

# TOMAHAWK FOR COLLINS?

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# THE NAVY

The Magazine of the Naval League of Australia

*Australia's  
Maritime  
Doctrine –  
Part 1*

*They must be  
Sturdy*

*DD-21; The  
21st century  
Dreadnought*

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# THE NAVY

**Volume 63 No. 3**

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Front cover: HMAS ADELAIDE at sea. (ABPH Helena Charter)

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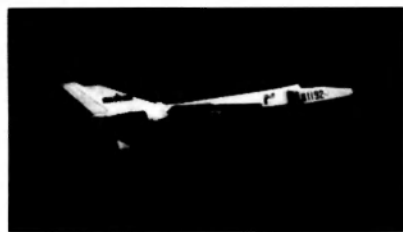
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While Mark Schweikert takes a well earned break Geoff Evans takes the helm. Since the beginning of the year the mainstream media has tended to concentrate on Australia's domestic affairs – not unusual in a year during which a Federal election is due to take place no matter how many months distant – events in the wider world have taken place that will inevitably impact on Australia sooner or later. They include:

- The US-Sino 'Spy Plane' incident.
- The Bush Administration's reaction to the incident and arms and references to Taiwan.
- Developments in the US missile Defence Plan.
- The NZ Government's Statement on Defence, and.
- Diverging Australian political views on Foreign affairs and Defence issues.

At the time of writing, the actual sequence of events that resulted in a USN EP-3E surveillance aircraft being forced to land on the Chinese island of Hainan on 1 April has not been revealed. It is generally accepted that the Chinese fighter involved, subsequently lost with its pilot, caused the mid-air collision. Speculation however has been intense, ranging from "accidental" to "deliberate" contact, but a believable report suggests the Americans were observing a new Russian supplied Sovremenny class destroyer at sea below, possibly endeavouring to obtain its electronic signature thus prompting the Chinese reaction. Considering the repercussions of a deliberate attack on the American aircraft the subsequent physical contact was probably accidental.



A PLAAF F-8 Fighter similar to the one that collided with a USN EP-3 Orion in international airspace over the South China Sea. The image was taken from another EP-3 mission over the same area a few weeks before the 1 April incident. One prominent US defence writer called the incident a deliberate "act of war" (USN).

The reaction of President Bush and his Administration to the China Sea incident, in particular to the President's reference to Taiwan, succeeded in raising temperatures in several countries, not least in Australia. Trade, friendship and formal alliances do not always sit comfortably together, requiring Australia as much as any country to exercise a very high level of diplomatic skill in handling its relations with the United States, China and Taiwan.

Highly desirable in our diplomacy – political bipartisanship, is regrettably not a feature of recent statements by Government and Opposition foreign affairs and defence spokesmen.

With regard to the New Zealand Government's strategic plan to scale down the country's existing naval and air assets – to vanishing point so far as air combat element is concerned – a worrying loss to Australia will be the withdrawal of the RNZAF's A-4K Skyhawk fighters, up to six of which are based at Nowra and used by the RAN for training purposes. This means the loss of an important facility until the RAAF's new BAE 127 Hawk jet training aircraft become available in about two years time. The absence of fighter aircraft must also make it difficult for New Zealand soldiers and sailors to conduct exercises with any degree of realism.

The RNZN will retain its two ANZAC-class frigates but if they are not up-dated from time to time, commonality with the Australian ANZACs will be lost. The decision to sell HMNZS CHARLES UPHAM, a roll on/off vessel purchased for conversion to a military role, is curious given the intention to modernise the Army, presumably to make it more deployable following experience gained in East Timor and elsewhere in the region. Whatever the intentions of the New Zealand Government, the widespread perception in Australia is of a weakened friend and ally. This is to be 'regretted'!

The Chinese challenge to Australian warships transiting international waters in the Taiwan Strait, although not the first incident of its kind, became the subject of a formal protest. The protest was dismissed by Australia but is a reminder of the sensitivity of neighbouring countries separated by a narrow stretch of water – there are many such in Australia's region – to the way 'their' waters are used no matter the rules governing passage accepted by the international community.

Geoff Evans

## Canberra centric views cause anger

Dear Editor,

What on earth is happening regarding the recent *Navy News* article concerning the Secretary of the Department of Defence's opinion on the constitutional powers of the Governor General in his constitutional role as Commander in Chief of the Naval & Military Forces? I am appalled that a 'public servant' is giving voice to what amounts to mutiny against the Australian Constitution. I am aware of Sir Ninian Stephen's speech which was sent to me in response to my pointing out that the Chief of the Defence Force title was unconstitutional and goes against constitutional law. Sir Ninian's speech although well researched, argues against the constitutional powers of Commander in Chief. I am of the opinion that he draws the wrong conclusions, from the evidence submitted, to support his unconstitutional arguments. If Sir Ninian Stephen was of that opinion he should have resigned as Governor General. His expressed personal opinion has no constitutional force but he does have every right, like any citizen, to express opinions but the Government Minister for Defence, and his Public Service Secretary of Defence, do not have the right to use private speeches by any citizens, no matter how prominent, in an endeavour to overturn constitutional law. When the citizens of this country vote in a referendum to change the constitution then there will be no doubt about the law but until then it is inappropriate for any public servant/parliamentarian to try to build up the ego of his/her office at the expense of our constitutional law.

This action, when considered with the previous action of changing of title CDFS (Chief of the Defence Force Staff) to CDF (Chief of the Defence Force) an unconstitutional title in my opinion, attacks the constitutional position of the Governor General as Commander-In-Chief of Naval and Military Forces of the Commonwealth.

This action is outrageous and unless the Minister and the Secretary apologise to the nation for this action and publish a retraction of the article in *Navy News*, then I call on the Commonwealth Parliament to remove them from office.

Another matter has also arisen in this Federation year where a gross omission has occurred in that Victoria's role as the birthplace of the Australian Commonwealth Navy in 1901 has been completely overlooked in all the celebrations.

We were impressed with the celebration of the Army centenary and were looking forward to a similar event for Australia's Navy in 2001 but this has not occurred. Having witnessed the impressive Federation celebration at Melbourne's Exhibition Building in May we are now of the opinion that there appears to be a complete ignorance about

this matter or perhaps a deliberate action not to recognise Victoria's role as the birthplace of the Australian Commonwealth Naval Forces (ACNF) in this its centenary year. On 1st March 1901 the State Colonial Navies were legally handed over to the Australian Commonwealth Government – six from Victoria, four from Queensland, two from South Australia and two from New South Wales. This was accompanied by Victoria's Williamstown Naval Training Depot and graving dock. This depot became Australia's Naval training centre up until 1920 when Flinders Naval Depot was commissioned with Australia's first Interdenominational Naval Memorial chapel as part of that new training facility. Navy Office was located in Melbourne and remained there up until the early 1960s.

In July 1911 Australia's representatives in the UK requested that the Australian Commonwealth Navy's name be changed to ROYAL AUSTRALIAN NAVY, and H.M. the King "approved the memorandum with great satisfaction." There are those who now believe that because of this name change the Royal Australian Navy miraculously appeared on the horizon in 1911, but that attitude only springs from ignorance of Australia's true naval heritage and possibly other considerations.

In 2001 Victoria has only seen a token formal Federation visit by three RAN ships visiting Port Phillip from 3 to 7 May. There were to be six ships in the early planning, then it was cut to four, then three. The attitude towards Victoria is plain to see.

There is an unfortunate appearance that the Federal Government is supporting a Federation Naval review on Sydney Harbour in October of this year, complete with visiting foreign naval ships, without a similar event being staged on Port Phillip Bay – the birthplace of Australia's Navy. The Federal Government's preference for Sydney, regardless of the reality of Victoria's claim in Federation Naval history, is viewed as a cynical disregard for Victoria.

**This year is Australia's Navy Centenary year – 2001**, and highlights another significant role that Victoria had in forming Federation history aside from Melbourne being honoured as the first Federal Capital of Australia.

I consider these celebrations should take the form of a full Naval Review on Port Phillip Bay, the issue of a special commemorative stamp(s) with a commemorative postmark issued at Williamstown and the issue of a Centenary General Service Commemorative medal to all Naval personnel RAN & RANR, active and retired.  
CMDR John M. Wilkins. RFD. RANR (Rtd)  
President, Victoria Division, Navy League of Australia.

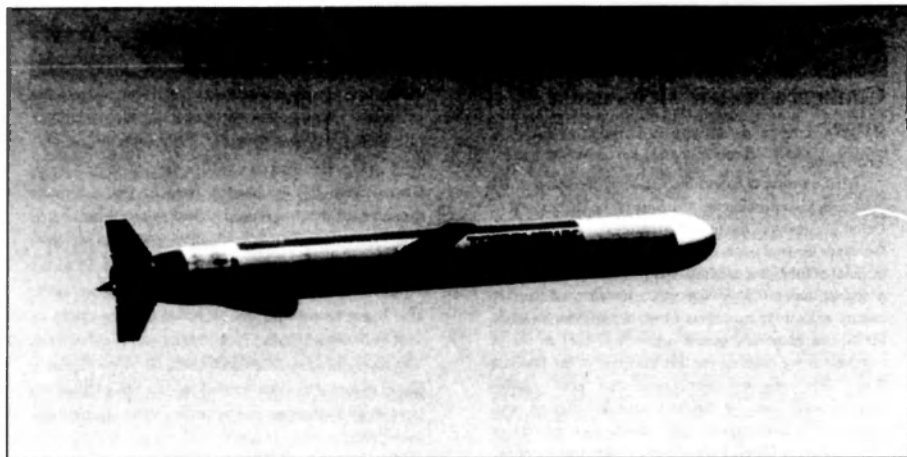
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By Dr Lee Willett\*

Australia's defence policy is based on maintaining effective continental defence while taking an active role in regional affairs and while seeking to participate more globally in multi-national operations in areas of primary strategic interest. Recent years have seen substantive re-evaluations of defence policy and maritime doctrine, sparking extensive debate about relevant force capabilities and mixes. Tomahawk for Collins could be one of those new capability mixes?

Australia is a maritime power, and its strategic requirement to control the air and sea approaches predicated a defence capability built around maritime forces. Forces based at sea present governments with balanced and wide-ranging political choices. Playing an increasingly central role, the Royal Australian Navy (RAN) contribution to joint and combined operations includes power projection and maritime strike capabilities.

Submarines and land-attack missiles are noted for their strategic reach. In the context of the findings of the 2000 defence White Paper *Defence 2000: Our Future Defence Force*, this paper will assess: the role of the Collins-class conventional submarines (SSKs) in Australian defence strategy; the Australian Defence Force's (ADF) interest in acquiring a long-range land attack capability for power projection; and whether a weapon such as the United States Navy's (USN) Tomahawk Land Attack Missile (TLAM) is an appropriate and affordable option. It must be emphasized that, rather than just being desired, any such land-attack program must fill a specific capability gap in support of a clearly-defined strategic concept and purpose, and must be affordable.

Since the early 1990s, there has been much RAN interest in TLAM. The 1997 government strategic policy review (titled *Australia's Strategic Policy*), while noting that the Collins would provide a principal platform for maritime strike, concluded that a weapon with the very long range of TLAM was not required to support the enduring strategic emphasis: defence of the 'inner arc' of the maritime and air approaches. Yet recent years have seen a re-generation of the Australian debate. In the wake of the East Timor crisis, arguments for Australia's development of a cruise missile capability which might be employed as

a cost-effective deterrent or an enabling force in such contexts were primary motivations in the decision of the Department of Defence to re-assess the cruise missile issue. With the ADF busier than at any time since the Vietnam War, *Defence 2000* delineated the next stage in Australia's evolving response to the continuing global strategic change and attempting to re-align Australian strategic aims with ADF force capabilities. *Defence 2000* defined the ADF's main strategic tasks as defence of the homeland while contributing to the security of the Pacific and other areas of primary strategic interest. From the RAN's perspective, the report highlighted the need to improve its force element combat power to make RAN forces more powerful, mobile and sustainable. Much of this debate has centred on the Collins.

### The Collins-class SSK

The Collins are an asset which can operate effectively (in both defensive and offensive postures) across the spectrum of military operations, deterring attacks on the homeland and areas of wider strategic interest, as well as giving Australia strategic reach and effectiveness disproportionate to its size. *Australia's Strategic Policy* noted that the strategic value inherent in a submarine capability supported an extension of Australia's own program. The Collins has been described as 'probably Australia's most important strategic asset for the decades starting 2000' with the 'potential to be an extremely potent strategic and tactical defence asset'.<sup>1</sup>

There are strategic arguments against deploying a long-range strike capability aboard the Collins. Even with air independent propulsion supporting submerged operations for up to two weeks, a conventional submarine with only limited size, reach, speed, manoeuvrability and



The improved Collins class submarine HMAS SHEEAN on the surface (RAN)

sustainability may be inappropriate for a weapon such as TLAM, the sub-surface-launch benefits of which are maximised by the forward-deployed, sustained presence of an SSN. Also, with limited numbers of submarines available, there is a debate about whether a submarine deployed for TLAM strike may be largely unavailable for other missions.

*Defence 2000* states that the RAN must maintain the capability to defend its forces in Australia's extended maritime approaches. In an era of power projection, sea control and sea denial are vital to the ability to project force. Through stealth, flexibility and firepower, a submarine is the archetypal tool for power projection, sea denial and sea control. In addition to these core tasks, submarines provide: rapid deployment; readiness; reach; presence; poise; endurance; mobility; strategic and conventional deterrence; independence from host nation support; strategic, operational and tactical autonomy or integration with other forces; anti-surface and sub-surface warfare; and intelligence, surveillance and reconnaissance (ISR) and indicators and warnings (INW). Adaptable to changing strategic circumstances, submarines give credibility to smaller navies. Conventional submarines remain popular with smaller navies, as they can have a disproportionate impact in the maritime domain. In the 1982 Falklands War, the rogue presence of the Argentine Navy's German-built 209-class SSK, SAN LUIS, caused considerable problems for the British Task Force as did, in 1999, the potential threat from the Yugoslav SSK, SAVA, for the coalition Task Force.

The well-documented problems experienced with the Collins class have, in some circles, underscored arguments that a submarine arm for a navy is an expensive one to maintain. However, this ignores the fact that submarines have relatively low through-costs and provide far more flexibility and firepower per dollar invested than many other platforms. Moreover, the technical problems associated with the Collins program have tended to overshadow the real issue – the ADF's understanding of the value of and requirement for a submarine capability.

Since the first of Australia's Oberon-class submarines arrived in 1967, parallel with developments in submarine technologies, the role of submarines in Australian defence strategy has become far more extensive and complex as the ADF has sought to explore the submarine's prime capabilities – stealth, endurance, sensors and firepower. The ADF's raw strategic requirement for submarines – to operate at distance, well outside Australian waters and up to 2,500 nm from home base for up to 10 weeks, as a deterrent and data-gathering asset – remains largely unchanged. However, at a technological level, quite simply the Collins is a quantum capability leap from the O-Boats.

More importantly, today submarines are required to make a much more wide-ranging and networked contribution to joint and combined operations. Captain John Dikkenberg RAN, formerly Commander of the Australian Submarine Squadron, wrote last year that the submarine 'is a dichotomy of strengths and weaknesses, but on balance fulfils a unique niche in the defence spectrum' and provides vital complementary capabilities in a balanced force structure. As a result, the ADF submarine program has been fast-tracked under the defence capability plan of *Defence 2000* so that, by the end of 2001, two Collins boats will be fully operational. Often regarded as the quietest submarine class in the world, with the class as a whole being upgraded with new technologies which were unavailable 10 years ago, the Collins-class will have a capability beyond its original specifications. Late last year, it was reported that the final two hulls of the class would be under threat unless more funding could be found to support the program. The purchase of the last two hulls is vital: so as to meet the strategic requirement of having two operational submarines available at any one time, six hulls are required to maintain the necessary two *roulement* cycles of three boats per cycle. It is evident, too, that the Collins' capabilities are performing well. Collins boats have excelled in several recent exercises, perhaps most notably HMAS WALLER in the US Navy's RIMPAC 2000 exercise. It has been reported that, to capitalise on the success of the Collins program, work on developing a new submarine class for the RAN will begin shortly after 2002.

### TLAM

*Defence 2000* states that the Australian Government views a strike capability as:

*an important element of Australia's military posture because it provides [Australia] with the flexibility to destroy hostile forces before they are launched towards Australia and when they may be most vulnerable ... Strike forces can provide excellent support to Australian forces deployed abroad ... [Australia] capability would be focussed on an ability to attack those militarily significant targets that might be used to mount or support an attack on Australia.*



The view from the periscope as a submarine launched Tomahawk breaks the surface. This Tomahawk was fired from the SSN USS PITTSBURGH during the Gulf War. (USN)



These phrases suggest a requirement to attack land targets at distance. Today's strategic environment is dominated by precision munitions, principally those delivered by missiles. Improvements in anti-ballistic missile defences suggest that cruise missiles might be a cheaper, more practical and strategically more enduring option. In terms of a platform for a land-attack capability for the ADF, several options for a surface fit have been promoted.<sup>1</sup> Yet the debate has focused largely on a submarine fit. In terms of the missile, the debate has focused largely on TLAM.

Submarine-launched cruise missiles, especially one with the capabilities and reputation of TLAM, are a force capability – and, thus, political status – multiplier of significant magnitude for a medium navy.<sup>2</sup> The key issue for Australian defence policy is distance, from defence of the 'inner arc' to participation in multi-national operations on a global scale. Amongst the cruise missile family, TLAM's reach is unique. TLAM would bring to Australia a capability presently unmatched by any other regional power in the wider region. Submarines, with their stealthy flexibility and reach, maximise the strategic benefits brought by TLAM. TLAM-capable submarines bring the opportunity to project responsive, precise, deep-striking maritime force in-land at the place and time of choice across all levels of warfare with reduced risks both of collateral damage and to friendly forces and non-combatants, and all from a stand-off, covert and flexible platform. In the words of Chief of Navy Vice-Admiral David Shackleton, the ADF is 'almost at the stage where it's gone beyond joint warfare to almost integrated warfare'. Fusing sea, air and land power into a joint maritime strike capability, TLAM is an important asset in terms of exploiting sea power's strategic function as a flexible enabling agent and would, for the RAN and the ADF, provide a more even distribution of offensive force capabilities. However, part of the challenge for Australia is defining a strategic niche which a land-attack capability must fulfil. This will largely dictate what missile, what payload and what platform is best suited to the ADF's strategic purpose. A key issue in this debate is the nature of Australia's relations both with the US and with other powers in the region. *Defence 2000* notes that strike capabilities 'offer a valuable option for contributing to regional coalitions'. While enjoying a strong relationship with the US, which the procurement of TLAM would endorse and augment at both political and military levels, the deployment of a weapons system with such offensive

capability might send threatening signals to other regional players. It is, however, questionable as to whether the US would consider selling TLAM once again.

If employed correctly, TLAM can be a very effective diplomatic and war-fighting tool, meeting ADF requirements across the spectrum of military operations. It has proven utility as a coercive and war-fighting tool – if employed in appropriate political and military contexts. From Operation DESERT STORM in 1991 through to Operation ALLIED FORCE in 1999, TLAM has performed as expected in military terms in each of the eight operations in which it has been used. The only questions that have been raised generally relate to the political and military sense in employing million-dollar, 'war-winning' weapons to attack targets which, occasionally, may be inappropriate – for example, terrorist training centres, or radar sites that have been operational again within hours – and the political signals which have been communicated in using a stand-off weapon rather than a pilot or ground troops. On this latter point, in an era of casualty intolerance TLAM is perceived as a low cost, and politically clean, method of intervention. Yet occasional US use of TLAM against inappropriate targets has generated criticisms that TLAM's coercive and deterrent value may have been eroded; and that random firings question the viability of employing limited precision bombardment to implement coercive diplomacy. If precision weapons such as TLAM are to be used for strategic coercion, they must be employed within the correct political and strategic framework.

If the strategic aim is to employ TLAM for purposes other than strategic coercion, then there is the issue of force levels. A relatively small inventory, particularly when aligned with that of the US, can provide a workable deterrent when employed in the right manner in the right strategic context. Yet Britain has discovered very quickly that an inventory of 65 missiles is rather limited when Britain's evolving concept of operations for weapons employment is indicating that the weapons system has greater tactical applicability than originally envisaged. If a larger number of rounds are required, the half-million US dollars that each new TLAM will cost might be better spent by a nation with a relatively small defence budget on a less expensive system, and/or supporting a purchase by sacrificing other capabilities and programmes. Australia is not unique in facing an imbalance between strategic aims and commitments, resources and programs. Moreover, the rapid increase in military capabilities of other regional powers means that the ADF's capabilities will decline in relative terms without consistent re-investment. Between 2008 and 2015, nearly all of the ADF's major systems will reach the end of their life expectancies. This presents a block obsolescence gap, but also an opportunity to fill it on a long-term basis. If Australia is looking to develop a cruise missile capability, this may mean a new missile – in the short term – and a new platform – in the longer term.

Cruise missiles can spread more evenly a defence force's aircraft burden, reducing the need for strike aircraft. TLAM has drawn comparisons between sea-based stand-off capabilities and the role of manned aircraft and between different types of stand-off weapons. Air-launched ordnance, with its greater repeatability and greater availability, is more effective in longer-term campaigns, as well as against hardened or mobile targets. Organic air power also provides greater flexibility in low to medium intensity operations. Yet, as has been seen in Operations

DESERT STORM, DESERT FOX and ALLIED FORCE, the strategic requirement to degrade enemy air defences before the entry of the full follow-on force package mandates that a stand-off, unmanned weapon like TLAM can be used as a complementary, enabling agent for entry into theatre of other assets. This should not be viewed as an either/or debate. In the era of joint and combined operations, seapower and airpower are mutually supportive in securing the favourable air situation essential to implementing manoeuvre warfare.

The second question is one of missile capabilities. TLAM was conceived in the 1960s. Even the new US Tactical Tomahawk (*TacTom*) is contemporary technology only, and is probably only the beginning in the evolution of the next generation of TLAM capabilities. *TacTom* will build on the capabilities of the US and UK Block III, as well as bringing some new attributes. However, it might be in Australian interests to anticipate non-lethal cruise missile developments such as electro-magnetic pulse capabilities, or sub-munition dispenser variants such as the Ki2 versions employed to good effect by the US in DESERT STORM and ALLIED FORCE. Other significant cruise missile developments that should be of note to the ADF include weapons with greater ranges and speed.

The final question is that of a platform. A key question is where both a strike role and cruise missiles fit into Australian conceptions for a future offensive air system (FOAS). A decision to develop a land-attack cruise missile capability will fundamentally change the shape of the ADF. The political decision to enter into such a capability will be influenced to a great extent by technological developments which will influence the outcome of Western debates on the nature of FOAS. Moreover, casualty intolerance among political leaderships questions the long-term future of manned aircraft. This, and the cost of replacement of aircraft programs, suggests a longer-term pre-eminence for cruise missile technologies in FOAS issues.<sup>3</sup>

The advantages of a composite package of TLAM and the Collins have been listed above. TLAM was initially considered as a replacement for the Royal Australian Air Force's F-111 strategic bomber. *Defence 2000* stated that:

*The Government has considered the future of [Australia's] strike capability after the F-111 leaves service, expected to be between 2015 and 2020. It is unlikely that there will be any comparable specialised strike aircraft suited to [Australian] needs available at that time. A range of alternatives may be available by then, including the much greater use of long-range missiles fired from transport aircraft, naval platforms, or even unmanned combat aerial vehicles.*

If the ADF decides to pursue a cruise missile capability, an interim solution to plugging any capability gap – until long-term decisions on new platforms and the very nature of FOAS itself are made – could see the already-existing Collins submarines providing a maritime deterrent and strategic strike capability (from torpedo-tube launched TLAMs). Complemented in joint force planning by upgraded F-111s carrying any one or a mix of a variety of currently-available stand-off air-launched cruise missiles. The ADF's FOAS research is centred around the Air 6000 project. Starting out with an evaluation of the capabilities of the two platforms which presently represent the ADF's air control and strike capabilities – the F/A-18 and the F-111, the project will examine the ADF's future mission requirements and (in what is a fundamental shift for any armed service) will look at what effects-based capabilities



A Tomahawk breaks the surface and heads towards its target after being fired from a submerged submarine. (USN)

– as opposed to platforms – will be required to support those missions. Cruise missiles are a prominent option for FOAS, fitting the strategic strike aspect of any such future missions. Even if it is to be assumed that the realities of the technologies likely to emerge within the timespan for FOAS suggest that manned aircraft will remain integral in the capability framework of any future systems, weapons like TLAM may provide a key option here. For several years, both the US and the UK have been examining options for firing TLAMs from a variety of fast jet and transport aircraft, and in the Cold War, nuclear TLAMs were deployed on mobile ground-based launchers. The point here is that TLAM is a proven weapons system that can fit a variety of sea, air and land platforms.

Australia must have a clear strategic rationale for the employment of such weapons, as there is a danger in procuring TLAM for its reputation. A land attack cruise missile fit for the Collins provides a flexible, balanced and responsive maritime contribution to meeting Australia's strategic imperatives in high intensity combat operations. The Collins program is developing<sup>4</sup> and, when equipped with the most capable weapons systems available, it can make a fundamental contribution to Australian security balanced against fiscal responsibility. If embarking a weapon such as TLAM, the Collins-class SSK would have the capability to support key Australian defence roles of defence of the inner arc and regional power projection in joint and combined operations.

<sup>1</sup> Analyst, Royal United Services Institute for Defence Studies (London, UK).

<sup>2</sup> It has been argued that, were it not for the Collins' construction problems, the RAN would have asked to procure TLAM around the same time as Britain.

<sup>3</sup> Report to the Minister of Defence on the Collins Class Submarine and Related Matters, 20 June 1999, Canberra, ACT, available on-line:

[http://www.navy.gov.au/8\\_archive/collinsnrcp/crreport.htm](http://www.navy.gov.au/8_archive/collinsnrcp/crreport.htm)

<sup>4</sup> This has centred on the Anzac frigates. It should be noted that the American and British navies have also, at one stage, looked at options for fitting TLAM to aircraft carriers.

<sup>5</sup> The author's research suggests that the Australian, Canadian, Dutch, French, Israeli, Japanese, Spanish and Italian navies have all expressed to the US interest in procuring TLAM.

<sup>6</sup> For example, it has been suggested that the F-111/F/A-18 replacement program may cost Australia up to up to US\$10bn. The UK initial procurement costs for the programme were around GBP200m, with through-life costs at present being around GBP11m per year.



Improved Los Angeles class SSN's have 12 vertical launch tubes in the bow for Tomahawk, as seen here with all 12 bow caps open. This fitting negates carrying valuable ASW and ASuW weapons from the submarines torpedo arsenal. (USN)

# Australia's Maritime Doctrine – Part 1



HMAS ARUNTA leads a number of ships out of Sydney Harbour (Brian Morrison, Warships & Marine Corps Museum Int)

During last year the RAN published 'RAN Doctrine 1 – Australian Maritime Doctrine'. Surprisingly this is the first time that Navy has published doctrine of this calibre. The document was written by the Seapower Centre and is reproduced in *THE NAVY*, with the Centre's approval, given its importance to readers of *THE NAVY*, Australians and to the Navy League in general.

## Chapter 1, Understanding Maritime Doctrine

### The Purposes of Maritime Doctrine

The Royal Australian Navy's (RAN) mission is to:

- be able to fight and win in the maritime environment as an element of a joint or combined force;
- assist in maintaining Australia's sovereignty; and
- contribute to the security of our region.

The RAN is developed, structured, trained and supported to deliver combat power at and from the sea. The Navy also needs to balance the maintenance of its combat preparedness with the many requirements of peacetime operations and future capability development. The successful fulfilment of every one of these elements depends upon comprehensive and thoroughly understood maritime doctrine. As the Australian Defence Force's (ADF) keystone document on the subject states:

*'Military doctrine helps planners and commanders approach stressful, dangerous, chaotic and unfamiliar situations with a clarity of thought based on rigorous analysis, and comprehensive knowledge of hard-won lessons from human history and national military experience'*

The ADF's definition of military doctrine is:

*'...the body of thought on the nature, role and conduct of armed conflict ... [which] contains, among other things, the fundamental principles by which military forces guide their actions in support of national objectives'*

Military doctrine provides a basis for action founded in knowledge. Maritime doctrine is that component of military doctrine which sustains the employment of armed forces at and from the sea. This definition recognises the inherently joint nature of maritime operations and the fact that operations at or over the sea are only of utility so far as they can affect the fundamental outcome of a campaign, whether directly or indirectly.

RAN Doctrine 1 – *Australian Maritime Doctrine* explains the key concepts for the conduct of maritime operations. This chapter explains the nature and the importance of maritime doctrine.

### The Origins of Australian Maritime Doctrine

One of the principal themes of the RAN's experience of doctrine is that its origins have been largely international for most of its history. As a smaller navy, and one which had its roots in the RN and which has since frequently operated as part of alliance forces, it is impossible to expect the RAN to develop its doctrine wholly from first principles. Rather more than air forces and considerably more than armies, almost all modern navies operate from a very large base of shared international doctrine, allowing a level of mutual understanding that also manifests itself at much higher levels of command. All of Australia's allies at sea operate with *Allied Tactical Publication 1* as a standard reference when manoeuvring and communicating with each other. Most friendly navies have access to earlier but still valid versions of the same document, while those that do not are able to utilise an expurgated version which allows any warship to communicate and manoeuvre safely with another. Replenishment at sea is also a generally shared skill that is the result of the extensive development, practice and dissemination of agreed allied procedures over the last century. Australia warships can and have replenished under way with or from those of Malaysia, Singapore, Thailand and Indonesia, as well as with those of Canada, The United States and the United Kingdom. There are more than twenty other navies with which such operations either have been or could safely be conducted at little or no notice. Thus, Australian maritime doctrinal development is a synthesis – not just in a joint sense – of national effort with that derived not only from the country's major allies but a wide range of other sources.

A second theme of maritime doctrine is one of complexity. Many different elements go to make up the fundamental components which include many factors not

apparently related to warfighting. These range widely. One example is that there are logistic and maintenance procedures which combine to determine whether ships are capable of extended activities at considerable ranges from their bases or whether they must confine themselves to coastal operations. Another is that the RAN ascribes to and has developed for its own use the concepts of ship navigation and pilotage laid down within the RN's Manuals of Navigation. These give it a capacity for operations in shallow water and within the littoral generally that some other naval forces might hesitate to attempt. Thus, an activity ostensibly to the safe passage of ships has direct implications for her Navy's combat potential in a key environment.

### The levels of Maritime Doctrine

ADF doctrine is a hierarchy of *keystone doctrine*, *philosophical doctrine*, *application doctrine* and *procedural doctrine*. Although these different levels of doctrine bear some relation to the levels of command – strategic, operational and tactical – the point at which one level is subsumed by another is rarely clear. That maritime warfare does not itself readily allow for clear distinctions between the levels of command complicates the issue further. Elements of procedural doctrine can have fundamental implications for every other level, just as changes in philosophical doctrine will have ramifications elsewhere.

### Maritime Application and Procedural Doctrine

*Application* and *procedural* doctrine, which relate to the operational and tactical levels and the detailed mechanics of operations at sea, have a long professional history, starting with the RN's *Fighting Instructions* of 1672. The RAN employed the modern British versions of *Fighting Instructions* as a primary doctrinal source for the operational and tactical levels of warfare until well into the 1970s. Other important sources of guidance for operations and tactics were found in a range of North Atlantic Treaty Organisation (NATO), USN and Allied publications to which the RAN had access. In the case of operations with the United States under ANZUS and with Singapore and Malaysia under the Five Power Defence Arrangement, considerable effort went into the development of mutually agreed procedures and tactics, effort validated by the regular exercises in which the various nations participated and which provided the basis for combined operations in the event of contingencies.

When Australia's strategic situation demanded a more self-reliant approach, the need for guidance tailored to the Australian circumstance was met at the tactical level by the development of *Australian Fleet Tactical Instructions*. Although this remained under the editorial guidance of the RAN's Maritime Command, it transmuted in 1994 into *Australian Maritime Tactical Instructions*, thereby recognising the inherently joint nature of all maritime operations and the extent to which it received RAAF and Army input. The issue of the *Australian Defence Force Publication* (ADFP) series, notably ADFP 6 – *Operations* and ADFP 6 Supplement 1 – *Maritime Operations* has created important linkages at the operational level, which will be completed by the forthcoming RAN Doctrine 2 – *Australian Maritime Warfare*.

### Higher Level Maritime Doctrine

*Keystone* and *philosophical* doctrine have not enjoyed so long a formal existence as *application* and *procedural*

doctrine but they are important in many ways. Higher level doctrine has educational purposes in addition to its direct utility for the employment of military force. It not only serves to educate and motivate personnel and improve their understanding of the roles and functions of their services, but can be used to inform those within government and the wider community of the ways in which military force can be applied by the nation in exercising its national power.

The first comprehensive analyses of maritime strategic doctrine in the western world date to the late nineteenth century and the work of historians and commentators such as the British Vice Admiral Philip Colomb and the American Rear Admiral Alfred Thayer Mahan. Further assessments in Britain included Sir Julian Corbett's *Principles of Maritime Strategy* and the works of Admiral Sir Herbert Richmond, while later in the century there were increasingly sophisticated contributions from France in the work of Admiral Raoul Castex in the 1930s and from the Soviet Union by Admiral Gorshkov in the 1970s. These joined continuing efforts by American analysts such as Rear Admiral J.C. Wylie and Admiral Stansfield Turner to define maritime strategic concepts and match them to contemporary requirements. The post-war British *Naval War Manual* (the original BR 1806, issued in 1948, 1958 and 1969) was the principal source of higher level doctrine for many of the Commonwealth navies, including the RAN, in the period after World War II.

The body of higher level maritime strategic work has been extended further by contemporary thinkers and writers from Britain such as: Professors Ken Booth, Colin Gray, Eric Grove and Geoffrey Till, and Rear Admiral Richard Hill. Within this country, Commodores Alan Robertson and Vernon Parker did pioneering work in the 1970s. More recently, Commodores Sam Bateman and Jack McCaffrey and Commander Dick Sherwood, partly through the mechanism of the RAN's Maritime Studies Program (now the Sea Power Centre) have done much to develop and enunciate Australian maritime strategic concepts and ideas.

RAN Doctrine 1 – *Australian Maritime Doctrine* draws on all these sources and many others as the keystone doctrinal publication for the RAN. It stands at the summit of naval doctrinal effort and fits alongside such publications as *Land Warfare Doctrine* (LWD) 1 – *The Fundamentals of Land Warfare* and *Australian Air Publication* (AAP) 1000 – *The Air Power Manual*, as well



Combined and widely disseminated doctrines such as manoeuvring at sea or replenishment operations make 'international' replenishment tasks a relatively safe exercise. Here HMAS WESTRALIA replenishes HMCS REGINA during the recent Tandem Thrust exercise in North Queensland. (RAN)

as the major elements of the *Australian Defence Force Publication series, RAN Doctrine 1 - Australian Maritime Doctrine* is designed to be read not only by those in the RAN and other elements of the ADF who have direct professional concern with it, but by all those with an interest in and a concern for the issues of Australian security.

## Chapter 2, The Maritime Environment

### The Physical Environment

The importance of the maritime environment is both a worldwide reality and one with particular significance for Australia. 70% of the surface of the Earth is covered by sea and this means that maritime power is frequently the most efficient means of applying force in a conflict. The areas in which maritime forces can operate range from the open oceans, or what is known as *blue water*, over the continental shelves, archipelagos and coasts in *green water* and into inshore areas and estuaries in *brown water* conditions. The physical differences between these circumstances can pose very different challenges for naval forces, particularly in the *littoral*. This is defined as those areas on land which are subject to influence by units operating at or from the sea, and those areas at sea subject to influence by forces operating on or from the land. Platforms, systems and operating procedures that are configured for one condition may not be well suited for another.



The RAN's area of operations is vast. From the calm warm waters of the tropical Pacific to the harsh and cold seas of the Southern Ocean (Mark Schweikert)

Nevertheless, operational flexibility can be built into maritime forces and developed through training and doctrine. In general, larger platforms with primacy in blue waters can be adapted to be very effective in green and brown water conditions and thus within the littoral, but smaller units lack the sea keeping capabilities necessary to deal with the swell and sea states experienced in deep water, as well as the endurance to cope with oceanic distances. This is particularly important for Australia. In the Australian context, the relationship between the environment and maritime security is very complex. The area of direct interest to Australia's security encompasses a substantial percentage of the Earth's surface. Australia adjoins the Pacific Ocean in the east, the Indian Ocean in the west, the South East Asian archipelago in the north and - sometimes forgotten - the Southern Ocean. Our maritime jurisdictional areas alone comprise more than eight million

square nautical miles (or almost 16 million square kilometres). Our security requirements are such that maritime forces can find themselves rapidly moving from one extreme of climate and local sea environment to another. Within a few weeks, major units may transit from the tropical calm and heat of the dry season in the South East Asian archipelago to the huge seas and swells of the Southern Ocean.

Distance is the most striking single fact about Australia's *strategic geography*. Australia is very big and very difficult to defend. It is also very difficult to attack. Nevertheless, Australia's interests involve even greater issues of distance than do our imperatives of territorial defence alone.

One major interest is the continuation of the free movement of shipping through maritime South East Asia. The most direct routes to Japan and Australia's other major trading partners in East Asia are through the archipelago. Interruption of or interference with international shipping would have immediate effects on Australia's economy and its export competitiveness.

The other environmental factor of great relevance to Australia is the fact that, for most of this country's northern coastal regions, as well as many parts of the archipelago to the north and the islands of the South West Pacific, the sea represents either the only means of access at all, or the *only* way in which any substantial numbers of people or amounts of cargo can be delivered.

Technological developments are increasing the capabilities of maritime forces to operate in close proximity to land, not only through better navigational techniques, but by improved environmental understanding and sensors and data exchange systems which allow seaborne units to 'look' inshore from the coastline over terrain to detect possible threats.

Although wide area surveillance systems are available to the great powers and increasingly to medium power nations, maritime units, particularly submarines, remain difficult to detect and track. By their ability to move and remain covert, maritime forces can take great advantage of the wide ocean in remaining undetected and unpredictable in their intent. If this is accompanied by shrewd exploitation of weather and oceanography, the problem for an adversary can be complicated still further.

### Social

Approximately 70% of the Earth's population live within one hundred and fifty kilometres of a coastline. In the case of Australia, this figure is well over 95% and the figure is even higher for most of South East Asia. Our region is thus a *maritime - littoral* environment to a greater degree than any other in the world. These statistics mean that the sea gives *access* to centres of human activity and thus to governments. Australians have tended to think of the sea in terms of living on the coast and enjoying Australia's beaches and surf. But the sea can be used for many purposes and the idea of our surrounding seas and oceans being a highway rather than a barrier is becoming increasingly well understood. The increasing incidence of illegal immigration has been an important factor in this process.

### Economic

The sea remains the primary and far and away the most cost-effective means for the movement of international trade, both by value and weight. In Australia's case, more

than 70% of our exports and imports go by sea in terms of value and well over 95% by bulk. Although Australia is largely self sufficient for most resources, it is increasingly dependent upon petroleum imports to meet domestic demand, particularly in heavy crude oil. The nation's economic well being depends upon the maintenance and expansion of export trade, while essential manufactured goods, industrial tools and high technology equipment are amongst our imports. Coastal shipping not only plays a substantial role in Australia's domestic transport network, but its free movement is also essential to the survival of many cities and towns in the north.

East Asian nations' dependence on maritime trade is even more acute than that of Australia. Japan is absolutely dependent upon seaborne imports for energy and raw materials, as is South Korea. China is becoming increasingly reliant upon the sea, particularly for petroleum imports. Within South East Asia, the relative lack of land transport systems increases the dependence of the region upon the sea for the movement of goods and people.

The seabed is becoming an increasingly important source of resources. Australia depends upon offshore oil fields for much of its domestic petroleum production. Australia's Exclusive Economic Zone is one of the largest in the world and its surveillance and protection are placing increasing demands upon national resources. Although the waters of our EEZ are relatively poor in biomass, fisheries constitute an important part of the national economic effort. In 1997-98, our fishing production yielded nearly 223,000 tonnes, worth AUD\$1.86 billion 81% of that catch was exported, mainly to Asian markets.

### Ecology

The increasing exploitation of marine resources makes preservation of the marine ecology a vital issue for all nations in the region. Australia possesses a number of unique elements of the world's marine environment, including the Great Barrier Reef. The prevention of marine pollution is one fundamental requirement for their preservation, as well as for the maintenance of much of our tourist industry and for the quality of life of Australians generally. In addition, the management and conservation of living resources are important not only for Australia's domestic fisheries but also for the long-term preservation of a healthy ecology.

### Law and International Law

Australia's combat forces operate in accordance with both international and domestic laws which set out the rights and obligations of the ADF and govern the use of force. In addition, maritime forces operate within an



The RAN is charged with protection of Australia's vast coastline including its fisheries. Here a RAN patrol boat tows an illegal fishing vessel into Darwin Harbour (RAN)



The RAN has for sometime been a very littoral focused Navy. Operations in shallow water, as here in Timor, are nothing new. (RAN)

increasingly complex legal environment. The long held concept of *Freedom of the Seas* has undergone important modifications in the last two decades, particularly as a result of the 1982 *United Nations Convention on the Law of the Sea (LOSC)*.

Historically, maritime forces have been prohibited from conducting operations within the *territorial sea* of a neutral state. This restriction has become more significant with the extension of the limit of territorial sea to twelve miles and the introduction of *archipelagic waters*, to which other rules apply. Warships may pass through such areas, but they must not delay their transit or operate weapons or some active sensors. There are designated *Anchorage Sea Lanes* and also *International Straits* to which such rules do not apply, although some limits on action remain, such as the requirement to transit 'expeditiously'. Maritime forces can also be affected through their organic and supporting air assets by the existence of air space control regimes, which may mean additional restrictions on operations. In addition to these restrictions, however, there remain rights of access for maritime forces to sea areas, provided that such access is not prejudicial to the interests of the neutral coastal states involved. Thus, while the *activities* which maritime forces may engage in have been affected by LOSC, the *movement* that those forces can undertake has been less confined. This is an important factor in estimating the utility and the *access* of maritime forces in contingencies.

Within the *Littoral Zones* and EEZs of neutral states, maritime forces must operate with regard to the rights of those states. In general, this regard is compatible with the general care which belligerents are required to apply to the natural environment.

There are maritime regions in which the legal regime has even greater complexities and anomalies exist which may be significant for maritime forces, including those of Australia. Australia has significant claims to territory and maritime zones in the Antarctic. The treaty regime in the Antarctic is not recognised by the majority of nations, thus leaving open the question of jurisdiction and ownership of natural resources. Similar problems apply to fisheries outside national EEZs, even where there are clear conservation implications in uncontrolled fishing. While international conventions have been developed to govern such aspects as migrating fish stocks on the high seas, it is too early to be certain how such regimes will operate effectively.

In Part 2 of *THE NAVY's* series on *RAN Doctrine 1 - Australian Maritime Doctrine* we publish Chapters 3 and 4 of the Doctrine on 'Armed Conflict' and 'Strategic Policy' respectively.

# Flash Traffic

## RAN bullied by PLAN

The Chinese Government, through its embassy in Canberra, has lodged a formal protest with the Australian Government over three RAN ships exercising their 'right of passage' through the Taiwan Strait on route to Hong Kong on April 17.

The protest was lodged on ANZAC Day, despite the incident occurring well before. A PLAN (Peoples Liberation Army Navy) Captain accused HMA ships SUCCESS, ARUNTA and NEWCASTLE of breaching China's 12-nautical mile territorial zone. The Australian ships were steaming from Pusan in South Korea to Hong Kong (which incidentally is in China) as part of the North-East Asian deployment. The PLAN Captain reported that the Australian ships refused to change direction and continued through the Taiwan Strait after he ordered them out of the area. It is unknown what action the PLAN ship then took but it is known that they were intercepted and 'escorted' by a PLAN warship. One could expect that China would use its ships to defend what it sees as its territory in a similar fashion to the EP-3 incident when a PLAAF F-8 fighter collided with the US aircraft.

The RAN said the decision to send the ships through the area so soon after the US spy plane incident might have been regarded as provocative, but the Australian Government had no intention of cancelling the mission.

Prime Minister John Howard said the correct procedure for transiting the area has always been ambiguous, although the Australian ships "conducted themselves in full accordance with international law".

## Upgrade for Anzac ESM system

Thales Sensors (formerly Thomson-Racal Defence business) has been awarded a contract to upgrade the Electronic Support Measures (ESM) system fitted to the RAN's and RNZN's Anzac-class frigates.



HMAS WARRAMUNGA in Sydney Harbour for the first time. The Anzac class will be fitted with a new ESM system to replace the current. (Brian Morrison, Warships & Marine Corps Museum Int)

Under the original contract with Tenix (builder of the Anzac class), Thales Sensors supplied the Sceptre-A ESM system. However, Sceptre-A has encountered a number of performance problems on its introduction to service. Further, it is based on a previous generation of technology.

The replacement ESM system, known as Centaur, will provide a significant increase in fragility onboard the Anzac-class frigates, enhancing an earlier generation of equipment supplied by the company.

Centaur will introduce processing and display improvements based on technology from the RN's Outfit UAT series of ESM systems. First fits are planned for early 2002, with the programme lasting 18 months.

The RAN is also to upgrade the ESM capability on its FFGs. The ships are to receive the Rafael C-Pearl ESM system as part of the FFG Upgrade Programme.

## Navy League Shield awarded to NEWCASTLE

On 23 March 2001, Commodore M. J. Youl AM RAN(Ret), representing the Federal President of the Navy League, presented the Navy League Community Service Award Shield for 2000 to the Ship's Company of HMAS NEWCASTLE (Captain D. R. Thomas CSC RAN). The award was presented in the presence of the Maritime Commander, Rear Admiral G. F. Smith AM RAN, on the flight-deck of HMAS NEWCASTLE which was berthed at Fleet Base East. The

Shield was accepted on behalf of the assembled Ship's Company by CPOMT Walter Hoegee, who had played a major part in performing the various community aid projects which the Ship's Company had undertaken.

The Community Service Award is an award which is presented by the Navy League annually to the HMA ships or establishments which during the calendar year have made the most significant contribution to the community. The contribution need not be made in Australia. It can be made anywhere in the world and can range from a rescue at sea, fighting bushfires or raising funds for charity.

The Federal Council of the Navy League selects the winner of the award from nominations forwarded to it by the various RAN commands.



Commodore Merv Youl, AM RAN (Ret), representing the Federal President of the Navy League of Australia, presents to CPOMT Walter Hoegee, on behalf of HMAS NEWCASTLE, The Navy League Community Service Award Shield for 2000.

It is not an easy decision to make as ships and establishments vary greatly in size. Obviously establishments such as HMAS CERBERUS, with a ships company of several thousand, has more opportunities to qualify for the award than a patrol boat with a crew of 20 or so.

This award was first presented in 1981 to HMAS PENGUIN and since then it has traversed the length and breadth of the country a number of times. The list of winners includes HMAS CONNAWARRA, Naval Communications Station HAROLD E HOLT, HMAS STIRLING FIMA Cairns, HMAS CERBERUS, HMAS ALBATROSS and HMAS HARMAN.

Until this occasion it had been presented to a ship on only 5 occasions - HMAS CESSNOCK (twice), HMAS BRISBANE, HMAS ANZAC and HMAS ADELAIDE (last year).

HMAS NEWCASTLE was a very worthy winner of the Navy League Community Service Award for 2000 in view of the excellent work which the Ship's Company had done in supporting the Hunter Valley Orthopaedic School, Marion, and the excellent work done to support the local community in East Timor as well as the work done to assist various schools and charities during the Ship's visits to Fiji, Vanuatu and Western Samoa.

Commodore Youl congratulated the members of Ship's Company for their efforts and particularly for the fact that, although they all had busy jobs on board, they were prepared to spend their spare time raising funds and also visiting and helping these civilian organisations when they could. Commodore Youl said that their efforts were a great credit to the Ship's Company.

Commodore Youl also said that the thousands of kilometres that the shield had travelled since it was first awarded demonstrated that Australian sailors, wherever they might happen to be, contribute in no small measure to the civilian community and that reflected very well on the community spirit of the members of the RAN.

## NT upgrade prepares for patrol boat influx

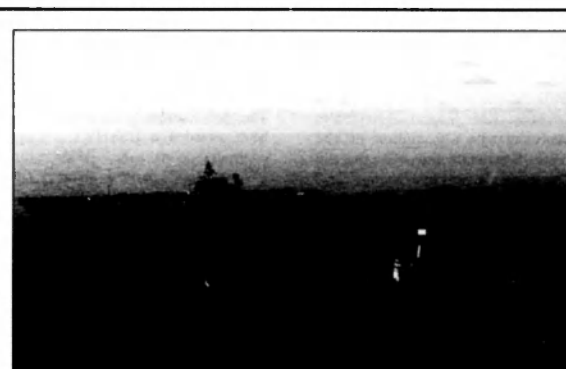
The \$12 million upgrade to the Darwin Naval base is on track with an official opening set for October 12.

Before the opening HMAS GERALDTON, HMAS BUNBURY from the west and HMAS FREMANTLE and HMAS WARRNAMBOOL from Sydney will sail north to their new homeport.

Accompanying the new arrivals will be 150 sailors and a total of 200 wives and children.

At the base piledrivers continue to push in piers for the expanded base.

A new wharf capable of taking vessels up to 55m - longer than the Fremantle class patrol boats - is well underway.



Signs that the Asian economic crisis is at an end with the Thai carrier CHAKRI NARUEBET taking to sea recently to exercise with the US carrier KITTY HAWK in the Gulf of Thailand. Seen on her deck are two SH-70 Seahawks and one AV-8 Matador. Despite the fact that the carrier was tied up alongside for most of the Asian economic crisis the ship was well maintained by its crew. (USN)

The hardstand has been expanded to take an extra three vessels.

Oil storage facilities have also been enlarged and new buildings for FIMA/Darwin, built.

The new wharves will carry systems to provide fuel, fresh water, electricity and electronics.

The expansion of the base will allow for ten patrol boats to be based there.

Homeporting of the four southern boats in Darwin is seen as putting RAN ships "where the action is."

"The upgrade is on track" LEUT Vicky Robinson, the XO to the senior naval officer in northern Australia said.

The official opening is expected to be a gala event with bands, dragon boat races and displays just part of the program.

By Graham Davis, NAVY NEWS

## Regional role for South Korean Navy

In a speech to graduating midshipmen at the Korea Naval Academy in the southeastern port city of Jinhae on 19 March, President Kim announced plans to form a 'strategic mobile fleet' to secure sea lanes in East Asia in the event of a maritime conflict.

The President observed that key components of the new 'Strategic Mobile Fleet' are on their way, saying, "Work has begun on the

construction of Aegis destroyers, the dream of our Navy. Next-generation submarines and maritime patrol aircraft projects are also being undertaken".

According to RoK Navy spokesmen, the Strategic Fleet will be composed of 7,000-ton Aegis destroyers, 1,800 ton 214 class submarines and PC-3 Orion ASW aircraft.

"We believe that the envisioned fleet will play a role in projecting sea power into regional waters in times of crisis," the spokesman said.

Currently, the South Korean Navy is divided into three sectors, one each assigned to the East, West and South Seas surrounding the southern half of the Korean peninsula. The Strategic Fleet will be able to deploy rapidly into trouble spots around the region to protect South Korean trade and lines of communication.

## RN to lease OPVs

The British firm Vosper Thornycroft will provide three new OPVs (Offshore Patrol Vessels) in a ground-breaking lease deal to the RN.

The current patrol fleet of five Island Class vessels, that currently patrol the UK's coastal waters protecting fishing grounds as well as oil and gas installations, will be replaced by three new Future Offshore Patrol Vessels (FOPV) that Vosper Thornycroft will lease to the



RN for five years. The company will also be responsible for supporting them while in service. The first ship is expected into service in September 2002.

The RN expects to save approximately £10 million on the costs of operating and supporting the Class over the next few years.

Around 450 jobs at Vosper Thornycroft's Woolston shipyard in Southampton will be safeguarded by the deal. Vosper had said that it would have had to lay off half its workforce if an order was not forthcoming. The present lease deal will provide the shipyard with a breathing space until work under the Type 45 destroyer contract is confirmed. BAE SYSTEMS, the prime contractor for the Type 45 deal is trying to persuade the MoD to let it have the total contract for the 12 ships, a move Vosper is fighting vigorously.

## US Carrier moors in Singapore

The USS KITTY HAWK (CV-63) is the first US aircraft carrier to moor at the Republic of Singapore's new deep-draft vessel pier at Changi Naval Base.

The new facility is one of the few piers in the Pacific area that is large enough to berth a carrier and only one of two located in Southeast Asia. The other pier is in Port Klang, Malaysia.

Singapore's strategic location at the mouth of the Malacca Strait and the pier's deep-draft capability will enhance regional stability.



The USN aircraft carrier USS KITTY HAWK docking in Singapore's new deep water draft dock. The first time for a USN aircraft carrier (USN)

## Raytheon awarded STANDARD missile contract

The US company Raytheon has been awarded a US\$119.2 million contract from the USN for STANDARD Missile-2 fiscal 2001 production.

Raytheon will deliver 75 Block IIIB missiles, 80 Block IIIB ordnance alteration kits to upgrade SM-2 Block II/III missiles to the SM-2 Block IIIB configuration; 40 Warhead Compatible Telemeters; and spares, shipping containers and handling equipment. The contract also includes 48 Block III and IIIA missiles for foreign military sales.

The STANDARD Missile-2's primary role is to provide area defence against enemy aircraft and anti-ship missiles. The SM-2 Block IIIB entered the US fleet in 1998, and incorporates a side-mounted infra-red seeker to aid in endgame guidance.

STANDARD Missiles are operational on guided missile cruisers, destroyers and frigates in the USN and is in operation with more than 13 allied Navies including the RAN.

## LOCASS compatible with Mk-41 VLS

Lockheed Martin is proposing two new types of vertically launched weapons to arm the USN's DD-21



Lockheed Martin's new LOCASS munition is being modified to be fired from a naval Mk-41 VLS giving the ship more tactical influence of the battlespace.

next-generation destroyer, for which it will act as systems integrator if the Blue Team is selected as prime contractor, and for other applications. Lockheed Martin Naval Electronics & Surveillance Systems - Akron is proposing the Vertical Launch Autonomous Attack System (VLAAS), which replaces the torpedo payload of the VLA (Vertical Launch ASROC - Anti-Submarine Rocket) with four of the Low Cost Autonomous Attack System (LOCAAS) munitions being developed by sister company Lockheed Martin Missiles and Fire Control - Dallas.

VLAAS could attack both land-based targets, such as surface-to-air missile sites, and ships. The extremely high precision of the seeker, which has a resolution of 15cm at a range of 1km and generates a three-dimensional model of the scene being viewed, would allow LOCAAS to strike specific airpports such as the deck-mounted launchers for anti-ship missiles aboard Russian-built cruisers and destroyers. It could also fulfil a mission needs statement by the US Seventh Fleet calling for a weapon to defend against attacks by small, fast surface craft in littoral waters.

Potential overseas customers include the Japanese Maritime Self-Defense Force (JMSDF), which has already received approximately 400 rounds of VLA and plans to continue purchases of that weapon for another five or six years. Lockheed Martin says that three or four other countries are considering the purchase of VLAAS, including the Republic of Korea, and could also be interested in VLAAS. Potential customers in Europe include the navies of Spain, which has already expressed an interest in the

substantially more expensive Tomahawk cruise missile, and Norway. The Norwegian Army had earlier considered a ground-launched version of LOCAAS to be delivered by the Multiple Launch Rocket System (MLRS), but had to suspend its participation as a result of budget cuts.

Lockheed Martin says that it could demonstrate VLAAS within two years under a program costing approximately US\$10 million, which would include the firing of two rounds - one of which could carry at least one complete LOCAAS - from the Mk-41 Vertical Launch System (VLS) test installation at White Sands Missile Range.

VLAAS retains the clamshell airframe, digital autopilot and propulsion system of VLA, with the torpedo being replaced by a Tactical Munitions Dispenser accommodating the four LOCAAS rounds. Following a vertical launch, the submunitions are dispensed at a height of 15,000-20,000ft and acquire signals from the Global Positioning System. They then cruise under their own power at 350kt out to a distance of up to 200km.

On reaching the target area they descend to 750ft, at which they can fly a loiter pattern at 215kt covering a 25nm<sup>2</sup> area, searching for targets with their radar seekers. The rounds can inter-communicate in flight to assist in determining target priorities.

## USS LASSEN Commissions

The USN has commissioned USS LASSEN (DDG-82), the newest in a series of Aegis guided missile



The newest Arleigh Burke flight IIA class DDG USS LASSEN at sea during sea trials (USN)

destroyers built by Litton Ingalls Shipbuilding.

USS LASSEN is the 32nd ship of 58 Arleigh Burke (DDG-51) Class destroyers currently authorised by Congress, and the 14th to be built by Ingalls.

DDG-82 is Ingalls' second Aegis destroyer built under Flight IIA, a major upgrade to the original class featuring a hangar for two Seahawk helicopters.

Following DDG-82, Ingalls has contracts and options to produce 11 more Arleigh Burke class destroyers, with six of those ships in various stages of production.

The naming of DDG-82, honours CMDR. Clyde Everett Lassen, USN, (1942-1994), of Fort Myers, Fla., who earned the Medal of Honor for his rescue of two downed aviators while in command of a search and rescue helicopter in Vietnam.

## SH-60R flight tests dipping sonar

The USN and Lockheed Martin Systems Integration - Owego, prime contractor for the SH-60R multi-mission helicopter, together have integrated, ground tested and flight tested an AQS-22 dipping sonar in a prototype SH-60R helicopter currently in testing at the Naval Air Station, Patuxent River in Maryland. The flight tests finished in January with successful deep water dipping trails under high sea state conditions in the Atlantic at deep depth and maximum output for the AQS-22.

The AQS-22 is a helicopter-borne low frequency dipping sonar system designed for rapid deployment from aircraft carriers and surface combatants to detect and track submarines both in blue and littoral water environments. Lockheed Martin integrates the AQS-22 system on the SH-60R.

Lockheed Martin was awarded the first SH-60R Low-Rate Initial Production (LRIP) contract in 2000, valued at approximately US\$88 million, to provide the USN with seven SH-60R Multi-Mission Helicopters.

Existing SH-60H aircraft will be upgraded to the SH-60R, the centrepiece of the US Navy's

Helicopter Master Plan, using Commercial-Off-The-Shelf (COTS) technology and several new sensors.

Lockheed Martin will be integrating the flight avionics systems, including the Lockheed Martin-developed Navy H-60 Common Cockpit, mission avionics systems and stores and defence systems. A technology insertion program, to allow for COTS improvements as technology advances, will be initiated to support the SH-60R open system architecture.

The entire SH-60R Multi-Mission Helicopter production programme is valued at approximately US\$2.5 billion and encompasses the upgrade of 243 aircraft by 2012. These aircraft were originally delivered in the 1980s and are now being upgraded. The full production contract will include 27 aircraft per year. Lockheed Martin is the prime contractor with total responsibility to oversee all systems integration efforts.

## Italian Navy evaluates new 127mm gun

The Italian Navy Lupo-class frigate BERSAGLIERE is conducting an operational evaluation of the new OtoBreda 127mm/54 LW lightweight main gun as was on display during the recent IDEX exhibition in Abu Dhabi.

The 127mm/54 LW features a stealth-optimised turret, weighs 22-tonnes, has a rate of fire of 35 rd/min and can be fitted to ships as small as a corvette.

It is designed for naval gunfire support and, in a secondary role, air-defence. According to OtoBreda, the LW will fit on board narrow-beam ships due to the compact design of the ammunition feed system.

The gun would be able to fire all 127mm ammunition types and has provision for a proposed family of European extended range guided rounds. The projectiles and propelling charges are hoisted to the gun level from up to four 20-round feeding magazines. In its baseline configuration, the 127mm/54 LW has two of these magazines, allowing two types of ammunition to be fired.



The Italian Navy is currently testing a new lightweight version of its 127mm naval gun from the Italian firm Otobreda. Note the stealth-shielding of the mount.

The mount on BERSAGLIERE completed land-based firing trials early last year and is presently being subjected to a one-year operational evaluation before a planned wider introduction into the Italian surface fleet to replace the previous-generation Otobreda 127mm/54 Compact guns on certain ships.

## New naval link between Sweden and Denmark

Sweden has announced that it is transferring the Type A14 submarine NACKEN to Denmark under a co-operative lease-to-buy deal which will see Danish remote minesweeping technology supplied to the Royal Swedish Navy (RSwN) for test and evaluation.

The terms of the transfer agreement include the promise of a 'discount' on the purchase of new Viking class submarines should Denmark opt to stay in the cooperative Nordic programme (see *THE NAVY* Vol 63, No.2).

NACKEN, built by Kockums and commissioned into the RSwN in 1980, was withdrawn from service early as a result of defence cuts leaving the RSwN with just five active submarines.

Refitted with a Stirling air-independent propulsion system in the late 1980s, NACKEN is thought to have another 10 years of useful life left.

Denmark will pay three instalments of Dkr28 million (US\$3.3 million) for the lease of NACKEN, with an optional fourth payment in 2005 for outright purchase. The terms of the sales

agreement also specify that Denmark will supply both remote-controlled minesweeping equipment and a suitable towing hull for test and evaluation purposes.

NACKEN is being refitted by Kockums prior to transfer with training of the new Danish crew due to start in August. Denmark reserves the right to return the submarine, in the same condition as on the date of sale, not later than 2005. However, if Denmark elects to retain it it can also continue participation in the Viking submarine project.

## USN studies SM-5

The USN is considering the development of a very long-range surface-to-air missile (SAM) to counter the growing threat posed by cruise missiles from ship- and shore-based forces, senior service officials say.

The concept, which would involve a block 5 variant of Raytheon's Standard Missile (SM-5), could provide an over-the-horizon defence against cruise missiles using data from an upgraded Northrop Grumman E-2C Hawkeye AEW&C aircraft.

Development of an SM-5 is part of a new strategy to move in to and remain in littoral waters during a conflict. That strategy, the Navy believes, will entail projecting offensive and defensive firepower ashore. Under the plan, the over-the-horizon SAM would be used to counter cruise missile threats, while Navy missile defences would counter the ballistic missile threat. The ability to conduct such over-the-horizon operations would be dependent on the E-2C Radar Modernisation Program (RMP), the officials explain, although they note that the USN is likely to proceed with the latter even if SM-5 is not pursued. Because of the high cost, a decision is not likely to be made until US Secretary of Defense Donald Rumsfeld, completes his reviews of defence strategy and posture. The decisions may also wait until the next Quadrennial Defense Review this year.

The E-2C RMP will focus on reducing the radar's susceptibility to clutter and jamming. Also called the Littoral E-2 aircraft, the Navy is

hoping to begin buying the Advanced Hawkeye in Fiscal Year 2004 (FY04). USN officials say that the existing radar "has severe reliability problems" and note that while a service life extension is an option for continuing the E-2's life to the 2025 timeframe, its high cost makes that option unattractive. They are, therefore, considering replacing the E-2C's APS-145 radar with an electronically scanned array radar that could begin the system's design and development phase as early as FY03. That radar, says Northrop's Kenneth Tripp, would provide "fire-control quality detection and targeting data" via the co-operative engagement capability system. With the surveillance infrared search and track upgrades, the Advanced Hawkeye would become a key node in conducting sea-based cruise missile and theatre missile defence operations.

## Russian Commander plans future Navy

It was recently revealed in *June's Defence Weekly* that the Russian Navy plans on having 12-15 strategic missile submarines (SSBNs), 50 nuclear-powered attack submarines (SSNs) and 35 diesel submarines and some 70 ocean-going surface combatants, according to its Commander-in-Chief, ADM Vladimir Kuroyedov.

The ADM said to achieve this goal the service should receive no less than 25% of the defence budget, compared to its present allocation of about 12%.

ADM Kuroyedov was speaking to reporters during a visit to the Severodvinsk Shipyard, Russia's largest submarine builder. At the shipyard, the ADM was briefed on progress on Russia's first fourth-generation SSBN, the Borey-class (Project 955) submarine YURI DOLGOROUKYI and visited the GEPARD, an Akula II-class (Type 971M) SSN which is undergoing final tests before its scheduled hand over to the Navy.

ADM Kuroyedov confirmed that the modified Kiev-class aircraft carrier ADMIRAL GORSHKOV and the Kirov-class battle cruiser ADMIRAL NAKHIMOV, which are moored at Severodvinsk, are being

repaired. India will pay for the expected three-year repair and modernisation of ADMIRAL GORSHKOV before the carrier is delivered to the Indian Navy. Sources said the project, unofficially valued at up to US\$550 million, will provide employment for 3,000 workers.

The ADMIRAL NAKHIMOV, which has been laid up for two years, will be re-commissioned by the Russian Navy shortly.

## CHARLES DE GAULLE propeller problems continue

The French Navy (Marine Nationale) has returned its new aircraft carrier CHARLES DE GAULLE to service in the Mediterranean fleet despite another problem with its propellers (see *THE NAVY* Vol 63, No.1) that will require the ship to undergo repairs.

The Navy said the new propellers, which are left over spares from the mothballed French carrier CLEMENCEAU, were far too noisy and needed modification to bring the noise within acceptable limits. Noise levels of up to 100dB have been recorded when the carrier is travelling at between 10kt and 18kt, the acceptable maximum is 65dB. New propellers for CHARLES DE GAULLE have been ordered but will not be delivered until early 2002.

With CLEMENCEAU's propellers, the ship's top speed is 25kts however, the noise problem will not prevent it from officially entering active service.

This news comes amid speculation over France's decision whether to build a second carrier. The French Government has agreed with the Navy's assessment that a second carrier is needed. However, military planners drafting France's next defence spending plan for 2003-08 have begun to voice concerns that the service will be unable to afford a new carrier if it wishes to procure a new carrier. This comes amid plan to build six new Barracuda-class nuclear attack submarines; procure a fourth SNLE (nuclear-powered ballistic missile) strategic submarine; buy Rafale fighter aircraft for CHARLES DE GAULLE; pay for its share of the new M-51 nuclear missile and receive its first NH 90 transport helicopters.



The French aircraft carrier CHARLES DE GAULLE with a full complement of aircraft on its flight deck. The ship is currently using propellers originally built for its predecessor the carrier CLEMENCEAU (Marine Nationale).

If France orders a second carrier at the end of the 2003-08 procurement plan or in the subsequent plan it would mean the vessel would not enter service before 2015 at the earliest.

## 76mm gun gets more Bang

The Italian firm Otobreda has announced an improvements to its 76mm gun as used on the RAN's FFGs. The 'Dart' guided shell is a course-corrected shell for use against anti-ship missiles. The Dart uses radar guidance from off-mount and on-mount sensors. The former tracks the target and the latter the shell, which is in a sabot but retains a load similar to that of existing projectiles. Guidance commands are relayed to a canard control system which, the manufacturer claims, can increase velocity and cause the round to manoeuvre at up to 30g. Dart will have a range of 2.7nm (5km) and is



A 76mm gun as used on the RAN's FFGs. A new course corrected shell, 'Dart', being developed by Otobreda will make the gun far more effective in the anti-ship missile defence role. (Mark Schweikert)

being developed to meet an Italian Navy requirement.

Ballistic trials have already been conducted and guided projectile trials are scheduled to begin from a land site in 2002. Production is scheduled to begin in 2006. The munition is being offered to both the US Navy and US Coast Guard, who use the gun (licence-built by United Defence) as the Mk-75 mount.

The 5.5 tonne Otobreda 76/62 Compact (also known as 76/62 C) is one of the most widely used naval gun mountings. Over 800 guns are on order or in service with more than 40 Navies. An improved version, firing 120rds/min compared with 80-100rds/min, has appeared as the Super Rapid (also known as 76/62 SR) with more than 50 ordered by, or delivered to, at least seven Navies. In addition to the higher rates of fire provided by the Super Rapid, the manufacturer has continued to adapt the design to meet new requirements, including a reshaped stealth shielding on the gun to reduce radar signature.

## New anti-terrorist guns for DDG-51s

The USN is planning to retrofit the General Dynamics Mk-46 Mod 1 30mm weapons station to its Arleigh Burke-class (DDG-51) destroyers in the wake of the attack on the USS COLE.

The weapon station is a modified (85% commonality) version of the

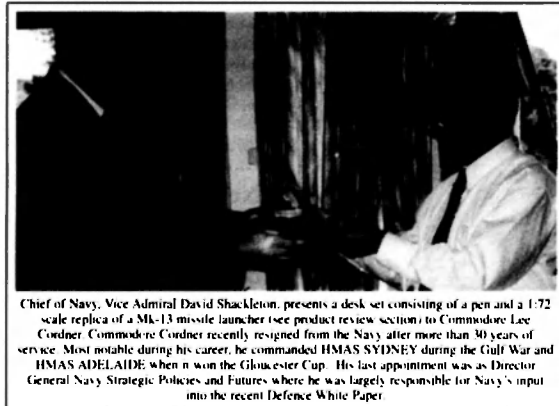
Mk-46 Mod 0 version that will equip the US Marine Corps new AAV (Advanced Amphibious Armoured Vehicle). It is already planned for the Mk-46 Mod 1 to arm new construction amphibious warfare ships of the LPD-17 class.

Two or three of the stabilised weapons stations, each armed with a Boeing Mk-44 30mm Bushmaster cannon with on-mount sights, laser rangefinder and fire-control equipment, are projected for each ship. The Mk-46 offers greater range (4,000m) over the upgraded Raytheon Phalanx 1B 20mm Close-In Weapons System (CIWS) which is being installed on some USN warships. However, the Mk-46 lacks the CIWS automated fire control anti-missile capability of the Phalanx.

An airburst-capable round for the 30mm cannon, intended for use against small point targets, is being developed to enter service in 2005. Currently, the 30mm rounds are all contact fuzed.

## Russian SSN experiences 'engine problem'

In a scene reminiscent of the Cold War a Russian Victor III-class nuclear-powered attack submarine (SSN) surfaced in the Barents Sea on 14 April with engine problems and had to be taken under tow to the naval port of Murmansk. The submarine reportedly emitted exhaust or possibly smoke or steam on surfacing.



Norway's Defence Command North, closest to the incident, ascertained that the incident did not warrant a serious enough threat to activate even low-level nuclear warning procedures. It is still unknown what the engine problem was or what caused it, let alone if there were any casualties. However, given the Russian Navy's treatment of the truth and relatives of the KURSK after it sank one could not expect too much of an explanation from the Russians even if the Victor III incident was a serious one.

## T.S. ENDEAVOUR commission new flagpole

On Saturday 3 March, a new flagpole was erected at T.S. ENDEAVOUR, Cairns. The Project, to retain some local history, was officially completed as the flagpole was put into position. The flagpole was the foremast of M.V. Triton, which Navy League Cairns, operated as a youth training vessel for 16 years between 1976 and 1992.

M.V. Triton, at 160 tons, was built and launched on the Barron River, Cairns, in 1943 as *General MacArthur*, saw service in the South Pacific during WW II, operated on the Tasmanian coast for a few years as *George Bass* and *Melbair III*, the Queensland Government Flagship for Thursday Island for 20 years prior to being handed over to the Cairns Branch of the Navy League in 1976, when she was renamed *Triton*.



Petty Officer Rory MacLeod inspecting the new flagpole

The mast/flagpole will bring many wonderful memories to those who crewed or sailed in her during her service.

## HMAS ANZAC Departs for Gulf

As part of the Government's commitment to supporting the United Nations Security Council resolutions on Iraq, the frigate HMAS ANZAC will depart Australia in early July for a three month period of operations with the Multinational Interception Force (MIF).

The Australian-built ship and its 164 personnel will operate as part of a US Navy Task Force deployed in the Persian Gulf.

The MIF was mandated by UN Security Council Resolution 665 in August 1990. Its purpose is to conduct maritime interception patrols and boarding operations to enforce sanctions imposed on Iraq after its invasion of Kuwait.

This deployment is an example of Australia's ongoing commitment to global security. It also highlights the importance of maintaining interoperability and cooperation between Australia and the other participating allied nations.

This is the tenth time that a Royal Australian Naval vessel has undertaken MIF operations since the end of the Gulf War. The last was the Guided Missile Frigate HMAS MELBOURNE, which deployed in 1999.

# Observations

By Geoffrey Evans

Recent issues of *THE NAVY* have contained articles and comment on a Littoral Support Ship (LSS), essentially a naval vessel built largely to commercial (merchant ship) standards.

It is interesting to recall that in 1983 the Navy League proposed a 'navalised merchantman' capable of taking the RAAF's F/A-18 fighter to sea thus, by providing on-the-spot air cover, greatly increasing the flexibility of the RAN's combat ships.

The proposal was put forward in the aftermath of the then government's decision not to replace the aircraft carrier MELBOURNE with a conventional carrier, considered at the time to be far too expensive for the RAN. The League's 'Support Carrier' was suggested as a relatively inexpensive substitute.

The League assembled a small but highly qualified team from among its members to study the proposal. Navy provided additional technical information as required.

In order to achieve the desired savings it was decided it would be necessary to build the Support Carrier predominantly to Lloyd's requirements with 'navalisation' of construction, services and systems restricted to those standards normally embodied in a Royal Navy Fleet Auxiliary. The carrier would have no fleet command facility or long range detection or defence capacity except that provided by her air wing and/or accompanying combat ships (the RAN possessed three guided missile destroyers well equipped to operate in conjunction with the carrier). Self defence capacity would be limited to a close in weapons system but would not form part of a sophisticated ship system.

The carrier would be fitted to stow fuel and arm aircraft and for flying off and landing but aircraft repairs and maintenance on board would be limited. A lift, catapult and landing aids etc. would be fitted together with minimal navigation, radar and communications systems. The dimensions of the Support Carrier were determined by the take-off and landing requirements of the F/A-18 resulting in a vessel with the following characteristics:

- Displacement: (tons) 20,000 light; 31,000 deep
  - Dimensions: (feet) 770 x 70 (over flight deck) x 105
  - Main Engines: 4x20,000hp Diesel - 80,000hp to 4 Shafts.
  - Speed: 26 knots.
  - Complement: 600 RAN & RAAF
- Extensive inquiries locally and overseas enabled the study group to cost the following items:
- Hull
  - Propulsion Machinery
  - Catapult (1)
  - Jet Blast Equipment
  - Steam Generator (to, Catapult)
  - Arrestors
  - Visual Aids
  - Lift (1)
  - Radar and Communications
  - CIWS (2 Phalanx)

Including an allowance for contingencies the shipbuilder's cost of the Support Carrier was estimated at \$480 million.

The League's proposal was formally submitted to Navy in February 1984. Navy had not previously considered a carrier built to non-naval standards - there had been no need to do so - and carried out a preliminary investigation. In the event the naval staff considered costs had been underestimated and that a more complete ship would be required to operate the F/A-18. However, for a number of reasons it was not possible to carry out a more detailed examination. Although not expressly stated in Navy - Navy League correspondence, the League was well aware of the government's determination not to have a carrier based RAN.

The Chief of Navy Staff at the time, Vice Admiral David Leach, acknowledged the Navy League's initiative and in this regard it is of interest to recall comments some years later by Admiral Sir Victor Smith, former CNS and Chairman of the Chiefs of Staff Committee: referring to experience available in the Navy League.

"The League's policy has been comprehensively stated in the April-June 1987 issue of *THE NAVY*. I believe it to be realistic and well worth studying. The League should never hesitate to further its policy. For instance, in 1982 the League forcefully entered the aircraft carrier discussions. The RAN no longer has a carrier but that certainty does not mean that the League's views were wrong. The essence of this example is that the League had a policy on this matter, it had opinions to express and it did proclaim those views."

In 2001 the adequacy of air cover for Australia's maritime assets continue to be a problem.



A rough drawing of the Navy League carrier. For all intents and purposes it resembles an aircraft carrier.

## L. F. W. Vickridge, AM, OBE

This column noted in the October-December 1998 issue the award of Member of the Order of Australia to Captain Len Vickridge, long time Naval Reserve Officer, President of the Western Australia Division of the Navy League and Life Member of the League.

With regret we report in this issue Len Vickridge's death on 10 April 2001 at the age of 82. Len is survived by three sons and two daughters. His wife Elizabeth (Betty) died nine years ago. The President of the Western Australia Division, Mr Arthur Hewitt, represented the Navy League at the Funeral Service attended by Len's many friends, colleagues and representatives of the numerous organisations with which he was involved.

# DD-21; The 21st Century Dreadnought



A concept computer generated image of the DD-21 firing its 155mm gun. The RAN should seriously consider the use of the 155mm gun on its new SEA 4000 destroyer (United Defense)

By Sebastian Matthews

With the RAN currently studying the requirements for its new Air Warfare Destroyer *THE NAVY* looks at the US's own new destroyer program with the question 'what can the RAN learn from DD-21?'

The U.S. Navy's 21st century Zumwalt-class Land Attack Destroyer (DD-21) will comprise 32 ships and be the first in a family of 21st century surface combatants. This next-generation warship will be a multi-mission destroyer focused on land attack operations. DD-21 will replace aging Oliver Hazard Perry-class frigates (FFG-7) and Spruance-class destroyers (DD-963) and provide forward presence and credible deterrence while operating independently or as an integral part of a Naval, Joint, or Combined Expeditionary Force. In order to ensure effectiveness in Joint littoral operations, DD-21 will feature active and passive survivability features, such as in-stride mine avoidance capability and full-spectrum signature reduction, as well as a robust C4ISR (Command, Control, Communications, Computers, Intelligence, Surveillance Reconnaissance) suite to support the USN's evolving network-centric warfare concept.

The Navy has successfully executed a competitive, price-based acquisition strategy for DD-21 that addresses 21st century Fleet requirements and takes advantage of industry's vast resources, expertise, and ingenuity. The DD-21 Program's streamlined acquisition approach seeks maximum innovation and design flexibility while facilitating cost savings through use of commercial market technologies, non-developmental items, and privatised life-cycle support. Program leaders have aggressively implemented acquisition reform initiatives and empowered industry at the earliest possible stage of the ship's concept design in order to achieve revolutionary design capabilities and substantially lower total ownership cost for DD-21.

## Program Status

USN officials have instituted a unique acquisition approach for the Zumwalt class Land Attack Destroyer (DD-21) that provides industry with an overarching set of operational requirements and cost parameters instead of detailed design and performance specifications. This less restrictive approach encourages innovation and offers industry maximum latitude (i.e. trade space) to guide their proposals for developing, building, delivering, and supporting the 32-ship class throughout its service life.

Two industry teams are competing for DD-21 – the Blue Team, led by Bath Iron Works (BIW) with Lockheed Martin Corp. as systems integrator; and the Gold Team, led by Ingalls Shipbuilding Inc. (ISI) with Raytheon Systems Co. as systems integrator. Contractual management for both teams is administered by the DD-21 Shipbuilder Alliance, a cooperative business unit formed by BIW and ISI. The USN plans to select the winning team's DD-21 System design shortly. The first ship award is scheduled for fiscal year 2005 with fleet delivery in fiscal year 2010.

## ZUMWALT

When USS ZUMWALT, the lead ship of the DD-21 class, goes to sea in 2010 it will be just over 100 years since the Royal Navy's battleship HMS DREADOUGHT entered service. Both ships have much in common. For their time they proved to be exceptionally powerful combatants that not only introduced a range of new weaponry and tactics but also took to sea new propulsion and manning concepts.



The Gold Team's DD-21 proposal. It has both 155mm guns mounted forward to enable simultaneous helicopter operations from the stern whilst firing (DD-21 Gold Team)

The revolutionary nature of DREADOUGHT made other battleships already in service obsolete. The Zumwalt has the potential to do the same.

### Why the Revolution?

Another commonality between DREADOUGHT and the ZUMWALT is that both ships were produced by the pre-eminent Navy of its time. At first glance it seems an illogical move to introduce revolutionary new ships when you have a leading position with the status quo fleet. But like 1905 the need for revolution today is clear and cannot be avoided. The drivers for the radical Zumwalt design are:

- **Operations.** The growing demands of high intensity networked operations in the littoral waters. This mission stems from the US Joint Chiefs of Staff's *Joint Vision 2010* as well as the US Navy-Marine Corps *Forward...From the Sea and Operational Manoeuvre from the Sea* strategies. This requires a ship with greater systems integration, offensive capability and survivability.
- **Acquisition and Support Costs.** To meet the required numbers of capable surface combatants the US Navy could not afford the similar costs of the DDG-51 Arleigh Burkes. To achieve substantial savings a new acquisition strategy is being applied. It gives the competing Blue and Gold team industry contenders much greater freedom and scope for innovation. The aim is to produce the fifth and subsequent Zumwalts for about \$US750m each. Equally ambitious is the aim to reduce operation and support costs by 70%.
- **People.** Existing personnel costs account for 40-60% of the life cycle operating costs of a surface combatant. Not only are large ship's companies very expensive but they are increasingly hard to recruit, train and retain. The USN DD-21 concept team aims to cut operating and support costs to 30% of a DDG-51. As a result the goal for DD-21 is to have a crew of 95, including the helicopter aircrew!

### What will be Revolutionary about the Zumwalts?

There is much that will be new with the Zumwalts. They include:

- The first destroyer specifically designed for littoral and land attack operations;
- The first ship designed to conduct network centric warfare;
- The first large stealth combatant;

- The first major ship where the sailor is engineered into the ship from the beginning;
- The first second generation electric drive combatant;
- The first third generation phased array destroyer.

## A Closer Look at the Zumwalts

### Manning

Whether the Zumwalts are able to operate with 95 personnel is questionable. But what is clear is that their crew size will be dramatically smaller than the DDG-51 class of destroyers. How will this be achieved? Top down human systems integration (HSI) is vital. A fresh look at the myriad of shipboard activities combined with providing the dollars to come up with hardware or software solutions will lead to fewer personnel required for watchkeeping, replenishment evolutions and maintenance.

At the same time the need to retain people in the Navy will be addressed by vastly improved living conditions (two berth cabins, gyms, satellite entertainment and training facilities) and reducing the need for laborious cleaning, painting and watchstanding.

### Stealth and Survivability

The radical shape of the Zumwalt is driven by the need to reduce its radar, visual, acoustic and infra-red signature. This will dramatically cut detection and identification opportunities for enemy surveillance assets and missiles. It also increases the effectiveness of Zumwalt's decoys. Features will include extensive use of composite materials, an advanced degaussing system, increased system redundancy, more automated damage control and sensor systems using the Reduced Ships' Crew by Virtual Presence (RSVP) concept. RSVP will include a comprehensive, wireless, intra-compartment sensor network using motion, fire, flooding, stability and gas sensors in almost all compartments. RSVP will also provide Personnel Status Monitors that will track the location and health of all personnel onboard.

### Information Management

As you would expect the information management systems in the Zumwalt will be leading edge technology. At the heart will be the Whole Ship Computing System that will use commercial-off-the-shelf open architecture. The aim of the onboard combat information system will be to



The Blue Team's mission control centre will elevate the concept of situational awareness with a plethora of computers, screens and communication links. (DD-21 Blue Team)





A new concept for naval service at sea will be the sailor's state room. It is envisaged for DD-21 crew members that no more than three sailors will share a large state room which has real time 24hr a day high speed internet links (DD-21 Blue Team)

correlate data from a much wider array of external and internal inputs and then integrate and filter information to enhance battlespace awareness. It is anticipated the shape and layout of the Operations Room will be revolutionary.

## Weapons and Sensors

**Land Attack.** The Zumwalts will strike enemy land targets 1500nm away with the future Advanced Land Attack Missile (ALAM) while the 155mm Advanced Gun System (AGS) will deliver precision guided rounds out to 200nm. The ships will feature a Naval Fires Control System (NFCS) which will automatically process and assign land attack fire missions to ship and task group weapon systems. This is network centric warfare in action.

**Air Warfare.** The Zumwalts will take to sea two new phased array radar systems. It will use the VSR (Volume Search Radar) for long range air detection and the SPY-3 MFR (Multi-function Radar) for surface search and fire control. In addition it will have the advanced integrated electronic warfare system (AIEWS) (See *THE NAVY* Vol 62 No.4) incorporated into one of the phased arrays. The weapons associated with these sensors will be the Standard family of missiles. As a result the Zumwalts will be able to engage more targets than a DDG-51 and be better able to deal with the demands of a littoral battlespace.

**Underwater warfare.** The DD-21 underwater sensor suite will be the most extensive to date and include hull mounted sonar for submarine and mine detection, and a multi-function towed array. These will be linked to remote minehunting systems, decoys and torpedoes.

## Aviation

The Zumwalts will be the first surface combatant in about 40 years to be built to take UAVs (remember the DASH). The UAVs will combine with manned aircraft to conduct the full spectrum of surface warfare and undersea warfare tasks.

## Propulsion

A major DD-21 innovation is the adoption of an electric drive integrated power system (IPS). IPS revolutionizes warship design. Gone are reduction gears and lengthy propeller shafts. The number of prime movers is reduced and there is greater flexibility about their location. IPS frees up space for more fuel or weapon systems. It also

dramatically reduces maintenance and manpower demands. The savings in manpower may be about 20% with a similar saving in fuel efficiency. Equally important is the reduction in thermal and acoustic signature of the ship.

## Logistics

The DD21 will introduce many changes to traditional logistic support. Industry will be the Full Service Contractor. This is part of the idea of looking at the complete cradle-to-grave costs of providing capability. As such greater emphasis is being spent on:

- reducing maintenance;
- making it easier to upgrade systems;
- increasing commonality with future ships (such as the cruiser variant of DD21); and,
- satellite reach back to logistic and diagnostic databases and expertise.

## DD-21 and the RAN

While the DD21 would be an impressive addition to the RAN, at a sail away price of \$US750m each, it is problematic whether it would ever fly the Australian White Ensign from its quarterdeck. Nevertheless the Zumwalt will have a profound effect on the RAN in two ways. First it will likely introduce and debug some systems that may be fitted to the RAN's Air Warfare Destroyer and future ships. More importantly though the Zumwalt shows that:

- Surface combatants can be built that possess impressive offensive and defensive capabilities well suited to the complex and demanding littoral environment, and
- The adoption of best practices in design, acquisition, logistics and technology has the potential to provide affordable combat capability.

These lessons are directly relevant to a personnel and dollar constrained RAN that in the next decade must deliver considerable combat power in the littoral environment.



The Blue Team's DD-21 proposal. (DD-21 Blue Team)

"Our new DD 21 Land Attack Destroyer is Star Trek technology. A state-of-the-art warship. DD-21 represents a revolution in surface combatant design and acquisition and will provide direct land-attack support for forces ashore."

— Rear Admiral Michael G. Mullen USN, Former Director of Surface Warfare Division



The terrorist attack on the Arleigh Burke class destroyer USS COLE proved the value in having 'sturdy' warships able to survive this sort of punishment. The bomb that was detonated near the side of the destroyer was recently described by USN experts as equivalent to a 3,000 lb bomb. (USN)

By Ib S. Hansen\*

Sensor, electronics, and weapons technologies have improved dramatically since 1945, making warships deadlier than ever. At the same time, however, combatants have become more susceptible to dramatic damage if hit today than their World War II counterparts. The uncertainties of future warfare in the littorals, with the high risk of surprise attacks, dictate we build vessels that can take punishment – and keep on fighting. 'They Must Be Sturdy' is reprinted from the US Naval Institutes 'PROCEEDINGS' with the editor's kind permission to help inform Australian decision makers on appropriate lessons for the SEA 4000 air-warfare destroyer.

Lately, the pages of the US Magazine 'Proceedings' have been filled with calls for "rebalancing the (US) fleet" to ensure access to and dominance of the littoral battle space. A fleet mix of "Economy A" and "Economy B" ships has been proposed to accomplish this. The Economy A ships are envisioned as economical power-projection ships, and the smaller Economy B ships are to provide risk-tolerant access to the littorals (i.e., the Streetfighter concept). A necessary characteristic of these ships is 'sturdiness'. The word sturdiness can be defined several ways, but here it refers to the capability of a ship to return fire after taking one or more missile hits.

Presence and operations in hostile littorals are indeed high-risk, and this – coupled with a political climate of low tolerance for casualties – points toward sturdy combatants when the fleet is rebalanced. Not generally known, however, is that sturdiness in combatants in the missile age can be attained only by radical changes in ship designs. It is true that sturdiness always has had a price, and the price would increase with the radical changes needed. But its value has risen significantly because of changing missions and rapidly developing weapons technology. In missile warfare, sturdiness is, in fact, a significant multiplier for the defence, and it should be considered along with all the other primary ship characteristics when new ship types are planned for the 'fleet after next'. The past approach to 'sturdiness' – leaving it as an engineering problem

that must be fit into a fixed-budget design – must be changed.

## Why Sturdiness is Needed Now

With the advent of missiles and high-tech electronics, combatant designs changed from being weight-critical to volume-critical. Much of the high-tech gear has been accommodated high in ships' superstructures, where heavy protection is not practical. Ships rely on active defence for protection. This status may have been acceptable in the days of the Cold War with its blue-water missions. When operating in the littorals, however, with clutter from land and commercial traffic, hidden enemies on sea and land, limited reaction time, problematic rules of engagement, and untried tactics, the old ways of doing things may not be acceptable. The risk of taking hits from surprise attacks is multiplied and even inferior opposing forces can cause serious setbacks in coastal areas. Unless we are prepared to accept losses or severe damage, combatants must be able to take hits.

Other forms of future surprises can emerge through technology. Even if our combatants were updated quickly, their effectiveness against an inadequately known opposition cannot be predicted – at least until the shooting starts. In addition, weapon and defence systems are becoming increasingly high-tech and computer-based, and

complex systems often break down. Similarly, human operators also can fail, especially under the combined effects of limited realistic training and the strain of combat. The vision of a perfect defence that can prevent all missile hits is not realistic. The results of hits can be severe. We need only recall what happened to the Israeli EILAT, the Pakistani KHAIBAR 76, the USS WORDEN (CG-18), HMS SHEFFIELD, *Atlantic Conveyor*, the USS STARK (FFG-31), the Iranian SAHAND, and the Turkish MAUVENET. These ships all were sunk or severely damaged. The hits on SHEFFIELD and the STARK demonstrate clearly the danger of uncontrollable fires, which can be especially bad when induced by leftover propellant from missiles fired from short range. In fact, both of these ships were done in by fires – rather than by the damage from warhead explosions (some of the hits involved dud warheads that did not explode). None of the ships mentioned here had any special features to provide sturdiness against missile hits.

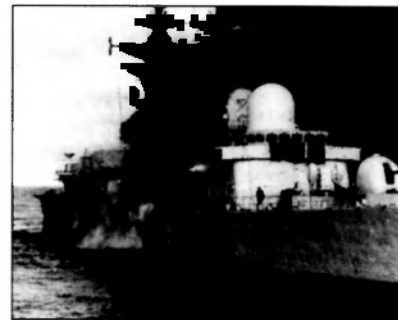
## The Challenge of Sturdiness for Missile Combat

After Operation Crossroads in 1946 (the US's first nuclear tests against ships) it was generally believed that sturdiness against nuclear weapons was impossible to attain. Research in the 1950s and 1960s into weapons effects and damage potential showed otherwise, however. It actually was found that, with relatively minor effort, ships could be hardened to reduce damage ranges by about 75%. This had significant consequences for tactics that could be used for the nuclear war at sea contemplated at the time. Similarly, when the missile age evolved, it was widely perceived that sturdiness against anti-ship missiles

was impossible given the accepted norms for combatant designs. But research has shown that improvements in sturdiness against missiles are possible as well. In question is how much better present combatants can be constructed, and how much change is needed against future missile threats to make a significant difference. This is not a simple matter – it requires "passive protection," and this is not a stock item that can be fit in readily, nor can proven designs be created out of thin air. Designs need to be developed to ensure protection against future threats.

To be effective, a passive-protection design must consider all current and future potential enemies' weapons' effects and their damage capabilities. These effects will vary with warhead size, its type and fuse, hit location, and with ship construction. A considerable variety of missile and warhead designs can be found in use, ranging from those designed to explode after penetrating the ship (semi-armour-piercing) to those designed to detonate outside (blast, fragmentation, and shaped charge). The latter may have proximity or contact fuses, or both.

The sizes of current anti-ship missiles and their warheads vary considerably as well. In general, the smallest are anti-air missiles used in a surface-to-surface mode, with warheads less than 100 pounds. The largest missiles may have warheads approaching a ton. The most common type probably is the semi-armour piercing, which, for its size, will cause the most structural damage because it is surrounded by the ship structure when it explodes. The Exocets used in the Falklands and Gulf wars were this type. Fragmentation warheads can do extensive damage to topside equipment and personnel when they explode over the ship. An example of this occurred on the WORDEN when a Shrike missile damaged her and put her out of



The Exocet that hit the SHEFFIELD failed to explode but caused so much damage that fire gripped the ship forcing it to be abandoned. The Type 42 design was less than a sturdy one. (RN's via Adam Lawton)

action. Shaped-charge warheads can be particularly damaging. They are similar in function to anti-tank charges but several times bigger. They explode on first contact and cause damage by jet penetration and blast. They have a metal-lined cavity in the front of the warhead, which produces a hyper-velocity metal jet (Mach 20 to 30) capable of penetrating heavy armour or any other materials they encounter within the ship. Because of the great velocity of the penetrating jet they can ignite stowed on-board ammunition unless it is protected appropriately.

History is replete with incidences of exploding on-board ammunition that destroyed ships or exacerbated the damage caused by attacking weapons. A few of the better known cases are the USS FRANKLIN (CV-13), LISCOMBE BAY (CVE-56), SHAW (DD-373), and HALLIGAN (DD-584), and HMS HOOD and BARHAM, all from World War II, when all the hits occurred in random locations. Today's stowed missiles are even more volatile than the ammunition of that war, and the weapons of the future could be precision-guided and aimed at specific shipboard locations. Except for this mechanism, missiles are far less efficient in sinking ships than torpedoes, because they hit above the waterline. In general, small ships are easier to sink than big ones.

Future warheads could employ explosives that enhance the desired damage more effectively, and they could

employ more effective configurations. As long as they use explosives, however, they can be expected to cause damage in ways similar to those of current weapons. Future missiles could be different from today's: they can be expected to be healthier, faster, and more precisely guided, all of which will tend to give them a higher hit probability. It is unlikely that future missiles would be made bigger to increase their damage capability, for greater size would be counterproductive to making them faster and stealthier.

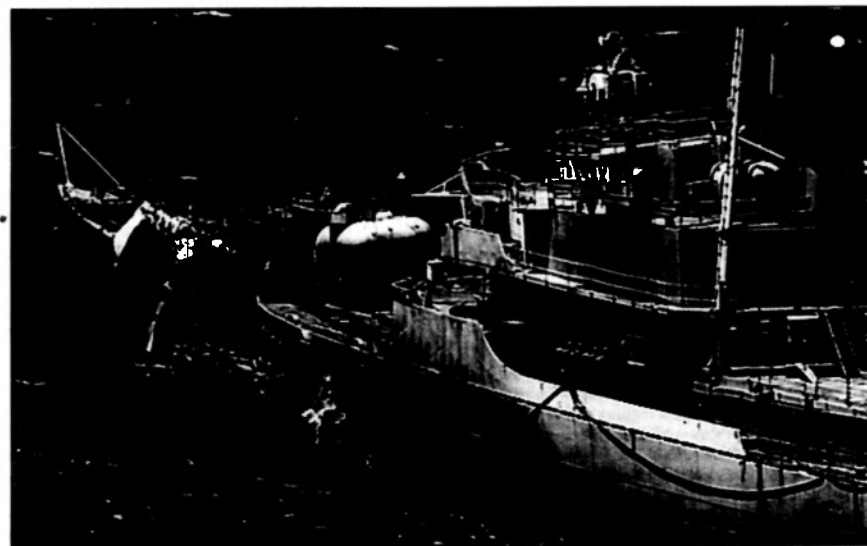
The challenge of providing passive protection is to contain inevitable damage in a way that prevents impairment of ship functions. Two different approaches to incorporating effective passive protection can be followed. One is to adopt the 'citadel' concept used in battleships, where all vital components were protected behind armour amidships (gun turrets outside the citadel also were heavily armoured). Battleship-type armour would not work, but new versions of a protective system against missiles could be developed through research. It would require significant space, but without the weight of heavy armour – for that reason it will require a rather large ship. The concept has the advantages that personnel would be protected along with combat systems, the propulsion system, and



The blast effects of an Exocet warhead on the USS STARK. Good design and effective damage control saved the ship from sinking but the two missiles rendered her useless and required her withdrawal from the theatre of operations meaning another ship had to take up her patrol duties. (USN)

ammunition, and the need for making individual systems survivable can be de-emphasised. In addition, the inevitable damage inflicted by hits could be kept near the exterior of the ship and fires could be prevented from spreading to the interior. Sensors outside the citadel would be redundant and reduced in number by using multifunction antennas.

The alternative approach is to allow a hit to do its damage in the interior and rely on complete redundancy of all vital systems with adequate separation of parallel branches to maintain functions. Personnel casualties would not be prevented. Like the citadel, this protection concept also would require a larger ship, in this case to accommodate the redundant branches and provide a structure large enough to absorb some damage without the ship breaking apart. The additional gear required for redundant systems would add to the cost. There is plenty of room here for development of new system architectures, perhaps miniaturized, that can withstand the violent disruption of branches without a failure of the total system. Application of this principle produces systems capable of reconfiguring themselves after parts are cut off. Like all



During RIMPAC 2000 the hull of the former USS BI CHANNON was subjected to live fire target practice. She absorbed three Hellfire, three Harpoon and a 2,400lb bomb yet remained afloat. The Charles F. Adams design was based on a successful World War II destroyer which was built sturdy to take punishment hence the DDG's inherent survivability. This image shows the aftermath of a Harpoon hit on the bow. (USN)



The after effects of a modern naval battle on a non-sturdy warship. Here the UK-built Iranian frigate SHAHAND burns out of control after taking three Harpoons and a cluster bomb in the Persian Gulf Tanker War. (USN)

other important systems, the topside sensors would be redundant. To preclude a profusion of vulnerable topside equipment, they would be reduced to the minimum possible by using multifunction antennas. The all-electric ship proposed for the Zumwalt (DD-21) class appears particularly well suited to support truly redundant systems. The redundant ship concept has two potentially vulnerable features. One is the magazines and other ammunition storage. They cannot be protected through redundancy, but must have special protective systems. Similarly, the redundancy principle will not provide protection against fires. Fires started by the hits must be controllable, or the ship could be put out of action anyway, like the STARK and SHILLELD. This requires fire-fighting systems that are effective against propellant fires in a damaged ship.

Even with the required research and development carried out successfully, it is doubtful that a combatant of the redundant systems type can be made capable of taking much more than a few significant hits before she is put out of action. Of the two approaches to passive protection, the citadel type is probably the least known in terms of overall impact on ship design, but it also has greater promise and potential flexibility than the redundancy concept. The size of ship required to incorporate effective passive protection has not been determined, but a ship of more than 12,000 tons seems likely. The larger the ship, the smaller will be the percentage portion that is inevitably destroyed, and small ships cannot be protected effectively against all weapons.

## Sturdiness is a Multiplier for Defence Effectiveness

Predicting the future value of passive protection is impossible unless we can predict future engagements and all their details. We can, however, estimate the conditions under which passive protection will make a difference. Consider, for example, a simple case of a salvo attack against a single ship, and assume that the ship has passive protection that makes it possible to take two hits without any functional impairment. If the defence is perfect, the hit probability becomes zero – and we need no passive protection. But who can ensure a perfect defence in the future? If, on the other hand, the defence is not perfect and

the hit probability for each missile becomes a not very high 20%, then the out-of-action probability for a combatant that has minimal passive protection becomes an appalling 60% when attacked by a salvo of four missiles, whereas for the two-hit ship it is near zero. Similar reductions are found for other salvo attacks.

Another way of expressing this benefit is to look at it from the attacker's point of view. For the attack to be effective many more missiles must be used against ships possessing sturdiness. Thus, for the above example the attacker need use only three missiles to get a 50% probability of knocking out the zero-hit ship, but he must use 12 missiles to accomplish the same against the two-hit ship. In other words, passive protection is a multiplier for the effectiveness of the defence. Especially for attacks on a group of ships it is obvious that the attacker quickly may have a problem, for he will have only a limited number of missiles that can be employed in each engagement.

The major benefits of passive protection are in saving lives, freeing some constraints on tactical choices, compensating for action mistakes or impairments of defensive capabilities, compensating for technical surprises, reducing material losses, helping to win engagements and wars, and ensuring dominance in the littorals by reducing or eliminating the chance of embarrassing losses of high-cost ships operating in 'grey' situations of peacetime.

## The U.S. Fleet after Next

The case for rebalancing the fleet to obtain ensured access and dominance in the littorals is convincing. Just what types and mixes of ships is not clear, for the future conditions over the next 20 or 30 years are difficult to predict. Future types could include Streetfighters, recognising that their proposed small size would have both advantages and disadvantages. Their size could make it necessary to limit their functions, such as Sweden is doing with some of their proposed Visby-class coastal corvettes. Small ships also cannot carry passive protection that is effective against missiles, and if they were hit they would in all probability be put out of action or lost. Future uncertainty, coupled with the prevailing low tolerance for losses, means that other combatant types should be considered to cover all bets. These should be sturdy ships bigger than the Streetfighters, and more costly, but they could be made more capable as well.

Incorporating combatants with sturdiness for missile warfare should be one of the goals for the 'fleet after next'. But reaching this goal will require a change in attitudes and policies concerning passive protection. In view of the potential benefits, the subject deserves more attention. It should not be considered a problem for engineers to fit in, if we can afford it. The question of sturdiness of future combatants should be decided in the context of the selection of the best combatant types for future missions.

(\*) Mr. Hansen is a physicist and structural engineer, he retired after 37 years service with the US Naval Surface Warfare Center, Cranford Division, where he was head of the Protection and Weapons Effects Department. He presently is a consultant working through T. Carroll Associates, Engineers.



The epitome of sturdiness would have to be the US Iowa class battleships. High redundancy in ship's systems and armour plating would ensure her survival in battle and thus provide a force multiplier effect over examples such as SHILLELD and SHAMAND (USN).

# Hatch, Match & Dispatch

## MATCH

### GASCOYNE Commissions

Australia's newest warship, the Huon class coastal minehunter GASCOYNE, commissioned into the Royal Australian Navy (RAN) at HMAS WATERHEN on Saturday June 2, 2001.

The guest of honour, Ms Victoria Peel, commissioned the ship in a traditional naval ceremony. Miss Peel is the daughter of Capt John Peel, Commanding Officer of the first HMAS GASCOYNE, a frigate built in Balmain and which served during WW II.

GASCOYNE is the third of a class of six Huon class minehunter coastals (MHCs) being built by ADI Limited in Newcastle for the RAN. The \$1 billion project has

provided significant employment in the Hunter region and is proceeding on time and on budget.

Following her commissioning, GASCOYNE joined her sister ships HUON and HAWKESBURY, which have recently returned from Tandem Thrust 01. The minehunters have successfully demonstrated the new capabilities these world-class ships bring to the RAN thanks to their leading-edge technology.

The Huon class is based on the Italian Gaeta Class but modified to suit Australian conditions. GASCOYNE has a crew of 39 and with her V8 Fincantieri diesel engines boasts a range of 1,600 nautical miles at 12 knots. She is equipped with a 30mm gun for self-defence and carries two robotic BOFORS Double Eagle Mine Disposal Vehicles for identifying and destroying enemy mines.

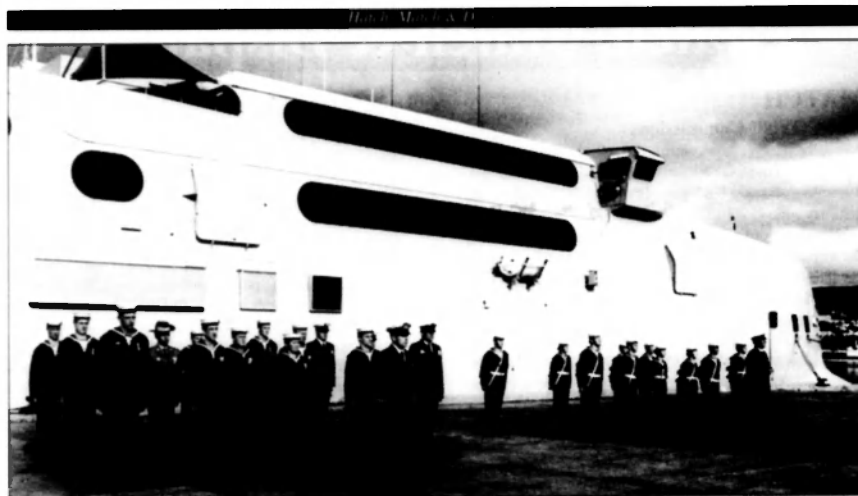


HMAS GASCOYNE, and crew during the commissioning ceremony. (RAN).

Is your product getting the exposure it deserves?  
If not then THE NAVY could do it for you!

Call Peter Jordan today and find out how to join ADI, BAZAN, Thomson Marconi Sonar, The Australian Hydrographic Office, Forgacs, NAVART, STN ATLAS ELEKTRONIK, IMPART Corporation, The Royal Australian Mint, Quickshade, Ozmods Australian Models, Crusader Trading, Joe Christensen, Touchstone Pictures, Pacific 2000 and AUSMARINE 2000 and others who have benefited from  
advertising in Australia's leading Naval Magazine, THE NAVY.

Peter Jordan, Baird Publications, 61-3-9645-0411 for information and prices on advertising in THE NAVY.



The ship's company stand to attention on the wharf by the side of the Derwent River in Hobart

## DISPATCH

### HMAS JERVIS BAY stands down

At a ceremony in Hobart HMAS JERVIS BAY (045), the Incat 86m wavepiercing catamaran built for commercial service, completed a distinguished term of service with the RAN following a two-year charter. She was commissioned for logistics operations between Australia and East Timor in May 1999.

Since her debut with the Navy HMAS JERVIS BAY has completed 107 trips between Darwin and Dili, transporting personnel and equipment as part of the United Nations Transitional Administration in East Timor (UNTAET).

The Maritime Commander, Rear Admiral Geoff Smith AM RAN, paid tribute to HMAS JERVIS BAY saying that "she was precisely the vessel we wanted in the East Timor crisis, we needed to transport personnel quickly, reliably and in large numbers".

Chief of Navy, Vice Admiral David Shackleton also paid tribute stating "HMAS JERVIS BAY, affectionately referred to as the 'Dili Express', served Australia well and successfully filled a shortfall in the Navy's operational capability". He went on to say that "she has been extensively trialed and assessed during her service and the RAN has obtained much valuable data for use in the future".

The advent of the Timor crisis gave rise to an immediate need to transport large numbers of troops and equipment quickly. Travelling at 43 knots fully loaded and 48 knots lightship, HMAS JERVIS BAY usually crossed between Darwin and Dili in approximately 11 hours.

Just as Incat identified the fast ferry niche over a decade ago another area of the marine world in need of radical development has been identified. The US military is particularly impressed with the high-speed platform, to the extent that HMAS JERVIS BAY is said to have "stunned" US 7th Fleet personnel during East Timor peacekeeping operations.

With its sights set on the military Incat is committed to revolutionise the way world Navies think about, and use, innovative fast craft technology.

The ship will now be offered for sale or lease from Incat.

### HMAS JERVIS BAY Facts & Figures

During her two year charter to the RAN HMAS JERVIS BAY completed 107 trips covering some 100,000 nautical miles, carried 20,000 passengers and 430 military vehicles. In addition, an impressive 5,600 tonnes of stores were shipped.



The white ensign is lowered on the JERVIS BAY's short but distinguished career. The ship is now up for sale or lease from its builder Incat catamarans of Tasmania

# PRODUCT REVIEW

## Naval weaponry desk desks

Reviewed by Mark Schweikert

Available from:

Crusader Trading.

Shop 7/60-64 Wollongong Street.

Fyshwick, ACT, 2611

Ph: (02) 6239 2332, Fax: (02) 6239 2334

e-mail: [info@crusaderbooks.com.au](mailto:info@crusaderbooks.com.au)

Or their website at: <http://www.crusaderbooks.com.au>

Price: \$135.00 including GST +PP.

If you are like me and unable to afford or justify purchasing one of Russ French's 1/72 scale remote controlled model warships then these attractive desk sets may be for you. Russ has turned his hand to the memento/gift market by using 1/72 scaled pieces of naval weaponry mounted on an attractive wood base, either Australian Jarra or brush box timber. The bases are very well crafted, polished and heavy so as not to get accidentally knocked off your desk.



Two of the many desk sets available. From front to back, a 1/48 scale Mk-75 76mm gun and a 1/72 Mk-45 Mod 2 127mm gun with the stealth shielding of the Mod 4

The model weapons mounted on the wood base are exacting in their detail and exceptionally well put together, and far sturdier than one would think. The range includes naval weapons that the RAN has used. So far Russ has made desk sets featuring:

- A Mk-42 5-inch gun off the DDGs;
- A Mk-45 Mod 2, or Mod 2 with stealth shielding, 5-inch gun as mounted on the first two Anzacs and WARRAMUNGA respectively;
- A Mk-6 114mm twin gun mount from the River class destroyer escorts;
- A Mk-15 Phalanx;
- A Mk-141 Octuple Harpoon launcher;
- A Mk-13 rail launcher with practice Standard on the rail from the DDGs and FFGs;
- A Otobreda/Mk-75 76mm gun mount (in 1/48 scale as the gun is quite small) from the FFGs; and
- A Mk-32 Triple torpedo tube mount (again in 1/48 scale) as used on the DDGs, FFGs and River class DEs.



The desk sets make excellent gifts. Here Mr. John Mortimer (left) receives a Mk-6 twin 114mm gun desk set from Mark Schweikert (representing the Navy League of Australia) on his retirement from the public service after 30 plus years, most of which serving Navy. John has been a long time supporter of the League and THE NAVY magazine.

A desk set makes a very attractive addition to any writing desk or counter. There is also enough room and slope on the side of the wood base for an engraved name plate with ample space for title or position wording or possibly a small ship's crest.

Mention this review and receive a 10% discount off the price of these magnificent desk sets.

## Stoker's Submarine

By Fred and Elizabeth Brechley

Reviewed by LCDR Greg Swinden, RAN

Nearly every Australian could tell you the history of the landing at Anzac Cove, on 25 April 1915, of the men of the Australian Imperial Force. Many could also tell you the history of the ill-fated Gallipoli Campaign, which lasted for the next eight months culminating in the evacuation of the Peninsula in December of 1915. Few if any could tell you the story of the Australian submarine AE2, with a half Australian and half British crew under the command of a debonair Irishman, that penetrated the Dardanelles in the early hours of 25 April and caused havoc and confusion behind the Turkish lines while the first ANZAC's were going ashore. Stoker's Submarine is their story.

Stoker's Submarine follows the story of Commander Henry Hugh Gordon Dacre Stoker, and his band of happy go lucky submariners as they cross the globe from England to Australia, in 1914, to deliver one of Australia's first submarines to its brand new Navy. Just over a year later Stoker and his men made history when they became the first Allied submarine to penetrate the heavily mined Dardanelles with orders to 'Run Amok' and cause confusion behind the Turkish lines when the ANZAC's were going ashore at Gallipoli.

News of their success reached the British General commanding the assault on the Gallipoli Peninsula, just at the moment he was considering evacuating the entire force in the face of stiff Turkish opposition. He saw AE2's success as an omen of good fortune and gave the following order to the ANZAC's - 'You have got through the difficult business, now you only have to dig, dig, dig until you are safe'. For good or had without AE2 there would have been no ANZAC legend created at Gallipoli.



Unfortunately their success was short lived as AE2 was sunk a few days later and Stoker and his men became prisoners of the Turks where they endured three and half years of living hell in Turkish forced labour camps where conditions were similar to that endured by prisoners of the Japanese in World War II. The book then follows the lives of the men as they tried to resume some semblance of normality after the war and attempts to explain why Stoker and his men were poorly rewarded for their deeds. It also follows the history of the AE2 herself, the wreck of which was only recently re-discovered, in 1998, lying 35 fathoms deep in the mud of the Sea of Marmara. The future of the wreck is now the subject of discussion between the Governments of Australia and Turkey.

Fred and Elizabeth Brenchley have done an excellent job of research in which they have pieced together many disparate, and previously unknown, facts about Stoker and his men into a highly readable and entertaining book. The book also contains a number of photographs of Stoker and his men as well as recent shots of the wreck of the AE2. Many of these photographs have never been published before.

For those interested in the bare facts, Stoker's Submarine is a well illustrated 280 Page paperback published by Harper Collins and retailing at \$29.95. For those actually interested in the contents - then purchase a copy and be prepared to read an exciting story of wartime bravery and suffering endured by an often forgotten group of Australian servicemen.

## Pearl Harbor

Reviewed by Mark Schweikert

Touchstone Pictures.

Distributed by Buena Vista Australia

Running time: 3 hours

At Cinemas everywhere

For something different *THE NAVY* recently 'went to the movies' to review the new war thriller *Pearl Harbor*. Set during the time of the Japanese bombing of Pearl Harbor, two friends (Ben Affleck and Josh Hartnett) are caught up in the events that draw the US into World War II.

Ben Affleck plays Rafe McCawley, a 25-year-old US Army pilot 'itching' to get into combat as World War II looms on the horizon. Newcomer Actor Josh Hartnett plays Danny Walker, Rafe's inseparable childhood friend who grew up with him on an adjacent farm in Tennessee. British actress Kate Beckinsale plays Evelyn Johnson, a nurse with whom Rafe falls in love with during his induction into the military. After joining the RAF to find 'the action' Rafe is presumed killed during the *Battle of Britain* but suddenly shows up in Hawaii to join Evelyn and Danny on the eve of the Japanese attack. Their reunion is a tense one as Danny and Evelyn, thinking Rafe is dead, are now lovers. But suddenly nothing else matters as the Japanese attack commences.

The producers of the movie *Pearl Harbor*, Jerry Bruckheimer and Michael Bay (also the Director), are

considered the 'poster twins' for Hollywood's obsession with 'boys and their toys'. Not that this is a bad thing. The two have raked in US\$887 million for Disney with the movies *The Rock* (1996) and *Armageddon* (1998). By using these two producers again Disney is hoping lightning strikes a third time with *Pearl Harbor*, which cost US\$140 million. Bay's attention to detail is legendary in Hollywood. It is said that nobody can make bombs bursting in air as visually spectacular as he.

The battle scenes are huge, exciting and fill the screen! The movie's aerial photography dogfighting scenes are better than *Top Gun*. Tom Cruise 'check your six' as Ben Affleck has you in the gunights of his P-40 Kittyhawk as Hollywood's new king of the aerial dogfight.

The Director's use of decommissioned, yet current generation warships i.e. Knox and Spruance class ships, may detract from the movie's enjoyment for naval enthusiasts or long time readers of *THE NAVY* but when one considers that the ships in Pearl on the day are no longer around then it isn't too hard to accept their use which incidentally is the best and most spectacular use of decommissioned ships ever filmed!

The movie combines real imagery and computer generated imagery to produce a spectacular and stunning visual effect. Battleship row is reproduced brilliantly and one cannot help but think that this is what it must have looked like on the day.

The movie is beautifully photographed and executed and captures the innocence of the times and the horror of the surprise attack well. The other supporting actors do a good job, including Jon Voight, who is nearly unrecognisable in his role as President Roosevelt. Also turning in fine performances are Alec Baldwin as Col. James Doolittle and Cuba Gooding Jr. as Doris 'Dorie' Miller, a cook from USS WEST VIRGINIA who earned The Navy Cross for manning an anti-aircraft gun during the battle. He was the first Negro in the USN to win the decoration.

*Pearl Harbor* finishes on a high note with the Doolittle raid on Tokyo, which many Americans find hard to separate from the attack on Pearl Harbor as this raid was the counter strike to the Japanese surprise attack.

At times *Pearl Harbor* is moving, funny and touching.

If I had any criticisms of the movie it would be these: the movie is too 'American' at the end and pays too little attention to 'allied' struggle in the Pacific but then again, its an American film for American audiences. The love triangle, while interesting and keeping the non-war movie devotee interested, is a little too involved which leaves less time to explain Pearl Harbor and why the Japanese attacked.

Less informed, and unimaginative critics have criticised the movie for being historically inaccurate but this is not a documentary. It doesn't have to be historically correct as it works!

*Pearl Harbor* is well recommended. A must see!

## NELSON TO VANGUARD Warship Design and Development 1923-1945

Author: David K. Brown

Publisher: Chatham Publishing

Reviewer: Vic Jeffery

FITTINGLY the frontispiece of this quality reference book features a double-page spread of the Royal Navy's last and biggest battleship HMS VANGUARD, at speed, with her 8-15-inch guns trained to starboard. This superb photograph sets the standard for the rest of this 224-page information crammed book.

Author David Brown is to be commended for producing such an interesting and readable book on the subject of British warship development which could be interpreted as being a 'dry topic' for the layman. Not so. Brown's long career as a naval constructor and the knowledge imparted makes it difficult to put this book down.

Profusely illustrated with 215 high quality black and white photographs and an abundance of tables and line drawings, the book contains many photos never published before. Two photos with RAN links are a shot of the corvette HMAS GERALDTON and the aircraft carrier TERRIBLE (later HMAS SYDNEY) completely devoid of any superstructure, ready for launch at Devonport.

There are a number of photos of ships being 'tested to destruction'; perhaps the most unusual being the hull of the cancelled Battle-class destroyer ALBUERA loaded until she failed in dry dock. Another photo reveals the damaged superstructure of the destroyer ESCAPE after an accidental explosion, which demolished the bridge. This being one of the reasons it proved unpopular when it entered service.

A couple of interesting points in comparing Daring-class destroyers with the Battle-class was the fact that the larger Darings (with twin rudders) had a turning circle of 525 yards at full speed (as against the 665 yards of the Battles). Furthermore, the 'Darings' at 20 knots achieved 7.5 miles/ton, opposed to the smaller 'Battles' 6.2 miles/ton, attributed to the smoother welded hull.

The chapters cover: 1-Battleships, 2-Fleet Carriers, 3-Smaller and Cheaper Carriers, 4-Cruisers, 5-Destroyers, 6-Submarines, 7-Escorts, 8-Miscellaneous Vessels, 9-Modernisations, 10-Updates and Scrapping, 11-Wartime Damage, Production and Repair; and 12-What is a Good Design?

Twenty excellent appendices support this book, including subjects such as Underwater Explosions, The London Treaty 1930 and 1936, Docks, Damage to RN Armoured Hanger Carriers, Wartime Cruiser Building and D Quality Steel.

This is the third in a series by D.K. Brown. The other two being 'Warrior to Dreadnought, Warship Development 1860-1905' and 'The Grand Fleet, Warship Design and Development 1906-1922'.

The only regret with this book is the price, \$140.00, that places it out of the reach of many readers. However, it is worth every cent.

## Recommended books

Review to follow in next edition



The strategic background to Australia's security has changed in recent decades and in some respects become more uncertain. The League believes it is essential that Australia develops capability to defend itself, paying particular attention to maritime defence. Australia is, of geographical necessity, a maritime nation whose prosperity strength and safety depend to a great extent on the security of the surrounding ocean and island areas, and on seaborne trade.

**The Navy League:**

- Believes Australia can be defended against attack by other than a super or major maritime power and that the prime requirement of our defence is an evident ability to control the sea and air space around us and to contribute to defending essential lines of sea and air communication to our allies.
- Supports the ANZUS Treaty and the future reintegration of New Zealand as a full partner.
- Urges a close relationship with the nearer ASEAN countries, PNG and the Island States of the South Pacific.
- Advocates a defence capability which is knowledge-based with a prime consideration given to intelligence, surveillance and reconnaissance.
- Believes there must be a significant deterrent element in the Australian Defence Force (ADF) capable of powerful retaliation at considerable distances from Australia.
- Believes the ADF must have the capability to protect essential shipping at considerable distances from Australia, as well as in coastal waters.
- Supports the concept of a strong Air Force and highly mobile Army, capable of island and jungle warfare as well as the defence of Northern Australia.
- Supports the acquisition of AWACS aircraft and the update of RAAF aircraft.
- Advocates the development of amphibious forces to ensure the security of our offshore territories and to enable assistance to be provided by sea as well as by air to friendly island states in our area.
- Advocates the transfer of responsibility, and necessary resources, for Coastal Surveillance to the defence force and the development of the capability for patrol and surveillance of the ocean areas all around the Australian coast and island territories, including in the Southern Ocean.
- Advocates the acquisition of the most modern armaments and sensors to ensure that the ADF maintains some technological advantages over forces in our general area.
- Advocates measures to foster a build-up of Australian-owned shipping to ensure the carriage of essential cargoes in war.
- Advocates the development of a defence industry supported by strong research and design organisations capable of constructing all needed types of warships and support vessels and of providing systems and sensor integration with through-life support.

**As to the RAN, the League:**

- Supports the concept of a Navy capable of effective action off both East and West coasts simultaneously and advocates a gradual build up of the Fleet to ensure that, in conjunction with the RAAF, this can be achieved against any force which could be deployed in our general area.
- Believes it is essential that the destroyer/frigate force should include ships with the capability to meet high level threats.
- Advocates the development of afloat support capability sufficient for two task forces, including supporting operations in sub-Antarctic waters.
- Advocates the acquisition at an early date of integrated air power in the fleet to ensure that ADF deployments can be fully defended and supported from the sea.
- Advocates that all Australian warships should be equipped with some form of defence against missiles.
- Advocates that in any future submarine construction program all forms of propulsion, including nuclear, be examined with a view to selecting the most advantageous operationally.
- Advocates the acquisition of an additional 2 or 3 Collins class submarines.
- Supports the development of the mine-countermeasures force and a modern hydrographic/oceanographic fleet.
- Advocates the retention in a Reserve Fleet of Naval vessels of potential value in defence emergency.
- Supports the maintenance of a strong Naval Reserve to help crew vessels and aircraft in reserve, or taken up for service, and for specialised tasks in time of defence emergency.
- Supports the maintenance of a strong Naval Reserve Cadet organisation.

**The League:**

Calls for a bipartisan political approach to national defence with a commitment to a steady long-term build-up in our national defence capability including the required industrial infrastructure.

While recognising current economic problems and budgetary constraints, believes that, given leadership by successive governments, Australia can defend itself in the longer term within acceptable financial, economic and manpower parameters.

# TANDEM THRUST 2001



Taking a break in Tandem Thrust action, 'friendly' and 'opposing' naval forces come together in a multi-national naval formation of RAN, RCN and USN ships lead by USS KITTY HAWK (CV-63) and including: US Ships BLUE RIDGE (LCC-19); CHANCELLORSVILLE (CG-62), JOHN S. McCain (DDG-56); GARY (FFG-51); KAMEHAMEHA (SSN-642); and USNS RAPPAHANNOCK (T-AO-204), HMA Ships BRISBANE (DDG-41); ADELAIDE (FFG-01); SUCCESS (OR-304), CANBERRA (FFG-02); HMC Ships ALGONQUIN (DDG-283); VANCOUVER (FFH-331); and REGINA (FFH-334). (USN, PH3 Alex C. Witte)



USS JOHN S. McCain (closest to camera) and HMAS BRISBANE in her last major exercise before decommissioning, off the Queensland coast during Tandem Thrust. (USN)



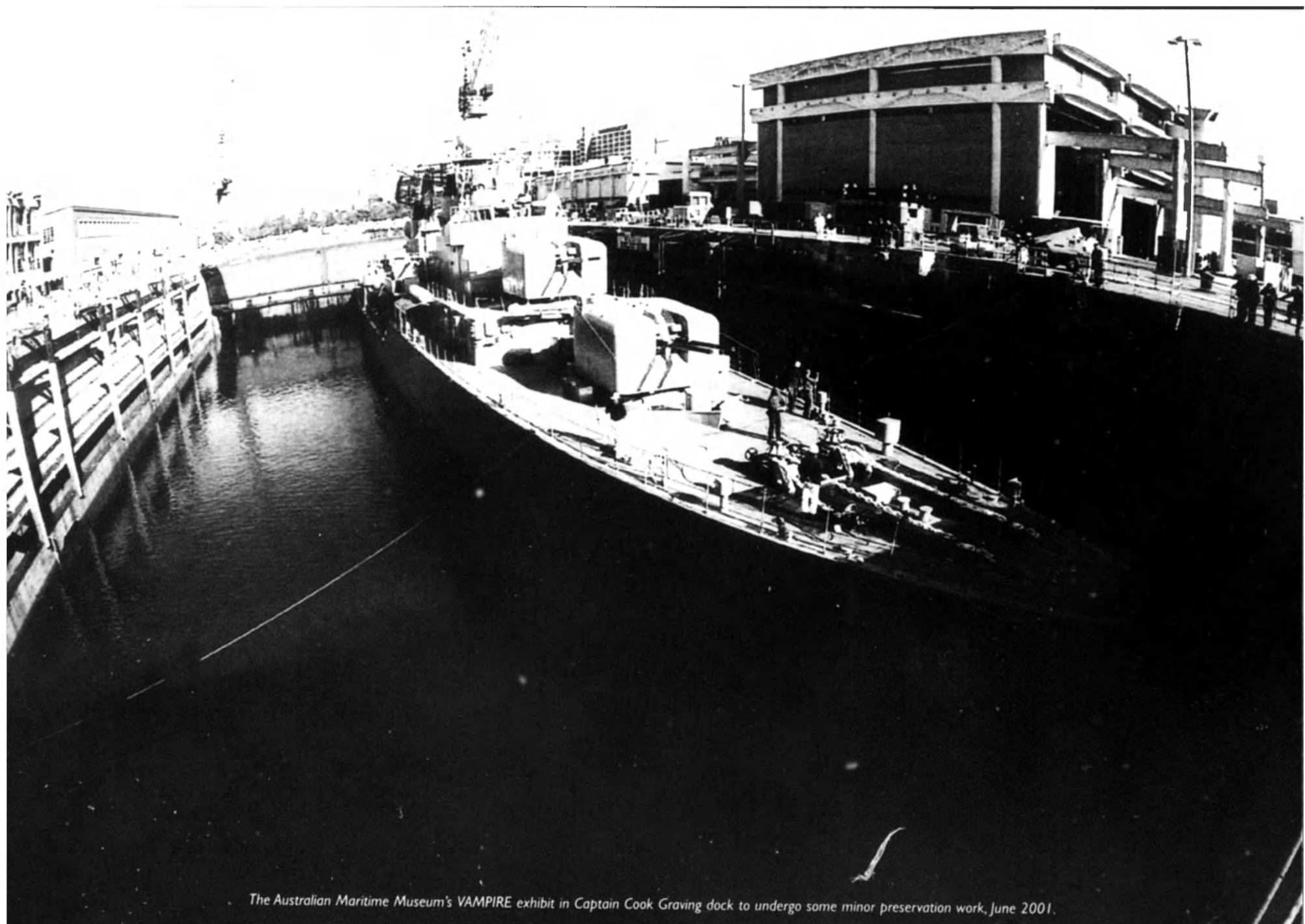
The Canadian air class frigate HMCS REGINA. One of three ships from the RCN participating in the exercise. (USN)



A 5-inch shell from the Mk 45 gun of USS JOHN S. McCain caught the camera as it emerges from the barrel at over 800 feet per second. (USN, Petty Officer 2nd Class Andrew Meyers)



The LHA USS ESSEX and HMAS SUCCESS during a replenishment at sea exercise. (RAN, LSPH Damien Pawlenko)



*The Australian Maritime Museum's VAMPIRE exhibit in Captain Cook Graving dock to undergo some minor preservation work, June 2001.*



**A GUIDE TO THE RAN CENTENARY OF FEDERATION NAVAL REVIEW**

OCTOBER – DECEMBER 2001

[www.natapace.net.au/~navyleag](http://www.natapace.net.au/~navyleag)

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# THE NAVY

**The Magazine of the League of Australia**

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Soerabaja*

*Australia's Maritime  
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*The Bush  
Era Navy*



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## THE NAVY LEAGUE OF AUSTRALIA

(New South Wales Division)

with the participation of  
**THE ROYAL AUSTRALIAN NAVY**

and with the support of  
**THE COMPANY OF MASTER MARINERS OF AUSTRALIA**



presents

# MODERN NAVAL DEVELOPMENTS

Australia's Navy for the 21st Century

**Wednesday 21 November 2001**

The guidance provided by Government through the Defence 2000 White Paper has led to the issue by Navy management of a public document *Australia's Navy for the 21st Century*, the unclassified version of Navy's long-range strategic plan (known as *Plan Blue*).

The plan outlines Navy's thinking on its own future, and the New South Wales Division of the Navy League has arranged a presentation on key elements of the subject which will be given in the **IONIC ROOM** of the **MASONIC CENTRE** (corner of Castlereagh and Goulburn Streets, Sydney) on **Wednesday 21 November** at 6.15 for 6.30pm. Four topics will be presented: *Navy's Long-Range Plans*; *Uninhabited Aerial Vehicles*; *Developments in High-Speed Hull Design* and *Maritime Developments in our Region*.

A light meal and refreshments will be served. The charge for the evening will be \$27.50 for Navy League, CMMMA and ADF Members, and \$33 for others (incl GST). Parking is available (\$6 evening rate after 5.00pm) in the Goulburn Street parking station opposite the Centre. The presentation will end about 10.00pm.

The New South Wales Division invites you and your guests to attend. Please ring Kaye Wright on (02) 9232 2144 or fax her on (02) 9232 8383 to register your interest, or write to The Hon Secretary of the NSW Division at Box 1719 GPO Sydney NSW 1043, enclosing your cheque payable to the League.

*The new Arleigh Burke Flight IIA class destroyer USS WINSTON S. CHURCHILL is overflown by a Spitfire on her first visit to the UK. (RN)*





## **CANCELLATION OF THE CENTENARY OF FEDERATION NAVAL REVIEW**

Readers will be aware that as a consequence of the recent terrible events which took place in New York and Washington, the Minister for Defence has announced the cancellation of the Centenary of Federation Naval Review, a guide to which appears on pages 3 and 4 of this publication.

The Navy League learned of the cancellation after the magazine had gone to press, and we regret it was then too late to withdraw the article.

The Editor  
*The Navy Magazine*

# THE NAVY

Volume 63 No. 4

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The opinions or assertions expressed in *THE NAVY* are those of the authors and not necessarily those of the Federal Council of the Navy League of Australia, the Editor of *THE NAVY*, the RAN or the Department of Defence. The Editor welcomes correspondence, photographs and contributions and will assume that by making submissions, contributors agree that all material may be used free of charge, edited and amended at the Editor's discretion. No part of this publication may be reproduced without the permission of the Editor.

Front cover: The RAN White Ensign backgrounded by the French Naval Ship FNS VENDEMIARE off the NSW south coast. VENDEMIARE is one of the many international visitors to this year's Centenary of Federation Naval Review. (Mark Schweikert)

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## FROM THE CROW'S NEST

Following the example of his predecessor Admiral Synnot, The Chief of the Defence Force, Admiral Barrie, has not hesitated to comment publicly on defence matters from time to time.

In a Paper presented to the ANZUS 50th Anniversary Conference held in Sydney on 30 June, Admiral Barrie referred to the strategic implications of rapid technological developments in the Asia-Pacific which he described as the fastest changing region in the world, an area 'home' to the two largest economies – the United States and Japan, the two most populous countries – China and India, and including the ten ASEAN states with a combined population of over 500 million; it also contains three of the five recognised nuclear powers and, more recently, two de facto nuclear States.

Pointing out that defence spending in the region had increased rather than decreased since the end of the Cold War, due in the main to the ability of developing economies to afford new weapons and absorb new technology, the Admiral said – "A remarkable aspect of defence trends in the Asia-Pacific over the past decade is that new military technology that used to take years to come to the region is now readily available off the shelf and with very advanced performance characteristics. Indeed some manufacturing countries are selling weapons to customers before these weapons are available in their own armed forces".

Noting significant combat capability in the region, Admiral Barrie said that countries have legitimate needs for self-defence and to modernise and acquire defence platforms; he also spoke of the need "to develop an accompanying level of confidence in the Asia-Pacific that will enable changes to take place without creating anxiety between States".

While acknowledging the importance of capability expansion in the area, Admiral Barrie spoke of increasing concern about first, Weapons of Mass Destruction (WMD) and their means of delivery – ballistic missiles – and second, the growing threat from emergent technologies. "Because of the unpredictability and uncertainty they create a country possessing longer-range missiles, together with readily available intelligence, surveillance and reconnaissance technology, obtains a sizeable advantage and a reach it would not otherwise possess. This introduces complexities and instability in strategic relationships".

## FROM OUR READERS

### What about NORM??

Dear Editor

I read with interest the last edition of *THE NAVY*, Vol 63 No.3 and draw your attention to the **Hatch, Match & Dispatch** segment relating to the commissioning of our latest coastal minehunter HMAS GASCOYNE.

I would point out that HMAS GASCOYNE is not, as you reported, the third of the Huon class minehunters to commission but rather the fourth of the class following on from HMAS NORMAN which appears to have been neglected.

The first to commission was HMAS HUON followed by HAWKESBURY, NORMAN and then GASCOYNE.

These four ships will then be followed on the remaining two of the class yet to commission DIAMANTINA and YARRA.

Kind Regards

Frank McCarthy, NLA, VIC DIV

Listing a number of countries that already possess long and intermediate range missiles, including China, India, Pakistan and North Korea – the latter "a major source of missile proliferation to other parts of the world, including to the Middle East, an already unstable and over-armed region" the Admiral said the proliferation of missiles was a dangerous development that needed to be discouraged. He stated that Australia understood the U.S. plan to develop a missile defence system "to defend against potential threats from States of concern and against the possibility of an accidental or unauthorised missile launch" and referred to Australia's belief that the option of strengthening the missile technology control regime, including increasing control over the transfer of technology, should be examined and penalties for breaches toughened.

The CDF then went on to deal with a second area of concern – cyber warfare, electronic strikes and computer hacking – particularly challenging because they posed threats out of proportion to the cost of investment and the vulnerability of modern societies – not least those of the United States and Australia.

Referring to new technologies such as directed energy and electromagnetic pulse weapons, Admiral Barrie said adversaries were likely to use cyber attacks to complicate deployment operations and that an estimated 30 nations have developed aggressive computer warfare programs.

How best to deal with the challenges of WMD and ballistic missiles as well as emerging technologies? Admiral Barrie suggests:

- The continuing presence of a fully engaged United States in the region,
- Good intelligence information and retention of the "knowledge edge",
- Extension of the network of defence relationship, and,
- Strengthened international security architecture to arrest the proliferation of weapons of mass destruction as the way to meet challenges and maintain security and stability in the region.

Not quite "high tech" but very real nevertheless, the CDF added piracy and terrorism to the list of problems concerning the region and, as often as not, require traditional military methods to provide solutions. All in all, a thought-provoking paper by Admiral Barrie that deserved wider attention than it appears to have received.

Geoffrey Evans

Frank

Good pick up. The commissioning of GASCOYNE didn't receive much press. This magazine was left out of the normal notification process one would expect the Department to undertake. Consequently we nearly missed it completely. A call to the relevant Public Affairs people resulted in the press release finally arriving. As our publication date was so close it was printed without the usual editing processes being applied to it. The error about GASCOYNE's commissioning was already in the press release from the Department. Something we didn't expect.

Editor.

# 'A Guide to the RAN Centenary of Federation Naval Review

Sydney Harbour, 28 September – 8 October 2001

## Events

**Friday, 28 September:**

- New Zealand ships HMNZS RESOLUTION and MANAWANUI arrive.

**Saturday, 29 September:**

- New Zealand ships HMNZS CANTERBURY and ENDEAVOUR arrive in company with HMAS WESTRALIA.

**Monday, 1 October:**

- THAI ships NARESUAN and CHAO PHRAYA arrive.

- Opening of Navy 100 Years Marquee.

**Tuesday, 2 October:**

- Departure of RAN warships to join visiting ships.
- Arrival of Chinese ships YICHANG and TAICANG.
- Arrival of South Korean ship HYANGRO BONG
- Return of RAN ships and arrival of visiting ships. NORTHUMBERLAND (UK), VINCENNES (USA), HARUSAME (Japan), MURASAME (Japan), VENDEMIERE (France), TF KAHHA (NZ), PERSISTENCE (Singapore).
- Midday: Band performances, Corso, Darling Harbour.

**Wednesday, 3 October:**

- Arrival of Indian destroyer MUMBAI.
- Arrival of South African ship OUTENIQUA.
- Morning: Cenotaph Service, Martin Place, Sydney.
- Midday: Band performances, Corso, Darling Harbour.

**Thursday, 4 October:**

- Combined Navies March through streets of Sydney.
- Midday: Royal Marine Band perform Beat retreat at Sydney Town Hall.
- Afternoon: RAAF Band performance in Tumbalong Park, Darling Harbour.
- Evening: "Sounds of the Sea" by RAN massed bands at Sydney Town Hall.

**Friday, 5 October:**

- Ships open at Fleet Base East, Sydney Cove Passenger Terminal, Darling Harbour Passenger Terminal & HMAS WATERHEN. 1-4pm.
- Midday: Band performances, Corso, Darling Harbour.
- Midday: Task Force 72 (radio controlled 1/72 scale model warship club) Fleet Entry Captain Cook Graving Dock, Garden Island.
- Evening: "An Australian Night at the Proms", Superdome, Olympic Park, Homebush Bay.
- Evening: Ships move to Harbour anchorage points.

**Saturday, 6 October:**

- Centenary Naval Review on Sydney Harbour with fly overs by RAAF and RNZAF jet aircraft and commercial aircraft.
- Band performances in support of CNR around Sydney Harbour foreshores.
- Evening: "Battle of Sydney Harbour" fireworks spectacular.

**Sunday, 7 October:**

- Departure of Chinese ships YICHANG and TAICANG.
- CNR Morning Church Service at St Andrews Cathedral, Sydney.
- Ships open at Fleet Base East, Garden Island, Sydney Cove Passenger Terminal, Darling Harbour Passenger Terminal, 10am-4pm.
- CNR Afternoon Church Service at St Mary's Cathedral, Sydney.
- Youth reception at Fleet Base East.

**Monday, 8 October:**

- Massed RAN ships depart for Youth Sea Day, return afternoon.

## Participating Ships

### Royal Australian Navy:

- HMA Ships BRISBANE, ADELAIDE, SYDNEY, MELBOURNE, NEWCASTLE, ARUNTA, WARRAMUNGA, TOBRUK, KANIMBLA, MANOORA, SUCCESS, WESTRALIA, LEEUWIN, MELVILLE, FARNCOMB, WALLER, FREMANTLE, WARRNAMBOOL, TOWNSVILLE, BENDIGO, IPSWICH, WHYALLA, HUON, HAWKESBURY, GASCOYNE, NUSHIP, DIAMANTINA, BROEGA, WALLAROO, BANDICOOT & STS YOUNG ENDEAVOUR

### Royal Navy:

- HMS NORTHUMBERLAND

### Royal New Zealand Navy:

- HMNZS TE KAHU, CANTERBURY, ENDEAVOUR, RESOLUTION & MANAWANUI

### Japanese Maritime Self Defence Force:

- JDS MURASAME & HARUSAME

### United States Navy:

- USS VINCENNES

### Merine Nationale (France):

- FNS VENDEMIERE

### Peoples Liberation Army Navy:

- YICHANG & TAICANG

### Republic of South Korea Navy:

- ROKS HYANGRO BONG

### Republic of Singapore:

- RSS PERSISTENCE

### South African Navy:

- SAS OUTENIQUA

### Royal Thai Navy:

- HTMS NARESUAN & CHAO PHRAYA

### Indian Navy:

- INS MUMBAI

A total of 48 ships not including RAN shore establishments

For more information go to

[www.navy.gov.au](http://www.navy.gov.au) and follow the links to the RAN Centenary of Federation Naval Review.



One of the many international visitors to the CENR is the Indian Delhi class destroyer INS MUMBAI (D-62). The ship's principal armament consists of 16 SS-N-25 Switchblade anti-ship missiles as well as 48 'A-N-7' Gadfly anti-aircraft missiles. A very powerful ship (Brian Morrison, Warships & Marine Corps Museum Int)



Thailand will be represented by the ships HTMS NARESUAN (F-421) and CHAO PHRAYA (F-455) (pictured). Both ships were built by the Chinese, however, NARESUAN has been fitted with western weapons and electronics (Brian Morrison, Warships & Marine Corps Museum Int)



The star of the Centenary of Federation Naval Review will undoubtedly be HMAS BRISBANE (DDG-41). BRISBANE will lead the moving review line, which will be her last activity before decommissioning. Here the DDG is firing a broadside to starboard (RAN)



The Ticonderoga class cruiser USS VINCENNES (CG-49) will represent the United States (Brian Morrison, Warships & Marine Corps Museum Int)



The Japanese Maritime Self Defence Force will be represented by the destroyers JDS MURASAME (DDG-101) & HARUSAME (DDG-102) (pictured) (Brian Morrison, Warships & Marine Corps Museum Int)

## Australia's Maritime Doctrine – Part 2

HMAS NEWCASTLE firing a Standard SM-1MR. Armed conflict presents dangers and uncertainty. The RAN must be able to master combat in order to win. Effective doctrine is one step (RAN)

In part 2 of our presentation of the RAN's new 'Maritime Doctrine' we detail Chapters 3 and 4 on Armed Conflict and Strategic Policy. The document was written by the Seapower Centre and is reproduced in *THE NAVY*, with the Centre's approval, given its importance to readers of *THE NAVY*, Australians and to the Navy League in general.

### Chapter 3 Armed Conflict

The Navy exists as part of the Australian Defence Force to fight and win in any armed conflict in which Australia is involved. Since the formation of the United Nations, much effort has been expended to govern the form and extent of conflict through international treaties and conventions and Australia has been a leading actor in such work. Nevertheless, the experience of the last few decades has demonstrated that conflict remains a perennial aspect of international relations.

#### The Features of Armed Conflict

By its nature, conflict possesses intrinsic and inseparable features that in combination make it a unique phenomenon in human affairs. The first element of conflict is the *adversary*. Other features derive from the environment in all its aspects and the maritime elements have been discussed in Chapter Two. In this section we concentrate on the human aspects, particularly in the effects that are generated by or manifest within conflict.

#### The Adversary

Australia does not currently face an identifiable direct military threat. While this eases the national security problem in one context, it means that Australia's combat forces must be capable of meeting a range of contingencies which could arise at little or no notice and of preparing and adapting themselves to meet longer term threats. One of the major contributions of intelligence is the provision of assessments on the likelihood and nature of such threats.

#### Danger

Danger and conflict are inseparable and fear is an ever-present element in operations. Properly trained and prepared personnel can manage their fear and exploit its stimulant effects. Uncontrolled, it rapidly degrades individual and group cohesiveness and effectiveness in

battle. The effect of fear on operations is thus a measure of the standards of training, leadership and readiness of combat forces. Forces can prepare for this reality in conflict by training and operations which are as challenging and realistic as possible. For maritime units, this will bear dividends not only in combat, but also in facing the dangers of the sea.

#### Friction

*Friction* is a concept that is very difficult to understand without the personal experience of conflict. It is defined as the features of war that resist all action, make the simple difficult and the difficult seemingly impossible. Carl von Clausewitz (1780-1831) in his book *On War* explained friction by pointing out that what was important in war was very simple and that in war the very simple became progressively more difficult to achieve. This process was not only due to the multitude of problems which arise in attempting any complex activity in an uncertain and changing environment, but because of the presence and actions of an unpredictable adversary and most important of all, because of the effects, both conscious and subconscious, of fear. The challenges of going down to the sea in ships and operating over the sea in aircraft mean that some of the experience of friction is an ever present reality for maritime forces even in time of peace. Thus, Navies and air forces which allow their people every opportunity to practice their profession at, under and over the sea, to test their skills and extend their operating envelopes even in ways which do not seem directly connected with warfighting will be better prepared for conflict.

#### Uncertainty

The concept of *uncertainty* is related to *friction* and recognises that a lack of accurate and timely information, errors, confusion and contradictions combine to create what is known as the *fog of war*. Highly complex situations must be faced and dealt with when there is insufficient time for complete planning and investigation of the issues. In

particular, commanders need to be *risk aware* rather than *risk averse* in order to conduct operations in this atmosphere of uncertainty and complexity. The best preparation for this problem is not only to understand its practical inevitability in time of conflict, but to ensure that unity of command and understanding of the aim are supported by coherent and comprehensive doctrine and practised by realistic and demanding exercises.

#### The Spectrum of Conflict

All the factors described above are present to a greater or lesser extent in any conflict and must be taken into account in dealing with the situation. The varieties of conditions which can create and sustain conflict are such that we need to think of it as a *spectrum of conflict*. Within this spectrum are a number of differing conditions or levels. The categories that are particularly useful when considering the maritime environment are *peacetime conditions*, *low intensity operations*, *operations at the higher level* and *general war*.

Within *peacetime conditions* changes in the international situation occur in a controlled way, aided and to some extent directed by the processes of negotiation. Force is only employed within the context of the domestic legal system or the international order. Threats of force are confined to the normal processes of *deterrence*.

*Low intensity operations* are operations that are limited in aim, scope and area. They often include sporadic acts of violence. They are just as likely to be conducted on a multilateral basis as that of the single state and they will often be under the mandate of the United Nations or the aegis of some other supranational organisation. They may involve a significant number of non-state actors, as protagonists or for relief work. Examples include the Australian led operations in East Timor in 1999.

*Higher level operations* in the maritime environment may be much more intense and involve organised combat operations between ships and/or aircraft on both sides deploying major weapons. They remain limited in aim, scope and area but are very demanding in nature. An important maritime example was the Gulf War in 1991.

*General War* differs from higher level operations not so much in the combat methods or tactical outcomes, but in its much broader aim, scope and area. It is at the same time the rarest but also by far the most serious type of conflict.

The various forms of conflict do have an important dimension of time. This can be considered as a continuum which extends first from a *pre-conflict phase*, characterised by tension and perhaps sporadic acts of violence, into a *conflict phase*. This is characterised by the application of armed force by the parties in the dispute. It may lead to a *post-conflict phase*, which brings the resolution, or at least the aftermath of the conflict. Depending upon the circumstances, maritime forces may have important roles to play in each part of the continuum.

#### Levels of Command

In terms of directing, commanding and managing an armed conflict, it is a useful mechanism to consider it as operating on three levels: *strategic*, *operational* and *tactical*. The strategic level of command embraces its overall direction

and is sometimes further divided into *national strategic* and *military strategic* levels. The national strategic level deals with the organisation and direction of the nation-state as a whole in achieving the desired end-state of the conflict. The military strategic level refers to the overall military planning and direction of the conflict towards that end, reflecting the links upwards to the military-political interface and downwards to the operational level.

The operational level of command has to do with the planning and conduct of campaigns and key operations in order to achieve the strategic aim. Within the ADF, activities at this level will inevitably be commanded and directed on a joint basis. The operational level of war is particularly concerned with the issue of resources as the enablers for tactical efforts to achieve the objectives set. It thus provides the link between the strategic and tactical levels of command.

The tactical level of command relates to the planning and execution of battles and engagements within the military campaign. It fundamentally relates to combat with the adversary.

In many circumstances it is possible either to define or perceive clear distinctions between the three levels of command but this has never been easy for maritime warfare, particularly in terms of the distinction between the operational and tactical levels.

Even the smallest maritime units have a span of interest and of combat influence that can be significant in terms of an entire theatre or area of operations.

Furthermore, both modern technology and the



influence of external factors such as the media and international law mean that even the smallest event may have profound effects on the strategic situation. The operations in East Timor in 1999, for example,

frequently demonstrated compression of the three levels of command.

#### Future Directions of Warfare

Unless a conflict is wholly confined to the land – a rare circumstance in an era of globalisation and increasing economic interdependence – then maritime forces will be involved. The RAN's experience since 1945 has ranged from strike and interdiction operations and the provision of fire support to land forces in Korea and Vietnam to counter-maurgent operations in Malaysian waters during Confrontation, sanctions operations before and after the 1991 Gulf War and logistic support and the provision of cover to the forces in East Timor in 1999. For all of their history, the Navy and the RAAF have played fundamental roles in the defence of Australia's maritime communications.

Some strategic analysts have suggested that the nature of armed conflict is changing fundamentally and away from outright confrontation between nation-states, with all that this implies by the way of disciplined armed forces fighting in what are effectively controlled environments. Within this thesis, the nature of future armed conflict will be much more closely related to the activities of non-state organisations, such as international criminals and insurgent movements, as well as to the consequences of collapsed states and economic, political and environmental failure. Thus, armed forces will need to adapt themselves to face the threats which these activities will pose to their nation-states and reduce their preoccupation with what is often termed 'Asymmetric warfare'.

The *linkage* with this argument is that it over-simplifies the problem. All the indications are that such phenomena are manifest in many areas of the world. But these events come in addition to the realities of potential inter-state conflict, not instead of them and Australia has experienced this already. Three of the major armed conflicts of the late twentieth century, the Falklands War, the Iran-Iraq War and the Gulf War were conducted between nation-states. National armed forces therefore have to do their best to adapt to all these situations and all these possible conflicts. They will need to do more, not less to meet the challenges of the *spectrum of conflict*. It is for this reason that the ADF maintains a wide range of capabilities.

For Navies the challenge must be to deal with the reality that low intensity conflicts do not necessarily mean low technology, nor do high intensity conflicts wholly confine themselves to the exploitation of high technology. Many of the emerging issues present opportunities as well as challenges for maritime forces. Some of these issues are discussed in Chapter Twelve *Future Australian Maritime Forces*, but the result of these developments for a maritime nation in a maritime

region is to increase the span of responsibility for maritime forces. Contingencies ranging from people smuggling to environmental disasters, through the need to assist or intervene in failed states, to state against state 'conventional' conflicts will, in Australia's situation, all have a maritime element. The following chapters explain what this means and how Australia's maritime forces can meet their responsibilities.

#### The Principles of War

The Principles of War used by the ADF have been developed as basic principles for the conduct of armed conflict. They have for many years been a useful mechanism for encapsulating important issues in relation to Australian military action. Although their origins are fixed very much in the early experience of continental mechanised warfare and they must always be balanced against each other and matched to the particular situation, the ten Principles are very relevant to modern maritime warfare. The following list of the Principles gives examples of their employment during the operational history of the RAN.

##### Selection and Maintenance of the Aim

Military action is never an end in itself; it is always a means to an end. It is of fundamental importance that the end always be kept clearly in view. This cardinal principle applies with equal force at the strategic, operational and tactical levels of conflict.

##### Co-operation

Co-operation within a service, between the services, between the ADF and other elements of the Australian Government, with national industry and the community, and between the ADF and allies or coalition partners is vital for success in war. Only in this way can the resources and energies of each be harnessed so as to achieve victory.

##### Offensive Action

Offensive action is action by a military force to gain and retain the initiative. Offensive action is essential in most circumstances to the achievement of victory.

##### Concentration of Force

Success in combat depends on the concentration of superior force. Concentration of superior force is the ability to apply decisive military force at the right place, at the right time, and in such a way as to achieve a decisive result.

##### Security

Security is vital in military operations to allow one's own forces the freedom of action to operate effectively with minimal interference from the adversary; and deny that adversary an advantage.

##### Surprise

Every effort must be made to surprise the enemy and to guard against being taken by surprise (in this there is a close connection with the principle of security). Surprise can produce results out of all proportion to the effort expended.

### Economy of Effort

Economy of effort is the prudent allocation and application of defence and civil resources to achieve the desired results.

### Flexibility

Flexibility is the capacity to adapt plans to take account of unforeseen circumstances, so as to ensure success in the face of friction, unexpected resistance or setbacks, or to capitalise on unexpected opportunities.

### Sustainment

Sustainment includes support arrangements necessary to implement strategies and operational plans. These arrangements include those logistic and personnel aspects necessary for the efficient support of a force committed to operations.

### Morale

Morale is an essential element of combat power. High morale engenders courage, energy, cohesion, endurance, steadfastness, determination, and a bold, offensive spirit. In any given situation, military success may depend as much on morale as on material advantages.

## Chapter 4 Strategic Policy

The roles of maritime forces in the protection of Australia and its interests are derived from the Government's overall security policy. Australia's military strategic policy covers those elements of that policy which relate to the use of



HMA Ships BRISBANE (left) and NEWCASTLE (right) in company at sea. Together, both ships complement the others capabilities giving them greater flexibility to deal with the spectrum of conflict that the RAN may be required to fight in. (RAN)

armed force in international affairs. In turn, this strategic policy shapes the development of the national military strategy and the methods by which armed force will be utilised when necessary to meet Australia's interests. This chapter summarises Australia's security and strategic policies and establishes the requirements for maritime forces to contribute to the implementation of military strategies, as well as the nature of that contribution.

## National Security

### National Interests

A government's first duty is to provide for the security and well being of its citizens. Its responsibilities include the protection and security of national sovereignty, both territory and people. These responsibilities extend further to the support of national values and the advancement of the social, environmental and economic well being of the population.

### National Objectives

To protect and advance these interests, the government pursues a set of national objectives, some explicit and some implicit. They involve outcomes across the full range of government activity, both domestic and international. A vital component will be those which achieve the required levels of physical security and protection.

### National Power

National power is the nation's ability to achieve its national objectives. The elements of national power include the totality of a nation's capacity for action and reaction. They are not confined to purely government functions, but also relate to the nation's geography and natural and human resources, its industrial and scientific infrastructure and its relationships with other nation-states. The ADF provides the military capability of Australia's national power.

## Australia's Strategic Environment

A nation's strategic environment may be defined as the context within which it must exist and interact with other nation-states and other international entities. That context is the product of a wide range of geographic, economic, political and social factors which are themselves constantly changing both within themselves and in relation to other issues. While it is thus possible to make judgements about the fundamental security challenges facing Australia, many of the judgements and national courses of action relating to those challenges and interests are inherently dynamic and must constantly be revisited and reassessed.

The fundamentals of Australia's strategic environment according to strategic policy guidance are:

- Asia-Pacific: Australia has key interests in the security and stability of the Asia-Pacific, including South East and North East Asia, the South West Pacific and North America. Furthermore, our physical security is directly related to the security and stability of maritime South East Asia and the South West Pacific.
- Regional Economic Development: The economic development of East Asia is the key driver of change in the Asia-Pacific strategic system. The political and social change which results from that development will bring about the evolution of new international power relationships, the most important of which will involve the United States, China and Japan.
- Indonesia: By reason of its geography and demography, Indonesia is a defining element within Australia's strategic environment.
- South West Pacific: Australia's history, proximity to and continuing relationships with the South West

Pacific result in our commitment to support the security and stability of the nations of the region. In particular, our relationship with Papua New Guinea is central to Australia's security interests.

## Enduring Strategic Interests

The Australian Government has identified a number of enduring strategic interests that require to be pursued in order to prevent attack on or coercion of this country. These are:

- Avoidance of destabilising strategic competition developing between the United States, China and Japan as the power relationships between the three evolve and change.
- Prevention of the emergence within the Asia-Pacific region of a dominant power, or group of powers whose strategic interests are hostile to those of Australia.
- Maintenance of a benign environment in South East Asia, particularly maritime South East Asia, which respects the territorial integrity of all states.
- Prevention of the positioning of extra-regional military forces in neighbouring countries which might be used contrary to Australia's strategic interests.
- Prevention of the proliferation of weapons of mass destruction (WMD).

While Australia's strategic environment and the enduring strategic interests related to that environment can generally be considered as existing within geographic boundaries, there remain linkages and dependencies upon events elsewhere within the world. In the economic and maritime contexts, in particular, the free movement of shipping between major trading blocs all over the world is vital to the economic well being of the Asia-Pacific region, while the majority of the states within it are dependent upon the uninterrupted passage of oil supplies, particularly from the Middle East, for their very existence.

Thus, these strategic interests recognise both the need for unilateral action, generally as a last resort, and the requirement to act co-operatively with other states within the region and with more distant allies. Co-operative action, in particular, may require the operation of Australia's combat forces in areas not only within but well outside the Asia-Pacific region, but for reasons which derive from our strategic interests, such as Australian involvement in the Gulf War in 1991.

## Strategic Characteristics

What the ADF and, in particular, Australia's maritime combat forces can achieve is influenced by Australia's strategic characteristics. These characteristics can be defined as being the elements which, in conjunction, make Australia a unique entity within the Asia-Pacific strategic environment. They include, but are not limited to the national political system, its economy, population and national support base, its foreign policy and the influence of its history. The influences which go together to make up what is sometimes termed as Australia's *strategic geography* are also vital and these have been discussed in Chapter Two.



A 40mm Bofors gun on a Fremantle class patrol boat. The 15 Fremantle provide the RAN with a means to defend many of our national and strategic interests on a day-to-day basis against threats such as smuggling, fish poaching etc. (RAN)

## Political System

Australia is a sophisticated liberal democracy with one of the longest histories of democratic government in the Asia-Pacific region. Its military forces have an absolute commitment to upholding the Australian Constitution, to the subordination of the military to the Government, of the Government to Parliament and of Parliament to the people. This means that Australia's use of armed force must be subject to the test of legitimacy, in that the Government must have the capacity to demonstrate to the Parliament and the electorate that there is adequate moral and legal justification for its actions.

In terms of the organisation of the ADF, this adherence to legitimacy and the democratic nature of the Australian nation state is a particular strength. It is a historical fact that liberal democracies have been more successful in the development and operation of maritime forces than other forms of government, principally because the intensity and complexity of the sustained effort required for these capabilities places heavy demands upon a nation's systems of state credit, its technological and industrial infrastructure, and its educated population. Sophisticated combat forces, in other words, depend directly upon the support of the people for their continued existence.

## Economy, Population and National Support Base

Dependent upon the maritime environment for economic well being and security, Australia's limited population and demography mean that the levels of human resources allocated to defence in peacetime will be limited and must be very carefully managed. Furthermore, national capabilities will not in the foreseeable future be sufficient to maintain all force elements at the required technological levels by Australian efforts alone. As with other countries, external support through access to technology, manufacturing and logistic support will be required to ensure that the fighting edge of national forces is maintained at a reasonable price and without making

excessive demands on the domestic economy. The most important relationship in this regard for Australia is and will be the United States of America. The balance between self-reliance and external support will inevitably be dynamic and one of the key considerations for the Government.

#### Foreign Policy

The Government operates under the fundamental objective that attacks on Australia or its interest will be prevented and the possibility of such attacks occurring will be minimised. Australia is thus not an aggressive nation, but it is prepared to use armed force for its own self-defence, in the defence of allies and friends and to defeat or deter international aggression when diplomacy has failed. Maritime forces, through their ability to demonstrate *presence* without violating other nations' sovereignty, represent a highly appropriate mechanism for demonstrating such national *intent* in many circumstances.

#### The Influence of History

Such usage of armed force is borne out by Australia's history, which is one that shows that Australians are, although not lightly, prepared to protect their national interests. Australians thus accept that some circumstances may require the application of force.

Nevertheless, the nature of the Australian military experience in general and our naval history in particular create special challenges for policy makers. The achievements of the First and Second Australian Imperial Forces in their *expeditionary* roles in both world wars were only possible because of the maritime supremacy of the alliances in which Australia operated. Much more attention has been paid to the story of the Flanders trenches and to the Western Desert than to the fact that hundreds of thousands of Australian soldiers and their equipment were not only safely conveyed by sea over vast distances, but their operations in theatre sustained by maritime means, whatever the threats to that passage. This applied to the campaigns in New Guinea and the South West Pacific between 1942 and 1945 and to operations in Korea, Malaya and Vietnam. It also applied to the operation in East Timor in 1999. It was when that maritime supremacy was threatened, as in 1941-42, that Australia was in most peril. This lack of understanding of our history has minimised the importance of the maritime environment for Australian national security.

#### The Australian Military Strategy

The Australian Military Strategy (AMS) has been developed by Australian Defence Headquarters to meet Australia's unique national security requirements. Its aim is to *SHAPE the strategic environment, CONDUCT military support operations and PROVIDE combat ready forces* to accomplish the five major strategic tasks. These tasks in combination provide the basis for a comprehensive military strategy to meet the range of contingencies and span the spectrum of challenges that might threaten Australia or its national interests. They have been constructed with full regard to Australia's strategic environment and because of this have an inherently maritime focus.

- The five major tasks expected of the ADF are:
- Defeat of Attacks on Australia (DAA)

- Defence of Regional Interests (DRI)
- Defence of Global Interests (DGI)
- Protection of National Interests (PNI)
- Shaping of the Strategic Environment (SSE)

Maritime forces will play an integral part in the execution of every major task in the Australian Military Strategy. In achieving the desired degree of *strategic control* in a strategy which is intended to be proactive rather than reactive by taking the battle to the adversary well offshore, warships, together with aircraft, would play a leading role in the *Defeat of attacks on Australia (DAA)*. This would include both the projection of force and defensive measures to protect seaborne communications and national territory, including the measures to ensure that our land forces possess sufficient *maritime* mobility to accomplish their tasks.

In *Defence of Regional Interests (DRI)*, the maritime nature of our region means that conflict will likely manifest itself on or over the sea. Even in situations where the initial conflict has developed wholly on land, its protraction or conclusion will be directly affected by the control of sea communications. Offensive and defensive operations will thus require maritime forces, whether in their own right against seaborne adversaries or as enablers for the projection of air or land power.

In *Defence of Global Interests (DGI)*, the requirements for preparedness and credible capability, as well as their reach and the ease with which maritime forces can be integrated into multinational operations mean that they may be the first options considered by government when Australia's interests require participation in a contingency. Many of the unique characteristics of maritime forces described in Chapter Six bear directly upon their utility in these circumstances.

In the unremitting effort required in *Protection of National Interests (PNI)*, maritime forces are among the most active and effective elements of the ADF. Marine science, patrol, surveillance and response forces daily ensure that Australia's sovereignty, its resource zones and its other environmental and economic interests are protected and advanced, and our domestic laws enforced. As immediately visible and readily identifiable symbols of national power, maritime forces also play a vital part in shaping world opinion to the benefit of Australia's national interests during peace and humanitarian operations.

Maritime forces are also fundamental in the strategic task of *Shaping of the Strategic Environment (SSE)*. They are particularly flexible instruments of *military diplomacy*. In Australia's case, maritime forces allow national interests to be demonstrated and asserted across significant parts of the globe. This use of *presence* can be critical in the process of *shaping* events to accord with Australia's national interests. Because of the ease with which Navies interact with each other, maritime forces are a very effective means of achieving international engagement through exercises and co-operative training. They are well adapted for both creating and developing improved mutual confidence between nations, even when the interests of individual states are not readily compatible.

## HMAS BRISBANE gifted to Queensland

The 34-year Naval veteran of the Vietnam and Gulf Wars and currently Australia's only destroyer, HMAS BRISBANE, is to be gifted to the people of Queensland.

The Minister for Veterans Affairs and Minister Assisting the Minister for Defence, Bruce Scott, said "HMAS BRISBANE has proudly served Australia throughout more than 30 years distinguished Naval service and holds the distinction of being the only RAN unit, currently in commission, to have served in two wars".

He went on to say that "HMAS BRISBANE had two tours off Vietnam and was part of the Australian task force during the 1990/91 Gulf War.

"In view of HMAS BRISBANE's unique military history and significance to Queensland, the Minister for Defence, Peter Reith, has asked the Premier of Queensland to examine options for the preservation of HMAS BRISBANE as a floating memorial. If this is not viable to the Queensland Government the obvious choice is for HMAS BRISBANE to be sunk as a dive-wreck".

The Queensland Premier has already indicated his strong support to sink HMAS BRISBANE off Queensland's Sunshine Coast for use as a recreational dive-wreck but there are other groups who have indicated a willingness to preserve the ship on and above water. The Australian War Memorial in Canberra has also expressed an interest in obtaining items of equipment and structure from HMAS BRISBANE.

An announcement on whether HMAS BRISBANE is to be preserved after naval service, or sunk as a dive-wreck, will be made in the next few months, Mr Scott said.

## US Military selects Aussie cats for proof of concept

Incat Australia Pty Ltd and Austal Ships have both won leasing contracts

# Flash Traffic

to provide vessels to the US military for testing.

INCAT has been contracted by the United States Military for the supply of a high speed Wave Piercing Catamaran for two years to test the design's military utility in the wake of the successful lease of Hull 045 (HMAS JERVIS BAY).

Incat will supply the 96 metre (313 ft) *Incat 050* for the task. The preparations include a dry-docking, the first in the new Wilson's dry dock, the building and installation of a helo-deck capable of accommodating large military helicopters, internal fit-out work and other modifications to suit troop transportation.

The charter is potentially worth A\$50 million to Incat Chartering Pty Ltd, the owners of the ship.

Incat Chairman Robert Clifford stated "Incat is extremely proud to be chosen as a supplier of a High Speed

who have contracted the Incat ship, looking at the innovative technology as a complement to their existing amphibious force ships.

The contract requirement is for personnel and equipment to be moved over long sea distances at high speed (35 knots), to prove the concept of fast yet cost effective marine transport.

In a world first for high speed craft, a 472 square metre (5081 square feet) helicopter deck will be fitted to *Incat 050* to handle large helicopters such as the SH-60 Seahawk and the CH-46 Sea Knight. The helo deck, and a two-part hydraulically operated vehicle ramp to allow rapid loading and discharge of vehicles from the stern or alongside, have been designed by Incat's Hobart based design team to meet military specifications.

A team of Incat personnel will work with US forces in an initial



Incat's Hull 050 in Navy grey and with helo deck modifications for her trial with the US Military. (Incat)

Theatre Logistics Vessel to operate with the military in the United States. This ground-breaking contract could be the most significant in the company's history, and an historic one for the Australian shipbuilding industry."

TACOM, the Tank-Automotive and Armament Command of the US Army, will use the high-speed craft to demonstrate its ability to perform specific mission scenarios and limited operational experiments in order to assess its usefulness in US Military and Coast Guard applications which require a platform to move troops, heavy military vehicles and equipment.

Other arms of the US military will also participate in this unique Joint Forces 'Proof of Concept' project. It is anticipated the US Navy and Coast Guard will work with the US Army,

training and support role, and in conjunction with the team from Incat's American associate Bollinger/Incat USA, LLC, who will administer the contract and provide on-going support.

Robert Clifford said "the US Military envisage widespread use of high speed marine transport in the very near future, and Incat looks forward to working with the Joint Forces command".

While on the other side of the country in Western Australia, shipbuilder Austal Ships has also secured a contract to supply its 101m high-speed Theatre Logistics Vessel (TLV) catamaran to the US Marine Corps (USMC).

The contract covers the charter of the TLV by the Third Marine Expeditionary Force (III MEF) based at Okinawa, Japan.





Austal's ship WESTPAC EXPRESS has already taken up her duties with the USMC's III MEF at White Beach Okinawa. (USMC)

Named the WESTPAC EXPRESS to reflect its main area of operations in the western Pacific, the vessel will be used to rapidly deploy USMC forces and supporting vehicles and equipment.

Specifically, the WESTPAC EXPRESS will deploy forces between White Beach Okinawa, Yokosuka Naval Base, Iwakuni and other ports in Japan. Currently, the 15,000 marines stationed on Okinawa must deploy to the mainland and surrounding islands for training aboard US Air Force transport aircraft flying from bases in the USA. Using this method it takes on average 15-18 days to move a full MEF battalion and all its support equipment from Okinawa to Tokyo and a further 15-18 days to deploy back to base. Based on annual usage, it is estimated that the Westpac Express will save more than 200 battalion transit days per year.

It is anticipated that WESTPAC EXPRESS will be able to carry a full battalion and equipment in one load and make the journey from Okinawa to Tokyo in under 24 hours. A similar deployment to South Korea would take around 18 hours. The charter is expected to result in significant savings in operating, logistics and maintenance costs over the existing deployment system.

WESTPAC EXPRESS is able to accommodate 100 HUMVEE's on the mezzanine deck and four trucks and 12 UH-1N utility helicopters or a smaller number of CH-46E Sea Knight troop-lift helicopters on the main deck stored inside the ship. The 950 fully-equipped marines will travel on the upper passenger deck.

The WESTPAC EXPRESS will retain its commercial colours and markings due to sensitivities to the US military in Japan. *Incat 050* will however be given a coat of Navy grey.

## No new combat system for Collins', heavyweight torpedo torpedoed

The Government has decided that a comprehensive arrangement with the USN on submarine issues is in Australia's best strategic interests and has therefore decided that the selection of the combat system for the Collins Class submarines and a new heavyweight torpedo cannot proceed at this time.

The two short-listed tenderers for the combat system were the US-based Raytheon and European-based STN Atlas.

The Minister for Defence, Peter Reith, said recent developments in the relationship between Australia and the US on submarine issues together with the accumulated experience and emerging understanding of the operational potential of the Collins Class submarines made this decision the most appropriate for our strategic circumstances.

The Australian and US Navies are entering into a Statement of Principles arrangement to achieve a shared goal of maximum cooperation and synergy on submarine matters. These arrangements are expected to give Australia even better access to US military technology giving the

subs a vital edge in capability and operations.

The selection process for the heavyweight torpedo has also been terminated. A new arrangement will be developed by the Australian and US Navies under a cooperation agreement.

The benefits of this decision include greater access to US Navy tactical information, resupply in time of need and the provision of torpedo firing exercises with US submarines.

## Second USN FFG to Poland?

During a visit to Poland, US President George Bush, announced his strong support for the transfer of a second Oliver Hazard Perry-class frigate to Poland. He said he plans to work with Congress to secure legislation authorising the transfer. The addition of another FFG will further improve the interoperability of the Polish Navy with its NATO allies.

The second frigate would be a complement to the ORP PULASKI, the former USS CLARK, which was commissioned into the Polish Navy in June 2000.

To enhance the seagoing capability of the Polish Navy, the Government of Poland had requested a second frigate. The USN has identified a vessel that will be available as early as October 2002 for transfer.

## Second Sawari II frigate launched

On Friday 20 July 2001, the frigate MAKKAH (Arabic for 'Mecca') built by DCN's Lorient shipyard for the Royal Saudi Naval Forces was launched during a ceremony attended by French and Saudi officials. The vessel has now been moved to a special berth for final outfitting prior to harbour acceptance tests before delivery in the second quarter of 2003.

The Sawari II contract signed by France and Saudi Arabia on 19 November 1994 calls for the delivery of three frigates:

The first, AL RIYADH, was launched on 1 August 2000 (see *THE NAVY* Vol 62, No. 4). Outfitting is

almost complete and harbour acceptance tests are scheduled to begin in September 2001.



MAKKAH, built by DCN's Lorient shipyard for the Royal Saudi Naval Forces, is launched during a ceremony attended by French and Saudi officials. (DCN)

The third, AL DAMMAN, will be built in the drydock vacated by the MAKKAH. Like its predecessors, the AL DAMMAN will be assembled from pre-outfitted hull blocks.

The Sawari II contract includes services ranging from logistic support to the training of crews and engineers, and the building of a training centre. Thales is prime contractor for the overall Sawari II programme and DCN the naval architect for all three ships. The main industrial partners are DCN/DCN International for the platforms and propulsion systems and SFCS, a joint subsidiary of DCN and Thales, for the combat systems.

The Sawari II vessels are based on DCN's highly successful La Fayette-class stealth frigates. They have an overall length of 133 metres and a beam of 17 metres and a displacement of 4,500 tons.

The Sawari II frigates feature highly-automated combat management systems developed jointly by Thales and DCN and based on the CMS developed for the French Navy's La Fayette class frigates. Their sophisticated combat systems include the SAAM naval self-defence system comprising an Arabel fire-control radar and Aster 15 missiles.

## Indonesian Air Force to receive more CN-235 MPA

Following the delivery of nine Amascos maritime patrol systems to the Indonesian Navy, Thales Airborne Systems and the Indonesian aircraft manufacturer IAE have entered into an agreement for the initial phase of a 50-

million euro contract to supply three CN235-220 aircraft manufactured by IAE and equipped with the Amascos maritime patrol system from Thales Airborne Systems.

The Amascos (Airborne Maritime Situation Control System) system integrates Thales Airborne Systems' search radar Ocean Master, an ESM suite, a thermal observation camera and a navigation computer, all produced by the various units of the Thales group.

The system is designed for maritime patrol missions and is particularly well suited to the operational requirements of the Indonesian Air Force: surveillance of maritime traffic and fishing, control of the economic zone, and anti-surface warfare.

The CN235-220 MPA (Maritime Patrol Aircraft) is a highly autonomous aircraft that requires little maintenance. It is used for transportation, maritime surveillance, and Search and Rescue missions and is especially suited to the surveillance of the vast Indonesian archipelagos.

## South Korea interested in JSF for indigenous aircraft carrier

Unconfirmed reports have indicated that South Korea's plans to build an amphibious assault carrier have progressed to a fully fledged aircraft carrier design given that an aircraft carrier isn't that distant from an assault helicopter carrier. This would also explain South Korea's keen interest in the VSTOL version of the multi-nation JSF programme.

In JSF news the supersonic Lockheed Martin X-35B JSF has made a successful short takeoff, transitioned back from wingborne to jetborne flight and made a vertical landing at Edwards Air Force Base on 16 July.

The soft touchdown followed a series of weekend flights in which the X-35B achieved successively slower speeds with its short takeoff/vertical landing (STOVL) system activated. The aircraft also executed several successful short takeoffs and 'slow' landings.

"We were in familiar territory, since we had already demonstrated the aircraft's solid and stable hovering ability numerous times last month", said Simon Hargreaves of BAE SYSTEMS, chief test pilot for the X-35B. "The aircraft's shaft-driven lift fan propulsion system produces enormous amounts of power, even in the California desert with its high



Lockheed Martin's X-35B JSF contender in hover mode (Lockheed Martin)

elevation and hot temperatures.

"We also found that our vertical propulsion system provides a tenfold decrease in the hot exhaust that an aircraft re-ingests, as compared to other vertical propulsion systems. All this gives you a real safety margin during vertical operations".

So far, the aircraft has completed more than 17 vertical takeoffs, hovers and vertical landings at the Lockheed Martin plant in Palmdale, California. On July 9, it performed a STOVL conversion, a mid-air refuelling and supersonic dash in the same flight.

The X-35B's propulsion system differs from conventional STOVL in that a drive shaft from the Pratt & Whitney JSF119-611 engine turns a counter-rotating lift fan that produces cool-air lifting force during STOVL.



Boeing's JSF contender, the X-32B, being tested in the hover mode (Boeing)

operations. The Rolls-Royce fan, actuated by a clutch that can be engaged at any power setting, works in concert with an articulating rear duct and under-wing lateral-control nozzles to lift the aircraft with nearly 40,000 pounds of vertical force. Because the fan amplifies the engine's power, the engine is able to run cooler and with less strain, increasing reliability and extending service life. The lift fan provides the propulsion system with about 15,000 pounds more thrust than the engine alone could generate.

## New Zealand defence fire sale, all stock must go

The New Zealand Government continued its defence fire sale by disposing of its only sealift vessel, HMNZS CHARLES UPHAM.

Defence Minister Mark Burton confirmed that "This vessel, which unfortunately was given the name of our most decorated war hero, has never carried out the sealift role for which it was originally acquired".

The vessel was bought in 1994 for \$14 million. Another \$7 million was spent on modifications and the vessel was commissioned into the Royal New Zealand Navy as the HMNZS CHARLES UPHAM in October 1995. In sea trials the following year the ship broke down in heavy weather and rolled alarmingly. As a result the vessel was tied up awaiting a decision on its future. Eventually the ship was offered for charter on the commercial market. In May 1998 CHARLES UPHAM was chartered to the Spanish

shipping company Contenemar, and was reduced to hauling citrus fruit around the Mediterranean.

The Sealift Review commissioned by the present New Zealand Government estimated the cost of the necessary modifications to enable the vessel to possibly fulfil its intended sealift role at \$35-40 million, which it did not consider to be a responsible use of defence resources. As part of the 8th May 2001 Defence decisions, the Government announced that CHARLES UPHAM was to be sold at the end of its current charter arrangement.

On the heels of the CHARLES UPHAM decision the RNZAF's 17 Skyhawks and 17 Macchis are now up for sale.

The aircraft are on the international market, following the Government's decision to restructure elements of the New Zealand Defence Force.

Air Force Director of Logistics, Group Captain Peter Guy, said the international financial broker firm Ernst & Young had been selected to organise and conduct the marketing strategy and represent the RNZAF during the sale process.

The Skyhawks, some of which have seen over 30 years of service with the RNZAF, and some with the RAN, will be stored at Woodbourne and the Macchis, which are ten years old, at Ohakea.

Group Captain Guy said a number of organisations had expressed an interest in the aircraft and he expected that they would all be sold.

## HMS ARK ROYAL at sea after refit

The RN aircraft carrier HMS ARK ROYAL has sailed from Rosyth for trials in the North Sea after an extensive refit. ARK ROYAL arrived at Rosyth in May 1999. The £47 million refit by Babcock Engineering Services saw the flight deck strengthening for the new Merlin anti-submarine helicopters and further alterations to allow the carrier to operate RAF GR-7 Harriers.

The refit will allow 'the ARK' to remain in active service until 2015 when the proposed Navy 'super-carriers' will be expected to enter RN



HMS ARK ROYAL after her refit. Note the new covered bow and deleted Sea Dart launcher to accommodate more aircraft parking. (© Dave Cullen)

service. HMS INVINCIBLE has since arrived at Rosyth for a shorter £50 million refit programme starting in November

## No second aircraft carrier for France

The French Minister of Defence, Alain Richard, has said that, for the time being, France has ruled out building a second aircraft carrier. Priority would be given instead to the procurement of new surface combatants, nuclear-powered attack submarines (SSNs) and cruise missiles.

The Navy's financial burden in coming years will also include outlays for Rafale carrierborne fighters, a fourth SSBN, two Horizon-class anti-aircraft frigates, the new M51 nuclear missile and NH-90 multi-role helicopters.

However, senior Marine National officers concede that such expenditure on the Navy has put the project for a second carrier on hold. Those who lobbied for a second carrier argued it was required to relive CHARLES DE GAULLE when the 41,000-ton carrier puts in for regular maintenance. The thinking now is that France's new multi-mission frigates, land attack cruise missiles

and new SSNs will allow the Navy to remain fully operational when CHARLES DE GAULLE is laid up. "We estimate the cost of a sister ship for CHARLES DE GAULLE at just under US\$2 billion. That works out to the price of seven frigates without missiles", said a source at the French Ministry of Defence.

Six Barracuda-class SSNs - the first to be ordered in 2002 - will be designed primarily to take part in land-attack operations with the new SSN project to cost an estimated US\$3.6 billion.

Additionally, the Navy estimates the development and production of a naval version of the SCALP-EG cruise missile, the SCALP Naval, will cost US\$1.3 billion. The service has set its minimum requirement for the SCALP Naval cruise missile at 240. They will be deployed aboard multi-mission frigates earmarked for land attack and on the new SSNs for launch either through torpedo tubes or from vertical silos. SCALP Naval is to become operational with the multi-mission frigates from 2011 and with the SSNs from 2013.

## Aster missile tests successful

The French Government's procurement agency, (DGA), recently carried out a test firing of the Aster 30 SAM to test its capability to operate in a hostile EW environment at its Test Centre in South West France.

The test used two airborne targets, each carrying a jammer. A missile was fired at one of the targets when it was 15kms away successfully hitting its selected target despite the heavy jamming.

This was the fourth successful test in a series designed to confirm the Aster 30's ability to operate in a hostile environment.

In other Aster missile news an Aster 15 missile launched from the trials vessel ILE D'OLERON successfully intercepted a sea-skimming target as part of a qualification firing to prove the French Navy's Sol-Air Anti-Missile (SAAM/FR) point-defence missile system.

The 29 June trial off Toulon saw the complete SAAM/FR installation aboard the ILE D'OLERON put to

the test. After the Arabel fire-control radar detected the target, the SYLVER system launched one Aster 15, which closed in on its target under the guidance of the Arabel mid-course uplink.

Switching to its own active seeker in the terminal phase, the Aster 15 hit the target at a range of just under 2.5km and at an altitude of a few metres above the sea surface. The engagement took just over four seconds.

The Aster family of missiles are being developed as part of a family of future surface to air (FFSA) systems, which includes the SAAM system installed on the French Aircraft carrier CHARLES DE GAULLE and the medium range SAMPT.

The FFSA programme is a cooperative effort between France and Italy, managed by OCCAR and with the work being done by Eurosam (Aerospatiale Matra Missiles, Alenia Marconi Systems and Thales).

Aster missiles will be deployed on the Horizon anti-aircraft frigates being built for the French and Italian Navies and the Royal Navy's Type 45 destroyers.

## SSBNs Michigan and Georgia to SSGNs

The USN has decided to convert at least two of its Ohio-class nuclear powered ballistic missile submarines (SSBNs) into conventionally-armed submarines (SSGNs) with long-range strike and special operations capabilities.

Chief of US Naval Operations ADM Vernon Clark said the Navy

would convert two of the Ohio-class submarines, adding that two more could be converted if additional funding were provided. The total cost of converting two submarines is expected to be about US\$2 billion.

The conversion proposal has received strong support from the navy submarine leadership and corresponds with the US Department of Defense's evolving future warfighting concept in which stealth and long-range strike are becoming increasingly important.

Each submarine will carry up to 154 Tomahawk and Tactical Tomahawk land-attack cruise missiles, two advanced Sea, Air and Land (SEAL) commando delivery systems, and 100 special forces personnel.

Twenty-two of the boat's Trident missile tubes will be converted to hold seven Tomahawks each - some fitted with a new penetrating warhead. The missiles will be moved from stocks of torpedo-tube-launched missiles on Los Angeles-class SSNs.

The USN will focus on the newest two submarines - the USS MICHIGAN (SSBN-727) and GEORGIA (SSBN-729) rather than the older two, the USS OHIO (SSBN-726) and FLORIDA (SSBN-728).

Unless additional funding can be found, the older two submarines will be decommissioned rather than refuelled. Refuelling each boat costs about US\$250 million, slightly more than the cost of decommissioning, the USN estimates. After refit, the two converted boats are expected to remain in service for another 20 years.

Refuelling and conversion of the USS MICHIGAN and GEORGIA is



A RNZAF Macchi trainer/ground attack MB-339 and a A-4 Skyhawk. The NZ government has decided to sell its air combat capability as well as the converted troop transport ship CHARLES UPHAM. Leaving very little capability left in the NZDF.



A cutaway drawing of the new configuration of the Ohio class SSBNs USS MICHIGAN and GEORGIA. (USN)

expected to begin in 2003 and will also include selective upgrades to the submarines' combat systems, intelligence, surveillance and reconnaissance capabilities, and communications.

## USN commissions LHD-7, USS IWO JIMA

The USS IWO JIMA, the US Navy's latest large-deck amphibious assault ship (LHD-7) was commissioned on 30 June during a ceremony at Pensacola Naval Air Station, Florida. Built by Northrop Grumman Ingalls Shipbuilding, IWO JIMA is the seventh Wasp-class amphibious assault ship to enter service with the USN.

The 40,500-ton ship, which on commissioning will join the US Atlantic Fleet, can carry some 3,200 crew members and embarked troops.

## Italy begins construction of new aircraft carrier

Fincantieri has cut the first metal for the construction of Italy's new aircraft carrier and flagship, to be called ANDREA DORIA. Work is being carried out in the company's yards at Riva Trigoso (Genoa) and Muggiano (La Spezia) with the ship to be delivered in 2007.

The ship will have a standard displacement of about 22,000 tonnes, an overall length of approximately 235 metres and a speed of no less than 29 knots; it will be able to accommodate a complement of 1,290 which also comprises a maximum of 450 marines.

The ship has been designed to be both an aircraft carrier and an amphibious landing ship, with the capacity to embark a battalion sized assault force. The vessel will be equipped with a flight deck suitable both for operations with helicopters and with STOVL aircraft and a hangar/garage of approximately 2,500 square metres. Two elevators will be installed for aircraft and there will be two access ramps to move vehicles from the quayside to the hangar/garage.

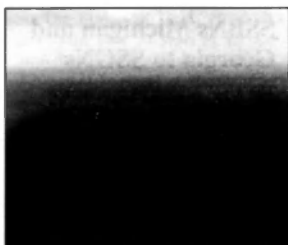
The ship will have a hospital facility with three operating rooms, wards for hospitalised patients, X-ray and CT equipment, a dentist's surgery and a laboratory.

## HMS TRAFALGAR Tomahawk ready

The Tomahawk Cruise Missile system is on target to achieve full operational capability with the Royal Navy after a successful test launch from the attack submarine HMS TRAFALGAR in the Gulf of Mexico. This provides the UK with a third Tomahawk fitted submarine at the date originally planned and its success significantly enhances the RN's ability to deploy a continuous Tomahawk capability world-wide.

Tomahawk has already proved its worth in action with the Royal Navy during the Kosovo campaign in 1999.

The missile was flown to a target using the satellite Global Positioning System and Digital Mapping Navigation Techniques over a pre-planned route to the test range at the



A US Air Force F-16 chase plane keeps tabs on the RN Tomahawk fired by HMS TRAFALGAR near Eglin Air Force base in the US. The test confirmed TRAFALGAR's ability to launch Tomahawks at land targets while submerged. (RN)

US Air Force Base, Eglin in western Florida. It then made a simulated aerial detonation close above its target, before being recovered safely by parachute.

All Mission Planning and Targeting data for the test flight was provided to HMS TRAFALGAR via satellite communications from the RN's operational headquarters at Northwood, northwest London.

Seven Trafalgar and two Swiftsure-class boats are to receive

TLAM retrofits. The second Swiftsure-class boat to receive TLAM is HMS SPARTAN, currently completing refit at Rosyth and expected to return to operational service in 2002. Work is also under way on retrofits to HMS TRENCHANT and TURBULENT. HMS TALENT, TIRELESS and TORBAY will follow in 2006.

The three new Astute-class SSNs will be delivered with a TLAM capability from build with ASTUTE due into service in August 2005, followed by AMBUSH in August 2007 and ARTFUL in February 2009.

## Raytheon delivers Ship Self Defence System for USS NIMITZ

A Raytheon Company system for the USS NIMITZ designed to provide improved ship self-defence has completed development and has been delivered to the USN. The Ship Self Defence System (SSDS), designated MK 2 MOD 0, will provide a capability against anti-ship cruise missiles (ASCMs) for the USN's aircraft carriers and amphibious assault ships.

Raytheon's Naval & Maritime Integrated Systems (N&MIS) business unit developed the system during the past two years teamed with the USN's Programme Executive Office for Theatre Surface Combatants (PEOTSC).

SSDS, using track data from the Raytheon's Cooperative Engagement Capability (CEC) system, provides automated defence against ASCMs by co-ordinating the actions of the ship's self defence weapon and electronic warfare systems. Although SSDS will not improve capability of individual sensors, it enhances target tracking by integrating the inputs from several different sensors to form a composite track. For example, SSDS will correlate target detections from individual radars, the electronic support measures (ESM) system (radar warning receiver), and the identification-friend or foe (IFF) system, combining these to build

composite tracks on targets while identifying and prioritising threats. The system will eventually be installed aboard most classes of non-Aegis equipped ships.

## Harpoon Block II destroys land target



A new Harpoon Block II is launched from the Arleigh Burke class Destroyer USS DECATUR at a simulated SA-20 SAM site inland to confirm the missile's land attack capability. (Boeing)

The USN recently tested the new Harpoon Block II missile against a land target on San Nicolas Island at the Naval Air Warfare Center-Weapons Division sea range off Pt. Mugu, California.

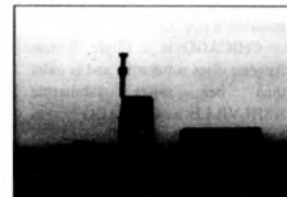
This was the first time that Harpoon was employed against a land target. The missile demonstrated its coastal clutter suppression capabilities by scoring a direct hit on a simulated SA-20 Mobile Radar Van. One of the many new capabilities of the Block II Harpoon is its ability to use its GPS-aided navigation to fly precisely to a pre-launch programmed target coordinates.

"Block II is part of our spiral development plan for Harpoon", said Jim O'Neill, Boeing General Manager of Navy Missile Systems. "Harpoon has proven it is a naval precision-strike weapon that has the ability to attack surface ships and land targets at standoff ranges".

Harpoon Block II provides accurate long-range guidance for coastal and ship targets by incorporating the low-cost inertial measuring unit from the Boeing Joint Direct Attack Munition (JDAM) program; and the software, mission computer, integrated Global Positioning System/Inertial Navigation System and GPS antenna from the Standoff Land Attack Missile Expanded Response (SLAM-ER).

The missile was launched from the USS DECATUR (DDG-73), an Arleigh Burke class guided missile destroyer. The USS DECATUR installed an upgraded Harpoon Ship Command and Launch Control System (HSCCLS) prior to the first launch of the Block II missile in May 2001. The enhancements of the launch system provide for GPS initialisation and for faster and more user-friendly engagement planning.

Harpoon Block II is capable of executing both anti-ship missions and coastal target suppression. For conventional anti-ship missions, such as open ocean or near-land, the inclusion of GPS/INS improves guidance to the target search area. In addition, the missile is initialised with information about areas to avoid in the search pattern. This information, coupled with the accurate navigation solution, greatly reduces target location uncertainty and allows the Harpoon's active radar seeker to better discriminate the desired target ships from islands, other obstructions or neutral ships.



The tell-tale shape of a Harpoon anti-ship missile about to hit a land target for the first time thus heralding a new and greater flexibility in this ubiquitous missile. (Boeing)

To strike targets on land and ships in port, the missile uses GPS-aided inertial navigation to hit a user-defined target impact point. The 500-pound blast warhead delivers lethal firepower against a wide variety of land-based targets, including coastal defence sites, surface-to-air missile sites, exposed aircraft, port/industrial facilities and ships in port. These Block II improvements will maintain Harpoon's probability of target kill even against ships very close to land and in congested waterways.

The multi-mission Block II missile is capable of being deployed from all current Harpoon missile system platforms with either upgraded existing command and

launch equipment or the new Advanced Harpoon Weapon Control System (AHWCS). Block II also is fully compatible with Block I capability and existing HSCCLS and AHWCS. Both HSCCLS and AHWCS allow all Navies to utilize Harpoon for current and future missions. Harpoon Block II missiles are being sold under US foreign military sales agreements and have recently been offered to the RAN.

## Fifth Dutch Kortenaer for Greece

Greece has taken over a fifth Kortenaer-class frigate from the Netherlands under a US\$38m agreement.

The transfer of the ship, the former HRMS PIETER FLORISZ (F-826), includes a training and spare parts package (incorporating at least one spare Rolls-Royce Tyne gas turbine engine).

The deal brings the total of Kortenaer-class frigates operated by the Hellenic Navy (HN) to seven. The ex-Netherlands ship is to be renamed HS BOUBOULINA and due to arrive in Greece by the end of this year.

## Daewoo delivers frigate to Bangladeshi Navy

The South Korean shipbuilder, Daewoo Shipbuilding and Marine Engineering, has delivered a new 2,300-tonne DW 2000H frigate to the Bangladeshi Navy. BNS BANGABANDHU (F 25) is fitted with Thales Naval Nederland



The BNS BANGABANDHU (F-25) on her way from South Korea's Daewoo shipbuilding facility to her new home in Bangladesh.

(TNNL) Tactics combat management system, a DA-08 and Variant surveillance radar, a LIROD Mk 2 and Mirador tracking and fire-control equipment.

Thales Sensors is supplying the Cutlass 242 electronic support measures and Scorpion jammer systems. BNS BANGABANDHU armament includes an Otobreda 76 mm and 40 mm guns, Otomat Mk 2 anti-ship missiles and B515 triple torpedo tubes.

## USN SSNs double up at Stirling

In a rare event for an Australian naval port, two USN SSNs docked at Fleet Base West, one at the beginning of her cruise, the other at the end. The timing of this event was also special, with the submarines arriving a few days before the 25th anniversary of the first USN SSN visit to an incomplete HMAS STIRLING (known back then as the West Coast Naval Facility) of the Skipjack class submarine USS SNOOK (SSN-592) on 14 August 1976.

On 31 July 01 the Los Angeles class SSN USS ASHEVILLE (SSN-758) tied alongside Diamantina wharf for an eight day stay prior to exercises with the RAN. This was ASHEVILLE'S second visit to HMAS STIRLING, the first was in July 1994 as part of the CARL VINSON battle group.

Commissioned in September 1991 she is the 47th Los Angeles class submarine built and classified as a 688I (Improved) class.



The Los Angeles class SSN USS ASHEVILLE (SSN-758) tied alongside Diamantina wharf on 31 July 01. (Graeme Fuller)

ASHEVILLE is equipped with the UGM-109 Tomahawk cruise missile, 12 of which can be fired via vertical launch tubes mounted in the bow, and the MK-48 ADCAP torpedo fired out of four torpedo tubes mounted amidships.

Weighing over 6000 tons and with a submerged speed in excess of 30 knots, ASHEVILLE has retractable bow planes, unlike earlier submarines in the class which have them mounted on the conning tower.

Two days later on 2 August 01, a second Los Angeles class submarine arrived at Stirling, and docked alongside Parkes Wharf. The USS CHICAGO (SSN-721) had just completed exercises in south east Asia and was on the final leg of her six month deployment before returning to her home port of Pearl Harbor. The was the second visit for CHICAGO, the first was in March 1991 after a 35 day cruise in the Persian Gulf during Desert Storm where she was one of the first submarines to fire Tomahawk cruise missiles in combat.

CHICAGO is a Flight II Los Angeles class submarine and is older than her sister submarine ASHEVILLE. CHICAGO was launched in September 1986 and was one of the first submarines to have VLS tubes built as part of her construction. The main difference between the two visitors are the diving planes which CHICAGO has mounted on her conning tower.

By Ian Johnson



Joining the USS ASHEVILLE was sister SSN USS CHICAGO (SSN-721). (Graeme Fuller)

## Israel's Gal SSKs go unwanted

Israel has been unable to find buyers for its three ageing Gal-class diesel electric submarines in a saturated submarine market.

The submarines were delivered in the mid-1970s and have recently appeared for the first time in the 'Israeli Defence Sales Directory' under the chapter of Surplus Naval equipment. Unofficially, the Israeli Navy has been trying to unload the Gals since the late 1990s.

An Israeli official said they have been offered to a range of European, Asian and South American countries with interest being shown from India, Poland and Sri Lanka.

The official said the Israeli Defence Ministry would spend this year and part of 2002 seeking a buyer for the subs before deciding whether to sell them for scrap metal.

British contractor Vickers constructed the 600-ton Type 540 submarines which have a top speed of 17kt submerged and a maximum operational range of 2,500nm with a crew of 23. They have eight torpedo tubes and are sub-Harpoon capable.

## New Patrol Boats on the way

In line with strategy commitments of the Defence White Paper, the Request For Tender for replacements for the RAN's 15 ageing Fremantle class Patrol Boats - a project worth up to \$450 million to Australian Industry - has been issued.

Despite the Fremantles providing almost a quarter of a century of good service to Australia, they are becoming increasingly difficult to maintain.

Crewed by Naval personnel, the new Patrol Boats are expected to continue to provide operational training for Navy personnel at the front line of Australia's defences against people smuggling, illegal fishing, the narcotics trade and breaches of Australia's quarantine regulations.

The RAN contributes 1800 Patrol Boat days each year to Coastwatch

operations protecting Australia's maritime zone.

The Minister for defence, Peter Reith, said the government's preference is to have the new Patrol Boats constructed in an existing shipyard in Australia, and has specified that they will be supported and maintained in Darwin and Cairns.

The Minister also said that he is keen to pursue this project under private financing arrangements, capturing all the advantages this approach may provide, however, the Government must be satisfied it is receiving the best outcome for the investment of taxpayer dollars.

The invitation to tender will seek bids under a privately financed arrangement or direct purchase by the Government. It is expected that a single business entity will take responsibility for not only supplying the Patrol Boats, but also maintaining and supporting them for the duration of their 15 - 20 year life span.

The replacement Patrol Boats are expected to come into service from late 2004.

## USN suffering mine warfare deficiencies

A report by a committee of the National Research Council, commissioned by the chief of naval operations, Admiral Vernon Clark, has criticised the USN's abilities to detect and cope with the threat of mines. The report stated that although the number of countries that have a mine deployment capability is rising, due to a global lack of regulation in this area, the nature of the development of the USN has led to the neglect of its ability to defend against this type of mine defence.

The report recommended that "an increase of approximately 30% in the mine warfare budget" would be required to resolve the current underfunding of mine countermeasures (MCM). It cited the "ageing and decreasing inventories of mines, the absence of an effective mining capability beyond shallow depths, the termination of all mine acquisition programs, the dramatic decline in development activity at

Navy laboratories, the loss of an industrial base and the lack of training and exercises", as evidence of the decline in this area.

Furthermore, the report identified significant littoral areas throughout the globe where mines could be used as an effective defence to supplement any naval fleet. The report said that since 1950, 14 U.S. ships have been sunk or damaged by mines, seven times as many as have been damaged by missile or air attack.

Of the \$4.6 billion due to be spent over the next 7 years by the USN, the majority is to be spent on MCM, but the report warned of the disadvantages if the navy lost the capability to lay mines. Specifically it used the example of how mines could be used to defend Taiwan from possible Chinese attack.

As well as advocating the improvement of US mining capabilities, the report suggested that the government work towards improving international laws governing the exportation and spread of mines.



The stripped fuselage of the USN EP-3 brought down onto Hainan Island after colliding with a Chinese air force fighter. The aircraft was first stripped of its engines, then tail section and finally its wings before being loaded into a Russian Antonov An-124 for the flight back to the US. The plane was declared repairable on the spot for flight back to the US by a Lockheed Martin team but the Chinese insisted it be disassembled and flown out by non-US military aircraft. China is still demanding compensation from the US for the incident. (USN)



# Observations

By Geoffrey Evans

## THE FEDERAL ELECTION

During the currency of this issue of *THE NAVY* the Australian people will decide whether or not to change the country's government.

While at the time of writing (late August) neither foreign affairs nor defence appear likely to become a subject of contention between the political parties to the extent of effecting the result of the election, it is proper to take a brief look at recent statements by senior politicians to gain some idea of the likelihood of major changes in policies in the event of a change in government.

With regard to foreign policy it is fair to say that for many years policies have been developed steadily by successive governments, each taking into realistic account changing international relationships and circumstances; and that the basic tenets of policy have been accepted by the major political parties and wider Australian community.

In recent times some differences have emerged, notably concerning Australia's relations with its most populous neighbour, Indonesia, and with aspects of United States policy, principally that country's missile defence plans and its commitments to some other countries; it would be regrettable if such differences as may exist were to be exaggerated by rash statements during the run-up to the election.

Defence and foreign policies are of course closely linked but while the later can be changed quickly by a government if it was thought desirable, defence policy that has resulted in a particular armed forces structure cannot be changed nearly so quickly.

The Defence Department's main concern would seem to be, whichever political party is in power, the annual requirements for the parliament to approve the funds allocated for defence. Despite the existence of Defence White Papers and long-term commitments, a government can delay completion of a or in some circumstances can cancel a contract, depending on its reading of the nation's circumstances at the time. The cost penalty may well be severe but there are precedents.

## COASTWATCH

Several items in the July 2001 issue of the US Naval Institute's journal *PROCEEDINGS* should be studied by advocates of an Australian coastal surveillance organisation based on the United States Coast Guard (USCG). In fact, the Americans have looked at Australia's model, Coastwatch, which has so far avoided many of the problems troubling the USCG.

In both the United States and Australia the maritime surveillance organisations have an extremely wide range of responsibilities and huge ocean areas to oversee. The responsibilities are to a number of government departments and agencies that also have land-based responsibilities, eg Customs, Immigration, Quarantine, Federal Police, Transport etc.

In *PROCEEDINGS* Captain Goward from USCG headquarters in Washington writes: "The Coast Guard's travails will never be addressed until it abandons the myth that it is a single, monolithic organisation and accepts the reality that it is a 'holding company' for a number of individual, mutually supporting maritime service organisations. It must also focus on the individual services, not the holding company, in the competition for federal dollars and support".

The USCG's situation as one of the US armed forces while a part of the (civil) Department of Transportation, with consequential funding problems, appears to be at the heart of its troubles.

Australia's Coastwatch has gone a long way to avoid the American problems, for example by using appropriate assets of client agencies such as Customs "Bay" class vessels, Defence's patrol boats and Orion aircraft, by contracting out rather than by attempting to build a separate small Navy and Air Force of its own.

An experienced senior naval officer seconded from the Department of Defence as Director-General has the

responsibility of co-ordinating and overseeing the surveillance/policing organisation; so far this arrangement has worked satisfactorily judged by the success rate of apprehending illegal arrivals even if a good deal appears to depend on the personality and ability of the officer appointed to ensure all concerned work closely together.

After the foregoing notes were compiled the long-awaited Joint Committee of Public Accounts and Audit report on Coastwatch was tabled in Parliament.

The committee made a number of recommendations designed to improve the organisation but concluded: "current Coastwatch represents the best value for money". This has been the view expressed by *Observations* in several issues of *THE NAVY*.

## Admiral Sir Anthony Synnot

The death of Admiral Synnot on 4 July 2001, was noted in several countries in the form of newspaper articles and obituaries describing his distinguished service as an Australian naval officer and armed forces leader.

Not so well known was the Admiral's relationship with the Navy League of Australia from 1972 until 1991 when he relinquished his position as a member of the League's Federal Advisory Council, an appointment he accepted after retiring from the defence force. It was the writer's good fortune to be able to discuss naval and wider interests for the whole of this period. At Admiral Synnot's request records of possible future interest have been retained.

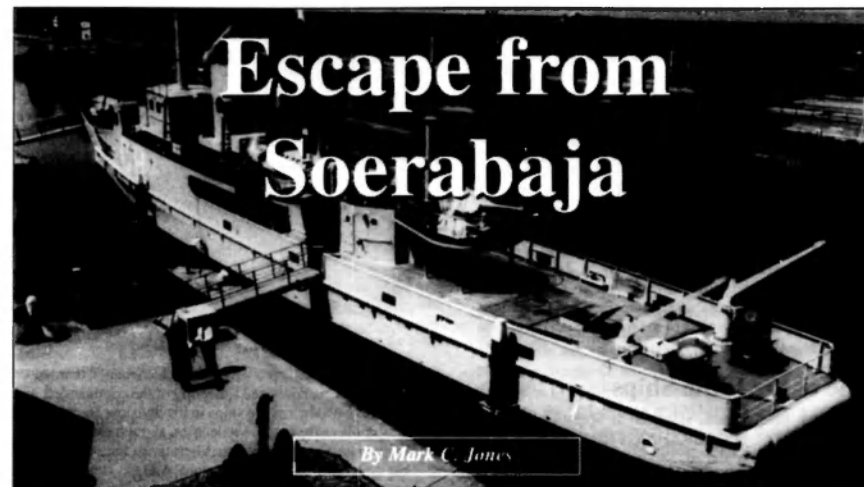
After serving as Fleet Commander and Director of Joint Staff in the Defence Department Admiral Synnot became Chief of the Naval Staff (CNS) in 1976, with the Services endeavouring to come to terms with changes made necessary by the 1975 decision to integrate the Navy, Army and Air Force in a single Department of Defence. As CNS he also had the vexatious matter of replacing the aircraft carrier MELBOURNE to deal with: The Navy League was quite heavily involved in both issues.

After a shorter than usual period as CNS, Admiral Synnot became Chief of the Defence Force Staff (CDFS) in 1979 with both integration and the prolonged carrier debate continuing to cause headaches in Defence. In the writer's view, due largely to the arguments put forward by the new Chief together with his persuasive powers, usually exercised quietly, integration progressed almost visibly during the Synnot years: The carrier issue was also resolved when the government decided to accept Britain's offer of HMS INVINCIBLE to replace HMAS MELBOURNE only to offer the carrier back to Britain, ostensibly due to the Falklands War, soon after Admiral Synnot retired.

The two items mentioned above were not of course the only pressing matters with which Admiral Synnot had to deal: The Cold War was in play at the time; Australia was feeling its way with Indonesia; strategic assessments and capital equipment decisions were required – and made. At times the Navy League was able to make a contribution, small though it may have been.

Despite the demands on his time, it was the writer's experience that Admiral Synnot was at all times willing to listen to views and ideas put forward by the League; with some he would disagree – and always explain his reason for doing so – and others he accepted and invariably acknowledged.

Contrary to an earlier opinion expressed to the writer, that serving officers should leave public statements to their Minister, as CDFS Admiral Synnot did not hesitate to speak out in support of the Defence Force whenever he believed it necessary. The ADF was fortunate to have such a leader at a time all three Services tended to be "silent".



The little Dutch minesweeper HR. MS. ABRAHAM CRUNSEN still exists as a museum ship at the naval museum in Den Helder, the Netherlands. She escaped the Japanese advance to continue the fight from Australia. (Den Helder Naval Museum)

One of the truly remarkable stories of naval daring during the opening stages of the Pacific War, when the naval forces of Japan seemed unstoppable, concerns the little Dutch ship HR. MS. ABRAHAM CRUNSEN. This small minesweeper with hardly any armament, a maximum speed of 15 knots, and bunkerage for only 110 tons of fuel made a lengthy solo journey through waters controlled by the Japanese Imperial Navy to reach Australia and continue the war. Mark C. Jones examines this ship's 'Escape from Soerabaja'.

Of the many amazing escapes of naval ships and aircraft from superior forces during World War II, one of the best known is that of the Polish submarine O.R.P. ORZEL. After several days of patrolling the southern Baltic under heavy pressure from German ships, ORZEL moved farther north. After landing the commanding officer at Reval (now Tallinn) due to illness on September 14, ORZEL was interned the next day by Estonian naval authorities. The boat was then demilitarised with all but five torpedoes, shells for the deck gun, and all charts taken from the boat.

ORZEL's crew, under the leadership of the executive officer, Lieutenant Commander Jan Grudzinski, overpowered the Estonian guards and put to sea on September 18 under small arms and artillery fire. Drawing on the collective knowledge of the officers, a crude map of the Baltic was drawn to aid in the escape to Great Britain. ORZEL remained on patrol for two more weeks before attempting an escape. After two weeks of careful navigation through waters controlled by Germany, ORZEL arrived at Rosyth on October 14, 1939 and began operations with the Royal Navy's 2nd Submarine Flotilla in December. ORZEL made several patrols in the North Sea, including sinking the German troop transport RIO DE JANEIRO off Norway on April 8, until the boat failed to return from a patrol in June 1940. While the story of ORZEL is certainly a tribute to the skill and courage of officers and men of the Polish Navy, there is another less well-known escape that demonstrated equal bravery and great cleverness.

## The Strategic Situation

December 1941 found the Royal Netherlands Navy (RNeN) preparing for the Japanese invasion of Southeast Asia, including the Dutch territory of the Netherlands East Indies (NEI). Prior to the outbreak of hostilities, Dutch naval authorities had coordinated defence planning with their British and American counterparts as the RNeN was not strong enough to defend the islands without assistance. With the severe losses suffered by the USN at Pearl Harbor and heavy demands on the RN for units in the Mediterranean, Allied forces were stretched thin. In January 1942 land, air, and naval units of the American, British, Dutch, and Australian (ABDA) forces were assembled under the overall command of British General Sir Archibald Wavell. Command of Allied naval forces was held by first Admiral Thomas C. Hart, USN and later Vice Admiral Conrad E.L. Helfrich, RNeN. Land-based aircraft scouted for Japanese ships, leaving the Dutch submarine force with assistance from a few British and more numerous American subs to intercept the Japanese invasion forces. The larger surface ships of ABDA, limited to cruisers and destroyers after the loss on December 10, 1941 of the battleship HMS PRINCE OF WALES and battlecruiser HMS REPULSE to Japanese air attack, were divided between convoy escort and assignment to a multinational striking force under command of Rear Admiral Karel F.W.M. Doorman, RNeN.

Steady Japanese pressure resulted in a whittling away of the air cover and submarine screens that were the



primary defence of the NEI. By February, 1942, the situation had become critical as the main island of Java was under frequent air attack and the larger surface ships were in need of repair and re-supply. The climax came on the night of the 26-27th of February when the main allied striking force under Rear Admiral Doorman was shattered in the Battle of the Java Sea. The Dutch light cruisers DE RUYTER (flag) and JAVA were lost, as were several destroyers. The heavy cruisers HMS EXETER, USS HOUSTON and the light cruiser HMAS PERTH were damaged and finished off over the next few days by Japanese ships as they attempted to escape the archipelago. Assorted destroyers and small warships of several nationalities were also caught by various Japanese task forces. At this point allied naval power in the NEI was limited to the remaining Dutch submarines and the various auxiliary and service vessels of the major Dutch naval base of Soerabaja (now Surabaya).

## One of the Little Ships

One of the small vessels stationed at Soerabaja was the minesweeper HR. MS. ABRAHAM CRIJNSSEN. Built in 1936, this 460 ton (standard, 585 ton full load) steel hulled minesweeper of the Jan van Amstel class was armed with a 3-inch gun plus four small anti-aircraft machine-guns with a crew of 46. Like her sisters, CRIJNSSEN was named for a famous naval ship captain of the Dutch 'Golden Age' during the late 17th century. CRIJNSSEN and three sister ships arrived in the NEI in November 1937 for service at Soerabaja. Once the war began CRIJNSSEN was employed in minelaying, minesweeping, and convoy escort duties to major ports in the NEI.

On October 3, 1941 Lieutenant ter zee der 2e klasse (Lieutenant) Anthonie van Miert, RNeN assumed command of the ship. Van Miert was a 1929 graduate of the naval academy at Willemsoord near Den Helder. His early postings consisted of several tours in the NEI including service on the new light cruiser DE RUYTER. As a Lieutenant, van Miert was detailed in August 1939 as the executive officer of the newly commissioned minelayer WILLEM VAN DER ZAAAN and temporarily served as Captain from January to April 1941. In October 1941 Lieutenant van Miert left WILLEM VAN DER ZAAAN and assumed command of ABRAHAM CRIJNSSEN. Promotion to Lieutenant Commander (Lieutenant ter zee der 1e klasse) came the following month.

As the strategic situation deteriorated, the minesweeper division that CRIJNSSEN belonged to received orders on February 17 from the commander of the Soerabaja naval base, Acting Rear Admiral Pieter Koernaad, to be ready to leave for Australia upon receipt of a coded signal. By early March no clear instructions on how to escape had been received despite naval personnel already demolishing the base and making preparations to scuttle ships to block the harbour. At this point Japanese forces effectively controlled both the sea and the air around Java and escape seemed so improbable that it was perceived by many as suicidal even to try. On the afternoon of March 3rd, an attempt to escape was made by three 80 ton Merhaboe class coastal minesweepers of the 4th Minesweeper Division, MERBABOE, RINDJANI, and SMFROE under Lieutenant J.J.C. Korthals Altes, RNeN. Ultimately, this group reached Broome, Australia on March 10. However great the odds seemed, Lieutenant Commander van Miert began making preparations to escape by covering CRIJNSSEN with nets for camouflage. The commander of



A pre-war view of Hr. Ms. ABRAHAM CRIJNSSEN (recognition 'C'). (Photo courtesy of L.L. von Munching)

the 2nd Minesweeper Division, Lieutenant Commander J.R.L. Lebeau, convened a meeting of the commanders and executive officers of the ships in his division. He told them they could make their own decision about trying to escape. Lieutenant Commander van Miert, with the assistance of his executive officer Lieutenant A.D.H. Heringa, went around to the other minesweepers in the division as well as to the minelayer Gouden Leeuw seeking volunteers to join CRIJNSSEN. Lieutenant Commander van Miert then held an "All Hands" on his own ship where he announced his intention to attempt an escape, and permitted any crew who did not want to remain on board to leave the ship. A good portion of the enlisted personnel, including the Indonesian sailors, subsequently left the ship.

When the 2nd Minesweeper Division received the coded order from Rear Admiral Koernaad to escape on March 6, only three of the four ships left harbour. Lieutenant Commander J.P.A. Dekker of PIETER DE BITTER refused to leave harbour and scuttled his ship alongside a pier, an action for which he was court martialled after the war. HR. MS. JAN VAN AMSTEL (Lieutenant C. de Greeuw, RNeNR) and ELAND DUBOIS (Lieutenant H. de Jong, RNeNR) left Soerabaja before CRIJNSSEN and together sailed to the Gili Islands. CRIJNSSEN left Soerabaja at 2130 hours on March 6 without navigation lights and with all portholes covered, also headed for the Gili Islands. The ship encountered the other two minesweepers lying at anchor off Gili Radja on March 7 without any camouflage and therefore departed for another anchorage, Gili Genteng, after taking aboard some fuel from DUBOIS. This was a fortunate decision as DUBOIS and AMSTEL were later spotted by a Japanese aircraft. Since DUBOIS was missing many of its crew and had a problem with its boilers, the decision was made to scuttle DUBOIS and transfer its crew to AMSTEL. AMSTEL was then camouflaged with foliage from shore. Shortly after sailing, AMSTEL was discovered in the Madura Strait at 2330 hours by the Japanese destroyer ARASHIO and sunk by gunfire with the loss of 21 of the more than 80 men on board. AMSTEL survivors were later picked up by another Japanese destroyer.

## The Voyage

CRIJNSSEN eluded the Arashio and began a schedule of remaining at anchor under camouflage by day and sailing by night. Each day the foliage used to camouflage the ship was refreshed with new tree limbs cut from shore. The



HR. MS. ABRAHAM CRIJNSSEN camouflaged as an island by means of nets and foliage cut from the surrounding land before sun up. This trick enabled the little ship to remain hidden from the Japanese until in a position to make her dash to Australia. (Photo courtesy of L.L. von Munching)

intent was to make the ship look like an island when seen from the air or sea. On the evening of the 7th, CRIJNSSEN weighed anchor at 1830 hours and steamed at 12 knots to the south of Sapoeidi, between Goa-Goa and Karang Takat reef, and then to the north of Kangean Island and on to the Aloean Islands. On Sunday, March 8 CRIJNSSEN departed at 1845 and sailed at 12 knots to the southeast between Pagerogan and Sekala headed for Soembawa Island. Between 2300 and 2330 hours an unidentified silhouette was spotted and course was changed. CRIJNSSEN used its motorboat to reconnoitre Poto-Paddoe Bay on the morning of Monday, March 9. Contact was made with representatives of the local sultan and the local shipping agent to obtain information about enemy air or surface activity in the Alas Strait. There were no Japanese on Soembawa Island and no aircraft had been seen for the last four days.

CRIJNSSEN sailed again at 1730 hours, arrived at the entrance of the Alas Strait at 2215 hours and transited the strait at 13.5 knots. Through the strait on Thursday, March 10, the Captain reduced speed to 10 knots to conserve fuel. By Wednesday, March 11 the ship had reached the position

-15.21S/115.13E at mid-day. Finally, at 0800 hours on Friday 13, the Northwest Cape of Australia was sighted. The fuel situation had become critical but the CRIJNSSEN was able to sail southward along the coast until it finally reached Geraldton at 1200 hours on Sunday, March 15.

The impossible had been done. A small ship with hardly any armament, a maximum speed of 15 knots, and bunkering for only 110 tons of fuel had made a lengthy solo journey through waters controlled by the enemy. Determination, advance preparation, a clever camouflage scheme, and sailing only by night allowed CRIJNSSEN and her crew to join the submarines K-VIII, K-IX, K-XII, and the light cruiser TROMP in Australian waters to continue the war effort. For his courage and ingenuity, Commander van Miert received the Cross of Merit in September 1942. Nine other crew members received the same honour in November 1943.

Once in Australia CRIJNSSEN was used in April and May to escort the Dutch submarines K-IX and K-XII from Fremantle to Sydney. A period of refit followed to install sonar. At the end of August 1942 the ship was transferred to the RAN and Lieutenant Commander van Miert left the ship to become executive officer of the gunboat SOEMBA in the Mediterranean Sea. He briefly assumed command of SOEMBA in August 1943 when the Captain was killed during a German air attack. November 1944 saw van Miert take command of SOEMBA's sister ship FLORES and then the minelayer WILLEM VAN DER ZAAAN in January 1945. As for ABRAHAM CRIJNSSEN, the RAN used the ship as a convoy escort between Melbourne and Brisbane until May 1943 when the ship was returned to the Royal Netherlands Navy. CRIJNSSEN continued as a convoy escort with occasional minesweeping duties based at Melbourne and Sydney until the end of the war.

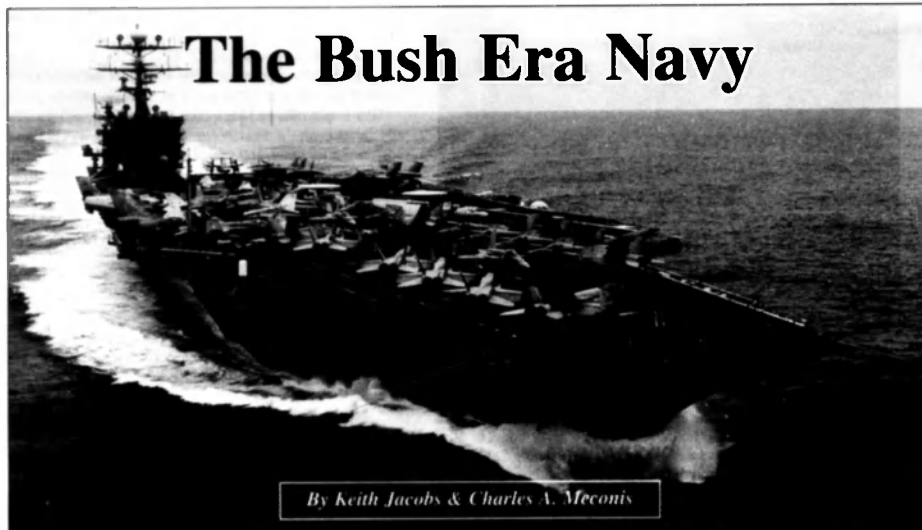
After the war CRIJNSSEN was used to clear mines in the Netherlands East Indies. In August 1951 CRIJNSSEN left the Indies to return to the Netherlands. In March 1956 she was converted to a netlayer. The ship was finally decommissioned in mid-1961 and was then donated to the Sea Cadet Corps in 1962. CRIJNSSEN was stationed at The Hague from 1962-1972 and then moved to Rotterdam.

In 1995 CRIJNSSEN was donated to the naval museum at Den Helder and refitted to her wartime configuration.

The successful journey of the minesweeper ABRAHAM CRIJNSSEN from Soerabaja to Australia should be added to the list of amazing escapes of World War II and remembered as another example of the fighting spirit shown by the Royal Netherlands Navy during World War II. CRIJNSSEN still exists as a museum ship at the naval museum in Den Helder, the Netherlands.

The ship's web page (pictures, technical data) could be found at: [http://www.marinemuseum.nl/Duk/Abraham\\_Crijnsen.htm](http://www.marinemuseum.nl/Duk/Abraham_Crijnsen.htm)





# The Bush Era Navy

By Keith Jacobs & Charles A. Meconis

The Nimitz class aircraft carrier USS CARL VINSON in the South China Sea. What the Bush administration has to decide is does it want 12, 10 or nine aircraft carriers in its future force and will that be enough to carry on its present mission load. (USN)

US Navy Fiscal year 2002 shipbuilding and conversion funding declined slightly but remained significantly higher than FY 2000, while the Marine Corps procurement funding declined some 30%. Fiscal realities are already showing signs of impacting Bush administration maritime programs just as the administration is about to reveal the new Quadrennial Defence Review (QDR II). The hard fiscal realities of matching "threat" to force levels has the Navy on a course of fewer than 230 ships by 2025 – too few to come close to meeting current operational requirements.

Yet the "...Navy and Marine Corps team is one of the most visible aspect of United States diplomacy around the world." (Testimony, VADM C.C. Lautenbacher, April 21, 1999). The future of the US Navy will be shaped by the decisions embodied in the forthcoming Quadrennial Defence Review II, due by September.

In today's constrained fiscal context, the size and shape of the US Navy out to 2020 will be the subject of major debate. The 1997 QDR called for a 315 ship Navy centred around 12 Carrier Battle Groups (CBG), 12 amphibious ready groups (ARG), and about 50 nuclear attack submarines.

Navy leaders now maintain that the current fleet cannot meet its stated requirements and must increase in size.

President Bush has called for a "new" military focused on "lighter" and "more lethal" forces equipped with radically new technologies. Perhaps even more important is his assertion that the current US military strategy, the so-called "Regional Defense Strategy" developed in the wake of the Gulf War, is obsolete in the face of 21st century challenges, and is in need of major revision. In the first outline of his budget plans, the President has stated: "Our defense vision will drive our budget, not the other way around."

## Changing National Strategy

Current US military strategy calls for enough forces to fight two nearly simultaneous major theatre wars (MTW) and to support global peace operations (military operations other than war; MOOTW). That strategy determines in large part the number of combat forces that the US military maintains. Military critics have consistently maintained the current force structure is totally incapable of meeting those requirements. A March 2000 presentation to the QDR Preparation Group lists the following questions under the 'Strategy' and 'Force Structure' headings:

- Should strategy be capability-based, threat-based, or a combination?
- Is scenario-based planning still viable in determining force structure?
- Is the two MTW requirement the right sizing convention?
- What is the impact of modernisation?

Will future strategy be matched with force levels? If it does not, then the Navy faces a major conundrum in the gap between what military leaders now say they really need to implement the existing strategy and the likely available resources. This becomes apparent when one examines the Navy's long-range procurement plans.

## Changing the means to goals

The official Navy Strategic Planning Guidance (NSPG) with Long-Range Planning Objectives [April 2000] offers some insights into existing plans for the early 21st century. The strategic objectives of US naval forces will not change: control of the high seas, protection of vital searoutes, and influencing events ashore in pursuit of US and allied interests.

But the methods by which these objectives are achieved have been under careful review. Two key trends stand out: 1) the ongoing transformation of the US naval mission toward a land-ward focus on the littorals; 2) a growing realisation that in an era of globalisation the information age has revealed an international medium as important as the oceans—cyberspace. These environments call for two means, the traditional "forward presence", and a presence complemented by 'knowledge superiority'. 'Asymmetric' threats will be more important in the coming two decades, as rendered obvious with the devastating terrorist attack on the destroyer USS COLE in Aden, Yemen in October 2000.

There are two major problems with the current plans: 1) Navy leadership has already rejected the planned fleet as inadequate to meet stated requirements; 2) the planned shipbuilding budget doesn't even come close to sustaining a 300 ship fleet, much less a larger one.



The only warship currently in production in the US is the Arleigh Burke Flight IIA class destroyer. Work needs to start soon on the new DD-21 destroyer. Here USS ROOSEVELT executes a turn during her acceptance trials. (USN)

## Fiscal crisis ahead

In testimony before Congress in September 1999 the Chief of Naval Operations put it this way: "the mounting evidence leads me to believe the 305 ships is not likely to be enough in the future." In particular a force of only 116 surface warships has come under severe criticism, as has a projected force of only 50 nuclear attack submarines. Among the figures sometimes mentioned as more realistic are a 360 ship Navy with 15 carriers, 130 surface ships and 68 attack submarines.

Unless there is a very large increase in the Navy's budgets, by the year 2020 the fleet will have declined steadily in numbers to as few as 200 ships. In the estimate of the Congressional Budget Office, DoD requires an annual budget increase from the 2000 \$289 billion to \$327 billion. Even President Bush's campaign promise to increase the US defense budget by \$45 billion over the next nine years does not come close to addressing that gap.

## Future naval shipbuilding

At present, the Navy has plans for the following combatant ship construction between year 2001 and 2018:

Programme	Number	Cost (US billion, est)
Nimitz and CVNX	3	15
Arleigh Burke DDG	28	24.5
Zumwalt (DD-21) DDS	21 (of 32)	28.5
New Cruiser (CG-21)	1 (of 27)	1.0
Seawolf (SSN-21)	1	4.4
Virginia (SSBN)	30	66

(Source: US Navy, AMI International, 2001)

The above construction obligates US\$139.5 billion in new combatant construction, and would not include the requirements for new amphibious landing and replenishment ships to maintain a robust "forward presence".

According to the Congressional Budget Office, the Navy's shipbuilding budget is short about \$1.4 billion a year through 2020 in its current plan to build 64 vessels by 2010 and that the plan will sustain only a 200 ship fleet. Some Navy officials suggest the gap is much larger than that.

Not listed above is another major funding program, the 12-ship 'Lewis and Clark' class T-AKE Auxiliary Dry Cargo Vessel [formerly ADC(X)]. The FY2000 budget included \$437.6 million for the lead vessel; FY 01 included one ship (\$335.8 m.) and FY 02 includes \$370.8 million towards the third ship.

## CVX-1 for FY05?

Early in 1998, a Navy commission recommended a new carrier (CVN-X) of "about 100,000-tons displacement with a large-flight deck design capable of embarking a large air wing and future manned and unmanned aircraft designs". The study basically validates the improved Nimitz class CVN-77 design.

USS RONALD REAGAN (CVN-76) was 73% completed and launched in March this year; estimated delivery date is late-February 2003. In order to sustain the current 12-carrier force, CVN-77 is to be laid down in 2002, launched in 2006, and commissioned in 2008. CVNX-78 is to be laid down on launching CVN-77, and commission in 2013. CVNX-79 would laid down in 2011 and commission in 2018. However, keeping USS JOHN F. KENNEDY (CV-67) in service until 2018 seems optimistic to maintain the 12-carrier force. Building CVN-77 and CVNX-78 consecutively would have obvious cost saving and operational advantages.

Some critics maintain that the CVN-X concept is too conservative and should be cancelled in favour of more advanced technology. Other critics argue that a force of nine carriers would be adequate with a more realistic strategy. Still, many would concur with the Lexington Institute's judgment that "Nobody seriously expects the Navy to operate fewer than 12 aircraft carriers, or build less than one new carrier every five years."

There is considerable uncertainty, however, about the size and makeup of the Navy's combat carrier aircraft wings. The Naval Postgraduate School and Naval War College are working on advanced ship concepts, such as "Corsair" – a small, advanced hull platform for carrying as

few as a dozen VTOL aircraft. There are no immediate answers or solutions.

## Tactical naval aircraft programmes

Naval aircraft procurement remained steady in FY 02, at \$8.25 billion.

The F/A-18E/F Super Hornet program, after some predictable teething troubles, is now in full rate production (FRP) and is on schedule to produce 548 aircraft. Fiscal 2000 funded 36 aircraft, increasing in FY 02 to 45 aircraft; thereafter, production will remain at 48 the remainder of the production cycle. Despite its many improvements, this new version is not truly stealthy.

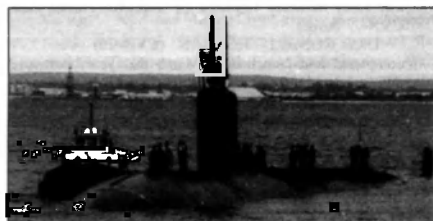
## Joint Strike Fighter: caution warranted

If the program goes forward, the JSF (Joint Strike Fighter) is not likely to enter service until 2010, two years behind the initial schedule. The Navy is due to get 408, USMC 609, 1,763 for the USAF and 60 for the Royal Navy. The target price remains US\$28 million per aircraft at FY 99 prices. The total price tag for a planned 3,000 planes would be US\$200 billion.

Both the Navy and the Air Force have expressed strong reservations about the cost of the program in light of other existing commitments. The Air Force does not want to give up or reduce the F-22 Raptor air-superiority fighters, going even to the point of proposing an attack version of Raptor to replace JSF.

The Marine Corps, on the other hand, is adamant in its support for the JSF as a replacement for the aging Harrier. Some critics have urged the Bush administration to cancel the JSF in favour of developing "unmanned combat air vehicles", in accord with his stated preference for "leaping over" a generation of weaponry in favour of even more high-tech options.

## Attack submarine force questions



The current USN SSN fleet numbers approximately 55 including 51 Los Angeles class submarines. Current funding cannot sustain this number let alone the desired 60 SSNs the USN says it needs to meet future missions. Here an improved Los Angeles class SSN is about to dock at HMSA STIRLING (RAN).

The Navy nuclear attack submarine (SSN) force is well planned for more than the next two decades. The current SSN fleet numbers 55 – including 51 Los Angeles SSN-688(I) boats – but delaying the planned decommissioning of some SSN-688 class subs would allow for over 60 to be retained well into the coming decade—as now recommended by Navy officials. Two of the three Seawolf (SSN-21) class are commissioned with the last, USS JIMMY CARTER (SSN-23), to be delivered in June 2004 (as should the new class of SSN USS VIRGINIA).

A widely popular option that must be undertaken prior to 2003 is to convert four Ohio class SSBs into a guided missile (SSGN) and Special Forces configuration, deploying as many as 154 BGM-109 cruise missiles and housing a 100-man Special Forces team (see *Flash Traffic* section SSBs Michigan and Georgia to SSGNs).

At current funding levels, the Navy cannot even sustain the current 55-boat fleet, much less the desired 68.

## Surface Forces

The only surface combat ship in production at this time is the Arleigh Burke Flight IIA guided missile destroyer. Twelve ships are under construction and 17 more are planned, at a rate of three per year. 28 DDG-51 Block I and II ships are currently in service. Some critics argue that the "Burke" class is an expensive Cold War design not suited for littoral war, and cite the attack on the USS COLE as evidence. Reducing numbers may be necessary.

## DD-21 Zumwalt class

Last year the Navy announced the future 'Land Attack' DD-21 Zumwalt class would be the first class of ships designed and built during this century to be powered by electric drive featuring an integrated power architecture. Current plans call for a total of 32 ships.

Released design features estimate a stealthy 10-12,000-ton destroyer fitted with 128 vertical launch cells for a mix of land-attack, anti-ship and anti-air missiles. The ship's highly automated systems would reduce the crew to 95, far below the complement of current surface warships.

The current acquisition schedule calls for laying down the first ship in 2004, with three DD-21s to be laid down in FY2005 through 2009. First ship delivery in 2008, with Initial Operational Capability the following year.

There is strong support in the Navy and Marine Corps for this new concept missile destroyer. The \$25 billion DD-21 program is still on the drawing boards – vulnerable under QDR II. The danger inherent in such a move is to the survival of naval shipyards, a key and irreplaceable component of the nation's defence industrial base.

## Marine Corps programmes

The US Marine Corps' new concept entitled 'Ship to Objective Maneuver' (STOM) dispenses in most cases with the traditional landing and 'beachhead' assault. Instead, sea-based Marine forces would avoid heavily defended beaches, and directly attack key inland objectives.

The heart of the Amphibious Ready Group (ARG) is the Amphibious Assault Ship (LHA/D), routinely deployed as one of the three ships of an ARG. The commissioning of LHD-7 this year will bring total 'big decks' to 12, meeting the ARG requirement.

LHD-8 is envisioned as a transition ship to the class that will replace the LHA built on an LHD hull, the ship would incorporate numerous design improvements, including gas turbine propulsion and new electrical system.

LHD-8 will be laid down in FY05 and follow-on ships (LHD Mod/LHX) will follow every third or fourth year. The Mod LHD design will have a flight deck capable of deploying 18-20 AV-8B Harriers or JSF, or 30-32 MV-22 Osprey.

The planned 12-ship San Antonio LPD-17 class is the next generation LPD and will replace four classes of amphibious ships. LPD-17 (SAN ANTONIO) and LPD-18 (NEW



The Wasp-class LHD USS BONHOMME RICHARD seen here leaving port. The USN has just commissioned its 7th Wasp-class LHD giving it 12 USMC carrying 'big decks'. Cost overruns and delays in other amphibious ship programmes could place in jeopardy further LHD construction (USN).

ORLEANS) were due to commissioning in September 2003 and August 2004, but the program is 24-months behind schedule due to design problems. Congress also slashed funding to \$421.3 million for FY02. Cost overruns have also driven LPD-17 ship costs up from \$974 million to \$1.168 billion for LPD-17 and LPD-19 from \$806 million to \$856 million. Future ship estimates are nearer \$700 million.

There remain serious issues of whether QDR II will continue to support the ARG force level. Reduction will mean reduction in LPD-17s. The Navy also has seven Vehicle Cargo Ship (T-AKR) ships under construction, with T-AKR-303 MENDONCA due to commission shortly and T-AKR-317 delivery due in September 2002.

Beyond the basic ship platforms, the Marine Corps insists it must replace all three elements of its assault transport vehicles to implement its 'ship to objective maneuver' strategy: aircraft, amphibious assault landing craft, and air-cushioned landing craft.

## Troubled bird: Osprey

The operational linchpin of the Marine Corps 'STOM' concept is the revolutionary MV-22 Osprey. The MV-22 has the lowest IR signature of any Navy/Marine aircraft and is valued for its ability to lift 24 fully equipped troops or 9,000-kg of cargo up to 200-nm. The Marines currently plan to acquire 360 Ospreys under the 1997 QDR. Full rate production was scheduled to begin in FY 2004, with a 30% rise in annual production. First production aircraft were handed over in May 1999.



The USMC is adamant that the MV-22 Osprey is vital to its concept of STOM (Ship To Objective Maneuver). Its speed and load carrying capability is unsurpassed by any 'helicopter', including its price.

The Osprey program is in serious trouble. Four of the first 12 aircraft have crashed, and the rest are grounded pending the outcome of an ongoing full program review. A hydraulic system redesign has been ordered. The program

cost for full rate production of 458 V-22s is about US\$41 billion – or US\$83 million each (inflation adjusted) – with production terminating in 2013. US\$12 billion has already been spent. The Marine Corps remains adamant in its defence of the Osprey as the heart of the Navy-Marine team's ability to insert forces ashore, and without the MV-22, helicopter options pale in comparison and doctrines must be completely revised.

## What kind of Navy does the US want?

If one assumes that retaining the current strategy and affording the force structure to carry it out will not happen due to fiscal and political realities, what are some proposed solutions to the Navy's dilemma?

At the level of national military strategy, the 'win two major near-simultaneous theatre wars' requirement is already dead as the main force sizing criteria. Even a 250 ship, 10-carrier Navy will force adjustments in the "forward presence" mission in the Asia-Pacific Rim.

At the level of the US Navy's doctrine, Naval Postgraduate School Professor James Wirtz, recommends that a choice be made. Does the US need a 'Golden Age' Navy that estimates no serious blue-water naval threat and only minimal land-based threats, and concentrates on forward presence and expeditionary missions? Such a Navy might drop the JSF, concentrate on lighter but more lethal forces—and keep the Osprey program alive.

Or does the US need a 'traditional' Navy that will face the much higher threat environment posed by an emerging 'peer competitor' (the PRC being mentioned most frequently)? Such a Navy might build more carriers and SSNs—but cancel Osprey and DD-21.

These will not be easy choices. The US Navy has the opportunity between now and 2020 to radically change its policies, including organisation, procurement, deployment, and employment. New technologies may well allow for discarding of post-World War II deployment patterns, while joint operations with other services may offer major changes in the way the Navy deploys and employs its Navy-Marine forces.

It should also be noted the future at 2010 or 2020 is not just about the US Navy, but 'joint operations', in which the US Navy is expected to operate alongside the other US services and allies. Based on current trends, inter-allied operations within NATO and other organisations are going to be more difficult, largely because of the growing technological gap between US and allied naval and air forces.

Doctrinal rejection of either the Navy or Marine Corps doctrinal tenants would also open the budgetary door to challenges by the US Air Force and its Global Strike Task Force concept, combining continental-based bomber forces and Air Expeditionary Force (AEF) doctrines. The Corps faces the same challenges from the US Army's "Army After Next" strategy and General E. Shinseki's light forces for rapid reaction and early conflict insertion concepts.

The changed strategic and fiscal realities of the new Millennium will indeed require a changed Navy.

# Hatch, Match & Dispatch

## DISPATCH

### HMAS RUSHCUTTER and SHOALWATER

In a low-key ceremony attended by few the Navy's two MHIs (Mine Hunter Inshore) HMAS RUSHCUTTER and SHOALWATER have been decommissioned. Both ships had been laid up in reserve for sometime before their decommissioning.

HMAS RUSHCUTTER was commissioned in November 1986 as an experimental/innovative way of combating mines. Her catamaran hull meant that she would have a much larger deck area, greater manoeuvrability, vital inside a minefield, and a reduction in signatures by placing heavy machinery high in the ship to provide some measure against triggering magnetic and acoustic mines. Their mine warfare control centres were contained inside a removable container which sat behind the bridge. A GRP (Glass Reinforced Plastic) hull was also used to lessen its magnetic influence and provide some flexibility in case of a near mine detonation. HMAS SHOALWATER was commissioned in October 1987. Both ships were not accepted into RAN full service until June 1994 due to problems with their hull mounted high frequency sonar.

The ships had a crew of 13, where 178 tons full load and had a top speed of 10kts.

While the ships did not perform to expectation, it was hoped that the ships would be the first two of many, they did fill a gap in the RAN's mine countermeasures proficiency and training when the six Ton class minesweepers were decommissioned without replacement and until the arrival of the Huon class.

The future of the two Newcastle built ships is still unclear.



(Left to right) HMAS SHOALWATER and RUSHCUTTER laid up in reserve prior to their decommissioning at HMAS WATERHEN. (Brian Morrison, Warship & Marine Corps Museum Int)

## Notice is hereby given that the ANNUAL GENERAL MEETING

of  
THE NAVY LEAGUE OF AUSTRALIA  
will be held at the **Brassey Hotel, Belmore Gardens, Barton, ACT**  
On Friday, **16 November 2001** at 8.00 pm

### BUSINESS

- To confirm the Minutes of the Annual General Meeting held in Launceston, Tasmania on Friday, 24 November, 2000
- To receive the report of the Federal Council and to consider matters raised therefrom
- To receive the financial statements for the year ended 30 June 2000
- To elect Office Bearers for the 2001-2002 year as follows:
  - Federal President
  - Federal Vice-President
  - Additional Vice-Presidents (4)

Nominations for these positions are to be lodged with the Honorary Secretary prior to the commencement of the meeting.
- General Business:
  - To deal with any matter notified in writing to the Honorary Secretary by 1 November, 2001
  - To approve the continuation in office of those members of the Federal Council who have attained 72 years of age, namely John Bird (Vic), Joan Cooper (Que), Arthur Hayes (WA), Gwen Hewitt (WA), John Jeppesen (NSW), Tom Kilburn (Vic) and Andrew Roberts (NSW).

### ALL MEMBERS ARE WELCOME TO ATTEND

By order of the Federal Council

Ray Corboy, Honorary Federal Secretary, PO Box 309, Mt Waverley VIC 3149  
Telephone (03) 9888 1977 Fax (03) 9888 1083

# PRODUCT REVIEW

## The Australian Centenary History of Defence, Volume III The Royal Australian Navy

Edited by Dr David Stevens

Oxford University Press.

253 Normanby Road, South Melbourne, Australia

Reviewed by Captain Peter Leschen, RAN.



The Australian Centenary History of Defence, Volume III, The Royal Australian Navy Edited by Dr David Stevens is currently on the top 10 selling list for Oxford University Press.

The Royal Australian Navy is the third volume in the Australian Centenary History of Defence series. It has been edited by Dr David Stevens, the Director of Naval Historical Studies, and authored by him and five other noted naval historians. All have had a long association with the Navy as historians and academics and all have served in the Navy, most with long experience as serving officers. Between them, the authors are widely published on a range of Navy and maritime related subjects.

The book chronicles the development of the RAN from its genesis in the colonial naval forces at the end of the 19th century, through the creation of the Commonwealth Naval Forces at Federation, the grant of the title Royal Australian Navy by King George V on 10 July 1911, and the arrival of the Australian Fleet in Sydney in 1913. Subsequent sections of the book cover World War I, the interwar years, World War II, Korea, the move from Forward Defence to Self-Reliance, and the change, uncertainty and reforms that have taken place in the RAN in the last twenty years.

The description of historical events is quite detailed but very readable. While the famous events of RAN history, such as the SYDNEY-EMDEN battle, are all well covered, it is perhaps more interesting to learn just how many other, sometimes obscure, operations the RAN has been involved in, in both peace and war. It is striking that there is no

period in the last 100 years when the RAN has not been almost continuously engaged in operations, independently, jointly, or in concert with allies and coalition partners.

But if the chronicle of events is both interesting and useful, perhaps the greater strength of this book is the way it puts these events into their political, strategic and technological context. The book clearly shows how government and the RAN assessed and responded to the events of the day, and how the force structure and personnel base waxed and waned over time. Herein lies one of the most valuable lessons of the book, if we did not already know it: the current period of major change, budgetary constraints and Defence reform is, in many respects, not new. Nor are current difficulties with recruiting and retention of people; this book clearly reveals that this has been a recurring problem throughout the RAN's history.

Another theme of the book is the quest for a balanced fleet. This has always been a goal for the RAN, and one that has been achieved to a credible level by the standards of the day on a number of occasions. Nevertheless, the book makes it clear that it has been a constant struggle to achieve and maintain such a force structure. Two of many possible examples make the point. The RAN has fielded a submarine force early in World War I, with the 'J' Class from 1919-22, the 'O' Class from 1927-30, and then the Oberon and subsequent Collins Classes from the mid-1960s. Similarly, Fleet Air Arm fixed wing and helicopter forces have undergone major changes. In recent times the RAN has had to work very hard to restructure the aviation force around Seahawk (and soon Super Seasprite) helicopters operating from frigates. It is interesting to learn, however, that in the late 1950s the future of the Fleet Air Arm was under real threat. It was a hard fought battle, under then Minister for the Navy, John Gorton, which eventually led to decisions to acquire Wessex, Tracker and Skyhawk aircraft between 1961 and 1965. One lesson of these and other examples is that the loss and subsequent reintroduction of major naval capabilities has occurred quite regularly, and has always been a traumatic experience. Navy can, therefore, be well pleased with the direction set in Defence 2000: Our Future Defence Force, but history suggests that full implementation of the program will require a long and hard fought struggle.

Oxford University Press has very attractively produced the book. The format includes foldouts showing interesting cut away drawings of some of the more important classes of RAN ships. The appendixes contain a wealth of information; the charts showing the development of the RAN force structure through the 20th century provide a particularly useful reference that supports the text very well.

Overall, The Royal Australian Navy is a most interesting and readable book. It should be a standard reference for all those with a professional or more general interest in the RAN and its vital importance to Australia's security. And here, perhaps, may lie its most important contribution to the defence debate in Australia. For a maritime nation, Australians in general are not well informed about the long term and continuing importance of maritime issues to Australia. This book goes a long way towards addressing this lack of understanding.

Review courtesy of the Australian Naval Institute





From left to right, Dr David Stevens (co-author) with The Chief of Navy Vice Admiral David Shackleton and fellow author Dr John Reeve examining the book *Southern Trident*

## Southern Trident Strategy, History and the Rise of Australian Naval Power

Edited by Dr David Stevens and Dr John Reeve

Allen and Unwin

Hard cover, 363pp., illustrated

Retail price: \$50.00

Reviewed by Captain Paddy Hodgman RANR

Within the specialised field of naval strategy and history, the term 'eclectic' does not spring readily to mind as the major quality of a collection of learned work. David Stevens and John Reeve have breathed new life into the strategic and historical aspects of the development of Australia's Navy.

Described by the Chief of Navy as 'a uniquely penetrating look at the early years of Australian sea power', which 'places the formation of an Australian Navy in its broader political, technological and strategic context'. *Southern Trident* provides insights and perspectives on the RAN which are infrequently encountered. It is the combination of these insights and perspectives with discussion of various prominent strategic thinkers which gives interest to this book.

*Southern Trident* has its origin in the inaugural King-Hall Naval History Conference of 1999, and is a combined initiative of the RAN and UNSW-ADFA. The book has two main sections. The first deals with concepts and approaches to naval strategy and the second traces issues related to the emergence of Australia's Navy. I found much interest in the wide-ranging discussion of strategy. The scene is well set by John Reeve's excellent historical overview of the development of naval strategy. Most interesting – and, perhaps at first, unexpected in naval discussion – is Jon Sumida's analysis of the work of Clausewitz. I found this chapter quite fascinating. Its theme is the dichotomy between detailed analytical and theoretical approaches to war on the one hand and a view framed more on the uncertain and interactive nature of war, and the extent to which it is influenced by the human and moral factors of will, judgement and decision. Such

thoughts are a timely reminder of the human factors involved in turning ships and systems into capabilities. Peter Hore discusses the relativities of Mahan's naval strategy of decisive fleet engagement and of Corbett's maritime strategy – inextricably linked with operations on land. In the Mahanian view it seems as if the means to strategic ends have become ends in themselves. Hence I find it easy to agree with Hore's preference for Corbett. A feature of this first section is the way it succeeds in bringing several great strategic thinkers within the reach of those of us for whom their work is not normal daily fair. This is achieved through effective linkages between concepts and more practical realities and reflects the intellectual quality of the book.

In discussing the emergence of Australia's Navy, it is easy to propagate the conventional wisdom that Britain was obstructionist and the visit of the Great White Fleet a corrective. Nicholas Lambert exposes an entirely different context for what was actually Admiralty support for an Australian Fleet Unit. James Reckner casts light on the American perspective on the US Fleet visit of 1908. Transition from a past involving conflict to a situation of friendship and alliance is an interesting process, and nowhere more so than in the case of the United States' relationships with current allies such as Australia and Britain. Nicholas Tracy's chapter on the union of imperial and Canadian interests provides interesting comparisons with issues underpinning development of Australia's Navy. David Stevens' account of the early recognition of what is now Australia's predominant strategic reality – the sea-air gap to the north – illuminates the national side of the same national-global dialogue. He gives fascinating insights into the extent to which flawed personal relations can diminish an organisation's potential. James Goldrick's contribution strikes the balance between national territorial defence and global interests. More important is the distinction he draws between acquiring a fleet and achieving a Navy. Many will recall Vice Admiral Ian MacDougall's comments as CNS on the subject of Australia's path to self-reliance. Goldrick highlights this issue and suggests what it means for Australia's relationship with its Navy. The business of getting a Navy is a fundamental assertion of national status and interest, bringing its own substance to our national independence. In Australia's case, as *Southern Trident* shows, the getting of a Navy has been more of a substantial assertion of emerging Australian interests than is often recognised.

Each of the chapters in *Southern Trident* attracts interest and provokes discussion. Some open new doors, others combine learning with an easy touch, and still others call for concentration but are very definitely worth the effort. I have referred briefly to a selection from very good company. Anyone with an interest in naval matters – Australian or international – will find *Southern Trident* an interesting, informative and rewarding read. I expect that many readers will find value, as I will, in returning to it out of professional purpose and personal interest.

Review courtesy of the Australian Naval Institute

## WARSPITE: Warships of the Royal Navy

By Ian Ballantyne

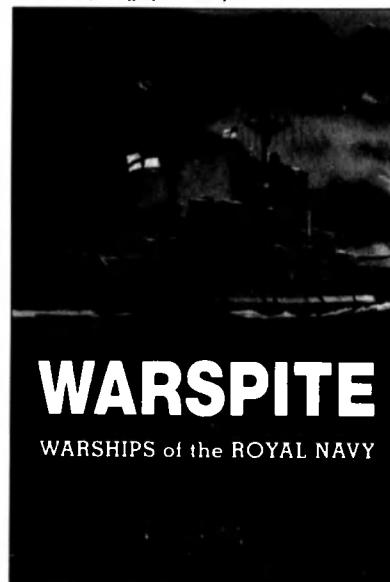
Pen & Sword Books 2001

ISBN 0-85052-779-1

e-mail: sales@pen-sword.demon.co.uk

224pp, maps, pictures, index

Reviewed by Geoffrey McGinley



HMS WARSPITE, laid down in October 1912 was the second in the class of five Queen Elizabeth battleships that were Winston Churchill's response to the seemingly endless Naval arms race between Germany and Britain. They were revolutionary, even when compared to the super dreadnoughts that immediately preceded them. They were to carry the still developmental and untested 15-inch naval gun and were to be protected by armour up to 13 inches thick, thus providing superiority in offence and defence. Most radical however, was Churchill's plan to abandon coal and to adopt oil as the sole fuel source in order to achieve the high design speed of 25 knots in such a large ship. The result was to become the most powerful and advanced battleship to serve with the RN during World War I. Moreover, they were sufficiently advanced that, with upgrades, they featured in RN history throughout the inter war period and onwards into the Second World War. Ian Ballantyne's WARSPITE is the story of one of these ships.

Written as a 'life and times' account of WARSPITE's career, Ballantyne has endeavoured to record both the experiences of the ship and the personnel that served within her. After opening with an explanation of the

heritage in the name WARSPITE, Ballantyne discusses Churchill's attempts to name the ship after the republican rebel Oliver Cromwell and the King's understandable reluctance to adorn the prefix 'His Majesty Ship' to the name of such a man.

The subsequent discussion of the rationale behind WARSPITE's revolutionary design features, while good in parts, leaves the historian searching for a broader context. In particular those insights, critical to the themes of this book, could have been provided by the recent works of Jon Sumida and Andrew Gordon on issues as broad and critical as battleship fire control, turret protection and RN command styles and deficiencies. Ballantyne's omission to both place the history of WARSPITE within the wider analytical context of RN seapower and to develop this context further leaves the reader wanting.

Where its true strength and value lies, is with the plethora of personal accounts used to present and enrich the history of the ship's 30 plus years of active naval service. For example, one is left marvelling at the variety of experiences that were the lot of the ship's Executive Officer, Commander Humphrey Walwyn, RN, during the battle of Jutland. From playing tourist in B turret; to runs along the exposed weather decks of the ship to investigate damage; to turning fire hoses onto sailors too foolish to take cover in their hunt for souvenirs; to placating an irate Warrant Officer after the destruction of his galley and in turn his dinner by a German 12-inch shell.

Similar personalised accounts are provided of the later stages of the war, the surrender of the German High Seas Fleet, and the life of the battleship in peace. Issues covered vary from the turmoil of the Invergordon mutiny to the details of the 1934-37 refit. Additionally the reader is treated to accounts of the day to day life in a battleship, on the one hand being introduced to the trepidation of a Midshipman conning the ship during fleet manoeuvres. On the other, the customs of the lower deck such as the hatred of a thief, rough scrubbings of messmates with poor hygiene to the strictly ritualised fleet wide menu of the RN.

The Second World War saw WARSPITE victorious over a variety of threats including German destroyers off Narvik and Italian Battleships and Cruisers in the Mediterranean, not least at the one sided battle of Matapan. Conversely, Ballantyne highlights the growing irrelevance of battleships with WARSPITE being badly mauled by the Luftwaffe during the evacuation of Crete, and after an extended refit in the USA, being outmanoeuvred by Japanese carriers in the Indian Ocean. Yet the biggest blow inflicted to the ship was that by the revolutionary German glider bomb, one of which blew a hole through the ship's hull during the invasion of Italy. Left permanently crippled the ship was decommissioned in February of 1945 after making a final contribution to the Normandy invasion.

Perhaps leaving the reader with a desire for more, Ian Ballantyne's WARSPITE undoubtedly provides a great insight into the life of a battleship and the crew that served within her. This book is recommended to those whose paths have crossed this mighty ship or who have an abiding interest in battleships and naval life at sea.



The strategic background to Australia's security has changed in recent decades and in some respects become more uncertain. The League believes it is essential that Australia develops capability to defend itself, paying particular attention to maritime defence. Australia is, of geographical necessity, a maritime nation whose prosperity strength and safety depend to a great extent on the security of the surrounding ocean and island areas, and on seaborne trade.

## The Navy League:

- Believes Australia can be defended against attack by other than a super or major maritime power and that the prime requirement of our defence is an evident ability to control the sea and air space around us and to contribute to defending essential lines of sea and air communication to our allies.
- Supports the ANZUS Treaty and the future reintegration of New Zealand as a full partner.
- Urges a close relationship with the nearer ASEAN countries, PNG and the Island States of the South Pacific.
- Advocates a defence capability which is knowledge-based with a prime consideration given to intelligence, surveillance and reconnaissance.
- Believes there must be a significant deterrent element in the Australian Defence Force (ADF) capable of powerful retaliation at considerable distances from Australia.
- Believes the ADF must have the capability to protect essential shipping at considerable distances from Australia, as well as in coastal waters.
- Supports the concept of a strong Air Force and highly mobile Army, capable of island and jungle warfare as well as the defence of Northern Australia.
- Supports the acquisition of AWACS aircraft and the update of RAAF aircraft.
- Advocates the development of amphibious forces to ensure the security of our offshore territories and to enable assistance to be provided by sea as well as by air to friendly island states in our area.
- Advocates the transfer of responsibility, and necessary resources, for Coastal Surveillance to the defence force and the development of the capability for patrol and surveillance of the ocean areas all around the Australian coast and island territories, including in the Southern Ocean.
- Advocates the acquisition of the most modern armaments and sensors to ensure that the ADF maintains some technological advantages over forces in our general area.
- Advocates measures to foster a build-up of Australian-owned shipping to ensure the carriage of essential cargoes in war.

- Advocates the development of a defence industry supported by strong research and design organisations capable of constructing all needed types of warships and support vessels and of providing systems and sensor integration with through-life support.

## As to the RAN, the League:

- Supports the concept of a Navy capable of effective action off both East and West coasts simultaneously and advocates a gradual build up of the Fleet to ensure that, in conjunction with the RAAF, this can be achieved against any force which could be deployed in our general area.
- Believes it is essential that the destroyer/frigate force should include ships with the capability to meet high level threats.
- Advocates the development of afloat support capability sufficient for two task forces, including supporting operations in sub-Antarctic waters.
- Advocates the acquisition at an early date of integrated air power in the fleet to ensure that ADF deployments can be fully defended and supported from the sea.
- Advocates that all Australian warships should be equipped with some form of defence against missiles.
- Advocates that in any future submarine construction program all forms of propulsion, including nuclear, be examined with a view to selecting the most advantageous operationally.
- Advocates the acquisition of an additional 2 or 3 Collins class submarines.
- Supports the development of the mine-countermeasures force and a modern hydrographic/oceanographic fleet.
- Advocates the retention in a Reserve Fleet of Naval vessels of potential value in defence emergency.
- Supports the maintenance of a strong Naval Reserve to help crew vessels and aircraft in reserve, or taken up for service, and for specialised tasks in time of defence emergency.
- Supports the maintenance of a strong Naval Reserve Cadet organisation.

## The League:

Calls for a bipartisan political approach to national defence with a commitment to a steady long-term build-up in our national defence capability including the required industrial infrastructure.

While recognising current economic problems and budgetary constraints, believes that, given leadership by successive governments, Australia can defend itself in the longer term within acceptable financial, economic and manpower parameters.



*HMAS CESSNOCK working with a RAAF P-3C Orion aircraft during a search exercise. The Australian government has rushed several P-3Cs and extra patrol boats and ships into the North West area of Australia around Christmas Island to halt an expected rush of illegal immigrants in the wake of the MV TAMPA settlement (RAN)*



*The SSN USS CHICAGO at periscope depth in the waters off Singapore. The image shows the susceptibility to visual detection a submarine is exposed to when near the surface. (USN)*



AS A REPRESENTATIVE OF A  
COMMERCIAL MARITIME OR  
DEFENCE-RELATED INDUSTRY  
OR A MEMBER OF THE  
DEFENCE FORCES

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