just an invasion force pitted directly against Australian defences. There would be many dimensions to the conflict with attacks by the enemy, including diversionary raids and 'feints', mounted across a wide geographical front to disperse Australia's forces and draw a disproportionate response. The wider economic implications, of these threats need to be appreciated including for example, the higher level of demand in the economy resulting from the increased activity by the Defence Force and the industries, such as the transport industry, supporting the defence effort. The ability to counter the threat would depend on the continued movement of military and strategic cargoes into Australia and around the coast. In a protracted conflict, exports would also be of importance.

It should now be a fundamental assumption of defence planning to combat a direct threat to Australia that a strategically desirable level of industrial self-sufficiency in defence production will not be achieved, regardless of the level of conflict or the perceived warning time. There may not be the requirement, the warning time, or the capability for Australian industry to mobilise for defence production in a small number of years. The economic measures implied by mobilisation would be unpopular with the electorate unless the threat was unambiguously overt. If it was not, then it is conceivable that much warning time would evaporate before the appropriate economic actions had been initiated.

The likely effects of defence mobilisation on Australia's overseas trade could well be dramatic. With a propensity for imports to increase and exports to fall, the balance of trade with most of our trading partners would shift unfavourably against Australia unless the threat was part of more general conflict involving our major trading partners and strategic allies. Ultimately, there would be a cut in overseas trade, particularly if a military threat developed against lines of communication, but even without such a threat, the situation may cause some countries to reduce their trade with Australia in case it should be disrupted completely. Any suggestions of military threat to trade would lead to increased freight and maritime insurance rates with a consequent lessening of Australia's competitiveness in world markets.

National defence and industrial expansion to meet intermediate level threats could be much the same as that required to meet a possible invasion. There would always be the fear that the level of conflict could escalate. It is only during a low level contingency that there may be an economic atmosphere of 'business as usual', although invariably there would be increased defence expenditure.

Even at the lowest level of threat, or before a higher level threat became actual, there would be an initial increase in Australia's overseas trade, although the possible enemy may seek to prevent this occurring by diplomatic and economic activity. Our defence build-up would require more imports of direct defence requirements (military equipment, munitions, etc.), as well as of indirect requirements (raw materials, capital equipment, industrial supplies, etc.) to support the industrial response to the deteriorating strategic situation. Furthermore, the likelihood of escalation may require the stock-piling of some commodities. The financing of additional imports would in turn necessitate a higher level of exports unless Australia's overseas currency reserves were to be seriously depleted.

As far as seaborne trade is concerned, this article postulates the possibility that attempts to disrupt our sea commerce could be part of almost any level of threat to Australia and our interests. Indeed Australia's dependence upon sea transport could well be seen by a potential enemy as an important strategic vulnerability. A key question is the extent to which the enemy would be dissuaded from interfering with our maritime trade for fear of a reaction from either our trading partners or the country of ownership of the foreign vessels carrying the trade.

#### International Considerations

Australia would probably be unwise to rely on an ability to internationalise any threat to maritime trade (ie, to involve other nationals in sanctions against the country threatening our trade routes because of their status as either partners or as 'flag states' of the ships carrying the trade). There is no good historical precedent for such an outcome and we would need to make some brave assumptions about the possible reaction of our trading partners and strategic allies. An ability to provide some protection for shipping may well be important in maintaining the confidence of trading partners. Furthermore, it is not unreasonable to assume that a prospective enemy would wish to disguise his longer-term intentions for a major attack for as long as possible, whilst at the same time building up political, economic and pressure psychological on Australia in accordance with a strategy aimed at reducing Australia's influence in world and regional affairs. Trade embargoes and boycotts against Australia could be more overt instruments of this so-called strategy of persuasion. 13 We cannot assume that all our present trading partners would remain our friends.

There is also no good precedent for believing that the flag countries of the overseas vessels carrying our trade would become involved if their vessels were threatened. The basic interests of a shipowner are economic and he is unlikely to tie his vessels up whilst cargoes are offering, although charter rates will be increased to meet war risk insurance and higher crew costs. During the Vietnam War, the Indo-Pakistani conflict, the current Iraq-Iran confrontation and now the Falkland Island crisis, foreign vessels have come under threat, been damaged or even sunk, without any apparent reaction from their flag nations.

About 32% of the world's shipping tonnage now belongs to the so-called 'flag of convenience' fleets and estimates indicate that 74% of these fleets are owned in the United States (30%), Hong Kong (20%), Greece (13%), and Japan (11%). The basic reason for a ship-owner using a 'flag of convenience' is to free his vessels from the controls of this national government and this includes freedom from directions regarding which countries he may or may not trade with. International oil companies have cited the advantage of flying a neutral flag in times of political crisis or war as a basic reason for registering a large part of their tanker fleets under flags of convenience.<sup>14</sup> The conclusion must be reached that such vessels would likely be outside the scope of 'inter-nationalism'.

About 28% of Australia's overseas trade is carried in 'flag of convenience' ships with Liberian flag vessels the most important, being particularly prominent in the bulk ore trade to Japan and the United States. The main 'third party' carriers in the Australian trade (ie, vessels not belonging to either Australia or the particular trading partner) are Liberia, Panama, the United Kingdom. Greece and Norway.

It is also significant that Australian flag involvement in overseas trade has increased in recent years — from one per cent in 1975–76 to 3.5 per cent in 1979–80.<sup>15</sup> Implementation of the Crawford Report's recommendations for revitalising the Australian shipping industry will ensure that this percentage will continue increasing.<sup>16</sup> More Australian ships for overseas trade, particularly the bulk trades, are already on order.

#### FORCE STRUCTURE IMPLICATIONS

#### **Capability Requirements**

The strategic trends discussed in this paper suggest that there is an essential requirement in the force structure of the Australian Defence Force for an independent capability for the escort of essential shipping cargoes into Australia from points some distance out in the Indian and Pacific Oceans. This capability is primarily provided by a naval task force with organic rotary and fixed-wing aircraft. Depending on the nature of the threat, land-based fighter and strike aircraft are an important requirement within the limits of the assured air cover provided. Conventional submarines make an important indirect contribution but have no role in the direct protection of shipping. Since ships, aircraft and submarines have long lead-times for acquisition and are the nucleus of normally an Australian Government's initial response to a defence contingency, they should be given high priority in the force structure.

The suggested capability is relevant to all levels of conflict since even at the lowest level, there may still be a requirement for the escort of ships moving Australian military supplies around the coast or to overseas destinations. As the level of conflict increases, the capability provides the base for the expansion to meet a more widespread protection of shipping task, as well as another option for strategic strike and power projection operations. In any global conflict, it provides the basis of Australia's contribution to the general protection of shipping task faced by the Western Alliance.

#### An Overseas Comparison

Japan is sometimes quoted as an example of a country with great vulnerability to the disruption of maritime commerce but which apparently, does not make any great investment in capabilities for the distant protection of shipping. Hence, why should Australia? In fact the situation of the two countries is quite different, as are their force structure requirements.

Japan is a highly industrialised economy with a manufacturing sector contributing about 30% of GDP, as compared with 19% for Australia. Faced with an external threat, Japan's main interest would lie in the stock-piling of raw materials whilst Australia would be faced with the relatively more expensive measure of building up stocks of manufactured goods. Japan's industrial infrastructure could be largely destroyed during a major attack, making the country an unattractive prize. On the other hand, Australia could be invaded and our natural resources remain intact.

Finally, the protection of sea lines of communication problems for the two countries are quite different. The Japanese lines are either routes used by other nations from the south and proximate to land or across the Pacific in areas where they are assured of assistance from the United States Navy. As has already been noted, Australia's lines of communication are long and Australia bound shipping can be readily identifiable whilst still at some distance from its destination.

#### CONCLUSIONS

The issues discussed in this article all appear to increase the credibility of a maritime contingency, involving a threat to Australia's seaborne trade, either in global or regional conflict. The economic trends, as well as the other relevant strategic factors, raise the possibility of a Soviet threat to Western sea lines of communication. The task for Australian maritime forces in such a situation, both as a national security interest and as a contribution under the ANZUS Alliance, would be to assist in the escort of Western merchant ships to and from Australia and moving through waters adjacent to Australia. It seems likely that Western shipping movements in our area would increase.

During a period of direct regional threat to Australia, we would need to provide escort forces for high priority military shipping inbound to Australia, as well as for important coastal shipping. This would be a requirement almost regardless of the level of threat since there can be no certainty that we would be able to internationalise the conflict or achieve a satisfactory level of self-sufficiency in military supplies and strategic goods.

In recent years there has been some questioning of the priority to be accorded the long standing naval role of trade protection.<sup>17</sup> Hopefully the arguments in this article have helped re-affirm its importance. It is difficult to believe that high priority would not be accorded to maintaining strategic imports and exports in the face of a possible military threat against Australia's sea lines of communication.

#### Notes

- The Bureau of Industry Economics (BIE) in its recent series of research reports analysing aspects of Australia's industrial structure repeatedly stresses the link between trade and economic growth See for example. "The Structure of Australian Industry — Past Developments and Future Trends", *BIE Research Report 8* (Canberra, AGPS, 1981).
- These statistics on the changing pattern of world trade are taken from documents published by the GATT (General Agreement of Tariffs and Trade) organisations, including Networks of World Trade by Areas and Commodity Class, 1955–1976 and GATT Studies in International Trade No. 7, (Geneva, 1978). (Other major sources of data in this paper are set out in the Statistical Note below).
- IAC. Trends in Australia's Trade in Manufactures. Information Paper No. 3, (Canberra, AGPS, 1981).
- US Department of Navy. Energy Fact Book. Navy Energy Office, May 1979, pp.2–5.
- Maull, H., Europe and World Energy, (London, Butterworths, 1980), p.49.
- 6. loc.cit. p.51.
- 7 See for example. The Economist. 10 October, 1981, p.17.
- Bureau of Transport Economics, "Regression Analysis of Ship Characteristics", Occasional Paper 38, (Canberra, AGPS, 1980)

- Gorshkov, S.G. Sea Power of the State, (Oxford, Pergamon Press, 1976), p.9.
- 10. ibid., p.221,
- 11. ibid., p.259.
- 12. loc.cit., p.58.
- As described in Sunderland, R., 'Australia's Next War?' Working Paper No. 34, The Strategic and Defence Studies Centre, ANU, Canberra, June, 1981.
- 'Flags of Convenience or Flags of Commerce? International Responses to Open Registry Shippig', Maritime Studies No. 3, Australian Centre for Maritime Studies, Canberra, January/February, 1982, p.2.
- Commonwealth Department of Transport, *Revitalisation of* Australian Shipping, (Canberra, AGPS, 1982), Annex 2, p.42.
- 16. ibid.
- 17. Most recently this is apparent in two reports by the Joint Committee on Foreign Affairs and Defence. Threats to Australia's Security — Their Nature and Probability, (Canberra, AGPS, 1981) and An Aircraft Carrier for the Australian Defence Force, (Canberra, AGPS, 1982).

#### **Statistical Note**

The statistics quoted in this article come from many sources. The growth in international trade since World War II is recorded in voluminous data published by the United Nations and international organisations, such as the Organisation for Economic Co-operation and Development (OECD), the World Bank and the International Monetary Fund (IMF). This data has its origins in the primary data collected and published by national departments of trade and statistical agencies, such as the Australian Bureau of Statistics (ABS).

The major source of UN trade data is the Yearbook of International Trade Statistics, annual, with helpful summary and comparative tables in the Yearbook of National Accounts Statistics and the Statistical Yearbook. The International Monetary Fund publishes International Financial Statistics, a monthly publication, which is a standard source of international statistics on all aspects of domestic and international finance. The World Bank, World Trade, and OECD, Main Economic Indicators, are the other major sources of economic data used in this paper.

The ABS publishes very comprehensive trade data classified by commodity division and country both for Australia as a whole and for the separate states. The principle source used is Overseas Trade, Part 2; Comparative and Summary Tables.



### WASHINGTON NOTES

The people of the United States have become accustomed to impassioned and vociferous debates on the merits of nuclear weapons. Even before operational deployment of the first nuclear device in August, 1945, some of the scientists who had helped develop the ultimate weapon petitioned President Harry S Truman to either not use the atomic bomb at all or to use one to provide a smaple explosion to show the Japanese the potential of its destructive force before using it on a population area.

The current nuclear disarmament debate was initiated in large part by the Reagen Administration's open discussion of the viability of limited nuclear war and the possibility of surviving nuclear war in general. These considerations, coupled with the Administration's expressed desire to rearm America, quite frankly scared many people both at home and overseas. The always simmering nucleur disarmament debate is again rising to the boiling point. There are however, important differences between the current round in the nucleur debate and its predecessors. This is the first time the nucleur armaments debate has taken place in the midst of such a depressed economic environment in the United Station and under such confused political conditions. It is in these contexts that the debate should be viewed over the coming months.

Ronald Reagen was elected President of the United States in 1980 in large part because of his promise to close the 'window of vulnerability' that he and many others felt had developed in America's defenses. Many supporters of the President viewed our participation in the Korean and Vietnam Wars with disdain, tragic wastes of manpower and treasure without favourable results to this country.

There was a feeling abroad in the land that we were becoming impotent in foreign affairs to a large part because we lacked the military wherewithal to back our words. The Iranian hostage crisis acted as a catalytic agent to bring members of the political right as well as center and moderate left into a general concensus that it was time to rebuilt the American defense establishment. Indeed, former President Jimmy Carter in his recent autobiography considers that the actions he took (although still personally agreeing with them) were in large measure responsible for his defeat in the 1980 Presidential election.

The Congress elected in 1980 gave President Reagan a Republican majority in the Senate for the first time in a quarter of a century and, although the Democrats retained control of the House of Representatives a large conservative group of Democratic Congressmen aligned themselves with the Republican minority to bring about the largest tax decrease in American history (as well as the largest tax increase) but more importantly it actively slashed the national budget to such an extent that the 'Reagan Revolution' reversed the trend toward larger and larger government that had started over fifty years ago with the New Deal of Franklin D. Roosevelt. One part of the budget however, not only escaped the axe but was dramatically increased.

Following through on his campaign promises, President Reagan requested massive increases in the defense budget. From an actual spending level in 1982 of \$183 billion for defense, the President proposes that, by 1986, \$324 billion be spent annually on defense. The President has requested new weapons systems which have been valued at \$1.5 trillion. The 13.5 per cent increase in this year's military budget requet represents the largest peacetime increase in the defense budget in our history.

But the increase in defense spending was so vast and so little was demanded of the Defense Department in the way of economies and greater efficiency that even some of the greatest proponents of America's rearmament have become dissatisfied with the vast size of the proposed increases as well as how the the Prasident and the Department of Defense are planning to spend the money. The President's actions — or lack of them — has corroded his base of support just when he needed its strength as the American economy slipped further and further into recession.

One of the questions President Reagan presented to the American public when campaigning for office in 1980 was to have each American ask himself whether or not he was better off in 1980 than he was when President Carter was elected in 1976. Many people thought not. However, by the time of the 1982 general elections, many of the same people asked themselves that same question and the President's policies were found wanting.

Last November the Republican Party scored a loss of 26 seats in the House of Representatives has been severely dissipated and the Republican majority in the Senate has made it clear to the President that the electorate was — and is — concerned with the deteriorating economy and the vast expenditures proposed for the Defense Department.

Many economic indicators are at their work point since the Great Depression. Unemployment is now running at 10.8 per cent, the highest since the Depression year of 1940. Retail sales in the United States showed an overall drop of 4/10ths of one per cent in December, normally the highest month for retail sales in any year due to the Christmas rush.

Current estimates of the budget deficit for 1982 run to \$200 million. This figure has been termed terrifying by Senator Paul Laxalt (Republican-Navada), the President's 'best friend' in the Senate, a sentiment with which many concur.

Although the stock market is showing remarkable strength (unbased according to some professionals), the columns of *The Wall Street Journal*, the nation's largest and most respected economic newspaper, have become a daily litany of plant closings and job layoffs. Americans are being forced to come to grips with the fact that jobs are being lost in basic industries, such as steel and automaking, that will never come back.

We are entering a time which will bring about the readjustment of the American industrial base. But this readjustment will necessitate a massive re-education of the American work force and possibly its relocation. This re-education and relocation process will involve massive amounts of money. The major question is, where will this money come from?

The President has announced a new round of budget cutting but many in Congress feel that the civilian budget has been cut back just about as far as possible. Until the second week of January. President Reagan had considered the budget of the Defense Department sacrosanct. However, Secretary of Defense Caspar Weinberger has announced a proposed \$11 billion cut in his Depatment's budget. But the Secretary's proposals merely delay some military construction and cut back on training exercises. further weakening the conventional forces we already have, a traditional if poorly reasoned route of Defense Department budget cutters.

A proposed freeze on military pay increases was made without the approval of the Joint Chiefs of Staff and reports are that the Joint Chiefs would prefer cutting one or more new weapons systems before cutting pay. But not one such system was touched and we can now be sure that Congress, so free with money two years ago, will now vigorously prune the defense budget.

There are several other reasons that made the current American debate on nuclear disarmament somewhate unique. First, the breadth of support for some form of nuclear disarmament. Second, the lack of direction and confusion emanating from the government has complicated the debate. Third, the role the military has assumed in the current debate.

### The breadth of support for some form of nuclear disarmament

Never before support has for nuclear disarmament enjoyed such a wide base of support as it does at this time. Several states voted on the nuclear freeze issue in the last general election and it carried in a majority of those states where it was on the ballot. But more than its victory at the polls, it is important to note that the freeze issue won in conservative states among electorates that have traditionally supported a strong and viable national defense.

Another indication of the breadth of support for nuclear disarmament is a proposed pastoral letter from American Catholic bishops to their congregations opposing plans to modernize our nuclear arsenal and favouring an immediate freeze on nuclear deployment. The entry of the Catholic bishops into an area traditionally led by members of Protestant deonominations is a highly potent force behind any measure that would cut back on the development and procurement of nuclear weapons.

Recent polls of American Catholics. however, support the position of Terence Cardinal Cook of New York, Vicar General of the Armed Forces, that a stand against nuclear weapons could seriously divide the Church and the nation. But, nonetheless, a majority of the traditionally pro-defense bishops, led by Louis Cardinal Bernadine of Chicago, feel that, while the American threat to use neclear arms in response to Soviet aggression might prevent the outbreak of war, the policy of nuclear deterrance is unsatisfactory bacause it has created, and keeps in place, a "balance of terror that all too easily could lead to a holocaust". The horror of nuclear war, in the words of Thomas Gumbleton, Auxillary Bishop of Detroit, makes it preferable for Russia to dominate the United States and the West rather than allow the democratic nations to possess and use nuclear weapons in self defence, even if such domination means a loss of personal freedom.

The lack of direction and confusion emanating from the government has complicated the debate. Through its inability to determine a set policy on nuclear weapons, the ineptitude of the American government has deprived it of its right and duty to lead the debate on nuclear disarmament.

We are constantly told that America's nuclear

defense relies on retaliatory weapons carried by aircraft and land and sea based missiles. But expert opinion is in such a state of disarray regarding the continuance of this tried it should be no surprise that the general public is utterly confused.

First, we were told it was a necessity to replace the manned bomber. The B-1 was therefore developed, but before it was deployed we were told by PResident Carter and one set of Joint Chiefs of Staff that the day of the manned bomber was over and the day of the guided weapon was at hand. The B-1 was cancelled. Then President Reagan and another set of Joint Chiefs once again told us it was an absolute necessity to have a manned bomber and the B-1 was ordered into production at a cost in excess of \$100 billion.

Reports are now surfacing that the Air Force, while still considering the B-1 important, does not necessarily consider it important in and of itself but merely as a stop gap pending the development of the new Stelth bomber. At the same time, many in the Air Force fear that the B-1's great expense will delay or actually halt Stealth development. No wonder the average citizen has grave doubts about how much safer he will be if the B-1 bomber is produced and, even if produced, if it is worth a \$100 billion investment.

In regard to the MX missile, we have been told it had to be developed because the Soviets have now pre-targeted our older missiles and they could be destroyed in their silos. To prevent destruction on the ground, the missile could possible be dropped from an aircraft but preferably should be placed on a race track system so that a small number of missiles could move from launch pad to launch pad in order to confuse Soviet intelligence. But because the race track was to be placed in the western part of the United States, President Reagan determined that dispersal was not crucial to the survival of the MX. Blatant political pressure in the heart of the Presient's politican base requires the Administration to again change basing modes, further delaying supposedly imperative MX development.

The basing mode finally selected by the President was dense pack, the theory of which is if you base all of the MX missiles in a very small area then any Soviet missiles aimed at our once again permanent silos will destroy themselves as they concentrate over the small location. This plan was so questionable that it was defeated almost out of hand by the Congress. The President's position was not helped by the Chairman of the Joint Chiefs of Staff, who testified before the Senate Armed Services Committee that a majority of the Joint Chiefs opposed dense pack. Former Secretary of Defense James Scheslinger found the plan so preposterous that he observed that he would have been 'locked up' as insane had he proposed it during his tenure.

Even more important to the survival of the MX has been the gradual erroding of support for the necessity of a land based missile by such men as Senator Sam Nunn (Democrat-Georgia) a leading pro defense member of the Senate. Men such as Senator Nunn are now beginning to transfer their interests to both the Trident I submarine launched missile and the improved capabilities of the proposed Trident II missile.

Should there be any wonder that the American public questions the necessity of spending billions of dollars for the deployment of the MX missile when those who are supposedly "in the know" cannot decide how the missile should be deployed nor even whether its acquisition is a necessity to preserve our national defense?

Overseas, our allies justifiably ask what our policy is in regard to nuclear disarmament. The President says he wants nuclear disarmament but, at least publically, he appears to be short of ideas on how to achieve that goal. The recent dismissal of Ambassador Eugene Rostow as Director of the Arms Control and Disarmament Agency has thrown that agency into disarray. Vice-President George Bush has been delegated to explain our position to our European allies. It would be very helpful if the Vice-President - or the President — would explain what our disarmament position is to the American public as well. The military's role in the current debate. Disarmament debates in the United States, unfortunately, do not always maintain a dignified demeanor. In a nation dedicated to the principles of freedom of speech, one's exercise of that privelege often leads to accusation of being a fascist on one hand or a communist traitor on the other. The professional military usually suffers greatly at the hands of pro disarmament parties.

But, to date, the military has survived the current nuclear debate very well. This may in part be because the armed services have shown they are far from infallible in their selection of weapons programs. Many reports from Washington reflect that, even though the service naturally supported increased defense spending, they never expected to get everything that the Congress granted them in regard to new weapons development, whether conventional or nuclear.

The absence of unanimity in the military as to the best course the country should take to defend itself moves the services into the mainstream of American political thinking, away from its usual position of being outside looking in. This unusual position can only prove healthy for a democratic nation as civilians and the military become more familiar with each other's needs.

The long dormant nuclear disarmament debate is again coming to life in the United States. However, because of the special economic and political climate in this country, it may prove to be the most unusual, interesting, as well as crucial such debate that has ever taken place.

Tom A. Friedmann



### Nobody asked me, but...



#### AIP — AN ALTERNATIVE APPROACH Defence Alliances

Australia has traditionally required strong alliances to meet its defence needs. The ANZUS alliance in particular is the corner stone of our defence and foreign policy. This situation is unlikely to change in the foreseeable future. Within the ANZUS alliance and the more general western alliance, Australia has a significant and important role to play. To be a dependable and effective ally, the junior partners should complement the senior and assist the overall aim by 'shoring up' the weakest areas. This 'shoring up' can take the form of both moral and physical support. In the western alliance in particular, the 'old Commonwealth' countries of Britain, Canada, New Zealand and Australia have a unique basis for understanding from which they can lend tremendous support to our common senior ally, the United States of America.

#### Interoperability and Commonality

From a naval point of view, an important part of any alliance is the need for interoperability in the aspects of command and control, information exchange, policy. tactical doctrine and procedures and logistic support. The latter is particularly important and dictates a need for a great deal of commonality particularly in ammunition and fuel requirements. Fortunately, fuel commonality has largely been achieved. although many other logistic support problems in that area remain. With regard to ammunition, Australia has for some time now embarked on a weapons procurement programme which relies mainly on US origin weapons, thus ensuring commonality. This policy has not been very conducive to Australian Industrial Participation (AIP) in defence weapon acquisitions, apart from the occasional foray into domestic development, of which the most successful example has been Ikara.

#### AIP - Current Policy

More recently, the Australian Government has attempted to insist on AIP/Offset in defence. acquisitions to broaden Australia's defence industry base. This policy has laudable aims but falls short in achieving the objectives in reality because of an incorrect approach. Our present approach to AIP is to examine the most expensive projects and concentrate the effort there. Additionally, we currently wait until the appropriate Service has defined an operational need and sought approval to purchase a weapon system before an AIP agreement is then sought with the appropriate US government contractor. Thus, for example, after the Macdonnel-Douglas production line of Harpoon missiles has already commenced, we attempt to achieve the participation of Australian industry as subcontractors and are subsequently frustrated when the Australian companies cannot react quickly or competitively enough to achieve the sought after percentage of participation. This form of AIP approach will not work at such a late stage in a weapon's development or production. Additionally, although the US is concentrating resources and funding in the glamorous and more strategic projects of Tomahawk, Aegis and Trident, in pursuing our AIP effort in major Australian acquisitions, we are trying to penetrate areas such as Standard Missile, Phalanx, Harpoon and Mk 48 Torpedo all of which still represent a major US defence effort and are controlled by the giants of US government contractors. 'Big pies' are generally closely guarded by 'big pie' eaters; perhaps it would be far wiser to concentrate on what US interests regard as 'small pie' which in turn could represent a feast to the Australian industrial appetite.

#### Weapons Development

The US defence machine is both monolithic and very complex; however, on a broader basis the same influences that affect defence weapon acquisitions in the Australian Defence Force, are also present in the US Defence System. The only real differences are those relating to scale. The more glamorous and strategic weapon developments invariably receive visibility/priority and thus the funding. Meanwhile, very worthy lower level developments founder or are severely retarded through funding and resource starvation. What is significant however, is that often what represents to US interests as lower level and therefore low capability/low priority, is potentially a significant capability advance in the Australian defence environment Guided projectiles for naval gunnery have continually fought for funding and priority in the USN against the glamour projects of Aegis, Tomahawk and Trident. In the RAN, the guided projectiles would represent a significant increase in capability for one of our major naval units - the DDG. If the role of a good junior ally is to complement the senior partner. then Australia should concentrate on those areas which represent to us a great advance of capability for our theatres of operations, whilst the same areas struggle for survival and are continually delayed within the confines of the giant US defence system.

The Soviet threat to the western world is not only confined to an armageddon type nuclear war but equally important is the threat of a lower level limited or conventional war or, even worse, a series of confined conventional wars. Currently, the US alone cannot meet both types of threats adequately.

The effect of a more supportive weapon development policy, if adopted by other western alliance members, would be to allow the US to concentrate on the higher level strategic aspects of defence and hopefully redress the current strategic weapons imbalance with the Soviet Union. At the same time, the lower level conventional aspects of western defence would be improved by Australia, United Kingdom, New Zealand, Canada, Japan and NATO nations working more in concert.

No doubt it is idealistic to expect a harmonious approach to weapons development by so many countries; however, in Australia's case, where no existing industries would be threatened, a much more effective way to rebuild the Australian defence industry would be to concentrate Australian effort in those areas which the US is not able to pursue in an effective and timely manner. We must ensure our efforts commence at the conceptual stage, thus involving Australian industry before production policy is decided.

#### The Vertically Loaded Gun Concept

An example of an idea which is begging for a sponsor is the Vertically Loaded Gun concept. Currently. guided projectiles have been developed to the prototype stage for the US 5 Inch MK45 naval gun. These projectiles have largely been developed using US Army funding from the Copperhead guided artillery projectile project. The guided projectile uses 'smart' seeker technology and a small guidance system to radically improve the single shot hit probability of a normal shell, thus turning it into a cheap missile. It can be guided using either an infra-red or semiactive laser seeker against air surface or land targets. It is understood this project has recently suffered another major setback, having been cancelled in the USN after reaching the end of the engineering development phase with some very impressive results. European interests, however, are continuing their development activity and the GP can confidently be expected in future naval armouries. Recently a gun concept has been designed to take full advantage of the guided projectile and involves a loading system which takes the guided projectile and cartridge directly from the magazine into the barrel, ready for firing. in one action.

The gun can be aimed by all existing gun control systems but now eliminates the empty case tray, empty case ejector cradle and ready service rings. This in turn means the gun mount is lighter, more reliable, cheaper and low in development risk, particularly as the majority of items used already exist. The gun's rate of fire is lowered to 10 rounds per minute (similar to a missile launcher) which is more realistic with the single shot probability of kill achieved. The gun can also fire the cheaper non-guided or ballistic shell, when required, for shore bombardment.

Australia currently produces 5 inch ammunition and has 6 gun mounts in service. The concept is completely transferable to a 5 inch gun version and with assistance from the Northern Ordnance Division of FMC it is conceivable that Australia could develop and manufacture a 5 inch vertically loaded gun mount. The design currently envisages using the same base ring as the 76mm gun fitted to our FFGs and a total mount weight of 30,000lb which is only slightly more than a fully loaded 76mm oun and 20.000lb less than a current 5 inch 54 mounting. We could then take immediate advantage of the 5 inch guided projectile which would provide a 30% increase in range and a vast increase in accuracy.

There are many other spin offs to this concept. Certainly we could replace the FFGs 76mm with a 5 inch VLG with little weight penalty, yet significant capability gain. Additionally, our DDGs would be greatly enhanced by a guided projectile capability which would otherwise be denied them, (even if the USN re-vamp the GP project) because of the one off costs of updating to the MK 45 5 inch mount version. The eventual advantages to AIP and our regional arms sales capability are obvious.

#### **Bomb Fuse Improvements**

Apart from a short spurt during the Vietnam War, bomb fuse improvements have continually suffered from funding and resource starvation in the US. No doubt the hard lessons learnt by the Argentinians during the Falklands conflict will cause a much needed boost to US bomb fuse developments. Here is another area where both the UK and Australia have both the capability and requirements to improve bomb fuses, whilst still working within required standards for commonality and interoperability and thus could have contributed greatly to the western alliance strength in this area.

#### **General Defence Systems**

A conceptual stage AIP policy can be seen to have many benefits in the weapons development field where both commonality and interoperability are essential to a strong western alliance. Such a policy opens a flood gate of possibilities in the field of general defence systems such as sensor or data display systems where only interoperability is required. We currenly slavishly follow a general acquisition policy of requiring both commonality and interoperability with the US, when often only the latter is required. This is very evident in the FFG and FOD projects where locally manufactured improvements are often discouraged, to maintain class commonality. We need to concentrate on defining our interoperability standards in the western alliance, particularly in the areas of information exchange, logistic support arrangements and procedures. Only then can individual countries proceed with system developments that will not cause interoperability conflicts.

On more general lines, there are again a lot of general defence projects which offer a great advance in technology and capability but lie lifeless through lack of funding or support in the US system. The surface effect ship is a perfect example. Although some USN research effort has been directed towards a large 3000 tonne vessel, the small 100–200 ft version awaits a sponsor. The idea is simple, easy to implement and ideal for vessels operating in our northern waters.

#### Conclusions

The Western alliance requires a more supportive weapons and systems development policy to ensure the common threat is adequately met at all levels. Australia needs a realistic AIP policy to develop our defence industry. The VLG concept, GPs and Bomb Fuses are a few examples of weapon development areas where a change in our AIP policy could have tremendous effects. There are many more similar examples begging for a sponsor. This is also equally true of the general defence systems arena where greater individual and regional freedom is available. What must first be implemented, however, is an AIP policy that permits and encourages Australian industry to participate at the conceptual stage let's Advance Australia.

> David J. Gaul Lt. Cdr. RAN



Nobody asked me, but wouldn't it be a good idea for the Navy to take some time off for an 'All Round Look'?

It is difficult to escape the impression that people in the Navy at large, despite our recent acquisitions and the hard work being done on every front, have never since the War had such a hazy and confused idea of their own future and that of the Service itself.

We seem to be getting rather bogged down in a host of committees and working parties which have all been set up to deal with specific questions or aspects of such questions, but few of which treat with the Navy as a whole. In short, we are in danger of missing the wood for the trees.

My idea is this. Five men and women of each qualified rank from Petty Officer to Captain inclusive should be selected and formed into groups by rank. We should then say to each quintet:

'You have one month to produce your view of the three greatest internal challenges the Navy will face in the next twenty years and how they should best be met.'

Each group should have an office, an attached short hand typist, reasonable access to all the Navy's files and unlimited telephones. The only restriction must be that none of the personnel concerned be allowed to talk to any in the other teams for the duration of the exercise.

How should we pick people? There are three possible ways. The names can be taken out of a hat, from those awaiting appointments or by selection of the most talkative 'ideas' people. The last is ostensibly the best way to do it, but I am inclined to think that the first method may produce more surprises and really fresh ideas.

The evolution should cost, salaries included, no more than \$180,000, which is not, in the context, unduly expensive.

Readers may remember the stimulating 'Young Turks' presentation made some years ago which roused much debate on the multitude of topics covered by the 'Turks'. I am seeking an examination of the future of the Navy both more general - the eventual subjects chosen might come as a shock to us all - and more particular. because more time and effort can be devoted to a particular topic.

Is this worth a try?

BOOK



Master Ned





#### Soviet Naval Operations on the High Seas, 1956 - 1980. \* Rec. retail price - \$35.00

There has long been the need for a detailed chronology of modern Soviet operations set within the framework of longrange Soviet foreign and domestic policy

Written by Dr Bruce W Watson, a currently serving commander in the United States Navy, the book argues that the Soviet Navy's physical configurations, strategy, and operations reflect a long-term 'upgrading' pattern, designed to create an equal-partner status in a total balance of Soviet military forces.

The author, Commander Watson, teaches at the Defence Intelligence School in Washington, D.C. He also holds a doctorate in Russian area studies from Georgetown University and is also a member of its adjunct staff, lecturing on Soviet naval and maritime affairs.

The book discusses in detail Soviet naval operations in all the world's oceans, being divided into three parts; The Atlantic Ocean: The Mediterranean Sea: and The Pacific and Indian Oceans

As well as the three major sections of this 268 page book there are chapters on The Development and Purpose of the Soviet Navy and why the Navy was built; its tasks: targets: types of naval operations and the nature of postwar antagonisms.

Supplemented by 29 carefully selected photographs, 9 maps and 46 pages of tables, the book provides new insight into the dimensions of Soviet naval presence and port visit activity.

The section of the book devoted to the Pacific and Indian Oceans is divided into two sections - the first covering the Pacific from 1956 to 1980 and includes naval operations, the Sino-Vietnamese War of 1979 and the bolstering of the Pacific Fleet

The section devoted to the Indian Ocean covers from 1968 till 1980. It includes bilateral U.S. - Soviet crisis responses. uses of port facilities and other political activities.

It is worth noting the increase in ship days spent in the Pacific and Indian Oceans since 1968. In 1968 the Soviets spent 4.200 and 1200 days in the Pacific and Indian Oceans. By 1980 that had increased to 11.800 days for each!

It is also interesting to note that Soviet ships spent 5.078 ship days in Singapore from 1956 to 1980 which was by far the largest total in the Pacific area.

Following Singapore was Vietnam, which accumulated 2.866 days from 1979 to 1980. Cam Ranh Bay with 1.999 days was the largest with Da Nang next with 766 days.

The book concludes with a summary and forecast and an assessment of Soviet Naval Operations in relation to long-range qoals

This book is a wealth of information on the Soviet Navy and is well supplemented by statistical information. Recommended.

Vic Jeffery

### SHIPS AND THE SEA

#### Restoration of the S.S. Great Britain.

The story of the steamship *Great Britain* has long been fully covered in many books and articles, and to a small extent in the ANI Journal of May 1978 (*Volume 4, No.2*). What hasn't achieved the same coverage is the ongoing restoration of this great ship.

Recovered from Spaulding Cove, Falklands Islands in 1970, *Great Britain* arrived back in her building dock at Bristol, England on 19 July 1970. In the past 12 years, much has been done but the work is nowhere near complete. Lack of funds and the need to locate and research the original drawings have been the main reasons for the slow start.

In her long career, *Great Britain* had undergone many changes and thus the first decision to be made was in what direction the restoration project was to be pointed.

At the onset of the work it was decided to restore the ship's external appearance to that of the 1840s, together with a limited rebuild of the interior, just enough to show what life was like onboard in those early days.

Problems have been as varied as they have been numerous. In the '70s there was an uneasy background of local politics and beaurocratic wrangling over the graving dock. Owned by the Bristol City Council it had been leased to Charles Hill and Sons. The City Docks, and what is locally known as the Floating Harbour, were closed to normal commercial traffic for many reasons, mainly due to technical and economic developments. In those early days, the whole future of the docks was in doubt and as Great Britain and the graving dock were in the middle of them, their future was not too certain. In 1975 however, the City Council realised the potential of Great Britain as a tourist attraction and for a peppercorn rental leased the Great Western Dock to the S.S. Great Britain Project. Council's farsightedness has been rewarded, with 150,000 people visiting the Project each year.

Despite the uncertainty of not having a permanent home, much was achieved during the first three years on very limited finance:

- before starting on hull preservation, the 1882 wooden cladding had to be removed, including the 10,000 iron bolts holding it in place;
- porthole blanking plates removed;
- uncovering the original hawse pipes (both sets have been left in-situ);
- removal of rust and scale from all the iron-work, flame drying and painting.

Since 1975, the restoration has progressed slowly but steadily. To repair the shell plating, it was decided not to replace the iron plating, but to adopt glass fibre lamination on the inner surfaces. This is a long process and is being progressed during the northern summers.

Where does the Project stand after 12 years and what has been achieved? This is a summary of what has been done (late 1982):

- Hull Scaled, cleaned and painted in the original 1840 scheme; black with imitation gunports. Sternwindows and gilded decorations in place. Figurehead and trailboards restored and in place. Many of the portholes have yet to be replaced.
- Stern frame The 1857 stern frame (added to enable a lifting propellor to be used) has been removed but is on display. The original stern frame is now visible and has been preserved. A replica rudder is being built and will be shipped. The original rudder is on display.
- Propellor A replica of the 1840 propellor is ready to be fitted, but awaits the shafting.
- Upper deck Replanked and caulked. Bitts and bollards replaced. The hand operated windlass is again in working order. Skylights and companionways restored and fitted. A replica 38 ft funnel has been manufactured and is in place. The navigating bridge (such as it is) replaced.

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Rigging -

42 ft bowsprit, fore, main and mizzenmast stepped and the standing rigging set up. The three other masts and the two yards for the 72 ft mainmast have yet to be manufactured and stepped.

Internally, little seems to have been done, but there is progress. In addition to cleaning and preserving, temporary decking has been laid to give the visitor access. The fibre-glass laminate to repair wasted plates can be seen.

Future plans for the restoration of the interior include:

- rebuilding the promenade deck and dining saloon;
- fitting out a number of cabins;
- fitting out the crew's quarters under the forecastle;
- construction of a replica of the 1840 main engine complete with chain drive to the propellor shaft;

 construction of a replica of the after boiler face. The postscript to this article must be to point out just what Great Britain has meant to the shipbuilding/ship design industry since she was built in 1843, apart from proving the genius of I.K. Brunel. The following is not complete, but serves to illustrate the reason why she is so important:

- The design of the original 6 bladed propellor (with bolt-on blades) was recently tank-tested with a scale model. The result revealed that its efficiency compares not unfavourably with the propellors fitted to today's supertankers.
- The longitudinal stiffening of the hull together with deck plates laid on them was ultimately developed into the modern double-bottoms.
- Great Britain was one of the first ships built with watertight bulkheads and the first with watertight doors.
- She was the first ship of note to be fitted with a balance rudder and bolted rudder-post.
- The stading rigging was or iron and wire, yet another innovation.
- Waste heat was used to pre-heat the boiler feed water by means of a water-jacket in the base of the funnel.

#### SEYCHELLES SALUTE

The British Crown Colony of the Seychelles became an independent republic in June 1976 and an international fleet assembled off the capital, Mahe, to celebrate the event.

Representing France was the COMMAN-DANT BORY, the Indians sent the NILGIRI, TRISHUL and the SHAKTI, the Iranians the PALANG and the BANDAR ABBAS. Drawing up the rear, figuratively speaking, was USS CAPODANNO and HMAS MORESBY. We were certainly pleased to be there as it made a nice break from surveying the North West coast, although I think my Captain thought the whole exercise was a betrayal of Hydro-graphic Principles.

The Iranians provided the earliest entertainment by taking over the voice net almost completely. When the local authorities finally managed to transmit the order of entry, the Iranians completely ignored it and commenced a spirited charge into harbour, right across the bows of the leading Indian ship which had a Rear Admiral embarked. Iranian voice procedure was interrupted by a terse transmission in Indian accented English.

That night I observed the Iranian Navy at close quarters. I had missed the last boat back to the ship and was contemplating my next action when I became aware that I was not the only person on the jetty. A large gentleman came striding towards me followed by a fearful, twittering, group of Iranian sailors. He was the Executive Officer of the destroyer *Palang* and had obviously just finished informing his sailors that he was unhappy with the world in general and all of them in particular. They maintained a standard distance of twenty metres from him at all times.

Just then a boat from USS CAPODANNO came alongside and the X O asked the coxswain if he would take him back to the PALANG. The latter saluted and regretted that, because of previous orders, he could not oblige. This altered the scene completely. The X O inflated his chest, his eyes became red, and the Iranian lower deck doubled the standard distance to forty metres.

'My Captain has invited your Captain to my ship tomorrow — not now, no more, never' said he.

The coxswain, unsure of the correct action to take in this international exchange, blinked, saluted, and cast off. Relative silence followed the fading sound of the boat's engine but I could hear deep breathing close at hand. I could also hear the soft shuffle of departing junior Iranian feet.

When the PALANG's own boat appeared they forgot their fear of their X O and crowded in to make sure of a seat. He ignored them all and

invited me into the boat, an invitation which I accepted with alacrity as I had no desire to further provoke this somewhat volcanic individual; he was also bigger than I was. We got under way and I pointed out MORESBY's position to him which he. in turn, passed on to the coxswain who grunted in reply. This clearly upset my friend who promptly flattened the coxswain with a backhander and took the tiller himself. The atmosphere could now fairly be described as electric with a boat full of very quiet sailors, a bruised coxswain lying in the scuppers muttering quietly to himself, and me. I was certainly being entertained but MORESBY's silhouette was looking more welcome by the minute. The X O turned to me and said 'I take you to your ship — not like . . . ing Americans.' There seemed no answer to this.

The French and Indians then took the stage. The inauguration of the new President of the Republic was to be celebrated by the firing of a 21 gun salute. This was planned to take place when the newly proclaimed President arrived at the local stadium. The drill for the salute was provided by a signal from the Senior Naval Officer Afloat, the French Vice Admiral, as follows:

Unclassified F260855Z Fm: ALINDIEN To: COMMANDANT BORY NILGIRI TRISHUL SHAKTI CAPODANNO PALANG BANDAR ABBAS MORESBY

Instructions for gun salute on June 29, 1976 at 1031D.

- A. Communications check on VHF Channel 6 at 1000D — Director CDT BORY;
- B. Fire ordered by CDT BORY time check and beginning of countdown at 1026D;
- C. Fire order will be marked too be black pennant on CDT BORY — At the dip at 1021D — Closed up at 1031D

Hauled down at 1031D

D. 21 shots — one SHIT every five seconds. All ships will check the manoevre without firing on Monday June 28th at 1000D.

Clearly paragraph D was going to provide some problems, both with the execution and with the timing.

Came the great day and at 1031, the salute was due to commence. There was, however, a delay in the President's transit, a fact of which the French were aware, but nobody else. We waited for the order with baited breath and with stopwatch in sweaty palm. Most of us waited, that is; the *TRISHUL* knew the time the salute was due to commence, obviously thought the French were being slow, and blasted forth. She got off four rounds before the Captain, presumably, became aware that they were the only unit firing and had time to get his Gunnery Officer and kill him. The French then explained the situation, the black pennant did its piece, and we did ours. Except for *TRISHUL*; she clearly considered a repeat of the evolution might be unwise and did not fire this time.

The remainder of the visit was quite peaceful. A lady invited me to take advantage of her husband's absence from the islands, the local citizens presented us with two tortoises to take back to Perth Zoo, and I shook the new President's hand. The latter move proved to be the kiss of death as he was deposed by the present President shortly after. Incidentally, with reference to the first incident, I behaved as a perfect Naval Officer — need I say more.

Who says life is dull in the peacetime Navy?

John Whittaker





USS TICONDEROGA (CG47) commissioned 23 January 1983.

### NAVAL INSTITUTE INSIGNIA



The Council of The Australian Naval Institute advises that cuff-links and mounted crests featuring the badge of the Institute are now available for purchase by Members.

The cuff-links are robustly made and are attractively finished in gold and black. They are epoxy-coated to ensure long life and are packaged in presentation boxes. The price is \$7.00 a pair, which includes postage.

The crests are meticulously hand-painted in full colour and are handsomely mounted on polished New Zealand timber. They measure  $175mm \times 130mm$  (5"×7"). The price is \$13.00 each, which includes postage.

Both items are obtainable from the Treasury by completing the coupon below. Should you not wish to spoil your journal, please give the details on a separate sheet of paper.

### The previously announced price rise has been deferred until the May '83 Journal.

The Treasurer.			
Australian Naval Institute.			
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