Journal of the Australian Naval Institute

Autumn 2004

AUSTRALIAN NAVAL INSTITUTE

The Australian Naval Institute was formed as a self-supporting and non-profit making organisation, incorporated in the Australian Capital Territory in 1975. The main objectives of the Institute are:

- to encourage and promote the advancement of knowledge related to the Navy and the maritime profession; and
- to provide a forum for the exchange of ideas concerning subjects related to the Navy and the maritime profession.

Membership subscription rates are located on the inside back cover of the *Journal*. Further information can be obtained from the Business Manager, Australian Naval Institute, PO Box 29, Red Hill ACT 2603, email: a_n_i@bigpond.com, or via the website at www.navalinstitute.com.au.

Journal of the Australian Naval Institute

The *Journal of the Australian Naval Institute* is published four times a year: at the end of January, April, July and October.

The Editorial Board seeks letters and articles on naval or maritime issues. Articles concerning operations or administration/policy are of particular interest but we will consider papers on any relevant topic. As much of the RAN's operational and administrative history is poorly recorded, the recollections of members (and others) on these topics are keenly sought.

Views and opinions expressed in the *Journal of the Australian Naval Institute* are those of the authors and not necessarily those of the Institute, the Royal Australian Navy or the Australian Defence Organisation.

Back copies of the *Journal* (where held) cost $5 for members and $15 for non-members. The Institute will take back old copies of the *Journal* if members no longer wish to hold them. A CDROM of the Journal covering the period 1975-2003 is available for $99; see the inside back cover for ordering information.

Pen Names. If a member wishes to publish under a pen name the Editor must be advised either in person or in writing of the identity of the individual that wishes to use the pen name. The Editor will confirm in writing to the member seeking to use a pen name that the name has been registered and can be used. More details are available on the Institute's website.

Style Guide. Articles and correspondence should be submitted electronically in Microsoft Word, with limited formatting. Relevant pictures or maps can be submitted electronically (if under 1 MB), otherwise they should be provided on CD.

Articles may range in size from 1-10 pages - anything larger should be submitted to the Sea Power Centre-Australia for possible publication as a Working Paper (spca.seapower@defence.gov.au).

Area Representatives

A number of members based outside Canberra can provide advice on membership and the development of articles for the *Journal*. Their details can be found on the Institute's website, on the *Journal* page.

Seapower Centre Library

The ANI recently donated its library to the Royal Australian Navy where it will be incorporated into the Sea Power Centre Library, which numbers several hundred books on naval history and strategy, and more general defence matters. ANI members will continue to have access to this unrivalled and often unique selection of research material. The library is normally available for use 0900-1630 each weekday, but please ring to confirm this, particularly if visiting from outside Canberra. As this is a reference collection, it is not possible to borrow the books. The Institute will gladly accept book donations on naval and maritime matters (where they will either be added to the library or traded for difficult to obtain books).

With the impending relocation of the Sea Power Centre over the next few months, the best point of contact for access to the library in the first instance, or to make arrangements for book/journal donations is Mr Andrew Forbes on (02) 62655062, email andrew.forbes1@defence.gov.au.

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Front Cover: Steaming Party Alpha with the AWE from RAN tug *Al Rayiah* (RAN).
Back Cover: HMAS *Manoora* escorted back into Sydney Harbour after service in Iraq and the Solomon Islands (RAN)

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2004 Annual General Meeting

The AGM was mistakenly programmed for the 15th of March, which was the Canberra Day public holiday. At the rescheduled AGM on the 4th of March, those members present agreed to the changes proposed by Council to update the ANI Constitution to both reflect current practices and to ensure that the Institute abides by relevant ACT legislation/regulations. The updated Constitution can be viewed on our website, as can the AGM minutes.

In a Special Resolution, members agreed to make a donation of $1000 to the trust fund seeking to purchase the George Cross awarded to LCDR Goss; if the trust is unsuccessful in purchasing the medals and associated memorabilia, the donation will be returned to the ANI.

The Treasurer reported that the financial state of affairs was sound. In particular, the Institute made a profit last year of $5988.01, and net equity was a very healthy $20864.91. The ANI is able to use this financial position to expand its footprint and in doing so hopefully broaden its membership and sponsorship base; such as participation in the recent Pacific 2004 conference, production of a fully indexed CDROM of all previous journals (for sale at $99), enhancement of the ANI website, and increasing the size of the *Journal*, depending on the availability of articles, to 52 pages. The books were recently audited, in accordance with ACT Government Association laws, and the audit report was favourable with no qualifications.

Bronze Supporter

We welcome P&O Maritime Services as a Bronze Supporter of the Institute and thank them for their support.

Library

Thanks to Captain Tim O'Sullivan, RAN (Rtd) for his recent donation to the Library.

After due consideration of the legal status of the ANI library and recognising its effective integration into the Sea Power Centre library, Council decided it should be donated to the Navy to ensure its long-term survivability. The Chief of Navy accepted the donation with thanks. Importantly, the library will continue to be managed by the Sea Power Centre and ANI members will still have access to it for research purposes. The Sea Power Centre seeks ongoing donations to this enlarged library, in order to maintain an excellent research collection of use to naval and maritime researchers.

Naval Warfare Officers' Association

Patron: Admiral Alan Beaumont, AC RAN (Rtd)

The Naval Warfare Officers' Association came into being last year when it gave its name to the previous Anti-Submarine Officers' Association. That association, which was approaching some sixty years in existence, required a new lease on life and new horizons; hence its transformation to the Naval Warfare Officers Association.

Originally formed in mid 1946, membership of the Association has been maintained with the joining of many retired and serving RAN Officers and Reserve Officers. In its current form, the Association is open to all officers of the Warfare Community.

The objects of the Association are, and always have been, to honour the proud wartime record of its members and to promote and foster amongst its members the spirit of comradeship and service to the Navy and the Nation. Additionally, we wish to maintain our connections with the past yet offer a sense of community to the younger members of the warfare fraternity.

The Association marches together each Anzac Day followed by the AGM, which is held aboard MV *Radar* on Sydney Harbour. In addition an Annual Luncheon with a guest speaker is held each November at the Royal Sydney Yacht Squadron. The guest speaker last year was CDF, General Peter Cosgrove, AC MC. The Association newsletter, published three times per year, contains articles relating to our history, heritage and warfare issues that are of interest to both serving and ex-RAN members. All association members are encouraged to contribute articles for publication.

The cost is $15pa and application forms are available from the Honorary Secretary as follows:

Honorary Secretary, Naval Warfare Officers' Association
Commander R.F. Tighe, RFD RD RANR (Rtd)
Phone: 02 9948 3479
Fax: 02 9948 5100
Email: tighe@bigpond.net.au

Journal of Australian Naval History

Call for Contributions

The Naval Historical Society of Australia has decided to launch a *Journal of Australian Naval History*, with the aim of encouraging the study and discussion of Australian naval history in an academically rigorous environment.

The *Journal* will be published twice annually, with the initial edition planned for publication in September 2004. The Journal's Editorial Board will comprise senior officers of the Society and selected academic representatives, and all contributions will be academically refereed before inclusion in the *Journal*.

The anticipated readership of the *Journal* will include naval history professionals, members of the Naval Historical Society, non-members with an interest in naval history, and university history departments and their students, both inside and outside Australia.

So far as is possible, the Editorial Board intends that each edition of the *Journal* will address a selected theme in Australian naval history. These themes could include any topic that has some bearing on the founding, development, growth and experience of the Royal Australian Navy, including the colonial navies that were the component parts of the Commonwealth Naval Forces at Federation.

Contributions are now sought from authors from all backgrounds and walks of life. The Editorial Board in particular is eager to encourage and to publish contributions from younger authors and from those who have not written articles before. Formal academic qualifications are **not** a prerequisite for contributing; articles may be submitted at any time.

The Editorial Board has adopted the following guidelines for contributions:

- Full length contributions should be between 8,000 and 10,000 words.
- Short topical articles of 4,000 words are also encouraged.
- Endnotes only are to be used. Guidelines on style are attached
- A bibliography must be provided for each contribution.
- Contributions must be sent to the Society as a printed document in the first instance.
- Receipt of all contributions will be acknowledged by the Society.
- All full length articles will be refereed.
- Contributions accepted by the Editorial Board for referee consideration will be required to be sent to the Society electronically.
- Referee comments will be passed anonymously to authors.
- Contributors may access the Society's photographic collection to illustrate articles.
- Editorial Board decisions are final.

The Editorial Board has appointed Mr Ian Pfennigwerth to coordinate contributions to the *Journal*. All contributions should be sent to:

Journal of Australian Naval History
PO Box 139
Salamander Bay NSW 2317

Any questions relating to contributions should also be directed to Mr Pfennigwerth at the above address or by phone/fax to (02) 4981 5551 or e-mail to ipfennigwerth@kooee.com.au. You can contact the Naval Historical Society at: Ph: 02 9359 2372 (Tues/Thur); Fax: 02 9359 2383
website: www.navyhistory.org.au
email: secretary@navyhistory.org.au

Aircraft Carriers: indispensable and invulnerable

Commander David Hobbs, MBE RN*

Editor's Note: In the Summer 2004 Edition (No 111) Commodore Alan 'Rocker' Robertson, RAN (Rtd) questioned whether the RAN should purchase aircraft carriers and challenged members to debate the issue. While such decisions are the provenance of the Australian Government and aircraft carriers are not a part of the Government's defence policy that should not preclude a discussion of the issue. This article (a consolidation of two separate articles) provides a historical analysis of aircraft carrier operations highlighting both their utility and 'relative' invulnerability, and is published as a contribution to the debate.

The indispensable weapons system

In 1966 the Commanding Officer of the British aircraft carrier *Ark Royal*, Captain Mike Fell, was asked to define the role of his ship. He replied that it was *to travel enormous distances at high speed when ordered and to carry out any task on arrival in the operational area*. Significantly he did not constrain his definition to *blue water confrontations between battle fleets*, he used the phrase *any task*. A more succinct definition would be hard to imagine. *Any task* could be of short duration; it could equally be lengthy. A ship capable of steaming *enormous distances at high speed* could be equally at home moving over shorter distances at more modest speed.

More pragmatically, the Oxford English Dictionary defines an aircraft carrier as *a warship that carries and serves as a base for aeroplanes*. Air operations are fundamental to virtually any military operation today and a mobile *sea base* capable of operating them would appear to be indispensable. This article is written from the viewpoint that no maritime nation can hope to be effective in the twenty-first century without deploying warships *acting as a base for aeroplanes* capable of carrying out *any task*.

Since Squadron Commander Dunning of the Royal Naval Air Service first landed an operational aircraft on the flight deck of an operational warship under way in 1917, fourteen navies have operated aircraft carriers and eight do so today. Only four, Great Britain, the USA, Japan and France have designed, built, equipped and used carriers in action. The others have imported one or more elements of the package. China is the only member of the UN Security Council not to operate a carrier but this may not be the case for long and Japan is inching back into the *carrier club* with a series of *through deck* destroyer and amphibious ship designs.

Aircraft carriers were a product of the First World War and came to prominence in the Second. Other warship types such as battleships and cruisers faded into obscurity after 1945 because their scope was too limited to justify the cost of their maintenance in commission let alone the construction of new ships. Aircraft carriers not only survived but also grew in scope over the same period. Since 1945 there have been repeated examples of their involvement and influence in both major and minor crises and conflicts, all of which have been in littoral waters. Obvious examples include the Korean War, the Suez Intervention in 1956, Vietnam, the Second Indo-Pakistan War, the South Atlantic Campaign of 1982, the Lebanon, and the Gulf War of 1991. More recent examples include both UN and NATO Operations in the Former Republic of Yugoslavia, Kosovo in 1999, peacekeeping operations in Sierra Leone in 2000 and the Iraq War of 2003. Successful deterrent operations are less well known because of their very success. Examples of these include the effect of British carriers in the Persian Gulf in 1961 when Iraq decided not to invade Kuwait, assistance in quelling army mutinies in the newly independent East African states in 1964 and the Malaysian Confrontation. Other examples include the withdrawal or British forces from Palestine in 1948 and Aden in 1967 and a show of strength by two Buccaneer aircraft over Belize, threatened by Guatemalan invasion, launched from a carrier over 1,000 miles away.

It is not my intention to dwell on blue water operations but it must be understood that the littoral operations mentioned in the previous paragraph, and many more like them, took place against the back-drop of the Cold War. The US Navy carrier fleet, supported until the late 1970s by the Royal Navy, had a profound effect on Soviet strategic planning which led to a

* Commander Hobbs, a member of the ANI, is Curator of the Fleet Air Arm Museum, Yeovilton, United Kingdom, and an international authority on aircraft carriers and naval aviation.

disproportionate scale of defensive measures that were never fully appreciated by Western politicians. This blue water capability was latent and ready at short notice while the ships and their air groups were involved in littoral operations only a few days steaming from the Cold War stage. What other weapons system has been as flexible?

Aircraft carriers succeed because, unlike other warships, they are a fusion of technologies and systems. They bring together the mobility and sustained power of a large ship with the speed and radius of action of a variety of different aircraft types. The key to this success lies in the fact that the carrier contains so many of the basic principles of warfare within its system of systems. It is mobile and capable of concentrating force to achieve maximum effect in time and space. It is supremely flexible, capable of surprise and offensive action at short notice. Indeed, it can carry out several roles concurrently while hiding in the vastness of the sea. It should not be forgotten that no enemy has yet succeeded in finding, let alone attacking a US, British or Australian carrier since 1945. In addition to all this, an aircraft carrier is the ideal warship to co-operate with allies in the air, on and below the surface and on land. It can land aircraft, helicopters and marines (troops) or deploy them to other ships. It can accept similar reinforcements and absorb them to a greater extent than any other warship. With its inherent need for communications and intelligence gathering systems it represents an ideal command platform for national forces employed far from their base. When so employed it is secure and does not need to be defended against attack by land forces or terrorists, as a headquarters established on land would be.

Aircraft carriers are their own logistic base. They move to the scene of operations with workshops, a comprehensive inventory of spare parts, *change of role* equipment for aircraft and air weapons magazines together with the specialist people to derive the best from all of these. It should not be forgotten that they could also provide water, bread and technical support for ships in company and a force ashore. This can be of critical importance in war and in humanitarian relief operations. A land based air force would need to use shipping to move an equivalent package, would need a great deal of time to set it up ashore if suitable accommodation were available and would still be imprisoned within an immobile base subject to weather, sandstorms and enemy action. It would have to repeat the whole process to cope with the next crisis. When RAF fighters arrived in Kuwait in 1961, they relied on carrier air-direction rooms to control them as no air intercept radar existed ashore. When transport aircraft landed with troops they relied on marines, landed from the sea by helicopter, to defend the airfield for them in the initial stages.

Opponents of aircraft carriers often show, through their single dimensional arguments, a lack of understanding of both the ships themselves and the missions of which they are capable. Examples will help to put them into perspective and illustrate the fact that the potential for employment of such ships is increasing rather than declining as the twenty first century develops. The defining capability of an aircraft carrier with a balanced, integrated air group is strategic deployment. In peacetime this can underpin national foreign policy and demonstrate resolve. It can also demonstrate national capability; not many nations have the ability to deploy such a weapons system successfully and medium sized navies that can do so have leverage over less well equipped fleets and air forces. The very presence of a carrier and its aircraft might deter a potential aggressor from taking action on realising that he would be opposed by forces from a sea base he might not be able to oppose. Examples include the Eastern Mediterranean in 1958 where British and US carriers covered landings by US Marines in the Lebanon and British troops in Jordan to counter threatened Iraqi aggression. Again in 1961, the rapid move of British strike and amphibious carriers to the Gulf deterred Iraqi aggression against Kuwait. In 1963 British carriers were able to deploy joint forces which stopped mutinies by East African soldiers in newly independent states from degenerating into civil war. There are a host of other examples.

The recent Australian deployments to East Timor in 1999 and the Solomon Islands proved to be relatively benign in terms of an opposing military threat. Had the situations deteriorated, however, land based air would not have been fully capable of defending deployed ADF units on the ground, the lack of a carrier capability could have been shown to be a fundamental flaw in the Australian ability to act across the full range of military options. It is not enough to rely on an ally who has carriers, that ally may not be willing to commit support to a particular operation as the British found in the South Atlantic War of 1982.

In combat, a deployed carrier can gain and maintain sea control, local air superiority and play a decisive part in operations on the land. Its command, control and intelligence gathering capability provide an ideal base for a national command centre on the spot. Even if land based

aircraft are able to take part at long range, their employment with a joint expeditionary force may not be effective without the air-minded control available from a carrier, as was demonstrated in Kuwait in 1961.

Aircraft carriers have been used in strike operations to achieve a strategic effect with conspicuous success. Examples include the US and British Pacific Fleets in their operations against Japan in 1945; US, British and Australian operations throughout the Korean War; British operations at Suez in 1956 and the Falklands in 1982; US operations in the Vietnam War and in Iraq in 1991 and 2003. The Australian contribution to the Korean war is particularly noteworthy as the RAN proved capable of deploying a fully worked up strike carrier only three years after the first establishment of its Fleet Air Arm.

Critics have cited the number of fighters embarked in strike carriers as being *defensive* and as *detracting* from their offensive capability. In reality, the aggressive use of fighters can achieve decidedly offensive results of strategic significance. In the US Navy's Cold War Forward Strategy, the strike carriers deployed F-14 Tomcat fighters and E-2C AEW aircraft to seek out and destroy the Soviet Naval Air Force bombers that would have tried to attack the strike fleet. The bombers would have been engaged at ranges from which they would not have been able to launch missiles against the fleet, and they would have been destroyed. How *defensive* is that?

The third major capability is in manoeuvre warfare where a carrier provides direct action to support forces in the sea, land or air dimensions. These may be in concert with a small national expeditionary force or a number of coalition allies in a major operation. Examples include virtually every maritime activity carried out in the modern era by the US and British navies, since aircraft are the tools used by navies to conduct their business. The presence of an aircraft carrier adds weight to a national contribution to coalition forces and, as HMAS *Sydney (III)* did in 1951, can demonstrate a professionalism that earns the respect of larger allies such as the USN. Inability to face up to the importance of such ships can have the reverse effect.

Even the act of sailing a carrier force can have a profound effect on the political discussions that precede armed conflict. After the Argentinean seizure of the Falkland Islands, the Royal Navy sailed a task force including the small carriers *Hermes* and *Invincible* on 5 April 1982, sending a powerful message of British intent to the Argentine Government but leaving the door open for negotiation. The alternative launching of a wave of land based strategic bombers briefed to attack the enemy capital would not have had the same effect and might well have damaged the British cause in the eyes of the international community.

These are brief examples of how aircraft carriers have been used in the past and illustrate how they can be used in future. There are many other possible instances where not only do they have utility but where they may provide a government with the only effective national instrument it can use in certain situations. These include providing helicopter support to forces ashore, the physical movement and landing of amphibious troops and their kit, covering focused intervention and protecting peace enforcement forces deployed ashore. As an example of the latter role, the British Government insisted in 1994-95 that a carrier should be constantly available in the Adriatic to provide national top cover for British peacekeeping troops in the Former Republic of Yugoslavia. Land based aircraft in Italy were limited by unserviceability and weather and could not guarantee their ability to do so. This was one of the key factors in the decision to enhance carrier-based aviation as a cornerstone of the British Strategic Defence Review of 1998.

It goes without saying that carriers excel in any task that might fall to a warship or an airfield ashore. These might include SAR over land and sea, the evacuation of citizens and even the conversion to other tasks at the end of practical aircraft operating life.

Moving from the general to the specific, operations by three ships are offered to illustrate the indispensable nature of aircraft carriers. In twelve months from July 1961, the British light fleet carrier *Centaur* moved from the UK to relieve the larger *Victorious* as the strike carrier on call in the Gulf, a key element in the British joint force that deterred Iraqi aggression against Kuwait. After training with the British Middle East Fleet, she took part in flood relief operations in Kenya, during which her helicopter squadron initiated a Flying Doctor Service with RN medical teams. Shortly after that she went to the aid of the Greek tanker *Stanvac Sumatra* that had broken in two south east of Saigon. She took part in the Commonwealth maritime Exercise *Jet 62* and the NATO Exercise *Riptide* before returning to the UK after demonstrating a range of capability that no other weapons system could match.

In 1965 the Government of Rhodesia unilaterally declared independence from Britain. The United Nations called for sanctions, including

an oil embargo, and neighbouring Zambia asked Britain to provide air defence against potential Rhodesian aggression. *Eagle* provided both until the months elapsed that allowed the RAF to establish facilities ashore for fighters and maritime patrol aircraft. Although it formed no part of her original deployment plan, *Eagle* spent 71 days at sea, a record at the time for a British carrier, on what became known as the Beira Patrol after the port in Mozambique through which tankers had delivered oil to Rhodesia. During that time she steamed 30,000 miles and flew 1,880 sorties, which identified 770 merchant ships up to 350 miles from Beira. 116 of these were tankers of which 2 were found to be heading for Beira and turned away.

HMAS *Sydney (III)* provided an excellent example of carrier utility during her career with the RAN. She saw service as a strike carrier during the Korean War, earning the respect of US and British commanders who had considerably more carrier experience. The British Admiral Scott-Moncrieff described her performance as *quite excellent* when she completed her seventh and last war patrol. During these she had flown 2,366 sorties in 43 flying days for the loss of 3 pilots and 15 aircraft. For political reasons, she was not modernised, as she could have been, to operate jets but saw service as a training ship and as an amphibious transport running between Australia and Vietnam. She was able to carry large numbers of troops, vehicles and ammunition besides operating helicopters for her own defence and to land troops as necessary.

In summary, an aircraft carrier is a sea base capable of moving its people and aircraft virtually anywhere on the sea, which covers 70% of the earth's surface, and of achieving any task. It can scale up to strike operations in major conflict or scale down to a local SAR incident at notice measured in hours. It can spread its influence over the sea and, equally, over considerable areas of land. I do not see how a medium power navy can contemplate the range of activities for which it is responsible without possessing such a capability.

A study in vulnerability

Critics of maritime capability have argued that warships, acting as sea bases, are *vulnerable*. I intend to examine vulnerability in context and to determine whether sea bases are any more, or less, vulnerable than land bases that offer an equivalent capability.

The Oxford English Dictionary defines the word vulnerable as meaning *that which may be wounded or harmed*. There can be very few weapons systems, if any, therefore that can be said to be invulnerable when exposed to combat. Perhaps critics mean to imply that air bases ashore are *less vulnerable* than sea bases. Let us examine the facts from a convenient starting point in 1939.

After the outbreak of the Second World War, the Royal Air Force expanded tenfold and deployed squadrons to expeditionary airfields throughout much of the world. Of these nearly one hundred were captured by enemy ground forces in Northern France, Norway, North Africa, Greece, Burma, the Dutch East Indies, Malaya and Singapore. The great majority were not captured by high technology air forces but by infantry little different from the troops who had fought in the First World War. Many of these lost air bases were quickly refurbished by the enemy and used against the allies. Examples include many of the sorties flown by the *Luftwaffe* in the Battle of Britain from bases in Northern France created by the Air Component of the British Expeditionary Force (BEF) and the RAF Advanced Air Striking Force. Many Japanese air raids on Singapore were mounted from air bases in Malaya established by the RAF inconveniently close to the coast where they were vulnerable to sea-borne invasion. Since 1945 allied air bases ashore have been over-run in a number of places including Korea, Egypt, Algeria, Kuwait and Iraq besides being rendered unusable in Vietnam and Afghanistan by high levels of military activity outside the boundary fence.

Notwithstanding considerable investment in them, a number of land bases were lost to the British after the grant of independence to the host nation in which they were built. These include airfields in Aden, Egypt, Palestine, Singapore, Iraq, several of the Gulf States and the island of Gan in the Maldive Islands. Since they occupy a fixed and obvious geographical position, land air bases are vulnerable to missile attack and can be neutralised by chemical or gas contamination. Against this, no airfield was put out of action by bombing, no matter how severe and the ability of airfields on Malta to remain operational during the heavy bombing of 1941-42 is an outstanding example of this fact. Airfields ashore remain vulnerable to asymmetric attack from regular troops, special forces and terrorists.

The allied experience with sea based aircraft during the Second World War was rather different. Between them, the RN and USN deployed 198 aircraft carriers in active operations. Of these only 19 were sunk, a considerably lower percentage of those deployed than any other type of warship. The loss of these ships was during a global war of many years' duration against world class powers employing the most sophisticated

weapons available to them and possessed of considerable experience of maritime warfare. The effects of asymmetric attack were negligible.

Of the nineteen carriers lost, eight were British. Of these five were torpedoed by submarines, one was bombed by aircraft, one was sunk by gunfire from enemy warships and one was lost to an accidental explosion of petrol vapour in the aircraft fuelling system. The role of the ships at the time of their loss is significant. *Glorious* was misemployed evacuating a handful of RAF aircraft from Norway to the UK when superior surface forces overwhelmed her. She did not form part of a balanced task force nor did she have more than a token air group embarked. The intrinsic value of the ship was far greater than the value of the aircraft she was attempting to rescue. *Ark Royal* was torpedoed after ferrying RAF aircraft to Malta. Like *Glorious*, she lacked a full air group and did not form part of a balanced task force. *Hermes* had no aircraft at all on board when she was sunk off Ceylon by Japanese carrier-borne aircraft. She was evading an anticipated strike on Trincomalee and relied on shore-based fighters, which failed her, for defence.

The type of aircraft carrier is also significant. Escort carriers such as *Avenger* and *Audacity* were not built to withstand battle damage from torpedoes and their loss, though tragic, was not surprising. Later escort carriers, modified to the full British standards dictated by war experience, were more robust and *Nabob* and *Thane* survived hits by torpedo and mine. The older carriers *Courageous* and *Eagle* were conversions in which the systems of protection were not up to the standards required in modern war. Their retention in service reflected the desperate measures taken by the Admiralty to get aircraft to sea despite the critics of sea-based air power in the 1930s. Only *Dasher* was lost to petrol explosion, a cause that destroyed many American and Japanese ships. No modern fleet carrier was sunk although bombs, torpedoes and kamikaze aircraft hit several in the many and varied campaigns they fought.

In operation the modern aircraft carrier forms the centre of a task force, itself part of a larger complex of national or coalition forces. In addition to its proven offensive power, carrier aircraft contribute to the protection of the task force and derive protection from it. In grinding down the enemy, defensive sorties contribute to the aim of fighting and winning and should not, therefore, be dismissed as of secondary importance. The aircraft carrier can be manoeuvred within the task force to mask its position whilst obtaining the best defence. Those who claim that the sinking of the British merchant ship *Atlantic Conveyor* in 1982 marked the dominance of the *Exocet* Air to Surface Guided Weapon fail to realise that the attackers intended to hit one of the two aircraft carriers. In a battle space dominated by defensive fighters and missiles the Argentine aircraft were forced to operate at low level; when they popped up looking for a radar target, they fired at the first thing they saw. It was not the intended target, and defence in depth worked. Since 1945, *almost without exception*, no enemy has located an operational US, British or Australian aircraft carrier despite their extensive deployment. Remember that in both NATO and SEATO maritime wargames, even the RAF had to ask the carriers where they were in order to practice attacking them!

Aircraft carriers within their battle groups enjoy a better defence in depth than most western capital cities and the majority of shore air bases. The force has the ability to move at high speed and to manoeuvre at short notice; thus it can both evade and avoid attack. As nearly as any weapons system can be, they are invulnerable to asymmetric threats from ground forces and ballistic missiles. They can both choose and vary their area of operation, avoiding bad weather to keep flying or staying within it to deter enemy reconnaissance. The chosen area can give an optimal radius of action for tactical strike aircraft. Thus in the 1956 British operations against Egypt, only one third of the available strike aircraft were embarked in the carrier task force but they flew two thirds of the tactical missions. In operations over the former republic of Yugoslavia carriers manoeuvred to stay in clear air while NATO air bases in Italy were closed by weather. Task forces can change their position by 500 miles in twenty-four hours and, in so doing, vary their approach to targets. Task forces contain their own support in the form of an Underway Replenishment Group (URG) and their effective operating period can be measured in months. They can concentrate or disperse at short notice to meet the nature of any threat or react to political instructions from Government. A land base cannot do so and the inability to withdraw it quickly might be politically embarrassing.

To attack an aircraft carrier, a potential enemy must have a significant reconnaissance capability in order first to detect the task force and then the carrier within it. With the number of hard and soft kill options available to the fleet, the use of the electro-magnetic spectrum by an enemy may not be enough to identify the high value unit and visual identification may be necessary to confirm the target, even today. The possibility of counter-detecting a carrier operating from an unknown

area before it delivers its first punch is far from being a given. Should the carrier be hit, its size and construction make it difficult to disable. This was shown by the ability of British Pacific Fleet carriers to withstand kamikaze attack off Japan in 1945.

Aircraft carrier battle groups are essentially offensive and enemy forces that pose a potential threat can be attacked at source before that enemy can locate the group or plan an attack of his own. Any attack that does develop has to run the gauntlet of the layered and disparate defence systems and can expect to endure heavy losses. Do land bases enjoy a similar level of protection? The majority of Australian air bases, for example, are close to the coast and enjoy little in the way of layered defence. Some of the standby bases in the north are only manned by skeleton staffs in peacetime and present opportunistic targets for potential enemy or terrorist special forces, just like the British air bases in Malaya in 1941-42. The need to defend temporary expeditionary air bases against asymmetric attack is obvious and must lead to their definition as vulnerable.

In summary, the mobility of the aircraft carrier together with the sophistication and concentration of active and passive defences within a task force minimise the vulnerability of sea bases to any form of attack. By contrast, land bases are extremely vulnerable and have proved an Achilles Heel to military operations by both the Western Allies and the Axis since 1939. Statistics show that there is less operational risk in the deployment of an aircraft carrier task force than in the creation of an expeditionary air base. The sea base is, therefore, the least vulnerable option for the deployment of air power. With the extraordinary range of capabilities deployed by aircraft carriers, they commend themselves as options to maritime powers of every size. The increasing number of nations working on aircraft carrier projects therefore comes as no surprise.

Temporary RAN Tugs *Al Rayiah* and *Jamhoria*

Lieutenant Shane G Bell, RAN*

As an Officer of the Watch in HMAS *Kanimbla* during the Coalition Forces' actions against Iraq (Operation *Falconer*), I was able to gain exposure to many new experiences I had never perceived to be part of my normal employment. *Kanimbla's* mission was to control and provide support to coalition forces in efforts to clear the Khawr Abd Allah (KAA) of all vessels, in order to facilitate the eventual safe transit of Humanitarian Aid (HA) to the Iraqi port of Um Qasar. These operations culminated in a period at anchor in the KAA, controlling and coordinating coalition boarding teams in their patrol and clearance of the KAA waterway.

As part of this function *Kanimbla* also coordinated the movement and clearance of all vessels that were directed from the KAA and formulated holding areas for different vessel types where they could be inspected and cleared of mines and other hazardous materials, then directed out of the Area of Operations. It was this tasking of *Kanimbla* that allowed me to experience a challenge I will remember well into my days; the clearance and movement of two Iraqi Tugs, *Al Rayiah* and *Jamhoria*, laden with sea mines, to Kuwait Naval Base (KNB), some 65 miles south of the KAA.

The discovery of mine laying tugs

During Coalition boarding patrols on the evening of Saturday 22 March 2003, at approximately 2200, the USS *Chinook* queried two tugs in the KAA waterway. An inspection followed by US forces, which turned up nothing of particular note. The next day, a boarding team from *Kanimbla* searched the tugs *Al Rayiah* and *Jamhoria*. They were found to be holding a total of some 68 mines that were ready to be deployed, along with a large quantity of small arms. Coalition forces detained the vessels, transferred their crew and small arms to *Kanimbla* for processing. The crew was then transferred to USS *Dubuque* as Prisoners of War. During that day an Explosive Ordinance Disposal team was transferred to the tugs from a US Coast Guard vessel and the mines were inspected under the guidance of *Kanimbla's* Executive Officer, Lieutenant Commander Michael Edwards, and checked safe.

In the hours that followed, it was determined that the tugs would be transferred to Kuwait Naval Base. Steaming Party Alpha, derived from *Kanimbla's* ships company, were inserted onto the tugs in order to make an assessment of seaworthiness, and develop a plan for the transit to Kuwait. The tugs were seaworthy and assessed as fit to make the journey under their own steam. They would be driven by *Kanimbla's* steaming party and escorted by a Kuwait Patrol Boat - P3713 *Ouha*. Steaming Party Alpha boarded the *Al Rayiah* at 1400 on Monday 24 March 2003 rigged a tow with the *Jamhoria* and a barge rafted on her port side, then commenced the transit to Kuwait at 1900 after hoisting an Australian White Ensign up a makeshift halyard.

The transit to Kuwait

The Steaming Party's tasking was to transit to KNB onboard *Al Rayiah* whilst towing *Jamhoria* who had a barge rafted up to her port side. The Steaming Party numbered seven, namely: CMDR Bill Van Boheemen, LEUT Shane Bell, LEUT Jai Papalkar, WOMT Trevor Henderson, CPOEW Michael Millar, POMT Eric Messmer and LSSN Warren Reid. Upon boarding *Al Rayiah*, all equipment required to complete the transit was stored in the crew recreation space, including sleeping equipment and two twelve man ration packs provided by *Kanimbla*. A watch system was devised, with CMDR Van Boheemen, LEUT Bell and LEUT Papalkar rotating through watches on the bridge. WOMT Henderson and POMT Messmer rotated through watches conducting engineering rounds, and CPO Millar and LSSN Reid rotated through communications watches, manning the VHF and HF radios utilised during the transit.

The transit was conducted in conjunction with members of the Kuwait Defence Forces, and the *Ouha*, which escorted the tugs throughout the passage. The navigation team in the Steaming Party used basic chart work and a handheld GPS to effect the passage. The tugs skirted the 5-meter contour line around the Northern Arabian Gulf (NAG) and headed southwest some 65 miles to the entrance of KNB.

The tugs were in a poor state of repair. *Al*

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Rayiah was separated into 4 decks. On the upper most deck (02 deck) was the bridge and deck gear including a crane. On the second deck (01 deck) were the accommodation spaces that had been completely upturned, and all available beds overturned and missing mattresses. The deck below this was the main deck (1 deck), housing the toilets, which were out of service and anyone attempting to enter the compartment was considered either brave or forgetful. The recreation space, which had one table and a few couches that were used to sleep on when personnel were off watch. The galley was also located on this deck, which too was unserviceable and littered with remains of meals consumed long ago. The mines were located on this deck as well, hidden under half 40-gallon drums configured on the quarterdeck. Finally, the entrance to the engineering spaces was also located on the main deck.

Below the main deck (2 deck) was the engine room, housing two diesel main engines, two diesel generators and switchboards providing power to the rest of the vessel. Most of the breakers were tripped and a lot of the fuses were blown, however all navigation equipment was serviceable, as were both of the engines. In fact, the engine plant was in fair condition, and with a little maintenance, could be brought back up to a good working condition. The equipment housed within this compartment was reliable enough to allow *Al Rayiah* to tow *Jamhoria* and barge some 65 miles to KNB, without having to stop or effect any major repairs.

Arrival at Kuwait Naval Base

The transit to KNB took 14 hours, with the tugs arriving at the entrance to the main channel at 0900 on Tuesday 25 March 2003. A Kuwait tug met steaming party at the entrance to the harbour and rafted up alongside *Al Rayiah* to await US divers to inspect and clear the vessels. The divers came out of KNB at 1030 and inspected the barge and both vessels which were cleared and allowed to enter the port. *Jamhoria* and its barge were towed in by the Kuwaiti tug and US tug respectively, and *Kanimbla's* Steaming Party drove *Al Rayiah*. CMDR Van Boheemen successfully manoeuvred *Al Rayiah* into KNB then alongside to an applauding international media and extensive Kuwait and international military presence. As the tug was secured, Steaming Party Alpha then struck the Ensign from *Al Rayiah*, packed up their belongings and disembarked, before handing it over to Kuwait military authorities. A few media interviews were conducted and Steaming Party members then embarked in *Ouha* to be taken back up to the NAG to rejoin coalition efforts against Iraq.

Conclusion

Kanimbla, as part of a coalition effort against Iraq, was tasked with the patrol and clearance of the KAA waterway to secure a safe route for Humanitarian Aid to be transported to Um Qasar. As part of those operations, Coalition Boarding Teams conducted patrols, queries and boardings of all vessels in the KAA to ensure they were compliant and clear. As a result of efficient operations, coalition forces were able to locate, board and apprehend tugs *Al Rayiah* and *Jamhoria* before any mines could be laid in the KAA waterway. As a result, *Kanimbla* and other coalition forces were successful in their mission, and Humanitarian Aid was transported to Um Qasar in a timely manner. The tugs were transferred to Kuwait Naval Base by a professional Steaming Party derived from *Kanimbla's* ships company, and as such, *Al Rayiah* under an Australian White Ensign, became the most recent member of the Royal Australian Navy albeit for the duration of the transit to KNB.

What puts the Australian Navy amongst the best?

Commodore Davyd Thomas, AM CSC RAN*

The Australian Navy's vision sees it as one of the best navies in the world. Far from being a dream it could only aspire to, the recent commitment to coalition operations has yet again revealed a small powerhouse capable of punching well above its weight. During the recent commitment in support of UN sanctions and the war against Iraq, Australia was entrusted with command and lead role in interception and surface warfare operations in the Northern Arabian Gulf. This article explores some of the reasons behind the RAN performing so well. It is a personal view based on experience at sea.

The RAN has been a committed partner of first world navies since its beginnings in the early twentieth century. In addition to its participation in all the major international conflicts that have occurred since its inception, the RAN has continually benchmarked itself by taking opportunities to regularly participate in major exercises and activities with Allies. More recently, the Government's commitment to enacting the ANZUS Treaty has brought with it expectations that the RAN would make a contribution of substance to maintain our value as a committed coalition partner. It goes without saying that a coalition partner would expect the RAN to perform well. Notwithstanding the high technology required to maintain the edge in modern warfare, a major reason the RAN performs so well on the world stage is because its people are second to none. They are the fundamental factor that makes the RAN a unique institution. This isn't motherhood and I didn't arrive at that conclusion without some considerable thought. I have had the privilege of seeing our people in action at sea and have often wondered how it is we produce so many extra ordinary people - people that do you proud all the time. I think that the RAN's competitive advantage lies in leadership - leadership at all levels of the organisation. With solid leadership, people provide our fighting advantage and become the key enabler for RAN capabilities.

To gain a better insight to leadership and what it means to the RAN, one first needs to put the environment into context. Co-incident with September 11 was the Australian Government's renewed vigour to ensure comprehensive border protection with major units operating off the north-west of Australia on a continuous basis. This, combined with an ongoing commitment to East Timor, Bougainville and the Solomon Islands represented a significant shift towards a more operationally active Navy. Since September 11, when Australia committed nationally significant support to the US led international coalition in the War Against Terror, there has been an exponential increase in the Navy's operational focus. In this regard Australia's naval forces supported the US juggernaut in the Northern Arabian Gulf and were committed to making a contribution of substance. In a period of increased operational tempo, Navy worked up forces capable of making that contribution. It demanded a lot of our people and they delivered. I have no doubt it was leadership that enabled them to deliver and draw continuous praise from military superiors, peers, politicians and civilians alike. It is therefore worth understanding more about the Australians we lead. From this one can develop a better understanding of the leadership traits that bring out the most in people and enable them to perform beyond the ordinary.

Discipline and duty

Australian sailors are unique. They work hard and play hard. They are intelligent, inquisitive, challenge when they think they need to, and are incredibly loyal to those who show the same loyalty to them. A self-assured lot, they are eager to show anyone how good they are. Adaptable and resilient, they possess immense initiative and display the Australian traits of innovation, determination and the ability to get the job done in the face of some enormous challenges. They believe in fairness all round, teamwork and having fun. This is not a bad mix to mould!

At a commemorative church service in February 2003 to pray for those involved in impending operations against Iraq, Bishop to the Australian Defence Force, the Right Reverend Tom Frame, made some observations about those serving men and women. He spoke of a sense of duty and discipline. He made the point that it was a volunteer force that meets Australia's security needs and that its people were highly motivated

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and highly trained and would do whatever the government directed, to the best of their ability. He also highlighted that Australians have a strong sense of self-discipline. This allowed the Government to commit our forces on behalf of the nation because this self-discipline was built upon a sense of duty. It is this sense of duty and discipline that, when combined with the characteristics of our people, make all things possible, and from which we gain an inherent confidence in our ability.

Our society also puts great trust in us - although at times it may not seem that way when there is some element that fails to meet their expectations and vocal criticism ensues. Our media is quick to highlight our shortcomings and this certainly keeps us honest and accountable for our institution. They have that right, given the public relies on our people for their national security and even elements of our national prestige. The message is that those who serve are part of a *higher calling* and with that comes collective responsibility for one of *our* greatest national institutions - *our* Navy. When some drop their standards below our expectations, others in the Navy understand it is not acceptable because we have let down those who have entrusted us with *their* security and *their* institution - *our* Navy. This won't stop the odd indiscretion but when people understand how fundamental they are to the collective good, and are told this continually, they are more likely to behave and perform as the Navy expects. With the right leadership, this happens and the results elsewhere take care of themselves.

The Navy therefore builds on the foundations inherent in our people through leadership, and it is this that produces the catalyst for great results. But this leadership *thing* doesn't just happen. It is learned behaviour and is what separates us from a career in civilian walks of life. There are two ways it is instilled in our people - through a dedicated career long training and education program, and through experience.

Leadership training and education

Leadership training and education occurs at all levels across the Navy for both sailors and officers. Junior sailors complete a Leading Seaman Leadership Course as a promotion pre-requisite. This highlights to all and sundry that formal leadership training is expected, not desired and that leadership is required at all levels in the organisation. These junior sailors one day become senior sailors, where again they are exposed to leadership issues in their formal staff skills and management courses. Turning to junior officers, they undertake a program called the Leadership, Management and Personal Development (LMPD) training continuum. This starts soon after they join the Navy and continues until they become Lieutenant Commanders. Each of the four phases builds upon the other and completion is a pre-requisite for promotion to Lieutenant Commander. In turn, this training prepares officers for subsequent staff course education right through to the rank of Captain. As the name implies, this LMPD reinforces leadership as the key to results. Significantly, it now exposes junior officers to discussion periods and presentations from senior officers. In this endeavour, senior officers not only impart their own wisdom and experiences, but it also allows them to reflect and keep in touch with the thinking of the younger generation - their successors. This initiative has been further developed such that Commanding Officer and Principal Warfare Officer designates now engage formally with junior naval officers at the Royal Australian Naval College and the Australian Defence Force Academy to discuss various issues of interest. This has similar benefits and reinforces the emphasis on the sense of community amongst our officers fostering an esprit de corps that is a binding agent for leadership.

Learning leadership from experience

The other way our people learn is on the job. Our recent contribution to the multi-national interception force enforcing sanctions against Iraq proved this to me. The RAN's special contribution to boarding operations demonstrated our ability to use our unique character traits to produce some great results. The adage that *quantity has a quality all of its own* isn't part of the Australian lexicon. Much as we would like it, we simply can't always afford the latest high-tech equipment because of the pressure on our Defence Budget. With the force in being, our people use their initiative and teamwork to produce great results - the people element of capability. This doesn't just happen. Our Navy is underpinned by a strong values system that is reinforced from the top of the organisation to the mess decks. It is these values that are applied when there is no black and white answer or rule to cover every situation. When combined with our basic character, innate sense of duty and self-discipline, the sky really is the limit. Our people feel empowered, and want to make a difference - they will do the right thing, and our leaders learn to trust.

Learning on the job is also facilitated by our Divisional System. This Divisional System is integral to the RAN's chain of command, and is about taking responsibility for, and providing an

organisation for, the well being and morale of our sailors. The Divisional System is a structured personnel management organisation that provides leadership, facilitates two way communication, promotes teamwork and morale, monitors professional performance and behaviour, encourages and assists the advancement and training of personnel, facilitates problem resolution in the workplace, and is concerned with the wellbeing of personnel. The Divisional System is considered by the Chief of Navy Vice Admiral Ritchie as: *central to the effective exercise of command in the RAN.*

Over the years the Divisional System has gone through peaks and troughs, but the effort the command puts into making the Divisional System work sees success measured by the results and morale of the ship's company. Successful COs know the Divisional System offers ideal opportunities to communicate their message, and allows junior officers the opportunity to demonstrate a personal commitment to their team, and to the ship. They know our people can develop an incredible sense of self worth simply by making sure that they know what the mission is, what the expectations are and how important they are to its success. Simply put, good Commanders know the Divisional System allows its leadership to show they give a damn about their sailors, those they will later rely on. This pays off because a well functioning team knows the difference they make and why they are doing the job they are doing because it is explained to them. I know it seems like motherhood but this is about as powerful a tool as one can get. Used wisely the Divisional System is one of the greatest leadership tools we have, it makes the difference and gives our Navy the edge. But it takes constant work to maintain. Formal records must be updated in every way and each officer must understand the story (not just the documentation) behind each of their sailors, and this is where management and leadership is needed. With a good system and good leaders, Commanding Officers can seize the opportunity the Divisional System presents for leading their people, along with the positive results that ensue. It really works, but not without energy and personal commitment!

The competitive advantage

Our people are the reason for our success - and it's not a cliché. It's our leadership that makes the difference. To be successful takes work; hard work. Leaders need to understand their people, the basic issues that drive and comprise their being. Leaders at all levels need to understand that communication is fundamental - real communication. Our people are as good as the best because they want to make a difference - they understand what is required and expected of them.

The RAN works hard at maintaining and developing its competitive advantage through formal leadership programs at all levels. It fosters learning on the job, and good commanders see the Divisional System not only for its inherent management advantages but also as a real opportunity to demonstrate leadership. It is leadership that makes the difference and allows this relatively small Navy to perform so effectively. There will always be mistakes along the way but with the calibre of our people, our society can continue to rely on them for their national security with confidence, as can our allies.

Leadership gives us our competitive advantage. This is good news.

HMAS *Manoora* crew disembarking at Fleet Base East after duty in Iraq and the Solomon Islands (RAN).

Maritime-related terrorism

Michael Richardson*

Much is now known about the operations and plans on land and in the air of Al-Qaeda, its affiliates and emulators. Less is known about the maritime-related activities of terrorist organisations. Yet governments around the world, including the government of Australia, are concerned not only that Al-Qaeda and like-minded terrorist groups will strike more frequently, but that they may strike with more powerful weapons in new ways, including via the sea.

Al-Qaeda has threatened to attack Australia. Some leaders of the Jemaah Islamiyah, Al-Qaeda's closest ally in Southeast Asia, have also warned Australia that its pro-US policies have made it a target. Given the vast scale of the global shipping and cargo container industry and its vulnerability to acts of terrorism, better security is vital especially when the risk of weapons of mass destruction getting into the hands of international terrorists is rising.

Maritime security is particularly important for Australia, an island-continent that depends heavily on sea trade for both exports and imports. By some accounts, the country generates about 12% of the world's shipping. Because Australia has no land links to its main markets, many of which are far away, ships carry virtually all its annual trade by weight and nearly three quarters by value. Air cargo accounts for the rest.

What acts of maritime-related terrorism could disrupt, or even halt, world seaborne trade and thus the global trading system on which Australia and many other nations depend? And how likely are such attacks to occur?

On 11 September 2001, Al-Qaeda used four hijacked civilian jet airliners to kill nearly 3,000 people from 80 nations. The use of civilian planes as weapons to strike New York and Washington exposed a whole new degree of vulnerability in the global transport system. New security measures were introduced, initially for aviation but later for other forms of transport as well, including shipping, ports and cargo containers.

Seaborne trade is vulnerable to a well-planned terrorist attack on two fronts: first, the several dozen port-city hubs around the world that form an interdependent global trading web and increasingly dominate container shipping; second, the handful of international straits and canals through which 75% of world maritime trade passes. For example, over a quarter of the world's trade and half its oil go through the Straits of Malacca and Singapore. These and other key international waterways are relatively narrow and could be blocked, at least temporarily.

Shipping is the heart of global trade. Most international trade - about 80% of the total by volume - is carried by sea. About half the world's trade by value, and 90% of the general cargo, is transported in containers. An ever greater proportion of container shipping trade is being concentrated in giant ports with the modern facilities to handle the boxes. The top 20 container terminals in 2002, led by Hong Kong, Singapore and four other East Asian ports, accounted for 54% of world sea container throughput in 2002, up from 47% of the global total in 2000. As the ships that carry containers on long voyages become larger to take advantage of economies of scale, many of the leading terminals act as transhipment points for smaller ships and regional ports in a hub-and-spoke system.

The smooth operation of the global economy also depends on the free flow of shipping through international straits and canals. Seventy five percent of global maritime trade and just under half the world's daily oil consumption passes through six of these waterways. Apart from the Malacca and Singapore straits in Southeast Asia, they include the Strait of Hormuz leading out of the Persian Gulf, the Panama Canal connecting the Pacific and Atlantic Oceans, the Suez Canal linking the Red Sea and the Mediterranean, the Bab al-Mandab passage from the Arabian Sea and the Gulf of Aden to the Red Sea, and the Bosporus and Turkish straits between the Black Sea and the Mediterranean. These channels are critically important to the world's trade because so much of it passes through them. Yet they are also chokepoints because they are narrow enough to be closed for some time to commercial vessels by an accident or by an attack, including a terrorist operation.

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Global shipping is an industry of vast scale and labyrinthine complexity. It is also lightly regulated, frequently beyond the reach of the law and often secretive in its operations, especially in concealing the real owners of ships. Oceans cover two thirds of the world's surface and most of this huge area is classified by law as international waters, or high seas, where ships are free to roam unhindered except in certain very specific circumstances.

The nature of the globalised trading system makes it vulnerable to terrorist attack. Seaborne trade and its land connections in the global supply chain have become increasingly open. In recent decades, the Asia-Pacific region has followed its main trade partners in North America and Europe in deregulating and encouraging freer trade and commerce, to foster economic growth. In the wake of the terrorist attacks on the US in September 2001, and the subsequent plots and bombings in Indonesia and other parts of Southeast Asia, the region and its leading trade partners must tighten security at sea, in ports and throughout the logistic supply chains that have become critical to modern manufacturing and service industries.

Most seaborne international trade is carried by at least 46,000 ships calling at over 2,800 ports. There are more than 1.2 million seafarers and hundreds of thousands of port workers. Apart from ships and ports, the millions of uniform steel containers that carry most of today's general cargo around the world are a security nightmare. Once loaded and sealed, inspection is a problem. The contents of a container can be misrepresented and undeclared items hidden inside with relative ease. Even when sealed, containers can be surreptitiously opened and then closed again without great difficulty to remove or add contents. This is a made-to-order method of transport for terrorists - just as it is for drug and other contraband smugglers.

As many as 15 million containers are in circulation, criss-crossing the globe by sea and making over 230 million journeys through the world's ports each year. Some seven million containers arrive by sea in US ports alone each year. Checks of containers reaching American ports by sea increased to 5.2% of total arrivals by September 2003, from 2% two years earlier. But worldwide, less than 1% of shipped cargo is screened using x-ray and gamma-ray devices to peer inside and check for explosives, radioactive substances or other dangerous materials.

While most of the world's trade travels by sea, the ocean voyage is only one link in an extensive chain. A typical door-to-door journey for general cargo in a shipping container will involve some 25 different handlers, use several other transport modes like truck or rail, and pass through as many as 15 different locations, from the factory or warehouse where the goods are loaded into the container, to the point of unloading and delivery. Like the seaborne trading system, the global supply chain is vast, complex and vulnerable to terrorist infiltration and attack. There are some 40,000 freight forwarders worldwide who employ as many as 10 million people.

The world has not experienced a major terrorist attack using ships or containers - at least not yet. But it is clear that terrorists can see the potential of using the maritime trading system to conceal weapons or agents for attack purposes or to provide funding or support for their operations. The terrorist network linked to Al-Qaeda understands the vital role of sea transport and has exploited it for years.

For example, an Al-Qaeda cargo ship delivered the explosives that its operatives used to bomb two US embassies in East Africa in August 1998, killing 224 people and injuring more than 5,000. US investigators say they have evidence that Al-Qaeda was buying ships at least as early as 1994. In December 2003, US and allied forces on patrol in the Persian Gulf tracked and boarded several dhow trading boats, confiscating three drug shipments worth more than US$15m. US officials said that seven of the 45 crewmen detained had links to Al-Qaeda and the organisation was using drug smuggling to help finance its operations.

US officials blame Al-Qaeda for the suicide attack in Yeman in October 2000 against the American destroyer USS *Cole*. The two terrorists who attacked the *Cole* used a modified dinghy packed with about 500 pounds of C-4 explosives, nearly sinking one of the US Navy's most sophisticated warships. The blast, which left a 40-foot hole in the side of the destroyer, killed 17 American sailors and wounded 40. It took more than 14 months and cost around US$250m to repair the ship. The French-registered oil tanker, *Limburg*, carrying crude oil off the coast of Yemen, was crippled and set ablaze in October 2002 in another terrorist attack using an explosive-laden small boat that may have been remotely controlled; Al-Qaeda claimed responsibility. The blast ripped through the double-steel hull of the tanker. It stayed afloat and the fire was eventually put out. But one sailor drowned when the crew abandoned the flaming ship. Some 90,000 barrels of oil spilled into the Gulf of Aden.

Al-Qaeda's former chief of naval operations, Abdul Rahim Mohammed Hussein Abda Al-

Nasheri, captured in Yemen in November 2002, gave CIA investigators information that reinforced concerns about plans for terrorist attacks against shipping. Al-Nasheri, nicknamed the Prince of the Sea, is said to have confessed to planning attacks on shipping in the Strait of Gibralter. Early in 2002, Al-Nasheri sent a team of several Afghan-trained Saudis to Morocco to prepare for bomb-laden speedboat attacks on US and British warships as they passed through the Strait between the Mediterranean Sea and the Atlantic Ocean. Moroccan intelligence service foiled the scheme.

The Singapore government has said that when it cracked down on the Jemaah Islamiyah network starting in December 2001, it discovered that the group had made preliminary plans to prepare for suicide attacks on US warships visiting Singapore. The JI also intended to carry out multiple ammonium nitrate truck bomb attacks against Western and Israeli diplomatic and other targets in Singapore, including naval bases used by the American military in Singapore, and had started buying the explosives.

Al-Qaeda has also used cargo containers on ships to ferry agents and probably terrorist-related material around the world. Documents seized from one of Osama bin Laden's senior aides six years ago show how Al-Qaeda evidently intended to use containers packed with sesame seeds to smuggle highly radioactive material to the US.

Shortly before his capture in Pakistan in March 2003, Al-Qaeda's director of global operations, Khalid Shaikh Mohammed, offered to invest US$200,000 in an export firm in exchange for access to the containers used by the firm to ship garments to Port Newark in the New York-New Jersey harbour complex. Khalid Shaikh Mohammed is the alleged mastermind of the 9/11 terrorist attacks on New York and Washington.

The fear that terrorists could exploit the container transport system was confirmed barely a month after the Al-Qaeda hijackers crashed civilian airliners into the World Trade Centre twin towers and the Pentagon. In October 2001, authorities in the southern Italian port of Gioia Tauro discovered an unusually well-equipped and neatly dressed stowaway locked inside a shipping container. It was furnished as a makeshift home with a bed, water, supplies for a long journey and a bucket for a toilet. Italian police named the stowaway as Rizik Amid Farid, 43, and said he was born in Egypt but carried a Canadian passport.

Unlike most stowaways, Farid was smartly dressed, clean-shaven and rested as he emerged. He was found to be carrying two mobile phones, a satellite phone, a laptop computer, several cameras, batteries and, ominously given recent events in the US, airport security passes and an airline mechanic's certificate valid for four major American airports. Gioia Tauro is a leading trans-shipment hub for cargo in the Mediterranean. The container fitted out as a makeshift home had been loaded in Port Said, Egypt. Had the stowaway not been trying to widen ventilation holes when workers in Gioia Tauro were nearby, the box may well have passed unhindered to its final destination in Canada via Rotterdam. After he was discovered, Farid was investigated by Italian prosecutors who suspected that he was an Al-Qaeda operative. He was charged with illegal entry into Italy and detained. But a court released him on bail and he disappeared before further information about him and the purpose of his unorthodox means of travel could be gathered.

Where and how might well-organised terrorists strike against the seaborne trading system or its land-links in the global supply chain? Bombing attacks against individual vessels have been the only method known to have been planned and carried out so far. But the frequency of pirate attacks, particularly in Southeast Asian waters, has shown that ships are vulnerable to boarding and seizure by armed raiders, including, potentially, by terrorist groups.

How could terrorists take control of a ship? Would they collaborate with pirates or criminal gangs involved in the robbery or hijacking of vessels? It is more likely that Al-Qaida would use its own ships, or its own agents to take control of a vessel, for a major maritime terrorist attack. This would give the organisation better control over any operation. Otherwise it would have to rely on people from outside its circle of zealots, whom it might not be able to trust. Moreover, for pirates, and any criminal syndicates behind them, a serious terrorist attack would be bad for business-as-usual because it would almost certainly lead to a crackdown that would make future sea robberies more difficult.

Al-Qaida and its international affiliates could with relative ease infiltrate the ranks of over 1.2 million seafarers, most of them sourced from Asia, Eastern Europe and Russia. The main supply countries are the Philippines, Indonesia, Russia, Ukraine, Poland, China, India, Greece, South Korea, Croatia and Romania. Over 400,000 of these seafarers are officers while more than 800,000 are ratings. There is intense competition for employment on ships because wages are relatively high for many seafarers as a result of hard bargaining over many years by the International Transport Workers' Federation

(ITF), and its affiliated unions. The worldwide benchmark for a deckhand is around $US1,300 per month - much more than a lot of seafarers from Asia, Eastern Europe and Russia could expect to earn in their home countries.

Demand for seafaring jobs exceeds supply. Regulation of recruitment and manning practices is lax. As a result, fraud and corruption are rife. Research in the past few years has shown that a large number of certificates held by seafarers are fraudulent and that fake papers for crew members can be bought and sold easily. Late in 1999, the International Maritime Organisation (IMO), the United Nations agency responsible for safety at sea, asked the Seafarers International Research Centre, SIRC, at Cardiff University in Wales, Britain, to investigate the nature and extent of illegal practices associated with certificates of competency issued to seafarers. The report to the IMO in June 2001 concluded that fraudulent certificates, used by seafarers to get jobs on ships, were widespread. In all, 82% of the respondents in the SIRC survey had detected forged certificates of competency in the last five years.

Reputable shipowners take care in recruiting officers and crew. They run background security checks on those they hire. But a significant proportion of the world's commercial fleet gets crews from manning agencies. They are supposed to match candidates with the requirements of ship owners and operators. While many of these agencies ensure that the seafarers they represent fulfil international requirements and pass background checks, some do not.

In 2001, the ITF reported that it had bought a First Officer's certificate for its General Secretary, David Cockroft, who is a *landlubber* with no shipboard training or experience, from Panama which operates the world's largest ship register. The ITF said it paid US$4,500 for the certificate and seaman's book that authorised Cockroft to navigate a vessel and deputise for its captain, despite his complete lack of marine qualifications and skills. The ITF says it is disappointed with progress since 2001 to tighten up certification of seafarers. There have been few responses to an IMO circular requesting reports from member states on fraudulent certificates found and prosecutions made. And the ITF says that fake certificates continue to be issued.

In such a situation, there is considerable scope for terrorists to pose as crew and then take over a ship to use it as a weapon of attack. Many large modern ships are highly automated and can be operated by crews of well under 20 officers and ratings. So it would only take a small number of well-trained and determined terrorists to seize command of a big ship.

Officials and counter-terrorism experts in the US, Europe and Asia have warned that the next step up in mega-terrorism may be an attack using chemical, biological, radiological or nuclear weapons. A ship or container is regarded as one of the most likely delivery devices for radiological or nuclear explosive devices. Those who worry about such an attack believe that weapons of mass destruction and terrorism have become interlocking threats - and could, if effective safeguards are not put in place quickly, fuse in an extremely dangerous challenge to global security and stability. The exposure in February 2004 of an extensive and long-running nuclear black market that funnelled weapons technology to Iran, Libya and North Korea from Pakistan has heightened these fears.

There is no evidence that Al-Qaeda or any other terrorist group has nuclear weapons. But they have shown interest in acquiring them. In the mid-1990s, Al-Qaeda agents tried repeatedly - though without success - to purchase bomb-grade highly enriched uranium in Africa, Europe and Russia. In November 2001, Osama bin Laden announced that he had obtained a nuclear weapon, but US intelligence officials dismissed his claims. Documents recovered from Afghanistan after the fall of the Taliban regime also described Al-Qaeda's nuclear ambitions. One of the documents recovered from an Al-Qaeda facility in Afghanistan contained a sketch of a crude nuclear device. Two retired Pakistani nuclear scientists were detained in late 2001 after meeting Osama bin Laden in Afghanistan. They were later released by the Pakistan government without being charged, despite suspicions that the purpose of the meeting was to discuss how Al-Qaeda could make or acquire nuclear bombs. The CIA believes that Al-Qaeda was seeking a nuclear explosive device - and still is.

Could terrorists build a nuclear bomb? Experts say it would not be easy. Several very difficult problems would have to be solved simultaneously. Acquiring the fissionable material to generate a nuclear explosion is the single most difficult step. At least 25 kilograms of highly enriched uranium would be needed to make a crude bomb, or roughly 8 kilograms of plutonium, a much more difficult and dangerous material to work with. Other problems would include recruiting scientific experts in a broad range of disciplines, obtaining specialised industrial equipment and avoiding the chemical and radiological hazards inherent in working with nuclear materials and high explosives. This would probably take many years. Iraq, for instance, tried throughout the 1980s and

1990s to build a nuclear bomb but failed - despite ample funding, readily available infrastructure and equipment, and a dedicated research team. The task would be even harder for a terrorist group without the resources of a state.

But experts note that building a crude, bulkly, low-yield nuclear weapon - which the CIA calls an Improvised Nuclear Device or IND - would be far easier than making the compact, reliable, high-yield weapons found in US arsenals. An IND could be smuggled to its target by ship, container or truck. The potential consequences of terrorists acquiring a nuclear explosive device would be so devastating and disruptive that it must be a matter of serious concern, even if the chances of it happening appear slim.

It would be easier, however, for terrorist bomb makers to assemble a radiological device - a dirty bomb - that uses conventional explosives to disperse deadly radioactive material. There are millions of radioactive sources that have been distributed worldwide over the past 50 years, with hundreds of thousands currently being used, stored and produced for civilian purposes. The International Atomic Energy Agency has warned that the radioactive substances needed to build dirty bombs can be found in almost any country in the world, and that more than 100 countries may have inadequate control and monitoring programs to prevent, or even detect, the theft of these materials.

Fortunately, building the most potent radiological bombs is much more difficult for terrorists than assembling explosives to disperse less toxic material. Not only are the very dangerous radioactive substances more difficult to obtain, the successful spreading of highly radioactive particles could only be done by a terrorist organisation that had access to specialised scientific knowledge. But criminals are now trading in components and materials for dirty bombs. This makes it easier for terrorists to acquire powerful radiological sources.

Indeed, scientists at the Los Alamos National Laboratory in the US have concluded that a dirty bomb attack *somewhere in the world is overdue*. A 12-month study funded by the Pentagon and published in January 2004 concluded that a well-executed dirty bomb attack on a US city could expose hundreds of people to potentially lethal amounts of radiation, cause great panic and enormous economic losses. *The threat of a radiological attack on the United States is real, and terrorists have a broad palette of (radioactive) isotopes to choose from*, said the report by the Center for Technology and National Security Policy at the National Defence University. *It could cause tens of hundreds of fatalities under the right circumstances, and is essentially certain to cause great panic and enormous economic losses*.

No such attacks have been recorded. But in January 2003, the British Broadcasting Corporation said it had been presented with evidence by British intelligence that Al-Qaeda had tied to assemble radioactive material to construct a dirty bomb in the Afghan city of Herat before the US-led invasion of Afghanistan in October 2001. No dirty bomb was found, but British officials were convinced that Al-Qaeda had the expertise to build another one, based on terrorist training manuals detailing the deployment of a radiological weapon to achieve maximum destructive effect.

In June 2002, the US government said that it had arrested Jose Padilla, an American citizen and suspected Al-Qaeda operative, on his return to the US, thus disrupting a plan to attack the United States by exploding a radiological bomb. Padilla, a former Chicago gang member with a long and criminal record, had been in detention since May 2002 when he was taken into custody at Chicago O'Hare International Airport after arriving on a flight from Pakistan. He was carrying over US$10,000 in cash. US Attorney General John Ashcroft said that Padilla, who had converted to Islam, trained in Pakistan and Afghanistan with Al-Qaeda, which knew that as a US citizen, he would be able to travel freely in America without drawing attention to himself. In August 2002, US prosecutors revealed further details in the case against Padilla in documents presented to a New York court.

An unclassified memo by a special adviser to the US Defense Department on terrorist suspects filed separately with the New York court said that Padilla conducted research on a uranium-enhanced explosive device at an Al-Qaeda safehouse in Lahore, Pakistan, and that he planned to use radioactive material stolen in the US to build it. US officials said that Padilla had proposed the plan to build and detonate a radiological device, possibly in the US capital, Washington, to Abu Zubaydah, then Al-Qaeda's top terrorism coordinator and a senior lieutenant of Osama bin Laden. Zubaydah was arrested in Pakistan in March 2002 and handed over to the US for interrogation. US officials said that Padilla first met Zubaydah in Afghanistan in 2001and that they later travelled together to several locations in Pakistan.

Concerns about the risk of terrorists getting and using dirty bombs intensified in December 2003 when US prosectors said that a British arms

dealer, held in the US on charges of trying to sell shoulder-fired missiles to shoot down airliners, would face additional charges of plotting to procure a dirty bomb. Hemant Lakhani, 68, who was born in India but holds a British passport, was arrested in August 2003 in an sting operation involving intelligence agencies from the US, Britain and Russia.

Since the terrorist attacks on the US in September 2001, many Al-Qaeda leaders have been captured and the organisation's financial system, communications networks and training camps in Afghanistan disrupted. In Southeast Asia, Al-Qaeda's closest ally, the JI, has also been hounded by tougher law enforcement and better intelligence sharing among countries in the region and between them and counterpart agencies in the US, Australia and elsewhere. In addition, many new security measures to protect maritime trade, container cargo shipments and their land connections in the global supply chain have been implemented or will be during 2004.

How will this affect the plans for maritime-related terrorism that Al-Qaeda and its affiliates, including the JI in Southeast Asia, were trying to develop and implement? Al-Qaeda clearly had a much more sophisticated program for striking at seaborne trade and the global cargo container supply chain than JI, which so far as is publicly known had only prepared a preliminary plan to attack US warships in or close to Singapore.

The operational capability of both Al-Qaeda and JI have certainly been set back. But, given the protean nature of the Al-Qaeda network, no-one can be sure how serious a blow has been struck or how long the terrorists will take to recover and attack again. Their fight is likely to continue for a long time and take many different forms. The capture of dozens of terrorist operatives in 2002 and 2003 in North Africa, the Persian Gulf, the Horn of Africa and Pakistan, as well as investigations into the attacks on the *Cole* and the *Limburg*, uncovered detailed training and planning procedures by Qaeda-linked terrorist networks specifically designed to target maritime interests. Although the arrest of some significant planners and operatives was seen as a setback to Al-Qaeda and its affiliates, the investigations revealed a terrorist network that is larger than previously thought and still capable of carrying out bombings and other attacks against maritime targets.

If terrorists try again to strike at maritime targets, will they succeed? The new security measures for maritime trade are both multilateral and bilateral. An international regime for tighter port and ship security mandated by the IMO, will take effect from July, 2004. Checks on seafarers are also being tightened. The International Labour Organisation adopted a convention in June 2003 that provides for new seafarer identification documents with a biometric imprint.

In addition, various measures are being implemented by a wide range of countries outside the framework of the United Nations. Many are driven by initiatives put in place by the US to guard against terrorist strikes. Concerned at America's vulnerability to a catastrophic terrorist attack from the sea, the US Government has turned its attention to securing seaborne trade and the interlocking global supply chain. America has insisted that its measures must be adopted by other states and foreign companies if they want to continue to trade freely with the world's largest market. The US-led measures include the Container Security Initiative, or CSI, and the Customs-Trade Partnership against Terrorism, or C-TPAT, to enhance security throughout the supply chain.

The CSI, first announced in January 2002, was operational in at least 16 major seaports in Europe, Canada and Asia by the end of 2003. Most of the 20 leading mega-ports that ship cargo containers to the US are in Asia and Europe. The CSI programme identifies and checks a relatively small number of cargo containers for possible weapons of mass destruction or dangerous radioactive substances that terrorists might try to place inside any one of the millions of standard steel boxes circling the globe each year by sea. The checking of suspect cargo bound for the US is done at foreign ports, before the containers are shipped to America.

The aim of all these anti-terrorist measures is to retrofit the global system of commerce to make it more secure while not unnecessarily impeding the flow of goods.

Multinational companies and other trade-reliant firms have a vested interest in hastening this result because they do not want any interruption in the supply chain that would keep their goods out of world markets and cost them money.

So how secure is global maritime trade and the inter-linked supply chain on land?

It is clear that before the 9/11 terrorist attacks on the US, there were gaping vulnerabilities not just in aviation security but in maritime and land transport security as well. Since then, the international community has taken action to improve the situation, especially for ships and ports that are major players in global trade. But progress has been patchy. Some companies and countries are moving faster and more effectively

than others. And some of the laggards complain that they cannot afford the new security measures. Steps are being taken by the international community, spurred by the US, to ensure the integrity of containerised cargo at sea and on land. But given the scale of maritime trade and the even vaster scale of commerce moving through the global supply chain using cargo containers, the task is far from complete.

Accurate and timely intelligence of any terrorist threat is the key to success. Those looking for signs of weapons of mass destruction or radiological substances among the many millions of containers moving around the world carrying legitimate cargo are checking for the proverbial needle in the haystack. And they are under pressure to do so without unnecessarily slowing global trade or increasing its cost. Radiation detectors and x-ray machines at major ports in North America, Europe, Asia and Australia and New Zealand are good and getting better. But they are not foolproof and only a small minority of containers are actually scanned.

This period of semi-vulnerability could last for at least several more years if - as appears likely - not all companies and countries move with the same speed or effectiveness to tighten security at ports, on ships and in the global container cargo supply chain. Overall security will only be as good as the weakest link in the chain. The private sector, with government backing, is racing to develop and introduce a new generation of IT-enabled *smart and secure* containers that can be tracked remotely at all times when loaded. Such containers will have electronic seals, as well as physical locking systems, to prevent unauthorised opening. They will also contain sensors to detect explosive, radioactive, and harmful chemical or biological substances. The critical questions are whether this technology can be made affordable and how long it will take to put it into widespread use.

Meanwhile, counter-terrorism and law enforcement authorities trying to stop weapons of mass destruction from getting into the hands of countries and terrorist organisations that want to acquire them face a major problem. International shipping is so vast and so unevenly regulated that seagoing vessels owned by governments or their agents, or interests with criminal or terrorist aims, can easily find the flag of another state under which to operate. To operate internationally, vessels must be listed in a recognised ship register of a country, which will then allow the vessel to fly its flag. In effect, the state of registration will then become the ship's flag state.

All registers are supposed to check and control the safety standards and working conditions of vessels on their books. Some open flag registers - like most traditional national registers for ships - are well run and maintain high or adequate standards. But others fall well short of the norms needed to maintain maritime-related security in an age of weapons of mass destruction and increasing international terrorism.

Global seaborne trade is intensely competitive. To cut costs, many shipowners in Australia and other industrialised nations have taken their vessels off national registers and put them on open registers. At least 40 states around the world, most of them developing countries, sanction open registers, or flags of convenience, as a way of making money. These nations rent their flags to shipowners of any nationality; some don't even have access to the sea. Land-locked Mongolia, for example, opened a register in March 2003 in Singapore, one of the world's busiest seaports. Land-locked Bolivia, too, has a register for foreign ships. Flags of convenience generally provide greater anonymity as well as tax benefits and lower costs than national registers.

Here are three examples of how terrorists have used lax shipping registers:

- In November, 2001, Irish customs officers found 20 million smuggled cigarettes on the *Maria M*, a Cambodian-registered freighter that arrived in Estonia supposedly carrying a cargo of timber. The cigarettes, concealed in the centre of bales of timber, were liable to tax amounting to about three million Irish pounds. They were the largest haul of smuggled tobacco ever seized in Ireland. Anti-terrorist officials said that the operation was organised by criminals with links to the Real IRA, a terrorist faction opposed the peace accord in Northern Ireland agreed to by the mainstream IRA, the Irish Republican Army.
- In August 2001, the captain of a Tongan-registered freighter, the *Sara*, radioed to maritime authorities in Italy that 15 Pakistani men whom the ship's owner had forced him to take aboard in Casablanca, Morocco, were menacing his crew. The 15 claimed to be crewmen when questioned by US and Italian naval officers, but the captain said they knew nothing about seafaring. US officials say they found tens of thousands of dollars, false documents, maps of Italian cities and evidence tying them to Al-Qaeda members in Europe. The conclusion: that they were on a terrorist mission. The 15 were charged in Italy with conspiracy to engage in terrorist acts.
- In January 2002, the Tongan-flagged *Karine A* was seized by Israeli naval commandos in

the Red Sea with a cargo of Iranian-made weapons, including 50 tons of anti-tank missiles, mortars, machine guns, landmines and surface-to-surface rockets. Israeli authorities said that the arms were destined for Palestinian-controlled territory for use against Israel.

How much would a major terrorist attack on shipping or maritime infrastructure cost and what impact would it have on just-in-time delivery for companies? Since such an attack hasn't happened, no-one knows the precise answers to these questions. They would, of course, depend on the severity of the attack, the extent of casualties and damage, and the nature of public and government reaction to them.

But the detonation of either a nuclear or powerful radiological bomb in a major port-city would cut the arteries of maritime commerce if the device was believed to have come by sea. It would halt much of the world's trade and severely damage the global economy, as governments scrambled to put extra security measures in place to protect their populations, cities and economies. Such measures would be drastic and include lengthy cargo inspections in the ports of the affected country, as well as in ports of nations that did extensive sea trade with it, or even the complete closure of ports for an indefinite period, while additional checks and safeguards were implemented to allay public fears.

One of the first things the US Government did after 9/11, was to shut US airspace and ground all civilian flights for four days - a security measure to protect the American public that had severe repercussions on aviation, travel, tourism and business around the world, including the Asia-Pacific region, as hundreds of scheduled flights had to be cancelled or diverted. The Bush Administration also closed US ports for two days.

What would happen to insurance rates if terrorists attacked, or worse still closed, a major port, strait or waterway used for international trade? Ship and cargo insurance rates would skyrocket. After terrorists used a small boat packed with explosives to set the *Limburg* ablaze off the Yemeni coast in October 2002, underwriters tripled premiums on ships calling at ports in Yemen. The exorbitant cost of insurance and the fear of further attacks made many vessels cut Yemen from their schedules or divert to ports in neighbouring states.

A nuclear or powerful radiological bomb attack on a major international port would send ship and cargo premiums to prohibitive levels. The bigger the attack up the scale of terrorist violence, the greater the insurance shock would be. There is no insurance for a maritime-related terrorist attack using a nuclear bomb. The recovery costs would be unimaginably huge. They would also be very heavy if a radiological bomb were detonated in a mega port-city. Whether private insurance payouts would be available to aid recovery from a dirty bomb explosion is doubtful.

Even a terrorist attack using a ship or ships to block one or more key international ports, straits or waterways - but not involving nuclear or radiological bombs - would trigger a damaging upward spiral in insurance rates and make many ships avoid the area.

This article is a summary of *A Time Bomb for Global Trade: Maritime-related Terrorism in an Age of Weapons of Mass Destruction* (www.iseas.edu.sg click on Viewpoints) and is published with the permission of the Institute of Southeast Asian Studies. An updated version of the report will be available as an ISEAS book from May 2004.

HMAS *Bunbury* conducting gunnery practice off the WA coast (RAN).

Piracy - strategic impact and cooperative challenges

Lieutenant Commander Jyotin Raina, IN*

Piracy 'jure gentium' has been widely cited as an example of a customary international crime and the pirate has generally been considered 'hostis humani generis' (enemy of mankind). [1]

Piracy is a romantic term from the seventeenth century that is characteristic of childhood books and other romantic literature. This was the time when pirates operated from distant ports or uninhabited coasts and islands, preying on the commercial explorers of a period when most navies lacked the skills and equipment to dominate the oceans. Piracy continues to exist in the modern world, but has reached new heights and is seemingly, out of control. *Cutlasses have been replaced by automatic rifles and in place of parrots, machine guns rest on pirates' shoulders.*[2] The aim of this article is to identify the significance of piracy, its impact and the political and strategic interests of the major regional players in addressing this threat.

Background

Terrorism is distinct from piracy. Whilst piracy is motivated by greed and financial gain, terrorism is motivated by political goals.[3] Terrorism has a political objective of inducing a government or a population to take a particular course of action with respect to their country's policies or programs.[4] Since 11 Sep 2001, the conflation of piracy and terrorism has become common in mass media and government policy statements, both within and outside the region.[5]

Under LOSC 1982, piracy is defined as *any illegal acts of violence or detention, or any act of depredation, committed for private ends by the crew or the passengers of a private ship or a private aircraft, and directed on the high seas, against another ship or aircraft, or against persons or property on board such ship or aircraft.*[6] The International Maritime Bureau defines piracy as *an act of boarding or attempting to board any ship with the intent to commit theft or any other crime and with the intent or capability to use force in the furtherance of that act.*[7] Statistics indicate that 72% of piracy attacks on merchant vessels are committed while the ships are berthed or anchored in port, and most of the attacks on vessels occur in a country's territorial waters. Stealing a ship or its primary cargo on the high seas represents only a small portion of the reported crimes.[8] It can be argued that since these acts occur under national jurisdictions of coastal states, they cannot be strictly termed as acts of *piracy*.[9]

International law achieved a significant expansion of jurisdiction over acts of piracy and maritime violence with the International Maritime Organisation's (IMO) 1988 Convention on the Suppression of Unlawful Acts against the Safety of Maritime Navigation (SUA). Although the convention and its protocol were intended to combat terrorism, they are equally applicable to acts motivated by greed as to those motivated by politics or religion. The Rome Convention is by its terms equally applicable in waters under national jurisdiction as on the high seas, but it cannot apply at all if the nation state has not given effect to the convention through national legislation.

Types of piracy

The most common type of attacks occur at anchorage or alongside, where criminal elements enter the ship and rob the crew. The second type of attack is a more ambitious one, where pirates not only rob the crew but also steal the cargo. The third type of pirate attack is through a *phantom ship*. The problem of phantom ships is particularly significant in Southeast Asia, where there are many small operators of vessels. Phantom ships are vessels with false identities, false registration papers, and false information on their tonnage.[10] Phantom ships are used in various maritime criminal activities, such as to conduct piratical attacks, or smuggling goods and people in the region.[11]

Reasons for the rise of piracy

The increase in the acts of piracy may be attributed to the following reasons:

- **Reduced crew size.** The technical advances in merchant vessels have resulted in reduced crew size hence lesser capability to defend themselves.
- **Reduced naval presence**. This is more

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predominant for smaller navies. Reduced ocean patrols have left merchant vessels virtually unprotected on the sea. In addition poorly controlled and uncertain boundaries in the region allow pirates to easily cross borders and escape pursuit.[12]

- **Inherent vulnerability.** *When confined to a narrow or restrictive channel, and operating at night or during times of limited visibility, vessels are susceptible to hostile boarding.*[13]
- **Lack of Reporting.** Ship owners are reluctant to report acts of piracy. In many cases, they issue orders to their shipmasters to downplay any hostile acts. The rationale is that incident reporting can effect insurance premium increases, vessel delays, or cause unfavourable media coverage.

Piracy Hotspots

Southeast Asia accounts for almost half of the reported piracy attacks. The other areas include Africa (Somalia, Nigeria and Sierra Leone), South China Sea (Hong Kong, Luzon and Hainan Island) Carribean and the Mediterranean Sea. In South Asia, Sri Lanka, Bangladesh and Indian waters are plagued with piracy. The hottest spots in the world for pirates over the past several years have been the waters of Indonesia and the Malacca Strait where more than 45% of reported pirate attacks have occurred.[14] Piracy attacks in the year 2001 increased by more than 50% over the previous year, numbering 469 incidents The piracy attacks however reduced to 335 in 2001.[15] The reliability of these statistics in terms of actual incidents is questionable. Whilst most incidents of armed robbery or piracy may remain unreported, the large numbers reported do not signify a major impact. The reason is that IMB's broad definition of piracy includes everything from attempted robbery, petty thefts and hijacking thereby inflating the figures of total incidences of piracy. This distorted picture of piracy could affect the choice of suitable methods of response to this threat.[16]

Impact of piracy and maritime terrorism

Piracy and terrorism overlap in several ways in terms of *modus operandi* but the net effect desired by the terrorist and the pirates is different. Terrorists want to call attention to their cause and inflict as much damage as possible while the pirates want to avoid attention and inflict minimum damage necessary to accomplish their mission.[17]

Piracy. Danger of piracy constitutes a threat in terms of financial losses to ship owners and flag states. Piracy can also play a role in causing environmental disasters'.[18] In April 1992, pirates attacked Cyprus registered oil tanker MV *Valiant Carrier*. During the attack on the ship, the pirates gathered the crew and locked them up. The ship remained *not under command* during the attack. *These situations of 'not under command' vessels can potentially result in collision or grounding, leading to environmental and navigational hazards.*[19] Different countries are likely to experience varying degrees of impacts depending on the extensiveness of their reliance on unimpeded passage through the strategic waters of the region. For example, Japan may arguably suffer losses of US$88m if the Straits of Malacca are closed.[20]

Maritime terrorism. Maritime terrorism constitutes only two percent of all international incidents over last 30 years.[21] Maritime terrorism has been committed on board vessels or fixed platforms, such as the armed attacks by the LTTE against Chinese, Indonesian and Korean vessels near Sri Lanka in 1997. The hijacking of *Achille Lauro*, a cruise ship, in Oct 1985 and French supertanker *Limburg*, in Oct 2002 are other examples of terrorism at sea. The most well known case of terrorism against a warship is that of USS *Cole*, which was attacked by terrorists in Yemen in Oct 2000. While the ship was refuelling offshore, a small craft, filled with explosives, approached the ship and exploded.[22] This incident generated enormous political capital and underscored vulnerability of vessels at ports.

International responses

The present level of technology and weaponry has escalated the piracy problem to a point where it can be addressed by only by state military units or international forums. The lines of territorial jurisdiction in most cases prohibit an effective response by a single government agency. It raises the issue of the need for a concerted multi-national solution.[23] The international response has been the formation of various organisations to tackle the issue of piracy. These include the IMO and the International Maritime Bureau (IMB). The IMO, an organisation under the United Nations, is the chief inter-governmental body charged with perpetuating maritime law and by their own charter making the sea *safer and cleaner*.[24] The IMB collects reports and statistics on incidents of piracy and armed-robbery against ships and published them regularly so that business ventures and ship owners can take measures to protect themselves.[25] The IMB with the support of the IMO has established a Piracy Reporting Centre (PRC) in Kuala Lumpur. PRC assists in the reporting of incidents and the collation of

information for the benefit of both the industry and law enforcement agencies worldwide.

United States

For Americans, the 21st century began with 11 Sep 2001 and not with 01 Jan 2001.[26] The terrorist attack on US soil has arguably changed the focus of all the countries round the globe. Kamath suggests that *the main warrior in the war against terrorism is the US and in a sense she is destroying the demons, she created in the cold war era to fight the rise of the former Soviet Union.*[27]

SLOCs are the maritime highways for vast trade flows critical to the rapidly growing prosperity for the entire Asia-Pacific region. The United States, with both trade and security interests in these SLOCs, has continuously re-emphasised its commitment to uphold their security.[28] *The US has significant strategic interests in the Asia Pacific region as any disruption in the oil or trade flow will have economic impact on the US naval mobility and flexibility. The US focus is on unity and perspective on combating terrorism in the region as also deepen and reinforce long standing cooperative arrangements.*[29] This interest may evolve from the larger US strategic goal of not only maintaining peace in the region but also maintaining a dominant influence over the regional politics. It could also be argued by the regional states that the US regional policy is a strategy of a dominant power undermining the authority of the regional powers.

The US has a strong national interest in a positive ASEAN process as it is increasingly concerned about the region's vulnerability to terrorist networks.[30] The US has been pressing the countries of the region to ratify the SUA convention. The reason for this is that the ratification of SUA convention would extend the rights of maritime nations to pursue pirates into the territorial waters of other states hence affecting the sovereignty of the coastal state.[31] This convention is not acceptable to most regional states in the region, as they want to fight their own battles against piracy and terrorism: Singapore, Indonesia and Malaysia to name a few.

The US has also taken the onus of training the militaries of various countries, like the Philippines, in the region to counter the threats of piracy and terrorism. The question arises as whether this isolated and selective training is sufficient to eradicate piracy in the region. It can be argued that US needs to do more on a regional basis by engaging the countries as a whole without coming across as a dominant power interfering with the regional politics.

Japan

Japan's imports and exports are carried through the South China Sea, the Malacca Straits, and the SLOCs of the Indian Ocean. These amount to around 80% of her total seaborne trade. Japan is increasingly aware of the threat piracy and terrorism has on its maritime trade and economy. Safe and open SLOCs are vital to Japan's road to prosperity. These threats have forced Japan to take a lead in the regional fight against piracy. To overcome the threat of regional piracy, Japan proposed the concept of a regional coast guard, in Nov 1999, at the summit meeting of ASEAN Heads of Government.[32] Some countries, including China, viewed the proposal as an attempt by Japan to reassert its waning influence in the region. Others saw this as a move by Tokyo of delicately distinguishing itself and its approach from that of the US. Japan proposed that this joint force would conduct monitoring of the region to prevent illegal fishing, illegal entry and piracy. To avoid a dominant and objectionable presence, Japan proposed that its ships would be drawn from its civilian-controlled Coast Guard, rather than from its Navy. The fundamental problem with the proposal of a joint task force is that the countries of the region will not permit warships of other nations to operate with full freedom due to the inherent fears regarding national sovereignty. Malaysia and Indonesia have clarified that they are unwilling to allow foreign armed vessels into their territorial waters. Joint exercises and training are acceptable to them but not joint patrols.[33] Another significant problem is that under the current interpretation of Article 9 of Japan's Constitution, its Coast Guard can only use force if the vessel under attack is Japanese. That obviously would not make Japan a very effective partner in a regional coast guard.[34]

There are several important yet unanswered questions regarding Japan's role in the region. Is a leadership role for Japan acceptable to the region, and domestically, given the fears of the region and domestic sensitivity to a foreign Japanese military presence? The answer is probably no. Coastal states will never permit an outside nation to interfere in matters affecting their perceived national sovereignty. Clearly, controversy will increase as Japan extends its defence perimeter further away from its territorial waters. The next question is regarding China's role. Will it accept Japanese leadership in this endeavour? This is highly unlikely as China sees herself as a future world power and therefore would not allow Japan to take a dominant role in

the strategic and political arena of the Asia-Pacific region.

China

China is a dominant power in the Asia-Pacific region. It sees herself as a force to be reckoned with in the near future and therefore is keen to take a lead on strategic issues within the region. China's increasing dependency on energy imports has produced a new strategic vulnerability linked to the possibility of disruption of oil supplies that can be used as a political advantage against Beijing. Energy consumption in China has swelled by 250% since 1980. China has since become a large importer of oil, which has resulted in a major shift in its foreign and security policy.[35] It can be argued that China seeks a peaceful and stable environment in Southeast Asia to promote expansion of trade and investment. From this perspective, any disruption in its international trade and investment by piracy and terrorism could seriously damage China's ability to sustain its present high rate of economic growth.

China, in the past, has been accused of state sponsored piracy. China has also been accused that her custom officials were condoning piracy in return for large paybacks. Beijing has countered these allegations by stating that *the boarding of vessels have been done by rogue elements who may have copied the uniforms of its navy and mimicked the colourings of official vessels. It has also stated that these illegal actions should not be confused with the policies of Chinese government.*[36] China came under great international pressure in terms of not taking effective legal action against pirates. For example, the hijackers of the MV *Petro Ranger*, a small oil tanker hijacked by pirates off Malaysia and later found in China were repatriated by China to Indonesia without a trial.[37]

The Chinese attitude towards piracy, it would seem, has undergone a major change in the last five years. In recent times, China has been keen to prove to the international community that it views piracy and terrorism with great concern. This new policy also sends the right signals to the US. After September 11, China voted in support of both UN Security Council resolutions authorising the international use of force against terrorism, a move greatly appreciated by the US.[38] Washington is also keen to initiate and sustain high level discussions with Beijing to explore a regional security architecture that retains long standing US commitment in the region and involves China constructively in maintaining regional security.

In November 2002, at the eighth ASEAN summit, China, and the ASEAN nations reached a watered-down accord on maritime issues of the region. The non-binding Declaration on the Conduct of Parties in the South China Sea called on all parties to cooperate in marine research, safety of navigation, search and rescue operations, and combating piracy.[39] The obvious conclusion that can be drawn from all this is that China wants to be seen as a nation cooperating with the world community in the fight against piracy and terrorism. This policy suits her perceived future role as a dominant world power.

India

India's parameters of security concerns clearly extend beyond confines of the geographical definition of South Asia, which was always a dubious framework for situating the Indian security paradigm. Given its size, geographical location, trade links and the EEZ, India's security environment and potential concerns range globally. India's declared *look east* policy is a pointer in terms of India's interest in the region. India lies astride the major SLOCs in the Indian Ocean, providing her with considerable strategic importance and potential. The vast proportion of her foreign trade, 97% in volume, and 76% in value terms, is sea-borne.[40] In the emerging security environment, India's dependence on the sea is likely to further increase in terms of trade, energy resources, and shipping. Piracy and terrorism make these transportation routes increasingly vulnerable to disruption and therefore, India advocates that *maritime security issues be perceived in a 'holistic' manner by the international community.*[41]

The Asia-Pacific region is of strategic importance to India's security as a substantial part of India's external trade passes through this region. India has been a major player of the fight against terrorism in the region. The Indian Prime Minister has stated *we grapple with a bewildering array of security threats, of which international terrorism has recently thrust itself dramatically into our consciousness.*[42] India has previously tended towards a more independent security paradigm but this approach does not exclude regional cooperation in security matters, as India's participation in the Asian Regional Forum (ARF) demonstrates. India seeks to influence and engage the region by being an active participant in the ARF to resolve the issues of piracy and terrorism.[43] This engagement is important from the fact that *energy security* is particularly crucial to India to maintain her economic prosperity and to be a dominant political force in the region. India hosted the ARF workshop on anti-piracy at

Mumbai in October 2000. The workshop deliberated on the issues relating to strengthening of cooperation and coordination to prevent and suppress the piracy and armed robbery at sea.

Following the terrorist attacks on World Trade Centre, India and the US fostered a new relationship to counter the menace of terrorism and piracy. The major step in this direction, by the Indian and US naval ships, have been the joint operation of escorting shipping through the Strait of Malacca in 2002. This joint effort to protect commercial shipping has proved successful in terms of Indo-US strategic alliance against terrorism. These measures may not be the most politically acceptable way to combat either piracy or terrorism as they have created suspicion in the region regarding the true reasons for the Indian and US naval presence in the Malacca straits.

The way ahead

Valencia suggests that *there seems to be quite a bit of maritime cooperation involving Asian countries and many proposals for its expansion, what is less certain is its effectiveness. Some of the activities have the appearance of 'talk shops' that lead to little action or implementation of the ideas that are discussed. There is a particular problem also with translating issues to an operational or practical level.*[44]

Despite greater concern about piracy, effective measures to combat piracy have not been realised. Sensitivities over joint surveillance of areas under national jurisdiction remain a challenge to cooperation, as does the balance of powers in the region. Anti-piracy measures at the international level could include establishment of common laws, exchange of piracy data and the possible extension of port state control to include inspection for anti-piracy measures.[45] Bilateral dialogues need to be initiated between states on issues of coordinated patrols and reciprocal enforcement. Within the region, regional agreements, technical cooperation, joint training, and joint patrols need to be finalised by the coastal states.[46] At the ship level, the measures being considered include a 9,000-volt electric fence round the ship (Secure-Ship), and a satellite tracking system (SHIPLOC) which consists of a small transmitter that can be installed on board a ship at a secret location. It helps the ship owners to know the location of their ships at all times. There has been a debate among mariners whether to equip the ship's crew with firearms to fight piracy. It is however argued that the moment a ship's crew is armed with weapons for self-defence, its status changes to that of a combatant.[47] Ship owners are not yet ready to take on this additional responsibility.

Conclusion

This article has established that while the threats of piracy and maritime terrorism are not very significant, the impact of piracy and maritime terrorism affects the economic viability of the region. Security measures for sea lanes are not only essential for global economic activities but are also necessary for preventing the international crimes against humanity. While there have been moves to counter the problems of piracy and maritime terrorism at the domestic, regional and international levels, states need to move towards *cooperative implementation* rather than paying *lip service* by holding endless discussions and seminars. The dominant regional players like the US, Japan, China and India need to set aside individual strategic interests and come together to evolve cooperative security and enforcement regimes along with the coastal states of the region. Issues of state jurisdictions and sovereignty need to be resolved multi-laterally with Singapore, Indonesia, and Malaysia, giving pirates and terrorists no room to *manoeuvre* in the region. There is a need to recognise that there are some common measures that can be taken to counter piracy and terrorist acts notwithstanding the fact that the strategic *motives* of such acts may differ significantly between states. Countries need to rise above *petty politics* and *national interests* to tackle piracy and maritime terrorism as *global* problems rather than *regional* problems.

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The role of the Navy in the new security environment

Commodore Jack McCaffrie, AM RANR*

The recent upsurge in terrorism, in the USA and elsewhere, has led to some rapid reassessments of national security demands in many countries. Australia has made such a reassessment, as a reaction to the October 2002 attack in Bali which took so many Australian lives and in a general reappraisal of threats against Australian interests within Southeast Asia. The potential for so-called rogue states to acquire and threaten with weapons of mass destruction and long range missiles has also gained renewed attention.

The most recent Australian strategic assessment, *Australia's National Security: A Defence Update 2003* has highlighted these newly prominent threats and their implications for the ADF.[1] It also acknowledged the troubled nature of Australia's immediate region and its greater exposure to a variety of security threats. A likely outcome of the reassessment is a greater focus on ADF operations in the immediate neighbourhood, in response to terrorism or the many other existing and potential security problems.

The nature of the terrorist threat

Terrorist attacks in the US and elsewhere, especially in the last three years, have generated some broader appreciations of the nature of national security. The US and its interests have been the primary target of terrorists, but Australia has also been directly affected by attacks in Southeast Asia. While terrorism is not new to Southeast Asia, this region has seen a resurgence of terrorist activity in recent times, not least because of the radicalisation of some Southeast Asian Muslims who fought against the Soviet Union in Afghanistan. Subsequently, these Muslims have also received funding from international movements.[2]

While a significant intelligence and law enforcement effort is being mounted against the terrorist threat in all regional countries, there is no sense that the war against terror is close to being won. The organisations sponsoring terrorism appear to have sufficient resolve, strength and internal cohesion to survive the loss of even key individuals. In some cases, state sponsorship also provides significant support to terrorist groups. It may also be that the issues motivating the terrorists remain unaddressed.

Most recent terrorist acts in Southeast Asia have involved relatively unsophisticated explosive devices, although in some cases combined with quite sophisticated planning. Recent acts have also seen the introduction to Southeast Asia of terrorists prepared to commit suicide in their attacks.[3] There are indications, however, that attacks using more sophisticated weapons could occur in the future. These include the recent foiled attempt to import surface to air missiles into the US for terrorist purposes. The failed attempt in Kenya to shoot down an Israeli airliner in 2002 with such missiles is another indicator.[4]

There is also evidence of the desire by terrorist groups to acquire weapons of mass destruction, whether chemical, biological, radiological or nuclear.[5] Given the links between Southeast Asian terrorist groups and those based in the Middle East, any future terrorist access to weapons of mass destruction in other parts of the world could conceivably flow also to Southeast Asia. Additionally, there have been allegations within Southeast Asia of military forces selling weaponry to terrorist groups.[6] The extent of any such traffic is not possible to determine, but if it does exist at all it is a worrying development.

The Navy's role in countering terrorism

The nature of terrorism today makes national responses to it the responsibility of many elements of government. Law enforcement bodies are primarily responsible, but they must be assisted by many others agencies. The Australian Defence Force (ADF) is one such organisation and it has a reasonably long if irregular record of involvement in countering terrorism within Australia. The response to the 1978 Hilton Hotel bombing and more recently the participation in security arrangements for CHOGM in 2002 and the Sydney Olympic Games in 2000 are typical examples. The latter included elements from all three Services and included tasks ranging from intelligence support to physical security of a variety of venues.

Nevertheless, ADF involvement in past anti-

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terrorism operations in Australia has rested primarily with the Army and in particular the Special Air Service (SAS). If any future terrorist acts within Australia are limited to relatively simple explosive devices against relatively soft targets, then the ADF involvement is unlikely to change significantly. But, there is some evidence to suggest that the nature of the terrorist threat is changing. Consequently, there is also a need for the ADF to adapt its approach.

Firstly, it will need to be prepared to contribute to the fight throughout the region. The attack in Bali in October 2002 indicated that Australian interests abroad could provide softer targets than mainland Australia itself. Evidence of an attack planned against the Australian High Commission in Singapore in late 2001[7] and an attack planned against the Australian Embassy (among others) in Bangkok during mid-2003 supports this view.[8] Secondly, the ADF should expect terrorists to introduce more sophisticated weapons, including, for example, weapons of mass destruction and surface to air missiles.

The extent to which the ADF could become further involved in counter-terrorism operations, within Australia, will depend on the nature of any emerging threat. The more sophisticated the threat, the more likely ADF capabilities will be able to play a part in countering them and will be called on to do so. This could bring into play some major combat elements of the ADF, including Air Force maritime patrol aircraft and the Navy's surface combatants, submarines and patrol boat force. The surface combatants could be employed on shipping protection and boarding and search operations, while the submarines could undertake surveillance and intelligence gathering tasks.

Navy involvement would of course be greatest in countering maritime terrorist operations. Recent attacks against both a USN warship and a French commercial tanker indicate one possible course of terrorist action.[9] The use of shipping containers in support of terrorist activities is another. Already, there has been at least one instance of a container being used to smuggle a suspected Al-Queda member.[10] Containers could also be used for a variety of other activities, including the transport of weapons of mass destruction. The huge number of containers being used throughout the world and their potential to be used for illegal purposes is generating new inspection regimes. These will be both costly and time-consuming if they are to be fully effective.

Further afield, the potential for the ADF to be involved in countering terrorism will depend significantly on the willingness of regional countries to permit Australian involvement and on the development of regional approaches to the matter. Nevertheless, terrorism - like any threat - is better dealt with at a distance from the homeland if at all possible. This was the thrust of Prime Minister Howard's comment in November 2002 that Australia should be able to act so as to prevent terrorist attacks on Australia or its interests.[11] Regional reactions to this comment indicate just how difficult to manage some kinds of cooperative counter-terrorism activities could be.[12]

The extent to which the sea dominates the region suggests that the Navy could play a significant role in counter-terrorism operations, either in its own right or jointly. On one hand, surface units could provide protective and boarding and search capability at sea, while they and submarines could be used for surveillance and some intelligence gathering. On the other hand, the Navy could also provide sea-basing for other forces; thereby removing one intrusive obstacle to operations in the region and at the same time providing secure and mobile basing for them. With this in mind, naval forces must have the capacity to protect themselves and other craft from terrorist attacks, including for example the use of fast small craft and shoulder mounted missiles.

Balancing the response to terrorism and traditional threats

The Chief of the Army in a recent article pointed out that Australia cannot afford either/or solutions to security issues.[13] He was arguing in the context of the Army having to be capable of both defence of continental Australia and operations offshore. His argument applies equally to the ADF being able to deal with terrorism and with the more traditional tasks for which it has always been structured.

Defence 2000: Our Future Defence Force determined *inter alia* that the ADF must comprise forces able to protect our maritime approaches and to support maritime and land forces deployed into the region.[14] *Defence Update 2003* introduced two newly prominent threats; terrorism and the proliferation and potential for use of weapons of mass destruction, and noted the potential for increased calls for the ADF to operate in the immediate neighbourhood.[15] The *Defence Update* also accepted that our strategic circumstances had changed and that there would be consequent implications for future types of conflict, types of operations and the kinds of capabilities we would need.

Still, the terrorist attacks of September 2001

and those subsequently have not changed everything. There is still a range of security tasks and challenges likely to require the application of the operational capabilities now in the ADF and planned for it in the future. In recent years, for example, the Navy has been heavily involved in a very wide range of operations; from apparently simple policing tasks to major military campaigns.

The Navy has been involved in interception operations in the Persian Gulf for several years, has provided substantial support to land operations in East Timor and has taken part in Operation *Relex* to prevent the arrival of illegal immigrants. Most recently, the RAN has conducted sovereignty patrols in the Southern Ocean and now has an ongoing support role in the Solomon Islands peacekeeping mission.

Most significantly, however, and even as the nation has become understandably preoccupied with preparing to deal with regional terrorism, the Navy, as part of ADF contingents, has participated in two major conventional military campaigns in the last two years. The Navy involvement in these two campaigns has been within major maritime coalitions. The extent to which the Navy, as currently structured, could contribute independently to high level maritime operations is debatable.

Another significant issue is the recent reminder that events demanding a military response can emerge with little or no warning - and can result in rapid policy shifts on the part of government. *Defence Update 2003* noted as recently as March 2003 that *the Australian Government should not be expected to solve the problems of the Solomon Islands and anyway cannot do so.*[16] The Navy's current involvement there is in support of a predominantly police operation, which is working to provide an environment in which the people of the Solomon Islands will be free to resolve their problems. The military support, primarily Army and Navy in this case, is critical to the success of the operation.

What this means for the Navy

There can be no telling what future challenges will emerge for the Navy. Recent operations, however, have ranged from search and rescue in the Southern Ocean to providing naval gunfire support for Royal Marines in Iraq. One outcome of these recent events is a realisation by Australian defence policy makers that a strategy emphasising protection of the maritime approaches and ultimately defence of the landmass will no longer be sufficient. Changed strategic circumstances are demanding a changed

The now decommissioned *Perth* class DDG operating off Jervis Bay in 1998 (RAN).

approach, with a much greater emphasis on operations within the region by the ADF, with a greater emphasis on land force operations than previously.

Any move to greater frequency of operations in the region would also involve a higher priority for maritime forces. Whatever operations are to be conducted offshore by the Army will require a Navy (and often Air Force) contribution. The naval contribution will emerge in the form of transport to and within the area of operations, command and control facilities, logistics support and force protection in the area of operations. It could also permit sea-basing and the associated flexibility of force insertion and extraction. In addition, however, the Navy will also need to be capable of future coalition operations, with regional partners as well as with the USN. Experience and the changing circumstances suggest that these operations could occur anywhere from the Persian Gulf to the Korean Peninsula.

Developments in the region, the breadth of tasking which is likely to confront the Navy as a result of the changed strategic circumstances and the national response to them will call on the full range of naval capabilities.

Any offshore land force operations will require sea transport for equipment and often for the troops themselves. This applies not only to initial lodgements but also to resupply and sustainment of forces in an area of operations.[17] The nature of the region, especially the South Pacific, is such that ports will not always be available and unloading of transport ships will often require amphibious sealift ships capable of loading and offloading over beaches or from offshore, using landing craft and helicopters. The amphibious sealift ships will also need extensive command and control suites for the management of joint operations.

Resupply and sustainment operations will, for the most part, be accomplished by Navy afloat support ships. They will need to be capable of carrying and distributing a wide variety of stores, including ammunition, food, water and fuel for a variety of vehicles. Afloat support vessels will be needed to support both amphibious forces and other naval forces.

In any deployment of Australian forces offshore, there will be a need to provide protection to those forces. The nature and extent of any threat will vary significantly with the circumstances and geographical setting. In some cases, where there is no evident or overt threat, protective forces could act simply as a deterrent. Air Force tactical and maritime patrol aircraft will contribute to such protective efforts. Tactical aircraft, especially, will often find it difficult to maintain a permanent presence in an area of operations, because of their limited range and the uncertain availability of forward operating bases.

Permanent force protection can be provided by the Navy's surface combatant force. These ships, whether the *Anzac* (FFH) class or *Adelaide* (FFG) class frigates, offer sustained and flexible force protection options for ADF forces operating in the coastal fringes of the entire region. Their sustainability comes in part from a level of self-sufficiency of fuel and stores. For the most part, however, it comes from the capacity to replenish from afloat support ships. This provides an ability to remain on station for months at a time.

Surface combatant flexibility comes from their inherent responsiveness and adaptability and the considerable combat power they can wield. Surface combatants can move from the most benign of postures to the most offensive in very little time - and with little or no outward sign of having done so. Similarly, the range of sensors and weapons carried by these ships allows them to up the ante gradually if circumstances so dictate.

In a force protection role, surface combatants can deal with a range of threats simultaneously. The threats can include; submarines, other surface craft, aircraft and anti-ship missiles launched from any of those craft. Furthermore, surface combatants can also deal with a range of threats which might emanate from land. Recent ADF operations in the region have indicated the need for counters to quite high levels of threat.

Importantly, however, there are limits to the capacity of the RAN's existing surface combatants to manage some threats, especially sophisticated threats from the air. While they could provide self-defence and defence of other units in the immediate vicinity, their ability to provide comprehensive defence of a deployed force would be very much diminished by the lack of long-range sensors and weapons. It is primarily these inadequacies that the planned air warfare capable sea control combatant is intended to correct.

Submarines can also contribute to force protection, through pre-deployment and ongoing intelligence gathering. They can also provide a most effective guard against the operations of adversary submarines and surface vessels within an area of operations. Beyond that, the submarine force can also be used offensively in support of offshore operations with their covert ability to insert special forces units.

Finally, there may be circumstances, such as those in the recent Iraqi conflict, in which mine

warfare forces will play a significant protective role. The region in which we operate is susceptible to minelaying and our response to such operations could include the clearance diving teams and coastal minehunters.

Conclusions

Terrorism, as manifested in Southeast Asia in the last few years, has generated a new and immediate threat to Australian interests. Thus far it has been limited to relatively unsophisticated attacks but there is reason to suspect that more sophisticated means will be used in future. The nature and extent of the threat means that it has to be taken seriously and that the ADF must be an integral part of the national response to it. Furthermore, the ADF will need to adapt as the nature of the terrorism threat changes.

One such adaptation could include ADF operations offshore and within the region. These operations could involve elements of all three Services and in the Navy's case could include surface combatants and amphibious forces, for example. Offshore operations could also be required for other reasons. The new threat is by no means the only one and Australia's immediate region still presents a range of problems of a more traditional kind.

The main implication of these developments for the RAN is likely to be a greater emphasis on operations in support of land forces. In at least a formal sense, this may represent for the RAN the kind of transition to littoral operations that the USN has already made. Virtually any land force offshore operation will involve the Navy, both in transport and in force protection roles. Depending on circumstances and areas of operation, many if not all of the Navy's combat and support capabilities could be brought into play. In some instances, the Navy might well be the major provider of force protection. In such circumstances, the Navy could also expect to be confronted by a range of threats including conventional yet sophisticated ones.

The combination of emerging and existing threats to Australia and its interests in the region will continue to present the nation with significant security challenges. The intention to include offshore deployment of land forces in the response to them will place a new emphasis on maritime forces and in particular those of the Navy. All such deployments will demand much support from the Navy and will demonstrate again the already proven value of maintaining a Navy with a broad balance of capabilities.

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SEMAPHORE

Before Gallipoli: Australian operations in 1914

(Issue 7, 2003)

On 4 August 1914 the British Empire declared war on Imperial Germany and Austro-Hungary, and Australia immediately began to contribute to the Empire's war effort. The First World War was to have an indelible shaping influence on Australian society and culture. Regrettably, the undeniably heroic actions of the Australian and New Zealand Army Corps (ANZAC) in the opposed landing at Anzac Cove on 25 April 1915, the subsequent bitterly fought Gallipoli campaign, and the national mythology that grew from it, have overshadowed the earlier successful actions of Australian forces in the war. This is a great pity, as late 1914 witnessed some notable Australian firsts - the first land operation of the war, the first amphibious landing, the first joint operation, the first coalition operations, the first offshore military expedition planned and coordinated by Australia, the first bravery decoration of the war, the first combat casualties of the war, the first RAN warship lost, and the first enemy warship sunk.

On 7 August 1914 the British War Office requested that Australia seize the German colonies in Nauru, the Caroline Islands and New Guinea. The primary reason for this request was to prevent enemy wireless stations from passing information to the German East Asiatic Squadron of the Imperial German Navy, commanded by Admiral Graf von Spee, that might hinder British efforts to bring it to battle. The RAN acted swiftly to eliminate the enemy threat to the Empire's shipping. On 11 August the destroyers HMA Ships *Parramatta*, *Yarra* and *Warrego*, covered by the light cruiser *Sydney*, prepared to launch a torpedo attack on the German anchorages in Simpsonhaven and Matupi Harbour, New Britain, but found the enemy squadron gone. Landing parties were 'placed ashore at Rabaul and Herbertshöhe to destroy the wireless station, but when it was learned that the station lay inland it was clear that an expeditionary force would be required. Meanwhile, the battlecruiser HMAS *Australia* was scouring the Pacific for Von Spee's squadron. Von Spee was aware of the threat, recording in his diary on 18 August that *the Australia is my special apprehension - she alone is superior to my whole squadron.*

On 29 August 1914, in Australia's first coalition operation, a New Zealand Expeditionary Force of 1400 troops landed at Apia, Western Samoa, covered by the guns of *Australia*, and the cruisers HMAS *Melbourne*, HM Ships *Psyche*, *Pyramus*, *Philomel* and the French *Montcalm*. With no troops to defend the islands, the German Administrator surrendered on 30 August. The wireless station and harbour facilities were thereafter denied to Von Spee's squadron.

The Australian Naval and Military Expeditionary Force (ANMEF) began recruiting on 11 August, consisting of a battalion of 1,000 infantry and a small battalion of 500 naval reservists and time-expired RN seaman. The force left Sydney on 19 August aboard the transport HMAT *Berrima*, a liner requisitioned from P&O, after a period of training near Townsville. The force sailed for Port Moresby to await the arrival of supporting RAN vessels. On 7 September the force, now including *Australia*, the cruisers *Sydney* and *Encounter*, the destroyers *Parramatta*, *Warrego* and *Yarra*, and the submarines *AE1* and *AE2*, sailed for Rabaul. Meanwhile, on 9 September *Melbourne* landed a party on Nauru to destroy the wireless station, whereupon the German administrator promptly surrendered. On 11 September a force consisting primarily of naval reserve personnel was put ashore at Kabakaul to seize the wireless station located inland at Bitapaka. The landing force experienced strong initial resistance, and was forced to make small group attacks through the thick jungle to outflank the enemy. The wireless station was captured and destroyed. This attack resulted in Australia's first combat casualties of the war - four sailors of the landing force and an attached Army doctor - Able Seaman Walker (he served as Courtney but was re-buried under his real name by the Commonwealth War Graves Commission), Able Seaman Williams, Able Seaman Street, Able Seaman Moffatt, and Captain Pockley (Australian Army Medical Corps). The other fatal casualty suffered during the operation was Lieutenant Commander Elwell, RN. On 12 September a combined Navy and Army force was put ashore at nearby Herbertshöhe, while another landing force seized Rabaul. On 14 September *Encounter* shelled German positions at Toma, the first time an RAN vessel had fired on an enemy and the RAN's first shore bombardment. The German resistance, comprising 40 reservists and 110 native troops, was no match for the ANMEF, covered by the 12" guns of *Australia*, and the acting Governor surrendered all of German New

Guinea on 17 September 1914. Subsequent operations occupied Bouganville and the New Guinea mainland colonies unopposed. The Governor's steam yacht *Komet*, captured on 9 October 1914, was subsequently commissioned into RAN service as HMAS *Una*. The campaign was an overwhelming success, rapidly achieving all objectives set by the War Office. A RAN reserve officer, Lieutenant Bond, was awarded the Distinguished Service Order, the first Australian bravery award of the war. In a tragic footnote, *AE1* disappeared without trace with all 35 personnel on board, the first RAN unit to be lost on operations. On 26 September *Sydney* completed Australian operations against the German Pacific colonies by destroying the German wireless station at Angaur in the Palau Islands.

While these operations were in progress other RAN vessels were contributing to the war effort by capturing German merchant shipping. HMAS *Pioneer* captured the steamers *Neumunster* and *Thuringen* off WA; HMAS *Protector* the steamer *Madang* off New Britain; and the launch *Nusa* the steamer *Siar* and the schooners *Matupi* and *Senta* off Kavieng.

On 1 November 1914 the first ANZAC convoy sailed for Egypt from Albany, WA. The escort comprised the cruisers *Melbourne*, *Sydney*, HMS *Minotaur* and the Japanese *Ibuki*.

On the same day as the Australian Government received notification that the Empire was at war, Von Spee had detached the light cruiser SMS *Emden* from the East Asiatic Squadron for independent operations in the Indian Ocean. By early November *Emden*, under Captain von Müller, had sunk or captured 22 ships, thoroughly disrupting shipping operations, forcing up insurance premiums, and drawing warships away from other theatres. On 9 November 1914 *Emden* landed a shore party at Direction Island to destroy the cable station. The operators managed to get off a warning signal before the station was closed down. The message was picked up by the convoy and *Sydney*, commanded by Captain Glossop, was detached to intercept. Better armed, faster and more manoeuvrable, *Sydney* caught the German cruiser by surprise, forcing von Müller to abandon his landing party. Despite a fierce resistance the outcome was a foregone conclusion - the Australian ship pounded *Emden* into a burning hulk, and von Müller drove his ship up onto North Keeling Island to save his remaining crew. *Sydney* suffered four killed and eight wounded, *Emden* 115 killed and 80 wounded. *Sydney* then intercepted *Emden's* collier *Buresk*, which scuttled herself as the cruiser approached. The 50 strong landing party from the *Emden*, led by Lieutenant Commander von Muecke, seized the station's schooner *Ayesha* and escaped, eventually reaching Germany after various adventures.

The destruction of the *Emden* freed the shipping routes of the Indian Ocean from raiding warships. However, the German East Asiatic Squadron remained at large, a continuing threat to shipping in the Pacific Ocean. On 1 November 1914 Rear Admiral Cradock, commander of the North American station, encountered Von Spee's squadron off Coronel. In a battle fought in deteriorating weather conditions the old armoured cruisers HM Ships *Monmouth* and *Good Hope* were sunk with all hands by the armoured cruisers SMS *Scharnhorst* and SMS *Gneisenau*, and light cruisers SMS *Dresden*, SMS *Leipzig* and SMS *Nürnberg*. The blow to British naval prestige could not be ignored, and the Admiralty redoubled its efforts to hunt down Von Spee. The battlecruisers, HM Ships *Invincible* and *Inflexible*, under the command of Vice Admiral Sturdee, were detached from the Grand Fleet to lead the hunt. *Australia* was ordered to the American Coast, rendezvousing on 29 November with the Japanese cruisers *Asama*, *Idzumo* and *Hizen*. On 8 December Von Spee decided to raid the British coaling station at Port Stanley in the Falkland Islands, in preparation for his return to Germany. Unfortunately for him, Sturdee's force was already anchored in Port Stanley. When Von Spee's ships were sighted Sturdee raised steam as quickly as possible and set out in pursuit. *Scharnhorst*, *Gneisenau*, *Leipzig*, *Nürnberg* and the colliers *Baden* and *Santa Isabel* were sunk by *Invincible* and *Inflexible*, the armoured cruisers HM Ships *Carnarvon*, *Kent* and *Cornwall;* the light cruisers *Glasgow* and *Bristol;* and the auxiliary merchant cruiser *Macedonia*. *Dresden* and the supply ship *Seydlitz* were the only German vessels to escape the battle. *Seydlitz* was interned in Argentina and *Dresden* scuttled herself when run to ground at the Chilean island of Mas a Fuera on 14 March 1915. With the major German threat in the Pacific and Indian Oceans now eliminated, Australia's newer warships could be reallocated to the Atlantic and Mediterranean theatres of operations, while lightly escorted ANZAC troop convoys could sail unmolested to Europe and the Middle East.

In the last five months of 1914 Australian forces, particularly the RAN, participated in a series of successful actions which, at the cost of ten dead, assisted in sweeping the Indian and Pacific Oceans clear of enemy warships and seizing all German colonies in the South Pacific. In comparison to these actions, the land

campaigns of World War One would provide Australia with a harsh introduction to modern warfare - one that would scar and shape the nation.

The decline of Australian naval deterrence 1919-1939

(Issue 5, 2003)

The Commonwealth Naval Forces inherited a motley collection of obsolescent coastal and harbour defence vessels when the State navies transferred to Commonwealth control on 1 March 1901. As a result, the defence of Australia's sealanes remained the responsibility of the Australian Squadron of the Royal Navy. On 24 November 1909 Prime Minister Joseph Cook received majority approval from the House of Representatives (by 39 votes to 9) for the scheme of Imperial naval defence espoused by Admiral Jackie Fisher, First Sea Lord of the British Admiralty, and immediate construction of an Australian fleet unit. The unit was to comprise an *Indefatigable* class battlecruiser, three *Bristol* class unarmoured cruisers, six *River* class destroyers, and three *C* class submarines. The cost to Australia was to be £3.695m - an astonishing figure for the newly federated nation of four million. Most importantly, unlike the Australian Squadron, the Australian fleet unit was to remain under the absolute control of the Commonwealth Government in peace and war, unless specifically placed under the control of the British Admiralty.

Australia's drive to provide for its own naval defence, and contribute to Imperial naval defence, culminated on 4 October 1913 when the fleet unit, led by the battlecruiser HMAS *Australia*, proudly sailed into Sydney Harbour to the wild acclaim of the public. In just four years Australia had created a potent naval deterrent against any potential enemy raiding force. When the British Empire declared war on Germany and Austria-Hungary on 5 August 1914 the RAN mustered a battlecruiser, two new cruisers (with a third building), two older cruisers, three destroyers (with three building), two *E* class submarines, and some old colonial warships.

This force far outmatched that of its local rival, the German East Asiatic Squadron commanded by Vice Admiral Graf Von Spee. In 1914 *Australia* was the most powerful warship in the entire southern hemisphere. Von Spee was well aware of the threat, stating in a letter to his wife that the battlecruiser *by itself, is an adversary so much stronger than our squadron that one would be bound to avoid it*. Von Spee did indeed avoid the Australian coast prior to the outbreak of war and, when faced with the potential threat of Japanese forces joining the conflict on the British side, sailed east into the Pacific. After the outbreak of war, in between searching for Von Spee, the RAN assisted in capturing the German colonies and wireless stations in the South Pacific, protecting ANZAC convoys, and sinking the cruiser SMS *Emden*. Von Spee did not return to the western Pacific, and on 8 December 1914 all but one of his ships were sunk off the Falklands. All significant threats in the Pacific having been destroyed, for the remainder of the war the major elements of the RAN patrolled the North Sea and Mediterranean alongside the Royal Navy.

By late 1919 the RAN's strength had peaked at a battlecruiser, three cruisers (with one building), an older cruiser, six *J* class submarines, twelve destroyers, four sloops, a gunboat, plus auxiliaries. However, despite the clear deterrent value that the RAN had provided against an enemy raiding threat, the ensuing fate of the RAN for the next two decades was far from happy. The jubilation that followed the arrival of the fleet unit in 1913 and the sinking of the *Emden* by HMAS *Sydney* in 1914 had been overshadowed by four years of bloody warfare. The feeling that the creation of a powerful navy had heralded the nation's coming of age had been displaced by the growing ANZAC mythology, whereby the nation's independence had been bought with blood on the shores of Gallipoli. While the Navy had grown to a strength of over 5,000 personnel and 37 ships during WWI, this paled against the experience of the 421,809 men enlisted in the AIF and its 215,585 casualties (including 61,720 dead). The national psyche and sense of nationhood had firmly shifted from a naval to an army focus. This would have serious repercussions for the RAN from 1919-39 in terms of trying to maintain a credible force, as the will to invest in an effective and independent navy declined.

Both victors and vanquished were crushed by the experience of 1914-18, and in its aftermath anti-war feelings ran high around the world. The League of Nations was created to prevent future conflict, by providing an international forum where countries could resolve their differences without recourse to war. Popular feeling in Australia and other Western nations was decidedly opposed to armaments and militarism, lest another ruinous war result. This feeling was compounded by the rise of socialist movements, notably unions, in the wake of the 1917 Russian Revolution, that saw standing military forces as potential tools to be used by the ruling elites to control the proletariat. As such, there was strong public and political pressure on successive

Australian Governments to reduce military spending and divert that funding toward social benefit schemes.

Added to these problems, the Armed Forces in general, and the RAN in particular, faced increasing financial stringencies. The war had been ruinously expensive for the British Commonwealth. After expending £377m, the Australian Government ended the war with loans of £262.5m, including a debt to the United Kingdom of £43.4m, or 68% of GDP. Nor was this the full extent of the financial burden, for ongoing repatriation and pension expenses imposed a heavy and continuing drain on the post-war budget. By 1934 the total cost of the war had grown to £831.3m. The Great Depression would strike further blows at the RAN, resulting in the Defence budget being slashed by 21% in 1930-31 and another 17% in 1931-32. At its lowest point in 1932 the RAN could muster only three ships in full commission, the heavy cruisers HMA Ships *Australia* and *Canberra* and the seaplane tender *Albatross*. The old destroyer *Tattoo* was in partial commission, and two light cruisers of 1908 design, *Brisbane* and *Adelaide,* were in reserve. Personnel numbers were cut to under 3,000 and wages slashed by up to 25% to further save money.

The RAN also faced attack from the Army and RAAF, as each fought to retain its share of the depleted Defence budget. The RAAF in particular pushed to replace the Navy as the first line of national defence, arguing that air power alone, through a combination of greater speed and mobility, could protect Australia's local sea lines of communication and prevent invasion. This argument, which ignored the broader functions of the RAN including distant trade protection, power projection in the littoral, and providing a national presence, has been enduringly attractive to financially constrained Australian governments. While the air power argument was not fully accepted, successive governments seriously considered the idea of dispensing with the RAN and either distributing the task of naval defence to the Army and RAAF or returning it to the Royal Navy. Naval funding allocations suffered accordingly.

Doctrinally, the Royal Navy's focus on trade protection had shifted from Fisher's integrated units of battlecruisers and cruisers back to cruisers alone. The battlecruiser, originally intended to counter enemy cruisers in the same way as destroyers had been intended to counter torpedo boats, had been discredited by its failure at the Battle of Jutland to stand up to undamaged enemy

HMAS Australia (RAN).

battleships - a task for which it was not designed. Fisher, who had retired in 1915, was discredited, and the cruiser lobby, which had controlled the Admiralty prior to Fisher's elevation to power, returned the Royal Navy to its original course. To fulfil the trade protection mission along the vast sea-lanes of the Empire it was thought that many small cruisers were better than a few large battlecruisers. A battle fleet was still required for protection of home waters and the Mediterranean, plus the occasional foray into the Pacific, but battleships and carriers, not battlecruisers, would form its backbone. The doctrinal shift shaped the RAN, emphasising the need for cruisers to contribute to the protection of Imperial shipping, rather than a balanced fleet unit for national defence.

Following WW1 Britain, America and Japan all instituted ambitious naval construction programs to introduce new designs reflecting wartime experience. America wished to achieve parity with the numerically superior Royal Navy, and restrict the Imperial Japanese Navy, without incurring the cost of a naval arms race. In 1921 President Harding called a conference between the USA, Britain, Japan, France and Italy to advocate mutual naval arms limitation. Faced with massive post-war debts all parties agreed on limitations. The ensuing 1922 *Washington Five Power Naval Treaty* made restrictive demands on the signatories. No new capital ships were to be built for 10 years and no capital ship was to be replaced until it was 20 years old. A capital ship ratio was set at 5:5:3:1.7:1.7, which assigned parity to Britain and America, placed Japan in third place, and left France and Italy bringing up the rear. Additional constraints were placed on tonnage and armament. There was also to be no expansion of existing bases, fortifications, or repair facilities in the Pacific - except Singapore. The immediate result of the treaty was that Britain, America and Japan scrapped a number of unfinished capital ships and older dreadnoughts. One of the ships included in the British tally, with the full concurrence of the Australian government, was the battlecruiser *Australia*. Henceforth Australian naval deterrence would be restricted to cruisers for local and Imperial trade protection.

As the Depression eased, and faced by a worsening international situation the Australian Government looked again to the neglected RAN. In 1935 Japan had withdrawn from the Washington Treaty, Germany had repudiated the Treaty of Versailles, and both began building powerful navies. To provide a more useful trade protection force, the Government placed successive orders for three light cruisers, two destroyers and four sloops. Nonetheless, expenditure on the RAN continued to decline as a proportion of overall defence spending, reaching just 26% in 1939. When war was declared on 3 September 1939 the RAN had just two heavy cruisers, three modern light cruisers, a light cruiser of 1912 design, five WW1 vintage destroyers (with two new *Tribal* class building) and two sloops (with two building).

Australian naval deterrence between the wars was a victim of an unfortunate series of circumstances, which saw the RAN reduced from a formidable fleet unit in 1919 to a limited trade protection force in 1939. This decline would have serious repercussions for Australia and the RAN when Japan thrust southward in 1942.

New Guinea WWII - a maritime campaign

(Issue 2, 2003)

To most Australians the campaign fought against the Japanese in New Guinea during WWII is typified by images of Australian diggers and fuzzy-wuzzy angels struggling along the Kokoda Track or fighting hand to hand at Milne Bay. Very few would consider this to have been a maritime campaign, yet this is exactly what it was, for the final arbiter of victory or defeat in the jungles of New Guinea was maritime power.

Following Japan's attack on the United States Pacific Fleet at Pearl Harbour on 7 December 1941, the sinking of Force Z (HM Ships *Prince of Wales* and *Repulse*), and the subsequent defeat of Allied naval forces in the Battles of the Java Sea and Sunda Strait, the Imperial Japanese Navy had achieved control of the seas in the South Pacific. This enabled her to project her military forces into the islands north of Australia. By 23 January 1942 Rabaul had fallen and became the location of the Japanese forward headquarters. In order to protect Rabaul the Japanese occupied Lae and Salamaua on 8 March. However, the Japanese were soon to find that the capture of Lae did not ensure the security of Rabaul from air attacks, and they decided to capture Port Moresby by amphibious assault.

That the Japanese intended to conduct an amphibious assault on Port Moresby (Operation *MO*) had become known to the Commander-in-Chief Pacific Fleet through the work of USN/RAN code breakers. As a result of this intelligence Task Force 17, built around the aircraft carriers US Ships *Lexington* and *Yorktown*, was sent to the Coral Sea to engage the Japanese. Also assigned to Task Force 17 was a cruiser squadron under command of Rear Admiral J. Crace RN, which included HMA Ships *Australia* and *Hobart*. Prior to the battle Rear

Admiral F.J. Fletcher, USN directed Admiral Crace to patrol the Jomard Passage at the eastern tip of New Guinea. The Port Moresby Invasion Force, which included the light carrier *Shoho*, was provided with distant cover by the aircraft carriers *Shokaku* and *Zuikaku*. As it approached the Jomard Passage the Invasion Force learnt of the presence of Admiral Crace's cruisers and halted awaiting the outcome of the impending carrier battle further to the south. Although in the ensuing Battle of the Coral Sea the Americans lost the *Lexington*, the Japanese carriers were in no condition to support the further advance of the Port Moresby Invasion Force, which by this time had lost the *Shoho*. Rather than fight their way through the cruiser blocking force the Japanese retired to Rabaul.

Failure to take Port Moresby by amphibious assault did not deter the Japanese. They immediately commenced planning to take Port Moresby by assault from the land. This would entail a landing at Buna, which was undertaken on 21 July, and an advance across the Owen Stanley Ranges. All the logistics required by the Japanese to support this assault, and the Allies to oppose it, had to be carried by ships. So began the struggle for control of the sea-lanes.

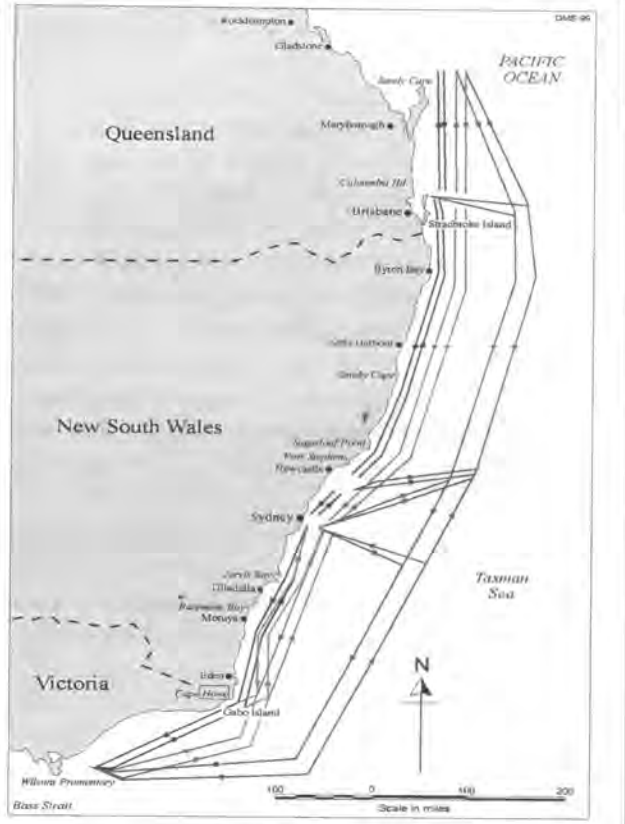

Figure 1: Coastal convoy routes

From May 1942 Japanese submarine operations off Australia's east coast began to take a toll on shipping. By August seven ships had been sunk and a further six damaged. Convoys were organised to protect this vital shipping and the First Naval Member was designated the Commander South West Pacific Sea Frontiers. Fortunately for the Allies the Japanese failed to allocate sufficient resources to the submarine campaign and this, coupled with a lack of strategic intelligence, ensured that losses were never of such a magnitude as to disrupt the flow of supplies north. By the end of 1943 over 60 warships were allocated for convoy escort duties. Figure 1 shows the convoy route along eastern Australia. By contrast, in the interdiction campaign against the Japanese sea lines of communications USN submarines effectively destroyed the Japanese merchant marine. An example of the fate of Japanese convoys is the January 1943 patrol by the USS *Wahoo*. During the course of a ten-hour running battle off New Guinea, she reported sinking an entire convoy of two Japanese freighters, one transport and one tanker.

The Japanese losses of merchant shipping ensured that only a trickle of logistics and reinforcements reached the Japanese in New Guinea. By contrast Allied forces were receiving more and more supplies and equipment. As an indication, from the opening of the campaign until September 1943, 7261 vehicles, 306 guns, 596033 tons of stores, and 75 surface craft were shipped to New Guinea. By mid-1943 the Japanese attack on shipping was coming to an end as their submarines and light forces were being increasingly used to supply cut-off island garrisons. During the course of the war in excess of 1100 coastal convoys were escorted by units of the RAN, not including a number of special convoys or troop convoys.

Air power contributed to the maritime interdiction campaign, attacking Japanese shipping, airfields and port facilities. The first Japanese defeat at Milne Bay was assisted by the destruction of an enemy convoy on 25 August 1942 by 75 Squadron RAAF. In the most notable example, intelligence warned of the last major Japanese resupply operation, a reinforcement convoy from Rabaul to Lae. Termed the Battle of the Bismarck Sea, continuous coordinated attacks by RAAF and US aircraft on 3 March 1943 resulted in the sinking of all eight transports, four out of eight destroyers, and the loss of at least one third of the Japanese troops. This action was untypical because weeks of advance warning was provided, which allowed for intensive, coordinated training and rehearsal - most shipping interdiction actions were ad hoc at short notice. From mid 1943 RAAF Catalinas mined Japanese

ports, sinking or damaging 40% of all shipping entering the Balikpapan-Surabaya area.

As the Americans and Australians went over to the offensive in New Guinea the inherent advantages of sea power, in the context of flexibility and manoeuvre, became apparent. The Seventh Fleet Amphibious Force was established under command of Rear Admiral Daniel E Barbey, USN. From October 1942 through to July 1944 this force conducted a series of amphibious assaults from Goodenough Island in the east through to Sansapor on the western tip of New Guinea. These assaults, when combined with the central Pacific advance, were a demonstration of manoeuvre warfare on a grand scale. Strong enemy forces were bypassed, whilst captured areas became advanced bases, airfields and logistic depots for the continuing maritime offensive against the Japanese. After Kokoda there were no other northern advances across New Guinea. The movement of Allied forces was in a westerly direction in a series of amphibious assaults.

Figure 2: Amphibious assaults

RAN ships, in particular the Infantry Landing Ships *Kanimbla*, *Westralia* and *Manoora*, cruisers, destroyers and the *Bathurst* class corvettes played an important part in the naval campaign for New Guinea providing escorts, fire support, amphibious sea lift, minesweeping, survey and logistic support. The smaller craft of the RAN: *Fairmiles* motor survey boats, HDMLs and other motor launches, also played an important role in patrol work, convoy escorts, hydrographic surveys and clandestine operations. Supporting these ships were a number of logistics and other specialist ships that ensured the Allied ground and air forces had the required equipment and support to conduct and sustain operations in a very hostile environment. Had the Allies been unable secure the sea lines of communications the final outcome in the jungles of New Guinea may have been very different. It was not the stalwart efforts of the Australian and US ground forces alone, but the combination with the maritime interdiction campaign against Japanese supply lines, amphibious movements to outflank and bypass defensive positions, and the successful convoying of *troopers, beans and bullets in greater and greater numbers* that forced the Imperial Japanese forces back from Port Moresby to their final defeat.

Australia, imperial trade and the impact of war

(Issue 16, 2003)

A trade system may be defined as *carrying capacity* used efficiently. Its purpose is to move tonnage and volume at minimal capital and operating cost, while making sufficient profit to replace expended capital and resources and expand the infrastructure available. Trade is a global entity, and the trade of the British Empire was a mutually interdependent subset of the global trade system. Attacks on shipping in 1914-18 and 1939-45 impacted significantly on the efficiency of the system. System efficiency loss comes from the fact of attack, more than from any other factor, because this forces the system to change in ways for which it was not designed. Ship sinkings cause change, and are important, but most trade system disruption flows from *the fact of attack*, not from sinkings *per se*.

Before WWI, Imperial trade was carried out with surprisingly few resources. The capital investment of £405 million in 1913 was about equal to that of two large European railway companies. The Empire possessed 3,888 ocean going ships of over 1,000 gross registered tons (GRT), comprising about 50% of the world total. Trade types were in two general groups - Liner and Tramp. Liners were operated by large well-administered companies that were sensitive to competition. They moved on fixed schedules with high value cargoes that mostly changed out at each port. Only about half of them carried passengers. Tramp companies were small, with cheap, simple ships, and each voyage was a separate venture. They mostly carried bulk cargoes between ports, or on time charter. Ships swapped from one trade to another as needed and were replaced frequently - in 1913, only 32% of ships had been built before 1900.

In August 1914 the world was even more globalised than today. The impact of war wrecked financial markets, stock exchanges in 20 nations collapsed, and the international credit market was destroyed. All trade stopped until the War Risk Insurance Scheme was introduced - owners could not get insurance, and they could not run ships uninsured as one or two losses would destroy a

company. The British Government underwrote this scheme and the great Imperial Shipping Associations ran it. It was also a powerful trade control mechanism, as the Government refused insurance for unnecessary or luxury cargoes, thereby freeing shipping capacity for essentials. Simultaneously, massive shipping requisitions started (4 million GRT in 1914 alone). The tramp trades were ruined, leading to a temporary global tramp tonnage glut. Freight rates then began rising relentlessly as requisition for military use drained carrying capacity from the global system. Above all else, economy of carrying capacity became a critical government concern.

From August 1914 the free market began to disintegrate, and a global control trade system was instituted. Freight rates were fixed under 'Blue Book' rates for requisitioned ships, and rates on the remaining 'Free' market soared, reflecting global tonnage pool shortages of ships. Port congestion, loss of close resource sources, and longer voyages for less cargo imported raised a new and unexpected factor: that *tonnage could increase but system carrying capacity could decline*. From 1915 the Government began taking over entire trades as monopolies. Australian wool, wheat, and meat exports became Commonwealth monopolies. Shipping control grew via licensing mechanisms, but there was still no national or Imperial plan for imports. Sinkings outpacing building during 1915, and on 27 January 1916 the Shipping Control Committee projected an import deficit of 13 million tons for the year. This illustrated the limits of import control by licence.

On 25 May 1916 the Empire possessed 3,572 ocean-going steamers, of which 1,313 were requisitioned, 680 were Government directed, and 1,579 were 'free'. However, 'free' ships were license controlled and their refrigerated space was government controlled. In 1916, the Government realised that success required global management of *carrying power*. On 11 October 1916 grain imports became a government monopoly, and from 22 December 1916 the Ministry of Shipping instigated full control of all shipping. This, and the shipping losses of 1916-17, created a carrying capacity crisis that stripped ships from the longer routes for *Atlantic concentration*. International shipping administration through the Allied Maritime Transport Council led to efficiency of import control measures. By 1917, 56% of the ships of 1913 imported 68% of the imports of 1913. The UK developed methods to prioritise all imports against each other.

In 1914 the Australian export markets in Europe vanished overnight, limiting exports to Imperial destinations (no re-export to neutral countries was permitted). The UK asked the Commonwealth Government to purchase all export meat and grain as its agent. However, there were too few ships to carry the tonnages, which were shipped as top up stock only, and most grain had to be stored. Much rotted or was destroyed by mouse plagues. By 1915, shortage of carrying capacity was fully conditioning Australian trade. The problem was distance - 5,000 tons of food imports to the UK needed 15,000 ship-tons from Australia, 10,000 from Argentina, and only 5,000 from the USA or Canada.

As most trade was carried in Imperial, not Australian hulls, Australia was very vulnerable to loss of carrying capacity. Due to its isolation at the furthest limit of the Empire, Australian trade was the first to be abandoned and the last to be re-instituted, being used to top up British imports and supply the closer demands of Italy and France. Australian trade was only kept going in WWI by Britain's need for 30,000 tons of frozen meat per month not elsewhere available, and the fact that there was 75,000 tons of dry cargo space available in these refrigerated ships. Basically, Australian trade was seen as expendable and was stripped early. This perceived disregard for Australia's economic health, together with the perceived reckless expenditure of Australian lives on the Western Front, may have helped shape a more independent view of Australia within the Empire.

Requisition and control was run down from November 1918, but on 30 June 1919 18% of ships were still requisitioned. Control of shipping continued until April 1921 due to the need to lift huge grain, butter and meat stockpiles in Australia and New Zealand. The government quickly released government-built and operated ships to industry to restore the private lines, but the Empire had lost entire trades to American and Japanese lines during the war. The critical strategic lesson of the WWI carrying capacity management system was that *logistics sets the borders of the possible* in war.

In 1933, the Headlam Committee considered the merchant fleet equal to the task of supplying the UK during war. In 1939 they were proven wrong, as imports declined steeply. The subsequent Hoare Report of 1940 demonstrated the inadequacies in British prewar assumptions. Shipbuilding, ports, and rail were all inadequate, losses outpaced building by 5:1, and imports were down from 50-55 million tons in 1938 to 26 million in 1943. All of this had a profound impact on Australia, where trade still relied on Imperial, not Australian hulls. Despite the harsh lessons learned in WWI, in WWII, international

management of shipping was far less advanced due to America's refusal to accept the need for it. The loss of Allied and neutral shipping fleets in the early war years added to the British burden on global carrying capacity. The British Government, under Churchill, ignored the lessons of WWI and carried the Empire deep in to strategic overstretch. Churchill also believed that he could control America, gambling the Empire on logistic dependence on the USA - and losing. The result was overt US control of UK logistics by 1943.

In February 1941, 25% of Imperial dry cargo tonnage was awaiting repair. Port carrying capacity losses due to congestion *alone* equalled losses to all enemy action. The convoy system cost 10-15% of carrying capacity, requisition and military use cost even more. Sinkings outpaced British construction, and only US shipbuilding resolved the situation in 1944. The trade system existed to feed the civil economy, the use of shipping for military purposes was at the cost of civil use. British miscalculations were demonstrated in Africa where the decision to fight a major theatre war was logistically imprudent. All infrastructure had to be brought in, and this meant that the best, fastest refrigerated cargo ships were used, stripping the Australian trade. A cargo to Port Suez often meant a global circumnavigation for the ship as cargo was collected in Singapore, Auckland or Sydney. By early 1943 the UK was faced with either supporting military operations or imports to stop starvation. Part of the answer was again Atlantic concentration by slashing all non-Atlantic trades. Among the effects of this policy were the 1943-44 Bengal famine and the near cessation of Australian trade. Only 20% of the merchant fleet was being used to support the British economy, yet, some US authorities believed the UK actually had surplus tonnage they could use.

The situation for Australia was worse than in WWI, as the British Government was more self-focused, wanting to use Australian resources but offering little in return. By April 1941 UK exports were at the minimum needed to sustain Dominion war efforts. However, from 1942, there was a large US build up in the Pacific, and Australia and New Zealand were the only local sources of supply. There was deliberate American pressure on Australia to divert UK trade to supporting US forces in the Pacific. In the end, it was only this that absorbed Australian export surpluses. Most Australian export industries collapsed during WWII. The export wheat trade was a prime example, falling from 125 million bushels in 1938 to just 19 million in 1945.

Most Australian interstate coastal shipping was requisitioned for war use. The pressure for freight rate rises started in 1940, but was mostly resisted, and by December 1941 they were irrelevant due to a lack of shipping. In addition, there was a severe decline in overseas shipping visiting Australian ports, port movements by 1945 falling to 40% of 1939 figures. A Central Cargo Committee was formed in early 1942 to ease port congestion and sort out refugee shipping fleeing the Japanese advance. The Ministry of Supply and Transport, and the Australian Consultative Shipping Council were subsequently formed to oversee participation in international control systems. They acted to minimise non-essential cargoes, maximise exports, and minimise coastal shipping use.

In both wars, there was a greater affect on Imperial trade from the *fact of attack* than from the actual *losses* inflicted. In both wars, carrying capacity was stripped from the Australian trade, and entire export industries were lost, or reduced to expensive (in carrying capacity terms) 'top-up' sources. Also in both wars, special circumstances gave Australia and New Zealand an 'out'. In WWI, Britain purchased the exports but only lifted what she had to. In WWII, local and regional presence of large US forces consumed the export surpluses. Australia lacked the industrial capacity or political will to develop the business environment that allowed an efficient merchant fleet and military industrial base sufficient to control her own logistic destiny. In essence, Australia was a logistic mendicant during both wars. This placed limits on government, and forbade Australian strategic independence to the point where Australia had little voice even in the strategic councils of her Allies. Given that Australian trade is still reliant on non-Australian ships, the implications for Australian trade and the impact of future disruptions to the global trading system remain issues of concern.

SHIPHANDLING CORNER

FFG Shiphandling: Part II

Edited by Captain Ray Griggs, CSC RAN

In Part II of the FFG shiphandling paper the author concentrates on explaining some routine shiphandling activities and how they are approached in this class of ship.

Effects at rest

An unpowered FFG will lie roughly beam to wind and will gather leeway very quickly; about 1-1½ knots in twenty knots of wind. With an engine connected, the constantly turning propeller will cause the stern to walk to starboard and the ship's head will swing to port at about 4°/minute. At stop, the propeller has 1.5 feet of ahead pitch applied but despite this, the ship will make slight sternway. Depending on the strength of the wind, the ship may reach a point of equilibrium where the two forces, wind and paddlewheel effect, become balanced against each other and the swing caused by the paddlewheel effect is overcome. A handy trick to remember is that a wind on the quarters will have a markedly stronger effect on the ship if the hangar doors are left open.

Turning

The FFG will turn to port in about 90% of the diameter of a turn to starboard because of the paddlewheel effect and offset rudder. In broad terms the tactical diameter is not speed dependent but reduces considerably as rudder is increased. Loss of speed in a turn is about two knots with 15° of wheel, but up to 60% of the approach speed when maximum rudder is used.

The 'balanced state'

The combination of forces available to the shiphandler from the Auxiliary Propulsion Units (APU), controlled pitch propeller and large rudder give the FFG unique and very finely controllable handling capabilities. The ship can be driven bodily sideways using various combinations of these 'tools'. Optimum control centres on achieving a balance of the forces from the APUs and main engine. The balanced state is achieved with both APUs activated and trained right aft and the main engine adjusted ahead to counteract; 3½ to 4½ knots ahead will balance the astern thrust of APUs. In this state and in the absence of any other forces acting on the ship (tugs, wind or stream), it will hold a steady position.

Lateral movement

In the balanced state, the ahead engine power provides a continual wash over the rudder. When wheel is applied in this state, the stern will begin to walk. The effect is quite quick. Because of the fact that the propeller turns only one way, the amount of sideways vector that can be achieved is markedly greater to starboard than to port. Training the APUs to provide thrust in the same direction that the stern is moving results in the ship moving sideways. There is still a need for balance however; training the APUs away from right astern reduces their net astern vector so unless the main engine power is reduced to compensate, the ship will gather head way. Similarly, applying a large amount of rudder will reduce the net ahead vector from the main engine and unless the APUs are trained to reduce their astern vector, or more ahead engine power is applied, the ship will gather sternway. These effects can be very precisely controlled with a little practice.

Wind will have a pronounced effect on how successfully the ship can be manoeuvred sideways. An FFG cannot overcome a wind of more than about 12 knots, when the use of a tug to complete the manoeuvre expeditiously is required.

Turning tight or at rest

An FFG can be turned at rest or in a tight space without using tugs, by judicious use of engine, rudder and APUs. Again the right handed propeller is an important factor to consider because it will assist dramatically a turn to port and oppose a turn to starboard. The prudent shiphandler will plan the solution to any problem carefully, taking this very important facet of the ship's characteristics into account. Where depth of water allows the use of a more power from the main engine, short bursts of ahead and astern power, so that too much way is not gathered (accelerative power), will also assist a turn

to port. If there is room to gather way ahead and astern, the timing of putting the rudder over must be carefully judged to give optimum effect.

Turning tight to port can be achieved with the engine ahead at 4-8 knots, the APUs at red 120 and the rudder at port 30. Reversing the engine will check headway, at which time the rudder should be put amidships. As soon as sternway comes on, apply starboard 30 and the momentum of the stern to starboard will be maintained. Likewise, check sternway with a burst of ahead power, rudder amidships when way is off and port 30 as headway comes on. The APUs remain at red 120 throughout. The same basic technique can be used for a turn to starboard but it will be much more sluggish.

Berthing alongside

Approaching the berth in an FFG is the same as in a conventional ship except that, at an appropriate point in the pilotage the APUs must be lowered. From this point on, maximum speed is five knots. Having the APUs down reduces speed through the water by a little over 1 knot. A standard approach of 15-20° to the berth is effective for a starboard side to berth, 10-15° for port side to berth. With both APUs trained right astern, at two cables to run, be at 4-5 knots log speed with 4 knots ahead set and start one APU. Start the second APU at 1 cable to run. The approach so achieved is slower than a traditional twin screw approach but is very controllable. A faster approach can be made if required (eg by strong winds), by leaving the APUs until later and using 3-5 knots of astern power on the main engine to take way off. This will take head way off very quickly but will also cause the stern to swing to starboard, which must be allowed for.

In the final stages, use of the rudder will get the stern swinging in the required direction and training the APUs toward the berth will bring the bow in.

In a strong wind or tidal stream, a tug can again be essential. If required to hold the ship off, a tug can be secured on a line either on the waist, quarter or at the after end of the hangar. If both holding off and pushing on may be needed, secure him as close to the berth as possible in a push/pull configuration (consider a quarter line if he is not Voith Schneider or Duckpeller), in any of the same three positions. Remember that the danger of connecting a tug aft is damage to the flight deck nets.

Handling astern

An FFG handles astern differently from a twin screw warship because of the paddlewheel effect and differently too from a conventional single screw ship because of the non-reversing propeller. The APUs provide the key to overcoming these differences because they can be used to counter the effects of both.

From stationary, the paddlewheel effect will have the most marked influence, causing the stern to swing to starboard; the more power applied, the stronger the effect. Once way is on and a good flow of water over the rudder is achieved however, the swing to starboard can be countered with the use of large amounts of rudder initially, then once above 5 knots, 10-15° of wheel will be enough to control the stern well so long as the wind is light. In strong winds the stern will tend to fly into wind. A wind of 10 knots on the port quarter will balance the stern walk when going astern. Training one or both APUs towards the direction in which the stern is swinging acts like a rudder in the bow and will check the stern swing quite quickly. Use about as much APU angle as you would use rudder; don't overdo it. It must be remembered too that this technique will make the ship crab somewhat. A reasonable amount of sea room is therefore required if an FFG is to be backed for any distance. For example, a sternboard into Fleet Base East berths north of the Woolloomooloo finger wharf can be achieved quite easily in less than about 12 knots of wind but there is probably not enough space to make a sternboard into the southern berths in other than perfect conditions and even then, great care is needed.

Sternboards

Making a sternboard to a berth tends to daunt many shiphandlers, both of FFGs and conventional ships, but this need not be the case. Certainly, conducting a successful sternboard requires that the shiphandler have a good understanding of how the ship will behave and a little courage, but then so does any other type of berthing. The technique in an FFG uses all the shiphandling tools available and in many respects is a much more controllable evolution than in any other class of ship.

The first step is to plan to be lined up, both APUs energised and trained right astern, engine astern 4-5 knots and with the log speed about 5 knots. In this configuration, the ship can be driven pretty well straight to the berth and very fine adjustments to course and attitude are possible by using the APUs and rudder. When berthing starboard side to, aim to be stopped parallel and adjacent to the berth, **at least** one ship width off. Once stopped, the ship can be crabbed onto the berth with ease. For a port side to berth, a more traditional angled approach can be made, with the aim point adjusted for the prevailing wind. The stern will walk away from the berth once the ship is stopped, hence the angled approach.

The key to applying ahead power is not to manoeuvre too early. The result of early and quick application of ahead engine power will be arrival

short of the berth in the case of starboard side to, or well clear of the wharf for port side to.

Anchoring

FFGs carry a single 6000lb balanced fluke anchor on the starboard side. Great care must be taken to avoid allowing the cable to lead aft and under the ship because this will damage the sonar dome. A dropping anchorage is therefore advisable on all occasions and this allows the cable to be laid out while going astern, keeping speed on during the approach is essential to minimise any paddlewheel effect. APUs are not normally required when coming to anchor but may be needed to cast ship when weighing.

Replenishment at sea

Safe replenishment approaches can be made in an FFG using the standard warship techniques except that when approaching on the starboard side of the guide it is prudent to be a little further off. This is because if a steering failure occurs (and it has happened) which requires a full ahead or astern engine order to avert disaster, the sternwalk will swing the stern out and the bow in. Being too close in these circumstances can turn a serious problem into a major disaster.

The usual approach technique is to be 10 knots up on the guide although approach speeds of between 8 and 12 knots up have been used routinely. At the point for speed to be taken off, calculated using deceleration of 17 yards per knot, order 5 knots ahead. Just before speeds are matched, when about a walking pace up on the guide's speed, order the guide's speed. Once settled in station order the plant to be switched to Speed Mode. Thereafter speed adjustments of ½ knot at the PCL and course alterations in ½° increments can be ordered and precise station maintained very easily. On breaking away revert to Power Mode.

Towing

The *Admiralty Manual of Seamanship* recommends approaches for taking a ship in tow in various circumstances and this advice holds true for an FFG. An FFG will drift at about 1 to 1½ knots in 20 knots of wind and will lie roughly beam to wind or with the wind slightly abaft the beam. Two engines should be on line and Speed Mode is recommended to decrease load on the engines and lessen the chance of turbine hunting, which can result in unwanted speed surges. Using the APUs when passing or returning the tow is not essential but is handy in many situations because it allows quite precise control of how and where the towing ship is positioned. They are however susceptible to damage when stopped in high sea states. If they are to be used, the critical question is when to lower them. Being restricted to 5 knots or less in the approach may be undesirable because it limits the available options. With the APUs down, speed cannot be used if needed for escape from an approach made too close and, if a second approach is needed for any reason, having the APUs down will make it a very lengthy affair. On balance, approaching with the APUs raised is preferable.

A conventional approach at 7-8 knots is recommended. If approaching parallel (rather than 'crossing the T'), 5 knots astern as the bridge passes the other ship's bow will bring the FFG to a halt in a comfortable position close ahead of the ship to be towed. If intending to use the APUs, once in position apply the shaft brake to stop the sternwalk, lower the APUs, disengage the shaft brake and balance up. The ship can then be precisely controlled in all axes of movement. The propeller wash from the main engine will also tend to keep any lines hanging slack from the transom from fouling the screw.

Recovering a person from the sea

The FFG needs to be driven differently depending on the recovery method chosen. The manoeuvre which exploits best the speed with which the boat can be readied is to simply turn hard to port at 16-18 knots ahead set. This will result in a ship speed of about 10-12 knots by the time the boat is ready to be sent away. The effect of a tight turn is that the stern 'sliding' across the water smooths out the sea and provides a fairly flat surface for the boat to launch into, regardless of sea state. Swell must still be taken into account. At night, a Williamson Turn altering to starboard initially will achieve the same basic set up, albeit a bit slower. The added benefit is that the boat can be launched immediately the ship has steadied on the reciprocal course. It then needs only search for the man right ahead of the ship.

For swimmer recoveries, remember that when astern power is applied, the stern will walk and the bow will pay off to port. Therefore, if recovering on the port side, a wider approach needs to be made. This needs to be remembered too if recovering by backing down on the person in the water. Aiming to put the man on the leeward side for recovery by swimmer is essential because an FFG gathers substantial leeway very quickly.

Alternative views

There is a school of thought that suggests the balancing up process has led to tunnel vision and caused the demise of brisk, smart, expeditious and seamanlike shiphandling in the FFGs. *(Ed - funny how times change, compare an FFG and an FFH berthing these days).* The techniques for berthing

alongside that have been outlined in this paper so far do, of necessity, result in a slower berthing evolution than was possible in the old DEs and DDGs, where 'dash' was quite easily achieved, most importantly with total safety. Can the old flair be achieved in an FFG? The suggestion is that it can, with safety.

Accepting that at some stage the APUs will still be used and must therefore be lowered, the approach is going to be limited to a maximum of 5 knots. For starboard side to, make a traditional angled approach some 12-18° off the line of the berth and aiming for the bridge marker (no wind/stream situation). Order astern power, 5-6 knots, at the point required to stop the ship abreast the bridge marker; this will start the bow swinging off and the stern swinging towards the berth. If required, when head way is almost off, balance up and move laterally onto the berth. Basically, drive the ship as if it was just single screw, using the APUs to trim up only. A similar result can be achieved port side to except that a shallower approach is required and the swing must be started using rudder before the astern power is applied.

Another method of getting off the berth has been proposed too. This is essentially the 'springing off' technique used by DEs and FFHs (but not the DDGs because of the risk of damaging their bulbous bow sonar dome). When port side to, the sequence is to cast off all lines but hold on the forespring, port 30, engine ahead 4 knots. This will swing the stern off and once moving, port APU energised green 90 will bring the bow off. The main engine is then shifted to 6 knots astern and the APU stopped when steerage way and control of the stern has been achieved. When starboard side to, the main engine is not used but a tug is connected aft to pull off while the bow is lifted off by APU.

These techniques are not all that radical, nor are they necessarily potentially dangerous. They are really alternatives and there will be occasions when conditions will require such alternatives to be used. They are worth keeping in the store of 'tricks' used to get the best result handling this most versatile of warships.

HMAS *Darwin* outside Dili Harbour (RAN).

BOOK REVIEWS

Nelson: Love and Fame
Edgar Vincent
Yale University Press
Hardcover, 640 pages, illustrated
RRP: $74.86.

One is continually amazed by the sheer number of Nelson biographies in existence. A quick search of Amazon.com reveals over thirty, the most authoritative of which include Alfred Thayer Mahan's *The Life of Nelson*, Carola Oman's *Nelson*, Dudley Pope's *The Great Gamble*, Oliver Warner's *Nelson* and of course Tom Pocock's *Horatio Nelson*. Perhaps spurred on by the approaching bicentenary of Trafalgar, recent times have witnessed a number of new contributions to this body of work, most notably Joel Hayward's *For God and Glory: Lord Nelson and His Way of War*, and Edgar Vincent's *Nelson: Love & Fame*. In choosing between them it is not just a matter of analytical quality. Each book offers something different, a different flavour or a different point of view.

Nelson: Love & Fame concentrates first and foremost upon Nelson's psychology and emotional makeup. It is more than anything else an analysis of who he was internally, what he felt and why, and what fundamentally drove him. In this way it lacks study of his strategic appreciations and tactical insights which forms the basis of some other works.

Vincent (not an historian by trade but rather a business executive and self-confessed lifetime Nelsonite) sets the scene early, depicting Nelson as a walking paradox: a kind, generous, 'soft-touch' but also a natural killer of almost unmatched aggressiveness. The author links this contradiction to what he sees as Nelson's two innermost needs: that of love and affection and that of fame, heroism and recognition – hence the title of the book. Vincent takes us on a journey through Nelson's life, mapping his career and personal experiences while concentrating on his mental and emotional development, always seeking to look below the surface and provide explanation of or at least insight into what our hero was thinking and feeling. At times, especially later in the book, Vincent returns to the issue of Nelson's contradictions, and occasionally we see them come to life in what appear to be two very different Nelsons: the exterior professional and assertive hero on his quarterdeck and the internal man bound in emotional turmoil in his private letters. Watching Nelson's complex personality develop and react to the various pressures and challenges of his time, his life and his relationships makes for generally enjoyable reading and gives the book its essential theme.

Nelson's romantic associations and his underlying attitudes are well studied. In dealing with Nelson's relationships with his wife and Lady Emma Hamilton, and the attendant emotional turmoil, Vincent treats us to some amazing passages from the hand of Nelson himself. I found it a little surprising that so many letters in which Nelson poured out his heart and soul and on which he wrote '*burn this*' have survived two centuries. Vincent provides good insight into the characters of both women, and solid accounts of some of Nelson's professional acquaintances, including most notably Hood, St Vincent, Spencer and Thomas Troubridge. The author builds his picture of Nelson not only by revealing the relationships he shared with these people, but also by subtly comparing him to them. His brief comparison of Nelson with Thomas Cochrane (on whom Patrick O'Brian's Jack Aubrey is based) is especially worthy.

No Nelson biography can be all things, and in focusing on Nelson's 'heart and soul', *Love & Fame* necessarily leaves other elements of his life and times not fully explored. This is not necessarily a negative. It depends on what the reader is looking for. Although Vincent outlines the politics and strategy of the period, there is little insight into Nelson's tactical thinking. His fighting style is analysed in only the most basic terms (the famous Cadiz Memorandum is not even mentioned) and is generally seen in relation to his psychological makeup. Also lacking are descriptions of day-to-day life in the Georgian navy; the reader is not confronted with depictions of what the scene would have looked like, sounded like, or felt like. Thus, especially for readers new to the period, a certain perspective may be lacking.

Moreover, it is this lack of imagery which most disappointed this reviewer about the book, but there are personal reasons for this. Years ago I read Tom Pocock's much praised *Horatio Nelson* and was struck by the powerful imagery with which Pocock told the story. That book begins thus: *Before the gale blew, the wind dropped and only the sound of surf on sand could be heard along the Norfolk shore. Then that, too, was stilled....* This sense of 'being there' continues

through Pocock's work. One remembers the images of the young Nelson trekking upstream and through the jungle of Nicaragua towards the fortress of San Juan. My disappointment here, however, probably reflects a high regard for Pocock's work rather than any real criticism of Vincent's. After all, *Love & Fame* is intended to read like an investigation rather than a narrative.

Vincent is quite superb in terms of the quality of his investigation and analysis. The book is written from primary sources and he is not shy in probing and questioning the conclusions of previous biographers. He consulted a psychiatrist about Nelson's emotional and mental makeup, an ophthalmologist about his eyesight, an anaesthetist about his medical symptoms, and a gynaecologist about his wife's childlessness. Equally impressive is how Vincent's passion for Nelson does not stand in the way of occasional cutting criticism. He variously describes his hero as self-obsessed, self-deluded, narcissistic, unbalanced, a myth-making machine and a man who occasionally gives real cause for doubt about his grip on reality. The only minor criticism of the analytical theme is that Vincent occasionally delves into what comes across as psycho-analysis, thus detracting from his sense of authority.

Vincent has deliberately set out to include as much original correspondence as possible, giving a good sense of authenticity. On the down side, the continual switching from smooth, modern prose to the somewhat haphazard grammar, spelling and punctuation of the late eighteenth and early nineteenth centuries can cause sometimes difficult reading – unavoidable in such a study. This is compounded at times by the quoting of several different people or different pieces of correspondence in quick succession, and it becomes easy to lose track of who is talking to whom or when, forcing the reader to consult the notes. Something I found quite poor was the odd occasion on which letters written in French were quoted only in that language; while the sophisticated amongst us may have no problem with this, simpletons such as this reader are left wondering what on earth is being discussed. On the whole however, these are minor criticisms that do not reflect upon the quality of the book as a whole.

In sum, *Nelson: Love & Fame* is destined to be amongst the top biographies of England's greatest naval hero. Having said this, it does have its own particular viewpoint which may not suit the needs of all readers, and it does assume a certain degree of familiarity with the subject. Those with a good understanding of Nelson already will find the insights into his personality enlightening and their understanding increased. For those unfamiliar with Nelson and wanting to find out why 'The Immortal Memory' has such an enchanting effect on so many people, *Love & Fame* may prove just a bit forensic. This is a great read for Nelsonites; for those unfamiliar with the subject, think about reading Pocock's *Horatio Nelson* first. For this reviewer it remains the classic biography.

Reviewed by SBLT Sam Fairall-Lee, RAN

Seapower: A Guide for the Twenty-First Century

Geoffrey Till
Frank Cass, London & Portland, Oregon, 2004
xvi + 430pp, index, charts and tables

Professor Geoffrey Till has written an excellent book. It is little, if any exaggeration to describe *Seapower: A Guide for the Twenty-First Century* in Whistler's terms as the product of the expertise of a lifetime. Geoffrey Till has had a long and very distinguished association with the education of Royal Navy - and international - officers, from the 'primary' level of initial entry at Britannia Royal Naval College Dartmouth, to the former Royal Naval College itself at Greenwich to his present post as Dean of Academic Studies at the UK Joint Services Command and Staff College. In addition, he has had an equally important association with the War Studies Group of King's College, London. He has written and lectured extensively on naval history and naval and strategic policy around the world. And he has never stopped learning. One feature particularly apparent within the text is the extent to which Till has deliberately tried to move outside the Anglo-American modes of thinking on maritime strategy to encompass not only the ideas of the Europeans and Russians, but those of South and East Asia.

This is a book that achieves what it sets out to do. Its first purpose is to explain what the relationship is between the changing strategic environment and the functions, importance and impact of the world's navies. *Seapower*'s second task is to explore the ways in which navies will need to adapt if they are to remain relevant. It is effectively both a primer on maritime strategy and a comprehensive survey of the contemporary situation - a survey which lays out dispassionately and clearly the questions which modern practitioners need to answer. Till's analysis is clear, dispassionate and extremely accessible. The book is one that can be read with pleasure, but its structure also permits its use as a *ready reckoner* on the subject. Till's use of history is judicious

and restrained, while he also taps a wide range of contemporary references relating to international law, technology, the environment and maritime industry - to name only a few. The text is supplemented by a number of useful maps and tables and Frank Cass, the publishers, have produced an attractive book with few typographical errors.

The pedagogical method represents the very best of the staff college tradition (one not always observed within contemporary institutions). It points to the issues and explains the relevant factors, but it does not prescribe solutions. The author's own aversion to excessive certainty is indicated by one of his closing statements, *Believing that one has the final answer is a certain way of ensuring that one has not*. If there is a single abiding theme to the entire work, it is, as Till remarks in his preface, that *like the ocean itself, seapower is "all joined up"*. For this reason, he gives appropriate weight to the military, diplomatic and constabulary uses of sea power and seeks to emphasise, both explicitly and implicitly, the importance of a balanced approach to both the structure and the employment of navies in all of these roles in an increasingly complex and uncertain world. Just how that balanced approach is to be achieved is something that Till leaves to his readers to decide.

In all, *Seapower* is very probably the best single work on sea power and maritime strategy to have been published for many years. The book will certainly become a staff college text but, more to the point, it is one which can be genuinely recommended both to those starting out *in the trade* and those outside it who are trying to understand the uses of navies. The historian Lord Macaulay once told, in reviewing a particularly turgid biography, of a condemned Italian criminal who had the choice of studying one of the 'great' Italian historians or going to the galleys. *He chose the history. But the war of Pisa was too much for him. He changed his mind and went to the oar*. In this case, however, Geoffrey Till's study is very simply a damned good book and a damned good read.

Highly recommended.

Reviewed by CDRE James Goldrick, AM CSC, RAN

These are the latest in the series of working papers to be issued by the Sea Power Centre Australia. The series is designed as a vehicle to foster debate and discussion on maritime issues of relevance to the Royal Australian Navy, the Australian Defence Force and to Australia and the region more generally. The seven papers cover a diversity of subjects although surveillance and enforcement in Australia's offshore areas is a common strand of three of them. While all the subjects are relevant to the objective of the series, the papers themselves are rather uneven ranging from taut, well focused works to lengthy dissertations that are rather long for the casual reader of working papers looking for a bit of *meat*. Limitations of space prevent a detailed review of the papers and it is only possible to make a few observations regarding each of them.

The Sea Power Centre Australia is to be commended for actively progressing its series of working papers. The new format of the papers (in use from WP 11 onwards) is attractive with a well laid out cover, including a photograph relevant to the subject matter. However, the Centre faces a significant challenge in maintaining the content standard of the series. It needs to ensure that each paper selected for publication is tightly argued, to the point, interesting and relevant. It would be wise to have a size limit on the papers (40 pages might be appropriate?) and to ensure that each paper meets the required standard. This might be achieved by introducing a system of refereeing for papers submitted for publication although presumably that is occurring *de facto* at present. Ultimately the success of the series will depend on whether people actually read the papers and they do stimulate debate.

Copies of these papers are available on request from the Director, Sea Power Centre-Australia, RAAF Base Fairbairn, Canberra, ACT 2600

Asia Pacific SLOC Security: The China Factor

Professor Ji Guoxing
Working Paper No.10 (WP10)
RAN Sea Power Centre, April 2002
Soft cover, 77 pp.
ISBN 0 642 29562 X

Professor Ji Guoxing, the author of WP 10, is a prominent writer on China's maritime strategic interests now attached to the Shanghai Centre for RimPac Strategic and International Studies. In WP 10, he provides an interesting discussion of China's growing concern for the security of regional sea lines of communication (SLOCs) with special attention to the freedom of navigation in the East and South China Seas. He stresses the importance of collective cooperation among regional countries and notes the lack of a region-wide, institutionalised maritime cooperation mechanism that has SLOC security as its priority.

WP 10 is a balanced perspective from China and well worth reading.

Protecting the National Interest: Naval Constabulary Operations in Australia's Exclusive Zone

Andrew Forbes
Working Paper No.11 (WP11)
RAN Sea Power Centre, April 2002
Soft cover, 80 pp.
ISBN 0 642 29563 X

WP 11 is a somewhat lengthy discussion of the rationale for Australia enforcing its sovereign rights in the exclusive economic zone (EEZ) around the mainland and offshore islands and the role of the RAN in asserting these rights. A major concern of the paper is that the resources currently allocated to protecting national interests in the EEZ are inadequate. While stopping short of actually recommending it, the paper does provide quite a lot of support for Defence assuming greater responsibility for the civil surveillance function. There is a lot of good stuff in WP 11, particularly its discussion of naval constabulary operations in the context of contemporary Australian Defence policy and its review of contemporary threats in the EEZ.

Royal Australian Navy & Theatre Ballistic Missile Defence

Commander Tom Mueller, RAN
Working Paper No. 12 (WP12)
Sea Power Centre Australia, 2003
Soft cover, 34 pp.
ISBN 0 642 29578 6

The RAN's interests in a theatre ballistic missile defence capability are the focus of WP 12. This is one of the best of the papers under review. It is authoritative, well researched and topical in the light of recent developments. It provides a good overview of developments with ballistic missiles in the region and this leads on to a balanced discussion of the pros and cons of an Australian sea-based system as opposed to an air- or land-based one. Possible regional hostility to the acquisition of missile defence systems is recognised but the paper concludes that given the threat and a changing Defence posture, Australia cannot really afford not to acquire a sea-based system.

The Timor Sea Joint Petroleum Development Area Oil and Gas Resources: The Defence Implications

Mathew W. Flint
Working Paper No.13 (WP13)
Sea Power Centre Australia, 2003
Soft cover, 40 pp.
ISBN 0 642 29584 0

WP13 on the Timor Sea Joint Petroleum Development Area (JPDA) covers a lot of ground to reach a conclusion that, due to the value of the resources and facilities in the area, their vulnerability to attack from air or sea and their importance to the Australian economy, there is a need for dedicated surface patrols of the JPDA. However, much of the discussion is rather off the mark. The paper misses an important point that a joint development zone is not a maritime boundary and that arrangements for surveillance and enforcement in the area of the zone have to be covered by treaty arrangements. The assessment that the Timor Sea has potential to become a profitable hunting ground for pirates is less than credible given the current *modus operandi* of pirates in Southeast Asia. The threat of terrorism is more credible as is also the possibility that "boat people" could seek refuge on an installation in the JPDA.

The Enforcement Aspects of Australia's Oceans Policy

Commander Barry Snushall, RAN
Working Paper No.14 (WP14)
Sea Power Centre Australia, 2003
Soft cover, 26 pp.
ISBN 0 642 29594 8

A *de facto* objective of WP 14 on enforcement aspects of Australia's Oceans Policy is to bridge the current gap between Defence policy and Oceans policy as two major areas of Commonwealth Government policy. The paper notes an apparent disconnect between these two policy areas with Oceans Policy for example, emphasising the fisheries enforcement task of the Australian Defence Force while the latest Defence White Paper does not mention it. WP 14 notes the growing requirement for fisheries enforcement but sees the present arrangements for enforcement as basically *ad hoc*. It concludes that the RAN should accept the constabulary function as a core element in fulfilling its role to protect Australia's sovereignty and sovereign rights.

Russian Naval Power in the Pacific: Today and Tomorrow

Alexei Muraviev
Working Paper No.15 (WP15)
Sea Power Centre Australia, 2003

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WP 15 is an excellent paper that is highly recommended reading. It addresses the gap in knowledge of commentators with regard to the continuing presence of the Russian Navy in the Pacific region. It provides ample evidence to support the contention of the author that while a common impression of the Russian Pacific Fleet is one of rusting hulks sitting in Vladivostok harbour, in reality this Fleet remains a potent operational force. Its submarine force is particularly significant with new *Akula* and *Oscar-II* class nuclear-powered attack submarines entering service. The force continues to demonstrate proven capabilities to test SLBM launches and conduct long-range attack submarine patrols of the Pacific Ocean. While the submarine force is smaller in numbers than in the 1980s, it is probably much more effective now and still capable of providing a significant constraint on the USN's ability to operate freely in the Western Pacific.

Royal Australian Navy Aerospace Capability 2020-2030

Lieutenant Robert Hosick, RAN
Working Paper No.16 (WP16)
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A strong aspect of WP 16 on the RAN's future aerospace capabilities is its comprehensive bibliography, including five pages of articles from electronic sources. The aim of this paper was to discuss the RAN's aerospace capability requirements over the period 2020-30. Potentially it was one of the more interesting of these papers but unfortunately it falls rather short of entirely satisfying this expectation. A basic problem is that an *aerospace capability* is not defined. This is not self-evident, particularly as the reason for air power theorists to talk about *aerospace power* rather than the more traditional *air power* was to bring long-range missiles, missile defences and the military use of space within the scope of *aerospace strategy*.

WP 16 provides more an overview of military technological developments generally and the implications for the force structure of the Australian Defence Force rather than a discussion of the Navy's aerospace capabilities *per se*. Diverse developments such as with warship hull design and uninhabited underwater vehicles (UUVs) are discussed although their relevance to the RAN's *aerospace* requirements is not apparent. On the other hand, the paper makes no mention of anti-submarine capabilities, although given submarine developments in the region, these will possibly be an even more important requirement in 2020 than they are at present. Also, with the RAN seeking a ballistic missile defence capability for its new air warfare destroyers, there is a lingering question whether such a capability is part of *aerospace power* or *sea power*. It all depends on where you sit!

Reviewed by Dr Sam Bateman, University of Wollongong

One of HMAS *Manoora's* two Sea King helicopters moments before landing on the flight deck (RAN).

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